SHIRE OF GINGIN

HISTORY | BEAUTY | PROSPERITY

MINUTES

Special Council Meeting

6 December 2022

CONFIRMATION OF MINUTES

These Minutes have been CONFIRMED by Council as the official record for the Shire of Gingin's Special Council Meeting held on 6 December 2022.

_____
Councillor C W Fewster
SHIRE PRESIDENT

Date of Confirmation: _____

DISCLAIMER

Members of the public are advised that Council agendas, recommendations, minutes and resolutions are subject to confirmation by Council and therefore, prior to relying on them, one should refer to the subsequent meeting of Council with respect to their accuracy.

No responsibility whatsoever is implied or accepted by the Shire of Gingin for any act, omission or statement or intimation occurring during Council meetings or during formal/informal conversations with staff.

The Shire of Gingin disclaims any liability for any loss whatsoever and howsoever caused arising out of reliance by any person or legal entity on any such act, omission or statement or intimation occurring during Council meetings or discussions. Any person or legal entity who acts or fails to act in reliance upon any statement does so at that person's or legal entity's own risk.

Applicants and other interested parties should refrain from taking any action until such time as written advice is received confirming Council's decision with respect to any particular issue.

ACKNOWLEDGEMENT OF COUNTRY

The Shire of Gingin would like to acknowledge the Yued people who are the traditional custodians of this land. The Shire would like to pay respect to the Elders past, present and emerging of the Yued Nation and extend this respect to all Aboriginal people. The Shire also recognises the living culture of the Yued people and the unique contribution they have made to the Gingin region.

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ORDER OF BUSINESS

1 DECLARATION OF OPENING

The Shire President declared the meeting open at 3:11 pm and welcomed all in attendance.

2 RECORD OF ATTENDANCE, APOLOGIES AND LEAVE OF ABSENCE

2.1 ATTENDANCE

Councillors – C W Fewster (Shire President), A R Vis (Deputy Shire President), J K Rule, L Balcombe, F J Johnson, E Sorensen, R Kestel, F J Peczka, J K Rule, and E Sorensen.

Staff – A Cook (Chief Executive Officer), L Crichton (Executive Manager Corporate and Community Services), R Kelly (Executive Manager Regulatory and Development Services), V Crispe (Executive Manager Operations and Assets), J Bayliss (Coordinator Statutory Planning), and E Mackey (Governance Support Officer/Minute Officer).

Gallery – There were 3 members of the public present in the Gallery.

2.2 APOLOGIES

Nil

2.3 LEAVE OF ABSENCE

Nil

3 DISCLOSURES OF INTEREST

Nil

4 PUBLIC QUESTION TIME

4.1 RESPONSES TO PUBLIC QUESTIONS PREVIOUSLY TAKEN ON NOTICE

Nil

4.2 PUBLIC QUESTIONS

5.2.1 Martin Aldridge - Mortimer Street, Gingin (Questions submitted in writing prior to the meeting)

Q1. Is the Shire of Gingin aware of two single vehicle motor vehicle accidents which occurred separately, but within close vicinity on Gingin Brook Road, Neergabby on the night of 29 September 2022?

Response by Chief Executive Officer

A1. Yes, the Shire of Gingin is very aware of the two accidents that occurred.

Q2. Was the section of road in question subject to or recently subject to road works or maintenance?

Response by Chief Executive Officer

A2. Yes, the section of road received maintenance the day prior to the accidents this involved a Jet Patcher Truck/Contractor and separate Traffic Management undertaking road defect repair.

Q3. If yes to (2) was the road works or maintenance undertaken by the Shire of Gingin or a contractor and if the latter, please identify the contractor?

Response by Chief Executive Officer

A3. A contractor undertook the works on behalf of the Shire of Gingin, under Shire staff guidance and instruction.

Q4. Has the Shire of Gingin conducted any investigation or commenced any inquiries in relation to the accidents to determine if it was at fault?

Response by Chief Executive Officer

A4. The Shire of Gingin did investigate the matter and has resolved that the conditions of the road changed significantly after the maintenance works were concluded and have put into action to ensure that additional warning signs and slower speed signs are installed and remain in place.

Q5. Following these events, did the Shire of Gingin receive complaints or concerns expressed from emergency service organisations such as WA Police, St John Ambulance or the Department of Fire and Emergency Services and if yes what action was taken as a result?

Response by Chief Executive Officer

A5. The Shire of Gingin did not receive complaints as such but did receive several comments from St John's and DFES. Please refer to response to Question 4 for actions resulting.

5 PETITIONS

Nil

6 APPLICATIONS FOR LEAVE OF ABSENCE

An Application for Leave of Absence has been submitted by Councillor Rule for the period inclusive of 15 December 2022 and 25 January 2023.

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Johnson SECONDED: Councillor Vis

That Council grant Leave of Absence to Councillor Rule for the period inclusive of 15 December 2022 and 25 January 2023.

CARRIED UNANIMOUSLY
8 / 0

FOR: *Councillor Fewster, Councillor Rule, Councillor Balcombe, Councillor Johnson, Councillor Kestel, Councillor Peczka, Councillor Sorensen and Councillor Vis*
AGAINST: *Nil*

7 CONFIRMATION OF MINUTES

Nil

8 ANNOUNCEMENTS BY THE PRESIDING MEMBER

Deputations

One deputation was heard by Council prior to the meeting commencement, the details of which are as follows:

Item 13.1 Application for Subdivision Approval - Proposed Subdivision of Lot 601 Brockman Street, Gingin
Speaker/s: Nick Perrignon - Acumen

The Deputation was in support of the Officer's Recommendation.

Passing of Bruce Roe

The Service for the Late Bruce Roe is on Thursday 8 December at 2:30pm. Bruce was a highly respected member of the community. Bruce served as a Councillor for 26 years and during his term on Council, was Deputy President for 8 years and President for 7 years. Bruce was conferred the title of Honorary Freeman of the Shire in November 1994. He will be sadly missed.

9 UNRESOLVED BUSINESS FROM PREVIOUS MEETINGS

Nil

10 QUESTIONS BY MEMBERS OF WHICH DUE NOTICE HAS BEEN GIVEN

Nil

11 REPORTS - OFFICE OF THE CEO

Nil

12 REPORTS - CORPORATE AND COMMUNITY SERVICES

Nil

13 REPORTS - REGULATORY AND DEVELOPMENT SERVICES

13.1 APPLICATION FOR SUBDIVISION APPROVAL - PROPOSED SUBDIVISION OF LOT 601 BROCKMAN STREET, GINGIN

File	LND/195
Applicant	Acumen Development Solutions through Dynamic Planning and Development
Location	Lot 601 Brockman Street, Gingin
Owner	Acumen Development Solutions via contract of sale
Zoning	Parks and Recreation Residential 5, 10, 10/30 Town Centre
WAPC No	162831
Author	James Bayliss – Coordinator Statutory Planning
Reporting Officer	Bob Kelly – Executive Manager Regulatory and Development Services
Refer	3 May 2003 - Item 10.3.1 19 April 2005 – Item 10.3.4 3 May 2005 – Item 10.3.1 17 May 2005 – Item 10.3.2 20 September 2005 - Item 10.3.4 07 February 2006 - Item 11.3.2 16 May 2006 – Item 11.1.6 17 October 2006 - Item 14.1 21 November 2006 - Item 11.1.3 20 February 2007 - Item 11.1.1 04 December 2007 - Item 11.1.2 06 May 2008 - Item 11.3.1 18 March 2014 - Item 11.1.9 21 April 2015 – Item 15.1 20 September 2022 – Item 18.1
Appendices	1. Aerial Map - Lot 601 Brockman Street, Gingin [**13.1.1** - 1 page] 2. Location Map - Lot 601 Brockman Street, Gingin [**13.1.2** - 1 page] 3. Applicant's Proposal [**13.1.3** - 194 pages] 4. Revised Staging Plan [**13.1.4** - 1 page] 5. Revised Footpath Plan [**13.1.5** - 1 page]

DISCLOSURES OF INTEREST

Nil

PURPOSE

To consider a subdivision referral from the Western Australian Planning Commission (WAPC) to subdivide Lot 601 Brockman Street, Gingin into 103 lots.

BACKGROUND

The WAPC is the responsible authority for subdivision approvals in Western Australia. Subdivision applications are registered by the Department of Planning, Lands and Heritage (DPLH) and then referred to relevant State agencies and the local government for comment.

In January 1996, Lot 601 Brockman Street, Gingin was rezoned from "Rural" to "Urban Development". Since that time, various zoning amendments have occurred reflective of market trends at the time.

At its Confidential Meeting on 20 September 2022, Council provided in-principle support for consideration of concessions in relation to a 5% public open space (POS) allocation to be used mainly for drainage attenuation, and a per lot payment into a development reserve fund.

Aerial imagery and a location plan are provided as **Appendix 13.1.1** and **Appendix 13.1.2** respectively.

The land is currently zoned R5, R10, R10/30, Town Centre and Parks and Recreation. Prospective purchasers of the land, Acumen, seek to progress subdivision and development based on the current zoning.

The Applicant has provided a comprehensive subdivision report in support of the application that adequately outlines historical background information. The officer does not seek to duplicate the applicant's report, but to focus on key considerations that inform the suggested conditions.

A copy of the Applicant's proposal is provided as **Appendix 13.1.3** and includes the following components:

- Planning Report;
- Certificate of Title;
- Subdivision Plan;
- Staging Plan;
- Site and Soil Evaluation (SSE);

- Engineering Servicing Report;
- Geotechnical Investigation;
- Bushfire Planning advice; and
- Stormwater management technical note.

It should be noted that, post-lodgement, the applicant provided additional information that includes a revised Staging Plan and Footpath Plan which are provided as **Appendices 13.1.4** and **13.1.5** respectively.

COMMENT

Stakeholder Consultation

Community consultation is not applicable to subdivision considerations.

PLANNING FRAMEWORK

Local Planning Scheme No. 9 (LPS 9) Planning Assessment

The subject land is zoned 'Residential' (R5, R10, R10/30) and 'Town Centre' and 'Parks and Recreation'. The objectives of the respective zones are outlined below:

Residential

a) *Provide for a range of housing types and encourage a high standard of residential development.*

b) *Maintain and enhance the residential character and amenity of the zone.*

c) *Limit non-residential activities to those of which the predominant function is to service the local residential neighbourhood and for self-employment or creative activities, provide such activities have no detrimental effect on the residential amenity.*

d) *Ensure that the density of development takes cognisance of the availability of reticulated sewerage, the effluent disposal characteristics of the land and other environmental factors.*

Town Centre

a) *Promote, facilitate and strengthen the town centre zone as the principal focus of the district in terms of shopping, professional, administrative, cultural, entertainment and other business activities.*

b) *Accommodate a diversity of commercial, cultural and residential facilities.*

c) Encourage the integration of existing and proposed facilities within the zone so as to promote ease of pedestrian movement and the sharing of infrastructure, as well as to retain the opportunity for any future expansion of the area.

d) Provide for the efficient and safe movement and parking of vehicles; and

e) Ensure that buildings, ancillary structure sand advertising are of high quality and contribute to the uniqueness of the townscape.

Clause 4.3.2 of LPS 9 outlines that land is dual coded and that subdivision at the higher coding (i.e. R30) shall only be supported where reticulated sewer is available. This subdivision does not seek to install reticulated sewer and as such the subsequent design reflects the lower density coding.

The subdivision proposal has been assessed against the relevant requirements of the Local Planning Strategy (LPS 9), State Planning Policy 7.3 – Residential Design Codes (Volume 1), WAPC Development Control Policy 2.2 – Residential Subdivision, WAPC Liveable Neighbourhoods and the Government Sewage Policy. The following matters have been identified as key considerations for the determination of this application, which subsequently address the suite of applicable planning documents referenced above.

Staging

The overall development is proposed to be created in 6 stages, the first of which will be a larger landholding on the southern portion of the site, intended to accommodate a retail centre and relating to the existing 'Town Centre' zoning.

Subsequent stages relate to the creation of residential lots over the northern portion of the site.

Design

The table below provides an overview of the proposed residential lot sizes:

	Required	Proposed
R5 minimum lot size	 2000m^2	 2,025m^2 - compliant
R10 minimum lot size Average lot size	 875m^2 1,000m^2	 980m^2 - compliant 1,123m^2 - compliant

Public Open Space (POS)

The provision of POS has been discussed in-depth pre-lodgement, and the officer is of the view that a 5% provision, located on the existing 'Parks and Recreation' zoning, is suitable.

Gingin has ample areas available for passive and active recreational pursuits in close proximity to the subject land, having regard to the existing POS provided in the nearby Marchmont Estate and Granville Park area.

The POS that has been provided is set aside for drainage attenuation and will provide for nutrient stripping functions prior to stormwater being discharged via a piped system into the Gingin Brook. The specifics will be considered as part of an Urban Water Management Plan (UWMP) that will form a condition of subdivision approval.

The applicant intends to cede the POS reserve as part of 'Stage 3', given civil works will not be required to implement Stage 1 or Stage 2. It should be noted that the POS land will remain as part of the balance lot while the retail lots are created. This is important given that the retail land is intended to be sold to a separate party, and should the POS land be included as part of that transfer, the developer of the remaining stages will have no development rights over the land to subsequently install drainage/footpaths etc.

Road

The existing roads abutting the site are viewed as being in fair to good condition, and to date an upgrade of these roads at the developer's expense is not anticipated. Where the newly created roads intersect with an existing road, the expectation is that the intersection will be upgraded to an asphalt standard at the developer's cost. This will apply to three new intersections between Brockman Street and an internal access road, and one intersection between Weld Street and an internal access road.

All lots are designed so that their crossovers can be constructed off either Brockman Street or an internal subdivision road. It is proposed that the residential lots that have frontage to Weld Street will be prohibited from accessing Weld Street directly via a restrictive covenant.

Footpaths

The developer advises that a 2 metre wide dual use path will be installed across the POS reserve to provide linkage from the retail centre to Brockman Street and the existing retail strip. The perimeter road to the retail centre will have a 1.8 metre wide path on the southern side, with all other link roads being serviced by a 1.5 metre wide.

Costs associated with installation of footpaths will be met by the developer in their entirety.

Wastewater

The SSE has determined that each lot (based on a 5 bedroom, 6 person residence) will require a secondary level treatment system with nutrient removal capabilities as well as a Land Application Area (LAA) for disposal of treated effluent via a surface drip irrigation disposal system of 257 square metres on each lot.

The LAA can be be set at existing natural ground level and achieve a 1.5m separation from groundwater, with the exception of Lots 98 and 99 which will require importation of some fill to ensure the separation distance is adequate.

The Government Sewerage Policy states:

Land in a sewerage sensitive area that is already zoned for urban use with a residential density coding of R2 to R10 under a local planning scheme or structure plan endorsed by the Western Australian Planning Commission, may be subdivided in accordance with the existing density coding. Where R10 subdivision is proposed, it should be demonstrated that the density coding was assigned with the understanding that reticulated sewerage would not be provided.

The land has been earmarked for these purposes for some considerable time, prior to the Government Sewage Policy being introduced. Various investigations into the viability of deep sewer provision have proved it to be cost prohibitive. Given the circumstances, the officer is of the view that a secondary treatment unit servicing each lot is appropriate and the documentation provided in support of the subdivision adequately demonstrates the ability of the land to dispose of effluent.

The suggested conditions require a notification to be placed on the land titles to alert prospective purchasers that deep sewer is not available and that a secondary level treatment system is required.

The officer notes that the Department of Health with provide the WAPC with separate comments in this regard, as will the Department of Water and Environmental Regulation (DWER) in relation to water management.

Power

High voltage power is present in overhead power lines adjacent to the eastern boundary of the site, from Robinson Street to Cheriton Road. There appears to be adequate Network Capacity to provide power to the development, however this will be addressed by Western Power's response back to the WAPC.

All internal roads will have street lighting installed to the relevant specifications, with the landowner indicating that f 'dark sky principles' will be adopted to protect astro tourism enterprises (such as the Gravity Discovery Centre).

Water

The subject land is located within the townsite, with the water supply licence being held by the Water Corporation. Adjacent to the northern boundary is a 150mm diameter water reticulation main, with one also being present in the western verge of Brockman Street. The Water Corporation has indicated that an extension can be constructed off these mains to service the proposed development, however this will also be subject to separate comments to the WAPC.

Telecommunications

Through their arrangement with Telstra, Opticomm (a telecommunications company) can access existing conduits in the eastern verge of Weld Street to service the subdivision from their nearest connection point, approximately 800m to the north of the site. The connection of all lots can be facilitated through a developer-installed network of pipes and pits within the proposed subdivision roads.

Summary

The officer notes that it would be preferable to have a detailed Urban Water Management Plan (UWMP) and a further detailed SSE to inform the assessment to establish nutrient loading and modelling in relation to drainage management. Notwithstanding the above, on balance of the information provided, the officer is comfortable that the details are sufficient at this point in time to impose relevant subdivision conditions. The officer is mindful that State agencies may take a more conservative approach, however that is their prerogative.

On that basis, it is reasonable and common for a condition of subdivision approval to require lodgement of further detailed studies, particularly for a staged subdivision of this nature.

In view of the above assessment, the officer supports the subdivision subject to conditions.

STATUTORY/LOCAL LAW IMPLICATIONS

Local Planning Scheme No. 9

POLICY IMPLICATIONS

Liveable Neighbourhoods (WAPC)

Government Sewerage Policy (2019)

State Planning Policy 7.3 – Residential Design Codes (Volume 1)

Development Control Policy 1.1 — Subdivision of Land - General Principles (WAPC)

Development Control Policy 1.7 — General Road Planning (WAPC)

Development Control Policy 2.2 — Residential Subdivision (WAPC)

BUDGET IMPLICATIONS

Refer to confidential Item 18.1 of 6 December 2022 meeting.

STRATEGIC IMPLICATIONS

Shire of Gingin Strategic Community Plan 2022-2032

Aspiration	3. Planning & Sustainability - Plan for Future Generations
Strategic Objective	3.3 Planning & Land Use - Plan the use of the land to meet future requirements incorporating economic development objectives and community amenity

VOTING REQUIREMENTS - SIMPLE MAJORITY

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Johnson SECONDED: Councillor Kestel

That Council advise the Western Australian Planning Commission that the proposed 103 lot subdivision of Lot 601 Brockman Street, Gingin is supported subject to the following conditions:

Drainage and Siteworks

1. Engineering drawings and specifications are to be submitted and approved, and works undertaken, in accordance with the approved engineering drawings, specifications, and approved plan of subdivision for grading and/or stabilisation of the site to ensure that:

    a. lot(s) can accommodate their intended use; and

    b. finished ground levels at the boundaries of the lot(s) the subject of this approval match or otherwise coordinate with the existing and/or proposed finished ground levels of the land abutting.

2. Engineering drawings and specifications are to be submitted and approved, and works undertaken in accordance with the approved engineering drawings and specifications and approved plan of subdivision for the filling and/or draining of the land, including ensuring that stormwater is contained on-site, or appropriately treated and connected to the local drainage system. Engineering drawings and specifications are to be in accordance with an approved Urban Water Management Plan (UWMP) for the site, or where no UWMP exists, to the satisfaction of the Western Australian Planning Commission/Local Government.

3. Drainage easements and reserves as may be required by the local government for drainage infrastructure are to be shown on the diagram or plan of survey (deposited plan) as such, granted free of cost and vested in the local government under Sections 152 and 167 of the *Planning and Development Act 2005.*

Transport / Movement

4. Engineering drawings and specifications are to be submitted and approved, and subdivisional works undertaken in accordance with the approved plan of subdivision, engineering drawings and specifications, to ensure that those lot(s) not fronting an existing road are provided with frontage to a constructed road(s) connected by a constructed road(s) to the local road system. Such road(s) are to be constructed and drained at the landowner's/applicant's cost.

5. Engineering drawings and specifications are to be submitted and approved, and subdivisional works undertaken in accordance with the approved plan of subdivision, engineering drawings and specifications to ensure that:

   a. Street lighting is installed on all new subdivisional roads to the standards of the relevant licensed service provider and consistent with dark sky principles and Australian Standard 4282:2019 - Control of the Obtrusive Effects of Lighting;

   b. Roads that have been designed to connect with existing or proposed roads abutting the subject land are coordinated so the road reserve location and width connect seamlessly; and/or

   c. Temporary turning areas are provided to those subdivisional roads that are subject to future extension and/or to the satisfaction of the Western Australian Planning Commission.

6. Suitable arrangements are to be made with the local government for the cost of upgrading and/or construction of the intersections where the internal subdivision roads connect with the existing road network (i.e. Brockman Street x3 and Weld Street).

7. Engineering drawings and specifications are to be submitted and approved, and satisfactory arrangements made, for subdivisional works to be undertaken in accordance with the approved plan of subdivision and engineering drawings and specifications for the construction of footpaths generally in the locations as shown on the plan prepared by Dynamic Planning and Development dated 15 September 2022 (Appendix 13.1.5).

8. Suitable arrangements must be made with the local government for the provision of vehicular crossover(s) to serve the lots fronting Brockman Street as shown on the approved plan of subdivision.

9. Pursuant to Section 150 of the *Planning and Development Act 2005* and Division 3 of the *Planning and Development Regulations 2009*, a covenant preventing vehicular access onto Weld Street is to be placed on the certificate(s) of title of the proposed residential lots at the expense of the landowner/applicant. Notice of this covenant is to be included on the diagram or plan of survey (deposited plan). The covenant is to prevent access, to the benefit of the Shire of Gingin, and specify:

   No vehicular access is permitted from the subject land to Weld Street.

Environment

10. Prior to the commencement of subdivision works an Urban Water Management Plan (UWMP) for the site is to be prepared and approved to ensure the protection and management of the site's environmental assets within the proposed POS, with satisfactory arrangements being made for the implementation of the approved plan.

11. Prior to the commencement of subdivision works, a Landscape Management Plan for the Public Open Space reserve is to be prepared and approved with satisfactory arrangements being made for the implementation of the approved plan.

Reserves

12. The proposed Public Open Space reserve shown on the approved plan of subdivision is to be vested in the Crown under Section 152 of the *Planning and Development Act 2005*, such land to be ceded free of cost and without any payment of compensation by the Crown.

Servicing

13. Arrangements are to be made with a licensed service provider so that provision of a suitable water supply service will be available to the lots shown on the approved plan of subdivision.

14. Drainage easements and reserves as may be required by the local government for drainage infrastructure being shown on the diagram or plan of survey (deposited plan) as such, granted free of cost, and vested in that local government under Sections 152 and 167 of the *Planning and Development Act 2005*. (Local Government)

15. A notification, pursuant to Section 70A of the *Transfer of Land Act 1893* is to be placed on the certificates of title of the proposed lots. Notice of this notification is to be included on the diagram or plan of survey (deposited plan). The notification is to state as follows:

    A reticulated sewerage service is not available to the lot. A suitable on-site effluent disposal system to the specification of the Department of Health and Local Government is required. Additional building requirements may apply to development on the land.

16. A restrictive covenant, to the benefit of the local government and pursuant to section 129BA of the *Transfer of Land Act 1893* is to be placed on the certificates of title of the proposed lots fronting Weld Street advising of the existence of a restriction on the use of the land. Notice of this restriction to be included on the diagram or plan of survey (deposited plan). The restrictive covenant is to state as follows:

No effluent disposal is to take place outside of the defined Effluent Irrigation Area, unless otherwise approved by the local government.

17. Arrangements are to be made to the satisfaction of the Western Australian Planning Commission and to the specification of Western Power for the provision of an underground electricity supply to the lot(s) shown on the approved plan of subdivision.

18. The transfer of land as a Crown reserve free of cost to Western Power for the provision of electricity supply infrastructure is to be completed.

Miscellaneous

19. Suitable arrangements are to be made with the local government for the installation of uniform fencing adjacent to Weld Street to the satisfaction of the Shire of Gingin.

20. The landowner/applicant is to prepare a Local Development Plan (LDP) to be submitted to the Shire of Gingin for approval, prior to commencement of the subdivision. The LDP shall at a minimum, include the following items:

- Building setbacks/Building envelopes;
- Designated LAA areas;
- Fencing details;
- Stocking rates;
- Drainage swale details;
- Footpath locations; and
- Crossover locations.

21. A notification, pursuant to section 70A of the *Transfer of Land Act 1893*, is to be placed on the certificate(s) of title of the proposed lot(s). Notice of this notification is to be included on the diagram(s) or plan(s) of survey (deposited plan(s). The notification is to state as follows:

The lots are subject to the provisions of a Local Development Plan.

22. Suitable arrangements are to be made with the local government for the payment of per lot fees into a reserve fund, from which funds will be drawn and applied for community purposes.

ADVICE NOTES:

1. In relation to the ceding of POS, it is anticipated that this process will occur as part of clearance for Stage 3. It is also acknowledged that the Landscape Management Plan for the POS will be required at the relevant stage of subdivision which shall create the POS reserve;

2. With regards to Condition 15, a secondary level treatment system with nutrient removal capabilities is to be provided for the proposed lots; and

3. A Deed of Agreement in respect to Condition 22 has been prepared and agreed to between the landowner/applicant and the Shire of Gingin.

CARRIED UNANIMOUSLY
8 / 0

FOR: *Councillor Fewster, Councillor Kestel, Councillor Sorensen, Councillor Rule, Councillor Balcombe, Councillor Johnson, Councillor Peczka and Councillor Vis*

AGAINST: *Nil*

SHIRE OF GINGIN	7 Brockman St Gingin WA 6503 P: 08 9575 5100 255 Vins Way Lancelin WA 6044 P: 08 9575 5155 E: mail@gingin.wa.gov.au	Shire of Gingin does not warrant the accuracy of information in this publication and any person using or relying upon such information does so on the basis that Gingin Shire Council shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in this information.	Aerial Map - Lot 601 Brockman Street, Gingin Scale: 1:5591 Date: 9/09/2022	N

7 Brockman St
Gingin WA 6503
P: 08 9575 5100
255 Vins Way
Lancelin WA 6044
P: 08 9575 5155
E: mail@gingin.wa.gov.au

Location Map - Lot 601 Brockman Street, Gingin

Scale: 1:10919

Date: 9/09/2022

DYNAMIC PLANNING AND DEVELOPMENTS

GINGIN TOWN CENTRE – PROPOSED SUBDIVISION

LOT 601 BROCKMAN STREET, GINGIN

Planning Report
Project Ref: 1508

Prepared for
Acumen Development Solutions
18 Lyall Street
South Perth WA 6151

History and Status of this Document

Revision	Date issued	Prepared by	Reviewed by	Revision type
Rev 1	14/9/22	RC	NT	For Lodgement

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DYNAMIC PLANNING AND DEVELOPMENTS

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1.0 Introduction

Dynamic Planning and Developments acts on behalf of the contracted purchaser of Lot 601 Brockman Street, Gingin (herein referred to as the 'subject site') in support of a proposed Freehold (Green Title) subdivision.

This planning report has been prepared to demonstrate the appropriateness of the proposed subdivision and address, in detail, the primary considerations the Western Australian Planning Commission (WAPC) will examine as part of the application assessment. Specifically, the report will address:

- Details of the proposed subdivision;
- Detailed assessment of the proposal against the relevant planning provisions applicable under the State and local planning frameworks.
- Other relevant planning considerations including, but not limited to, bushfire, traffic, wastewater treatment and disposal, and drainage and servicing.

In addition to this planning report, the following documentation has been provided in order to assist the WAPC in the assessment of the proposed application:

- Certificate of Title pertaining to the subject site (Appendix 1).
- Proposed Subdivision Plan (Appendix 2).
- Proposed Staging Plan (Appendix 3).
- Site and Soil Evaluation Assessment (Appendix 4).
- Engineering Servicing Report (Appendix 5).
- Traffic Impact Statement (Appendix 6).
- Bushfire Technical Note (Appendix 7).
- Stormwater Management Technical Note (Appendix 8).

It will be demonstrated in subsequent sections of this report that the proposed subdivision is entirely appropriate for approval and will be a significant contribution to the local community of Gingin.

2.0 Site Details

2.1 Legal Description

The subject site is legally described as:

Lot	Plan	Vol/Folio	Street Address
601	36879	2565/945	N/A

The area of the subject site is 17.68ha (176,801m²).

A copy of the Certificate of Title pertinent to the subject site is contained in Appendix 1.

2.2 Locational and Land Use Context

2.2.1 Regional and Local Context

The subject site is located within the Shire of Gingin municipal area, within the designated Town Centre area.

The subject site is bounded by Brockman Street and Weld Street with the Shire of Gingin's administration offices located on the southern boundary of the site. The site has a considerable amount of slope from north to south with an approximate change in topography of 30m. This change in topography will afford the proposed subdivision generous views back toward the townsite and Gingin Brook.

Figures 1 and 2 depict the subject site in its regional and local context, respectively.

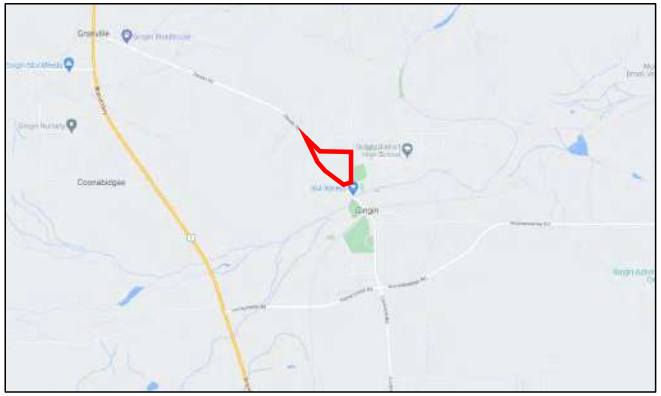

Figure 1 – Regional Context

Figure 2 – Local Context

3.0 Background

3.1 Shire of Gingin Scheme Amendment 17

Relevant to the existing planning framework at the subject site is historical Scheme Amendment No. 17. Details of this amendment are included below in Figure 3 with the provisions establishing the zoning and applicable R-Codes as they exists today under the Shire of Gingin Local Planning Scheme No. 9.

17	26/05/17	31/05/17	MLD	Rezone a portion of Lot 601 Brockman Street, Gingin from 'Residential R5', 'Residential R10', 'Future Development Zone', 'Town Centre' and 'Roads' to 'Residential R10', 'Residential R10/30', 'Town Centre' and 'Parks and Recreation' reserve. Amend the Scheme Map by rezoning a portion of Lot 601 Brockman Street, Gingin as 'Residential R10', 'Residential R10/30', 'Town Centre' and 'Parks and Recreation' reserve

Figure 3 – Scheme Amendment 17 details.

Scheme Amendment No. 17 was gazetted in 2017, with the framework prior to this amendment still contemplating 'Urban' development at a density of R5 and R10. In considering this amendment, the Shire reserved a portion of the site as 'Parks and Recreation' which was intended to be the extent of public open space (POS) that the Shire were willing to entertain at the subject site.

Scheme Amendment No. 17 and the applicable planning framework that existed prior to its gazettal has significant relevance when considering the proposed subdivision against the Government Sewerage Policy and the ability for a subdivision at a density of R10 in a sewerage sensitive area to be contemplated with on-site treatment and disposal of wastewater. Importantly, the Government Sewerage Policy states:

'Land in a sewerage sensitive area that is already zoned for urban use with a residential density coding of R2 to R10 under a local planning scheme or structure plan endorsed by the Western Australian Planning Commission, may be subdivided in accordance with the existing density coding. Where R10 subdivision is proposed, it should be demonstrated that the density coding was assigned with the understanding that reticulated sewerage would not be provided'

Scheme Amendment 17 and the framework that existed prior is evidence that the Shire contemplated residential development at a density of R10 without reticulated sewerage being provided.

3.2 Deed with the Shire of Gingin

The existing landowner of the subject site entered into a deed with the Shire of Gingin in 2008 which was ultimately amended in 2014. The intent of this deed was to establish a mechanism with which Council could collect a 'per lot' contribution when the subject site is subdivided. The existing deed also requires Council to match the per lot contribution with all funds allocated to a reserve fund that Council can decide on how funds are used.

As part of the subdivision process, the contracted purchaser of the subject site has been in discussions with the Shire to negotiate a new deed that will impact the subject site and will require the following:

- The developer to pay a $1,200 per lot contribution at:

  - The clearance of 40 lots.
  - The clearance of aggregate 80 lots.
  - The clearance of aggregate 100 lots.
- The proposed $1,200 per lot contribution will be indexed to match Council rate increases.
- Council will match the per lot contribution with the same payment timing.
- The development and Council will jointly decide on how funds should be allocated.

It is also proposed to have the new deed secured via a condition of subdivision approval as opposed to a caveat on the title which is the mechanism with which the existing deed is secured.

At the time of subdivision lodgement, discussions on the new deed have occurred with Council with a final agreement pending formal consideration by Council.

3.3 Pre-lodgement Liaison

As part of the acquisition of the subject site, the contracted purchaser has undertaken a thorough due diligence process to examine the various opportunities and constraints applicable at the subject site. Included as part of this due diligence process has been a significant amount of pre-lodgement liaison with various government authorities which has included:

- Numerous preliminary meetings with the Shire of Gingin.
- A presentation to Council, introducing the proposed subdivision design and intended plans for the proposed Town Centre.
- Two (2) meetings with the Department of Planning Lands and Heritage (DPLH).
- Discussion with the Department of Health on the treatment and disposal of wastewater.

These discussions have assisted in establishing the various matters to be addressed by the proposed subdivision whilst also providing the contracted purchaser a level of security in their intended subdivision and development outcome.

Discussions also included identifying the Town Centre precinct as Stage 1 in a subdivision plan, with the intent to separate this lot as early as possible; to facilitate separate ownership and security. Creating a separate title efficiently, and without extensive conditions, will allow a development application for the new retail facilities to proceed as soon as possible. This approach has been expressed as desirable by the Shire of Gingin Councillors.

4.0 Proposed Subdivision

The proposed application seeks WAPC approval for the Freehold (Green Title) subdivision of the subject site into 103 lots. Table 1 below provides a summary of the subdivision proposal with the subdivision plan included in Appendix 2.

Proposed Subdivision	
Total Land Area	176,801sqm
No. of Green Title Lots • R5 • R10 • Other – Commercial • Other – POS	 6 93 3 1
Minimum Lot Size • R5 • R10	 2,025sqm 980sqm
Average Lot Size • R5 • R10	 2,176.5sqm 1,123.6sqm
Public Open Space	7,108sqm

Table 1 – Subdivision Summary

Due to the size of the subdivision, it is proposed to complete the required works and creation of lots in a staged manner in accordance with the Staging Plan included in Appendix 3. Depending on market forces, it is anticipated the entire delivery of all stages would experience some 7-10 years.

4.1 Design Intent

Considerable effort and liaison with the appointed project team occurred to establish the desired subdivision layout for the site. The primary design intent was to create a subdivision that fits within the existing topography of the land in order to limit the extent of retaining and site works necessary to create developable lots. This was also done to limit the removal of existing vegetation on site with the extent of vegetation to be retained identified on the proposed subdivision plan in Appendix 2. The results of this thoughtful design process will be future dwellings that can be established within and amongst the existing landscape with vistas back towards the Town Centre and the Gingin Brook.

There was also a desire to establish clear separation between the residential development and the future Town Centre. This has been achieved through a slightly wider perimeter road that frames the Town Centre and proposed public open space (POS). Through the proposed subdivision, the Town Centre will be created as large Green Title lot that will be the subject of a separate development application process.

The provision of POS was discussed at length with the Shire and the DPLH prior to lodgement with the Shire having concerns around the requirement to maintain a large area of POS. Ultimately, it was decided that a 5% provision of POS would be suitable which has built on the existing 'Parks and Recreation' reserve and will also serve an important drainage function for the proposed subdivision.

5.0 Planning Assessment

5.1 Shire of Gingin Local Planning Scheme No. 9

In accordance with the Shire of Gingin Local Planning Scheme No. 9 (LPS9), the subject site is zoned 'Residential' and 'Town Centre' and is partially impacted by a 'Parks and Recreation' reserve. The objectives of the respective zones have been summarised below:

Residential

a) *Provide for a range of housing types and encourage a high standard of residential development.*
b) *Maintain and enhance the residential character and amenity of the zone.*
c) *Limit non-residential activities to those of which the predominant function is to service the local residential neighbourhood and for self-employment or creative activities, provide such activities have no detrimental effect on the residential amenity.*
d) *Ensure that the density of development takes cognisance of the availability of reticulated sewerage, the effluent disposal characteristics of the land and other environmental factors.*

Town Centre

a) *Promote, facilitate and strengthen the town centre zone as the principal focus of the district in terms of shopping, professional, administrative, cultural, entertainment and other business activities.*
b) *Accommodate a diversity of commercial, cultural and residential facilities.*
c) *Encourage the integration of existing and proposed facilities within the zone so as to promote ease of pedestrian movement and the sharing of infrastructure, as well as to retain the opportunity for any future expansion of the area.*
d) *Provide for the efficient and safe movement and parking of vehicles; and*
e) *Ensure that buildings, ancillary structure sand advertising are of high quality and contribute to the uniqueness of the townscape.*

An extract of the LPS9 zoning is provided below in Figure

Figure 4 – LPS 9 Zoning.

In addition to the applicable zoning, LPS9 also specifies an assigned density coding for residential development to comply with of R5, R10 and R10/30. In considering the R10/30 density coding, it is commented that Clause 4.3.2 of LPS9 specifies that the R30 density can only be contemplated where reticulated sewer is available.

The proposed subdivision is considered to be consistent with the provisions of LPS9 in that:

- The residential subdivision/development is contained within the 'Residential' zone and is consistent with the assigned density coding, as will be demonstrated below in Section 5.2.
- It will increase the diversity in lot and housing types within the Gingin townsite whilst maintaining the landscape values at the site.
- The proposed lot to accommodate the Town Centre development will be the subject of a separate development application that provides a high quality commercial development that will service the Gingin townsite and municipality.

It is acknowledged that the proposed perimeter road that frames the Town Centre does not align with the boundary of the Town Centre zone as depicted in LPS9, however, the proposed subdivision design and road layout will allow for a more functional subdivision and development layout and the design has ensured that there will be no commercial development on 'Residential' zoned land.

In accordance with the above, the proposed subdivision has been demonstrated to be consistent with the provisions of LPS9.

5.2 State Planning Policy 7.3 – Residential Design Codes (Volume 1)

As noted above, LPS9 specifies a density coding of R5, R10 and R10/30 at the subject site. As the subject site will not have access to reticulated sewer, the applicable residential densities for the proposed subdivision is R5 and R10. In accordance with State Planning Policy 7.3 (SPP7.3), the applicable minimum and minimum average lot sizes for the R5 and R10 density codes are:

- R5 – minimum 2,000sqm.
- R10 – minimum 875sqm and minimum average 1,000sqm.

Table 2 below provides an assessment of the proposed subdivision against the minimum and minimum average lot size requirements for the R5 and R10 density codes.

	Required	Proposed
R5 Minimum Lot Size	2,000sqm	2,025sqm
R10 Minimum Lot Size	875sqm	980sqm
R10 Average Lot Size	1,000sqm	1,123.6sqm

Table 2 – Density Code Compliance

Evidently the proposed subdivision is compliant with the applicable density coding assigned to the subject site by LPS9.

5.3 WAPC Development Control Policy 2.2 – Residential Subdivision

The WAPC Development Control Policy 2.2 (DC 2.2) is a State level policy document providing the planning framework for the subdivision of residential land.

The policy's general objectives are to:

- *Establish a consistent and coordinated approach to the creation of residential lots throughout the State;*
- *To adopt criteria for residential lots which will ensure that each lot is provided with a suitable level of amenity, services, and access; and,*
- *To facilitate the supply of residential lots of a wide range of sizes and shapes.*

Specifically, Clause 3.1.3 of DC 2.2 applies to subdivision proposals and provides a range of criteria that such proposals will be assessed against. The following section below summarises the proposal's compliance with the provisions of Clause 3.1.3 of DC2.2:

- *Capable of development in accordance with the Codes assigned to it by local town planning schemes, together with any local variations that apply.*

As detailed above, the proposed subdivision is consistent with the R-Code assigned to it under the provisions of the LPS9.

- *Located within an area which is suitable for subdivision in terms of its physical characteristics, such as topography, soils, drainage, vegetation, and natural features.*

The subject site has long been considered appropriate for residential development through the provisions of LPS9. Further, the various supporting reports provided as part of this application demonstrate the suitability of the subject site to accommodate residential development with reference to servicing, drainage, traffic, bushfire and disposal of wastewater.

- *Located within a system of vehicle and pedestrian movement consistent with the principles of the Commission's policy on Residential Road Design (DC 2.6) in terms of the hierarchy of roads, matters of road safety and lot access and the provision of cycleways and pedestrian walkways.*

The proposed Green Title lots will all have direct frontage to a proposed public road, either existing or established. Any proposed subdivisional road will have connections to the established road network in the area being Brockman Street and Weld Street.

- *Convenient to areas of passive and active open space.*

The proposed subdivision includes a portion of POS that will meet the passive and active recreation needs of any residents who occupy the proposed subdivision.

- *Serviced by a suitable level of community services, schools, retail facilities, etc.*

The subdivision's proximity to the Town Centre, in addition to a future development application for the Town Centre zoned land ensures that future residents will have sufficient access to community services, schools and retail facilities amongst others.

- *Screened or otherwise protected from the effects of any adjacent land use that may affect the amenity of the occupants of the lot.*

The proposed subdivisions proximity to the Town Centre suggests that surrounding land uses are of a scale and nature that is not going to affect the amenity of future occupants.

5.4 Liveable Neighbourhoods

Subdivision applications proposing to create 20 or more lots on greenfield and urban infill sites are to be assessed against the requirements of Liveable Neighbourhoods. Structure planning and subdivision for greenfield and large brownfield (urban infill) sites is currently guided by Liveable Neighbourhoods (January 2009 Update 2). However, the WAPC have issued Draft Liveable Neighbourhoods 2015 for public comment; the submission period concluding back in November 2015. It is noted the finalised review of Liveable Neighbourhoods will be included as part of the Design WA project.

Given the ageing nature of the 2009 document, assessment of the proposed subdivision has been undertaken within the context of the Draft 2015 guiding policy – refer Table 3 below. As outlined in Table 3, the proposed subdivision is considered to satisfy the high-level objectives, design principles and requirements contained within the Draft Liveable Neighbourhoods Policy.

Liveable Neighbourhoods Criteria	Proposed Freehold (Green Title) Subdivision
Element 1 – Community Design • *Objective 1 – to achieve a sustainable urban structure that balances the provision of urban development through site-responsive design.* • *Objective 2 – to develop a coherent urban structure of compact walkable neighbourhoods which cluster around activity centres capable of facilitating a broad range of land uses, employment, and social opportunities.* • *Objective 3 – Provide a network of interconnected streets based on function within attractive, safe, and pedestrian friendly streetscapes, which facilitates accessibility for all users to, within and between neighbourhoods and activity centres.* • *Objective 4 – Promote mixed-use development and activity centres that optimise commercial opportunities, access to public transport and efficient street network connections.* • *Objective 5 – Provide public open space that meets the recreational, social and health needs of existing and future communities.* • *Objective 6 – ensure that water is protected and managed to maximise efficiency by incorporation of urban water management techniques into the urban design* • *Objective 7 – facilitate housing diversity, responsive built form, local employment, and amenity within a legible and efficient urban structure of compact walkable neighbourhoods.* • *Objective 8 – Provide education sites and other community infrastructure to meet the needs of existing and future communities.* • *Objective 9 – provide utility services in a land efficient, environmentally responsible, and sustainable manner.*	1. Proposed subdivision is consistent with and builds upon an existing urban structure already endorsed as part of the LPS9 and Scheme Amendment No. 17. 2. The proposed subdivision has been designed within an existing road network with the proposed subdivision roads connecting to said road network and providing connections to the proposed Town Centre. 3. The proposed road network will be permeable and interconnected with existing roads. The road widths are consistent with the requirements of Liveable Neighbourhoods and as such this will result in attractive and pedestrian friendly streetscapes. 4. The proposed subdivision will create a large Town Centre zoned lot that will be the subject of a development application. This will enhance access to community services and amenities for the entire Gingin Townsite. 5. The proposed subdivision provides public open space at a rate of 5% of the total land area which is considered to be sufficient to meet the passive and active recreational needs of future occupants. 6. Drainage has been examined in detail as part of the servicing report submitted as part of the subdivision application with an Urban Water Management Plan intended to be submitted as part of the subdivision implementation. 7. The proposed subdivision will introduce lot and dwelling diversity into the Gingin townsite. 8. Education and community infrastructure sites already exist within the Gingin townsite. 9. Initial investigations indicate no limitations exist regarding the provision of available services necessary to support the proposal.
Element 2 – Movement Network • *Design Principle 1 – Create a permeable street network that prioritises pedestrians, cyclists and public transport and is integrated with surrounding land uses.*	The proposed movement network is permeable and interconnected with the established road network in the area. Road reserve widths are consistent with Liveable Neighbourhoods and as such should enable well designed streets that prioritise pedestrians.

Liveable Neighbourhoods Criteria	Proposed Freehold (Green Title) Subdivision
• *Design Principle 2 – Create a safe street environment for all users by applying appropriate street geometry design and traffic management.* • *Design Principle 3 – Ensure all streets provide space for utility services, stormwater drainage, street trees and lighting.*	The proposed subdivision has also been supported by a Traffic Impact Statement – see Appendix 6.
Element 3 – Activity Centres • *Design Principle 4 – Ensure urban form and lot design facilitate safe and convenient access to services, facilities and employment in mixed land use, main-street format activity centres.*	The proposed subdivision includes a road that will frame and provide important access to the proposed Town Centre. When ultimately developed the residential subdivision and other areas of the Gingin townsite will be able to be easily accessed, including the Town Centre development.
Element 4 – Lot Design • *Design Principle 5 – Create a site-responsive street and lot layout that provides local amenity, safe and efficient access and promotes sense of place.* • *Design Principle 6 – Provide housing density and diversity to meet the changing community needs.* • *Design Principle 7 – Provide sustainable utility services to each new lot in a timely, cost-effective, coordinated and visually acceptable manner.*	As previously articulated, the lot design and street network has been carefully thought out to create residential lots that are able to exist harmoniously within the existing landscape with limited site works and retaining. This will allow the retention of the local landscape value that is unique to Gingin. The number of proposed lots and applicable site areas are entirely consistent with the assigned density coding and as such will bring a level of diversity to the lot and dwelling product available within Gingin. Servicing will be provided to all new lots in a manner consistent with the Engineering Servicing Report in Appendix 5.
Element 5 – Public Open Space • *Design Principle 8 – Coordinate the design and delivery of an integrated network of public open space that provides communities with access to nature, sport, and recreation.* • *Design Principle 9 – Optimise the sitting and design of public open space to promote accessible and efficient use of land.*	The provision of public open space has been determined through pre-lodgement discussions with the DPLH and the Shire of Gingin and represents 5% of the overall subdivision area. This is considered sufficient to meet the passive and active recreational needs of residents. There are existing large POS areas immediately nearby the site. It is commented that Element 5, Clause 9.4 enables the WAPC, with the support of the local government, to support a 5% provision of POS where it relates to a smaller country town with limited growth prospects.

Liveable Neighbourhoods Criteria	Proposed Freehold (Green Title) Subdivision
Element 6 – Education • *Design Principle 10 – Ensure that education sites are developable, serviceable, and accessible, promoting safe, adaptable, and efficient use of land and other community infrastructure including public open space.* • *Design Principle 11 – Ensure a servicing movement network that facilitates safe and efficient access to education sites by all users.*	There are no education sites which form part of this subdivision proposal. However, these facilities already exist within the Gingin townsite.

6.0 Other Considerations

6.1 Government Sewerage Policy

The proposed subdivision includes the on-site treatment and disposal of wastewater, as the necessary infrastructure to service the site with a reticulated sewer connection is not available.

Clause 5.2 of the Government Sewerage Policy outlines situations when on-site sewage disposal can be considered. These situations include:

- Where each lot is capable of accommodating on-site sewerage disposal without endangering public health or the environment.
- Where the minimum site requirements for on-site sewage disposal in Clause 5.2.1 and Schedule 2 can be met.

In considering the appropriate minimum lot sizes for the subdivision to comply with, in accordance with the Government Sewerage Policy, the following is of relevance:

1. The subject site is located within a sewage sensitive area which ordinarily attracts a minimum lot size of 1 Ha. However, Clause 5.2.1 includes a provision that allows for land already zoned for urban use with a density of R2 to R10 to be subdivided in accordance with the assigned density coding if said density coding was contemplated with the knowledge that reticulated sewer would not be available at the site.

   In the context of the subject site, the assigned R5 and R10 density coding that is applicable were contemplated through Scheme Amendment 17 which was gazetted with the knowledge that reticulated sewer would not be provided to the site. Consequently, lot sizes that are consistent with the assigned R5 and R10 density coding can be considered for on-site disposal of wastewater.

2. Schedule 2 of the Government Sewerage Policy specifies minimum lot sizes for residential development based on applicable soil categories. Detailed geo-technical investigations for the site were included in the supporting Site and Soil Evaluation (Appendix 4) have confirmed that the applicable soil category is Category 4 which permits a minimum lot size of 1,000sqm with a secondary treatment system.

In accordance with the above, the proposed subdivision is entirely consistent with the assigned density coding and has provided a minimum lot size of 982sqm, which only represents a minor variation to the allowed 1,000sqm minimum lot size and still provides sufficient room to accommodate a residential dwelling and the associated land application area (LAA) of 257sqm as per Table 3, Schedule 2 of the Government Sewerage Policy.

Other considerations for the on-site treatment and disposal of wastewater include the separation from water resources and the separation from groundwater. This has been addressed below:

Separation from Water Resources

As illustrated in the accompanying Site and Soil Evaluation, we can confirm that any on-site sewage system will not be located within:

- A wellhead protection zone.
- 100m of the high-water mark of a reservoir or 100m of a bore used for public drinking water supply.

- 30m of a private bore used for household/drinking water purposes.
- 100m of a waterway or significant wetland (Gingin Brook is 150m+ away) and not within a foreshore area or wetland buffer.
- 100m of a drainage system that discharges into a waterway or significant wetland without treatment.
- Any area subject to inundation and/or flooring in a 10% AEP rainfall event.

Separation from Groundwater

The accompanying site and soil evaluation illustrated that perched groundwater was encountered at a depth of 0-0.3m at a number of different boreholes in the southwest corner of the site. However, this followed a four-week period where 231.8mm of rain was received (almost double the average rainfall for the same period). With this in mind, the measured groundwater is considered to be higher than what it ordinarily would be at the same time of the year.

Despite the higher rainfall figures, Lots 1-97 will still achieve the required 1.5m separation to groundwater for the required LAA with Lots 98 and 99 likely to require some fill to achieve the 1.5m separation.

It is evident from the above that the proposal is entirely compliant with the Government Sewerage Policy with the site and proposed lots capable of accommodating on-site disposal of wastewater. To illustrate a likely development outcome on the proposed lots that considers an approximate building location and necessary land application area (LAA), a site plan has been prepared as part of the Site and Soil Evaluation in Appendix 4.

6.2 Servicing

To illustrate the ability to service the ultimate development outcome at the subject site, an Engineering Servicing Report was completed by Tabec and is contained in Appendix 5 with further detailed investigations to be carried out as part of the subdivision implementation process. A summary of the primary servicing considerations have been articulated below:

Drainage

- The Shire of Gingin has advised that the developer will need to 'treat, store, convey, control and discharge stormwater runoff in a manner that the discharge for events at or above 1:10 year does not exceed pre-development flows'. Further, there is a requirement that each future lot stores and treats all runoff from the 1 year 1 hour event.
- All runoff from roads and road reserves will be collected in a pit and pipe network that will convey stormwater towards the proposed POS to allow for treatment and attenuation via a series of shallow vegetated basins and swales.
- An Urban Water Management Plan (UWMP) will be prepared as a condition of subdivision approval to further detail the proposed drainage solutions.

Wastewater

- Onsite treatment and disposal of wastewater has been determined as appropriate as illustrated in Section 6.1 above.

Water Supply

- Lot 601 is within an existing Water Corporation serviced area and as such the proposed subdivision is able to be connected into the existing network.

Power

- Analysis of the existing Western Power network capacity reveals that there is in excess of 30MVA capacity in the immediate area which is more than sufficient to accommodate the demand generated by the proposed development.
- It is expected that all lots will be serviced by underground pillars.

Telecommunications

- The existing fibre network in the area is operated by Opticomm. This network is able to be extended to service all proposed lots within the proposed subdivision.

Ultimately, the proposed subdivision is able to provide the proposed lots with the necessary provision of services and infrastructure at the subject site.

6.3 Traffic

In accordance with the WAPC Transport Impact Assessment Guidelines, a Traffic Impact Statement (TIS) has been prepared by PJA to support the proposed subdivision application (Appendix 6). A summary of PJA's findings have been provided below:

- The proposed street network provides a high level of internal connectivity and good external linkages for local vehicles, pedestrians and bicycle movements.
- The proposed residential subdivision will generate 79 trips in the AM and PM peak hours with a daily volume of 790 trips per day.
- Due to existing traffic levels in the area, there is no requirement to undertake a detailed intersection analysis within the proximity of the subject site.
- The proposed subdivision, together with other surrounding development will result in approximately 3,000 vehicles per day on Brockman Street which is considered an acceptable volume for an Access Street.
- The proposed Town Centre lot will abut Weld Street which has a speed limit of 80km/h. It is recommended that this be reduced to 50km/h.
- Site specific issues for consideration include:
    - Crossover for Lot 80 – it is recommended that the crossover is positioned as far from the Weld Street/Brockman Street intersection as possible.
    - Crossover for Lot 8 – it is recommended that access is provided on the eastern boundary of this lot.
- To achieve the necessary Safe Intersection Sight Distances, it is recommended that reductions in the allowed speed limits of 60km/h on Brockman Street and 80km/h on Weld Street be considered. The reduction should be to a 50km/h limit, consistent with an urban setting.

6.4 Bushfire

The subject site is not located within a designated bushfire prone area and as such the provisions of State Planning Policy 3.7 – Planning in Bushfire Prone Area have not been considered as part of this subdivision application. However, Ecological Australia has prepared a technical note to support the proposed subdivision (Appendix 7). This technical note confirms:

- There is no significant increase in bushfire risk resulting from the proposed development as:
  - Designing the proposed Public Open Space (POS) area such that it can be excluded under clause 2.2.3.2 of *Australian Standard 3959: 2018 Construction of Buildings in Bushfire Prone Areas* (i.e. <1 ha in area and majority treated as managed land);
  - Separating the POS area from residential lots through a public road as an additional safety measure;
  - Designing a road network that does not include dead end roads; and
  - Extending reticulated water supply to the subject site along with hydrants in accordance with relevant Water Corporation specifications.

6.5 Hydrology

Hyd2o were engaged to model stormwater outcomes for the proposed subdivision. This modelling was utilised to provide an estimate of the volume and area required within the site for stormwater management based on the principles of water sensitive urban design and ensuring post development flows from the site do not exceed predevelopment rates. The findings of the Hyd2o analysis are summarised below:

- The offsite pre-development flow is 690 litres per second which equates to 39 litres per second per hectare.
- To ensure pre-development flows are not exceeded, the volume of the downstream swale system within the POS would need to be 1,199 cubic metres to accommodate the 1% AEP event.
- The area required for the necessary storage will be 1,675sqm. Despite this, it is proposed to provide a number of shallower basins with a total area of closer to 3,000-3,500sqm which would utilise less than 50% of the POS area.

7.0 Conclusion

The proposed subdivision of the subject site represents a significant step forward in the delivery of an alternative housing typology within the Gingin townsite as well as a Town Centre development that will significantly improve the retail offering and community services available to the local residents, and wider community.

The subdivision application represents the culmination of a significant amount of pre-lodgement discussion and work with various planning authorities to ensure the proposed development outcome represents an appropriate solution for the site and can be delivered. The resultant subdivision design is one that will retain the landscape values present that the site which will ensure the future residents are afforded a high level of rural amenity within an urban setting.

It has been demonstrated through this report that the proposed subdivision complies with the various aspects of the planning framework. A considerable amount of work has also been completed to demonstrate that the resultant development outcome can be serviced at no detriment to the surrounding properties or environmental features.

Ultimately, the proposed subdivision represents an overwhelming positive contribution to the Shire of Gingin and warrants favorable consideration and approval by the WAPC.

Appendices

DYNAMIC PLANNING AND DEVELOPMENTS

LOT 601 BROCKMAN STREET, GINGIN

APPENDIX 1 - Certificate of Title

DYNAMIC PLANNING AND DEVELOPMENTS

WESTERN AUSTRALIA

REGISTER NUMBER	
601/DP38679	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
1	24/6/2004

VOLUME 2565 FOLIO 945

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts
REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 601 ON DEPOSITED PLAN 38679

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

GEORGE ALEXANDER GIFFORD OF PO BOX 233 GINGIN WA 6503

(AF I921778) REGISTERED 17/6/2004

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. T1011/1899 EASEMENT BENEFIT AS TO PORTION ONLY SEE DEPOSITED PLAN 38679. REGISTERED 1/1/1899.
2. *O213942 MORTGAGE TO BENDIGO AND ADELAIDE BANK LTD REGISTERED 13/8/2019.
3. *O213943 CAVEAT BY SHIRE OF GINGIN LODGED 13/8/2019.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: DP38679
PREVIOUS TITLE: 2075-491
PROPERTY STREET ADDRESS: NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY: SHIRE OF GINGIN

NOTE 1: DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING O213942

LOT 601 BROCKMAN STREET, GINGIN

APPENDIX 2 – Subdivision Plan

DYNAMIC PLANNING AND DEVELOPMENTS

SUBDIVISION FREEHOLD SUBDIVISION

LOT 601 BROCKMAN STREET
GINGIN

Urban Development Institute of Australia WESTERN AUSTRALIA
PIA Planning Institute Australia
CPP CERTIFIED PRACTISING PLANNER

SCALE: 1:2500 @ A3
DATE: 15th SEPTEMBER 2022
FILE: 1508_15.09.2022.dwg
DRAW: - SB
CHECKED: -

DYNAMIC PLANNING AND DEVELOPMENTS
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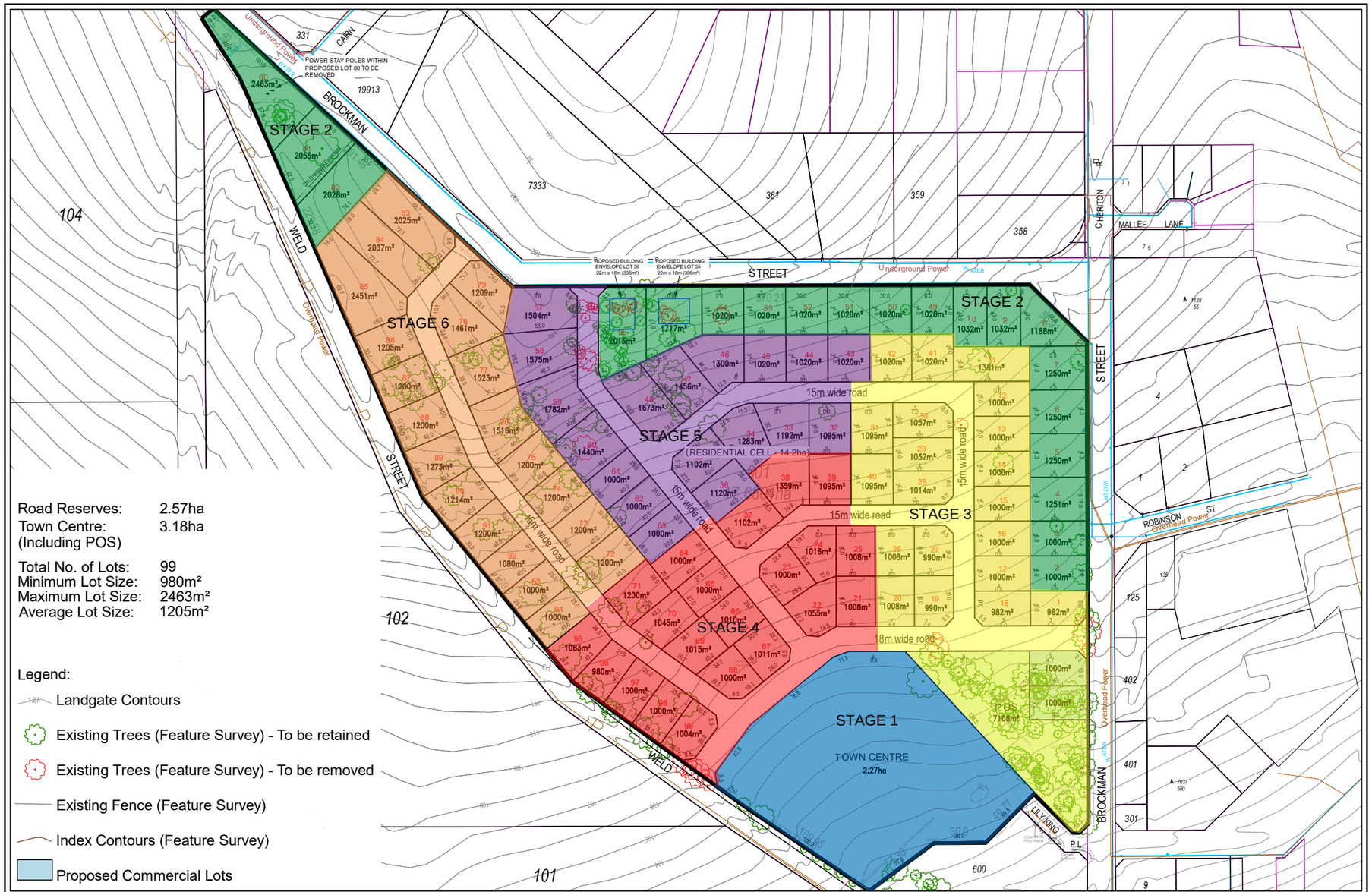
N W E S

LOT 601 BROCKMAN STREET, GINGIN

APPENDIX 3 – Staging Plan

DYNAMIC PLANNING AND DEVELOPMENTS



SUBDIVISION CONCEPT

LOT 601 BROCKMAN STREET
GINGIN

Urban Development Institute of Australia WESTERN AUSTRALIA
Planning Institute Australia
CPP CERTIFIED PRACTISING PLANNER

SCALE: 1:2500 @ A3
DATE: 15th SEPTEMBER 2022
FILE: 1508_15.09.2022.dwg
DRAW: - SB
CHECKED: -

DYNAMIC PLANNING AND DEVELOPMENTS
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N W E S

APPENDIX 4 – Site and Soil Evaluation

DYNAMIC PLANNING AND DEVELOPMENTS

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

Site & Soil Evaluation Report

Site and Soil Evaluation for Onsite Sewage Management

Lot 601 Brockman Street, Gingin

Prepared for: Acumen Development Solutions
Prepared by: Structerre Consulting
Telephone: (08) 92054500
Email: wageotecheng@structerre.com.au
Ref No: D294537/J409706-Rev3

Date: 14.09.2022

Document History

Issue No (version)	Original prepared by	Issued to (description /section revised)	Date	Reviewed by	Field Assessment Date	Approved by	Approval Date
Rev2	FS	Approval	30.08.2022	MC	30.08.2022	MC	
Rev3	FS	Approval	12.09.2022	MC	12.09.2022	MC	
Rev4	FS	Approval	14.09.2022	MC	14.09.2022	MC	

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

Contents

1. Introduction

1.1 The Consultant

The field investigation and report have been undertaken and overseen by the following suitably experienced staff.

Geotechnical Technician – Tony Broadway

8 years' field experience at Structerre Consulting working across a wide range of site and soil conditions.

Civil Engineer – Farhad Silwanagh

Civil and Geotechnical Engineer

8 years' experience in civil and geotechnical engineering at Structerre Consulting. Experience includes the design consultation for various sized waste water treatment applications to include; single residence, mixed use commercial developments.

Geotech Division Manager – Mel Castle

Mel Castle has been involved in civil construction inspection and testing for in excess of 35 years. Experienced in earthworks construction monitoring – residential & commercial, site supervision – earthworks, field and laboratory testing & inspection in construction materials including soils, aggregates, concrete, brick and block, rocks and pavements.

1.2 Report Summary

Structerre Consulting (Structerre) has been engaged to undertake a Site-and-Soil Evaluation (SSE) for a subdivision of an approximately 176,801m² at Lot 601 Brockman Street Gingin, WA to demonstrate the development meets the requirements outlined in Government Sewage Policy 2019 (GSP).

This report details an onsite sewage management system and is to accompany an application to install an Onsite Sewage System and submitted to the Shire of Gingin. This document provides information about the site and soil conditions. It also provides a detailed SSE for a 176,801 square metres comprising 99 lot subdivision plus a 22,700 square metres Town Centre area and includes a conceptual design for a suitable onsite sewage management system for the residential lots only, including recommendations for monitoring and management requirements. As sufficient land area is available for effluent disposal, the recommendations of these findings are:

- To the proposed new sub-divided (Lots 1-99) provide secondary level treatment with nutrient removal capabilities that discharges treated sewage with phosphorus and nitrogen concentrations of less than 1mg/L and 10mg/L respetively by a suitable Department of Health (DOH) approved treatment system and the effluent applied to Land Application Area (LAA) via secondary treated irrigation disposal system.
- To the proposed new Town Centre area (Options A and B), provide secondary level treatment with nutrient removal capabilities that discharges treated sewage with phosphorus and nitrogen concentrations of less than 1mg/L and 10mg/L respetively by a suitable Department of Health (DOH) approved treatment system and the effluent applied to Land Application Area (LAA) via secondary treated irrigation disposal system.
- All manufactured products selected as part of future detailed design shall be listed on the Department of Health approved products.

2. Site and Development Description

At the time of the field investigation, the site was vacant and covered in vegetation with small to medium sized trees. Table 1 provides a summary of the proposed development.

Table 1: Description of development

Development Characteristic	Description
Site Address	Lot 601 Brockman Street, Gingin WA 6503
Owner/Developer	Tabec Pty Ltd
Postal Address	Level 2, 54-58 Havelock St, West Perth 6005
Contact/Mob	Chris Bitmead / 0419 939 622
Local Government	Shire of Gingin
Zoning	R5 and R10/30 & Town centre
Proposal & Lot sizes	99 lot sub-division – (1,000m² - 2,000m²) and a Town centre area (22,700m²)
Water Supply	Water Corporation Water Mains from Brockman Street (extension required)
Anticipated Wastewater Load for residential lots only Proposed Town Centre daily hydraulic loading is not known at this stage and does not form part of this report.	Proposed Lots 1-99 consists of 5 bedrooms with a daily hydraulic load of 900L/day (150L/Person/Day to AS1547) Town Centre Options A & B: (20x Staff & 200x Staff @ 35L/day respectively)
Availability of Sewer	The area is currently unsewered and unlikely to be serviced by reticulated sewerage within the next 10-20 years due to low development density in the area and high cost associated with any extension.

3. Site and Soil Assessment

3.1 Site Assessment

Structerre Consulting have previously undertaken site investigation on 12th May 2022 and re visited the site on on 16th & 17th August 2022 to undertake further site assessment of the groundwater levels.

The assessment of the suitability of this site to retain on-site sewage and the recommendations in this report are based on on-site investigations, laboratory testing and desktop study of available geological and topographic published sources relevant to the lot.

On-site investigation of the site including visual inspection, borehole sampling, percolation testing and soil identification. The desktop study involved the review of publically available

publications from various government agencies relating to the geological setting, water table monitoring, climate and topography of the site.

The Gingin Weather station (Number 9018) indicates the following significant rainfall data recorded prior to site investigations and permeability testing:

- 34.0mm of rainfall recorded in the 2 days prior to initial site investigation carried out on 12th May 2022
- 254.4mm of rainfall recorded over the 4 week period of 17.07.2022 to 17.08.2022 prior to investigations caried out on 16th and 17th August 2022 (Refer to Notes)

Note:

1. The rainfall data recorded for the perioid between 17.07.2022 to 17.08.2022 is approximately double the volume recorded for the same period in 2021.
2. 254.4mm equating to approximately 64% of the Mean winter rainfall of 399mm between months of June and August recorded for Gingin (9018) from 1889 to present.
3. Representing 78% of annual recorded rainfall of 325.2mm for 12mth period to July 2022.

Based on the results of the site and soil assessment, the overall land capability of the site for onsite wastewater disposal is constrained, however the proposed sewage system is able to be designed and installed to satifactory meet the requirements of AS 1547 and the Health Regulations 1974 (treatment of Sewage and Disposal of Effluent and Liquid Waste).

SITE KEY FEATURES

Table 2 summarises the key features of the site in relation to effluent management proposed for the site.

NOTE:

- The site is in a sewage sensitive area as per PlanWA online mapping.
- There are no Private bores within property.
- No water courses are located within 100m of the Lot.
- The site is not inside a public drinking water source area as per Public drinking water source areas (PDWSA) online mapping.
- The site is not located in Floodplains as per online mapping.
- The risk of effluent transport offsite is low.

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ROJECT No: D294537
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CLIENT: TABEC PTY LTD

Figure 1: Locality Plan

Table 2: Site characteristics and mitigation measures

Feature	Description	Level of Constraint	Mitigation Measures
Climate	Station (Gingin) No. 9018 Annual rainfall to December 2021 – 795.0 mm. Annual rainfall to July 2022 – 327.3 mm Rainfall over 2 days prior to testing on 12th of May 2022 - 34mm Rainfall on 16/17 of August 2022 - 39.6mm Average annual pan evaporation is 2,000 mm (derived from BOM Annual Average PAN Evaporation Map).	Low	NN
Exposure	Isolated trees are located throughout the lot, the site is considered to have high exposure to sun and wind.	Low	NN
Vegetation	Open grassland, no hydrophillic vegetation in the proposed effluent management area or surrounds.	Low	NN
Landform & Drainage	No visible signs of water ponding at time of assessment.	Low	NN
Slope	The lot slopes from North to South Site is largely flat and level, (<10% slope).	Low	NN
Fill	No signs of imported fill material observed at time of assessment.	Low	NN
Surface Gravel and Rock Outcrops	No surface gravel or rock outcrops observed.	Low	NN
Erosion Potential	No evidence of sheet or rill erosion; No evidence of landslip and landslip potential is low due to the small slope of site.	Low	NN
Vertical Separation From Groundwater	Following a significant above average rainfall period, perched water was encountered in BH's 6, 7, 8, 12 & 13 during drilling at depths between 0-0.3m below surface level. The Perth Groundwater Atlas (Waters & Rivers Commission) has no available information for the groundwater levels for this site. The Landgate website indicates the ground surface level at this site was approximately 120-135m Australian Height Datum (AHD) falling from North to South.	High	Ensure minimum 1.5m separation between maximum groundwater level and discharge point of sewage system with use of fill material for the LAA.

Public Drinking Water Source Areas & Sewage Sensitive Areas	The site is located in a sewage sensitive area as per the GSP due to its location ~~o~~ being <1km away from a significant wetland. The site is not located in a public drinking water source area as per public drinking source areas (PDWSA) online mapping.	Moderate	Provide a secondary treatment system with nutrient removal capabilities as per the Government Sewage Policy 2019.
Surface Waters and Separation From Water Resources	No water courses located in close proximity (within 100m) of the Lot.	Low	Installation of secondary treatment system with irrigation disposal type effluent disposal system located minimum 100m from outer edge pf riparian.
Rainfall Run-on and Seepage	No evidence of stormwater run-on to the proposed LAA observed.	Low	NN
Flood Potential	The lot is not located within the floodplains.	Low	NN
Horizontal Setback Distances	All relevant setback distances to the LAA are achievable for proposed lots with the exception of 100m clearance from the natural water course.	Low	NN
Available Land Application Area (LAA)	Considering all the constraints and buffers, the site has ample suitable land for a LAA for secondary treated effluent disposal. The proposed effluent management area is as nominated in Figure 3.	Low	NN

*NN: not needed
**LAA: Land Application Area

3.2 Soil Assessment

A geotechincal site investigation was conducted across 13 location on 12th May 2022 and an additional 26 locations within the original lot as shown in Figures 2 & 3 on 16th & 17th August 2022. A soil retrieval probe was used to sample the soil by bore holes up to 2.0m in depth or refusal due to Stiff Clay or Dense Gravel. Falling head permability testing was carried out at each bore hole location as per AS 1289. Lab testing revealed the sub surface material to be Gravelly sand with Clay as per AS 1289. This was sufficient to adequately characterise the soils expected throughout the area of interest. Soil profile descriptions for each bore hole are provided in the appendix. The site geotechnical assessment and percolation test results are consistent with Soil Permeability Category 4 Clay loams- Weakly structured as per AS 1547. Table 3 below provides an assessment of the characteristics of borehole to the proposed LAA. All supporting logs and documentation can be found in the appendix of this report.

Table 3: Soil Assessment

Feature	Assessment	Level of Constraint	Mitigation Measures
Profile Depths	0-100 mm Topsoil. 200-700 mm: Sand (fine to medium) grained, non-plastic, grey (Bassendean Sand) 700-2000 mm: CLAY/SANDY CLAY (fine to medium) high plasticity, trace sand, trace gravel	Moderate	Provide secondary treatment to systems with large daily hydraulic loads.
Depth to Water Table	Perched water was encountered in BH's 6, 7, 8, 12 & 13 during drilling at depths between 0-0.3m below surface level. The Perth Groundwater Atlas (Waters & Rivers Commission) has no available information for the groundwater levels for this site. The Landgate website indicates the ground surface level at this site was approximately 120-135m Australian Height Datum (AHD) falling from North to South.	High	Ensure minimum 1.5m separation between maximum groundwater level and discharge point of sewage system with use of fill material for the LAA.
Particle Size distribution	100% passing the 19 mm sieve	Low	NN
Soil Colour	Brown, grey/brown and red/brown soil.	Low	NN
Soil Permeability & Design Loading Rates	Soil Permeability Category 4: Clay loams–Weakly structured to AS1546-2012. Permeability 0.15 m/day using the Falling head method as required due to sandy conditions.	Moderate	Installation of secondary treatment system with irrigation disposal type effluent disposal system.

OVERALL LAND CAPABILITY OF THE SITE

Based on the results of the site and soil assessment tabled above and provided in the appendices, the overall land capability of the proposed onsite sewage system is constrained. However, the proposed onsite sewage system is able to be designed and installed to satifactory meet the requirements of AS 1547 and the Health (treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974. The proposed development can comply with the requirements outlined in Government Sewage Policy 2019 (GSP).

- R30 zoning is applicable provided retiuclated sewer system is available.
- R10 zoning is applicable provided onsite sewage system utlised.

4. Wastewater Management System

Refer to the DOH website for the list of approved manufacturers of septic tanks and leach drains: http://ww2.health.wa.gov.au/. The property owner has the responsibility for the final selection of the treatment system and will include the details in the application to install an onsite sewage system for local government approval.

4.1 Treatment System

Provide a secondary treated effluent with nutrient removal and irrigation disposal, with a minimum required effluent quality of:

- Biochemical Oxygen Demand (BOD) ≤ 20 mg/L
- Total Suspended Solids (TSS) ≤ 30 mg/L
- Escherichia (E) coli ≤ 10 cfu/100 mL
- Phosphorus concentration ≤ 1mg/L
- Nitrogen concentration ≤ 10mg/L
- 90% of the samples shall have a BOD_5 less than or equal to 20 g/m^3 with no sample greater than 30 g/m^3
- 90% of the samples shall have TSS less than or equal to 30 g/m^3 with no sample greater than 45 g/m^3.

4.2 Land Application System

A range of land application systems have been considered and assessed based on their suitability to the site and soil conditions. We recommend the installation of a covered surface drip irrigation type effluent disposal system for proposed Lots 1-99.

Sizing of Land Application Area – Lots 1-99

Sized, according for disposal of the calculated daily hydraulic load, the soil classification and quality of effluent being disposed.

Data to be used in the sizing of irrigation disposal area:

- Estimated Daily Hydraulic Load (5-bedroom residence);
  - Maximum 6 Residents = 900L
  - Totalling 900L/day Hydraulic Load (from Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste)1974)
- Soil Classification – Category 4 Clay loams – Weakly structured to AS1547-2012

Area of Irrigation System as per Government Sewage Policy 2019
Secondary treatment for Soil category 4 – Clay loams = 257 m^2

Sizing of Land Application Area – Town centre – Option A
Sized, according for disposal of the calculated daily hydraulic load, the soil classification and quality of effluent being disposed.

Data to be used in the sizing of leach drain disposal area:

- Estimated Daily Hydraulic Load
  - 20 x Staff @ 35L/day =700 L/day
  - Totalling 700 L/day Hydraulic Load to AS1547-2012
- Soil Classification – Category 4 Clay loams – Weakly structured to AS1547-2012
- Provide for 'DS Water Management' similar and/or equal approved flatbed type leach drains.
- Area of Irrigation System as per Government Sewage Policy 2019
- Conversion factor for land application area: = 0.286
- LAA area for Secondary treatment for Soil category 4 – Clay loams = 700 x 0.286 200.2m^2

Sizing of Land Application Area – Town centre – Option B
Sized, according for disposal of the calculated daily hydraulic load, the soil classification and quality of effluent being disposed.

Data to be used in the sizing of leach drain disposal area:

- Estimated Daily Hydraulic Load
  - 200 x Patrons @ 35L/day = 7,000L/day
  - Totalling 7,000 L/day Hydraulic Load to AS1547-2012
- Soil Classification – Category 4 Clay loams – Weakly structured to AS1547-2012
- Provide for 'DS Water Management' similar and/or equal approved flatbed type leach drains.
- Area of Irrigation System as per Government Sewage Policy 2019
- Conversion factor for land application area: = 0.286
- LAA area for Secondary treatment for Soil category 4 – Clay loams = 7,000 x 0.286 2,002m^2

Note: Application for the new effluent system is to be sized in accordance with current governing regulations.

The property owner/developer has the responsibility for the final selection of the secondary treatment system and will include the details of it in the Onsite sewage system Approval to Install application form for local government approval.

Siting and configuration of the proposed disposal system

The irrigation system shall be located in a designated area to enhance evapotranspiration and its amenity and shall:

- Not be used for purposes that compromise the effectiveness of the system or access for future maintenance purposes.
- Be used only for effluent application.

- Have boundaries clearly delineated by appropriate vegetation or other type of border.
- Have no run-off or seepage of effluent beyond the designated area.

Buffer distances

Setback buffer distances from effluent land application areas and treatment systems are required to help prevent human contact, maintain public amenity and protect sensitive environments. The relevant buffer distances for this site are:

- The surface gradient of the disposal area should be less than 10%.
- The disposal system should maintain a minimum distance of:
  - 100m from high water mark of a reservoir or any bore used for public drinking, reservoir, waterways, significant wetlands and not within a waterway foreshore area or wetland buffer (the separation distance is to be measured from of riparian or wetland vegetation),
  - 30m from creek, streams and underground water courses, per Health Regulations 1974 may be considered for secondary treatment systems with nutrient removal. (Reduced setback from reservoirs or bores used for public drinking water not supported)
  - 30m from potable private bore intended for consumption
  - 1.8m downslope from property boundaries (may be more dependent on local authority guidelines)
  - 1.2m from driveways and paved surfaces
  - 6.0m from private sub-soil /drainage
  - 1.8m from building footings
- The distance between the base of the disposal system (i.e. trench bottom, bed base) and the groundwater table should not be less than 1.5m (for secondary treatment systems).
- On completion of the proposed disposal area, appropriate landscaping should be undertaken (i.e. planting of shallow rooted grasses / shrubs).
- The distance to the nearest waterway from proposed LAA locations is 227m (greater than minimum 100m separation required as per GSP),

The site plan in Figure 3 shows the location of the proposed Land Application Area for secondary treated drip irrigation disposal system.

Installation of the drip irrigation disposal system

Installation of the drip irrigation disposal system must be carried out by a suitably qualified and licensed plumber or drainer experienced with onsite sewage disposal systems. Figure 3 shows the preliminary siting of the proposed wastewater disposal system in line with the required setbacks. This plan may differ based on the final number of occupants per building, dwelling location and any other intended developments on site.

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Figure 2: Locality Site Plan

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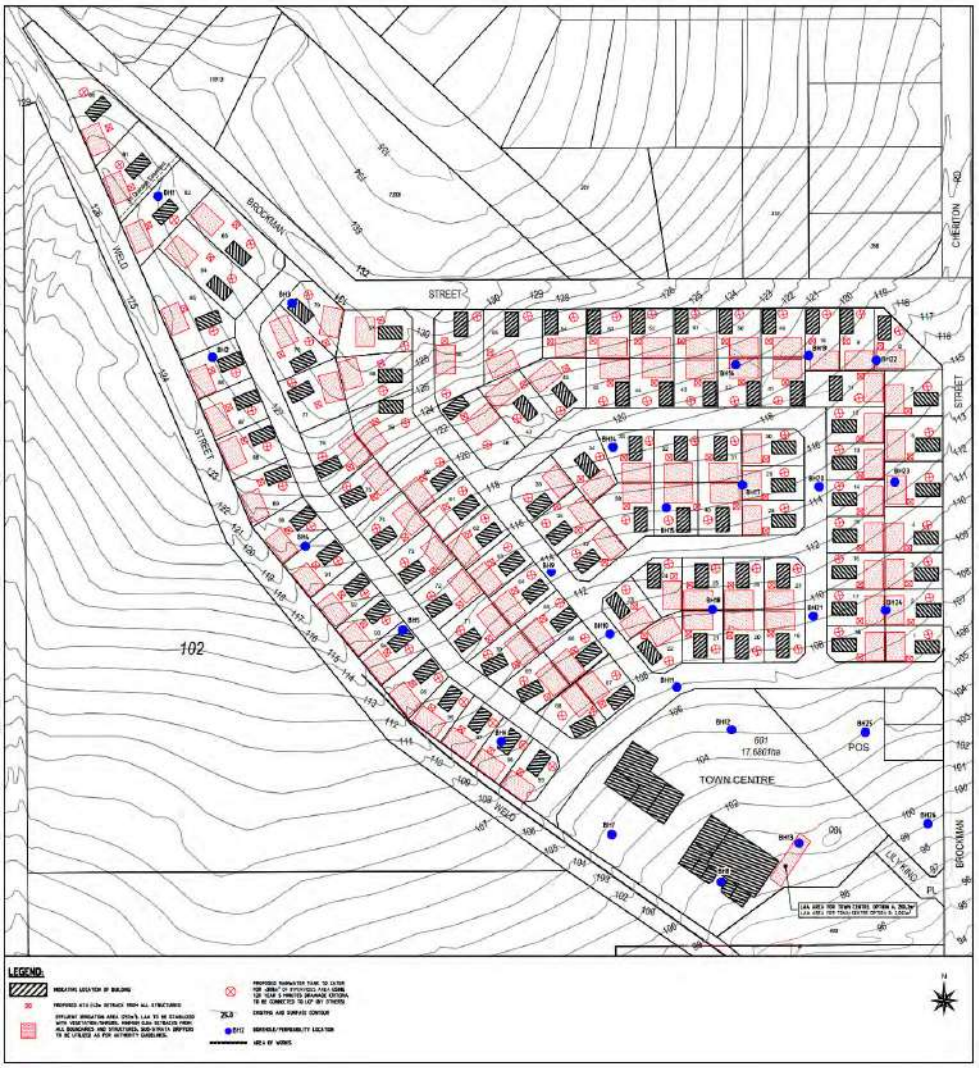
ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

Figure 3: Site Plan A – Proposed Effluent Disposal & Stormwater Management



5. Stormwater Management

Stormwater run-on is not expected to be a concern for the proposed effluent disposal area, as it is expected that run-off from the developed site will be managed and maintained within the proposed lots. Existing conditions will be amended as part of the proposed subdivisional civil works and will be designed and constructed to ensure all ground runoff is maintained within each individual lot. Impervious areas will be drained to appropriately sized retention systems and/or drained to existing pipe and/or road drainage systems.

All site civil and stormwater works to be designed to the Shire of Gingin requirements and approvals, with proposed criteria of 1 in 20-year ARI 5 minute duration event (subject to council approval) for proposed Lots 1 to 99 and Town Centre (Options A and B).

Lot sizes	1,000m² - 2,000m²
Approximate Impervious Area	300m^2
Required Retention	3.75m^3 Volume

Stormwater collected from roofs and other impervious surfaces must not be disposed of into the wastewater treatment system or onto the land application system.

6. Monitoring, Operation and Maintenance

Maintenance is to be carried out in accordance with the manufacturers instructions and to AS/NZS 1547-2012 Section 6, Appendix T & U. The treatment system will only function adequately if appropriately and regularly maintained.

To ensure the treatment system functions adequately, residents must:

- Scrape dishes and remove fats and solids before washing.
- Not dispose solids, sanitary napkins and other hygine products in the system.
- Not use a food waste disposal unit.
- Use household cleaning products that are suitable for septic tanks.
- Keep as much fat and oil out of the system as possible.
- Conserve water (AAA rated fixtures and appliances are recommended).

To maintain adequate performance of the system, residents must ensure:

- Septic tanks and biosolids settling vessels undergo regular pump-out by licensed waste contractors to remove accumulated sediment.
- No structures and/or paths are constructed over the LAA, vehicles avoid access to the LAA to prevent damage.

- ATUs to undergo maintenance servicing by a provider approved by the Department of Health at minimum three-monthly intervals.

7. Conclusions

As a result of our investigations we conclude that a sustainable onsite sewage management system can be installed to meet the needs of the proposed development at Lot 601 Brockman Street, Gingin. Specifically, we recommend the following:

- The site is in a sewage sensitive area as per PlanWA online mapping.
- To the proposed development) provide secondary level treatment with nutrient removal capabilities as per Government Sewage Policy 2019 (GSP) requirements.
- Installation of Secondary treated effluent system, by a suitable DOH-approved treatment system of volume required for final calculated daily hydraulic load for Lots 1-99 and Town Centre (Options A & B).
- LAA level for Lots 1-97 can be set at existing ground level whilst maintaining minimum 1.5m clearance from maximum recorded ground water.
- LAA level for Lots 98 and 99 shall be set to ensure minimum 1.5m clearance from maximum recorded ground water.
- LAA level for Town Centre (Options A and B) to be set to ensure minimum 1.5m clearance from maximum recorded ground water.
- The Soil Category for this lot is classified as “Category 4: Clay loams–Weakly structured as per AS 1547-2012” with the LAA for secondary treatment (excluding setbacks) to be minimum 257m² for lots 1-99, 200.2m² for Town Centre Option A and 2,002m² for Town Centre Option B.
- Operation and management of the treatment and disposal system in accordance with the manufacturers instructions and to AS/NZS 1547, the DOH Approval and the recommendations made in this report.

8. References

Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974

Government of Western Australia (2019). *Government Sewerage Policy*.

Standards Australia/Standards New Zealand (2012). AS/NZS 1547:2012 *On-site domestic-wastewater management*.

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PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

9. Appendix

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Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. **BH01**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395280
Job No.	J409706	**Date**	16/08/2022	**Hole Dia.**	65mm	**Northing**	6531982

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: SAND: fine to medium grained, non-plastic, with gravel, grey (Colluvium)	L - MD				M to W	
		CH: CLAY: fine to medium grained, high plasticity, with sand, trace gravel, red/brown	F - St				W	
1								
		Terminated at 1.90 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability: Hole stable
3. Samples taken: None
4. Co-ordinate system: WGS 84

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CLIENT: TABEC PTY LTD

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Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH02

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395373
Job No.	J409706	**Date**	16/08/2022	**Hole Dia.**	65mm	**Northing**	6531912

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: SAND: fine to medium grained, non-plastic, brown (Colluvium)	L - MD				M to W	
1		CH: Sandy CLAY: fine to medium grained, high plasticity, with gravel, red/brown	F - St				W	
		Terminated at 1.30 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability: Hole stable
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH03

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395375
Job No.	J409706	**Date**	16/08/2022	**Hole Dia.**	65mm	**Northing**	6531913

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
0		Topsoil:						
		SP: Silty SAND: fine to medium grained, non-plastic, brown (Colluvium)					M	
1								
		SP: SAND: fine to medium grained, non-plastic, with clay, with gravel, red/brown	L - MD				W	
2								
		Terminated at 2.50 m						
3								

Remarks
1. Termination reason: Target depth
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH04

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395228
Job No.	J409706	**Date**	16/08/2022	**Hole Dia.**	65mm	**Northing**	6531810

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: SAND: fine to medium grained, non-plastic, with gravel, brown (Colluvium)	L - MD				M to W	
1		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, red/brown	F - St				W	
		Terminated at 1.30 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH05

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395394
Job No.	J409706	**Date**	16/08/2022	**Hole Dia.**	65mm	**Northing**	6531714

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: SAND: fine to medium grained, non-plastic, with gravel, brown (Colluvium)	L - MD				M to W	
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, red/brown	F - St				W	
1								
		Terminated at 1.20 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH06

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395502
Job No.	J409706	**Date**	16/08/2022	**Hole Dia.**	65mm	**Northing**	6531621

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, red/brown (Colluvium)	S				W	▼
1			F - St				S	
2		Terminated at 2.50 m						
3								

Remarks
1. Termination reason: Target depth
2. Hole stability: Hole partially stable
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. **BH07**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395567
Job No.	J409706	**Date**	16/08/2022	**Hole Dia.**	65mm	**Northing**	6531570

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (6 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, red/brown (Colluvium)	S				S	
1			F - St					
		Terminated at 1.40 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability: Hole partially stable
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH08

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395659
Job No.	J409706	**Date**	16/08/2022	**Hole Dia.**	65mm	**Northing**	6531532

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: SAND: fine to medium grained, non-plastic, with gravel, brown (Colluvium)	S					
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, red/brown	F - St				S	
1								
		Terminated at 1.50 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability: Hole partially stable
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. **BH09**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395468
Job No.	J409706	**Date**	16/08/2022	**Hole Dia.**	65mm	**Northing**	6531849

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: Silty SAND: fine to medium grained, non-plastic, trace clay, brown (Colluvium)	L - MD				M to W	
1								
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, brown	F - St				W	
2								
		Terminated at 2.50 m						
3								

Remarks
1. Termination reason: Target depth
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH10

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395582
Job No.	J409706	**Date**	16/08/2022	**Hole Dia.**	65mm	**Northing**	6531749

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: Silty SAND: fine to medium grained, non-plastic, trace clay, brown (Colluvium)	L - MD				M to W	
1								
		CH: Sandy CLAY: fine to medium grained, high plasticity, brown	F - St				W	
2								
		Terminated at 2.50 m						
3								

Remarks
1. Termination reason: Target depth
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. **BH11**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395626
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531700

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		CH: Sandy CLAY: fine to medium grained, high plasticity, with gravel, brown (Colluvium)	F - St				M to W	
1								
		Terminated at 1.50 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability: Hole stable
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH12

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395700
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531639

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		CH: Sandy CLAY: fine to medium grained, high plasticity, with gravel, brown (Colluvium)	F - St				S	
1								
		Terminated at 1.90 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability: Hole stable
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

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Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. **BH13**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395697
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531576

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		CH: Sandy CLAY: fine to medium grained, high plasticity, with gravel, brown (Colluvium)	F - St				S	
1								
		Terminated at 1.40 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability: Hole partially stable
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH14

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395539
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531858

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: Silty SAND: fine to medium grained, non-plastic, brown (Colluvium)	L - MD				M to W	
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, brown						
1			F - St				W	
		Terminated at 1.80 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

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Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH15

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395586
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531770

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: Silty SAND: fine to medium grained, non-plastic, brown (Colluvium)	L - MD				M to W	
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, brown	F - St				W	
1								
		Terminated at 1.30 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH16

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395586
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531872

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: Silty SAND: fine to medium grained, non-plastic, brown (Colluvium)	L				M to W	
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, brown	F - St				W	
1		Terminated at 1.10 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. **BH17**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395679
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531770

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: Silty SAND: fine to medium grained, non-plastic, brown (Colluvium)	L				M to W	
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, brown	F - St				W	
1								
		Terminated at 1.60 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH18

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395723
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531688

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: Silty SAND: fine to medium grained, non-plastic, brown (Colluvium)	L				M to W	
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, brown	F - St				W	
1		Terminated at 1.10 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH19

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395720
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531888

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: Silty SAND: fine to medium grained, non-plastic, trace gravel, brown (Colluvium)	L				M to W	
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, brown	F - St				W	
1								
		Terminated at 1.30 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH20

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395732
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531791

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: Silty SAND: fine to medium grained, non-plastic, brown (Colluvium)	L				M to W	
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, brown	F - St				W	
1		Terminated at 1.10 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH21

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395747
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531672

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, grey (Colluvium)	S - F					
		red/brown					S	
			F - St					
1		Terminated at 1.10 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability: Hole stable
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. **BH22**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395774
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531870

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		CH: Sandy CLAY: fine to medium grained, high plasticity, with gravel, brown (Colluvium)	F				M to W	
1		GP: Gravelly SAND: coarse grained, non-plastic, with clay, brown	MD - D				W	
		Terminated at 1.50 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on dense gravel
2. Hole stability: Hole stable
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. **BH23**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395777
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531774

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		SP: Topsoil:						
		SP: SAND: fine to medium grained, non-plastic, grey (Colluvium)	L - MD				M to W	
1		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, brown	F - St				W	
		Terminated at 1.30 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH24

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395780
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531678

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		SP: Topsoil:						
		SP: SAND: fine to medium grained, non-plastic, grey (Colluvium)	L - MD				M to W	
1		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, brown	F - St				W	
		Terminated at 1.30 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

STRUCterre consulting engineers

Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH25

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395766
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531627

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		GP: Gravelly SAND: fine to medium grained, non-plastic, with clay, brown (Colluvium)	VD				S	
		Terminated at 0.80 m						
1								
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on dense gravel
2. Hole stability: Hole partially stable
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

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Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
Client Tabec Pty Ltd

Test No. BH26

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395802
Job No.	J409706	**Date**	17/08/2022	**Hole Dia.**	65mm	**Northing**	6531587

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		GP: Gravelly SAND: fine to medium grained, non-plastic, with clay, brown (Colluvium)	VD				S	
		Terminated at 0.80 m						
1								
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on dense gravel
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

Appendix B: Boreholes site photos

Borehole 1

Borehole 2

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ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

Borehole 3

Borehole 5

Borehole 6

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ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

Borehole 7

Borehole 8

Borehole 9

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ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

Borehole 10

STRUCterre consulting

ROJECT No: D294537
JOB No: J409706-Rev4
PROJECT ADDRESS: LOT 601 BROCKMAN ST, GINGIN
CLIENT: TABEC PTY LTD

photos

LOT 601 BROCKMAN STREET, GINGIN

APPENDIX 5 – Engineering Servicing Report

DYNAMIC PLANNING AND DEVELOPMENTS


TABEC
Civil Engineering Consultants
LOT 601 BROCKMAN STREET GINGIN
ENGINEERING SERVICING REPORT
ACUMEN DEVELOPMENT SOLUTIONS
September 2022

CLIENT: ACUMEN DEVELOPMENT SOLUTIONS

PROJECT: LOT 601 BROCKMAN STREET GINGIN

TITLE: ENGINEERING INFRASTRUCTURE SERVICING REPORT

DOCUMENT REVIEW				
Revision	Date Issued	Written By	Reviewed By	Approved By
REV 0	26 August 2022	CCB	CCB	CCB
REV 1	14 September 2022	CCB	CCB	CCB

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1 INTRODUCTION

TABEC Pty Ltd has prepared the following servicing report for in support of a proposed subdivision on lot 601 Brockman Street, Gingin.

In preparation if this report, Tabec has undertaken a walk-over of the site, reviewed the findings of a geotechnical investigation and liaised with relevant servicing authorities and Shire of Gingin in order to gain an understanding of servicing and engineering aspects of the proposed development.

The report provides engineering advice on the capability and future infrastructure requirements of the site to support the proposed Residential and Town Centre development and the civil engineering influences on the development plan form. In particular we have considered earthworks, roads, drainage, wastewater, water, power and communication servicing requirements to support development.

The report provides servicing advice on the development of the site in a staged and orderly manner in accordance with the Gingin townsite scheme. Thus the report will provide commentary on how the servicing proposed will facilitate the development.

The site is identified by the red boundary on Figure 1 presented below:

Figure 1 – Site location (Shire of Gingin scheme map)

2 THE STUDY AREA

2.1 Site Description

Lot 601 is situated within the Gingin townsite, in the Shire of Gingin. The development site spans an area of approximately 17.68ha and it has direct frontage to Weld Street along the western boundary,

Brockman Street along the northern and eastern boundary, and Shire of Gingin owned land at the short southern boundary.

There are three different Local Planning Scheme zones for the site comprising approximately 0.22Ha of Open Space, 3.47Ha of Town Centre, and the balance zoned Residential with various R code densities of R5, R10 and R10/30. It is understood that the area of the site that has the split R10/30 zoning allows for R10 development where there is no reticulated (townsite) sewer system, and R30 development where there is such a system in place.

Despite the current zoning, the land is, at the time of writing, used for grazing of sheep. There are no built improvements on the property except for some rural standard boundary fencing that is best described as being in poor to average condition. Although subject to survey, there is evidence to suggest that some of the existing fencing is not on the actual cadastral boundary of the property.

The central portion of the site has largely been cleared of trees, however there are scattered stands of trees in the north to northwest portion of the site and a more concentrated stand of vegetation in the south-east corner of the site in and around the area zoned as POS.

The image below shows a recent aerial photograph of the site. The yellow highlighted area to the immediate north of the site is Gingin cemetery and the light blue highlighted area in the southern portion of the site is the Town Centre zoned land.

Figure 2 – Site Aerial Photograph (MNG Access mapping)

2.2 Landform / Topography

Survey information provided by MNG Surveys indicates that the existing surface levels grade steadily across the site from north to south at a gradient of about 1 in 15 (6.5 to 7.0%) across the site from

approximately 131.0m AHD at the bend in Brockman Street adjacent to the cemetery to 97.0m AHD at the very south-east corner of the site.

There appears to have been some historical open berms cut across the property in a number of locations in an apparent effort to direct any surface water flows towards the stand of trees in the south east corner of the site.

In the north west portion of the site, generally opposite the cemetery carpark, there is evidence of a shallow open drain that has formed as a result of pipe drainage discharge upstream of the site in Brockman Street adjacent to the cemetery carpark.

2.3 Ground Conditions

Structerre Consulting completed a geotechnical investigation for the site in May 2022 and again in August 2022 in order to provide advice on expected ground conditions and to provide advice for future siteworks and building construction. The 1:50,000 Environmental Geology map indicates the site is underlain by Colluvium – Colluvium Soil and Undifferentiated sand (Qpo).

Test pits undertaken by Structerre across the site generally consist of the following:

- Sand/Silty Sand (Topsoil) – Up to 0.1m of light grey, fine to medium grained; overlying,
- Sand / Gravelly Sand / Sand with Clay – between 0.1m and 0.2 to 1.5m; overlying,
- Sandy Clay – between 0.2m to 1.5m and 2.5m with some inclusions of gravel,
- Sandy Clay – in excess of 1.3m of low to medium plasticity, pale grey to off white with trace of fine to medium grained calcareous gravel.

In it's current condition, the site is classified as "M to H" in accordance with AS 2870-2011 Residential Slabs and Footings. It is expected with future site preparation of engineered sand pads of at least 1.0m depth above any underlying reactive clay, the site building area on each lot would be upgraded to an "S" classification.

The geotechnical report prepared by Structerre is appended to this report.

2.4 Groundwater

At the time of the geotechnical investigation in May 2022, groundwater was not encountered. In the August 2022 investigation, groundwater was encountered at near surface only in the south west corner of the site. It is however noted that the August 2022 investigation followed a four week period that received a total of 231.8mm of rainfall. This intensity of rainfall over the four week period is almost double the amount of the average over the same period which is 119.0mm (calculated as 50% of July average plus 50% of August average).

2.5 Acid Sulfate Soils

The Data WA web mapping service designates the site location as having "no known ASS disturbance risk occurring within 3m of natural surface".

2.6 Site Contamination Assessment

The Data WA web mapping service designates the site location as having "no mapped contaminated sites" within or adjacent to the boundaries of the site.

3 SITEWORKS AND EARTHWORKS

The proposed development form with lots generally larger than 1,000 square metres will dictate that subdivision earthworks are generally restricted to road reserves only. This approach is respectful of the existing landform and surrounding development and provides the maximum opportunity for retention of existing trees.

In order to construct the roads, siteworks generally comprises the clearing, stripping of topsoil, proof roll and cut to fill earthworks, then replacement of topsoil on the trimmed road verges. Despite the intent to minimize clearing of mature trees, some will need to be removed to facilitate road construction and safe sight distances for vehicles exiting proposed roads and future lot crossovers.

Aside from earthworks associated with road construction, there will be some siteworks required within the proposed Public Open Space to create shallow landscaped swales for attenuation of stormwater runoff.

For slab on ground construction of future housing development on proposed lots, earthworked pads over the building footprint and immediate surrounds will be required. This approach is entirely consistent with surrounding residential dwellings in Gingin townsite. The proposed subdivision layout maximises the number of lots with their long boundary parallel to the existing ground contours which will minimize cost of house pad and associated retaining construction.

Within the areas of the site where the landform is steeper and / or there is a greater density of vegetation, lots have been increased in size from the minimum allowable under the R Codes to assist in the ability for dwellings to be constructed while minimising the requirement to remove existing trees.

4 ROADS

Existing roads abutting the site are considered to be in fair to good condition and Shire of Gingin have advised that there is no requirement for upgrading these roads except for where new intersections are being constructed. For these new intersections, there is an expectation for asphalt surfacing to minimise future maintenance required as a result of damage caused by tight turning movements.

It is noted that Weld Street pavement formation is not central to the existing road reserve and in the sweep bends, there is minimal verge width and the roadside drain in part runs through Lot 601.

There are three new intersections proposed off Brockman Street and one new intersection off Weld Street. All lots are designed such that their crossovers can be constructed off either Brockman Street or one of the new internal subdivision roads. For residential lots that have legal frontage to Weld Street, access is proposed of either Brockman Street or the internal subdivision road as the case may be. There are no proposed crossovers from residential lots onto Weld Street.

From discussions with Shire of Gingin, there is an expectation that new subdivision roads will be formed with a spray seal surface and concrete kerbs. The exception for this is the proposed intersections where an asphalt wearing course would be provided instead of the spray seal surface.

Road pavement depth and materials will be designed in accordance with Shire of Gingin as appropriate to a subgrade California Bearing Ratio (CBR) of 10%.

The internal subdivision roads are proposed at 6.0m width, kerb to kerb. The only exception for this is the proposed road that separates the Residential zone from Local Centre zone where a 7.4m wide road is proposed.

In some instances, the proposed roads will be designed around existing trees to accommodate these retained trees in either a blister island or by meandering the road within the road reserve to provide a safe distance between the tree and the proposed road edge.

Concrete footpaths are proposed on one side only of the new residential streets.

5 STORMWATER DRAINAGE

5.1 Existing Drainage Network

Discussions with Shire of Gingin have highlighted that there are existing drainage issues in the area. These issues predominantly relate to the ongoing scouring along Weld Street where sand and gravel is regularly deposited along Weld Street near Shire of Gingin depot following rainfall events, and to flooding in and around the commercial precinct which is south (downstream) of the site.

The existing drainage network around the site consists of;

a) A piped drainage system near the intersection of Brockman Street and Cairn Crescent. This pipe system discharges directly onto Lot 601 and overland to Weld Street where a culvert under Weld Street conveys stormwater flows to the west.

b) A piped drainage system in Brockman Street along the eastern boundary of the site. This system ultimately discharges at Gingin Brook via an open pipe outlet on the upstream side of the Weld Street road crossing of the brook. It is understood that this system is in part blocked and in need of repair.

c) Along Weld Street abutting the site is a roadside open table drain and a number of culverts crossing Weld Street. One of the culverts has been blocked off to alleviate drainage issues on the property west of Weld Street and another appeared to be around 80% blocked from debris that had been mobilized and transported along the table drain.

Within lot 601 there appears to have been some historical effort to divert surface runoff towards the south east corner of the site. This is evidenced by the existing berms throughout the site as well as some shallow excavations amongst the stand of trees in the south east corner of the site, presumably constructed to retain runoff from the site.

Specialist Hydrologist Hyd2o have undertaken an analysis of the site and as a result have calculated the offsite pre-development flow as being 690 litres per second which equates to 39 litres per second per hectare. The Hyd2o Stormwater Management report is appended to this document.

5.2 Stormwater Quantity Management

Shire of Gingin have advised that the subdivision proponent will need to 'treat, store, convey, control and discharge stormwater runoff in a manner that the discharge for events at or above 1:10 year does not exceed pre-development flows. Further, there is a requirement that each future lot stores and treats all runoff from the 1 year 1 hour event.

While Shire of Gingin have indicated that the abovementioned drainage issues are not directly related to proposed development of Lot 601, the proposed road network has, in part, been designed to minimize runoff from the site towards Weld Street.

All runoff from roads and road reserves will be collected in a pit and pipe network that will convey stormwater towards the Open Space located in the south east portion of the site to allow for treatment and attenuation via a series of shallow vegetated basins and swales. The pit and pipe network will generally be shallow, however there will be a requirement for a section of the pipework adjacent to the local centre site to be up to around 3.0m deep to enable drainage from the western most internal road to be conveyed towards the open space area

As calculated by Hyd20, to ensure pre-development flows are not exceeded, the volume of the downstream swale system would need to be 1,199 cubic metres to accommodate the 1% AEP event. Although the Hyd20 report indicates the area of storage required as being 1,675 square metres, the

topography will dictate that a number of shallower basins and swales with a total area closer to 3,000 to 3,500 square metres would be the optimum design solution for the area. This scenario would utilize less than 50% of the passive POS area for drainage attenuation.

Although subject to future detailed design, the broad drainage concept and piped drainage flow paths are depicted in the image below.

Figure 3 – Drainage strategy

Individual residential lots will be required to detain stormwater on site to ensure peak flows from short duration events are held back from entering the downstream drainage system to reduce overall site peak flows. The volume required to be stored will be dependent on dwelling size, however as an indication, it is likely that around 3.8 cubic metres of storage would be required for a home with 300 square metres of impervious area.

An Urban Water Management Plan (UWMP) is expected to be required as a condition of subdivision. The UWMP will address the requirements stipulated in Better Urban Water Management document.

5.3 Stormwater Quality Management

The key objectives for water quality management are to maintain surface and groundwater quality at pre-development levels and if possible, improve the quality of water leaving the development area.

Stormwater runoff quality should be managed through:

- On-site retention of 1 year 1 hour ARI event flows.
- Non-structural measures to reduce applied nutrient loads.

To achieve these objectives, the water quality of stormwater runoff originating from the proposed development may be managed by following methods:

- Encouraging infiltration at source via raingardens, soakwells or other approved underground soakage systems.
- Runoff from road reserves and impervious areas will be directed via a pipe network into bio-retention swales and/or basins prior to being released downstream of the site in a controlled manner.

From a stormwater drainage perspective, there is no impediment to development provided that the designed and built drainage system meets regulatory authority requirements.

6 WASTEWATER

There is no reticulated sewer network within the Gingin townsite. This was recognised by Shire of Gingin when the R Code zoning of R10/30 was applied to Lot 601 in the Local Planning Scheme. The R10 density being applicable to a site where there is no reticulated network and the R30 density being applicable if the sewer network is available.

As there is no reticulated sewer available, the R10 zoning is applicable.

Structerre Consulting were engaged to prepare a Site and Soil Evaluation Report (SSE) in accordance with the requirements outlined in Western Australia Government Sewerage Policy (2019). This SSE included site investigations in May 2022 and again in August 2022 to ensure the wettest annual site conditions were captured and utilised for the purpose of determining on-site disposal requirements.

The SSE has determined that each lot (based on a 5 bedroom, 6 person residence) will require a secondary level treatment system with nutrient removal capabilities as well as a Land Application Area for disposal of treated effluent via a surface drip irrigation disposal system of 257 square metres on each lot.

It is confirmed that the proposed sewerage treatment meets the requirements of Western Australia Government Sewerage Policy (2019) and in particular the Lot Size table in section 5.2.1 for Sewage Sensitive Areas. As such, there should be no impediment to development resulting from an inability to dispose of wastewater.

7 WATER SUPPLY

Lot 601 sits within the Gingin townsite for which the water supply licence is held by Water Corporation. Adjacent to Lot 601 at the site northern boundary is a 150mm diameter water reticulation main in the northern verge of Brockman Street. Along the eastern boundary of the site there is also a 150mm diameter water reticulation main in the western verge of Brockman Street. Water Corporation have advised that an extension can be constructed off these mains to service the proposed development.

In addition to the existing reticulation mains, there is a distribution main which supplies water to the Marchmont Estate high level tank. Along this distribution main, there is an air valve and scour valve within Brockman Street Road Reserve. These valves will need to be accommodated in their present location

With service connections to the existing water supply network, in addition to the orderly extension of the network into the proposed subdivision road network, the water supply requirements for the subdivision can be adequately addressed.

8 POWER SUPPLY

High voltage power is present in overhead power lines adjacent to the eastern boundary of the site, from Robinson Street to Cheriton Road. These overhead lines appear to be in as-new condition as they have, in recent years, been replaced. These are the only poles in the street verge that directly abuts the site.

According to Western Power's Network Capacity Mapping tool, there is in excess of 30MVA capacity in the immediate area. To put this capacity into context, the proposed subdivision and Local Centre site will likely have a power consumption requirement of less than 1MVA.

The proposed subdivision plan allows for lots at least 30.0m wide adjacent to the three overhead poles that abut the eastern boundary of the site in Brockman Street. These wider lots meet or exceed the

minimum requirement stipulated by Western Power for retention of overhead power lines adjacent to residential subdivision lots.

Notwithstanding, it is expected that all lots will be serviced by an underground pillar supply (green dome).

The overall power requirement for the subdivision lots and Local Centre site is expected to be about 930kVA. This power requirement will likely require the installation of a switchgear and two 630kVA transformers, with one for the subdivision and one for the Local Centre site.

All new roads will have street lighting installed to the requirements of Western Power and Shire of Gingin. For the site abutting roads, street lighting will be provided at new intersection locations.

All installation of electrical equipment will be completed in accordance with the requirements outlined in Western Power UDS manual.

9 TELECOMMUNICATIONS

The nearest fibre network to the site is operated by Opticomm. Through their arrangement with Telstra, Opticomm are able to access existing conduits in the east verge of Weld Street to service the subdivision from their nearest connection point at a head end unit about 800m to the north of the site.

It is proposed that fibre network is extended to ensure availability for all proposed lots within the subdivision. This would be facilitated through a developer installed network of pipes and pits within the proposed subdivision roads.

10 CONCLUSION

Following a review of all engineering aspects of the development, we can confirm that from an engineering perspective, the site is suitable for development in a manner that is consistent with the current zoning.

Appendix A – Structerre Geotechnical Investigation

Doc GE2.1.2

GEOTECHNICAL INVESTIGATION

For: Tabec Pty Ltd

Project Address: Proposed Residential Subdivision –
Lot 601 Brockman Street, Gingin WA

Project Number: D294537

Job Number: J409671

Revision Number: 0

Date: 31/5/2022

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ABN 71 349 772 837 Zemla Pty Ltd ACN 008 966 283 as trustee for the Young Purich and Higham Unit Trust trading as Structerre Consulting Engineers

1. PROJECT DETAILS

1.1. Introduction

At the request of Tabec Pty Ltd, Structerre Consulting (Structerre) have conducted a Geotechnical Investigation at Proposed Residential Subdivision – Lot 601 Brockman Street, Gingin. The purpose of the investigation was to provide the following for residential subdivision purposes:

- An assessment of subsurface soil profile and groundwater conditions across the proposed area of development;
- Site classification in accordance with AS 2870-2011 Residential Slabs and Footings;
- Wind Classification in accordance with AS 4055-2012 Wind Loads for Housing;
- Recommendations for stormwater drainage design;
- Recommendations on earthworks and site preparation; and
- Provision of a footing detail considering anticipated surface movement and sand pad thickness.

Terms of reference for this investigation were presented in a Structerre Consulting proposal reference Q95958 (dated 5 May 2022), which was submitted to and accepted by Tabec Pty Ltd.

1.2. Site Description

The site is located at Lot 601 Brockman Street, Gingin, Shire of Gingin. Brockman Street lies to the north of the site, Weld Street to the west, Cheriton Road to the east and Shire of Gingin and Gingin Community Resource & Visitor Centre to the south.

The site slopes up towards the northern boundary. At the time of the field investigation, the site was vacant and covered in vegetation with small to medium sized trees.

1.3. Field Investigation – Scope of Works

The field investigation was carried out on 12 May 2022 and comprised:

- 13 x Sample Retrieval Probes (SRP) to a depth of 2.0m (refusal) over the site for material assessment and soil profiling;
- 12 x In-situ percolation tests to determine the permeability of the materials within the upper 2.0m; and
- 8 x Dynamic Cone Penetrometer (DCP) tests in accordance with AS 1289.6.3.2 (1997) to a depth of 1.0m for evaluation of relative densities of the upper layers.

The borehole test locations are shown on the attached site plan in Appendix 1.

Suitably qualified geotechnical personnel from Structerre supervised the fieldwork and all fieldwork, interpretation and terminology used in this report are in accordance with the guidelines presented in AS1726-2017 Geotechnical Site Investigations.

2. DESK STUDY

2.1. Geological Setting

The Perth sheet 1: 50,000 Environmental Geology Series (Part Sheets 2034 III and 2134 III, 1986) prepared by the Geological Survey of Western Australia indicates that the following geological layers underlie the site:

- Colluvium – Colluvium soil and undifferentiated sand (Qpo)

2.2. Ground Surface and Groundwater Level

The Landgate website indicates the ground surface level at this site was approximately 120.0m – 135.0m Australian Height Datum (AHD).

No published groundwater information available for the site.

2.3. Earthquake Coefficient

In accordance with AS 1170.4-2007 Structural Design Actions the site is located within an area with an earthquake acceleration coefficient of 0.10.

2.4. Wind Classification

In accordance with AS 4055-2012 Wind Loads for Housing, wind classification of this site falls within the non-cyclonic “N2” –“N3” category.

3. RESULTS OF THE INVESTIGATION

3.1. Subsurface Soil Profile

The subsurface soil profile presented below was determined from the ground conditions encountered within the boreholes:

Table 1 – Subsurface Soil Profile

Borehole	Topsoil	Gravelly SAND with clay	SAND with clay, with gravel	Sandy CLAY trace gravel	CLAY trace sand, trace gravel
	Depth to Base of Strata (m)				
BH1	0.1	-	0.7	2.0	1.3
BH2	0.1	-	0.8	-	-
BH3	0.1	0.4	-	1.5	-
BH4	0.1	0.3	-	1.0	-
BH5	0.1	0.3	-	1.2	-
BH6	0.1	0.2	-	0.7	-
BH7	0.1	0.3	-	1.5	-
BH8	0.1	0.2	-	0.7	-
BH9	0.1	0.2	-	0.7	-
BH10	0.1	1.5	1.1	-	-
BH11	0.1	1.1	0.9	1.9	-
BH12	0.1	1.0	0.7	1.2	-
BH13	0.2	-	0.5	-	-
Average	**0.1**	**0.6**	**0.8**	**1.2**	**1.3**

The soils encountered are consistent with the expected site conditions as predicted from the Environmental Geology Map. It is important to note that there may be pockets of fill on site that are deeper than that encountered by the investigation boreholes. The subsurface soil conditions encountered are presented in the bore logs, within Appendix 3.

3.2. Groundwater

Groundwater was not encountered in any of the boreholes during or immediately after drilling. However, the groundwater is expected to be encountered approximately 0.2m below the existing ground level above the more cohesive materials.

3.3. Percolation Testing

Percolation testing of the in-situ soils was undertaken in twelve locations. Results of the testing are summarised below:

Table 2 – In Situ Percolation Test Results

Test Location	Testing Depth	Soil Type	Permeability
BH1	0.0 - 2.0m	SAND to CLAY trace sand trace gravel	0.1/day
BH2	0.0 – 0.8m	SAND	1.7m/day
BH3	0.0 - 1.5m	Gravelly SAND with clay to Sandy CLAY with gravel	0.7m/day
BH4	0.0 - 1.0m	Gravelly SAND with clay to Sandy CLAY with gravel	0.5m/day
BH5	0.0 - 1.2m	Gravelly SAND with clay to Sandy CLAY with gravel	0.3m/day
BH6	0.0 – 0.7m	Gravelly SAND with clay to Sandy CLAY with gravel	0.5m/day
BH7	0.0 - 1.5m	Gravelly SAND with clay to Sandy CLAY with gravel	0.9m/day
BH8	0.0 – 0.8m	Gravelly SAND with clay to Sandy CLAY with gravel	0.6m/day
BH9	0.0 – 0.7m	Gravelly SAND with clay to Sandy CLAY with gravel	0.8m/day
BH10	0.0 - 1.5m	SAND	2.6/day
BH11	0.0 - 1.9m	SAND to Gravelly SAND with clay	1.4m/day
BH12	0.0 - 2.0m	SAND to Gravelly SAND with clay	0.9m/day

3.4. Laboratory Test Results

Selected soil samples were tested for Atterberg Limits.

3.4.1. Atterberg Limits

Atterberg Limits were tested by Structerre's in-house NATA accredited laboratory. Results of the testing are summarised below:

Table 3 – Atterberg Limit Test Results

Sample	Test Hole	Depth (m)	Soil Description	Liquid Limit % AS1289 3.1.2	Plastic Limit % AS1289 3.2.1	Plasticity Index % AS1289 3.3.1	Linear Shrinkage % AS1289 3.4.1
1	BH1	1.0-1.6	CLAY trace gravel, trace sand	70	28	42	14.5
2	BH1	1.3-1.9	Sandy CLAY trace gravel	55	21	34	13

Test results indicate that the natural CLAY has moderate to high shrink swell capacity or degree of expansion. A copy of the results are presented in Appendix 4.

3.4.2. California Bearing Ratio (CBR)

Representative samples were tested by Structerre's in-house NATA accredited laboratory in accordance with AS1289.5.2.1 (2003). The test certificates are presented in Appendix 4 and are summarised in Table 4.

Table 4 – Soaked CBR Test Results

Test Hole	Depth (m)	Soil Description	Optimum Moisture Content %	Maximum Dry Density t/m3	Swell (%)	CBR @ Penetration (%)
BH13	0.2 – 0.5	SAND	10	1.83	0	12 @5.0mm
BH14	0.2 – 0.5	SAND	10	1.99	0	40 @5.0mm

Note: CBR samples were remoulded to 95% Modified maximum dry density in accordance with AS1289 5.2.1 prior to soaking for four (4) days. Based on the above results a conservative soaked CBR of 10% would be recommended for pavement design. Copies of the laboratory results are included in Appendix 4 of this report.

Where the placement of 0.5m or greater of sand fill placed and compacted to 95% of (Modified) MDD above the existing clay soils, an improved subgrade CBR of 12% can be used in pavement design.

4. GEOTECHNICAL CONSTRUCTION CONSIDERATIONS

4.1. Site Classification

AS 2870-2011 Residential Slabs and Footings provides guidance on site classification for residential slabs and footing design based on the expected ground surface movement and depth of expected moisture changes.

Table 5 – Classification Based on Site Reactivity

AS 2870-2011 Residential Slabs and Footings - Clause 2.1.2 Table 2.1	
Class	**Foundation**
A	Most sand and rock sites with little or no ground movement from moisture changes
S	Slightly reactive clay sites, which may experience only slight ground movement from moisture changes (0<ys≤20mm)
M	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes (20<ys≤40mm)
H1	Highly reactive clay sites, which may experience high ground movement from moisture changes (40<ys≤60mm)
H2	Highly reactive clay sites, which may experience very high ground movement from moisture changes (60<ys≤75mm)
E	Extremely reactive sites, which may experience extreme ground movement from moisture changes (ys>75mm)
Clause 2.1.3 Classification of other Sites	
P	Sites which include soft or unstable foundations such as soft clay or silt or loose sands, landslip, mine subsidence, collapsing soils and soils subject to erosion, reactive sites subject to abnormal moisture conditions and site that cannot be classified in accordance to Table 2.1

The site in its current condition is classified as Class “M” to “H”. Based on results of this investigation the site can be upgraded to a Class “S” in accordance with AS 2870-2011 provided that all unsuitable materials are removed and replaced with engineer-controlled sand fill materials in accordance with the earthwork recommendations outlined in Section 4.3 of this report.

Footings suitable for this site should be adopted to accommodate expected ground surface movements of approximately y_s = 20mm associated with the presence of moderately to highly reactive CLAY deposits within the building site.

4.2. Drainage

The existing ground conditions are not suitable for on-site disposal of stormwater runoff through the use of soakwells.

The design of the drainage system is unknown at this time, but may include:

- Rainwater Tanks;
- Dams / Compensation basin;
- Overland flow paths; and
- Soakwells, if permeable cover and / or stormwater designs are appropriate.

Sub soil drainage may be required to control groundwater perching in the upper soil layers within the building footprint.

4.3. Earthworks

All earthworks shall be undertaken in accordance with AS 3798-2007 Guidelines on earthworks for commercial and residential developments and are to include the following:

- All unsuitable materials to be stripped and removed from the site. Unsuitable materials include topsoil, deleterious and organic materials.
- It is considered that the near surface sand material requires improvement. Therefore, it is proposed to excavate and stockpile the materials for reuse, provided it is free from clay/silt (i.e. <5%), deleterious and organic materials. The depth of excavation may vary depending on conditions encountered and is subject to inspection.
- Excavation should not be greater than 2.0m and/or undermine any surrounding structures. A 1V: 1.5H slope should be maintained for temporary excavations. If excavation is required closer than the 1V: 1.5H slope would allow or deeper, it is recommended that this office be contacted for retaining system design.
- Proof compact the exposed base. The compaction requirements are set out in the table below, as per AS 3798-2007:

Table 6 – Compaction Requirements

Item	Application	Minimum relative compaction, %	
		Minimum density ratio (Standard Compaction Effort) (Cohesive soils)	Minimum density index (Cohesionless soils)
1	Residential - lot, fill, house, sites	95	70

- After excavation and proof compaction, the excavated base is to be inspected and approved by a representative from this office prior to backfilling. At this stage it can be assessed whether any further materials need to be removed or whether further compaction of the base is required.

- A minimum of 1.0m sand cover is to be placed or maintained above the reactive (clay) material in order to achieve a Class "S" site with y_s = 20mm.
- The ground level for residential construction should be built up to design levels with the stockpiled sand FILL and imported fill, if required. The imported fill should consist of free draining sand with not more than 5% passing a 75µm sieve and be free of organic matter and other deleterious materials. The fill materials should be placed in layers not exceeding 300mm loose thickness and compacted to achieve a minimum 8 PSP blows over the interval
  150 – 450mm, 9 PSP blows over the interval 450 – 750mm and 11 PSP blows over the interval 750 -1050mm.
- After remedial earthworks have been completed, the earthworks should be inspected and approved by a representative from this office.

5. CONCLUSIONS

A site investigation has been carried out at the site of the proposed residential development to assess the geotechnical conditions. Parameter and design recommendations are incorporated in the body of the report. The following conclusions have been drawn from the site investigation:

- The average subsurface soil profile encountered comprised topsoil to 0.1m, gravelly sand with clay to 0.6m, sand with clay, with gravel to 0.8m, sandy clay trace gravel to 1.2m and underlain by clay trace sand, trace gravel to the investigated depth of 2.0m.
- Groundwater or perched water was not encountered across the site to the depth of 2.0m.
- It is considered that the site is not suitable for on-site drainage.
- The site can be classified as Class "S" in accordance with AS 2870-2011 due to presence of moderately to highly reactive CLAY deposits within the building site, provided that the recommended earthworks are undertaken.
- The full scope of the recommended earthworks is presented in Section 4.3, but generally comprises:
  - Stripping of topsoil and unsuitable materials
  - Proof compaction of the base
  - Placement of sand fill to required level
  - Compaction to final level

6. LIMITATION OF FIELD INVESTIGATIONS

This report has been prepared in accordance with generally accepted consulting practice for Tabec Pty Ltd using information supplied at the time and for the project specific requirements as understood by Structerre. To the best of our knowledge the information contained in this report is accurate at the date of issue, however it should be emphasised that any changes to ground conditions and/or the proposed structures may invalidate the recommendations given herein.

The conclusions and recommendations in this report are based on the site conditions revealed through selective point sampling, representing the conditions of the site in total, although the area investigated represents only a small portion of the site. The actual characteristics may vary significantly between successive test locations and sample intervals other than where observations, explorations and investigations have been made.

The materials and their geotechnical properties presented in this report may not represent the full range of materials and strengths that actually exist on site and the recommendations should be regarded as preliminary in nature. Allowances should be made for variability in ground conditions and any consequent impact on the development. Structerre accepts no responsibility and shall not be liable for any consequence of variations in ground conditions.

If ground conditions encountered during construction are different to that described in this report, this office should be notified immediately.

For and behalf of

STRUCTERRE CONSULTING

Margie Mortera
Geotechnical Assistant

Checked By: David Harding
Employee Title: Geotechnical Supervisor

Authorised By: Mel Castle
Employee Title: Division Manager - Geotechnical

Disclaimer
This report is at the request of the addressee and no liability is accepted by Structerre Consulting to any third person reading or relying upon the report, not withstanding any rule of law and/or equity to the contrary and that this report is strictly confidential and intended to be read and relied upon only be the addressee.

Job #	Revision	Authored	Checked	Authorised
J409671	0	MM	DH	MC

7. REFERENCES

Department of Water – Perth Groundwater Atlas

Landgate Map Viewer

Geological Survey of Western Australia 1:50,000 Environmental Geology Series

AS 1170.4-2007 Structural design actions – Earthquake actions in Australia

AS 1289.3.1.2-2009 Methods of testing soils for engineering purposes – Soil classification tests – Determination of the liquid limit of a soil

AS 1289.3.2.1-2009 Methods of testing soils for engineering purposes – Soil classification tests – Determination of the plastic limit of a soil

AS 1289.3.3.1-2009 Methods of testing soils for engineering purposes – Soil classification tests – Calculation of the plasticity index of a soil

AS 1289.3.4.1-2009 Methods of testing soils for engineering purposes – Soil classification tests – Determination of the linear shrinkage of a soil

AS 1289.3.6.1-2009 Methods of testing soils for engineering purposes – Soil classification tests – Determination of the particle size distribution of a soil – Standard method of analysis by sieving

AS 1289.5.2.1-2009 Soil compaction and density tests – Soil classification tests – Determination of the dry density/moisture content relation of a soil using modified compactive effort

AS 1289.6.1.1-2009 Soil strength and consolidation tests – Soil classification tests – Determination of the California Bearing Ratio of a soil

AS 1289.6.3.2-1997 Methods of testing soils for engineering purposes – Soil strength and consolidation tests – Determination of the penetration resistance of a soil – 9kg dynamic cone penetrometer test

AS 1726-2017 Geotechnical site investigation

AS 2870-2011 Residential slabs and footings

AS 3798-2007 Guidelines on earthworks for commercial and residential developments

AS 4055-2012 Wind loads for housing

APPENDIX 1 – SITE LOCATION MAP

Note: Showing approximate test locations only

Google Map 2022

LEGEND

BH Borehole

STRUCterre consulting

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TEL 9205 4500 FAX 9205 4501 EMAIL: wageotecheng@structerre.com.au

PROJECT:	Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
PROJECT #:	D294537
JOB #:	J409671
CLIENT:	Tabec Pty Ltd
SCALE:	NTS
TITLE:	Geotechnical Investigation Site Plan
DATE:	12 May '22
DRAWN BY:	MM
CHECKED BY:	DH

DOC: GE:3.001

Note: Showing approximate test locations only

Google Map 2022

LEGEND

BH Borehole

Depths of Non-reactive Material

STRUCterre consulting	PROJECT: Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin	
	PROJECT #: D294537	CLIENT: **Tabec Pty Ltd**
	JOB #: J409671	
Zemla Pty Ltd (ABN 71 349 772 837) ATF the Young Purich and Higham Unit Trust trading as Structerre Consulting 1 ERINDALE ROAD, BALCATTA, WA 6021 TEL 9205 4500 FAX 9205 4501 EMAIL: wageotecheng@structerre.com.au	SCALE: NTS	TITLE: Geotechnical Investigation Site Plan
	DATE: 12 May '22	DRAWN BY: MM / CHECKED BY: DH

DOC: GE:3.001

APPENDIX 2 – SITE PHOTOS

PHOTO 1

PHOTO 2

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PROJECT:	Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
PROJECT #:	D294537
JOB #:	J409671
CLIENT:	**Tabec Pty Ltd**
SCALE:	NTS
TITLE:	Site Photographs
DATE:	12 May '22
DRAWN BY:	MM
CHECKED BY:	DH

PHOTO 3 - Sample taken at BH2

PHOTO 4 - Sample taken at BH8

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PROJECT:	Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin
PROJECT #:	D294537
JOB #:	J409671
CLIENT:	**Tabec Pty Ltd**
SCALE:	NTS
TITLE:	Site Photographs
DATE:	12 May '22
DRAWN BY:	MM
CHECKED BY:	DH

APPENDIX 3 – BORELOGS

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Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin

Client Tabec Pty Ltd

Test No. **BH01**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395281
Job No.	J409671	**Date**	12/05/2022	**Hole Dia.**	65mm	**Northing**	6531989

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: SAND: fine to medium grained, non-plastic, with gravel, with clay, grey/brown (Colluvium)	D - VD				W	
1		CH: CLAY: fine to medium grained, high plasticity, trace sand, trace gravel, red/grey						
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel					D to M	
2		Terminated at 2.00 m						
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability: Hole stable
3. Samples taken: None
4. Co-ordinate system: WGS 84

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Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin

Client Tabec Pty Ltd

Test No. **BH02**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395349
Job No.	J409671	**Date**	12/05/2022	**Hole Dia.**	65mm	**Northing**	6531845

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: SAND: medium to coarse grained, non-plastic to low plasticity, with gravel, trace clay, brown (Colluvium)	D - VD				W	
							M	
		Terminated at 0.80 m						
1								
2								
3								

Remarks

1. Termination reason: Refusal - interpreted on dense gravel
2. Hole stability: Hole stable
3. Samples taken: None
4. Co-ordinate system: WGS 84

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Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin

Client Tabec Pty Ltd

Test No. **BH03**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395403
Job No.	J409671	**Date**	12/05/2022	**Hole Dia.**	65mm	**Northing**	6531729

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		GP: Gravelly SAND: medium to coarse grained, non-plastic, with clay, brown (Colluvium)	L - MD				W	
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, brown	F				D to M	
1								
		Terminated at 1.50 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

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Test No. **BH04**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395498
Job No.	J409671	**Date**	12/05/2022	**Hole Dia.**	65mm	**Northing**	6531633

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		GP: Gravelly SAND: medium to coarse grained, non-plastic, with clay, brown (Colluvium)	VL - L				W	
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, brown	St - VSt				D to M	
1		Terminated at 1.00 m						
2								
3								

Remarks

1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

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Test No. **BH05**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395611
Job No.	J409671	**Date**	12/05/2022	**Hole Dia.**	65mm	**Northing**	6531549

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		GP: Gravelly SAND: medium to coarse grained, non-plastic, with clay, brown (Colluvium)	VL - L				W	
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, brown	St - VSt				D to M	
1								
		Terminated at 1.20 m						
2								
3								

Remarks

1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

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Client Tabec Pty Ltd

Test No. **BH06**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395493
Job No.	J409671	**Date**	12/05/2022	**Hole Dia.**	65mm	**Northing**	6531866

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:					W	
		GP: Gravelly SAND: medium to coarse grained, non-plastic, with clay, brown (Colluvium)						
		CH: Sandy CLAY: fine to medium grained, high plasticity, with gravel, brown					D to M	
		Terminated at 0.70 m						
1								
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

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Test No. **BH07**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	3955974
Job No.	J409671	**Date**	12/05/2022	**Hole Dia.**	65mm	**Northing**	6531716

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		GP: Gravelly SAND: medium to coarse grained, non-plastic, with clay, brown (Colluvium)	L				W	
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, brown	S - F					
			F - St					
1			VSt				D to M	
		Terminated at 1.50 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

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Test No. **BH08**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395714
Job No.	J409671	**Date**	12/05/2022	**Hole Dia.**	65mm	**Northing**	6531616

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:					W	
		GP: Gravelly SAND: medium to coarse grained, non-plastic, with clay, brown (Colluvium)						
		CH: Sandy CLAY: fine to medium grained, high plasticity, with gravel, brown					D to M	
		Terminated at 0.70 m						
1								
2								
3								

Remarks

1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

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Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin

Client Tabec Pty Ltd

Test No. **BH09**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395594
Job No.	J409671	**Date**	12/05/2022	**Hole Dia.**	65mm	**Northing**	6531896

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:					W	
		GP: Gravelly SAND: medium to coarse grained, non-plastic, with clay, brown (Colluvium)						
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, brown					D to M	
		Terminated at 0.70 m						
1								
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

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Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin

Client Tabec Pty Ltd

Test No. **BH10**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395765
Job No.	J409671	**Date**	12/05/2022	**Hole Dia.**	65mm	**Northing**	6531884

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: SAND: fine to medium grained, non-plastic, grey (Colluvium)	VL - L				W	
1							M	
		GP: Gravelly SAND: medium to coarse grained, non-plastic, with clay, brown						
		Terminated at 1.50 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on dense gravel
2. Hole stability: Hole stable
3. Samples taken: None
4. Co-ordinate system: WGS 84

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Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin

Client Tabec Pty Ltd

Test No. **BH11**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395755
Job No.	J409671	**Date**	12/05/2022	**Hole Dia.**	65mm	**Northing**	6531783

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: SAND: fine to medium grained, non-plastic, grey (Colluvium)					W	
							M	
1		GP: Gravelly SAND: medium to coarse grained, non-plastic, with clay, brown						
		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, red/grey					D to M	
2		Terminated at 1.90 m						
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability: Hole stable
3. Samples taken: None
4. Co-ordinate system: WGS 84

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Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin

Client Tabec Pty Ltd

Test No. **BH12**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395760
Job No.	J409671	**Date**	12/05/2022	**Hole Dia.**	65mm	**Northing**	6531671

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:						
		SP: SAND: fine to medium grained, non-plastic, grey (Colluvium)	VL - L				W	
		GP: Gravelly SAND: medium to coarse grained, non-plastic, with clay, brown	D - VD				M	
1		CH: Sandy CLAY: fine to medium grained, high plasticity, trace gravel, red/grey					D to M	
		Terminated at 1.20 m						
2								
3								

Remarks
1. Termination reason: Refusal - interpreted on stiff clay
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

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Project Proposed Residential Subdivision - Lot 601 Brockman Street, Gingin

Client Tabec Pty Ltd

Test No. **BH13**

Project No.	D294537	**Logged By**	Tony Broadway	**Machine**	Soil Retrieval Probe	**Easting**	395778
Job No.	J409671	**Date**	12/05/2022	**Hole Dia.**	65mm	**Northing**	6531790

Depth	Graphic	Stratum Description	Consistency	DCP Blows/150mm (5 10 15 20)	Samples Depth	Samples Type	Moisture	Water Level
		Topsoil:					W	
		SP: SAND: fine to medium grained, non-plastic, yellow/ brown (Colluvium)					M	
		Terminated at 0.50 m						
1								
2								
3								

Remarks
1. Termination reason: Target depth
2. Hole stability:
3. Samples taken: None
4. Co-ordinate system: WGS 84

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Phone (+618) 9205 4500 | Fax (+618) 9205 4501 | Email wageotecheng@structerre.com.au | Web www.structerre.com.au
ABN 71 349 772 837 Zemla Pty Ltd ACN 008 966 283 as trustee for the Young Purich and Higham Unit Trust trading as Structerre Consulting Engineers

APPENDIX 4 – LABORATORY TEST RESULTS

Sample No.	**36527**	**Client**	Geotechnical
Job No.	J409671	**Project**	Lot 601 BROCKMAN ST, GINGIN

Laboratory testing carried out at Malaga Laboratory 44 Crocker Dr Malaga WA 6090

SAMPLE DETAILS

BH No. / Depth	BH1 1.0-1.6	Sampling Method	Client
Sample History	50°C Oven Dried	Sample Preparation	AS 1289 1.1

ATTERBERG LIMITS

Description	Method	Result (%)
Liquid Limit	AS 1289.3.1.2	70
Plastic Limit	AS 1289.3.2.1	28
Plasticity Index	AS 1289.3.3.1	42
Linear Shrinkage	AS 1289.3.4.1	14.5
Nature of Shrinkage		Flat

PARTICLE SIZE DISTRIBUTION

Method: AS 1289.3.6.1
Description: Particle size distribution by sieve analysis

Sieve Size (mm)	% Passing
19.0	100
2.36	98
0.425	96
0.075	90

AS 1726:2017 Clause 6.1
Material Description: CLAY trace gravel, trace sand
AS Group Symbol: CH or OH

Accredited for compliance with ISO/IEC 17025
WORLD RECOGNISED ACCREDITATION STRUCTERRE CONSULTING ENGINEERS BALCATTA LABORATORY ACCREDITATION NUMBER 19742

Jacob Pritchard
Senior Laboratory Technician

Date: 27-May-22

Soils Analysis Workbook V 3.43 05-May-21

AS 1289.3.6.1 Report Feb 18

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Sample No.	**36528**	**Client**	Geotechnical
Job No.	J409671	**Project**	Lot 601 Brockman st, gingin

Laboratory testing carried out at Malaga Laboratory 44 Crocker Dr Malaga WA 6090

SAMPLE DETAILS

BH No. / Depth	BH1 1.3-1.9	Sampling Method	Client
Sample History	50°C Oven Dried	Sample Preparation	AS 1289 1.1

ATTERBERG LIMITS

Description	Method	Result (%)
Liquid Limit	AS 1289.3.1.2	55
Plastic Limit	AS 1289.3.2.1	21
Plasticity Index	AS 1289.3.3.1	34
Linear Shrinkage	AS 1289.3.4.1	13
Nature of Shrinkage		Flat

PARTICLE SIZE DISTRIBUTION

Method: AS 1289.3.6.1
Description: Particle size distribution by sieve analysis

Sieve Size (mm)	% Passing
19.0	100
2.36	98
0.425	80
0.075	56

AS 1726:2017 Clause 6.1
Material Description: Sandy CLAY trace gravel
AS Group Symbol: CH or OH

Accredited for compliance with ISO/IEC 17025
WORLD RECOGNISED ACCREDITATION STRUCTERRE CONSULTING ENGINEERS BALCATTA LABORATORY ACCREDITATION NUMBER 19742

Jacob Pritchard
Senior Laboratory Technician

Date: 27-May-22

Soils Analysis Workbook V 3.43 05-May-21

AS 1289.3.6.1 Report Feb 18

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Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

California Bearing Ratio Test Report

Report Number: CBR:22S-03682
Date of Issue01/06/2022
Issue Number: 1

Client:	Tabec Pty Ltd
Client Address:	Level 2, 54-58 Havelock St West Perth WA 6005
Project:	Proposed Residential Subdivision - Lot 601 Brockman St, Gingin
Project No:	D294537

Accreditation Number 18742

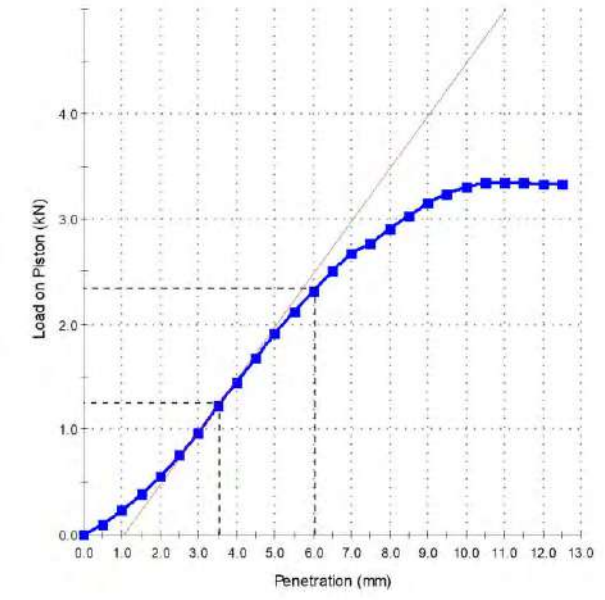
Approved Signatory: Aaron Nicholas

Accredited for compliance with ISO/IEC 17025

Sample Details

Sample ID:	Proposed Subdivision	**Field Sample ID:**	BH13
Date Tested:	27/05/2022	**Date Sampled:**	24/05/2022
Soil Description:	Sand	**Proposed Use:**	Fill
Depth of Test:	200-500mm	**Depth of Layer:**	300
Sampling Method:	Sampled by Client	**TRN:**	-
Work Order ID:	W22-01312		

Load vs Penetration



Test Results

AS 1289.6.1.1

CBR at 5.0mm (%):	**12**
Dry Density before Soaking (t/m³):	1.73
Density Ratio before Soaking (%):	95.0
Moisture Content before Soaking (%):	9.9
Moisture Ratio before Soaking (%):	101.5
Dry Density after Soaking (t/m³):	1.74
Density Ratio after Soaking (%):	95.0
Swell (%):	0.0
Moisture Content of Top 30mm (%):	14.4
Moisture Content of Remaining Depth (%):	14.3
Compaction Hammer Used:	Modified AS 1289.5.2.1
Surcharge Mass (kg):	4.50
Period of Soaking (Days):	4
Retained on 19 mm Sieve (%):	0
CBR Moisture Content Method:	AS 1289.2.1.1
Sample Curing Time (h):	24

Comments

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Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

Maximum Dry Density Report

Report Number: MDD:22S-03682
Date of Issue01/06/2022
Issue Number: 1

Client:	Tabec Pty Ltd
Client Address:	Level 2, 54-58 Havelock St West Perth WA 6005
Project:	Proposed Residential Subdivision - Lot 601 Brockman St, Gingin
Project No:	D294537

Accreditation Number 18742

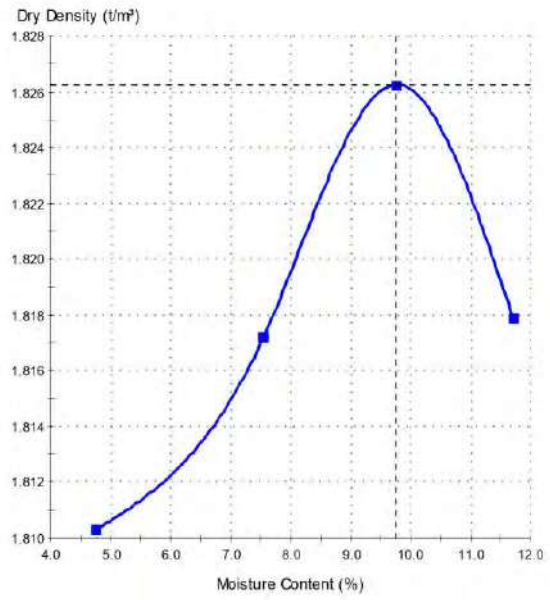
Approved Signatory: Aaron Nicholas

Accredited for compliance with ISO/IEC 17025

Sample Details

Sample ID:	Proposed Subdivision	**Field Sample ID:**	BH13
Date Tested:	24/05/2022	**Date Sampled:**	24/05/2022
Soil Description:	Sand	**Proposed Use:**	Fill
Depth of Test:	200-500mm	**Depth of Layer:**	300
Sampling Method:	Sampled by Client	**TRN:**	-
Work Order ID:	W22-01312		

Dry Density - Moisture Content Relationship



Test Results

AS 1289.5.2.1

Modified MDD (t/m³):	**1.83**
Modified OMC (%):	**10.0**
Retained Sieve (mm):	19.0
Oversize Material (%):	0
Curing Time (h):	2
LL Method:	Visual / Tactile

Comments

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Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

California Bearing Ratio Test Report

Report Number: CBR:22S-03683
Date of Issue01/06/2022
Issue Number: 1

Client:	Tabec Pty Ltd
Client Address:	Level 2, 54-58 Havelock St West Perth WA 6005
Project:	Proposed Residential Subdivision - Lot 601 Brockman St, Gingin
Project No:	D294537

Accreditation Number 18742

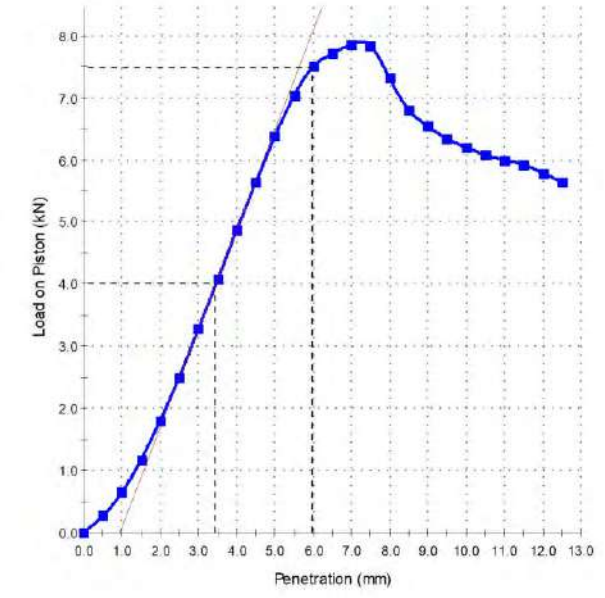
Approved Signatory: Aaron Nicholas

Accredited for compliance with ISO/IEC 17025

Sample Details

Sample ID:	Proposed Subdivision	**Field Sample ID:**	BH14
Date Tested:	27/05/2022	**Date Sampled:**	24/05/2022
Soil Description:	Sand	**Proposed Use:**	Fill
Depth of Test:	200-500mm	**Depth of Layer:**	300
Sampling Method:	Sampled by Client	**TRN:**	-
Work Order ID:	W22-01312		

Load vs Penetration



Test Results

AS 1289.6.1.1

CBR at 5.0mm (%):	**40**
Dry Density before Soaking (t/m³):	1.89
Density Ratio before Soaking (%):	95.0
Moisture Content before Soaking (%):	10.0
Moisture Ratio before Soaking (%):	101.5
Dry Density after Soaking (t/m³):	1.89
Density Ratio after Soaking (%):	95.0
Swell (%):	0.0
Moisture Content of Top 30mm (%):	11.2
Moisture Content of Remaining Depth (%):	10.8
Compaction Hammer Used:	Modified AS 1289.5.2.1
Surcharge Mass (kg):	4.50
Period of Soaking (Days):	4
Retained on 19 mm Sieve (%):	1
CBR Moisture Content Method:	AS 1289.2.1.1
Sample Curing Time (h):	24

Comments

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Email: wageotechlab@structerre.com.au
Website: www.structerre.com.au
ABN: 71 349 772 837 / ACN: 008 966 283

Maximum Dry Density Report

Report Number: MDD:22S-03683
Date of Issue01/06/2022
Issue Number: 1

Client:	Tabec Pty Ltd
Client Address:	Level 2, 54-58 Havelock St West Perth WA 6005
Project:	Proposed Residential Subdivision - Lot 601 Brockman St, Gingin
Project No:	D294537

Accreditation Number 18742

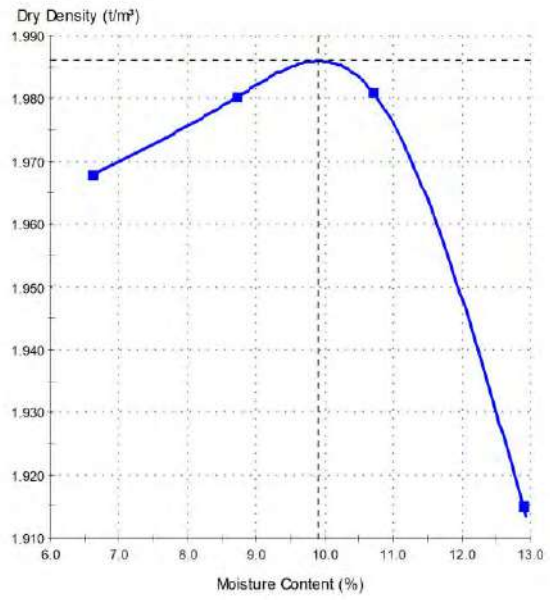
Approved Signatory: Aaron Nicholas

Accredited for compliance with ISO/IEC 17025

Sample Details

Sample ID:	Proposed Subdivision	**Field Sample ID:**	BH14
Date Tested:	24/05/2022	**Date Sampled:**	24/05/2022
Soil Description:	Sand	**Proposed Use:**	Fill
Depth of Test:	200-500mm	**Depth of Layer:**	300
Sampling Method:	Sampled by Client	**TRN:**	-
Work Order ID:	W22-01312		

Dry Density - Moisture Content Relationship



Test Results

AS 1289.5.2.1

Modified MDD (t/m³):	**1.99**
Modified OMC (%):	**10.0**
Retained Sieve (mm):	19.0
Oversize Material (%):	1
Curing Time (h):	2
LL Method:	Visual / Tactile

Comments

APPENDIX 5 – BORELOG TERMINOLOGY

STRUCterre consulting engineers

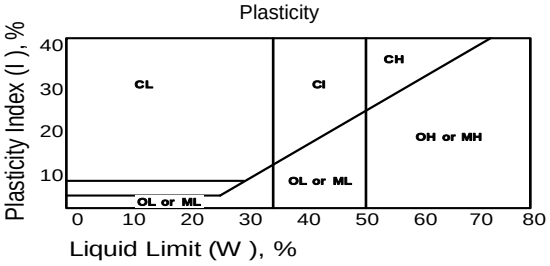
Residential Geotechnical Commercial & Infrastructure
Inspect & Investigate Energy Assessment Environmental

BORELOG TERMINOLOGY

Particle Size Distribution

Major Division	Subdivision	Size
Boulders		>200mm
Cobbles		200 - 63mm
Gravel	Coarse	63 - 20mm
	Medium	20- 6mm
	Fine	6 - 2.36mm
Sand	Coarse	2.36 - 0.6mm
	Medium	0.6 - 0.2mm
	Fine	0.2 - 0.075mm

Plasticity



Consistency of Cohesive Soils

Term	Undrained Strength Su (kPa)	Field Guide
Very Soft	< 12	Exudes between the fingers when squeezed in hand
Soft	12 - 25	Can be moulded by light finger pressure
Firm	25 - 50	Can be moulded by strong finger pressure
Stiff	50 - 100	Cannot be moulded by Fingers. Can be indented by thumb.
Very Stiff	100 - 200	Can be indented by thumb nail
Hard	> 200	Can be indented with difficulty by thumb nail.
Friable	-	Crumbles or powders when scraped by thumbnail

Consistency/Density of Non-Cohesive Soils

Term	Density Index (%)	SPT "N" Value Comparison
Very Loose	< 15	0 - 4
Loose	15 - 35	4 - 10
Medium Dense	35 - 65	10 - 30
Dense	65 - 85	30 - 50
Very Dense	> 85	> 50

Moisture Content

D	Dry
M	Moist
W	Wet
S	Saturated

Minor Components

Term	Assessment Guide	Proportion of Minor Component In:
Trace	Presence just detectable by feel or eye, but soil properties little or no different to general properties of primary component	Coarse grained soils: < 5 % Fine grained soils: <15%
With	Presence easily detected by feel or eye, soil properties little different to general properties of primary component	Coarse grained soils: 5 - 12 % Fine grained soils: 15 - 30%

Soil Legend

FILL	CLAY	GRAVEL	CONCRETE
TOPSOIL	SILT	LIMESTONE	COMBINATIONS
PEAT	SAND	BEDROCK	eg: Clay, Silty, Sandy

USCS

GW	Well graded gravel	SC	Clayey sand	OL	Organic low plasticity silt	CL	Low plasticity clay
GP	Poorly graded gravel	SM	Silty sand	ML	Low plasticity silt	CI	Intermediate plasticity clay
SW	Well graded sand			MH	High plasticity silt	CH	High plasticity clay
SP	Poorly graded sand			OH	Organic high plasticity silt	PT	Peat

DOC:GE:3.003

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Appendix B – Hyd2o Stormwater Management Report

13 September 2022

Your Ref:
Our Ref: H22063Av3

TABEC Civil Engineering Consultants
54-58 Havelock St
West Perth WA 6005
Attention: Chris Bitmead

Dear Chris,

LOT 601 BROCKMAN ST GINGIN STORMWATER MANAGEMENT

As requested, please find below Hyd2o's report detailing stormwater modelling outcomes for the proposed development at Lot 601 Brockman St, Gingin (herein referred to as the site). Hyd2o understand the proposed development of the site will comprise of a residential subdivision, extension of the town centre, and an associated Public Open Space (POS) area. A copy of the subdivision concept plan is provided in Appendix A.

The hydrological modelling detailed in this report has been undertaken to provide an estimate of the volume and area required within the site for stormwater management based on the principles of water sensitive urban design and ensuring post development flows from the site do not exceed predevelopment rates.

1. SITE CHARACTERISTICS

The following site characteristics are presented based on an initial desktop evaluation of the site and a further field investigation conducted by Hyd2o on June 29 2022. A site characteristics plan is provided as Figure 1.

- The site is approximately 17.6 ha in size and is predominantly cleared pasture with the exception of sparse trees and remnant gathering of trees in the south east corner. The site has a relatively steep slope running generally in a north to south direction. Based on Landgate 2m contours the site ranges in elevation for approximately 130 mAHD in the north to 98 mAHD in the south-eastern corner.
- The site is bound by Brockman St to the north and east and Weld St to the west. The southern boundary adjoins Shire of Gingin offices and centres. There are no conservation category wetlands, resource enhancement wetlands, or natural waterways within the site.
- A geotechnical report conducted by Structerre (2022) over the site found that across 12 boreholes the general profile could be summarised topsoil to 0.1m, gravelly sand with clay to 0.6m, sand with clay, with gravel to 0.8m, sandy clay trace gravel to 1.2m and underlain by clay trace sand, trace gravel to the investigated depth of 2.0m. No groundwater was encountered on site during the Structerre (2022) investigation to a depth of 2m at all bore holes however perching in wetter months is expected given the observed profile. Permeability across the boreholes ranged from 0.1 m/day to 2.6

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m/day indicating parts of the site as generally unsuitable for infiltration type drainage systems.

- Existing site catchments are shown on Figure 1. Given the topography, the majority of the site flows south overland towards the southern boundary. A cut-off drain within the site and a shallow open drain following the fence line have been constructed directing flow to the east and west respectively and around the Shire buildings. The eastern portion of the site contributes to the pit and pipe system within Brockman St while the western portion contributes to the open cut drain system on Weld St.

- Two minor catchments exist at the top of the site. One is in the northwest corner and drains an external catchment through the site in this location to culverts under Weld St, then flowing south-east through the downstream property toward Roe St. The other small catchment in the north eastern corner is located in the Robinson St drainage system catchment.

- Notably formal drainage (open drain, pipes and pits) exist on Brockman St to the north of the site acting as a cutoff drain so that runoff from rural lots to the north do not contribute flow into the site.

- All flows are conveyed to Gingin Brook, currently without any visible or known water sensitive urban design measures to manage water quality.

- It was noted that although Weld St was recently upgraded, its stormwater management system does not appear to have a formal constructed system to manage runoff. Based on Council anecdotal information (and field observations), overland flow onto and across the road surface currently appears to occur during storm events.

2. STORMWATER MODELLING

Stormwater modelling was undertaken to provide an estimate of the volume and area required within the site for stormwater management post development. The level of detail of the modelling presented below is considered appropriate for informing the development the site concept plan, with further more specific stormwater management detail to be provided at later stages of planning.

This modelling was performed on the basis of estimating site predevelopment flows and ensuing post development flows from the site do not exceed these levels in events up to the 1% Annual Exceedance Probability (AEP) level.

Stormwater modelling was done using XP-Storm. XP-Storm is an industry standard program that performs detailed hydraulic and hydrological calculations to simulate the performance of stormwater systems for a range of design storm events. The design storms modelled by XP-Storm were based on methodology in Australian Rainfall & Runoff (Ball, et al, 2016) and the Bureau of Meteorology Computerised Design Intensity Frequency Duration (IFD) Rainfall System. Storms modelled for the 1% AEP event ranged from the 30 minutes to 12 hour duration.

Predevelopment flows for the site for the 10% AEP event and 1% AEP event were estimated as shown in Table 1. Flow estimates correspond to pro rata flow rates per unit area of approximately 16 L/s/ha and 39 L/s/ha for the 10% AEP and 1% AEP event respectively.

The runoff rates applied to the site for this modelling are shown in Table 1. These rates were estimated using Hyd2o's CURRV runoff calculator, and considered on-site investigation findings (including flood debris levels), the Structerre (2022) geotechnical investigation report, Shire of Gingin flooding anecdotal information, and the Australian Rainfall & Runoff (Ball, et al, 2016) Regional Flood Frequency Estimation (RFFE) Model.

Table 1: Site Predevelopment Flow Estimation

Catchment	Existing Site
Pasture (ha)	17.6
10% AEP EIA @ 37% RO	6.54
1% AEP EIA @ 47% RO	8.31
10 % AEP Event	
Peak Flow (L/s) and Critical Duration (hrs)	279 (3 hours)
Peak Flow per Hectare (L/s/ha)	16
1% AEP Event	
Peak Flow (L/s)	690 (3 hours)
Peak Flow per Hectare (L/s/ha)	39

Catchment mapping for the site post development was done on the basis of existing topography and the subdivision plan in Appendix A. Post development catchment boundaries are shown in Figure 2. While the considerable majority of the site falls within the main catchment towards the POS drainage area sized in this report, some lots and small road sections connecting to existing roads will contribute to existing systems. Note the Town Centre catchment is expected to manage its own runoff with a peak allowable discharge of 89 L/s for the 1% AEP event from that area.

Modelling results for the main POS drainage catchment are shown in Table 2.

Based on a 10.68 ha contributing catchment, the permissible discharge is calculated as 416 L/s for the 1% AEP event. To attenuate flow to this amount, 1199 m^3 of storage was estimated to be required. While Figure 2 shows an indicative area of inundation to provide the required amount of storage as modelled in this report, this is illustrative only to show potential size requirements in relation to POS. Alternative storage configurations to achieve the require volume may be implemented at detailed design stage, particularly with a view to tree retention.

Consistent with advice from the Shire of Gingin a 10% AEP permissible discharge rate of 169 L/s will also need to be met for the storage, and an appropriate outlet configuration sized during detailed design to achieve this will be required as well as meet the 1% AEP flow requirement. Note the drainage pit across the road from the POS on Brockman St with a 375mm diameter piped outlet is considered the most viable option for an outlet connection from the site to the existing system, and its capacity will need to be verified during detailed design.

In relation to Weld St, it is important to note that development of the site as proposed will effectively reduce the area of the site which drains to Weld St from 3.2 ha to 2.1 ha. This reduction is considered likely to improve the current stormwater performance of this area.

For the small road catchments interfacing with existing roads, any additional local storage requirements for these areas will be appropriately determined at detailed design in consultation with the Shire.

Table 1: Post Development Main POS Stormwater Management Area

Catchment	Main POS/Stormwater Area
Large Lots (ha) @ 47% RO	7.37
Road Reserve (ha) @ 92% RO	2.40
POS (ha) @ 32% RO	0.61
Commercial @ 65% RO	0.30
Equiv Imp Area EIA (1% AEP) (ha)	6.06
Storage Parameters	
Approx Storage Invert (mAHD)	98.00
Side Slopes (v:h)	1:6
Nominal Low Level Outlet Modelled (mm)	390
1% AEP Event Modelling	
Modelled Flood Depth (m)	1.08
TWL Area (m^2)	1675
Volume (m^3)	1199
Peak Discharge (L/s)	416
Critical Duration (hr)	1

3. REFERENCES

Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M, Testoni I, (Editors) (2016). Australian Rainfall and Runoff: A Guide to Flood Estimation, Commonwealth of Australia.

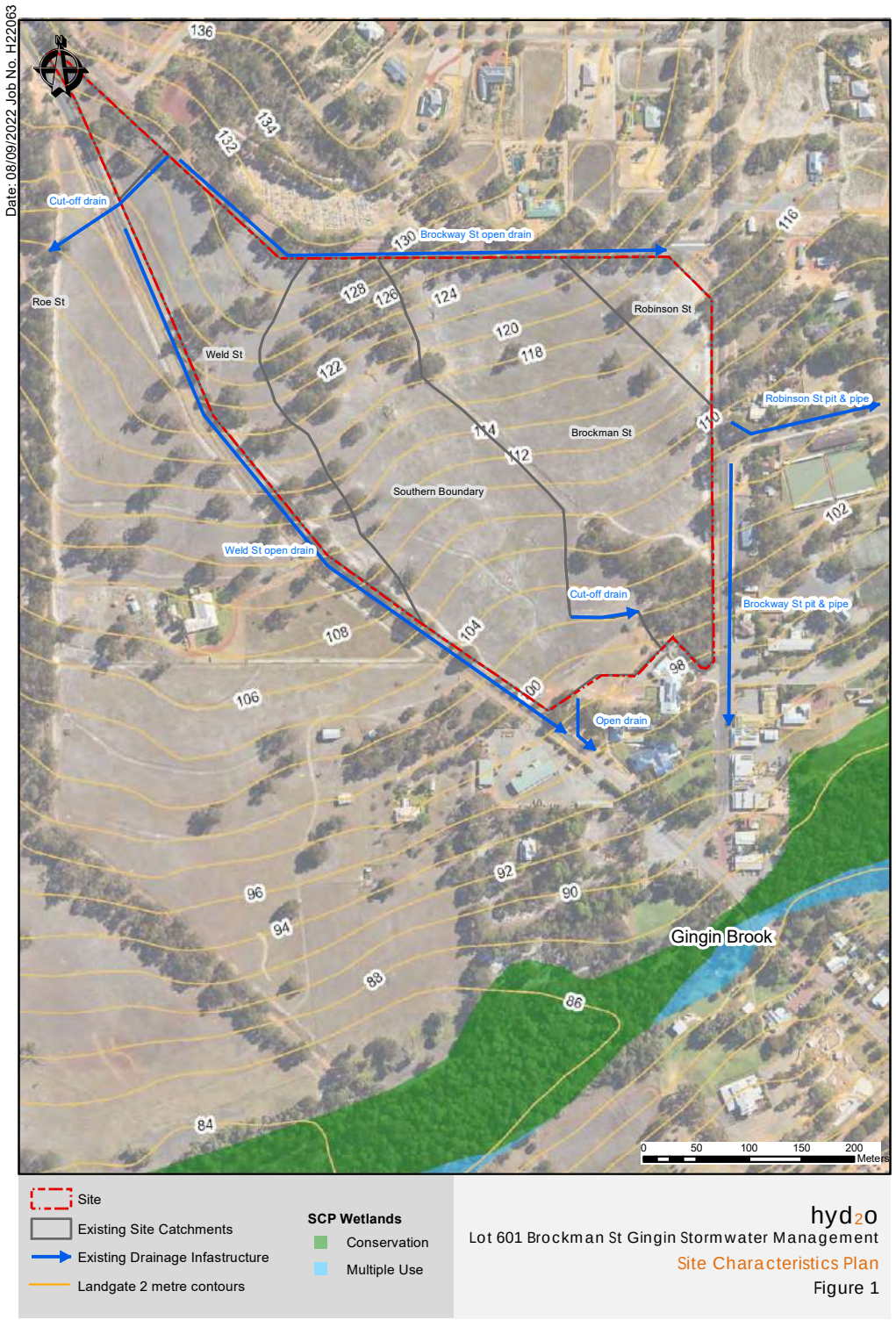
Should you have any queries regarding this report, please do not hesitate to contact Sean O'Sullivan or Sasha Martens of this office.

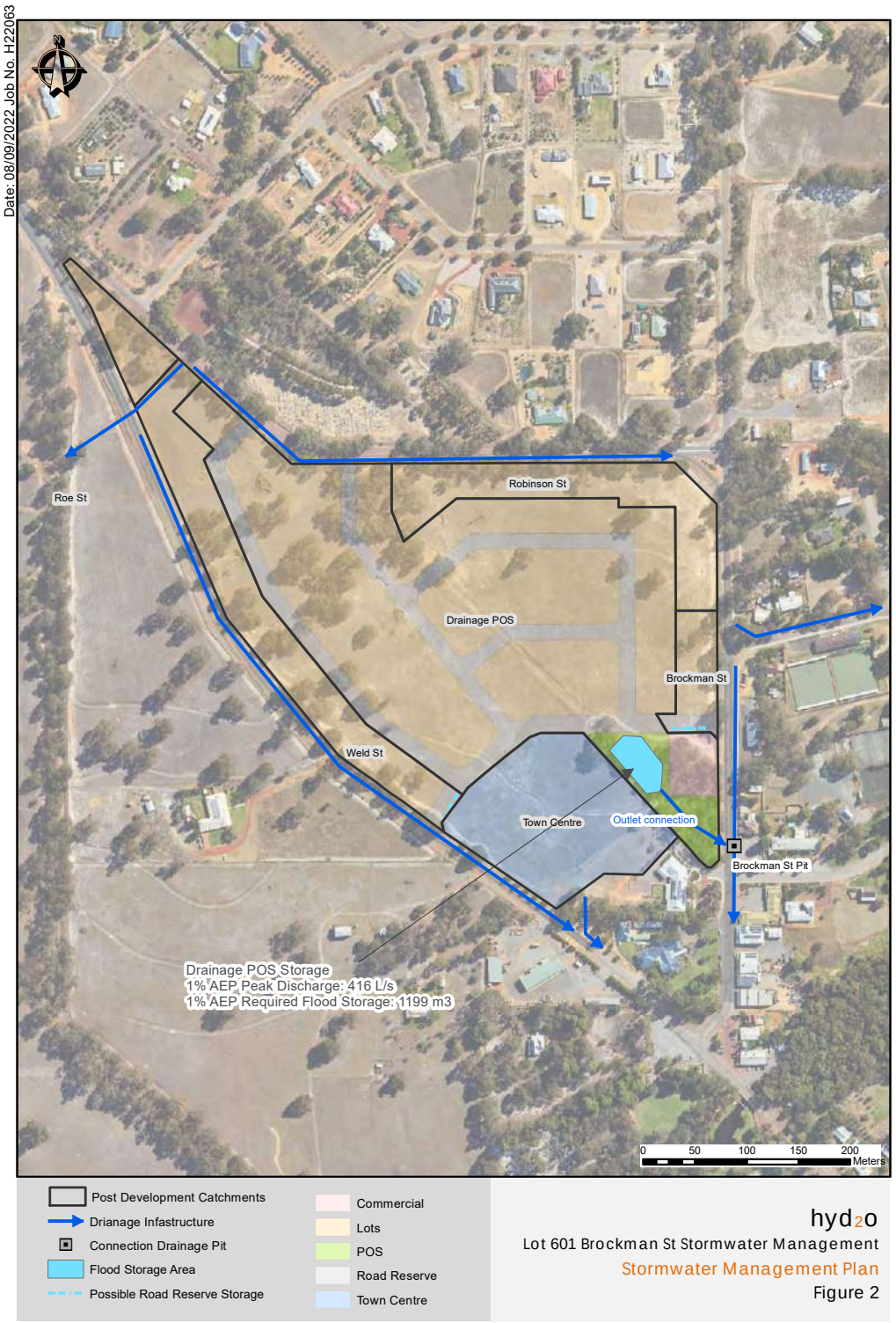
Yours sincerely,

Sean O'Sullivan, Engineering Hydrologist, Hyd2o

Attachments
Figure 1: Site Characteristics Plan
Figure 2: Stormwater Management Plan
Appendix A: Subdivision Concept Plan

FIGURES


Date: 08/09/2022 Job No. H22063
Cut-off drain
Brockway St open drain
Roe St
Weld St
Robinson St
Robinson St pit & pipe
Brockman St
Southern Boundary
Weld St open drain
Cut-off drain
Brockway St pit & pipe
Open drain
Gingin Brook
136
134
132
130
128
126
124
122
120
118
116
114
112
110
108
106
104
102
100
98
96
94
92
90
88
86
84
0 50 100 150 200
Meters
Site
Existing Site Catchments
Existing Drainage Infastructure
Landgate 2 metre contours
SCP Wetlands
Conservation
Multiple Use
hyd2o
Lot 601 Brockman St Gingin Stormwater Management
Site Characteristics Plan
Figure 1



hyd2o
Lot 601 Brockman St Stormwater Management
Stormwater Management Plan
Figure 2

APPENDIX A
Subdivision Concept Plan

Road Reserves: 2.57ha
Town Centre: 3.18ha
(Including POS)

Total No. of Lots: 99
Minimum Lot Size: 980m²
Maximum Lot Size: 2463m²
Average Lot Size: 1205m²

Legend:

- Landgate Contours
- Existing Trees (Feature Survey)
- Existing Fence (Feature Survey)
- Index Contours (Feature Survey)
- Intemediate Contours (Feature Survey)
- Spot Heights (Feature Survey)
- Proposed Commercial Lots

SUBDIVISION CONCEPT

LOT 601 BROCKMAN STREET
GINGIN

Urban Development Institute of Australia WESTERN AUSTRALIA
PIA Planning Institute Australia
CPP CERTIFIED PRACTISING PLANNER

SCALE: 1:2500 @ A3
DATE: 17th AUGUST 2022
FILE: 1508_17.08.2022.dwg
DRAW: - SB
CHECKED: -

DYNAMIC PLANNING
AND DEVELOPMENTS
e: admin@dynamicplanning.net.au
t: (08) 9275 4433
f: (08) 9275 4455
SUITE 15, 29 COLLIER ROAD
MORLEY WA 6062
ABN: 99 169 411 705

N W E S

LOT 601 BROCKMAN STREET, GINGIN

APPENDIX 6 – Traffic Impact Statement

DYNAMIC PLANNING AND DEVELOPMENTS

Acumen

Lot 601, Brockman Street, Gingin

Gingin Residential and Town Centre Subdivision
Transport Impact Statement

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Project Code: 06605

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Version Control and Approval

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A - Draft	18 August 2022	Tanya Moran / Benjamin Mentha	Tanya Moran	Tanya Moran
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1 Introduction

Phil Jones Associates (PJA) has been engaged by Acumen to prepare a Transport Impact Statement for the proposed subdivision located at Lot 601 Brockman Street in Gingin. The subdivision is to create 99 large residential lots plus to enable three lots for future commercial/retail development to the south-east of the subdivision area.

Lot 601 Brockman Street has already been successfully rezoned for residential use. This subdivision application is the next step to deliver those lots that have been successfully rezoned.

This report sets out PJA's assessment in accordance with Volume 3 (Subdivision) of the Western Australian Planning Commission's (WAPC) Transport Impact Assessment Guidelines.

Under the WAPC Guidelines, the level of Transport Impact Assessment required is related to the level of transport impact the proposed subdivision would be likely to have on the surrounding land uses and transport networks. Typically residential subdivisions below 100 lots are considered to have a 'moderate impact' to the surrounding transport network and therefore a Transport Impact Statement is adequate for assessment. The Shire of Gingin as the Approving Authority has also confirmed in early consultation that the subdivision requires a Transport Impact Statement.

Figure 1-1: Level of Assessment

LAND USE	MODERATE IMPACT	HIGH IMPACT
	Transport Impact Statement required	Transport Impact Assessment required
	10 – 100 vehicle trips in the peak hour	> 100 vehicle trips in the peak hour
Residential	10–100 dwellings	>100 dwellings

Source: WAPC Guidelines

2 Proposed Subdivision

2.1 Existing Land Uses

The site is currently vacant with frontages to Brockman Street on its northern and eastern boundaries and Weld Street on its western boundary. Lily King Place also abuts the south-eastern part of the site adjacent to the future town centre.

The northern part of the site is located within a 'residential' zone (R5, R10 and R10/30) and the southern part of the site is located within a 'town centre' zone. Part of Lot 601 which is adjacent to Lily King Place is also located in the 'parks and recreation' zone.

Surrounding land uses include:

- Residential dwellings to the north and east.
- Gingin cemetery to the north.
- Retail shops and community facilities (including Shire of Gingin office) to the east and south.
- Rural land to the west.

The site and surrounding area is presented in Figure 2-1, with the land use zoning map presented in Figure 2-2.

Figure 2-1: Site and Surrounds

Source: Dynamic Planning, MNG Mapping Tool

Figure 2-2: Land Use Zoning

Source: Shire of Gingin Local Planning Scheme No 9 Map 13 Gingin Townsite

2.2 Proposed Land Uses

It is proposed to subdivide the site into 99 residential lots with an average lot size of 1,205 m^2.

An additional three lots of 2.27ha and two 1,000 m^2 in area are proposed as commercial / retail for a future town centre expansion located in the south-east corner of the site.

A separate and large 7,110 m^2 lot is to be public open space located between the town centre lots enabling a people-friendly and green community space that is within 400m (~5-minute) walking distance by over 80% of the proposed residential subdivision (refer Figure 2-4).

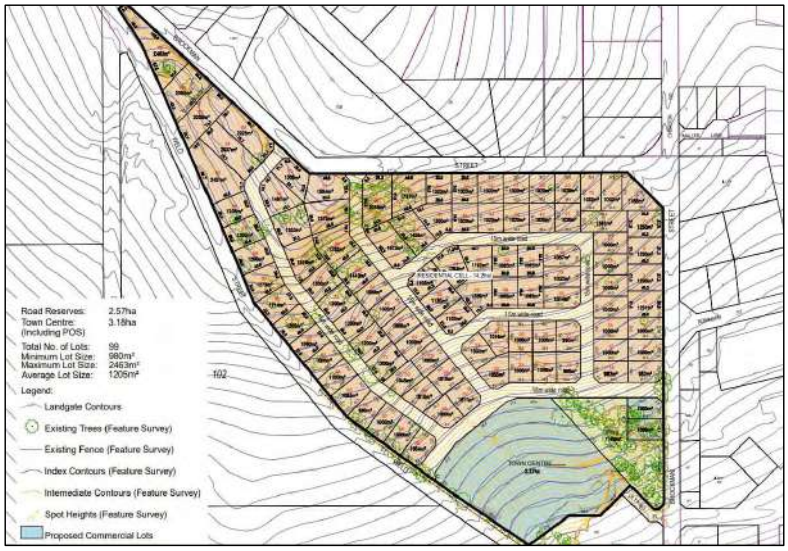
It is intended that following a subdivision approval, a separate development application will be lodged in the future for the development of the three town centre lots.

The site is expected be developed in stages, with the release of approximately 15-20 residential lots per annum and the staged development of the town centre over a 10 year period.

A copy of the subdivision concept plan is provided Figure 2-3 and a full plan attached at Appendix A.

Proposed Subdivision

Figure 2-3: Subdivision Plan



Source: Dynamic Planning, dated 17 August 2022

Figure 2-4: Typical 400m walking catchment to/from the Public Open Space

Source: Nearmap

3 Vehicle Access and Parking

3.1 Access Arrangements

Internal access is provided by a network of local Access Streets with a 15m wide road reserve along the residential streets and a 18m wide road reserve adjacent to the future town centre.

The internal streets connect to the existing external network via three T-intersections to Brockman Street (two along the northern boundary and one along the eastern boundary) and one T-intersection to Weld Street.

Direct access is proposed for the residential lots that front Brockman Street.

Along Weld Street, the existing posted speed limit is 80 km/h along the future residential frontage. Consequently, direct access has not been currently proposed to any of the residential lots abutting Weld Street. This posted speed is considered too high for a residential area that is adjacent a town centre. Consequently, a discussion on safe system is provided in section 9.3 with a recommendation to reduce the speed limit in the area by extending the 50km/hr section from the town centre across the frontage of the subdivision.

Overall, the proposed street network provides a high level of internal connectivity and good external linkages for local vehicles, pedestrian and bicycle movements.

3.2 Parking Arrangements

3.2.1 Residential

The lots are sufficiently large (980 m^2 to 2,463 m^2) to enable driveway access to carports or garages and visitor parking on the driveways themselves on private property. On-street parking could be provided on one side of the 15m wide internal access streets that will be suitable for use by residential visitors.

3.2.2 Future Commercial / Retail adjacent the Town Centre

It is intended that adequate off-street car parking will be provided on the commercial/retail/town centre lots for staff and customers. The detailed design and layout of the parking arrangements for the commercial uses are to be addressed when the exact land use type is confirmed. It is intended that access to and from the future retail centre would also occur directly from Weld Street, details of which can be provided with future individual development applications.

3.3 Service Vehicle Access / Loading Arrangements

3.3.1 Residential

As is the current practice, the residential area will be serviced by the Shire of Gingin's kerbside waste collection along Brockman Street and the internal street network.

3.3.2 Future Commercial / Retail adjacent the Town Centre

Service vehicle access will be required for the future developments on the town centre lot.

The size of the service vehicle will depend on the exact retail/commercial uses proposed as part of the future development application, however, as all roads are designed to cater for an as-of-right 19m semi-articulated vehicle, it is expected that provision for loading for these will be provided and demonstrated, unless the use of a smaller 12.5m or 8.8m long rigid truck(s) is proposed.

The access arrangements and design of any loading dock(s) for the relevant service vehicle will be determined as part of a future development application, however, it is expected that a service vehicle would use the 18m wide internal public Access Street in combination with any access arrangements to Lily King Place and/or Weld Street to access the town centre lot. It is intended that access to and from the future retail centre would also occur directly from Weld Street, details of which can be provided with future individual development applications.

4 Traffic Volumes

4.1 Peak Hour Volumes

The WAPC's Transport Impact Assessment Guidelines provides the following typical vehicle trip rates for the proposed land uses:

Table 4-1: Typical Land Use Vehicle Trip Rates

Land Use	Unit	AM Peak Hour Trip Rate			PM Peak Hour Trip Rate		
		In	Out	Total	In	Out	Total
Residential	Dwellings	0.2	0.6	0.8	0.5	0.3	0.8
Retail (Non-Food)	100 m² GFA	1.0	0.25	1.25	2.0	2.0	4.0

The subdivision application includes 99 residential lots.

The exact land use mix and actual Gross Floor Areas of the town centre lot(s) is currently not confirmed and subject to future individual development assessment, however, for the purpose of this subdivision assessment we have *assumed* a small local supermarket (IGA or similar) of some 2,200m² Gross Floor Area (including walls and back of house areas).

The anticipated peak hour traffic volumes are set out in Table 4-2.

Table 4-2: Peak Hour Traffic Volumes

Land Use	Unit	Yield	AM Peak Hour Traffic Generation			PM Peak Hour Traffic Generation		
			In	Out	Total	In	Out	Total
Residential	Dwellings	99 dwellings	20	59	79	49	30	79
Retail (estimate)	Retail (Non-Food)	2,200 m² GFA (Approx.)	22	6	28	44	44	88

4.2 Daily Volumes

To estimate daily traffic generation for the proposed land uses, residential and retail land uses typically have a peak hour to daily traffic volume ratio of 1 to 10 (i.e. daily volumes are approximately 10 times higher than the peak hour volumes).

It is noted that retail uses have different traffic generation rates between the AM and PM peak hours. For the purpose of providing a robust assessment, we have assumed that the daily volume will be 10 times higher than the PM peak hour volume.

The daily traffic volumes are set out in Table 4-3.

Traffic Volumes

Table 4-3: Daily Traffic Volumes

Land Use	Unit	Yield	Daily Traffic Generation (trips per day, two-way)
Residential	Dwellings	99 dwellings	790
Retail (estimate)	Retail (Non-Food)	2,200 m² GFA (Approx.)	580*
Total			**1,370 trips / day (two-way)**

* Averaged between AM peak flow and PM peak flow and multiplied by 10.

Based on the above, this subdivision is expected to generate approximately (two-way):

- AM Peak 107 trips over one hour[1]
- PM Peak 167 trips over one hour[1]
- Daily 1,370 trips per day[1]

Table 2.4 from the *Austroads publication, Guide to Traffic Management Part 6 – Intersections, Interchanges and Crossings* provides advice as to intersection and crossover performance in peak flow conditions about possible further analysis. This is summarised in Table 4-4. If the calculated expected traffic flows for this subdivision exceed those shown in Table 4-4 further intersection traffic assessment is typically required.

Table 4-4: Austroads Guidelines

Major Road Type	Major Road Flow (two-way, vph)	Minor Road Flow (two-way, vph)
Two-lane	400	250
	500	200
	650	100
Four-lane	1,000	100
	1,500	50
	2,000	25

Traffic generated by the residential portion of the site (79 trips per hour) is expected to be distributed to Brockman Street and Weld Street via the proposed four (4) local street intersections as well as the lots with direct access to Brockman Street.

[1] *Noting that Retail area is only an estimate.*

Traffic generated by the estimated commercial / retail portion of the site (88 trips per hour) will be distributed either via the 18m wide local access street that connects Brockman Street and Weld Street, to/from Weld Street direct, or to/from Lily King Place to Brockman Street.

Weld Street is carrying average 75 vehicles per hour near the site and the north-south section of Brockman Street is estimated to carry 140 vehicles per hour (refer Chapter 5 discussion).

Table 4-4 notes there is no requirement to undertake a detailed intersection assessment at any of the intersections within the proximity of the subject site. The subdivision is expected to generate two-way traffic flows less than 42 vehicles per hour[2] (the "Minor" road) whilst traffic flows on Brockman Street (the "Major" road) is assumed to be less than 140 vehicles in any peak periods.

It has been raised by the Shire of Gingin that the existing intersection of Weld Street / Brockman Street to the north-west of the site has an unconventional layout as shown in Figure 4-1. Notwithstanding, the existing traffic volumes and volumes generated by the site are low with the majority of traffic expected to be distributed to the south. As such, only a small proportion of the overall site traffic is expected to use this intersection representing only a very minor increase on existing volumes (approx. 75 vph). It is also noted that there have been no recorded crashes at the intersection over the previous five year period.

Figure 4-1: Existing Weld Street / Brockman Street Intersection

Source: Dynamic Planning, MNG Mapping Tool

[2] *Assuming 79 and 88 hourly trips is equally distributed over 4 access points = 42 vehicle trips per hour.*
Or assuming a worst-case scenario that all generated traffic is distributed to 2 access points = 84 vehicle trips per hour.

Traffic Volumes

4.3 Type of Vehicles

4.3.1 Residential

The type of vehicles accessing the residential lots will primarily be standard passenger cars belonging to the residents and visitors. In the municipality of Gingin and surrounds, these standard sized cars are typically 4WD vehicles often towing trailers or caravans. The 15m and 18m wide road reserves with typically 6m and 7m pavement widths respectively, will be able to service these types of vehicles in their mid-block sections and intersections will be suitably designed to suit.

The internal access streets will also be accessed on a once a week basis by the Shire of Gingin's waste collection vehicles.

4.3.2 Future Commercial / Retail adjacent the Town Centre

Customer and staff vehicles are expected to be primarily passenger cars.

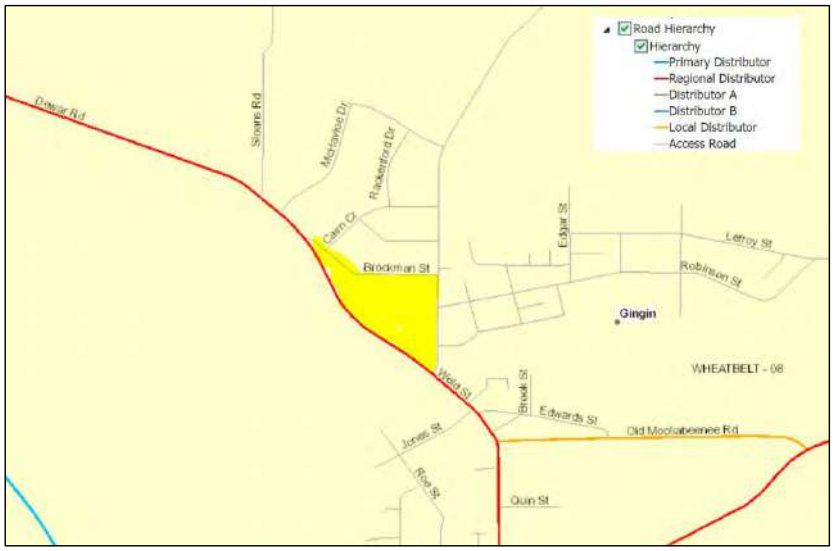
Deliveries to retail tenancies are expected to be undertaken by a range of different commercial vehicles, with the vehicle size and frequency of deliveries dependent on the mix of retail tenancies who express an interest in operating in the town centre.

5 Traffic Management of Frontage Streets

5.1 Brockman Street

Brockman Street is classified as an Access Street under the Main Roads WA Road Hierarchy and abuts the northern and eastern boundaries of the site.

Figure 5-1: Main Roads WA Road Hierarchy



Source: Main Roads WA Road Information Mapping System

The east-west section that runs along the northern boundary of the site has a 60 km/h speed limit and is constructed with a sealed carriageway (approx. 6-7m wide) that provides one traffic lane in each direction. Footpaths are not provided along this section of Brockman Street.

The north-south section that runs along the eastern boundary of the site has a 50 km/h speed limit and is constructed with a sealed carriageway also providing one traffic lane in each direction. A 2.0m wide footpath is provided along the opposite (eastern) side of Brockman Street between Robinson Street and Constable Street.

The intersection of Brockman Street and Cheriton Road is constructed to provide north-south priority, with a left turn slip lane provided between the two sections of Brockman Street.

Based on traffic counts undertaken on Weld Street, the north-south section of Brockman Street carries up to 1,400 vehicles per day.

It is understood that a subdivision known as *Country Heights Estate* located on Cheriton Road approximately 6km to the north of the subject site is currently under development. The *Country Heights Estate* will ultimately be comprised of 314 rural living lots that are expected to generate in the order of 2,500 vehicles per day when fully developed.

The majority of this traffic will travel south along Cheriton Road and Brockman Street past the site, with a proportion of traffic likely travelling along the east-west section of Brockman Street to access Weld Street to travel to/from the west.

Considering this information, the north-south section of Brockman Street may carry in the order of 3,000 vehicles per day in the future, which is considered an acceptable volume for Access Streets.

5.2 Weld Street

Weld Street is classified as a Regional Distributor under the Main Roads WA Road Hierarchy and abuts the western boundary of the site. It has an 80 km/h speed limit along the majority of the site frontage that changes to a 50 km/h limit near the southern boundary of the site.

It is constructed with a sealed carriageway (approx. 7m wide) that provides one traffic lane in each direction. Footpaths are not provided along Weld Street.

Data collected by Main Roads WA recorded an **average daily volume of 746 vehicles per day** in 2018/19 along the site frontage, comprised of 81.1% passenger cars and 18.9% trucks.

A separate count to the south-east of Brockman Street recorded an average daily volume of 2,141 vehicles per day in 2020/21, indicating that the **north-south section of Brockman Street may carry up to 1,400 vehicles per day**.

The proposed town centre lot will abut part of the existing posted 80 km/h section of Weld Street. It is recommended that the 50 km/h speed limit is extended further to the north-west to reduce vehicle speeds and improve road safety past the future town centre development.

5.3 Lily King Place

Lily King Place currently extends for approximately 70m from Brockman Street to a cul-de-sac that abuts the site's southern boundary.

It is constructed with a sealed carriageway (approx. 6m wide) that provides access to a small off-street car park associated with a visitor centre.

6 Public Transport Access

TransWA's N1 Coach Line (East Perth to Kalbarri and Geraldton via Eneabba) stops at Gingin's Shire Office and operates once per day in each direction.

7 Pedestrian Access and Facilities

Limited pedestrian infrastructure is currently provided on the surrounding streets, with a footpath provided along the south side of Lily King Place that connects into the Town Centre lot, as well as a footpath along the east side of Brockman Street (between Robinson Street and Constable Street).

Figure 7-1: Pedestrian infrastructure along east side of Brockman Street (cnr of Constable Street)

The proposed road reserves in the new subdivision (15m along the residential access streets and 18m along the street adjacent the commercial / retail) will facilitate pedestrian access to the residential lots and future town centre development.

8 Cycle Access and Facilities

Currently, no formal cycle facilities are provided in the vicinity of the proposed subdivision.

A 15m wide road reserve is proposed for the residential access streets within the proposed subdivision, with a 18m wide road reserve proposed adjacent to the town centre.

Formal cycle lanes or paths are not proposed (nor needed) within these road reserves. For low volume streets such as all the streets within the proposed subdivision and surrounds (less than 3,000 vpd), cyclists are able to share the carriageways of these streets with local vehicle traffic. This arrangement is expected to function satisfactorily given the anticipated low speeds and volumes of these streets, noting cyclists currently share the carriageway with vehicle traffic along the existing streets within Gingin. However, it is strongly recommended that posted speeds are reduced as low as possible as discussed in Section 10.

The provision of bicycle parking in the town centre will be considered as part of the future development applications for the town centre lots once these are known.

9 Site Specific Issues

9.1 Sight Distances – Brockman Street Crossovers

The Stopping Sight Distance (SSD) requirements for lots fronting Brockman Street have been reviewed in accordance with the *Australian Standard for Off-Street Car Parking (AS/NZS 2890.1:2004).*

Brockman Street has a speed limit of 60 km/h along the east-west section adjacent the site's northern boundary, which equates to a minimum SSD of 55m for a domestic property access.

The north-south section of Brockman Street along the site's eastern boundary has a lower 50 km/h speed limit that equates to a minimum SSD of 40m.

The east-west section of Brockman Street has a bend midway along the site frontage, however, the sight distance of the lots in the immediate vicinity of the bend are not affected as the site is located on the outside of the bend. It also rises from east to west, however, no crests or dips are located along the site frontage.

The western-most lot (Lot 80) is located next to the Weld Street / Brockman Street intersection. To ensure that adequate sight lines are achieved for this lot, it is recommended that the crossover is positioned towards the eastern side of the lot (at least 55m from the western boundary).

The lot in the north-east corner of the site (Lot 8) predominantly fronts the left turn slip lane between the two sections of Brockman Street, as well as having short frontages to the north-south and east-west sections of Brockman Street. From a sight line perspective, it is recommended that access is provided on the eastern boundary of this lot. It is noted that the eastern frontage is only 2.8m wide on the concept subdivision plan, which may need minor modification of the neighbouring lots to achieve a desirable width for a crossover and driveway access and appropriate clearances to a nearby power pole.

The north-south section of Brockman Street is straight and flat meaning that there are no road geometry impediments to the minimum SSD distance being achieved at each crossover location.

It is noted that there are a number of trees along both frontages (both within the road reserve and the site boundary) that may restrict sight lines at some locations. Therefore, it is **recommended that the position of crossovers to individual lots is reviewed at the detailed design stage** to ensure that adequate sight distance is provided at each crossover.

9.2 Sight Distances – Intersections

Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections requires that adequate sight distance be provided at new and upgraded intersections to ensure road safety for all road users.

The types of sight distance that must be provided in the design of all intersections include:

- approach sight distance (ASD)
- safe intersection sight distance (SISD)
- minimum gap sight distance (MGSD).

The relevant checks for the above sight distance types are set out below.

9.2.1 Approach Sight Distance (ASD)

The ASD is the minimum level of sight distance which must be available on the minor road approaches to all intersections to ensure that drivers are aware of the presence of an intersection.

It is measured from a driver's eye height of 1.1m on the approaching vehicle to pavement level at the holding (Give Way or Stop) line.

The internal access streets will be subject to the default built-up areas speed limit of 50 km/h. This corresponds to an ASD of 55m based on a 2 second reaction time.

The **proposed subdivision concept plan meets the minimum ASD requirement** for each intersection with Brockman Street and Weld Street.

9.2.2 Safe Intersection Sight Distance (SISD)

SISD is the minimum sight distance which should be provided on the major road at any intersection.

It is measured along the carriageway from the approaching vehicle to the conflict point and provides sufficient distance for a driver of a vehicle on the major road to observe a vehicle on a minor road moving into a collision situation and to decelerate to a stop before reaching the collision point.

The required SISD distance (assuming a 2 second reaction time) required along Brockman Street and Weld Street for each intersection is as follows:

- Brockman Street – Eastern Frontage (50 km/h) – 97m
- Brockman Street – Northern Frontage (60 km/h) – 123m

Site Specific Issues

- Weld Street (50 km/h) – 97m
- Weld Street (80 km/h) – 181m

A desktop review of the required sight distances found that local street intersection with the north-south section of Brockman Street (eastern boundary), subject to trees and other vegetation not obstructing the sight line to a vehicle positioned behind the Give Way or Stop line on the minor road approach.

The two intersections along the east-west section of Brockman Street are located either side of the bend. The desktop review found that the available sight distance for each intersection looking towards the bend may fall slightly below the required distance for a 60 km/h speed limit, however, the 50 km/h requirement would be met.

Given that the subdivision development will urbanise this section of Brockman Street with direct property frontage and access to a number of lots, we are of the opinion that **it would be appropriate to reduce the existing 60 km/h speed limit to 50 km/h consistent with the default built-up areas speed limit**.

The existing speed limit on Weld Street changes in the vicinity of the proposed intersection from 50 km/h (east of the intersection) to 80 km/h (west of the intersection). The desktop review found that the required sight distance for the respective speed limits has been met for the 50 km/h section to the east, however, the existing road geometry to the west (bending towards the north-west) would prevent the required SISD for 80 km/h to be achieved.

As discussed in Section 5.2, it is **recommended that the 50 km/h speed limit is extended further to the north-west to reduce vehicle speeds and improve road safety past the future built-up subdivision**. The extension of the 50 km/h speed limit to the north-west would allow for the SISD requirements for this intersection to be achieved.

9.2.3 Minimum Gap Sight Distance (MGSD)

The minimum gap sight distance (MGSD) is the distance corresponding to the critical acceptance gap that drivers are prepared to accept when undertaking a crossing or turning manoeuvre at intersections.

It is measured from the point of conflict (between approaching and entering vehicles) back along the centre of the travel lane of the approaching vehicle.

Assuming a critical acceptance gap of 5 seconds for both left and right turn movements, the required MGSD is as follows:

- Brockman Street – Eastern Frontage (50 km/h) – 69m

- Brockman Street – Northern Frontage (60 km/h) – 83m
- Weld Street (50 km/h) – 69m
- Weld Street (80 km/h) – 111m

Our desktop review of the proposed concept subdivision plan found that the MGSD for each **intersection meets the required distance** for the existing speed limits.

9.3 Safe System Road Safety Approach

Safe System is a road safety approach adopted by National and State Governments to generate improvements in road safety. The Safe System approach is underpinned by three guiding principles:

- people will always make mistakes on our roads but should not be killed or seriously injured as a consequence
- there are known limits to the forces the human body can tolerate without being seriously injured
- the road transport system should be designed and maintained so that people are not exposed to crash forces beyond the limits of their physical tolerance.

Central to the Safe System is an acknowledgement of our limited ability as humans to tolerate physical force. The Safe System aims to manage crash energies to prevent death and serious injury. It also recognises that human error in the system is inevitable, no matter how educated and compliant we are in obeying traffic laws.

The likelihood of being involved in a serious casualty crash **rises significantly with even minor increases in travelling speed**. Research has established a clear relationship between changes in average traffic speed and crash outcomes. For a 5% decrease in mean speed, there are typically about 15% fewer serious injury crashes and 20% fewer fatal crashes.

Recent analysis in Western Australia has shown that if every road user in the state slowed down by 1 km/h for a year this would result in a community benefit of ten fewer people being killed (5% of fatalities in 2009) and about 90 fewer people going to hospital (3.5% of people who were seriously injured in 2009). The chances of surviving a crash decrease rapidly above certain impact speeds, depending on the nature of the collision:

- car/pedestrian (vulnerable road users): 30 km/h;
- car/motorcyclist (vulnerable road users): 30 km/h;
- car/tree or pole (run off road impact object): 40 km/h;

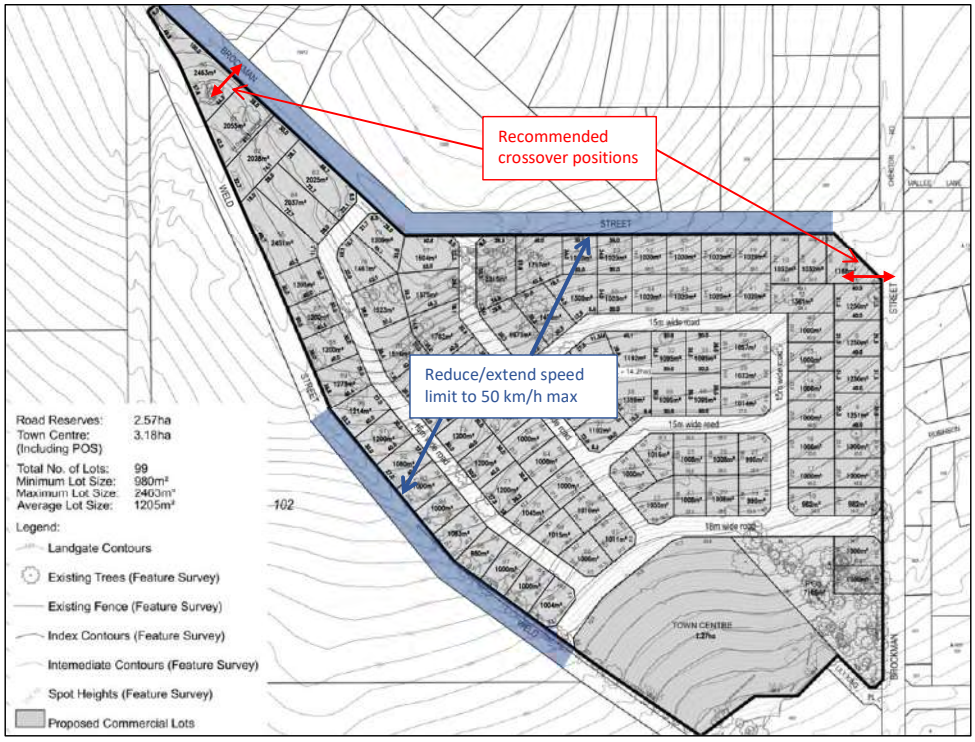
- car/car (side-impact) (right angle): 50 km/h; and
- car/car (head-on): 70 km/h.

As discussed in Section 5.2, it is recommended that a 50 km/h speed limit is applied further to the north-west of Weld Street to reduce vehicle speeds and improve road safety past the future built-up subdivision.

9.4 Summary

A summary of the above recommendations is presented in Figure 9-1.

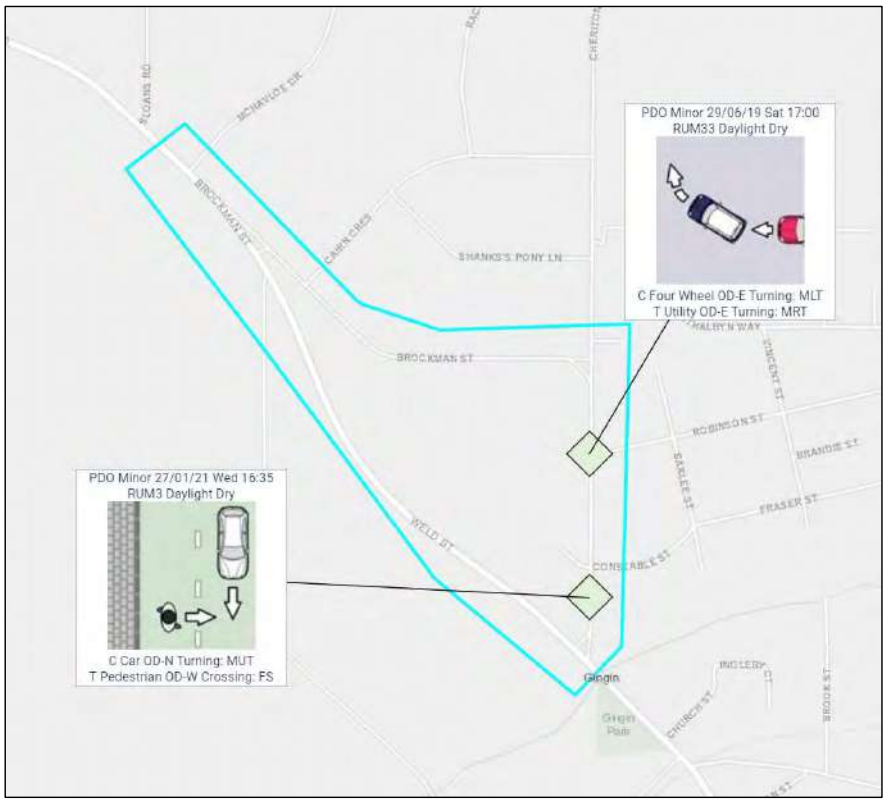
Figure 9-1: Summary of Site Specific Issues



10 Safety Issues

Crash information for the last 5 years of available data has been retrieved from Main Roads WA's Integrated Road Information System (IRIS). In the five year period between January 2017 and December 2021 there were two (2) recorded crashes.

Figure 10-1: Crash Information – Main Roads WA



Source: Main Roads WA Integrated Road Information System (IRIS)

A single crash was recorded along the site's frontage, with a rear end crash occurring at the intersection of Brockman Street and Robinson Street at 5pm on 29 June 2019. The severity of the crash was recorded as minor.

An additional crash was recorded on Brockman Street just south of the site at 4:35pm on 27 January 2021. This crash involved a vehicle hitting a pedestrian and was recorded as minor severity.

Safety Issues

The relatively low number of crashes combined with the low severity of the crashes that have occurred indicates that there are no significant existing road safety issues affecting the streets and intersections surrounding the site and accordingly no remedial treatments are recommended.

11 Conclusions

As a result of the transport assessment undertaken for the proposed subdivision located at Lot 601 Brockman Street in Gingin, the following findings have been made:

1. The proposed subdivision is not expected to generate significant vehicular trips, with the residential development expected to generate approximately 79 vehicle trips in the peak hours (two-way) and the retail/commercial component is estimated to generate approximately 88 vehicle trips in the PM peak hour (two-way).
2. The impacts of these traffic volumes generated by the subdivision on the surrounding road network are considered acceptable.
3. The residential lots are sufficiently large (980 m^2 to 2,463 m^2) to enable driveway access to carports or garages and visitor parking on the driveways themselves on private property. On-street parking could be provided, if needed on one side of the 15m wide access streets or both sides of the 18m wide street, if needed.
4. Off-street car parking will be provided on the commercial/retail/town centre lots for staff and customers with the details of the parking arrangements to be confirmed as part of future development application for those lots.
5. Limited public transport currently exists in Gingin and no additional services is proposed as part of this subdivision.
6. The public open space located in the south-east corner of the site is suitably located between the town centre lots and is also located within 400 metres walking distance from the majority of the new subdivision lots.
7. The proposed road reserves (15m along the residential access streets and 18m along the street adjacent the commercial / retail) will facilitate pedestrian access to the residential lots and future town centre development.
8. It is recommended that the crossover to Lot 80 located in the north-west corner of the site be positioned towards the eastern side of this lot (at least 55m from the western boundary).
9. The crossover to Lot 8 in the north-east corner of the site be provided to the north-south section of Brockman Street.
10. It would be appropriate to reduce the existing 60 km/h speed limit along the east-west section of Brockman Street to 50 km/h consistent with the default built-up areas speed limit.
11. It is recommended that the 50 km/h speed limit on Weld Street is extended further to the north-west to reduce vehicle speeds and improve road safety past the future built-up environment.

Conclusions

12. The Approach Sight Distance (ASD) and Minimum Gap Sight Distance (MGSD) requirements for each intersection have been met.
13. Subject to the above speed limit changes being made, the proposed intersections will also meet the Safe Intersection Sight Distance (SISD) requirements.
14. A review of crash statistics over the previous five year period did not find any existing road safety issues affecting the streets and intersections surrounding the site.

The required WAPC checklist for this Transport Impact Statement is attached at Appendix B.

Appendix A Subdivision Concept Plan

Road Reserves: 2.57ha
Town Centre: 3.18ha
(Including POS)

Total No. of Lots: 99
Minimum Lot Size: 980m²
Maximum Lot Size: 2463m²
Average Lot Size: 1205m²

Legend:

- Landgate Contours
- Existing Trees (Feature Survey)
- Existing Fence (Feature Survey)
- Index Contours (Feature Survey)
- Intemediate Contours (Feature Survey)
- Spot Heights (Feature Survey)
- Proposed Commercial Lots

SUBDIVISION CONCEPT

LOT 601 BROCKMAN STREET
GINGIN

Urban Development Institute of Australia WESTERN AUSTRALIA
PIA Planning Institute Australia
CPP CERTIFIED PRACTISING PLANNER

SCALE: 1:2500 @ A3
DATE: 17th AUGUST 2022
FILE: 1508_17.08.2022.dwg
DRAW: - SB
CHECKED: -

DYNAMIC PLANNING
AND DEVELOPMENTS
e: admin@dynamicplanning.net.au
t: (08) 9275 4433
f: (08) 9275 4455
SUITE 15, 29 COLLIER ROAD
MORLEY WA 6062
ABN: 99 169 411 705

N W E S

Appendix B WAPC Checklist – Transport Impact Statement

Item	Provided	Comments/Proposals
Proposed Development		
Existing Land Uses	Y	
Proposed Land Use	Y	
Context with Surrounds	Y	
Vehicular Access and Parking		
Access Arrangements	Y	
Public, Private, Disabled Parking Set Down/Pick Up	Y	Off-street parking arrangements for the retail/commercial lots will be confirmed once retail uses are known and as part a future development application.
Service Vehicle (Non-Residential)		
Access Arrangements	Y	
On/Off-Site Loading Facilities	Y	Loading arrangements for the retail/commercial lots will be confirmed as part a future development application.
Service Vehicles (Residential)		
Rubbish Collection and Emergency Vehicle Access	Y	
Hours of Operation (Non-Residential Only)	N/A	To be confirmed as part a future development application.
Traffic Volumes		
Daily or Peak Hour Traffic Volumes	Y	
Type of Vehicles (E.G. Cars, Trucks)	Y	
Traffic Management on Frontage Streets	Y	
Public Transport Access		
Nearest Bus/Train Routes	Y	
Nearest Bus Stops/Train Stations	Y	
Pedestrian/Cycle Links to Bus Stops/Train Station	Y	
Pedestrian Access/Facilities		
Existing Pedestrian Facilities Within the Development (If Any)	N/A	
Proposed Pedestrian Facilities Within Development	Y	
Existing Pedestrian Facilities on Surrounding Roads	Y	
Proposals to Improve Pedestrian Access	Y	
Cycle Access/Facilities		
Existing Cycle Facilities Within the Development (If Any)	N/A	
Proposed Cycle Facilities Within Development	Y	
Existing Cycle Facilities on Surrounding Roads	Y	
Proposals to Improve Cycle Access	Y	
Site Specific Issues	Y	

Safety Issues		
Identify Issues	Y	
Remedial Measures	Y	

LOT 601 BROCKMAN STREET, GINGIN

APPENDIX 7 – Bushfire Technical Note

DYNAMIC PLANNING AND DEVELOPMENTS

Level 1, Bishop's See
235 St Georges Terrace
Perth WA 6000
t: (08) 6218 2200

24 August 2022

Our ref: 22PER2866

Shire of Gingin
PO Box 510
GINGIN WA 6503

Attention: Planning Officer

Dear Sir/Madam,

Bushfire Planning Advice – Lot 601 Brockman Street, Gingin

Eco Logical Australia (ELA) has been engaged to provide bushfire planning advice in support of the proposed subdivision of Lot 601 Brockman Street, Gingin (the subject site) for residential purposes.

ELA has undertaken a review of the subject site and identified that the site is not mapped as a designated bushfire prone area (Figure 1). Consequently, bushfire planning requirements under *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7) and *Guidelines for Planning in Bushfire Prone Areas v 1.4* (the Guidelines; WAPC 2020) are not triggered.

Notwithstanding this however, the developer has designed the subdivision to ensure that no significant increase in bushfire risk (resulting in trigger of SPP 3.7) results from the proposed development. At a high level, this entails:

- Designing the proposed Public Open Space (POS) area such that it can be excluded under clause 2.2.3.2 of *Australian Standard 3959: 2018 Construction of Buildings in Bushfire Prone Areas* (i.e. <1 ha in area and majority treated as managed land);
- Separating the POS area from residential lots through a public road as an additional safety measure;
- Designing a road network that does not include dead end roads; and
- Extending reticulated water supply to the subject site along with hydrants in accordance with relevant Water Corporation specifications.

Provision of Asset Protection Zones and/or construction of future dwellings to Bushfire Attack Levels in accordance with *Australian Standard 3959: 2018 Construction of Buildings in Bushfire Prone Areas* is not required given the subject site is not a designated bushfire prone area.

It is my professional opinion that no additional bushfire reporting is required to support development of the subject site. I trust this information is sufficient to progress subdivision approval.

Regards,

Daniel Panickar
Operations Manager – Western Australia
Principal Bushfire Consultant

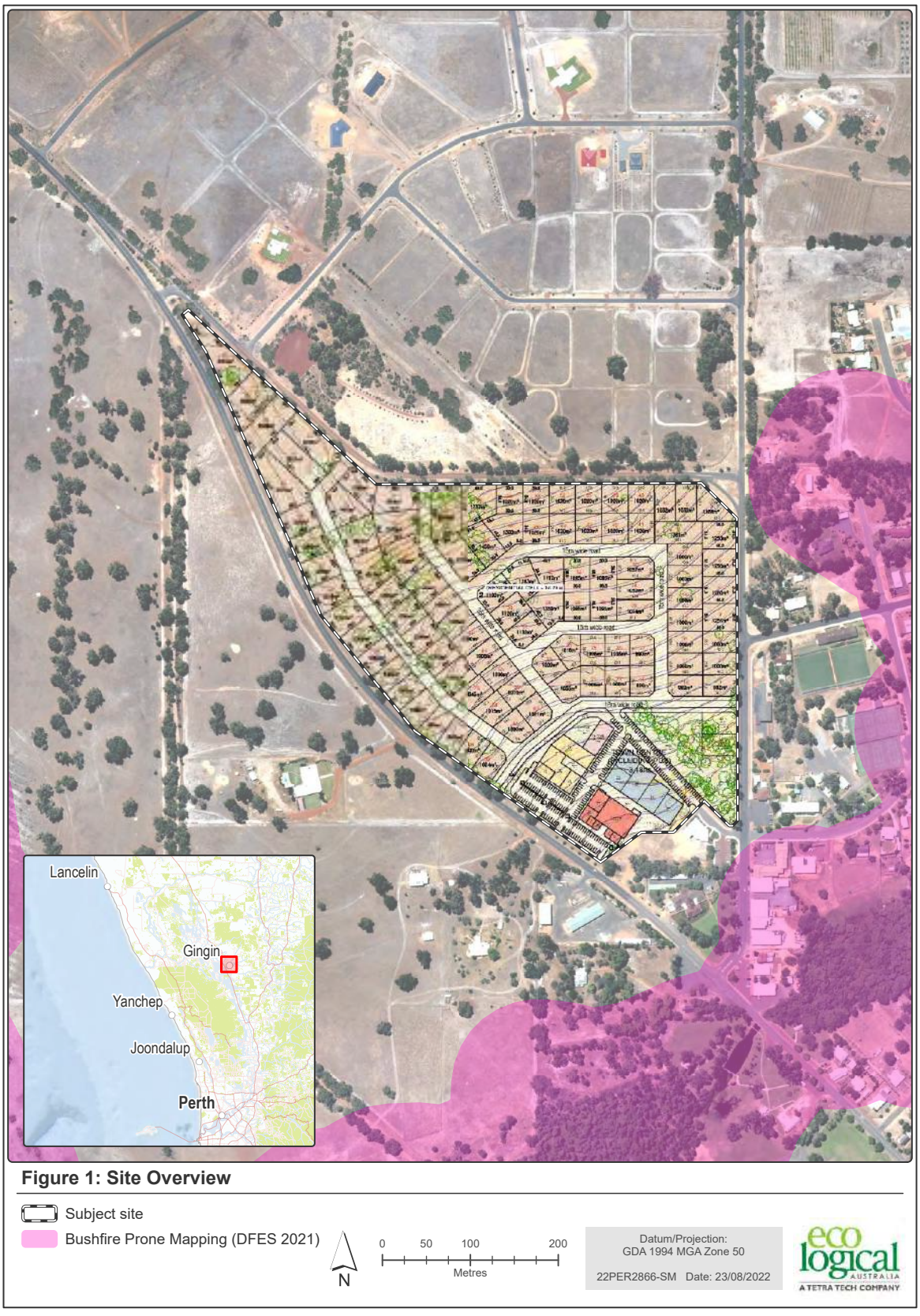


Figure 1: Site Overview

LOT 601 BROCKMAN STREET, GINGIN

APPENDIX 8 – Stormwater Management Technical Note

DYNAMIC PLANNING AND DEVELOPMENTS

13 September 2022

Your Ref:
Our Ref: H22063Av3

TABEC Civil Engineering Consultants
54-58 Havelock St
West Perth WA 6005
Attention: Chris Bitmead

Dear Chris,

LOT 601 BROCKMAN ST GINGIN STORMWATER MANAGEMENT

As requested, please find below Hyd2o's report detailing stormwater modelling outcomes for the proposed development at Lot 601 Brockman St, Gingin (herein referred to as the site). Hyd2o understand the proposed development of the site will comprise of a residential subdivision, extension of the town centre, and an associated Public Open Space (POS) area. A copy of the subdivision concept plan is provided in Appendix A.

The hydrological modelling detailed in this report has been undertaken to provide an estimate of the volume and area required within the site for stormwater management based on the principles of water sensitive urban design and ensuring post development flows from the site do not exceed predevelopment rates.

1. SITE CHARACTERISTICS

The following site characteristics are presented based on an initial desktop evaluation of the site and a further field investigation conducted by Hyd2o on June 29 2022. A site characteristics plan is provided as Figure 1.

- The site is approximately 17.6 ha in size and is predominantly cleared pasture with the exception of sparse trees and remnant gathering of trees in the south east corner. The site has a relatively steep slope running generally in a north to south direction. Based on Landgate 2m contours the site ranges in elevation for approximately 130 mAHD in the north to 98 mAHD in the south-eastern corner.
- The site is bound by Brockman St to the north and east and Weld St to the west. The southern boundary adjoins Shire of Gingin offices and centres. There are no conservation category wetlands, resource enhancement wetlands, or natural waterways within the site.
- A geotechnical report conducted by Structerre (2022) over the site found that across 12 boreholes the general profile could be summarised topsoil to 0.1m, gravelly sand with clay to 0.6m, sand with clay, with gravel to 0.8m, sandy clay trace gravel to 1.2m and underlain by clay trace sand, trace gravel to the investigated depth of 2.0m. No groundwater was encountered on site during the Structerre (2022) investigation to a depth of 2m at all bore holes however perching in wetter months is expected given the observed profile. Permeability across the boreholes ranged from 0.1 m/day to 2.6

Suite 1 387 Hay St Subiaco WA 6008 | PO Box 1055 Subiaco WA 6904
p +61 8 9382 8683 | f +61 8 6380 1910 | www.hyd2o.com.au

m/day indicating parts of the site as generally unsuitable for infiltration type drainage systems.

- Existing site catchments are shown on Figure 1. Given the topography, the majority of the site flows south overland towards the southern boundary. A cut-off drain within the site and a shallow open drain following the fence line have been constructed directing flow to the east and west respectively and around the Shire buildings. The eastern portion of the site contributes to the pit and pipe system within Brockman St while the western portion contributes to the open cut drain system on Weld St.

- Two minor catchments exist at the top of the site. One is in the northwest corner and drains an external catchment through the site in this location to culverts under Weld St, then flowing south-east through the downstream property toward Roe St. The other small catchment in the north eastern corner is located in the Robinson St drainage system catchment.

- Notably formal drainage (open drain, pipes and pits) exist on Brockman St to the north of the site acting as a cutoff drain so that runoff from rural lots to the north do not contribute flow into the site.

- All flows are conveyed to Gingin Brook, currently without any visible or known water sensitive urban design measures to manage water quality.

- It was noted that although Weld St was recently upgraded, its stormwater management system does not appear to have a formal constructed system to manage runoff. Based on Council anecdotal information (and field observations), overland flow onto and across the road surface currently appears to occur during storm events.

2. STORMWATER MODELLING

Stormwater modelling was undertaken to provide an estimate of the volume and area required within the site for stormwater management post development. The level of detail of the modelling presented below is considered appropriate for informing the development the site concept plan, with further more specific stormwater management detail to be provided at later stages of planning.

This modelling was performed on the basis of estimating site predevelopment flows and ensuing post development flows from the site do not exceed these levels in events up to the 1% Annual Exceedance Probability (AEP) level.

Stormwater modelling was done using XP-Storm. XP-Storm is an industry standard program that performs detailed hydraulic and hydrological calculations to simulate the performance of stormwater systems for a range of design storm events. The design storms modelled by XP-Storm were based on methodology in Australian Rainfall & Runoff (Ball, et al, 2016) and the Bureau of Meteorology Computerised Design Intensity Frequency Duration (IFD) Rainfall System. Storms modelled for the 1% AEP event ranged from the 30 minutes to 12 hour duration.

Predevelopment flows for the site for the 10% AEP event and 1% AEP event were estimated as shown in Table 1. Flow estimates correspond to pro rata flow rates per unit area of approximately 16 L/s/ha and 39 L/s/ha for the 10% AEP and 1% AEP event respectively.

The runoff rates applied to the site for this modelling are shown in Table 1. These rates were estimated using Hyd2o's CURRV runoff calculator, and considered on-site investigation findings (including flood debris levels), the Structerre (2022) geotechnical investigation report, Shire of Gingin flooding anecdotal information, and the Australian Rainfall & Runoff (Ball, et al, 2016) Regional Flood Frequency Estimation (RFFE) Model.

Table 1: Site Predevelopment Flow Estimation

Catchment	Existing Site
Pasture (ha)	17.6
10% AEP EIA @ 37% RO	6.54
1% AEP EIA @ 47% RO	8.31
10 % AEP Event	
Peak Flow (L/s) and Critical Duration (hrs)	279 (3 hours)
Peak Flow per Hectare (L/s/ha)	16
1% AEP Event	
Peak Flow (L/s)	690 (3 hours)
Peak Flow per Hectare (L/s/ha)	39

Catchment mapping for the site post development was done on the basis of existing topography and the subdivision plan in Appendix A. Post development catchment boundaries are shown in Figure 2. While the considerable majority of the site falls within the main catchment towards the POS drainage area sized in this report, some lots and small road sections connecting to existing roads will contribute to existing systems. Note the Town Centre catchment is expected to manage its own runoff with a peak allowable discharge of 89 L/s for the 1% AEP event from that area.

Modelling results for the main POS drainage catchment are shown in Table 2.

Based on a 10.68 ha contributing catchment, the permissible discharge is calculated as 416 L/s for the 1% AEP event. To attenuate flow to this amount, 1199 m^3 of storage was estimated to be required. While Figure 2 shows an indicative area of inundation to provide the required amount of storage as modelled in this report, this is illustrative only to show potential size requirements in relation to POS. Alternative storage configurations to achieve the require volume may be implemented at detailed design stage, particularly with a view to tree retention.

Consistent with advice from the Shire of Gingin a 10% AEP permissible discharge rate of 169 L/s will also need to be met for the storage, and an appropriate outlet configuration sized during detailed design to achieve this will be required as well as meet the 1% AEP flow requirement. Note the drainage pit across the road from the POS on Brockman St with a 375mm diameter piped outlet is considered the most viable option for an outlet connection from the site to the existing system, and its capacity will need to be verified during detailed design.

In relation to Weld St, it is important to note that development of the site as proposed will effectively reduce the area of the site which drains to Weld St from 3.2 ha to 2.1 ha. This reduction is considered likely to improve the current stormwater performance of this area.

For the small road catchments interfacing with existing roads, any additional local storage requirements for these areas will be appropriately determined at detailed design in consultation with the Shire.

Table 1: Post Development Main POS Stormwater Management Area

Catchment	Main POS/Stormwater Area
Large Lots (ha) @ 47% RO	7.37
Road Reserve (ha) @ 92% RO	2.40
POS (ha) @ 32% RO	0.61
Commercial @ 65% RO	0.30
Equiv Imp Area EIA (1% AEP) (ha)	6.06
Storage Parameters	
Approx Storage Invert (mAHD)	98.00
Side Slopes (v:h)	1:6
Nominal Low Level Outlet Modelled (mm)	390
1% AEP Event Modelling	
Modelled Flood Depth (m)	1.08
TWL Area (m^2)	1675
Volume (m^3)	1199
Peak Discharge (L/s)	416
Critical Duration (hr)	1

3. REFERENCES

Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M, Testoni I, (Editors) (2016). Australian Rainfall and Runoff: A Guide to Flood Estimation, Commonwealth of Australia.

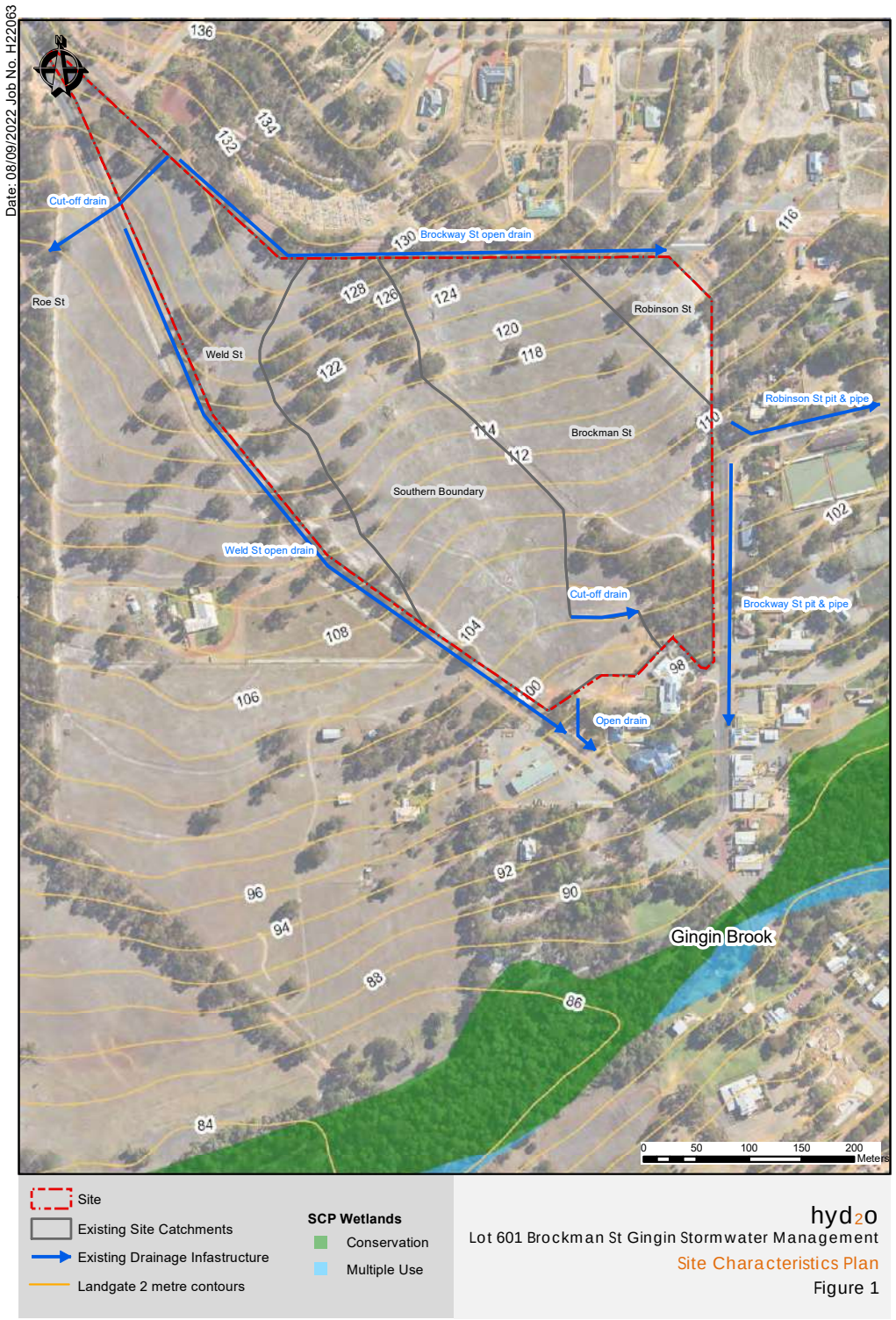
Should you have any queries regarding this report, please do not hesitate to contact Sean O'Sullivan or Sasha Martens of this office.

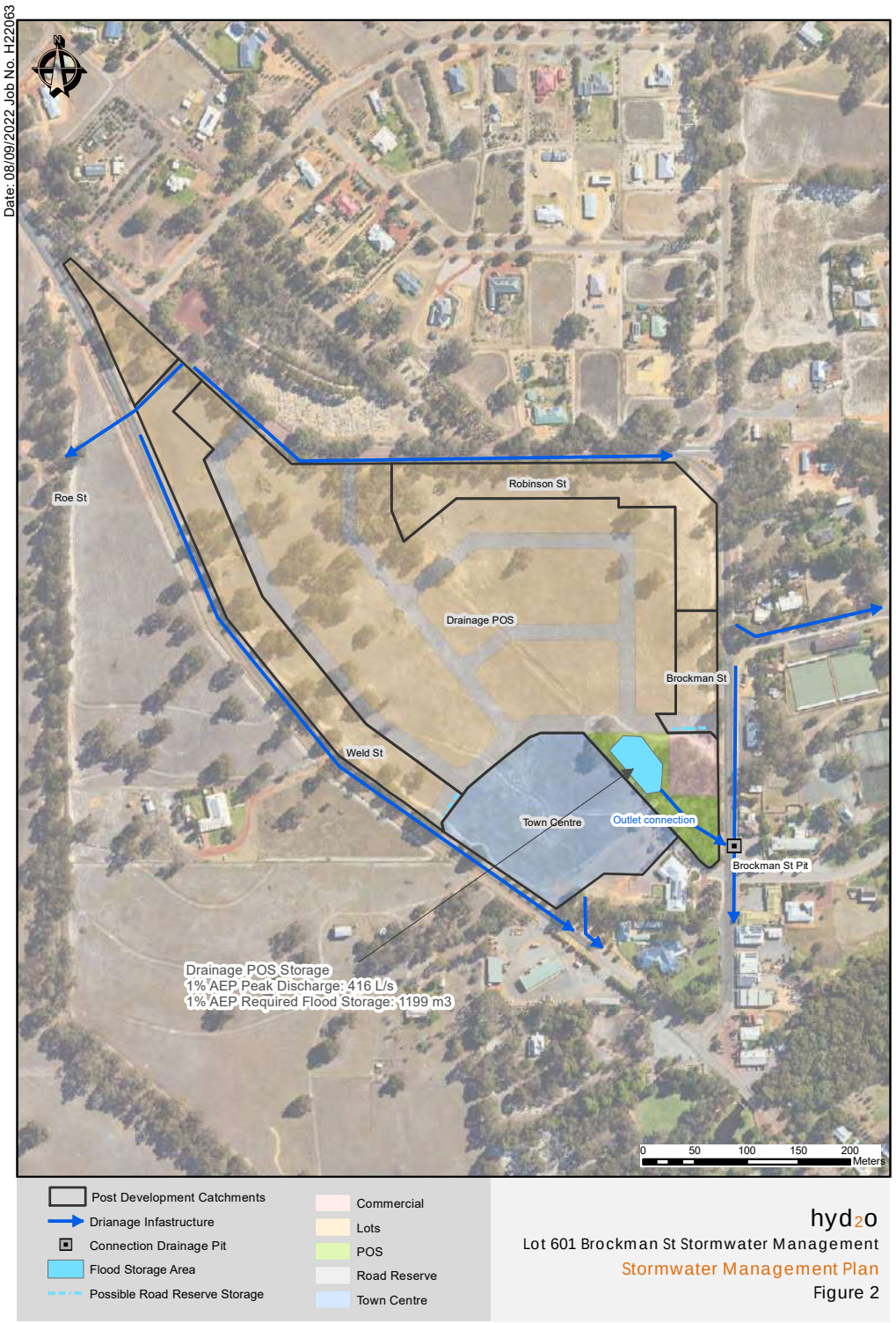
Yours sincerely,

Sean O'Sullivan, Engineering Hydrologist, Hyd2o

Attachments
Figure 1: Site Characteristics Plan
Figure 2: Stormwater Management Plan
Appendix A: Subdivision Concept Plan

FIGURES


Date: 08/09/2022 Job No. H22063
Cut-off drain
Brockway St open drain
Roe St
Weld St
Robinson St
Robinson St pit & pipe
Brockman St
Southern Boundary
Weld St open drain
Cut-off drain
Brockway St pit & pipe
Open drain
Gingin Brook
136
134
132
130
128
126
124
120
118
122
116
114
112
110
102
108
104
106
100
98
96
94
92
90
88
86
84
0 50 100 150 200
Meters
Site
Existing Site Catchments
Existing Drainage Infastructure
Landgate 2 metre contours
SCP Wetlands
Conservation
Multiple Use
hyd2o
Lot 601 Brockman St Gingin Stormwater Management
Site Characteristics Plan
Figure 1



hyd2o

Lot 601 Brockman St Stormwater Management

Stormwater Management Plan

Figure 2

APPENDIX A
Subdivision Concept Plan

Road Reserves: 2.57ha
Town Centre: 3.18ha
(Including POS)

Total No. of Lots: 99
Minimum Lot Size: 980m²
Maximum Lot Size: 2463m²
Average Lot Size: 1205m²

Legend:

- Landgate Contours
- Existing Trees (Feature Survey)
- Existing Fence (Feature Survey)
- Index Contours (Feature Survey)
- Intemediate Contours (Feature Survey)
- Spot Heights (Feature Survey)
- Proposed Commercial Lots

SUBDIVISION CONCEPT

LOT 601 BROCKMAN STREET
GINGIN

Urban Development Institute of Australia WESTERN AUSTRALIA
PIA Planning Institute Australia
CPP CERTIFIED PRACTISING PLANNER

SCALE: 1:2500 @ A3
DATE: 17th AUGUST 2022
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DYNAMIC PLANNING
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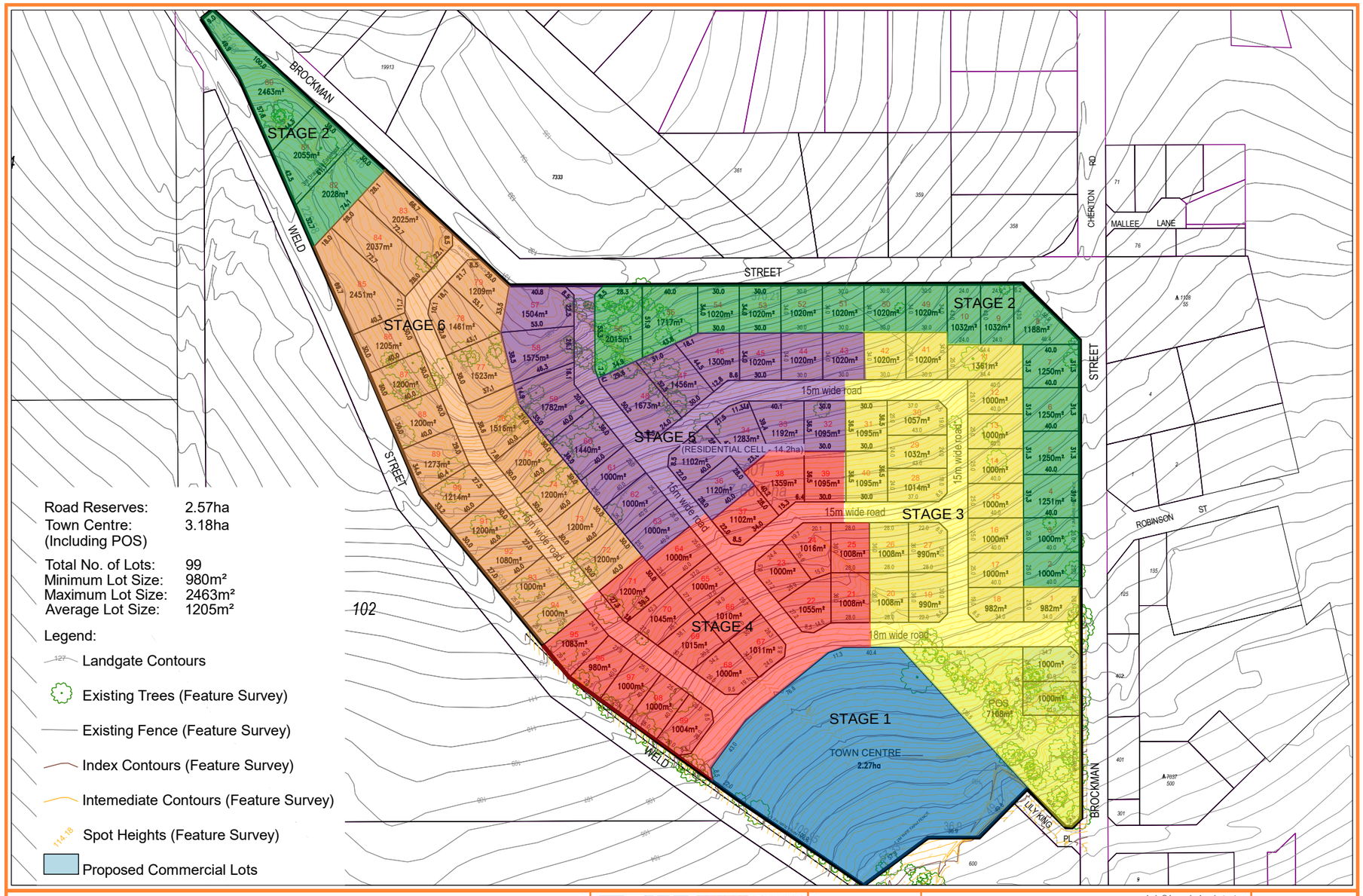
ABN: 99 169 411 705

N W E S



SUBDIVISION CONCEPT

LOT 601 BROCKMAN STREET
GINGIN

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AND DEVELOPMENTS

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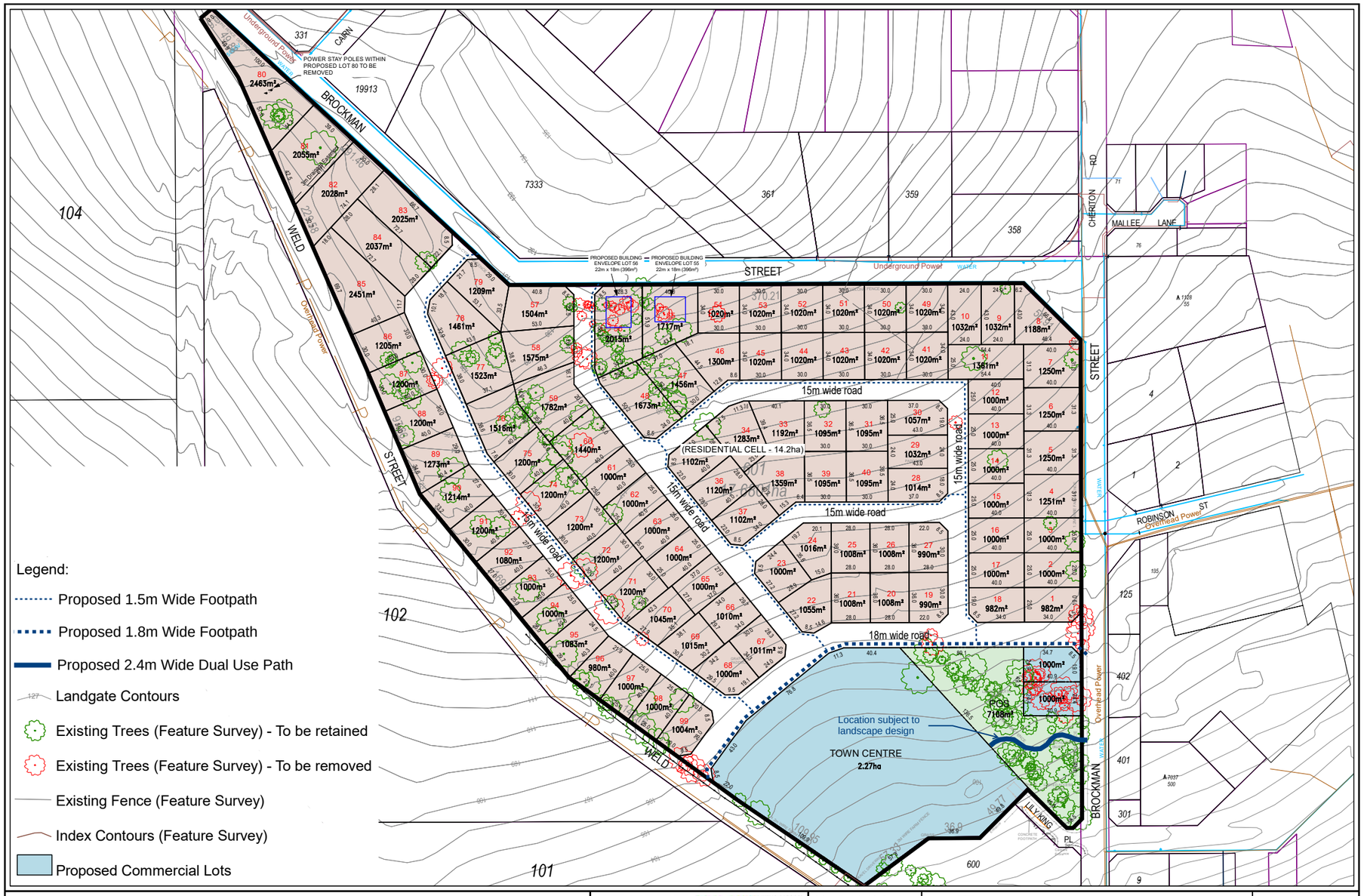

PROPOSED PATH NETWORK

LOT 601 BROCKMAN STREET
GINGIN

Urban Development Institute of Australia WESTERN AUSTRALIA
PIA Planning Institute Australia
CPP CERTIFIED PRACTISING PLANNER

SCALE: 1:2500 @ A3
DATE: 15th SEPTEMBER 2022
FILE: 1508_15.09.2022.dwg
DRAW: - SB
CHECKED: -

DYNAMIC PLANNING AND DEVELOPMENTS
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MORLEY WA 6062
ABN: 99 169 411 705

N W E S

13.2 APPLICATION FOR DEVELOPMENT APPROVAL - PROPOSED ADVERTISING SIGNAGE ON LOT 601 BROCKMAN STREET, GINGIN

File	LND/195
Applicant	Acumen Development Solutions through Dynamic Planning and Development
Location	Lot 601 Brockman Street, Gingin
Owner	Acumen Development Solutions via contract of sale
Zoning	Parks and Recreation Residential 5, 10, 10/30 Town Centre
WAPC No	162831
Author	James Bayliss – Coordinator Statutory Planning
Reporting Officer	Bob Kelly - Executive Manager Regulatory and Development Services
Refer	Nil
Appendices	1. Applicant's Proposal [**13.2.1** - 6 pages]

DISCLOSURES OF INTEREST

Nil

PURPOSE

To consider an Application for Development Approval to install 3 advertising signs on Lot 601 Brockman Street, Gingin.

BACKGROUND

The land is currently zoned R5, R10, R10/30, Town Centre and Parks and Recreation. Prospective purchasers of the land, Acumen, seek to progress subdivision and development based on the current zoning (see Item 13.1).

The proponent seeks to install 3 double sided advertising signs alerting passers-by of a pending land sale and leasing opportunities for the pending retail site.

The proposal comprises of the following:

Sign 1

- Refer location plan on Brockman Street marked 1
- Dimensions 2 metres high by 2.5 metres wide
- Double sided

- Artwork as per below picture, noting the signs will be constructed with sail track locking, to allow fresh vinyl re-skins, to show each new stage of development lots, and updated price guides

Sign 2

- Refer to location plan on Weld Street marked 2
- Same details as above sign, same artwork

Sign 3

- Refer to location plan on Weld Street Marked 3
- Dimensions 2 metres high by 2.5 metres wide
- Double sided
- Artwork as per below picture
- This is a temporary sign, requested to support leasing of retail floor space, requested to be in place for 4 months from date of installation (i.e. until 9 April 2022).

A copy of the Applicant's proposal is provided as **Appendix 13.2.1**.

COMMENT

Stakeholder Consultation

The officer did not identify a relevant stakeholder that the signage application should be referred to. On that basis, no advertising was undertaken.

PLANNING FRAMEWORK

Local Planning Scheme No. 9 (LPS 9) Planning Assessment

The subject land is zoned 'Residential' (R5, R10, R10/30) and 'Town Centre' and 'Parks and Recreation'. The objectives of the respective zones are outlined below:

Residential

a) *Provide for a range of housing types and encourage a high standard of residential development.*

b) *Maintain and enhance the residential character and amenity of the zone.*

c) *Limit non-residential activities to those of which the predominant function is to service the local residential neighbourhood and for self-employment or creative activities, provide such activities have no detrimental effect on the residential amenity.*

d) *Ensure that the density of development takes cognisance of the availability of reticulated sewerage, the effluent disposal characteristics of the land and other environmental factors.*

Town Centre

a) *Promote, facilitate and strengthen the town centre zone as the principal focus of the district in terms of shopping, professional, administrative, cultural, entertainment and other business activities.*

b) *Accommodate a diversity of commercial, cultural and residential facilities.*

c) *Encourage the integration of existing and proposed facilities within the zone so as to promote ease of pedestrian movement and the sharing of infrastructure, as well as to retain the opportunity for any future expansion of the area.*

d) *Provide for the efficient and safe movement and parking of vehicles; and*

e) *Ensure that buildings, ancillary structure sand advertising are of high quality and contribute to the uniqueness of the townscape.*

The application is viewed as being consistent with the above objectives.

Local Planning Policy 1.12 - Advertising Signs

The purpose of this Local Planning Policy is to provide guidance as to the identification of advertising sign types and the requirements for exemptions and requirements for development approval.

Clause 4.1.2 states:

Advertising signs that do not meet the standard requirements of this Policy are deemed not exempt from development approval and will require the lodgement of an application to the Shire for consideration of approval.

The proposed application comprises of three advertising signs to be located on the subject land, in lieu of the above requirement that stipulates one sign per lot.

The proposed signs fall under the category of an 'Real Estate/Construction Sign', which is defined as follows:

An advertising sign for the sale, construction or lease of buildings, land and/or development for the period of time that the property is for sale, lease or under construction.

Sign Type	Deemed to Comply
4.2.17 - Real Estate / Construction Sign	A temporary sign that meets all the following: a) the sign is located on immediately next to the property for sale or lease, and/or where construction is occurring; b) limited to one sign per lot; c) maximum height of 2m and width of 2.5m wide; and d) not be illuminated.

4.1. General Requirements

The relevant development requirements are outlined below with the officer's comment.

4.1.6. The advertising sign shall achieve the following design and location criteria:

- *Be of a minor nature and subservient to the scale of a building and/or place in which they are installed.*
- *Limited to one sign type per lot frontage.*
- *Not cause visual clutter of the streetscape, building or place.*
- *Not display offensive wording or images.*
- *Only display services offered for sale and/or produced on the land.*
- *Not obscure architectural attributes of a building.*
- *Not cause a nuisance, by way of light spillage, to adjoining or nearby properties.*
- *Not flash, pulsate or chase when illuminated.*
- *Not contain colours that interfere with, or are likely to be confused with, traffic control signals whether illuminated or not.*
- *Not obstruct visual sightlines or movement for motorists and pedestrians.*
- *Not obstruct views of significance.*
- *Not be placed on any natural feature, including a rock or tree, on a thoroughfare, or on any bridge or the structural approaches to a bridge.*

Officer Comment:

The only variation identified is that the subject land will contain three signs in lieu of one. This is viewed as appropriate in the circumstances due both to the size of the property and that the signage is located on separate road frontages. There will not be a proliferation or signage, nor will the signage impose unacceptable bulk.

Summary

In view of the above assessment, the officer supports the proposal subject to conditions.

STATUTORY/LOCAL LAW IMPLICATIONS

Local Planning Scheme No. 9

Planning and Development (Local Planning Scheme) Regulations 2015

POLICY IMPLICATIONS

Local Planning Policy 1.12 - Advertising Signs

BUDGET IMPLICATIONS

Nil

STRATEGIC IMPLICATIONS

Shire of Gingin Strategic Community Plan 2022-2032

Aspiration	3. Planning & Sustainability - Plan for Future Generations
Strategic Objective	3.3 Planning & Land Use - Plan the use of the land to meet future requirements incorporating economic development objectives and community amenity

VOTING REQUIREMENTS - SIMPLE MAJORITY

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Kestel SECONDED: Councillor Vis

That Council grant Development Approval to install three Real Estate/Construction Signs on Lot 601 Brockman Street, Gingin subject to the following conditions:

1. **The land use and development shall be undertaken in accordance with the approved plans and specifications unless otherwise conditioned by this Approval.**

2. **This Approval is for three Real Estate/Construction Signs only.**

3. **Sign 3 that relates to leasing of the retail land is to be removed within 4 months from the date of this approval (i.e. 9 April 2023).**

4. **The signs shall be maintained in a good condition of presentation. The Shire reserves the right to direct the Applicant, in writing, to undertake necessary works to maintain the signs to a standard satisfactory to the Shire of Gingin if they fall into a state of disrepair.**

ADVICE NOTES:

Note 1: If you are aggrieved by the conditions of this approval, you have the right to request that the State Administrative Tribunal (SAT) review the decision, under Part 14 of the *Planning and Development Act 2005*.

Note 2: If the development subject to this approval is not substantially commenced within a period of 2 years, the approval shall lapse and have no further effect.

Note 3: Where an approval has so lapsed, no development may be carried out without further approval of the Shire of Gingin having first been sought and obtained.

Note 4: Further to this approval, the applicant is required to submit working drawings and specifications to comply with the requirements of the *Building Act 2011* and *Health Act 2016*, which are to be approved by the Shire of Gingin.

CARRIED UNANIMOUSLY
8 / 0

FOR: *Councillor Fewster, Councillor Kestel, Councillor Sorensen, Councillor Rule, Councillor Balcombe, Councillor Johnson, Councillor Peczka and Councillor Vis*

AGAINST: *Nil*

Development Application for Real Estate Signs

Brookview Estate Gingin, Lot 601 Brockman Street.

This application is for three separate double sided signs, in the category Real Estate Sign, in accordance with Council's policy approved Tuesday 15th November 2022.

Sign 1

- Refer location plan on Brockman Street marked 1
- Dimensions 2 metres high by 2.5 metres wide
- Double sided
- Artwork as per below picture, noting the signs will be constructed with sail track locking, to allow fresh vinyl re-skins, to show each new stage of development lots, and updated price guides
- Installation date proposed 9th December

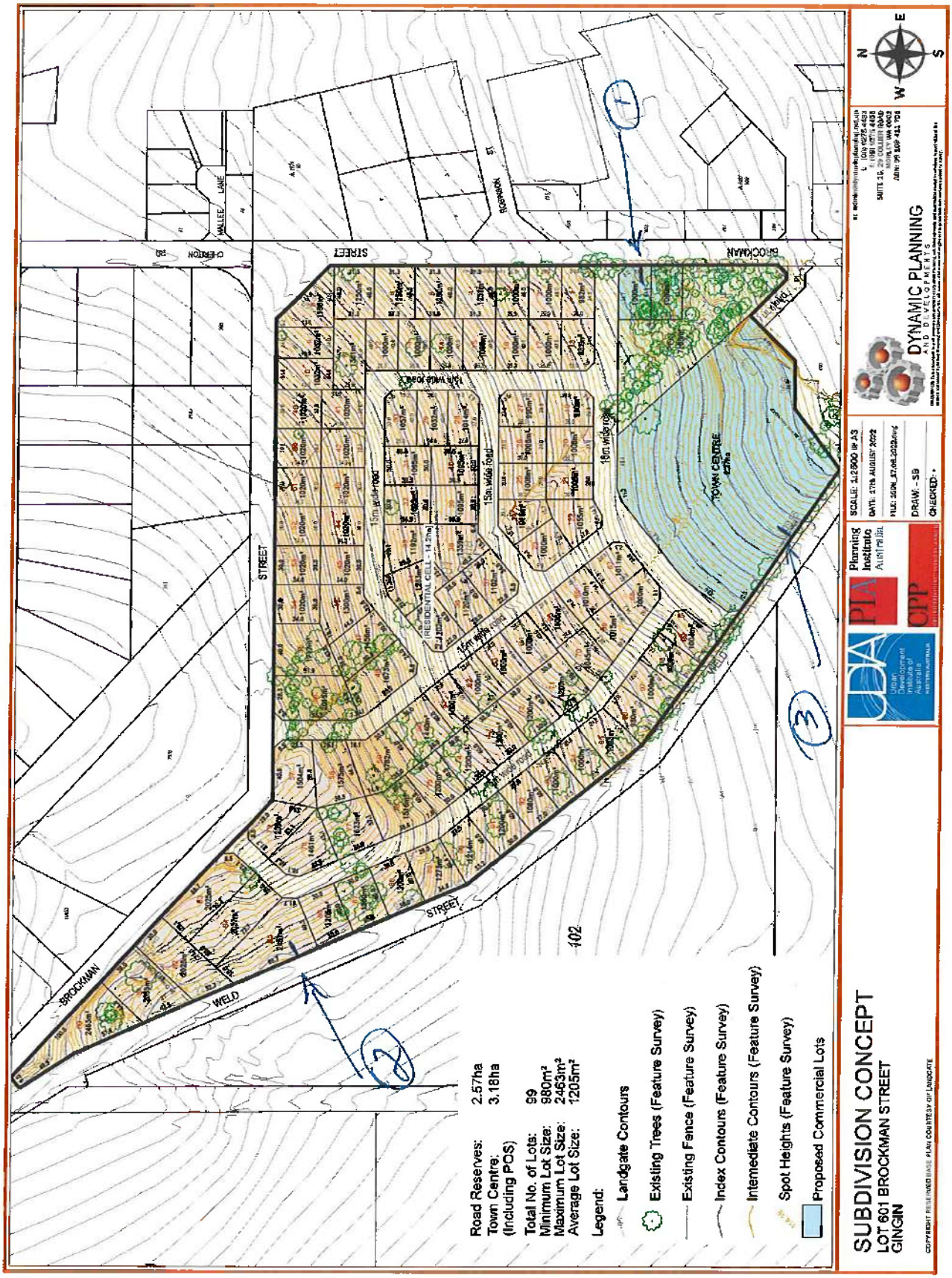
Sign 2

- Refer to location plan on Weld Street marked 2
- Same details as above sign, same artwork
- Installation date proposed 9th December

Sign 3

- Refer to location plan on Weld Street Marked 3
- Dimensions 2 metres high by 2.5 metres wide
- Double sided
- Artwork as per below picture
- This is a temporary sign, requested to support leasing of retail floor space, requested to be in place for 4 months from date of installation.
- Installation date proposed 9th December


Netball Courts
Shanks's Pony Ln
Brockman St
Weld St
Roe St
Cheriton Rd
Strathalbyn Way
Gingin Cemetery
Brockman St
Brockman St
Barlee St
Gingin Volunteer Fire and Rescue Service
Vincent St
Robinson St
St Catherine of Siena Catholic Church
Gingin Police
Barlee St
Brockman St
Gingin Road Board Building
Bendigo Bank
Weld St
Shire of Gingin
Brockman St
Weld St
IGA Xpress Gingin
Gingin Brook
Ingleby Cr
Roe St
Roe St
Roe St
Weld St
Weld St
Weld St
1
2
3


SUBDIVISION CONCEPT
LOT 601 BROCKMAN STREET
GINGIN
DYNAMIC PLANNING AND DEVELOPMENTS
Road Reserves: 2.57ha
Town Centre: 3.18ha
(Including POS)
Total No. of Lots: 99
Minimum Lot Size: 980m²
Maximum Lot Size: 2463m²
Average Lot Size: 1205m²
Legend:
Landgate Contours
Existing Trees (Feature Survey)
Existing Fence (Feature Survey)
Index Contours (Feature Survey)
Intermediate Contours (Feature Survey)
Spot Heights (Feature Survey)
Proposed Commercial Lots
BROCKMAN STREET
WELD STREET
MALLEE LANE
CHERITON
ROBINSON ST
TOWN CENTRE
(RESIDENTIAL CELL - 14.2ha)
15m wide road
102

FOR LEASE

COMMERCIAL & RETAIL TENANCIES

- Join FoodWorks Supermarket
- Areas from 50 m²
- Commencement 2023

JEFF BRADDOCK
0412 934 694
JBRADDOCK@BPGA.COM.AU

6389 2242

bpga.com.au

BPG AUSTRALIA


BROOKVIEW
GINGIN
1,000m² & 2,000m²
LOTS FROM JUST
$149,000
REGISTER YOUR INTEREST
brookviewgingin.com.au

13.3 APPLICATION FOR LIQUOR LICENSE - LOT 425 DEWAR STREET, GUILDERTON

File	BLD/4114
Applicant	Belgravia Health and Leisure Group Pty Ltd
Location	Lot 425 Dewar Street, Guilderton
Owner	Shire of Gingin
Zoning	Tourism
WAPC No	NA
Author	James Bayliss – Coordinator Statutory Planning
Reporting Officer	Bob Kelly - Executive Manager Regulatory and Development Services
Refer	Nil
Appendices	1. Aerial map - Lot 425 Dewar Street, Guilderton [**13.3.1** - 1 page] 2. Location Plan - Lot 425 Dewar Street, Guilderton [**13.3.2** - 1 page] 3. Applicant's Proposal [**13.3.3** - 4 pages]

DISCLOSURES OF INTEREST

Nil

PURPOSE

To consider a liquor licensing application being lodged with the Department of Racing, Gaming and Liquor (Liquor Licensing) to issue a 'restaurant' licence with an 'extended trading permit (liquor without a meal)' for the Guilderton Café on Lot 425 Dewar Street, Guilderton.

BACKGROUND

The approval history for the Guilderton Café and General Store does not clearly outline the parameters by which the development must operate. The officer notes that historically the facility has served alcohol under a 'Restaurant Licence', however limited details in relation to operating hours or patronage can be identified.

Applications made to Liquor Licensing by the applicant must be accompanied by a certificate called a Section 40 notice, which is provided by the local government confirming that the premises complies with the relevant planning laws.

The *Liquor Control Act 1988* (the Act) provides for 11 different types of liquor licences in Western Australia. Each licence category varies with respect to permitted trading hours and the way liquor can be sold and supplied to the community.

Information obtained from Liquor Licensing outlines that the limitations of a 'Restaurant Licence' are as follows:

- *A restaurant licence under section 50 of the Act, authorises the sale and supply of liquor to persons on the licensed premises for consumption with a meal supplied by the licensee.*
- *In essence, the business should be focused on the regular supply of genuine meals. The supply of liquor should be secondary to this.*
- *The premises must have a kitchen for preparing food. It must also have sufficient toilet facilities for patrons and staff. In addition, the dining area must always be set up with tables and chairs for dining.*
- *The licensing authority may impose certain conditions on the grant of a restaurant licence to ensure the nature of the business conducted under the licence conforms with representations made to the licensing authority when applying for the grant of the licence or other proceedings under the Act.*
- *Licensees need to be careful when advertising the business to ensure that liquor is not used as an attraction to the premises.*
- *Trading hours of anytime with a general condition that the service is ancillary to a meal.*

It is reasonably common that an 'Extended Trading Permit – Restaurant To Sell or Supply Liquor Without a Meal' accompanies a 'Restaurant Licence' to provide flexibility for alcohol service where patrons do not intend to eat a meal.

The below information is derived from Liquor Licensing and is relevant to consider:

The Act provides flexibility, by way of an extended trading permit, for a restaurant licensee to also sell liquor without a meal, in certain circumstances. In this regard, however, section 50(1a) specifically provides that the consumption of liquor without a meal can only occur where an extended trading permit has been issued under section 60(4)(ca) of the Act, and only where the patron is sitting at a table, or at a fixed structure used as a table.

Section 50A of the Act provides that when the licensing authority grants a restaurant licence that is subject to a condition limiting the maximum number of persons (excluding responsible persons and authorised officers) who may be on the licensed premises to 120, an extended trading permit may also be issued under section 60(4)(ca).

Further, section 53 of the Act provides that the authority conferred by section 50 or by an extended trading permit may be conditioned such that:

- *trading can be restricted to specified hours;*
- *liquor may only be served and consumed at a dining table and not elsewhere;*
- *furniture or fittings be provided or arranged in a specific manner;*
- *no charge is levied;*
- *the premises is maintained to a specified standard;*
- *specified records are kept and made available for inspection; or*
- *any other condition which the Director of Liquor Licensing thinks desirable to prevent improper arrangements or practices.*

Extended trading permits are a privilege and are not an automatic right.

Standard conditions

To ensure that restaurants do not become de-facto bars, conditions will be imposed so as to maintain the predominant purpose of a restaurant – that is, the regular supply of meals.

Where an application for a "liquor without a meal" permit is granted, in accordance with the powers given by section 53 and section 64 of the Act, the licence will be conditioned so that liquor may only be consumed by patrons while seated at a table, or a fixed structure used as a table for the eating of food, and not elsewhere and the sale and supply of liquor to patrons will be restricted to table service by staff of the licensee.

Further, conditions that may be imposed on the permit include, but are not limited to, the following:

- *Pursuant to section 50 of the Act, the purpose of the business carried on at the licensed premises must consist primarily and predominantly of the regular supply of meals (as defined by section 3 of the Act) to customers.*

- *The licensee must determine what criteria are adopted to ensure compliance with this condition. For example, whether or not, for the previous financial year, that 60 per cent of the business turnover during the operation of the permit is derived from the supply of meals (as opposed to liquor) to customers. In this regard, only meals consumed at the licensed premises should be taken into account – the licensee should not include turnover derived from the sale of take-away meals when using this method.*

- *For the purposes of establishing the primary purpose of the business under the licence, the licensee shall, if required to do so, provide to the Director of Liquor Licensing, for the previous financial year, a record of all transactions entered into by or on behalf of the licensee involving the sale or other disposal of liquor and food. The kitchen situated on the licensed premises, together with kitchen and food service staff, must be open and operating with the restaurant's regular full menu being available at all times liquor is sold and supplied to patrons. The regular full menu refers to the menu that the restaurant would normally offer at a particular time of day (for example breakfast, lunch, or dinner) to customers. It does not mean a reduced version of the menu that offers only finger foods or snack type options. Patrons must be able to order a genuine meal (as defined in section 3 of the Act) at any time during the permit hours.*

- *The premises must always be set up and presented for dining and tables cannot be removed or shifted in order to create dance floors or function areas.*

- *The permit does not apply to any bar/servery area identified in the approved plans or, unless the relevant local government authority otherwise consents, to any external trading area that currently trades under an al fresco extended trading permit (i.e. over a local government controlled footpath area).*

- *The licensee is prohibited from promoting and/or advertising the licensed premises as anything other than a restaurant.*

- *The maximum permitted trading hours in respect of the permit are:*

    - *Monday to Saturday between the hours of 6am and 12 midnight;*
    - *Sunday from 10 am to 12 midnight;*
    - *No trading under the permit is authorised on Christmas Day, Good Friday or before noon on ANZAC Day.*

An Aerial Image and Location Plan are provided as **Appendix 13.3.1** and **Appendix 13.3.2** respectively.

The applicant has provided the following information in support of their Section 40 request:

- *We will ensure that the venue is focused on the regular supply of genuine meals. The supply of liquor will be secondary to this. The venue's kitchen will be open and available to serve meals when liquor is available for sale.*

- *The venue's toilet facilities will be accessible to customers whenever the structured seating area of the café is open, and liquor is available for sale. Customers will be required to be seated when consuming liquor.*

- *Sales data of liquor and meals will be electrically recorded via the venue's point of sale system; this will track revenue to ensure the 40/60 liquor-to-meals revenue ratio is not exceeded. These records will be available at the request of the Director of Liquor Licensing.*

- *The proposed operating hours for the licensed area of the venue are 10 am to 10 pm, seven days per week. To prevent noise disruption to the neighbouring caravan park guests, the proposed closing time of 10 pm aligns with the commencement of the Caravan Park's evening noise curfew.*

- *The sale of liquor will not occur at the venue on Christmas Day, Good Friday or before noon on ANZAC Day.*

The Applicant's proposal is provided as **Appendix 13.3.3**.

COMMENT

Stakeholder Consultation

Community consultation is not required in order for the Shire of Gingin to consider endorsing a particular category of licence under the Act.

PLANNING FRAMEWORK

Local Planning Scheme No. 9 (LPS 9) Planning Assessment

Although this report does not undertake a planning assessment of a development, it is pertinent to outline applicable planning provisions given a Section 40 notice is intended to confirm that the premises will comply with the relevant planning laws. It is also relevant given records are ambiguous in relation to when and how the facility was previously approved.

The subject land is zoned Tourism under LPS 9, the objectives of which are to:

a. *Promote and provide for tourism opportunities;*

b. *Provide for a variety of holiday accommodation styles and associated uses, including retail and service facilities where such facilities are provided in support of the tourist accommodation and are of an appropriate scale where they will not impact detrimentally on the surrounding or wider area;*

c. *Allow limited residential uses where appropriate;*

d. *Encourage the location of tourist facilities so that they may benefit from existing road services, physical service infrastructure, other tourist attractions, natural features and urban facilities;*

e. *Ensure that short stay tourist and holiday accommodation are the predominant land uses in the zone; and*

f. *Encourage tourism development that is generally sympathetic to the natural and built features of the surrounding area.*

The land use 'Restaurant' is a permitted (P) use within the Tourism zone, and is defined as follows:

Premises where the predominant use is the sale and consumption of food and drinks on the premises and where seating is provided for patrons, and includes a restaurant licensed under the Liquor Licensing Act 1988.

The facility has historically operated with two distinct components, one being a 'shop' and the second being a 'café/restaurant'. The lessee intends to operate as per the status quo, and should any expansion or alteration be intended in the future, which the officer understands is the case, then development approval for those elements will be considered at that time.

The likely trigger for the need to obtain development approval as referenced above includes an expansion of the shop/restaurant footprint, which will consequently increase the number of patrons and car parking bays required under LPS 9. Notwithstanding the above, as it stands the licence being sought is consistent with the existing use.

The officer notes that the information provided by the Applicant outlines that a conflict between the facility and those residing in the adjacent caravan park will be unlikely to occur. It should be emphasised that this facility is not a pseudo tavern or entertainment establishment and endorsement of the liquor licence requested should not be misconstrued as support for such a development.

Summary

The officer is of the view that it is reasonable for Council to endorse a 'Restaurant licence' with an 'Extended Trading Permit (Liquor Without a Meal)' subject to conditions.

STATUTORY/LOCAL LAW IMPLICATIONS

Local Planning Scheme No 9

Liquor Control Act 1988

POLICY IMPLICATIONS

Nil

BUDGET IMPLICATIONS

Nil

STRATEGIC IMPLICATIONS

Shire of Gingin Strategic Community Plan 2022-2032

Aspiration	1. Attractions & Economy - Actively Pursue Tourism and Economic Development
Strategic Objective	1.1 Investment Attraction - Foster relationships with key stakeholders to attract tourism/economic development initiatives that will contribute to the Shire's economy

VOTING REQUIREMENTS - SIMPLE MAJORITY

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Rule SECONDED: Councillor Kestel

That Council agree that it has no objection to a 'Restaurant Licence' with an 'Extended Trading Permit (Liquor Without a Meal)' being issued under the *Liquor Control Act 1988* for Lot 425 Dewar Street, Guilderton, and recommend that the following conditions be imposed:

1. The premises must always be set up and presented for dining, and tables cannot be removed or shifted in order to create dance floors or function areas.

2. The permit does not apply to any bar/servery area identified in the approved plans or, unless the Shire of Gingin otherwise consents, to any external trading area that currently trades under an al fresco extended trading permit (i.e. over a local government-controlled footpath area).

3. The licensee is prohibited from promoting and/or advertising the licensed premises as anything other than a restaurant.

4. The maximum permitted trading hours in respect of the permit are:

   Monday to Sunday: 10 am - 10 pm

5. No trading under the permit is authorised on Christmas Day, Good Friday or before noon on ANZAC Day.

CARRIED UNANIMOUSLY
8 / 0

FOR: *Councillor Fewster, Councillor Kestel, Councillor Sorensen, Councillor Rule, Councillor Balcombe, Councillor Johnson, Councillor Peczka and Councillor Vis*

AGAINST: *Nil*

GINGIN SHIRE	7 Brockman St Gingin WA 6503 P: 08 9575 2211 E: mail@gingin.wa.gov.au	Shire of Gingin does not warrant the accuracy of information in this publication and any person using or relying upon such information does so on the basis that Gingin Shire Council shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in this information.	Aerial map - Lot 425 Dewar Street, Guilderton Scale: 1:686 Date: 12/02/2019	N

SHIRE OF GINGIN	7 Brockman St Gingin WA 6503 P: 08 9575 5100 255 Vins Way Lancelin WA 6044 P: 08 9575 5155 E: mail@gingin.wa.gov.au	Shire of Gingin does not warrant the accuracy of information in this publication and any person using or relying upon such information does so on the basis that Gingin Shire Council shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in this information.	Location Plan - Lot 425 Dewar Street, Guilderton	
			Scale: 1:1306	Date: 10/11/2022

James Bayliss
Coordinator Statutory Planning
Shire of Gingin
James.Bayliss@gingin.wa.gov.au

Dear James,

I write in relation to the Guilderton Café and General Store's application to apply for a Restaurant License under section 50 of the Act and the corresponding extended trading permit to permit the venue to sell liquor without a meal.

As requested, this letter sets out how we intend to comply with the requirements of the license and extended trading permit:

> We will ensure that the venue is focused on the regular supply of genuine meals. The supply of liquor will be secondary to this. The venue's kitchen will be open and available to serve meals when liquor is available for sale.
>
> The venue's toilet facilities will be accessible to customers whenever the structured seating area of the café is open, and liquor is available for sale. Customers will be required to be seated when consuming liquor.
>
> Sales data of liquor and meals will be electrically recorded via the venue's point of sale system; this will track revenue to ensure the 40/60 liquor-to-meals revenue ratio is not exceeded. These records will be available at the request of the Director of Liquor Licensing.
>
> The proposed operating hours for the licensed area of the venue are 10 am to 10 pm, seven days per week. To prevent noise disruption to the neighbouring caravan park guests, the proposed closing time of 10 pm aligns with the commencement of the Caravan Park's evening noise curfew.
>
> The sale of liquor will not occur at the venue on Christmas Day, Good Friday or before noon on ANZAC Day.

James, thank you for considering this request and your corresponding sanction of Section 40. Please do not hesitate to contact me if you require further details to consider our application.

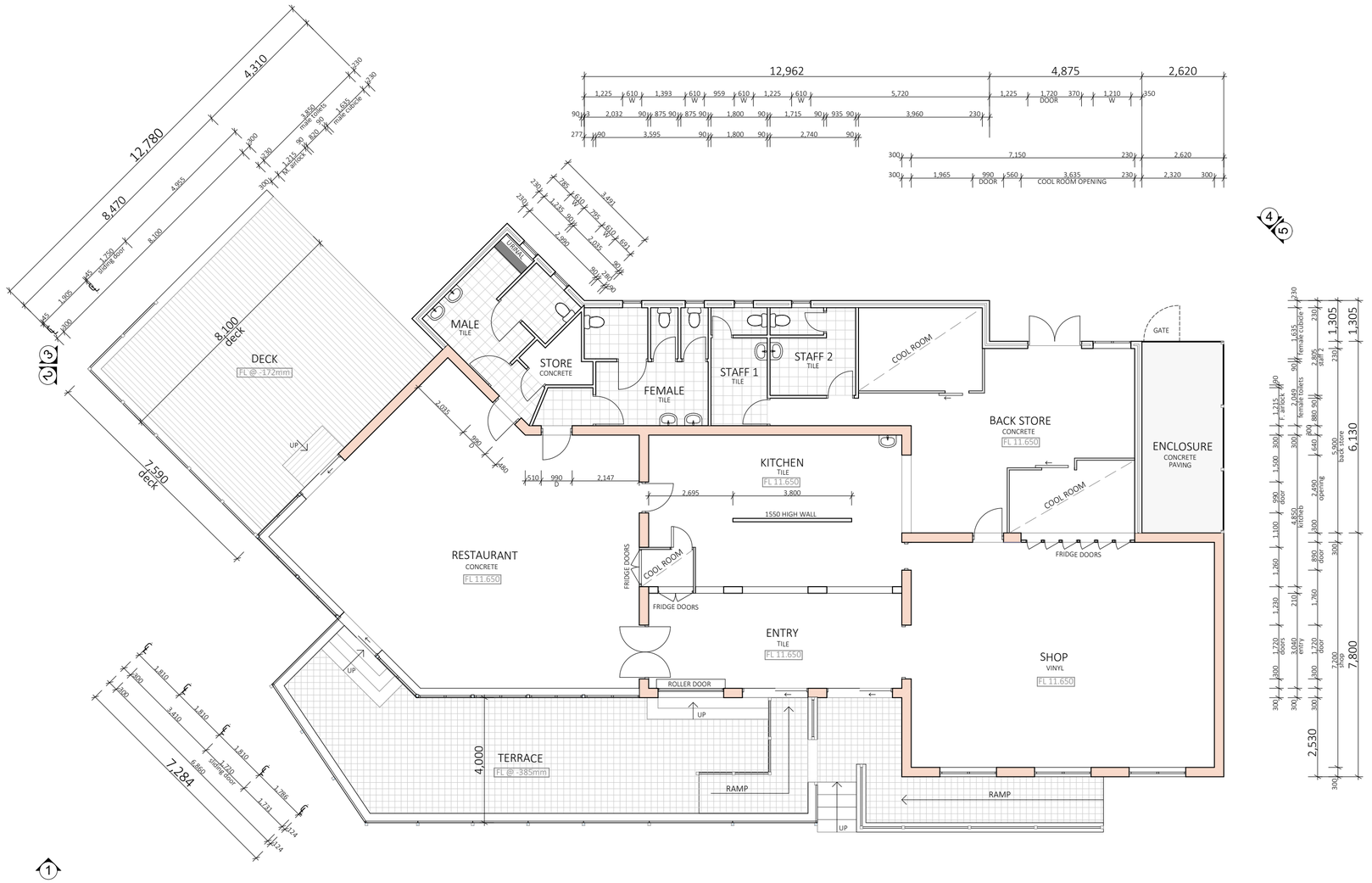
Yours sincerely,

Rohan Gunton
State Manager – Belgravia Pro

belgraviapro

Belgravia PRO Pty Ltd ABN 58 623 398 792
20 Longstaff Road Bayswater Victoria 3153 Australia

Telephone +6 13 8727 7777
Facsimile +6 13 9738 1566



Floor Plan - Existing

Scale 1:100

Guilderston General Store

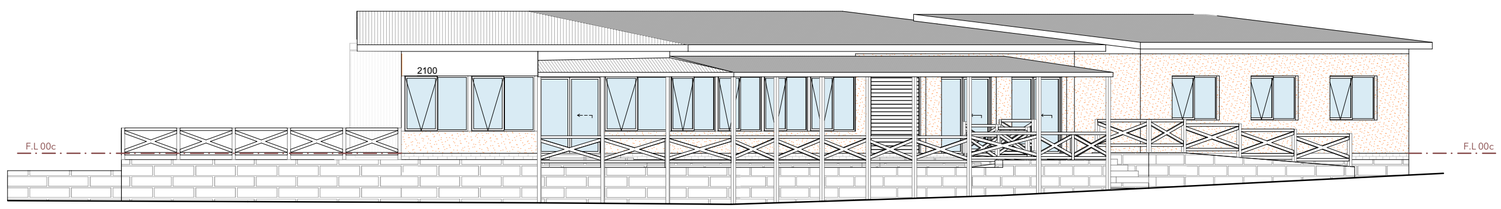
SCALE 1:100 @ A2
10/08/21

NOTE:
ALL DIMENSIONS, LAYOUTS, SITE CONDITIONS AND LEVELS TO BE CHECKED ON SITE PRIOR TO CONSTRUCTION / FABRICATION. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUERVISING OFFICER OR CONFIRMED WITH SOMEONE

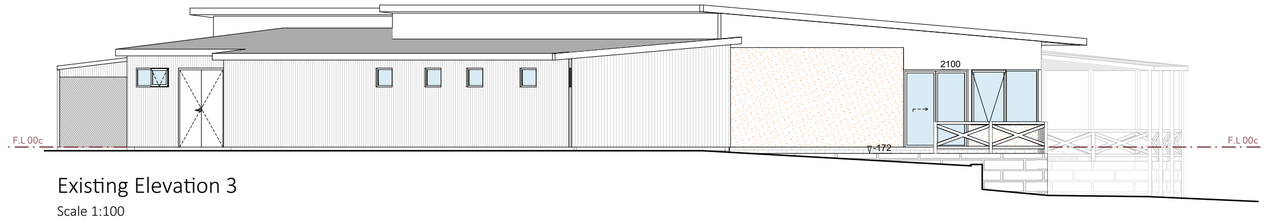
EXTERNAL FINISHED SCHEDULE

- LIMESTONE FOUNDATION
- RAMMED EARTH
- COLORBOND CUSTOM ORB
- BRICK FOUNDATION
- CYCLONE WIRE FENCE

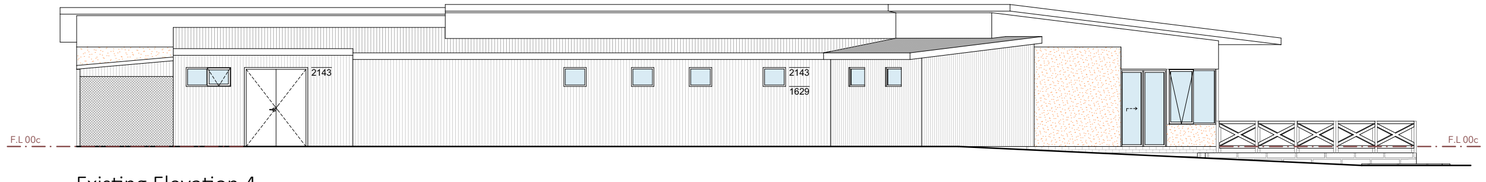
Existing Elevation 1
Scale 1:100



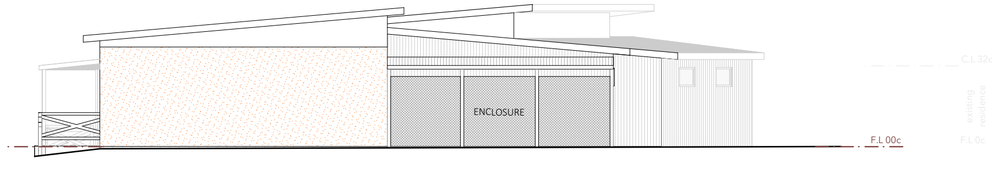
Existing Elevation 2
Scale 1:100



Existing Elevation 3
Scale 1:100



Existing Elevation 4
Scale 1:100



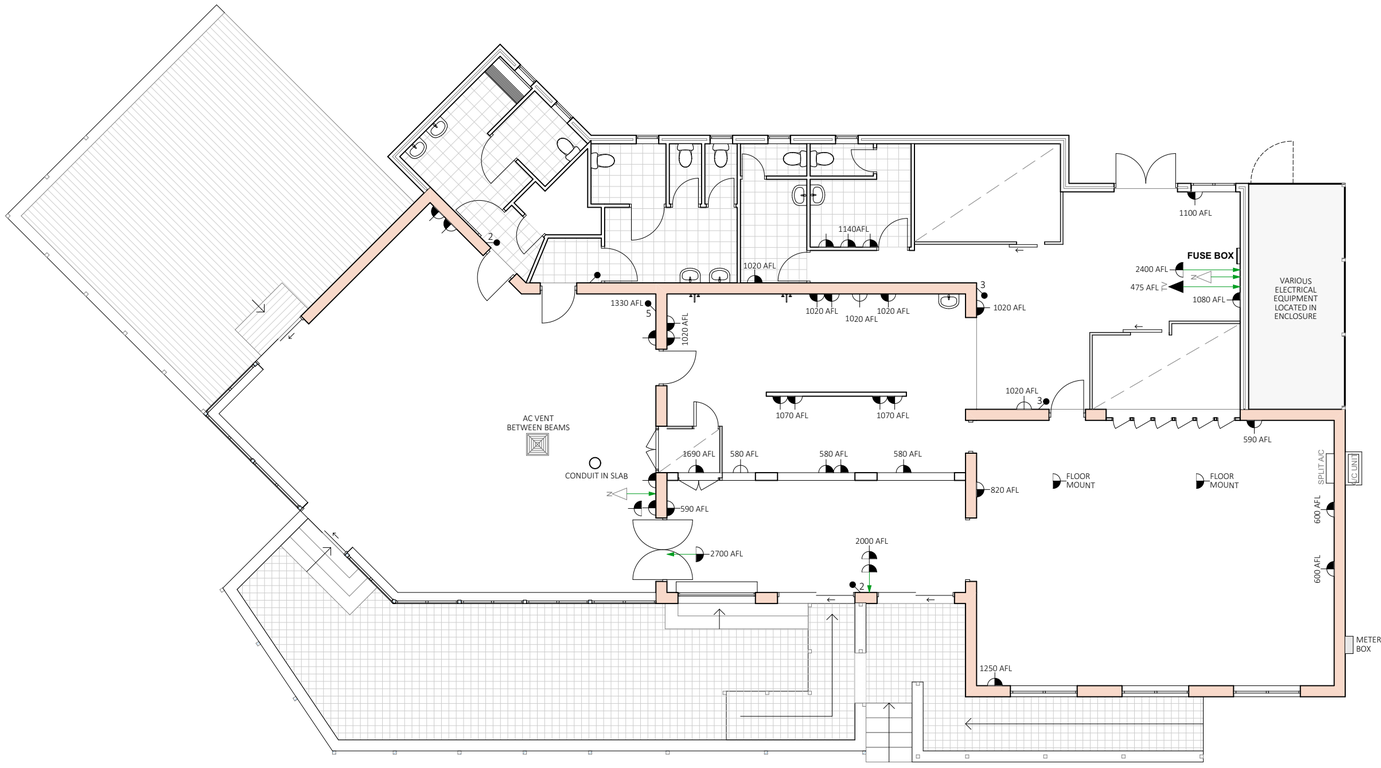
Existing Elevation 5
Scale 1:100

Guilderston General Store

SCALE 1:100 @ A2
10/08/21

NOTE:
ALL DIMENSIONS, LAYOUTS, SITE CONDITIONS AND LEVELS TO BE CHECKED ON SITE PRIOR TO CONSTRUCTION / FABRICATION. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUERVISING OFFICER OR CONFIRMED WITH SOMEONE

ELECTRICAL LEGEND		
No.	SYMBOL	TYPE
		FLUORESCENT LIGHT
		DOUBLE GPO (300 AFL UNLESS NOTED)
		SINGLE GPO
	WP	WATER PROOF DOUBLE GPO
		EXTRACTOR FAN WITH LIGHT
		EXTRACTOR FAN
		CEILING LIGHT
		DOWN LIGHT
		WALL LIGHT
		LIGHT SWITCH
	2 WAY	2 WAY LIGHT SWITCH
	TV	TV POINT
	N	NETWORK POINT
	G	GAS POINT
	S	SMOKE ALARM
		CEILING FAN



Electrical Plan - Existing

Scale 1:100

Guilderston General Store

SCALE 1:100 @ A2
10/08/21

NOTE:
ALL DIMENSIONS, LAYOUTS, SITE CONDITIONS AND LEVELS TO BE CHECKED ON SITE PRIOR TO CONSTRUCTION / FABRICATION. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUERVISING OFFICER OR CONFIRMED WITH SOMEONE

14 REPORTS - OPERATIONS AND ASSETS

Nil

15 MOTIONS OF WHICH PREVIOUS NOTICE HAS BEEN GIVEN

Nil

16 COUNCILLORS' OFFICIAL REPORTS

Nil

17 NEW BUSINESS OF AN URGENT NATURE

Nil

18 MATTERS FOR WHICH MEETING IS TO BE CLOSED TO THE PUBLIC

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Johnson **SECONDED: Councillor Vis**

That Council move into a Confidential Session to discuss Item 18.1

CARRIED UNANIMOUSLY
8 / 0

FOR: *Councillor Fewster, Councillor Kestel, Councillor Sorensen, Councillor Rule, Councillor Balcombe, Councillor Johnson, Councillor Peczka and Councillor Vis*
AGAINST: *Nil*

The meeting was closed to the public and all members of the public present in the Gallery left the Council Chambers at 3:21 pm.

18.1 APPLICATION FOR SUBDIVISION APPROVAL - CONSIDERATION OF ENTERING A DEED OF AGREEMENT IN RELATION TO THE SUBDIVISION OF LOT 601 BROCKMAN STREET, GINGIN

File	LND/195
Applicant	Acumen Development Solutions
Location	Lot 601 Brockman Street, Gingin
Owner	Acumen Development Solutions via contract of sale
Zoning	Parks and Recreation Residential 5, 10, 10/30 Town Centre
WAPC No	162831
Author	James Bayliss – Coordinator Statutory Planning
Reporting Officer	Bob Kelly - Executive Manager Regulatory and Development Services
Refer	3 May 2003 - Item 10.3.1 19 April 2005 – Item 10.3.4 3 May 2005 – Item 10.3.1 17 May 2005 – Item 10.3.2 20 September 2005 - Item 10.3.4 07 February 2006 - Item 11.3.2 16 May 2006 – Item 11.1.6 17 October 2006 - Item 14.1 21 November 2006 - Item 11.1.3 20 February 2007 - Item 11.1.1 04 December 2007 - Item 11.1.2 06 May 2008 - Item 11.3.1 18 March 2014 - Item 11.1.9 21 April 2015 – Item 15.1 20 September 2022 – Item 18.1 6 December 2022 – Item 13.1

Reasons for Confidentiality

This report is confidential in accordance with Section 5.23(2) of the *Local Government Act 1995* which permits the meeting to be closed to the public for business relating to the following:

c. a contract entered into, or which may be entered into, by the local government and which relates to a matter to be discussed at the meeting;

e. a matter that if disclosed, would reveal –i) a trade secret; or ii) information that has a commercial value to a person; or iii) information about the business, professional, commercial, or financial affairs of a person, where the trade secret or information is held by, or is about, a person other than the local government.

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Rule SECONDED: Councillor Vis

That Council enter into a Deed of Agreement, as depicted at Appendix 18.1.3, with Acumen Development Solutions in relation to Lot 601 Brockman Street, Gingin.

CARRIED UNANIMOUSLY
8 / 0

FOR: *Councillor Fewster, Councillor Kestel, Councillor Sorensen, Councillor Rule, Councillor Balcombe, Councillor Johnson, Councillor Peczka and Councillor Vis*
AGAINST: *Nil*

COUNCIL RESOLUTION/OFFICER RECOMMENDATION

MOVED: Councillor Johnson SECONDED: Councillor Kestel

That the meeting be re-opened to the public.

CARRIED UNANIMOUSLY
8 / 0

FOR: *Councillor Fewster, Councillor Kestel, Councillor Sorensen, Councillor Rule, Councillor Balcombe, Councillor Johnson, Councillor Peczka and Councillor Vis*
AGAINST: *Nil*

The meeting re-opened to the public at 3:28pm. No members of the public returned to the Gallery.

19 CLOSURE

There being no further business, the Shire President declared the meeting closed at 3:28 pm.

The next Ordinary Council Meeting will be held in Council Chambers at the Shire of Gingin Administration Centre, 7 Brockman Street, Gingin on 20 December 2022, commencing at 3:00pm.