



SCHEME AMENDMENT NO.23

Shire of Gingin Local Planning Scheme No. 9

Pt Lot 9501 Cheriton Road, Gingin



Harley Dykstra[®]

PLANNING & SURVEY SOLUTIONS



MINISTER FOR PLANNING

PROPOSAL TO AMEND A LOCAL PLANNING SCHEME

LOCAL AUTHORITY	Shire of Gingin
DESCRIPTION OF SCHEME	Local Planning Scheme No. 9
TYPE OF SCHEME	Local Planning Scheme
SERIAL NUMBER OF AMENDMENT	Amendment No. 23
PROPOSAL	<ol style="list-style-type: none">1. Modifying the Scheme Maps by introducing the Rural Living RL2 zone over Pt Lot 9501 Cheriton Road.2. Insert the definition for building exclusion area under the General Definitions of Schedule 1 – Dictionary of Defined Words and Expressions.3. Inserting relevant conditions into Schedule 8 – Rural Living Zones.

Planning and Development Act 2005

FORM 2A

**RESOLUTION TO ADOPT AMENDMENT TO
LOCAL PLANNING SCHEME**

**Shire of Gingin Local Planning Scheme No.9
Amendment No. 23**

Resolved that the local government pursuant to section 75 of the Planning and Development Act 2005, amend the above Local Planning Scheme by:

1. Modifying the Scheme Maps by introducing the Rural Living RL2 zone over Pt Lot 9501 Cheriton Road, Gingin.
2. Insert the definition for building exclusion area under the General Definitions of Schedule 1 – Dictionary of Defined Words and Expressions in alphabetic order as follows:

building exclusion area	Means the area of land within which buildings, effluent disposal facilities and any other works on a lot must not be located or carried out.
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3. Insert the following into Schedule 8 – Rural Living Zones:

No.	Description of Land	Conditions
2	Pt Lot 9501 Cheriton Road, Gingin	<p>General</p> <ol style="list-style-type: none">1. These conditions shall apply in conjunction with the Scheme requirements for the Rural Living zone, and/or as otherwise approved by the local government. Where conflicts exist, these conditions prevail.2. The long term storage of materials visible from the public realm shall only be permitted where approved by the Shire.3. The erection of any signage on any lot shall only be permitted where approved by the Shire. <p>Structure Plan</p> <ol style="list-style-type: none">4. A structure plan is not required to facilitate subdivision and development subject to the plan of subdivision and application meeting Conditions 5 to 7 below.

		<p>Subdivision</p> <p>5. The plan of subdivision and application must:</p> <ul style="list-style-type: none"> (a) identify building envelopes/exclusion areas which respond to the significant environmental features of the site, (including achieving suitable separation from water resources) and a reduced separation buffer from the General Rural land to the north; (b) provide a logical road network, including a subdivisional road along the northern boundary of the subdivision area designed to link the subdivision area from its eastern boundary to Cheriton Road through to its western boundary to Sloans Road; (c) enter into a Deed of Agreement (at the cost of the applicant/owner) for the upgrade of Sloans Road to the satisfaction of the Shire of Gingin; (d) be supported by: <ul style="list-style-type: none"> i. an approved Local Water Management Strategy to the satisfaction of the Shire of Gingin; ii. an approved Traffic Impact Assessment to the satisfaction of the Shire of Gingin; iii. a site and soil evaluation conducted in accordance with <i>AS/NZS 1547 On-site domestic wastewater management</i>; <p>Local development plan</p> <p>6. A local development plan is to be prepared and approved identifying building envelopes/exclusion areas consistent with Conditions 1 to 5 above.</p> <p>7. Notwithstanding cl. 61(1)(l), where development is inconsistent with the approved local development plan a development application shall be required.</p>

Resolve, pursuant to clause 35(2) of the *Planning and Development (Local Planning Schemes) Regulations 2015* that Local Planning Scheme Amendment No. 23 is a standard scheme amendment in accordance with clause 34 of the Regulations, as the proposal:

- a. is consistent with a local planning strategy for the scheme that has been endorsed by the Commission; and
- b. will have a minimal impact on land in the Scheme area that is not the subject of the amendment, and will not result in any significant environmental, social, economic or governance impacts on land in the Scheme area.

Dated this 18 day of 7 2023



(Chief Executive Officer)

SCHEME AMENDMENT NO.23

Shire of Gingin Local Planning Scheme No. 9

Pt Lot 9501 Cheriton Road, Gingin

DOCUMENT CONTROL

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Prepared for: Shaddow Downs Estate

Prepared by: HD

Reviewed by: LS

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1 INTRODUCTION

1.1 Purpose of Application

This Scheme Amendment has been prepared by Harley Dykstra on behalf of the landowner of Pt Lot 9501 Cheriton Road, Gingin ('the subject site'). The subject site comprises an area of approximately 24.02 ha of land that is currently zoned 'General Rural' under the Shire of Gingin Local Planning Scheme No. 9 (LPS 9). The Application seeks support for Amendment No. 23 to LPS 9 to rezone the subject site from 'General Rural' to 'Rural Living 2 (RL2)'.

The Application proposes to 'round off' the extent of Rural Living zoned land in this locality by providing an appropriate transition between the Rural Living 1 (RL1) lots within the existing Marchmont Estate to the south and General Rural zoned lots to the north. The proposed rezoning will also complement the existing Rural Living zone to the east of the subject site.

1.2 Background

Subdivision approval was granted on 28 August 2020 to subdivide former Lot 9500 into two lots (WAPC Ref: 159477). The subdivision approval was implemented to create Lot 380 (a homestead lot) and the balance rural lot, now known as Lot 9501 Cheriton Road.

Former Lot 9500 was itself the balance of a larger landholding which, in part, was previously rezoned under Town Planning Scheme No. 8 and thereafter subdivided and developed as Marchmont Estate by the proponent of this current Scheme Amendment submission. The proponent/landowner of the subject site is committed to developing the land in a manner that is complimentary to the existing Marchmont Estate and of a quality that is commensurate to its prominent location at the periphery of the Gingin townsite.

A preliminary scheme amendment submission, which was generally consistent with this Scheme Amendment proposal, was presented to the Shire of Gingin Council Briefing Forum on 18 May 2021. Preliminary comments were received from the Shire including the matters summarised below:

- Pursuant to Clause 4.8.6.11 of Local Planning Scheme No. 9 (LPS 9) a Structure Plan would not be required to support the future subdivision of the land (following rezoning). Rather, a concept subdivision plan could be provided at Scheme Amendment stage and any identified issues should be addressed through the provision of relevant technical information.
- Consideration should be given to the provision of dual use paths within the subdivision and linking to the dual use path network within Cheriton Road.

Following receipt of the above comments from the Shire of Gingin, a meeting was attended by Harley Dykstra and the Department of Planning, Lands and Heritage (DPLH) on 17 August 2021 to discuss the preliminary scheme amendment submission.

Matters arising from the preliminary Shire and DPLH comments are addressed in further detail later in this Scheme Amendment Report.

1.3 Site Context

The subject site comprises 24.02ha portion of Lot 9501. The subject site is located on the western side of Cheriton Road, 1.5 km north of the Gingin town centre. The subject site is adjacent to 'Rural Living' zoned land to the south (Marchmont Estate) and 'Rural Living (RL 4)' zoned land to the east. Land to the north and west is zoned General Rural. A Parks and Recreation reserve adjoins Lot 380 to the south. A Context and Zoning Plan depicting the subject site in the context of existing zonings within and surrounding the townsite, is included at **Figure 1** below. An Aerial Context Plan is included as **Appendix A**.

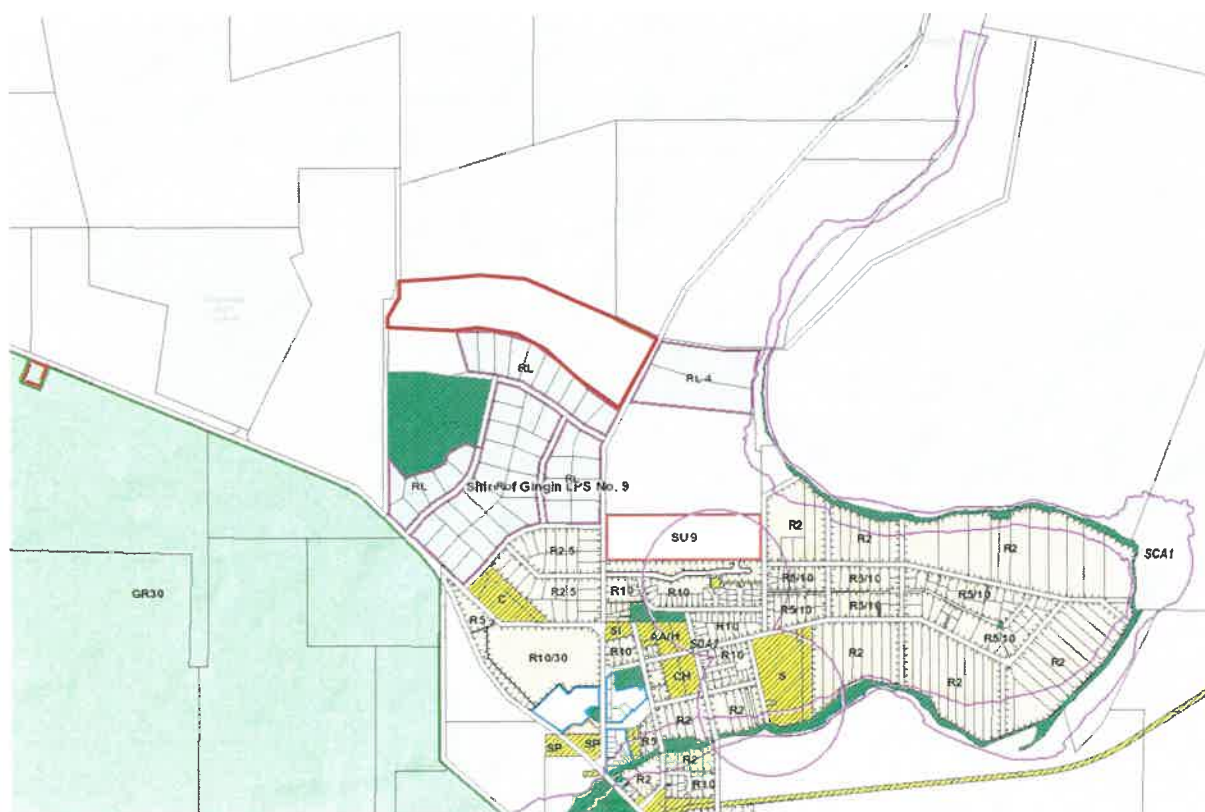


FIGURE 1 – CONTEXT AND ZONING PLAN (SUBJECT SITE OUTLINED IN RED)

Table 1 below provides a summary of the legal description of the land. A copy of the Certificates of Title for the subject lots available at the time of preparing this Report is included as **Appendix B**.

LOT NO.	PROPERTY ADDRESS	LANDOWNER	AREA	VOL.	FOLIO	PLAN NO.
9501	No Street Address Information Available	Vernon Schofield	73.4737ha	4000	605	420962

TABLE 1

2 PLANNING FRAMEWORK

2.1 Local Planning Scheme No.9

The subject site is currently zoned 'General Rural' under LPS 9. The site is proposed to be rezoned to 'Rural Living (RL2)'.

LPS 9 states the objectives of the Rural Living zone are as follows:

- a) protect the rural environment and landscape;*
- b) accommodate single dwellings at very low densities on individual allotments beyond the urban areas;*
- c) restrict and limit the removal of natural vegetation and encourage revegetation where appropriate;*
- d) prevent threats to the amenity of the zone and impacts on wildlife and native vegetation caused by the grazing of livestock;*
- e) avoid increased fire risk to life and property through inappropriately located and designed land use, subdivision and development; and*
- f) provide for a suitable level of physical and community infrastructure.*

Rezoning of the subject site and the inclusion of special conditions at Schedule 8 informed by appropriate planning and technical investigations, along with existing Scheme provisions, will ensure the above objectives for the Rural Living zone are satisfied.

Scheme requirements relevant to subsequent subdivision and development stages have also informed the preparation of this Scheme Amendment proposal.

Clause 4.8.5 of LPS 9 sets out the development and subdivision standards that apply to the Rural Living zone. The proposed Scheme Amendment and accompanying concept subdivision plan will enable the relevant standards to be satisfied at subsequent planning stages.

Clause 4.8.6 of LPS 9 sets out the development and subdivision standards that apply to the General Rural zone.

Clause 4.8.6.10 states:

Prior to any subdivision and development of GR coded land, a structure plan may be required to address issues including:

- (i) access;*
- (ii) building exclusion zones;*
- (iii) bushfire management;*
- (iv) servicing; and*
- (v) environmental features and buffers.*

Clause 4.8.6.11 states:

Notwithstanding clause 4.8.6.10, a structure plan may not be required in support of proposals on GR coded land where identified issues may be addressed through the provision of technical information.

The subject land is zoned General Rural *Uncoded* and as such, the above provisions are not specifically relevant. This notwithstanding, Schedule 2 Clause 15 of the Deemed Provisions of the *Planning and Development (Local Planning Schemes) Regulations, 2015* ('the LPS Regulations') states:

Clause 15. When structure plan may be prepared

A structure plan in respect of an area of land in the Scheme area may be prepared if —

(a) the area is —

(i) all or part of a zone identified in this Scheme as an area suitable for urban or industrial development; and

(ii) identified in this Scheme as an area requiring a structure plan to be prepared before any future subdivision or development is undertaken; or

(b) a State planning policy requires a structure plan to be prepared for the area; or

(c) the Commission considers that a structure plan for the area is required for the purposes of orderly and proper planning.

The subject site is not identified in LPS 9 within an area where a structure plan is required and preliminary advice from the Shire of Gingin and DPLH has confirmed a structure plan would not be required in this instance.

Clause 5.6 of LPS 9 - *Special Control Area No. 5 – Development Contribution Areas* states:

There are no Development Contribution Areas in this scheme as no development contribution plans have been prepared to support contributions. This section establishes enabling clauses for when a development contribution plan is prepared.

Clause 5.6, amongst other matters, advises:

5.6.2.2 Development contributions may be made for standard infrastructure such as roads, water, power, sewer and public open space through the subdivision process.

5.6.2.3 Community infrastructure includes, but is not limited to, public open space in rural areas, sporting and recreational facilities, community centres, child care centres, libraries and cultural facilities.

5.6.2.4 Development contributions for community infrastructure may only be levied in accordance with the requirements of State Planning Policy 3.6 - Development Contributions for Infrastructure. Prior to seeking contributions for community infrastructure local government needs to prepare:

(i) a community infrastructure plan for the area with demand analysis and service catchments;

(ii) a capital expenditure plan;

(iii) projected growth figures; and

(iv) infrastructure costs, with provision for cost escalation.

...

5.6.2.6 Development contributions for standard infrastructure can generally be summarised as:

- (i) land contributions - public open space, riverine setbacks, land for primary schools, roads and road widening and primary distributor roads where justified by the subdivision;*
- (ii) infrastructure works - water, sewerage, drainage, electricity, roads and other traffic works, footpaths, pedestrian accessways and dual-use paths, road upgrades, construction and widening;*
- (iii) standard water, sewerage and drainage headworks charges for off-site works, monetary contributions in lieu of land or works and to reimburse other owners where costs are shared;*
- (iv) other contributions as provided for in WAPC policies.*

The Shire of Gingin, in its response to the preliminary scheme amendment submission considered at the Council Briefing Forum, raised the potential for the provision of a dual use path to be required from within the subdivision and along Cheriton Road, linking to the existing dual use path network. The provision of Public Open Space (POS) was also contemplated, although it was noted POS had already been provided as part of the subdivision of Marchmont Estate.

Development Contributions for standard infrastructure (including provision of dual use paths) is dealt with in State Planning Policy 3.6 – Infrastructure Contributions. The matter of infrastructure provision shall be examined further in subsequent sections of this Scheme Amendment Report.

2.1 Local Planning Strategy (2012)

The Shire of Gingin has adopted a Local Planning Strategy which sets out the longer term planning direction for the Shire over a 15 – 20 year planning horizon. One function of the Local Planning Strategy is to outline the broad strategy for both residential and rural land use within the Shire.

A general objective of the Local Planning Strategy is to:

‘Promote the planned expansion of all townsites in a manner that concentrates settlement and growth within and around existing townsites.’

With respect to the Gingin townsite, the following key objective is identified:

‘provide for limited rural living development adjacent to the periphery of the urban expansion area of the townsite, without compromising primary production in rural areas.’

Complementary policy positions and actions have also been developed to achieve the abovementioned objective, including:

4. *Give consideration to limited rural living development to adjoin the periphery of the townsite, having due regard to:*
 - i. *The extent of planned townsite expansion identified by a townsite structure plan endorsed by Council and the WAPC;*
 - ii. *Optimising the use and catchment of existing townsite services/facilities;*
 - iii. *Protection of the character, function and integrity of adjoining/nearby rural land and land uses;*
 - iv. *Environmental capability and management;*
 - v. *Staged development cognisant of demand and supply;*
 - vi. *Locational criteria and other matters as identified in the State Planning Policy 2.5 relating to rural residential settlement;*

- vii. *Enhancement of landscape and natural values; and*
- viii. *Fire protection.*

The Gingin townsite strategic map, which forms part of the Local Planning Strategy, designates the subject site as remaining rural, with the land to the east (now rezoned RL4 and comprising two lots of 6.1379ha and 5.5170ha) identified for Rural Residential. The following note is also included:

'Transition area. Lot sizes suited to 2000m² - 1ha subject to site considerations.'

The overall Shire of Gingin Local Planning Strategy map, which also forms part of the Local Planning Strategy, identifies part of the subject site as 'Rural Residential'. An extract from the Local Planning Strategy map is included as **Figure 2** (over page).

In response to a preliminary enquiry to the DPLH regarding the potential for the subject site to be rezoned to Rural Living, on 10 June 2020, the DPLH advised via email:

'I think a case could be made to support the rezoning of Area 1, but Area 2 is potentially more problematic.

Area 1 represents a logical rounding off of the Rural Living zoned land to the south. It would appear, though it will need to be proven, that there is some demand for this product in the area, being that about 75% of land in the Marchmont Estate has been developed to date. The Shire of Gingin Local Planning Strategy also shows that an extension to the existing Rural Living zoned area has been considered from a strategic perspective. In light of this, an amendment to LPS 9 should, among other things, consider the following:

- *The increase to the land zoned for Rural Living would need to be justified to ensure it is guided by existing land supply and take-up.*
- *How subdivision/development will address wastewater disposal to be consistent with the Government Sewerage Policy.*
- *The need for design guidelines/development covenants to ensure development is in keeping with the surrounding built form.*
- *The Department's preference would be for the road link between Cheriton Road and Sloans Road to be provided, this will ensure a hard buffer between the Rural Living and Rural zoned land.*
- *The extension of Howes Lane to Sloans Road should also be considered, providing a buffer to the reserve to the south.*

With regard to Area 2, I start to see land use conflict issues with this deeper extension into the Rural zoned area. I also wonder if demand might be somewhat exhausted by the first stage of subdivision (Area 1), but that is not to say that you could not demonstrate demand. There is also the issue of precedent, as it is reasonable to expect the landowner of Lot 8, immediately to the west, will see this as a signal that close subdivision can also occur on this land as of right.

In summary, I think based on the information you have supplied so far, the proposal for Area 1 seems consistent with WAPC policy and is likely capable of approval. Area 2 I suspect could be a bit more of an uphill battle'.

For reference, Area 1 and Area 2 are identified on the attached sketch at **Appendix C**.



FIGURE 2 – LOCAL PLANNING STRATEGY MAP EXTRACT (SUBJECT SITE OUTLINED IN RED)

As noted above, the subject site has been identified as having the potential for more intensive subdivision and development, rather than remaining rural.

Policy Position 4 v) in relation to the supply and demand of rural living lots is addressed in the section of this Report titled *Gingin Regional land supply assessment*.

2.3 Gingin Townsite and Rural Surrounds Structure Plan

Consistent with a key objective for the Gingin townsite identified under the Local Planning Strategy, the Shire of Gingin prepared the Gingin Townsite and Rural Surrounds Structure Plan ('the Structure Plan'). The Structure Plan was adopted for final approval by Council at its Meeting of 18 December 2012. The Structure Plan was subsequently endorsed by the WAPC, with the WAPC approval expiring on 19 October 2025. A copy of the Structure Plan map is included at **Appendix D**.

The Structure Plan was originally intended to be incorporated into the Local Planning Strategy as part of the finalisation of that document, although this did not eventuate. The Structure Plan was supported by a District Water Management Strategy (DWMS) to provide guidance relating to water use and management of surface water and groundwater resources within the Gingin townsite expansion area.

With respect to new Rural Living proposals, the Structure Plan notes future planning is required including preparation of scheme amendments and subdivision guide plans. Further, the Structure Plan advises:

The Gingin Townsite and Rural Surrounds provides for expansion of current rural living areas to meet future demand, however contains expansion to within the periphery of the townsite. Rural living expansion is identified within areas identified by the draft Local Planning Strategy and contained areas adjacent to the townsite along major roads into the town to create an interface between rural and town land uses and built form.

It is noted the Structure Plan boundary is limited to the northern edge of the existing Marchmont Estate rural living area on the western side of Cheriton Road. This notwithstanding, proposed Scheme Amendment No. 23 is not in conflict with the Structure Plan or the Local Planning Strategy in that:

- it provides for a limited expansion of a current rural living area at the periphery of the townsite;
- the subject site is identified for rural residential in the Local Planning Strategy;
- the subject site is located along a significant road into town;
- it will provide a logical interface between rural and existing rural living land, including the provision of a hard edge between these zones via the provision of a road.

In addition to the above, it is also noted the Structure Plan contemplated the opportunity for a developer funded sewer or decentralised wastewater scheme to be provided, and in the absence of a wastewater scheme, assumes lot sizes in the range of 1000m² - 2000m² could be considered by the draft Government Sewerage Policy in place at the time. The opportunity for a wastewater scheme within the townsite has been extensively investigated by the Shire but has not eventuated and is no longer being pursued.

Further, the current Government Sewerage Policy (2019) introduced more stringent controls in relation to onsite effluent disposal. Accordingly, various assumptions in the Structure Plan relating to future development and subdivision within and immediately adjoining the townsite (and hence subsequent housing supply) cannot be realised and therefore these aspects of the Structure Plan are in need of review. This notwithstanding, the Local Planning Strategy provides sufficient guidance regarding planning for rural living adjacent to the townsite.

The DWMS recommends Local Structure Plans be accompanied by detailed information relating to water use, wastewater servicing, surface water and groundwater management, in the form of a Local Water Management Strategy (LWMS).

Notwithstanding the advice of the Shire of Gingin and DPLH that a structure plan would not be necessary in this instance, the proposal includes a LWMS (**Appendix E**) consistent with the recommendation of the DWMS

2.2 Gingin Regional Land Supply Assessment (2019)

With regard to rural living, the *Gingin Regional Land Supply Assessment* (LSA) notes the Shire of Gingin Local Planning Strategy has identified areas for potential rural living adjacent to the Gingin townsite (and between the Redfield Park and Sovereign Hill estates in Gabbadah). The Local

Planning Strategy also establishes a policy position to limit expansion of rural living development to existing areas in the Shire and those identified on the local planning strategy map.

The subject site is not currently identified for Rural Living in the LSA, despite it being identified in part for 'Rural Residential' in the local planning strategy map.

Limited rural living subdivision and development at the periphery of the townsite is supported by the Local Planning Strategy. Based on preliminary design, approximately 12 rural living lots would be created from the subject site and would provide a lot offering which is not currently available in such close proximity to the Gingin townsite.

Table 3: Development Outlook – project summaries identifies a potential yield of 313 rural living lots from the Country Heights Estate (Lots 81 and 83 Cheriton Road, Ginginup) based on existing approvals.

This notwithstanding, the Local Planning Strategy (as acknowledged by the LSA) has already accounted for other sites zoned for rural living in and around the Gingin townsite (such as Country Heights Estate). Therefore the proposal set out in this submission does not conflict with either the Local Planning Strategy which identifies the subject site for rural residential use or consequently the LSA. In any case, the subject site has key attributes that make it particularly suited to rural living subdivision, including:

- Its proximity to the Gingin townsite services and facilities (located only 1.5km north of the town centre).
- Compatibility with adjacent rural living zoned land to the east and south respectively.
- Opportunity to connect to existing public utility services (water, power and telecommunications).

2.3 State Planning Policies

2.5.1 State Planning Policy 2.5 – Rural Planning

State Planning Policy 2.5 (SPP 2.5) establishes the objectives for the management and protection of rural and rural living land in Western Australia.

The objectives of SPP 2.5 follow:

- (a) *support existing, expanded and future primary production through the protection of rural land, particularly priority agricultural land and land required for animal premises and/or the production of food;*
- (b) *provide investment security for existing, expanded and future primary production and promote economic growth and regional development on rural land for rural land uses;*
- (c) *outside of the Perth and Peel planning regions, secure significant basic raw material resources and provide for their extraction;*
- (d) *provide a planning framework that comprehensively considers rural land and land uses, and facilitates consistent and timely decision-making;*
- (e) *avoid and minimise land use conflicts;*
- (f) *promote sustainable settlement in, and adjacent to, existing urban areas; and*
- (g) *protect and sustainably manage environmental, landscape and water resource assets.*

Clause 5.3 of SPP 2.5 recognises there is a market for rural living development and that it provides for a range of housing and lifestyle opportunities. SPP 2.5 notes rural living development should be carefully planned and references the guidance provided by SPP3 - *Urban Growth and Settlement* with respect to the strategic identification of settlement patterns and guidance on rural living use. SPP 3 will be addressed later in this Report.

This Application to rezone the subject site is consistent with the relevant policy measures set out in section 5.3 of SPP 2.5 as demonstrated in **Table 2** below:

SPP 2.5 Policy Measures for rural living (Clause 5.3)	Analysis of this Scheme Amendment Request
a) <i>Rural living proposals shall not be supported where they conflict with the objectives of this policy or do not meet the criteria listed at 5.3 (b) and (c)</i>	The Application is consistent with the objectives of SPP 2.5. Objective (f) is particularly relevant to the proposal, given it shall facilitate sustainable settlement in close proximity to the existing Gingin townsite.
b) <i>The rural living precinct must be part of a settlement hierarchy established in an endorsed planning strategy;</i>	The subject site meets the objectives for rural living development contained within the local planning strategy and is identified on the Local Planning Strategy map as 'rural residential'.
c) <i>The planning requirements for rural living precincts are that-</i> <ol style="list-style-type: none"> i. <i>The land be adjacent to, adjoining or close to existing urban areas with access to services, facilities and amenities;</i> ii. <i>The proposal will not conflict with the primary production of nearby land, or reduce its potential;</i> 	<p>The subject site is well located with respect to the range of services, facilities and amenities within the Gingin townsite.</p> <p>The subject site will not conflict with the primary production activities conducted on nearby land. Land to the south is already zoned for Rural Living and accommodates an existing rural living subdivision and Parks and Recreation reserve. Land to the east of the subject site is also zoned for Rural Living. Land to the north includes part of the same landholding (being the balance of Lot 9501) and is used for broad acre farming including keeping of livestock and periodic cropping. Viticulture has been established in the</p>

<p>iii. <i>areas required for priority agricultural land are avoided;</i></p> <p>iv. <i>the extent of proposed settlement is guided by existing land supply and take-up, dwelling commencements and population projections</i></p> <p>v. <i>areas required for urban uses are avoided;</i></p>	<p>past on Lot 50 Cheriton Road, however it is evident the vines have not been maintained and this use has not operated commercially for some time. The rural properties to the north shall be separated from the proposed Rural Living lots by a subdivisional road. To the south-east of the site, on Lot 106 Cheriton Road, an olive grove has been established, but this again, this does not appear to be operated commercially.</p> <p>Land immediately to the west is zoned 'General Rural' and beyond that lies the Gingin Golf Course. The proposal represents a suitable transitional zone between existing rural living land use and general rural zoned land at the periphery of the Gingin townsite.</p> <p>The subject site is not identified for priority agricultural land. The proposal is consistent with the Gingin Regional LSA.</p> <p>No urban uses are planned or will be required in the future within the subject site. Rural living development (Marchmont Estate) has already occurred between the townsite and the proposed rural living expansion area the subject of this application.</p>
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<p>vi. <i>water supply shall be as follows –</i> <i>Where lots with an individual area of four hectares or less are proposed and a reticulated water supply of sufficient capacity is available in the locality, the precinct will be required to be serviced with reticulated potable water by a licensed service provider. Should an alternative to a licensed supply be proposed it must be demonstrated that a licensed supply is not available; or</i></p> <p><i>Where a reticulated supply is demonstrated to not be available, or the individual lots are greater than four hectares, the WAPC may consider a fit-for-purpose domestic potable water supply, which includes water for firefighting. The supply must be demonstrated, sustainable and consistent with the standards for water and health; or – the development cannot proceed if an acceptable supply of potable water cannot be demonstrated;</i></p> <p>vii. <i>electricity supply shall be as follows</i> <i>– where a network is available the precinct is to be serviced with electricity by a licensed service provider, or</i></p> <p><i>– where a network is not available, the precinct is to be serviced by electricity from renewable energy source/s, by a licensed service provider, and this has been demonstrated;</i></p> <p>viii. <i>the precinct has reasonable access to community facilities, particularly education, health and recreation;</i></p> <p>ix. <i>the land is predominantly cleared of remnant vegetation, or the loss of remnant vegetation through clearing for building envelopes, bushfire protection and fencing is minimal and environmental values are not compromised;</i></p>	<p>A reticulated water supply is available and shall be provided to service lots.</p> <p>On overhead power supply is available within the Cheriton Road reserve. Future rural living lots will be able to connect to this network for the supply of electricity to the satisfaction of Western Power.</p> <p>The subject site is located approximately 1.5 km north of the Gingin town centre and accordingly has ready access to the existing education, health and recreation facilities within the town site.</p> <p>The subject site is cleared of remnant vegetation with the exclusion of scattered paddock trees and is not identified as bushfire prone. The accompanying LWMS (including Environmental Report) at Appendix E confirms no environmental values will be compromised by this proposal.</p>
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<p>x. <i>the proposal demonstrates and will achieve improved environmental and landscape outcomes and a reduction in nutrient export in the context of the soil and total water management cycle, which may include rehabilitation as appropriate;</i></p> <p>xi. <i>the land is capable of supporting the development of dwellings and associated infrastructure (including wastewater disposal and keeping of stock) and is not located in a floodway or an area prone to seasonal inundation;</i></p> <p>xii. <i>the land is not subject to a separation distance or buffer from an adjoining land use, or if it is, that no sensitive land uses be permitted in the area of impact;</i></p> <p>xiii. <i>the lots can be serviced by constructed road/s capable of providing access during all weather conditions, including access and egress for emergency purposes; and</i></p>	<p>The LWMS at Appendix E addresses environmental and landscape outcomes resulting from the proposal as well as detailing nutrient management having regard to site and soil evaluation and water management. It is noted that under the current general rural zoning, there are very limited controls in place relating to nutrient export associated with the keeping of livestock or other rural uses.</p> <p>The proposal has been supported by an LWMS including site and soil assessment that demonstrates the subject site is capable of supporting the development of dwellings. The subject site is not located within a floodway or area prone to seasonal inundation.</p> <p>The subject site is not located within a buffer of any adjoining land uses likely to impact on the amenity of the proposed rural living development.</p> <p>Access to lots shall be provided via a new subdivisional road or via the existing road network.</p>
<p>d) <i>development standards for rural living zones are to be included in local planning schemes;</i></p>	<p>Development standards are established in LPS 9 and Schedule 8 provides for special conditions to be included for particular sites via amendments to the Scheme.</p>
<p>e) <i>further subdivision of existing rural living lots into smaller parcels is not supported, unless provided for in a local planning strategy and/or scheme; and</i></p>	<p>Not applicable to this proposal.</p>

f) <i>rural strata proposals with a residential component are considered to be rural living and will be considered in accordance with the criteria listed at clauses 5.3 (a), (b) and (c) of this policy.</i>	Not applicable to this proposal.
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Table 2 – Analysis of proposal under SPP 2.5 Rural Planning

Having regard to the above analysis, the proposal is consistent with the rural living provisions of SPP 2.5 and the criteria contained therein.

2.3.2 State Planning Policy 3 – Urban Growth and Settlement (SPP 3)

SPP 3 identifies the need for rural residential development to be located and designed in a sustainable way which is integrated within the overall pattern of settlement. Specifically, SPP 3 states that planning for rural residential development should:

- *avoid productive agricultural land, important natural resources, areas of high bush fire risk or environmental sensitivity;*
- *avoid future urban areas or areas particularly suitable for urban development in terms of their characteristics and proximity to urban services;*
- *give preference to locations near existing settlements with available services and facilities in order to support the local community and avoid locations where services are not available or costly extensions are necessary;*
- *minimise potential for conflict with incompatible activities associated with productive rural uses or natural resource management;*
- *only include locations which are suitable for this type of development, such as land which is topographically varied, visually attractive and with distinctive environmental attributes or otherwise has potential for lifestyle pursuits; and*
- *take a realistic approach by allocating land based on forecast estimates of demand for rural living not on the speculative development of land.*

This Scheme Amendment proposal is consistent with the above criteria set out in SPP 3. Specifically, the proposal:

- Does not significantly impact on the use of productive agricultural land and is not located on environmentally sensitive land, or land with high bushfire risk.
- Does not encroach on an area that is suitable for future urban development.
- Is well located in relation to its proximity to the existing Gingin townsite and the associated services and community facilities available within the townsite.
- Will not bring about conflict with incompatible activities on adjoining land.
- Is topographically varied and visually attractive and hence has suitable attributes for rural living subdivision.
- Will create only approximately 12` additional lots for rural living purposes in a suitable location and of a lot size that is not otherwise available in this location.

2.3.3 State Planning Policy 3.6 – Infrastructure Contributions (SPP 3.6)

The objectives of State Planning Policy 3.6 follow:

- *to facilitate the efficient and effective provision of infrastructure and facilities that are essential to meet the demands arising from population growth and development;*
- *to provide a system for the coordinated delivery of infrastructure necessary to facilitate new urban growth opportunities to achieve compact, consolidated towns and cities;*
- *to provide clarity on the acceptable methods of collecting and coordinating contributions for infrastructure;*
- *to establish a system for apportioning, collecting and spending contributions for infrastructure that is transparent, equitable, accountable and consistent; and*
- *to guide an efficient dispute resolution and arbitration process.*

Under SPP 3.6, contributions for all infrastructure must be levied in accordance with eight (8) underlying principles. The first of these, need and nexus, is particularly relevant to this proposal (without diminishing the importance of the remaining 7 principles) given the Shire has foreshadowed the desirability of a dual use path connecting from within the subdivision and along Cheriton Road, linking to the existing dual use path network. Need and nexus is described in SPP 3.6 as:

Need and the nexus: *The need for the infrastructure must be clearly demonstrated (need) and the connection between the development and the demand created should be clearly established (nexus).*

At this point in time, it is not considered the need and nexus for this infrastructure has been demonstrated (by a Development Contribution Plan or otherwise).

It is also noted in SPP 3.6 that DCPs may not be suitable in established regional areas due to the difficulties in establishing the need and nexus of additional infrastructure, or the uncertainty around the rate of growth and certainty regarding the timing of delivery of infrastructure. For these reasons, securing arrangements for infrastructure should not be required as a prerequisite or condition of this Scheme Amendment. Rather, it is logical that any contributions towards standard infrastructure items could be dealt with via a legal agreement at subdivision stage following the 'need and nexus' being sufficiently demonstrated. Such a legal agreement may be required as a condition of subdivision approval.

2.3.4 State Planning Policy 3.7 – Planning in Bushfire Prone Areas (SPP3.7)

Designated bushfire prone areas are areas identified and designated by the Fire and Emergency Services Commissioner under the Fire and Emergency Services Act, 1998. Such areas are identified on the Map of Bush Fire Prone Areas administered by DFES. The subject site is not identified as bush fire prone on the Map of Bush Fire Prone Areas and hence no further investigation into bushfire risk has been undertaken in relation to this issue.

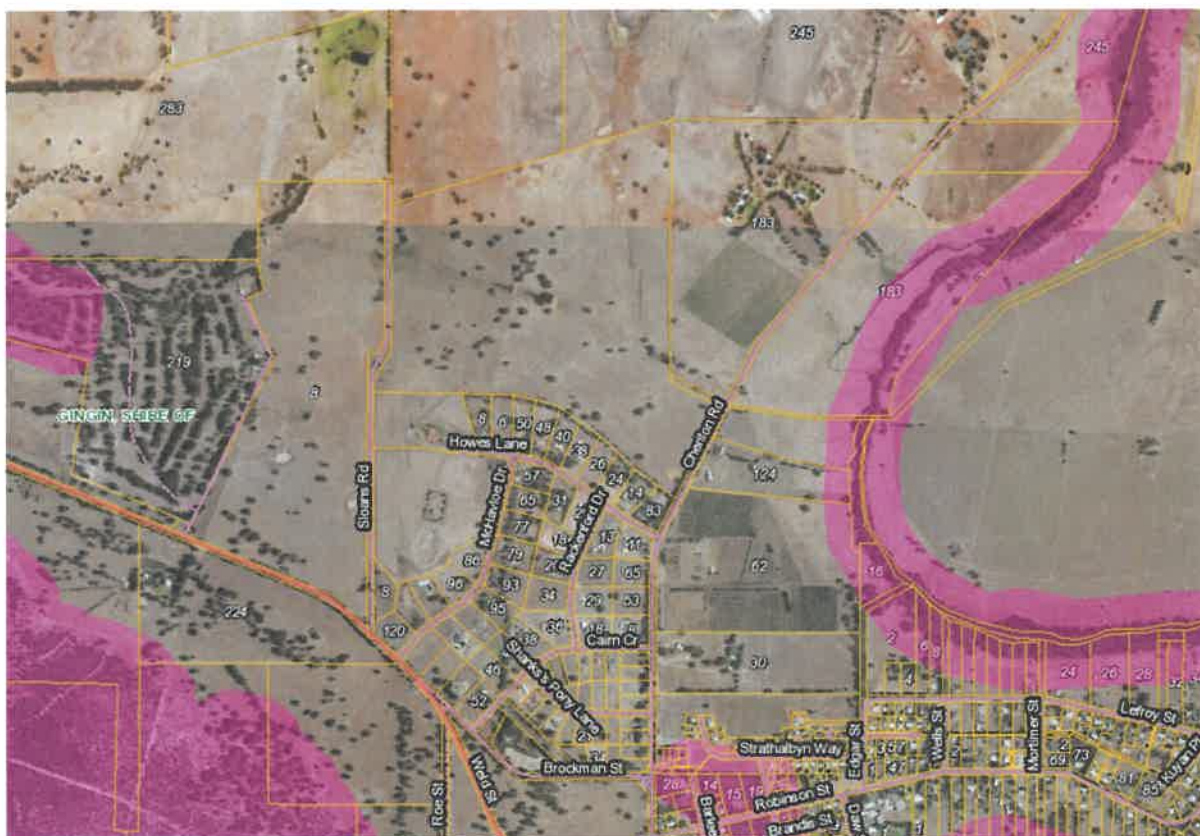


FIGURE 3 – BUSHFIRE PRONE AREAS MAPPING

2.4 Other Planning Policies and Guidelines

2.4.1 Government Sewer Policy 2019

The Government Sewer Policy (GSP) is a whole of Government policy prepared to establish the Government position on the provision of sewer services within Western Australia through the progressive planning and development of land. In particular, the GSP promotes the sustainable use and development of land through the following objectives:

1. *To generally require connection of new subdivision and development to reticulated sewerage;*
2. *To protect public health and amenity;*
3. *To protect the environment and the State's water and land resources;*
4. *To promote the efficient use of infrastructure and land;*
5. *To minimise costs to the broader community including by ensuring an appropriate level and form of sewage servicing is provided; and*
6. *To adopt the precautionary principle to on-site sewage disposal.*

Future development within the subject site is to utilise onsite effluent disposal systems as outlined within section 5.2 - *On-site Sewage Disposal* as follows:

5.2 On-site sewage disposal

Where the provisions of 5.1.1 do not apply (requirement to connect to reticulated sewerage), on-site disposal may be considered where the responsible authority is satisfied that:

- Each lot is capable of accommodating on-site sewage disposal without endangering public health or the environment; and
- The minimum site requirements for on-site sewage disposal outlined in this section and Schedule 2 can be met.

The table at section 5.2.1 of the GSP stipulates a minimum lot size of 1ha for subdivision in sewage sensitive areas. **Figure 4** overleaf illustrates only the eastern part of the subject site is shown as sewage sensitive.

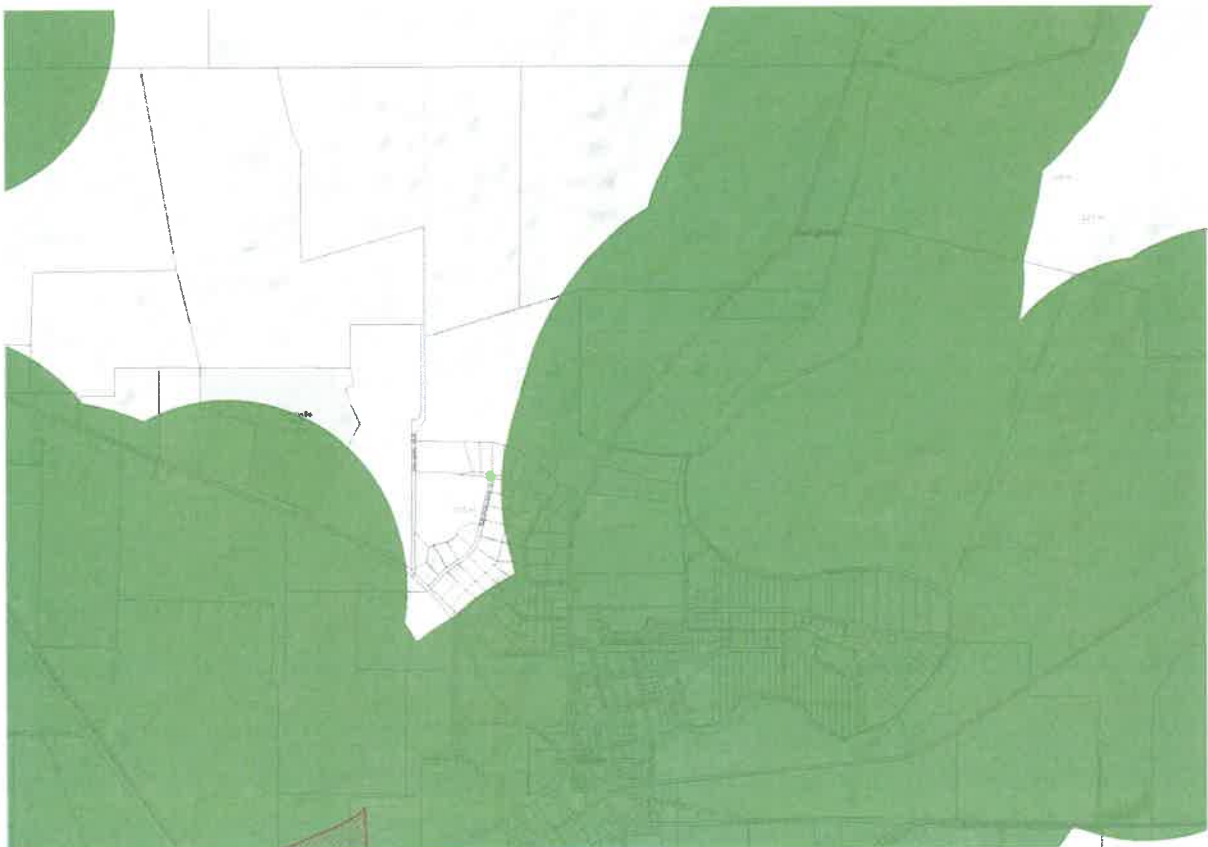


FIGURE 4 – MAP OF SEWAGE SENSITIVE AREAS

The LWMS at **Appendix E**, which includes a Site and Soil Evaluation prepared in accordance with the requirements of the GSP, demonstrates this Scheme Amendment proposal and the subsequent subdivision of the land to create 2ha rural living lots satisfies all requirements of the GSP.

2.4.2 Rural Planning Guidelines

Section 4 of the Rural Planning Guidelines (the Guidelines) provides direction in relation to 'Planning for rural living in a strategy or scheme'. The Guidelines note:

Rural living lots are not considered rural land uses – they are residential uses that need to be factored into settlement planning.

Whilst rural living lots are considered to be 'residential' uses, not all requirements applicable to residential subdivision apply. The WAPC Position Statement – Special Residential Zone is relevant in this regard. Special Residential subdivision typically describes lot sizes between 2,000m² to 10,000m². The Position Statement notes the following with regard to the provision of Public Open Space:

5.2.4 Open Space

a) Generally, a public open space contribution is not requested in special residential zones due to the larger lot sizes.

Similarly, in the case of rural living subdivision involving a minimum lot size of 2ha, a public open space contribution would not be expected.

The relevant considerations set out in the Rural Planning Guidelines in relation to the introduction of necessary development standards (including appropriate lot sizes), the requirement for technical investigations, assessing demand, servicing requirements etc. have all been reviewed and where appropriate, addressed as part of preparing this Scheme Amendment proposal.

2.4.3 Better Urban Water Management

The Better Urban Water Management (BUWM) document provides a framework for how water resources should be considered at each planning stage by identifying the various actions and investigations required to support the particular planning decision being made.

BUWM is intended to be applied to both new greenfield and urban renewal projects where residential, commercial, industrial and rural residential uses and development are proposed, including in rural townsite areas. At the local planning scheme amendment stage, the corresponding report would be a Local Water Management Strategy (LWMS). Accordingly, an LWMS has been prepared in support of the proposed Scheme Amendment which accords with BUWM requirements (**Appendix E**).

2.4.4 Shire of Gingin Guidelines for Roadworks, Drainage and Subdivision Development

The Shire of Gingin Policy Manual includes Policy 7.8 – *Guidelines for Roadworks, Drainage and Subdivision Development*.

Policy 7.8 sets out the construction specifications including materials, methods of construction and design of road and/or drains in the Shire. Policy 7.8 stipulates the road construction standards applicable to roads in town centre, residential, rural, rural living and mixed business areas. With regard to roads servicing rural living areas, there is no stipulation that footpaths or dual use paths should be provided. Clause 2.5 states:

2.5 Miscellaneous Facilities

2.5.1 Footpaths and Dual-Use Paths

Footpaths and dual-use paths in road reserves shall be provided in urban residential subdivisions unless special circumstances prevail in which case they may be omitted at Council's discretion. If such paths are required, they shall be constructed by the Subdivider at the time of Subdivision.

Whilst footpaths and dual use paths are to be provided to service urban residential subdivisions, there is no requirement under Policy 7.8, nor has it been the practice for other rural living subdivisions to provide connecting footpaths or dual use paths.

3 SITE ANALYSIS

3.1 Landform & Topography

The topography of the subject site is evident on the Concept Subdivision Plans at **Appendix F**. The subject site grades upwards from Cheriton Road from a height of 110m AHD firstly in a westerly direction before grading upwards in a southerly direction to a height of approximately 154m AHD along the southern boundary of Lot 380 Howes Lane.

3.2 Soil Profile

The soil profile for the subject site has been investigated as part of the Site and Soil Evaluation undertaken in support of the proposal (**Appendix E**).

3.3 Groundwater and Hydrology

Depth to groundwater and hydrology were investigated as part of the LWMS prepared in support of the proposal (**Appendix E**).

3.4 Geomorphic Wetlands

A review of the Department of Biodiversity Conservation and Attractions Geomorphic Wetlands of the Swan Coastal Plain mapping dataset indicate that no geomorphic wetlands are located within the subject site. The nearest mapped wetland is a Multiple Use Category palusplain in cleared paddocks 95m east of the site. Gingin Brook 440m south-east of the site, is mapped as a Conservation Category palusplain.

3.5 Acid Sulphate Soil Risk

The risk of Acid Sulphate Soils (ASS) or Potential Acid Sulphate Soils (PASS) occurring within the subject site is negligible, with the site identified as having no significant risk of ASS or PASS occurring within 3m of natural soil surface as illustrated by **Figure 5** below.



FIGURE 5 –ACID SULPHATE SOIL RISK (DWER)

3.6 Existing Vegetation – Flora & Fauna

As evident from aerial photography and as described in the LWMS and accompanying Environmental Report at **Appendix E**, the subject site is predominantly cleared of native vegetation with the exception of scattered paddock trees (mostly Marri and Flooded Gum).

The Concept Subdivision Plan (Aerial) at **Appendix F** illustrates there will be virtually no disturbance to existing trees on the subject site as a result of road construction or the future development of dwellings and associated outbuildings.

3.7 Land Capability

No reticulated sewer connection is available for the subject site or within the Gingin townsite. The Site and Soil Evaluation undertaken in support of the proposal (**Appendix E**) has demonstrated the suitability of future rural living lots of 2ha minimum to be serviced with onsite effluent disposal systems.

4 PROPOSED REZONING

4.1 Overview of Proposal

This Application seeks Council's support for the initiation of a Scheme Amendment to rezone the subject site, comprising an area of 24.02 ha of land, from 'General Rural' to 'Rural Living (RL2)'. The submission is accompanied by a Concept Subdivision Plan (**Appendix F1 and F2**) to illustrate the manner by which the subject site may be subdivided following rezoning and provides a design response to opportunities and constraints evident on the site.

4.2 Type of Amendment

Pursuant to regulation 34 of the LPS Regulations, the proposed Scheme Amendment represents a 'standard amendment'. The relevant clauses defining a standard amendment are as follows:

Standard Amendment means any of the following amendments to a local planning scheme –

- a) *An amendment relating to a zone or reserve that is consistent with the objectives identified in the scheme for that zone or reserve;*
- b) **An amendment that is consistent with a local planning strategy for the scheme that has been endorsed by the Commission;**
- c) *An amendment to the scheme so that it is consistent with a region planning scheme that applies to the scheme area, other than an amendment that is a basic amendment;*
- e) **An amendment that would have minimal impact on land in the scheme area that is not the subject of the amendment;**
- f) **An amendment that does not result in any significant environmental, social, economic or governance impacts on land in the scheme area;**
- g) *Any other amendment that is not a complex or basic amendment.*

(bold text added for emphasis)

It is considered the proposed Scheme Amendment satisfies the relevant provisions in bold text above and hence should be considered a standard amendment.

4.3 Special Conditions

In addition to the standards that generally apply to the Rural Living zone, the following conditions specific to the area to be rezoned to Rural Living (RL2) are proposed to be included in Schedule 8 of LPS 9 as part of the Scheme Amendment:

No.	Description of Land	Conditions
2	Pt Lot 9501 Cheriton Road, Gingin	General <ol style="list-style-type: none"> These conditions shall apply in conjunction with the Scheme requirements for the Rural Living zone, and/or as otherwise approved by the local government. Where conflicts exist, these conditions prevail.

		<p>Structure Planning</p> <p>2. A structure plan is not required to facilitate subdivision and development subject to the plan of subdivision and application meeting Conditions 3 and 4 below.</p> <p>Subdivision</p> <p>3. The plan of subdivision and application must:</p> <ul style="list-style-type: none"> (a) identify building envelopes/exclusion areas which respond to the significant environmental features of the site, including achieving suitable separation from water resources; and (b) provide a logical road network, including a subdivisional road along the northern boundary of the subdivision area designed to link the subdivision area from its eastern boundary to Cheriton Road through to its western boundary to Sloans Road; (c) be supported by: <ul style="list-style-type: none"> i. an approved Local Water Management Strategy; and ii. a site and soil evaluation conducted in accordance with <i>AS/NZS 1547 On-site domestic wastewater management</i>; <p>Local development plan</p> <p>4. A local development plan is to be prepared and approved identifying building envelopes/exclusion areas consistent with Conditions 1 to 3 above.</p> <p>5. Notwithstanding cl. 61(1)(l), where development is inconsistent with the approved local development plan a development application shall be required.</p>
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4.4 Concept Subdivision Plan

The Concept Subdivision Plan depicts the creation of 12 rural living lots (2ha minimum) serviced by Cheriton Road and a new subdivisional road which would in turn connect to Sloans Road. Sloans Road is currently constructed to a gravel standard with the exception of its southern portion which is sealed for a length of approximately 230m.

4.5 Visual Landscape Considerations

The subject site is located on the western side of Gingin Brook and forms part of the Cheriton Valley. As previously described in this report, the subject site grades upwards from Cheriton Road from a height of 110m AHD firstly in a westerly direction before grading upwards in a southerly direction to a height of approximately 154m AHD along the southern boundary of Lot 380 Howes Lane.

As evident from aerial photographs including the Aerial Context Plan at **Appendix A**, the subject site is generally cleared of vegetation with the exception of some scattered paddock trees.

The Concept Subdivision Plans (**Appendix F1 and F2**) illustrates the proposed subdivision layout and provides for lots of suitable dimensions to accommodate a single house and associated outbuildings which could be located so as to satisfy required setbacks for the rural living zone specified in Table 2 of LPS 9 (20m from all lot boundaries).

Table 2 does not specify minimum landscaping requirements for rural living lots, but notes landscaping is to be provided '*as required by local government*'.

Development approval is not required for a single house in the rural living zone as provided under LPS 9 at *Schedule A – Planning and Development (Local Planning Schemes) Regulations 2015 Deemed Provisions for Local Planning Schemes*. Therefore, it is not considered necessary or appropriate to introduce an additional requirement for development approval for the lots subject to Scheme Amendment 23 for the purpose of introducing design guidelines or similar. In this regard, a requirement for design guidelines to be incorporated as part of the proposal was not raised as part of the preliminary consultation undertaken by the Shire of Gingin.

If required, conditions could be applied at subdivision stage requiring selective planting of street trees as part of a road construction condition (and also tree planting along the western edge of the Cheriton Road reserve, where appropriate) to provide an effective visual screen for buildings which would complement plantings within the lots undertaken by future landowners.

There will be no adverse impact on other external views of the site (such as from Brand Highway) as a result of the proposal given the natural topography of the site and its surrounds.

4.6 Interfaces with General Rural Zoned Land

As described previously in this report in the section addressing SPP 2.5, the proposal will not conflict with primary production activities undertaken on nearby General Rural zoned land and is considered a suitable transitional land use between surrounding rural land to the north and west, exiting rural living lots and residential land use. In this regard, it is noted nearby rural land use comprises broad acre agricultural activities rather than commercial intensive agricultural enterprises, with surrounding rural land separated from the subject site by existing and proposed roads. This notwithstanding, it is anticipated a s70A Notification being placed on the titles of future rural living lots may be considered appropriate at subdivision stage, advising prospective purchasers of potential impacts from a primary production activities conducted in the surrounding rural areas.

4.7 Servicing and Infrastructure

4.7.1 Traffic, Roads and Pedestrian Access

A Transport Impact Statement (TIS) has been prepared in support of the proposed Scheme Amendment, a copy of which is included at **Appendix G**.

The TIS considers the proposal to rezone the subject site to create up to 14 lots having particular regard to the existing road network and the new subdivisional road linking between Cheriton Road and Sloans Road. Key findings in the TIS include the following:

- The new subdivision road connecting Sloans Road and Cheriton Road, which provides an alternative route to Brand Highway, could assist in reducing traffic flow on Mchavloe Drive heading to Brand Highway, particularly traffic generated from the Country Heights Estate, which will be a significant traffic generator when completed. Therefore, the addition of the new subdivision road would also benefit the existing and future residents by providing more permeability to the road network.
- As the area is rural in nature and not in immediate proximity to shops or other trip attractors, it is unlikely there would be significant demand for designated pedestrian access or cycling. Therefore, it is not necessary to provide footpaths within the subdivision and/or a connection to the surrounding road network.
- The development is conservatively estimated to generate 11 trips in the AM peak hour and 14 trips in the PM peak hour. The volume of trips generated by the subject site is minimal and is not considered to have any substantial impact on the surrounding road network.
- It is considered highly unlikely that the proposed development will cause any material impact to the traffic safety of the surrounding road network.

4.7.2 Drainage

The Local Water Management Strategy attached at **Appendix E** details the method in which stormwater will be managed. The strategy aims to comply with the principles and objectives for stormwater management identified in the *Stormwater Management Manual for WA* (DoW, 2004) and *Beter Urban Water Management* (WAPC, 2008). The drainage system will be designed to maintain surface flow rates and volumes within and from the developed site at their pre-development levels. The drainage design presented is conceptual and will be refined in the detailed subdivision designs.

4.7.3 Power

Power and telecommunications infrastructure is available to the subject site via Cheriton Road and could readily be extended along the proposed subdivisional road connecting to Sloans Road to service proposed lots at subdivision stage. Power and telecommunications infrastructure already extends along Howes Lane via Mchavloe Drive.

4.7.4 Water

The landowner of the subject site installed the Water Corporation water supply pipework servicing Marchmont Estate and extending within Cheriton Road to the southern boundary of Lot 9501 as part of the Marchmont Estate subdivision. Water supply pipework already extends along Howes Lane via Mchavloe Drive.

This water supply infrastructure was designed (as a requirement of the Water Corporation) to be of sufficient capacity to enable it to be extended to facilitate future subdivision along Cheriton Road and therefore is expected to be readily able to service proposed lots at subdivision stage.

5 CONCLUSION

This Scheme Amendment proposal seeks support from the Shire of Gingin to initiate an amendment to rezone Pt Lot 9501 Cheriton Road from 'General Rural' to 'Rural Living (RL2)'. It is considered the proposal is consistent with the strategic planning intent for the subject site set out in the Shire's local planning framework and is able to satisfy relevant state planning policies. As such, the proposal represents orderly and proper planning for the Gingin townsite and surrounds, which will make efficient use of existing servicing infrastructure and assist in supporting the provision of a range of townsite services and facilities.

Following the initiation of the Scheme Amendment and it being subject to the requirements of Part 5, Division 3 of the Planning and Development (Local Planning Schemes) Regulations 2015, it is respectfully requested the Scheme Amendment be favourably considered by the Western Australian Planning Commission and thereafter approved by the Minister for Planning.

APPENDIX A

AERIAL CONTEXT PLAN



Plan No.	2023-05	PERTH & FORRESTDALE:	COPYRIGHT:
Date	29/11/21	64/352 Huggard St PERTH WA 6000	This document is the property of Harley Dykstra & Co. Pty Ltd. It is to be used for the purpose for which it was prepared and is not to be distributed, copied, or otherwise used without the written consent of Harley Dykstra & Co. Pty Ltd.
Drawn	NP	FORRESTDALE WA 6122	
Checked	DM	T. 08 9463 1047 E. info@hdykstra.com.au	
Revision	1	ALBANY BUNBURY BUSSELTON FORRESTDALE PERTH	
Scale	1:10000@A3		

0 10m 20m 30m

NOTE: This plan has been prepared for planning purposes. Areas, contours and boundaries shown are not to be relied upon.

APPENDIX B

CERTIFICATES OF TITLE

WESTERN



AUSTRALIA

REGISTER NUMBER 9501/DP420962	
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 12/4/2021

RECORD OF CERTIFICATE OF TITLE UNDER THE TRANSFER OF LAND ACT 1893

VOLUME
4000FOLIO
605

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 9501 ON DEPOSITED PLAN 420962

REGISTERED PROPRIETOR: (FIRST SCHEDULE)

VERNON SCHOFIELD OF 245 CHERITON ROAD GINGIN WA 6503

(AF 0672966) REGISTERED 16/3/2021

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

1. T1011/1899 EASEMENT BENEFIT SEE TRANSFER 1011/1899. REGISTERED 1/1/1899.
2. *K029554 NOTIFICATION CONTAINS FACTORS AFFECTING THE WITHIN LAND. LODGED 8/1/2007.

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: DP420962
PREVIOUS TITLE: 2646-375
PROPERTY STREET ADDRESS: NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY: SHIRE OF GINGIN



APPENDIX C

AREA 1 AND AREA 2 SKETCH

Lot 9500 Cheriton Road, Ginginup

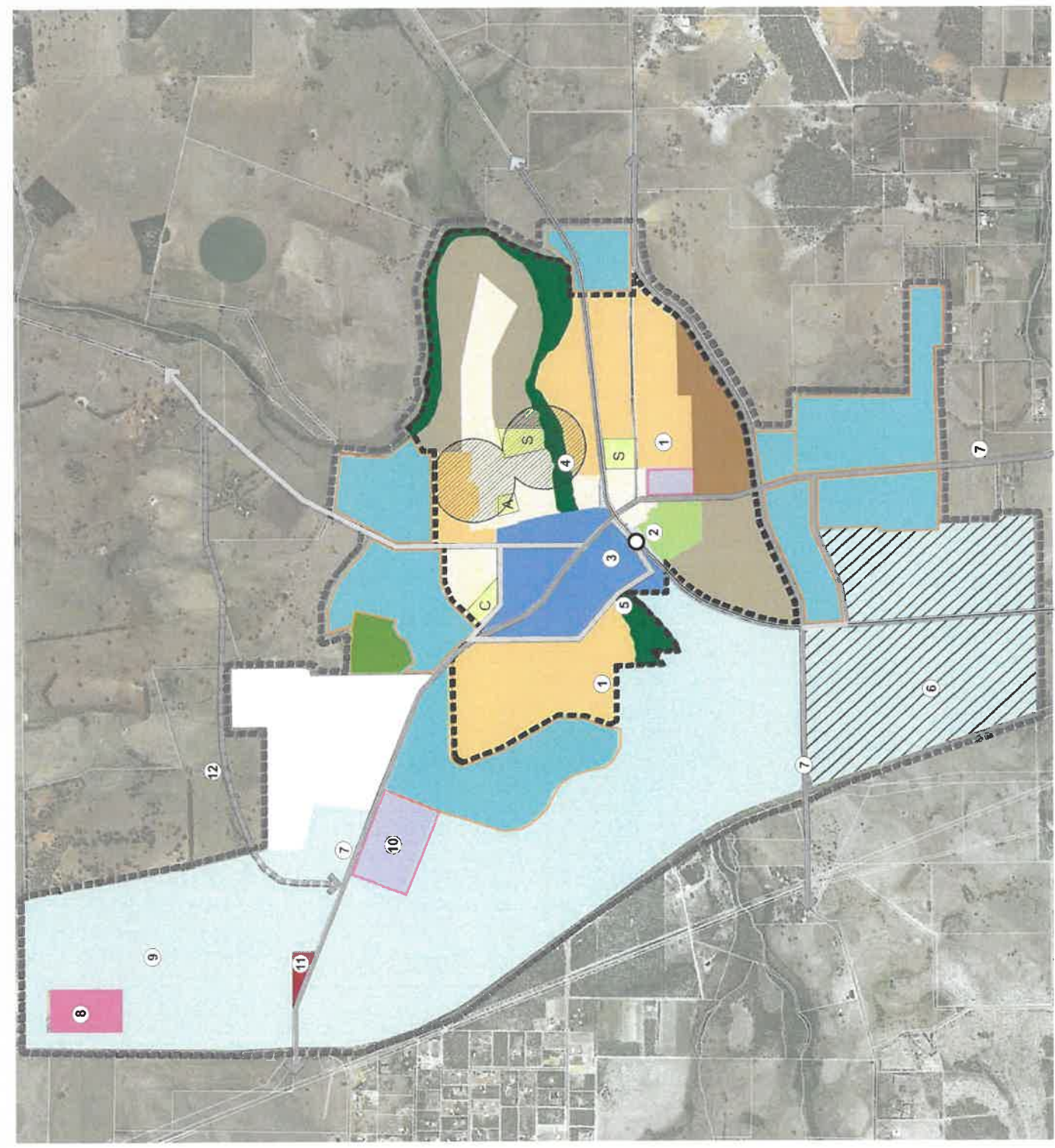


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APPENDIX D

GINGIN TOWNSITE AND RURALSURROUNDS STRUCTURE PLAN (MAP)



- Legend:**
- Revitalisation area
 - Existing residential area
 - Urban expansion areas
 - Town centre
 - Active recreation precinct
 - Conservation precinct
 - Parks & recreation
 - Public purpose - cemetery
 - Public purpose - school site
 - Public purpose - aged care
 - Scenic protection
 - Rural living
 - Equestrian precinct
 - Rural
 - Golf course precinct
 - Caravan park
 - Mixed business
 - General industrial
 - Roads - Integrator A
 - Roads - Neighbourhood Connector
 - Rail
 - Rail station
 - Structure Plan Boundary
 - Townsite Boundary
 - Public Drinking Water Source Protection Area - Priority 3
- Notes:**
- Recommended location for Aged Persons Accommodation.
 - Future passenger rail.
 - Integration of civic, community, tourism, cultural, recreational, and commercial uses.
 - Enhanced community access to the Gingen Brook.
 - Additional Brook crossing.
 - Smaller rural lots focussed on equestrian industry.
 - Enhance landscape quality of key entry roads to Gingen Townsite.
 - General industrial uses located on existing/previous hardstand areas within the closed Iluka mine site.
 - Rehabilitation zone. Shorter term rural land uses consistent with post-mining rehabilitation and land capability.
 - Mixed business area planning to incorporate buffers and controls to maintain visual quality of Dewar Road entrance to Gingen Townsite.
 - Existing caravan park.
 - New road connection. Alignment subject to future technical study and community consultation.

GINGIN TOWNSITE AND RURAL SURROUNDS STRUCTURE PLAN

Figure 8 - Gingen Townsite and Rural Surrounds Structure Plan

APPENDIX E

LOCAL WATER MANGEMENT STRATEGY

PT LOT 9501 CHERITON RD, GINGIN
LOCAL WATER MANAGEMENT STRATEGY

Prepared for

Schofield Trust
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EXECUTIVE SUMMARY

INTRODUCTION

The Schofield Trust proposes to rezone Lots 9501 Cheriton Road, Gingin (the site) from General Rural to Rural Living under the Shire of Gingin Local Planning Scheme No. 9 to enable its subdivision into Rural Living lots with a minimum size of two hectares.

The site has a total area of approximately 31.5ha. The proposed subdivision will create 12 new lots with areas between 2.1ha and 3.26ha as well as 2.24ha of new road reserve. The new lots will enable 12 new residences to be built, which will be serviced with scheme water and on-site effluent disposal.

Bayley Environmental Services was commissioned in August 2021 to undertake site investigations and to prepare a Local Water Management Strategy (LWMS) in support of the structure plan. The Department of Planning, Lands & Heritage (DPLH) has agreed that the requirement for an Environmental Assessment & Management Strategy (EAMS) report to support the rezoning may be satisfied by an expanded LWMS.

EXISTING ENVIRONMENT

The site lies on the gently undulating Gingin Scarp, on the north-facing slope of a low hill. The elevation ranges from 109.5m AHD at the north-east corner to 155m AHD at the south-west corner. The average slope over the site is about 8%.

The site soils consist mostly of dark red loam over orange-red mottled clay-loam or lateritic clay. In the south-west the test pits found very dark loam over a white chalk layer about 1.5m thick over clay.

Constant-head permeability tests in accordance with AS1547:2012 at 0.5m depth at eight locations (Figure 4) found saturated hydraulic conductivities (Ks) ranging from 0.5m/day to 9.2m/day, with an average Ks of 3.5m/day and a median of 2.4m/day.

No soil PRI analyses have been carried out at the site. The dark red-brown loamy and clayey soils are expected to have a high to very high PRI (probably over 100).

The Department of Water & Environmental Regulation (DWER) maps the site as having Low to Nil risk of actual or potential acid sulphate soils.

A shallow groundwater table probably develops in the valley north of the site in winter. Given the slopes and observed depth to granite in the area, the water table is expected to extend no further than the edges of the lots.

Groundwater ingress was observed at 1.8m to 2m depth in one test pit in the north of the site. Shallow groundwater (0.4m bgl) was also observed in a small area in the central south.

A shallow seasonal tributary of Gingin Brook flows northwest-southeast about 35-200m north of the site. The creek has a catchment of 95ha including parts of the site. Towards the north-eastern end of the site, the creek is joined by another creekline flowing from the north, which has an additional catchment of about 65ha. There are no wetlands mapped or existing on the site.

The site is cleared of native vegetation except for scattered mature trees, mostly Marri and Flooded Gum.

The cleared site and surrounds offer little habitat for native fauna except for disturbance-tolerant birds. Birds observed on the site during the site inspections included magpies, crows, twenty-eight parrots and galahs.

A detailed tree inspection in September 2021 found several trees containing small hollows, including one in use by galahs. No hollows or potential hollows of suitable size or configuration for black cockatoo nesting were observed. No evidence of black cockatoo feeding (e.g. chewed nuts) was observed.

The site has been cleared and used for cropping and/or broadacre grazing since at least 1981. There is no evidence on aerial photographs or on the ground of any intensive agriculture, structures or other potentially contaminating land uses. No further investigation of contamination is proposed.

LAND CAPABILITY FOR ON-SITE EFFLUENT DISPOSAL

Site investigations have found that the site is suitable for on-site effluent disposal in accordance with the Government Sewerage Policy (GSP). Specifically:

- The proposed minimum lot size of 2.1ha meets the lot size requirements of the GSP.
- The slopes on the site are less than 20%, the limit set by the GSP.
- The measured soil permeability is well above the minimum for on-site effluent disposal set by the GSP and Australian Standard AS1547:2012.
- The soil colour and clay-loam texture suggest a high to very high phosphorus retention index (PRI).
- Most of the site has sufficient groundwater clearance for effluent disposal without any modification. Parts of some lots might require filling to permit effluent disposal, but all lots contain areas that can be used without filling.

- All lots contain considerable areas with more than 100m separation from surface watercourses.
- The site is not susceptible to inundation under any foreseeable scenario.

STORMWATER MANAGEMENT

Runoff from the single access road from storms up to 1 year ARI, 1 hour duration (about 15mm) will be captured and infiltrated in a vegetated roadside bioretention swale. Preliminary calculations suggest that a swale 0.65m deep containing 0.3m high weirs at 13m spacing will have sufficient capacity to capture and infiltrate the 1-year 1-hour storm.

The lots will generally generate no runoff from 1-year 1-hour storms or smaller. In larger storms, runoff from the lots will flow into the roadside swale or to offsite areas.

Runoff from major storms up to the critical 100-year ARI storm, including road runoff and overflow from the lots, will overtop the weirs and flow along the roadside swale to the roadside drain on Cheriton Road, then into the northern creek and Gingin Brook.

The roadside swale will be sized to carry the critical 100-year ARI flow from all parts of the site and external catchments. The weirs will be sized to detain and compensate the offsite flows to no more than pre-development levels.

The drainage system will be designed to maximise on-site retention of nitrogen and phosphorus. This will be achieved by:

- Infiltrating or detaining all road runoff from the first 15mm of rainfall in any storm in a densely vegetated roadside bioretention swale.
- Conveying all road runoff from storms between 1-year and 100-year ARI in a densely vegetated bioretention swale to allow suspended particles to be filtered out.

The drainage system has been designed to require minimal maintenance. The following will be required to ensure that the system continues to function as designed:

- Tending and maintenance of swales and other vegetated drainage features to remove litter, control weeds and encourage the growth of native species.
- Pruning, mulching or removal of vegetation in the swale as necessary to maintain ground fuel loads below 8 tonnes/ha.

GROUNDWATER MANAGEMENT

Development on the site is not expected to have any effect on groundwater levels.

No groundwater quality information currently exists for the site. The aim of nutrient management will be to limit nutrient inputs to the site so that nutrient outputs are minimised. Given the high-PRI soils at the site, minimal phosphorus leaching to the groundwater is expected.

LANDSCAPING STRATEGY

In accordance with the Shire of Gingin Local Planning Scheme No. 9, the Shire of Gingin may require landscaping in accordance with a Landscape Plan as a condition of subdivision.

IMPLEMENTATION AND FURTHER MANAGEMENT PLANS

Subdivision and development on the site will be carried out in general accordance with this LWMS.

Prior to subdivision and development, a detailed drainage design (including sizing and configuration of the roadside swale) will be carried out and documented in a detailed Drainage Management Plan to the satisfaction of the Shire of Gingin.

Prior to development on individual lots, detailed design of on-site effluent disposal systems will be carried out by an experienced designer/installer to the satisfaction of the Shire of Gingin.

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1.0 INTRODUCTION

1.1 The Proposed Development

The Schofield Trust proposes to rezone Lots 9501 Cheriton Road , Gingin (the site) from General Rural to Rural Living under the Shire of Gingin Local Planning Scheme No. 9 to enable its subdivision into Rural Living lots with a minimum size of two hectares.

The site has a total area of approximately 24.02ha. The proposed subdivision will create 12 new lots with areas between 2.1ha and 3.26ha as well as 2.24ha of new road reserve. The new lots will enable 12 new residences to be built, which will be serviced with scheme water and on-site effluent disposal.

Planning consultant Harley Dykstra has prepared a structure plan and conceptual plan of subdivision for the site. Figure 1 shows the proposed subdivision layout. Figure 2 shows an aerial view of the site and its surroundings.

Bayley Environmental Services was commissioned in August 2021 to undertake site investigations and to prepare a Local Water Management Strategy (LWMS) in support of the structure plan. Due to the apparent lack of significant environmental constraints to the proposal, the Department of Planning, Lands & Heritage (DPLH) has agreed (____, 2021 corresp.) that the requirement for an Environmental Assessment & Management Strategy (EAMS) report to support the rezoning may be satisfied by an expanded LWMS.

1.2 Relevant Policies and Guidelines

1.2.1 State Planning Policy 2.9

State Planning Policy 2.9: *Water Resources* (WAPC, 2006) lists the following key principles for total water cycle management:

- Consideration of all water sources (including wastewater) in water planning, maximising the value of water resources.
- Integration of water and land use planning.
- Sustainable and equitable use of all water sources, having consideration of the needs of all water users including the community, industry and the environment.
- Integration of water use and natural water processes.
- A whole-of-catchment integration of natural resource use and management.

SPP 2.9 also lists the following general objectives for water-sensitive urban design:

- to manage a water regime;
- to maintain and, where possible, enhance water quality;
- to encourage water conservation;
- to enhance water-related environmental values; and
- to enhance water-related recreational and cultural values.

Element 5 of *Liveable Neighbourhoods* Edition 3 (WAPC, 2004) identifies specific objectives and requirements for Urban Water Management. These are based on Best Planning Practices which are defined as the best practical approach for achieving water resource management objectives within an urban framework.

1.2.2 Better Urban Water Management

Better Urban Water Management (WAPC, 2008) sets out the following objectives for water sensitive urban design:

Water Conservation

- Consumption of 100kL/pp/yr including less than 40-60 kL/p/yr scheme water.

Water Quantity

- Ecological Protection – Maintain pre-development flow rates and volumes for the 1 year ARI event. Maintain or restore desirable environmental flows and/or hydrological cycles.
- Flood Management – Maintain pre-development flow rates and volumes for the 100 year ARI event.

Water Quality

- Maintain pre-development nutrient outputs (if known) or meet relevant water quality guidelines (e.g. ANZECC & ARMCANZ, 2000).
- Treat all runoff in the drainage network prior to discharge consistent with the Stormwater Management Manual.
- As compared to a development that does not actively manage stormwater quality, achieve:
 - at least 80% reduction of Total Suspended Solids;
 - at least 60% reduction of Total Phosphorus;
 - at least 45% reduction of Total Nitrogen; and
 - at least 70% reduction of gross pollutants.

Mosquitoes and Midges

- Design detention structures so that, between the months of November and May, stormwater is fully infiltrated within 96 hours.
- Design permanent water bodies (where accepted by DWER) to maximise predation of mosquito larvae by native fauna.

1.2.3 Government Sewerage Policy

The Government Sewerage Policy (2019) requires that all new subdivision and development should be deep-sewered unless it is exempt for one of several reasons. For exempt developments, the policy establishes minimum site capability requirements and, where appropriate, density limits. In these cases, on-site effluent disposal may be approved where the responsible authority is satisfied that:

- each lot is capable of accommodating on-site sewage disposal without endangering public health or the environment; and
- the minimum site requirements for on-site sewage disposal as set out in the Policy can be met.

The Policy designates certain areas as Sewage Sensitive Areas (SSAs), including land:

- within the coastal catchment of the Swan Estuary; and
- within 1km upgradient or 250m downgradient (or overall 1km where the groundwater gradient is unknown) of a significant wetland.

Approximately the eastern half of the site is within an SSA due to its proximity to Gingin Brook.

Additional restrictions and requirements apply to on-site effluent disposal in SSAs, including:

- a minimum lot size of one hectare (unless exempted on a case-by-case basis);
- minimum vertical separation of 1.5m from the discharge point of effluent disposal systems to the highest groundwater table level; and
- secondary effluent treatment systems with nutrient removal.

1.2.4 DoW Interim Guideline: Developing a Local Water Management Strategy

The DoW LWMS guideline was published in 2008 and sets out the DoW's preferred format and content for LWMS documents. The guideline expands on the LWMS guidance provided in *Better Urban Water Management* (2008).

This LWMS has been prepared in accordance with the principles set out in the DoW guideline.

1.2.5 Shire of Gingin Local Planning Scheme No. 9

The Shire of Gingin Local Planning Scheme No. 9 contains the following objectives for Rural Living zones:

- a) protect the rural environment and landscape;
- b) accommodate single dwellings at very low densities on individual allotments beyond the urban areas;
- c) restrict and limit the removal of natural vegetation and encourage revegetation where appropriate;
- d) prevent threats to the amenity of the zone and impacts on wildlife and native vegetation caused by the grazing of livestock;
- e) avoid increased fire risk to life and property through inappropriately located and designed land use, subdivision and development; and
- f) provide for a suitable level of physical and community infrastructure.

1.3 **Scope of the LWMS**

The scope of this LWMS is to:

- Document the existing environment on the site, in relation to soils, drainage, erosion, watercourses, groundwater and water-dependent ecosystems.
- Briefly describe the proposed development in relation to water management.
- Examine the capability of the site for on-site effluent disposal.
- Address relevant regulatory requirements and design criteria for water harvesting, setbacks to watercourses, groundwater management and drainage.
- Describe the strategies to be implemented for water conservation, watercourse protection, groundwater management and stormwater drainage.

This LWMS also includes relevant elements of an Environmental Assessment and Management Strategy (EAMS) in support of the Scheme amendment, by agreement with the DPLH (_____, 2021 corresp.)

1.4 **Design Objectives**

Table 1.1 summarises the water-related design objectives for the site and the means by which they will be achieved in the LWMS and subsequent management plans.

Table 1.1 Design Objectives

<i>Design Aspect</i>	<i>Design Objective</i>	<i>How Objective is to be Achieved</i>
Water Conservation	Ensure efficient and sustainable use of water resources	Use water efficient fixtures. Use non-potable water for irrigation. Use water-efficient native species for landscaping. Irrigate landscape plantings only for 2 years.
Groundwater Management	Minimise impacts on groundwater level and flows Minimise impacts on groundwater quality	Treat runoff from minor storms in bioretention basins and swales.
Surface Water Management	Minimise impacts on surface water flow rates, volumes and quality	Retain and infiltrate runoff from 1-year ARI 1-hour storms in bioretention basins and swales. Detain runoff from larger storms and control release from lots and overall site to pre-development flow rates. Set effluent disposal facilities at least 100m back from natural waterways.

2.0 EXISTING ENVIRONMENT

2.1 Rainfall

Gingin, like the rest of the near-Perth region, has a strongly seasonal rainfall, with most of the annual rain falling between May and September in association with winter cold fronts. Occasional heavy falls may occur from summer thunderstorms. The long-term average annual rainfall for RAAF Gingin (located 14.3km south of the site) is 620.7mm, of which 80% falls between the months of May and September.

Figure 3 shows a rainfall occurrence chart for RAAF Gingin. Table 2.1 shows rainfall intensity, frequency and duration for Gingin.

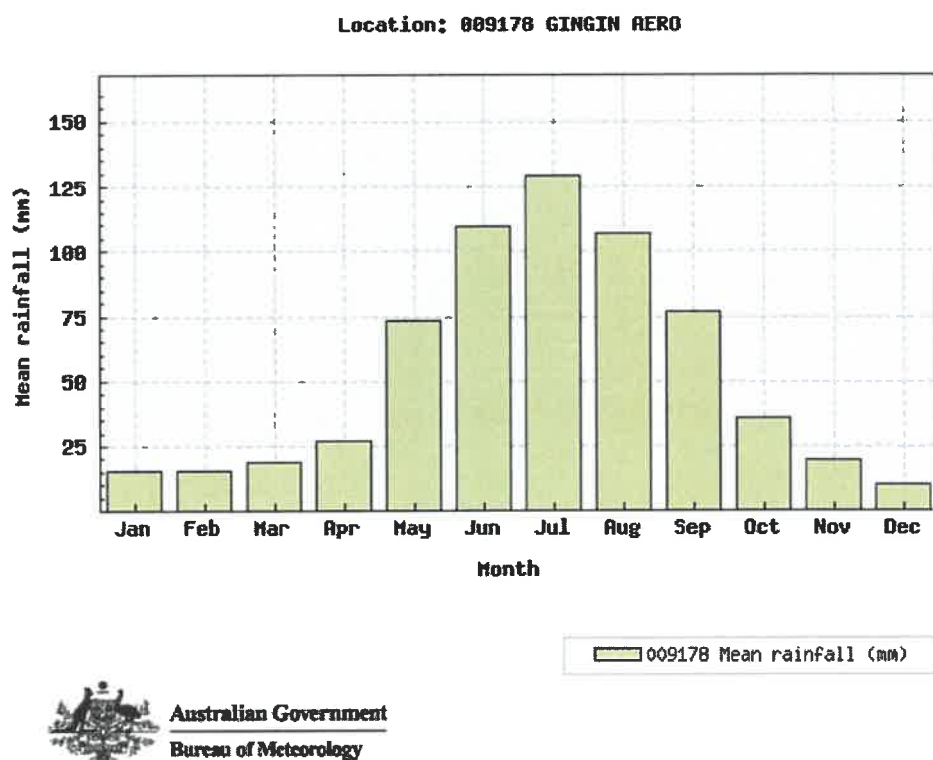


Figure 3 RAAF Gingin Mean Rainfall

IFD Design Rainfall Depth (mm)

Issued: 17 December 2021

Rainfall depth for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP).
[FAQ for New ARR probability terminology](#)

Duration	Annual Exceedance Probability (AEP)						
	63.2%	50%#	20%*	10%	5%	2%	1%
1 min	1.47	1.66	2.28	2.74	3.22	3.92	4.49
2 min	2.54	2.84	3.83	4.55	5.31	6.41	7.33
3 min	3.43	3.84	5.21	6.21	7.27	8.81	10.1
4 min	4.18	4.68	6.39	7.65	8.98	10.9	12.5
5 min	4.82	5.41	7.41	8.90	10.5	12.7	14.6
10 min	7.09	8.00	11.0	13.3	15.7	19.1	21.8
15 min	8.60	9.69	13.4	16.1	19.0	23.0	26.4
20 min	9.74	11.0	15.1	18.2	21.4	26.0	29.7
25 min	10.7	12.0	16.5	19.9	23.4	28.3	32.4
30 min	11.5	12.9	17.7	21.3	25.0	30.3	34.7
45 min	13.4	15.0	20.6	24.7	29.0	35.2	40.4
1 hour	14.9	16.7	22.8	27.4	32.2	39.2	45.1
1.5 hour	17.4	19.4	26.4	31.7	37.4	45.9	53.1
2 hour	19.3	21.6	29.4	35.4	41.9	51.6	60.0
3 hour	22.5	25.1	34.2	41.4	49.3	61.3	71.9
4.5 hour	26.3	29.2	40.0	48.7	58.4	73.3	86.5
6 hour	29.3	32.6	44.7	54.6	65.7	83.0	98.4
9 hour	34.0	37.8	52.0	63.8	77.2	98.0	117
12 hour	37.6	41.8	57.6	70.7	85.8	109	130
18 hour	43.0	47.8	65.8	80.7	97.7	124	147
24 hour	47.0	52.3	71.6	87.4	105	133	157
30 hour	50.2	55.7	76.0	92.3	111	138	162
36 hour	52.8	58.6	79.4	96.1	115	142	166
48 hour	57.1	63.2	84.8	102	120	146	169
72 hour	63.7	70.3	92.5	109	126	151	171
96 hour	69.3	76.2	99.0	115	132	155	174
120 hour	74.6	81.9	105	122	138	161	179
144 hour	80.0	87.7	112	129	146	169	188
168 hour	85.6	93.7	120	137	155	180	199

Note:

The 50% AEP IFD **does not** correspond to the 2 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 1.44 ARI.

* The 20% AEP IFD **does not** correspond to the 5 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 4.48 ARI.

Table 2.1 Rainfall Intensity for Gingin

2.2 Physiography

2.2.1 Topography

The site lies on the gently undulating Gingin Scarp, on the north-facing slope of a low hill. The elevation ranges from 109.5m AHD at the north-east corner to 155m AHD at the south-west corner. Figure 2 shows an aerial view of the site. Figure 4 shows topographic contours over the site.

The slope ranges from less than 4% in the central west to 16% in the south-west corner. The average slope over the site is about 8%.

2.2.2 Geology, Landforms and Soils

The Geological Survey of Western Australia (Hockey *et al.*, 1975) mapped most of the site as Colluvium, soil and undifferentiated sand (Qpo): Varicoloured (white-cream-brown), poorly sorted, partly rounded sand.

The far south-west was mapped as - Gingin Chalk (Kug): White, friable, richly fossiliferous and slightly glauconitic chalk in a layer 12-28m thick. The far south-east was mapped as Leederville Formation (Kll): Continental to shallow marine sequence of sandstone with minor shale, micaceous siltstone and claystone. Figure 4 shows the GSWA mapping.

Test pits to depths of up to 3.9m at twelve locations (Figure 4) mostly found a dark red loam over orange-red mottled clay-loam or lateritic clay. In the south-west the test pits found very dark loam over a white chalk layer about 1.5m thick over clay. Two test pits (GT4 and GT9) encountered granite at 2.9m and 1.9m respectively. Appendix A shows soil logs from the test pits.

Chalk outcrops and loose rocks were visible on the surface in the south-west. Figure 4 shows the area interpreted to contain the chalk layer.

2.2.3 Land Units

DPIRD (www.dpi.wa.gov.au) maps the site as part of the Dandaragan System (222Da): "Subdued dissected lateritic plateau, undulating low hills and rises with narrow alluvial plains, variable deep sands and sandy gravels plus minor earths, duplexes and clays; *Melaleuca* woodlands and shrublands."

2.2.4 Soil Permeability

Constant-head permeability tests in accordance with AS1547:2012 at 0.5m depth at eight locations (Figure 4) found saturated hydraulic conductivities (Ks) ranging from 0.5m/day to 9.2m/day, with an average Ks of 3.5m/day and a median of 2.4m/day. Appendix B shows the permeability test results.

2.2.5 Phosphorus Retention Index

No soil PRI analyses have been carried out at the site. The dark red-brown loamy and clayey soils are expected to have a high to very high PRI (probably over 100).

2.2.6 Acid Sulphate Soils

The Department of Water & Environmental Regulation (DWER) maps the site as having Low to Nil risk of actual or potential ASS. The site is elevated with soils of terrestrial origin. No further consideration of ASS is proposed.

2.3 **Hydrology**

2.3.1 Groundwater

A shallow groundwater table probably develops in the valley north of the site in winter. Given the slopes and observed depth to granite in the area, the water table is expected to extend no further than the edges of the lots.

Seepage may occur above the granite or heavier clay layers in other parts of the site during winter. Groundwater ingress was observed at 1.8m to 2m depth in test pit GT12. Shallow groundwater (0.4m bgl) was also observed in a small area in the central south, where converging contours concentrate drainage from upslope.

2.3.2 Surface Drainage

There is no defined natural surface drainage on the site. Sheet runoff may occur under very intense rainfall.

A shallow seasonal creek flows northwest-southeast about 35-200m north of the site. The creek is dammed in several places and flows east about 750m to join Gingin Brook, then generally west to the Moore River. The creek rises about 300m north-west of the site and has a catchment of 95ha including parts of the site. Towards the north-eastern end of the site, the creek is joined by another creekline flowing from the north, which has an additional catchment of about 65ha.

Several shallow contour drains have been cut within the site and adjacent lots. Their purpose is unclear but is possibly erosion control. The drains do not discharge to the creek, but end in small ponds.

A dam is located in the north-east corner of the site. When inspected in August 2021 (following an exceptionally wet July) it was dry.

Figure 5 shows the hydrology of the site and surroundings.

2.3.3 Water Resources

The site is within the Gingin Groundwater Area, in the Cowalla Confined (Leederville) and Gingin Townsite (surficial) subareas. Water allocations in the Gingin Groundwater Area are governed by the DWER under the Gingin Groundwater Area Water Allocation Plan (DoW, 2015).

Under the Plan, the surficial aquifer in the Gingin Townsite subarea has a total of 5,000 ML/yr available for abstraction, of which 2500 ML/yr is currently unallocated (B. Kumar DWER, 2022 pers. comm.). The Leederville aquifer has a total of 19,000 ML/year, which is currently over-allocated.

The availability of groundwater on the site is expected to be generally low and will vary from place to place depending on the proximity to the northern creekline, the depth to granite and the occurrence of sandy soil horizons. Test drilling will be required to determine groundwater availability on any particular lot.

2.3.4 Wetlands

There are no wetlands mapped or existing on the site. The nearest mapped wetland is a Multiple Use Category palusplain in cleared paddocks 95m east of the site. Gingin Brook, 440m south-east of the site, is mapped as a Conservation Category palusplain.

2.4 **Water Quality**

No water quality information for the site or surroundings is available.

2.5 **Vegetation**

The site is cleared of native vegetation except for scattered mature trees, mostly Marri and Flooded Gum. Figure 4 shows the trees on the site.

2.6 **Fauna and Habitats**

2.6.1 Overview

The cleared site and surrounds offer little habitat for native fauna except for disturbance-tolerant birds. Birds observed on the site during the site inspections included magpies, crows, twenty-eight parrots and galahs.

2.6.2 Cockatoo Habitat

Bayley Environmental Services surveyed all of the trees on the site in September 2021 and found 35 trees larger than 0.5m dbh. All trees were photographed, located using a handheld GPS and inspected for health and the presence of hollows and evidence of black cockatoo feeding. Appendix C shows the tree survey results.

Several trees contained small hollows, including one in use by galahs. No hollows or potential hollows of suitable size or configuration for black cockatoo nesting were observed.

Marris were the only trees on the site which offered a potential food source for black cockatoos. No evidence of black cockatoo feeding (e.g. chewed nuts) was observed, although the search was hampered by the presence of long grass beneath most trees.

It is concluded that the Marri trees on site offer a potential food source for black cockatoos, but there are no actual or potential nesting hollows on the site.

No trees will require removal as part of the subdivision or development of the site with the possible exception of three Marri trees in the road reserve. Efforts will be made to retain these trees in consultation with the Shire of Gingin. Any other removal of trees on individual lots will be subject to development approval from the Shire of Gingin.

2.7 **Land Uses and Potential Contamination**

The site has been cleared and used for cropping and/or broadacre grazing since at least 1981 (the date of the earliest Landgate aerial photography). There is no evidence on aerial photographs or on the ground of any intensive agriculture, structures or other potentially contaminating land uses. No further investigation of contamination is proposed.

3.0 WATER USE SUSTAINABILITY

3.1 Water Supply

The development will be supplied with potable water provided by the Water Corporation.

Groundwater may be available from the surficial aquifer, although its quality and availability will need to be established by testing on individual lots. Dams may be feasible in some areas for non-potable supply. Rainwater tanks may be used as a supplementary supply.

3.2 Water Efficiency Measures

In accordance with the amended *Building Regulations 1989*, all new homes within the development will incorporate the following features:

- Minimum 4 stars WELS rated tap fittings, except bath outlets and garden taps.
- Minimum 3 stars WELS rated shower heads.
- Minimum 4 stars WELS rated dual flush toilets.
- Covers on all private swimming pools.
- All internal hot water pipes installed in accordance with AS/NZS 3500:2003.
- Maximum run of pipe from hot water system to outlet not exceeding 20 metres length or 2 litres of internal volume.

The design and installation of water wise initiatives such as rainwater tanks, grey water reuse systems and water efficient fixtures and fittings will be promoted as part of the marketing of the estate to ensure such initiatives can be implemented by homeowners.

4.0 LAND CAPABILITY FOR ON-SITE EFFLUENT DISPOSAL

4.1 Lot Size

The proposed lots on the site have a minimum size of 2.1 hectares. Under the Government Sewerage Policy (GSP), new unsewered subdivisions on clay-loam soils in towns without an established sewerage scheme have a minimum permissible size of 1,000m² for secondary effluent systems and 2,000m² for primary treatment systems (e.g. septic). In sewage sensitive areas (SSAs) the minimum lot size is 1ha.

The minimum lot size proposed for the site meets the minimum lot size requirement of the GSP.

4.2 Slope

The GSP prohibits on-site effluent disposal on land with a slope of more than 20% (1 in 5), although terracing or contouring may be used to reduce the slope if necessary.

The steepest slope on the site is 16% in the south-west corner (proposed Lot 13). All lots therefore meet the slope limitations of the GSP. However, it is recommended that the area of steepest slope in the south-east of Lot 13 be avoided for effluent disposal.

4.3 Soil Permeability

Constant-head permeability tests at eight locations on the site found saturated hydraulic conductivity (Ks) of 0.5m/day to 9.2m/day, with an average of 3.5m/day and a median of 2.4m/day.

Australian Standard AS1547:2012 permits effluent disposal by leach drains or irrigation on land with Ks of 0.06m/day or greater. The site soils easily meet the AS1547 standard.

4.4 Phosphorus Retention Index

The Health Department's draft *Code of Practice for Onsite Sewage Management* (2012) recommends a PRI of at least 20 for soils beneath effluent irrigation areas.

No PRI testing has been carried out at the site, but the soil colour and clay-loam texture suggest a high to very high PRI (probably >100). The site is expected to easily meet the Health Department's recommended PRI standard.

4.5 Groundwater Separation

The GSP requires a minimum 0.6m clearance from the discharge point of effluent disposal systems to the highest groundwater table in loams and heavy soils outside of Sewage Sensitive Areas (SSAs) and Public Drinking Water Source Areas (PDWSAs). In SSAs the minimum permitted clearance to groundwater is 1.5m.

Groundwater was encountered at 1.8m depth at test pit GT10 in the north of the site. Shallow groundwater at 0.4m depth was encountered in a small area of converging slope in parts of proposed Lots 7 and 8 (Figure 6). On Lot 8, this area may be used for effluent disposal by adding fill to a height of 0.2m plus the height of the effluent system (0m for surface irrigation, up to 0.9m for conventional leach drains). Lot 7 is within the SSA and so this area would require filling by between 1.1m and 2m.

Lots 1 to 7 are all within the SSA. Conventional leach drains in SSAs require at least 2.4m clearance from the ground surface to the water table (allowing for 0.6m system height plus 0.3m of soil cover). The minimum clearance can be reduced to 1.8m by the use of flatbed leach drains or subsoil drip irrigation, and to 1.5m by using surface spray irrigation. By these means, all of Lots 1 to 7 except for the portion identified at the south of Lot 7 are expected to have sufficient groundwater clearance for effluent disposal.

All other parts of the site have sufficient groundwater clearance for effluent disposal without modification.

4.6 Surface Water Separation

The GSP requires effluent disposal areas to be set back at least 100m from surface watercourses and drains that flow into surface watercourses without treatment.

The creekline to the north approaches to within 57m from the nearest lot. A 100m buffer from the creek affects the lower (northern) parts of Lots 1 and 4-8 (Figure 6). All of these lots have ample room for effluent disposal outside of the 100m setback.

There is therefore no significant constraint to effluent disposal due to surface water setbacks.

4.7 Inundation

Calculations using the Rational Method (Engineers Australia, 1987) suggest that the combined catchments of the creek north of the site would produce a flow of around 6.9m³/sec in a critical 100-year ARI storm at the closest point to the site. Appendix D shows the flow calculations.

Calculations using Manning's Open Channel Flow Formula (Fang, 2000) suggest that this flow produce a flow 28m wide and 0.36m deep in the creek. It is concluded that there is no risk of inundation of the site from the creek.

4.8 System Selection, Sizing and Location

The soils and hydrology of the site are suitable for effluent disposal by conventional septic tank/leach drain systems or by ATU using leach drains or irrigation. Septic systems are the simplest and cheapest option.

Schedule 2 of the GSP indicates that a 5 bedroom, 6 person home with a conventional septic system would require a minimum 620m² land application area (LAA) including necessary setbacks from boundaries and buildings. A secondary treatment system (ATU with leach drain or irrigation) would require an LAA of at least 257m².

All proposed lots have ample room for either primary or secondary effluent disposal. All could employ effluent disposal in any part of the lot except:

- Lots 1 and 4-8: Avoid areas within 100m of the creekline.
- Lots 7 and 8: Avoid or fill area with shallow groundwater.
- Lot 13: Recommend avoid area of steepest slope in south-east corner.

Under the GSP, Lots 1 – 7 are within a sewage sensitive area and must use nutrient-retentive secondary treatment systems (e.g. ATU with high-PRI irrigation area, ATU or septic with modified soil leach drain).

Figure 6 shows the constrained areas.

5.0 STORMWATER MANAGEMENT

5.1 Principles and Objectives

The stormwater management strategy aims to comply with the principles and objectives for stormwater management identified in the *Stormwater Management Manual for WA* (DoW, 2004) and *Better Urban Water Management* (WAPC, 2008).

Nutrient concentrations and loads in water leaving the site will be managed to comply with the long-term targets of the *Swan Canning Water Quality Improvement Plan* (SRT, 2009), as follows:

- Winter median TP concentration: 0.1 mg/L
- Winter median TN concentration: 1.0 mg/L
- Annual TP yield: 0.013 kg/ha
- Annual TN yield: 0.2 kg/ha.

The drainage system will be designed to maintain surface flow rates and volumes within and from the developed site at their pre-development levels. The drainage design presented here is conceptual and will be refined in the detailed subdivision designs.

The priorities for managing the various sizes of storm event will be:

- 1 year ARI Infiltrate all flows as close to the source as possible. Where infiltration is not feasible, detain runoff to maintain pre-development flow rates and volumes. Minimise export of nutrients and sediments.
- 5 year ARI Detain water prior to discharge. Maintain pre-development flow rates and volumes. Maintain amenity and serviceability. Prevent scouring and damage.
- 100 year ARI Maintain pre-development flow rates and volumes. Prevent flooding and damage.

5.2 Drainage Management System

5.2.1 Road Drainage

The single access road will be contained within one drainage catchment. Runoff from storms up to 1 year ARI, 1 hour duration (about 15mm) will be captured and infiltrated in a vegetated roadside bioretention swale. The swale will be nominally 0.65m deep and will be equipped with low (nominally 0.3m) weirs spaced and sized to retain and infiltrate the 1-year 1-hour storm. Figure 7 shows the conceptual alignment of the roadside

swale. The swale may be on either side of the road, depending on detailed design. Figure 8 shows conceptual cross-sections of the swale.

Calculations based on the Rational Method (Engineers Australia, 1987) suggest that 0.65m high swales spaced 13m apart will be more than sufficient to capture and infiltrate the 1-year 1-hour road runoff. Table 5.1 summarises the 1-year 1-hour flows and swale sizing. Appendix D shows the runoff calculations.

5.2.2 Lot Drainage

The proposed lots fall into three catchments: the largest, measuring 25.4ha, drains to the northern creek via the road reserve. Two others measuring 3.9ha and 3.6ha drain to rural land to the west and the roadside drain along Cheriton Road respectively.

The size of the lots and the existing state of the site mean that development will cause minimal change to the runoff characteristics of the site. Small storms (1-yr ARI or less) will generally produce no runoff from the lots. Roof runoff from storms up to 20-year ARI, 5-minute duration will be captured by soakwells and gardens in accordance with the Building Code of Australia.

Runoff from larger storms (10-yr ARI or greater) will contribute to flows in the roadside swale.

5.2.3 External Catchments

An external catchment of 9.4ha south of the site drains via the site to the roadside swale. This catchment consists of cleared paddocks and houses on large lots. Another 3.6ha catchment drains across the south-east corner of the site to Cheriton Road, while another of 0.4ha drains across the south-west corner to the neighbouring rural land. Catchments further upslope (south) are severed by existing roads.

5.2.4 Major Storm Drainage

Runoff from major storms up to the critical 100-year ARI storm, including road runoff and overflows from the lots, will overtop the weirs and flow along the roadside swale to the roadside drain on Cheriton Road, then into the northern creek and Gingin Brook.

The roadside swale will be sized to carry the critical 100-year ARI flow from all parts of the site and external catchments. The weirs will be sized to detain and compensate the offsite flows to no more than pre-development levels.

Table 5.1 summarises the pre-development and post-development flows from a critical 100-year ARI storm. Appendix D shows the runoff and swale sizing calculations.

All calculations are preliminary and will be subject to detailed design prior to construction.

Table 5.1 Flow Calculations and Swale Sizing

<i>Storm</i>	<i>Catchment</i>	<i>Pre-Dev Flow (L/s)</i>	<i>Post-Dev Flow (L/s)</i>	<i>Total Flow (m³)</i>	<i>Storage Required (m³)</i>	<i>Effective Storage Available (m³)</i>	<i>Flow Depth Over Weir (m)</i>	<i>Top Water Width (m)</i>
1 yr 1 hr	Road	0	63	218	218	419	0	1.4
100 yr 54 min	Road	91	240	774	403	405	0.1	3.4
100 yr 51 min	Combined (Road + Lots + External)	1647	1822	4488	0	376	0.31	4.65

5.3 Surface Water Quality Management

The drainage system will be designed to maximise on-site retention of nitrogen and phosphorus. This will be achieved by:

- Infiltrating or detaining all road runoff from the first 15mm of rainfall in any storm in a densely vegetated roadside bioretention swale.
- Conveying all road runoff from storms between 1-year and 100-year ARI in a densely vegetated bioretention swale to allow suspended particles to be filtered out.

5.4 Maintenance

The drainage system has been designed to require minimal maintenance. The following will be required to ensure that the system continues to function as designed:

- Tending and maintenance of swales and other vegetated drainage features to remove litter, control weeds and encourage the growth of native species.
- Pruning, mulching or removal of vegetation in the swale as necessary to maintain ground fuel loads below 8 tonnes/ha.

6.0 GROUNDWATER MANAGEMENT

6.1 Groundwater Levels

Measurements during the site investigations in August 2021 suggest that the groundwater table is at least 1.8m below ground level except for a small area in the south of the site, where converging slopes result in groundwater within 0.4m of the surface.

Overall, development on the site is not expected to have any effect on groundwater levels.

6.2 Groundwater Quality

No groundwater quality information currently exists for the site.

The relationship between nutrient inputs and groundwater quality is complex, especially in the case of phosphorus, which travels through the soil profile as a “front” in a complex series of adsorption and desorption reactions. Nitrogen is subject to denitrification and mineralisation in the soil and groundwater. As a result, groundwater quality at the site at present will be a reflection of nutrient inputs over the last several decades, modified by soil hydrology and nutrient retention capacity.

The aim of nutrient management will be to limit nutrient inputs to the site so that nutrient outputs are minimised. Given the high-PRI soils at the site, minimal phosphorus leaching to the groundwater are expected.

7.0 LANDSCAPING STRATEGY

The objectives of the Shire of Gingin Local Planning Scheme No. 9 for Rural Living zones include:

- a) Protect the rural environment and landscape.
- c) Restrict and limit removal of native vegetation and encourage revegetation where appropriate.
- d) Prevent threats to the amenity of the zone and impacts on wildlife and native vegetation caused by the grazing of livestock.

Table 2 of the Scheme notes that landscaping requirements may be imposed in the Rural Living zone “as required by Local Government”. In accordance with the Scheme, the Shire of Gingin may require landscaping in accordance with a Landscape Plan as a condition of subdivision.

8.0 SUBDIVISION AND CONSTRUCTION WORKS

The construction of the subdivision will involve minimal earthworks due to the large size of the lots. Subdivision works will be mainly confined to the construction of the access road and fences and the installation of water, power and telecommunications.

The developer will implement a Construction Management Plan for the development dealing with dust management, erosion and sediment control, containment of environmentally hazardous materials (chiefly fuel and oils) and spill response. The key elements of the Construction Management Plan will include the following:

Dust Minimisation

- No topsoil stripping will occur when the wind speed is greater than 25km/hr and no earthworks will occur in winds of greater than 40km/hr, unless effective dust suppression can be achieved.
- Dust will be suppressed on any disturbed ground and stockpiles during dry soil conditions by watering, hydromulching, wind fencing and/or covering.
- An adequate supply of water for dust suppression will be kept on site at all times.
- Ground to be disturbed will be wetted prior to soil disturbance.
- Any soil stockpiles will be limited to a height of 2m to minimise dust generation and facilitate watering.
- Other dust minimisation measures will include minimising areas of disturbance, limiting volume and speed of construction traffic, and instructing site workers in dust minimisation.

Erosion and Sedimentation

- Drains and bunds will be constructed where necessary to capture and direct all runoff from disturbed areas into settling ponds prior to discharge.
- Drains, bunds and ponds will be appropriately designed and sized.
- Vehicles and machinery will be kept to designated roads, tracks and work areas.

Water Conservation

- Water consumption during construction will be minimised by:
 - limiting dust suppression watering to prevent ponding and runoff
 - use of non-water dust control methods such as wind fencing and hydromulching.

Hazardous Materials

- All environmentally hazardous materials will be stored in their original labelled containers (or labelled jerrycans in the case of petroleum products) in a ventilated sea container equipped with appropriate signage, fire extinguishers and a spill response kit.
- Petroleum products will be held in a bunded enclosure.
- Material Safety Data Sheets (MSDS) and a chemical register for all hazardous materials on the site will be maintained by the site supervisor in the site office.

Complaints Register

- The construction manager will maintain a record of any public complaints and the actions taken in response.

9.0 IMPLEMENTATION AND FURTHER MANAGEMENT PLANS

Subdivision and development on the site will be carried out in general accordance with this LWMS.

Prior to subdivision and development, a detailed drainage design (including sizing and configuration of the roadside swale) will be carried out and documented in a detailed Drainage Management Plan to the satisfaction of the Shire of Gingin.

Prior to development on individual lots, detailed design of on-site effluent disposal systems will be carried out by an experienced designer/installer to the satisfaction of the Shire of Gingin.

The Shire of Gingin may require the preparation of a Landscape Plan prior to subdivision.

10.0 REFERENCES

DoW (2015). *Gingin Groundwater Allocation Plan*. Water resource allocation and planning report series no. 53. Department of Water, Perth.

Fang X. (2000). *Open Channel Flow Calculator*.
<https://www.eng.auburn.edu/~xzf0001/Handbook/Channels.html>.
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Health Department (2012). *Draft Code of Practice for On-Site Sewage Management*. Consultation Draft – November 2012. Health Department, Perth.

Hocking R.M., Marcos G.W. and Archer R.H. (1975). *Gingin Urban Geology Sheet 2035 II*. 1:50,000 Urban Geology Series. Geological Survey of Western Australia, Perth.

Institute of Engineers, Australia (1987). *Australian Rainfall and Runoff: A Guide to Flood Estimation*. Institute of Engineers, Australia, Barton, ACT.

Standards Australia (2012). *Australian/New Zealand Standard 1547:2012 – On-site Domestic Wastewater Management*. SAI Global Ltd, Sydney.

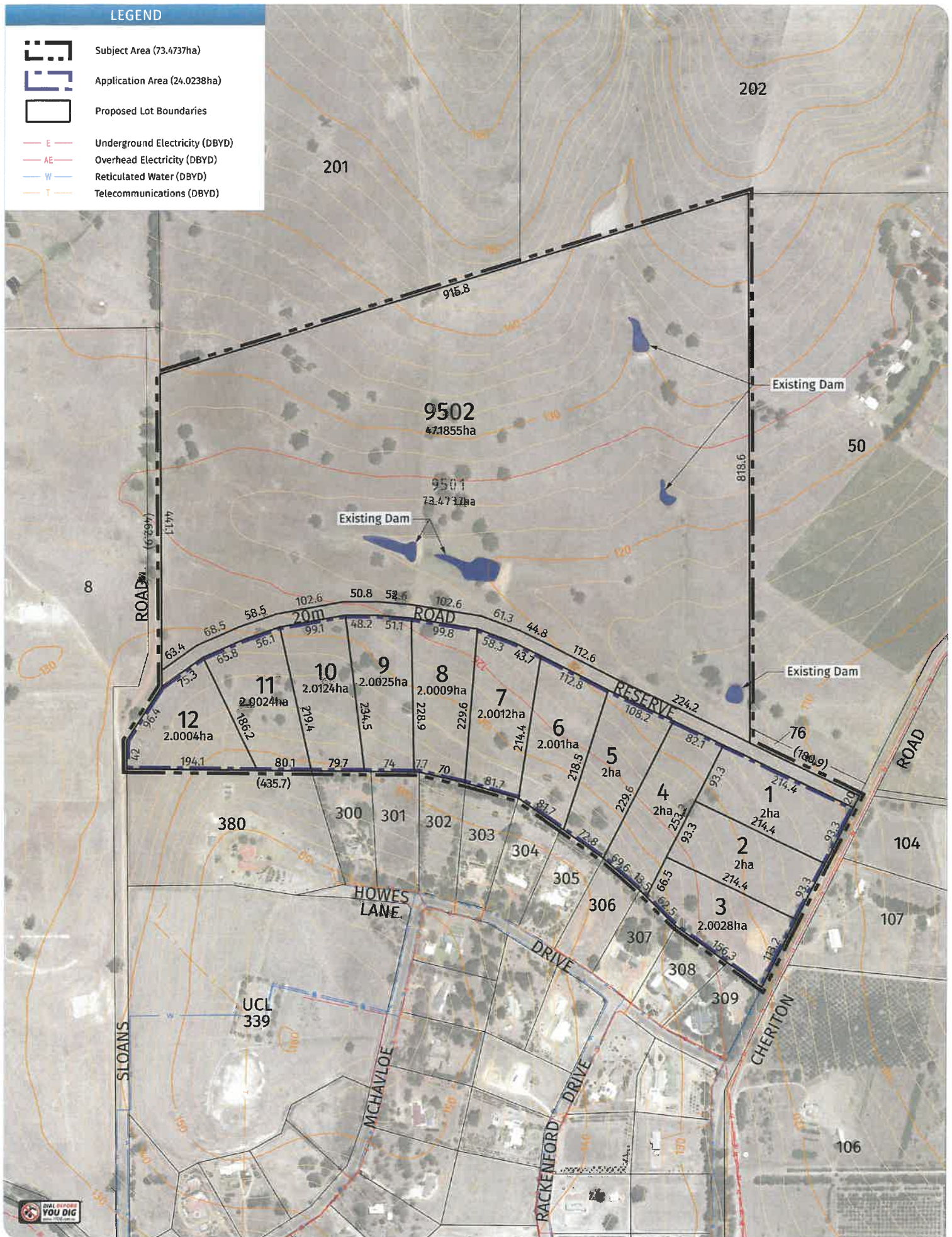
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Figures

LEGEND



- Subject Area (73.4737ha)
- Application Area (24.0238ha)
- Proposed Lot Boundaries
- E Underground Electricity (DBYD)
- AE Overhead Electricity (DBYD)
- W Reticulated Water (DBYD)
- T Telecommunications (DBYD)



CONCEPT SUBDIVISION PLAN (AERIAL)

Pt Lot 9501 Cheriton Road,
GINGIN

Plan No. | 20213-04
Date | 02/05/22
Drawn | NP
Checked | CP
Revision | C

PERTH & FORRESTDALE:
LVL 1, 252 Fitzgerald St
PERTH WA 6000
18/2 Hensbrook Loop,
FORRESTDALE WA 6112
T: 08 9475 1974
E: mclm@harleydykstra.com.au

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Scale | 1:5000@A3

0 50m 100m 150m

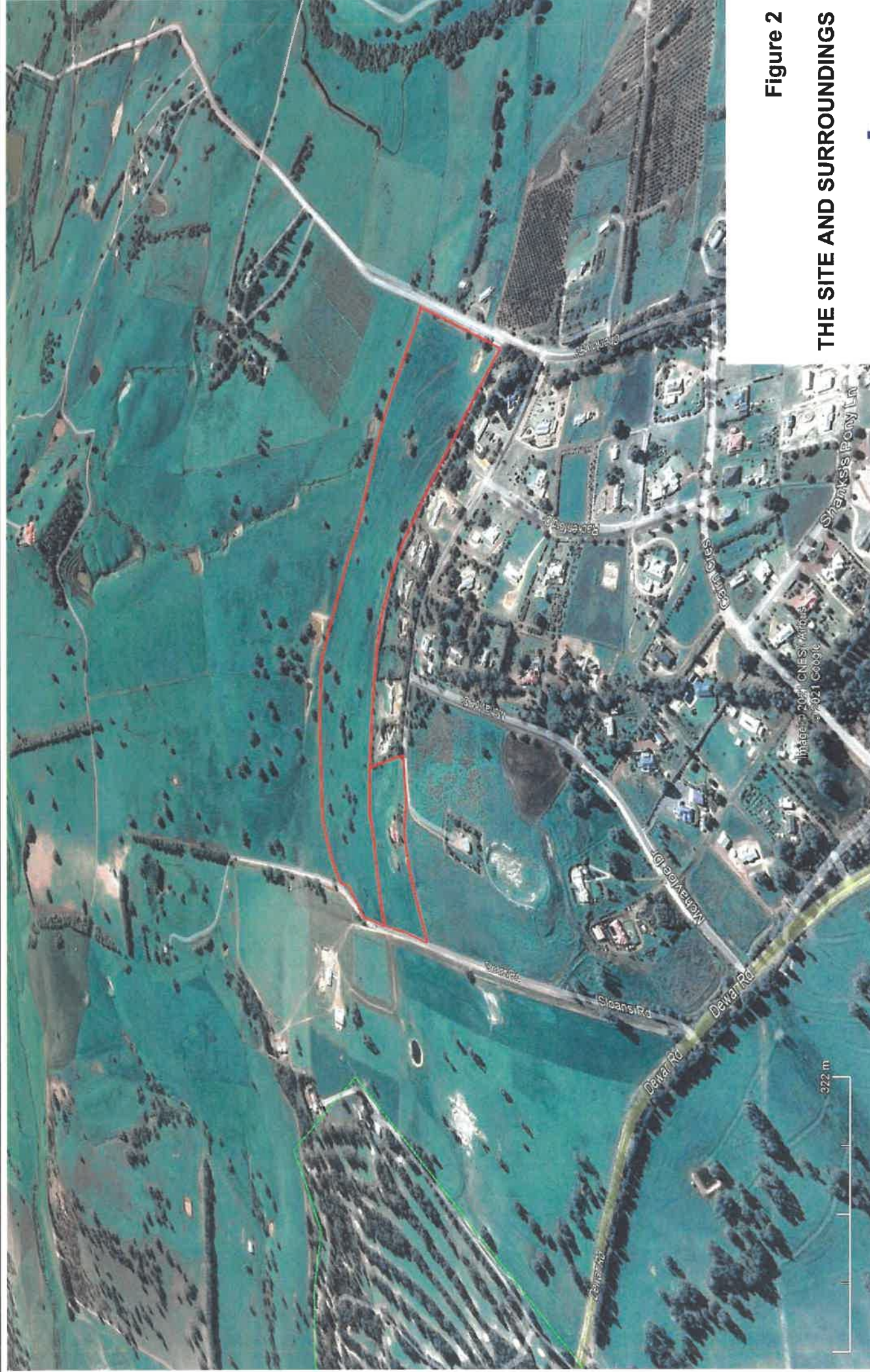


NOTE: This plan has been prepared for planning purposes. Areas, contours and dimensions shown are subject to survey.



Harley Dykstra

PLANNING & SURVEY SOLUTIONS



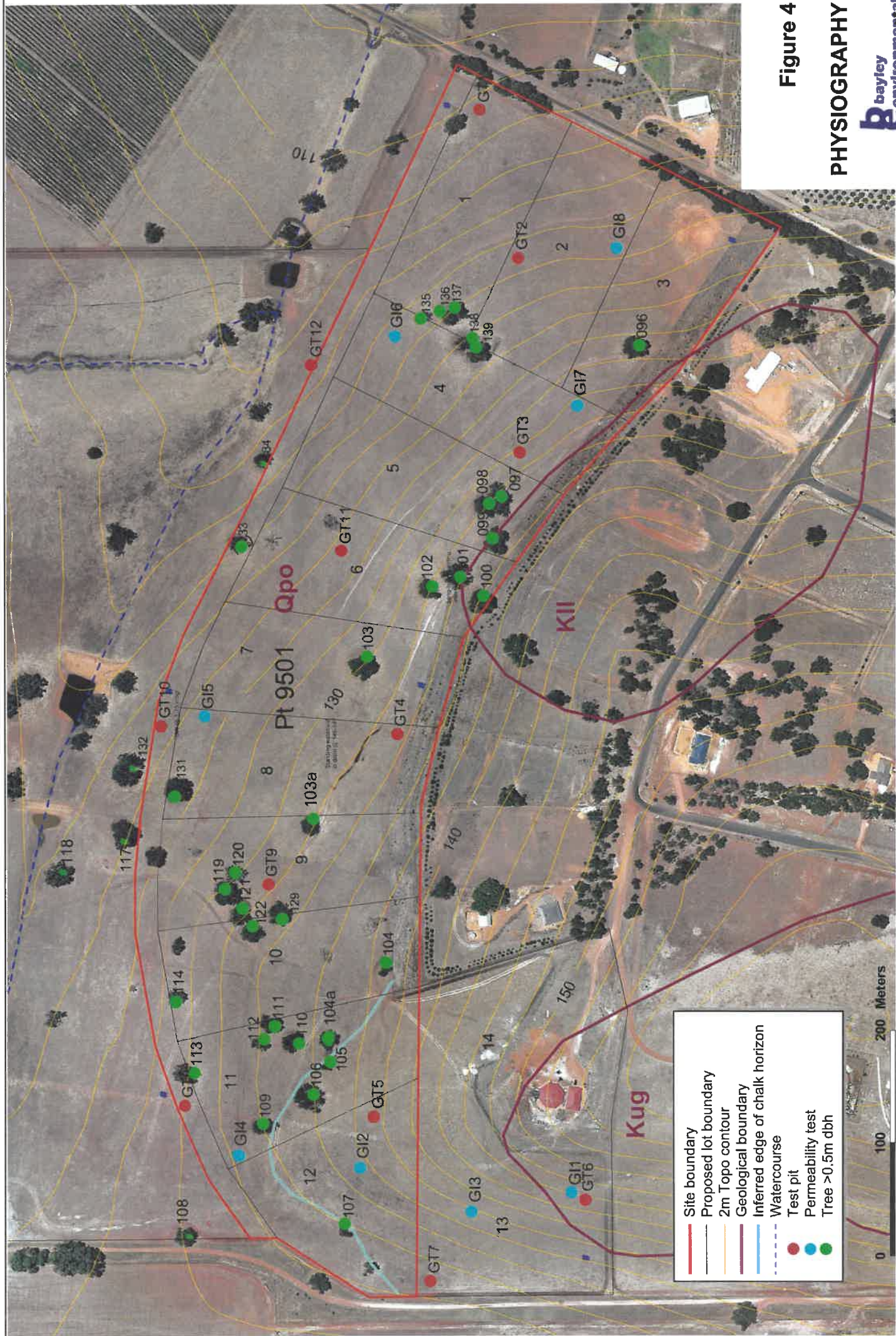


Figure 4

PHYSIOGRAPHY



Figure 5

HYDROLOGY

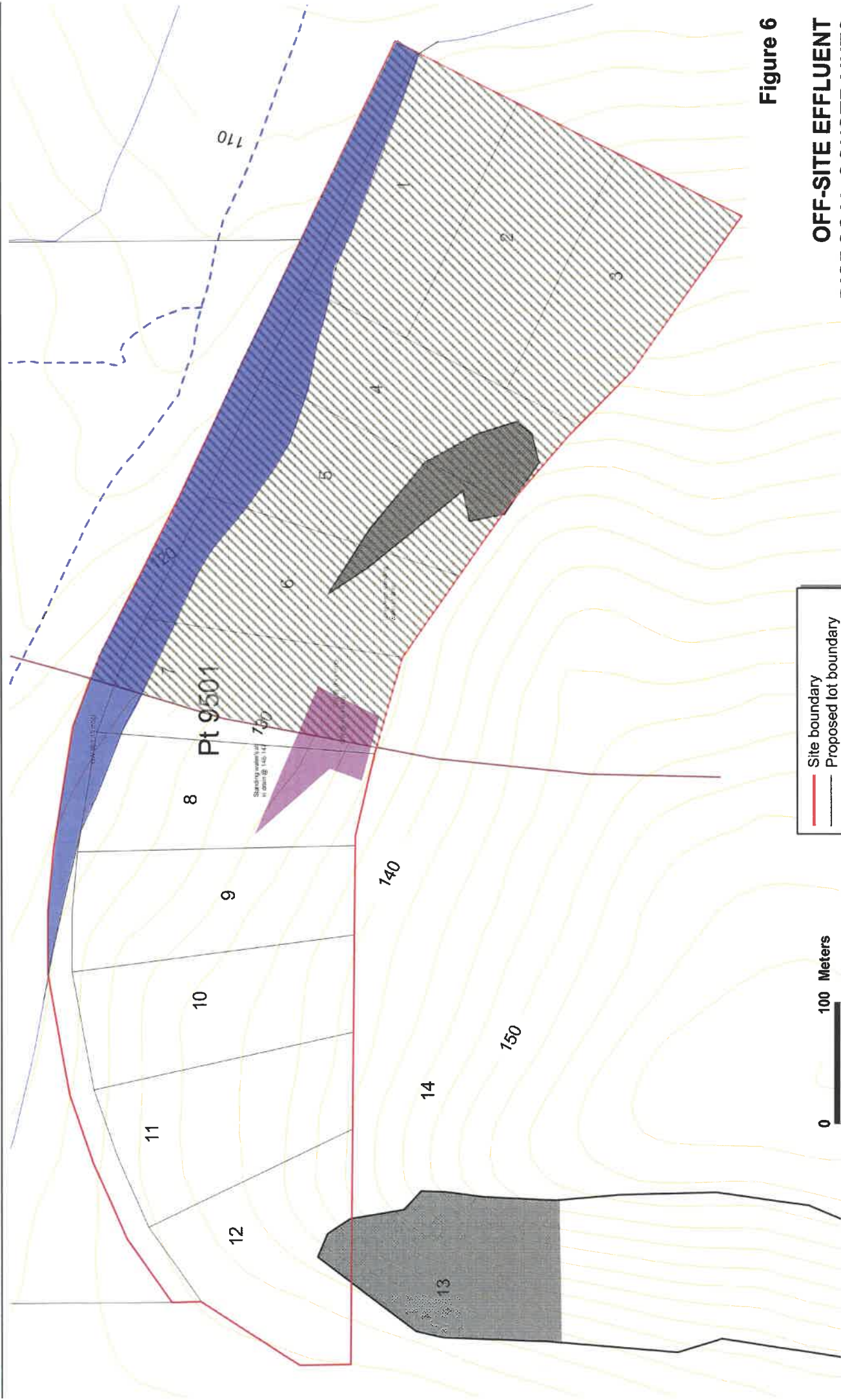
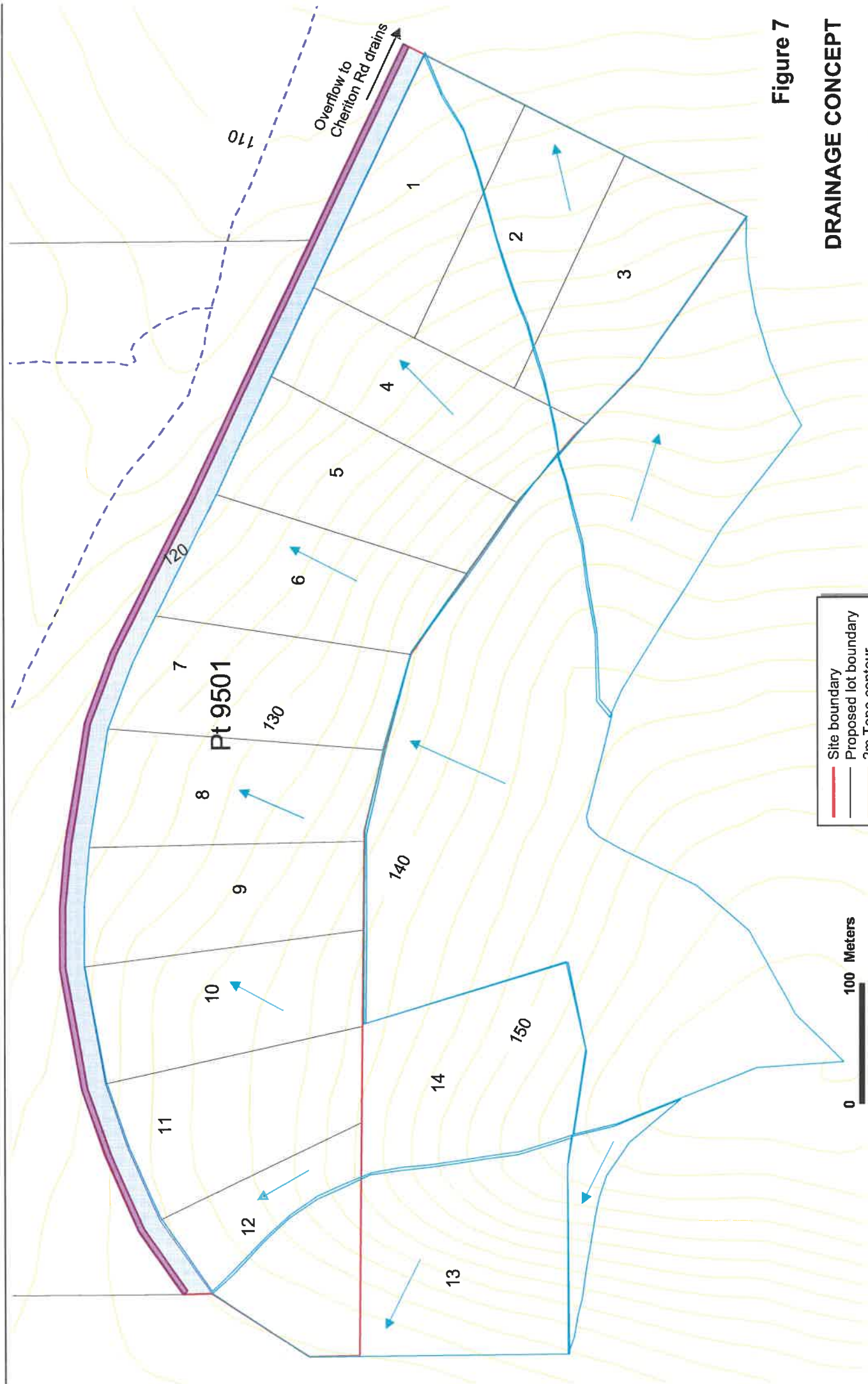


Figure 6

OFF-SITE EFFLUENT DISPOSAL CONSTRAINTS



- Site boundary
- Proposed lot boundary
- 2m Topo contour
- Catchment boundary
- Flow direction
- Bioretention swale

Figure 7

DRAINAGE CONCEPT

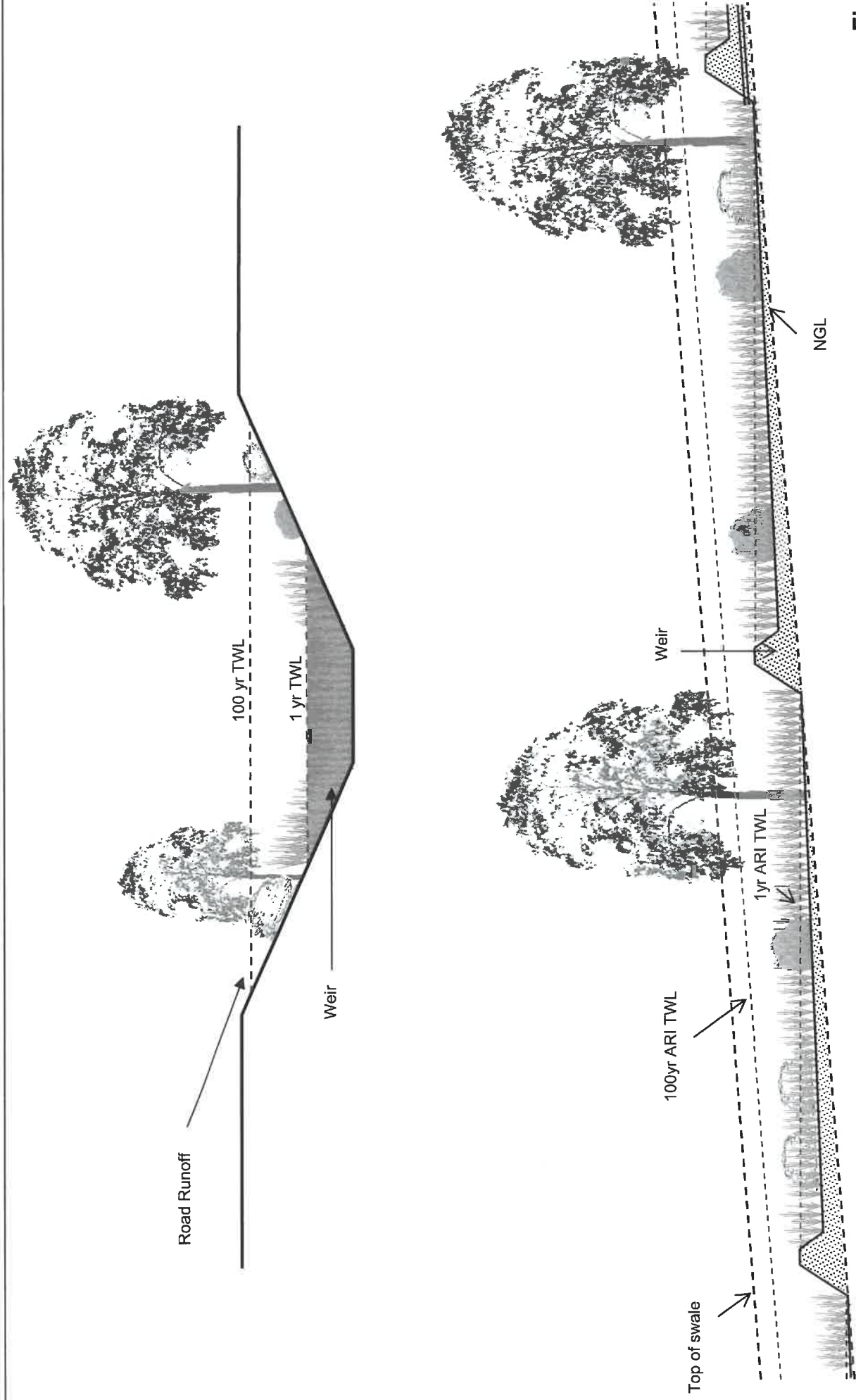


Figure 8

CONCEPTUAL SWALE PROFILES

Appendix A

Soil Logs

SOIL PROFILE LOG

PROJECT NUMBER:	J20021
SITE ID:	GT1
EASTING:	395979
NORTHING:	6533069
METHOD:	8t excavator
TOTAL DEPTH (mbgl):	2.9
REFUSAL (Y/N):	N
DATE:	7/09/2021
DEPTH TO WATER (mbgl)	-

SOIL PROFILE		SAMPLE DATA	
DEPTH (m)	SOIL DESCRIPTION	SAMPLE ID	INTERVAL (m)
0 - 0.5	Dark red-brown loam		
0.5 - 1.2	Red-brown clay-loam		
1.2 - 2.5	Red-orange lateritic clay		
2.5 - 2.9	Red-orange mottled well-structured loamy clay		



SOIL PROFILE LOG

PROJECT NUMBER:	J20021
SITE ID:	GT2
EASTING:	395848
NORTHING:	6533036
METHOD:	8t excavator
TOTAL DEPTH (mbgl):	2.6
REFUSAL (Y/N):	N
DATE:	7/09/2021
DEPTH TO WATER (mbgl)	-

SOIL PROFILE		SAMPLE DATA	
DEPTH (m)	SOIL DESCRIPTION	SAMPLE ID	INTERVAL (m)
0 - 0.6	dark red-brown gravelly loam		
0.6 - 1.1	Red- orange well-structured clay-loam		
1.1 - 2.0	Orange-red mottled lateritic clay		
2.0 - 2.6	Orange-red well structured gritty clay		



SOIL PROFILE LOG

PROJECT NUMBER:	J20021
SITE ID:	GT3
EASTING:	395675
NORTHING:	6533035
METHOD:	8t excavator
TOTAL DEPTH (mbgl):	2.6
REFUSAL (Y/N):	N
DATE:	7/09/2021
DEPTH TO WATER (mbgl)	-

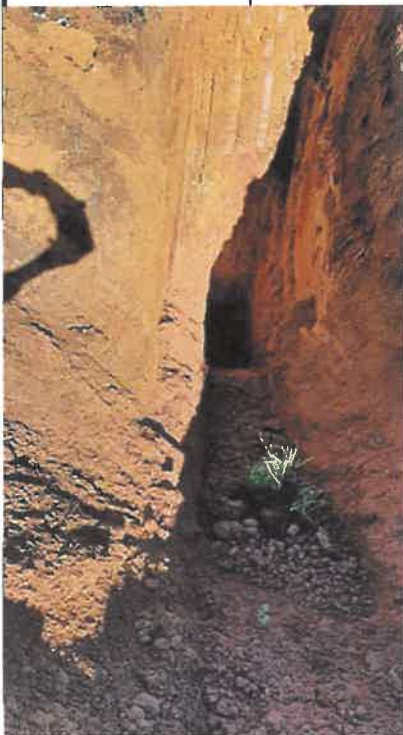
SOIL PROFILE		SAMPLE DATA	
DEPTH (m)	SOIL DESCRIPTION	SAMPLE ID	INTERVAL (m)
0 - 0.6	Dark red-brown gravelly loam		
0.6 - 1.4	Red-orange mottled lateritic clay		
1.4 - 1.9	Red-orange mottled clay		
1.9 - 2.6	Red/white mottled well structured gritty clay		



SOIL PROFILE LOG

PROJECT NUMBER:	J20021
SITE ID:	GT4
EASTING:	395427
NORTHING:	6533145
METHOD:	8t excavator
TOTAL DEPTH (mbgl):	2.9
REFUSAL (Y/N):	Y
DATE:	7/09/2021
DEPTH TO WATER (mbgl)	-

SOIL PROFILE		SAMPLE DATA	
DEPTH (m)	SOIL DESCRIPTION	SAMPLE ID	INTERVAL (m)
0 - 0.5	Dark brown silty loam		
0.5 - 2.3	Orange-red mottled loamy clay		
2.3 - 2.9	Grey/red mottled well structured sandy clay		
2.9	Refusal on granite		



SOIL PROFILE LOG

PROJECT NUMBER:	J20021
SITE ID:	GT5
EASTING:	395089
NORTHING:	6533165
METHOD:	8t excavator
TOTAL DEPTH (mbgl):	3.0
REFUSAL (Y/N):	N
DATE:	7/09/2021
DEPTH TO WATER (mbgl)	-

SOIL PROFILE		SAMPLE DATA	
DEPTH (m)	SOIL DESCRIPTION	SAMPLE ID	INTERVAL (m)
0 - 0.4	Very dark brown loam with scattered chalk cobbles		
0.4 - 1.6	White soft chalk		
1.6 - 2.4	Yellow-brown moderately structured sandy clay		
2.4 - 3	Orange-yellow moderately structured sandy clay interlayered with chalk, damp		



SOIL PROFILE LOG

PROJECT NUMBER:	J20021
SITE ID:	GT6
EASTING:	395015
NORTHING:	6532980
METHOD:	8t excavator
TOTAL DEPTH (mbgl):	3.0
REFUSAL (Y/N):	N
DATE:	7/09/2021
DEPTH TO WATER (mbgl)	-

SOIL PROFILE		SAMPLE DATA	
DEPTH (m)	SOIL DESCRIPTION	SAMPLE ID	INTERVAL (m)
0 - 0.5	Dark brown loam		
0.5 - 1.6	White soft chalk		
1.6 - 3.0	Yellow-brown moderately structured sandy clay with green bands		



SOIL PROFILE LOG

PROJECT NUMBER:	J20021
SITE ID:	GT7
EASTING:	394943
NORTHING:	6533116
METHOD:	8t excavator
TOTAL DEPTH (mbgl):	2.7
REFUSAL (Y/N):	N
DATE:	7/09/2021
DEPTH TO WATER (mbgl)	-

SOIL PROFILE		SAMPLE DATA	
DEPTH (m)	SOIL DESCRIPTION	SAMPLE ID	INTERVAL (m)
0 - 0.6	Very dark brown loam		
0.6 - 0.9	Orange clay-loam with dark brown mottles		
0.9 - 1.5	Orange gritty sandy clay with white chalk lumps		
1.5 - 2.7	Orange gritty clay mingled with chalk, increasingly chalky with depth		



SOIL PROFILE LOG

PROJECT NUMBER:	J20021
SITE ID:	GT8
EASTING:	395098
NORTHING:	6533334
METHOD:	8t excavator
TOTAL DEPTH (mbgl):	2.9
REFUSAL (Y/N):	N
DATE:	7/09/2021
DEPTH TO WATER (mbgl)	-

SOIL PROFILE		SAMPLE DATA	
DEPTH (m)	SOIL DESCRIPTION	SAMPLE ID	INTERVAL (m)
0 - 0.3	Brown loam		
0.3 - 2.1	Dark red-brown clay loam		
2.1 - 2.9	Dark orange-brown well structured clay		



SOIL PROFILE LOG

PROJECT NUMBER:	J20021
SITE ID:	GT9
EASTING:	395294
NORTHING:	6533259
METHOD:	8t excavator
TOTAL DEPTH (mbgl):	1.9
REFUSAL (Y/N):	Y
DATE:	7/09/2021
DEPTH TO WATER (mbgl)	-

SOIL PROFILE		SAMPLE DATA	
DEPTH (m)	SOIL DESCRIPTION	SAMPLE ID	INTERVAL (m)
0 - 0.4	Dark red-brown loam		
0.4 - 0.7	Orange/red mottled clay-loam		
0.7 - 1.9	Red/orange mottled well structured clay		
1.9	Refusal on granite		



SOIL PROFILE LOG

PROJECT NUMBER:	J20021
SITE ID:	GT10
EASTING:	395434
NORTHING:	6533354
METHOD:	8t excavator
TOTAL DEPTH (mbgl):	2.6
REFUSAL (Y/N):	N
DATE:	7/09/2021
DEPTH TO WATER (mbgl)	1.8

SOIL PROFILE		SAMPLE DATA	
DEPTH (m)	SOIL DESCRIPTION	SAMPLE ID	INTERVAL (m)
0 - 0.4	Dark brown loam		
0.4 - 2.6	Orange moderately structured loamy clay with red & grey mottles becoming redder, more mottled & harder with depth, making water between 1.8 - 2m		



SOIL PROFILE LOG

PROJECT NUMBER:	J20021
SITE ID:	GT11
EASTING:	395588
NORTHING:	6533193
METHOD:	8t excavator
TOTAL DEPTH (mbgl):	2.8
REFUSAL (Y/N):	N
DATE:	7/09/2021
DEPTH TO WATER (mbgl)	-

[illegible]

SOIL PROFILE LOG

PROJECT NUMBER:	J20021
SITE ID:	GT12
EASTING:	395754
NORTHING:	6533219
METHOD:	8t excavator
TOTAL DEPTH (mbgl):	2.7
REFUSAL (Y/N):	N
DATE:	7/09/2021
DEPTH TO WATER (mbgl)	-

SOIL PROFILE		SAMPLE DATA	
DEPTH (m)	SOIL DESCRIPTION	SAMPLE ID	INTERVAL (m)
0 - 0.6	Dark brown loam		
0.6 - 1.2	Orange-brown clay-loam		
1.2 - 2.7	Orange/red mottled well structured loamy clay		



Appendix B

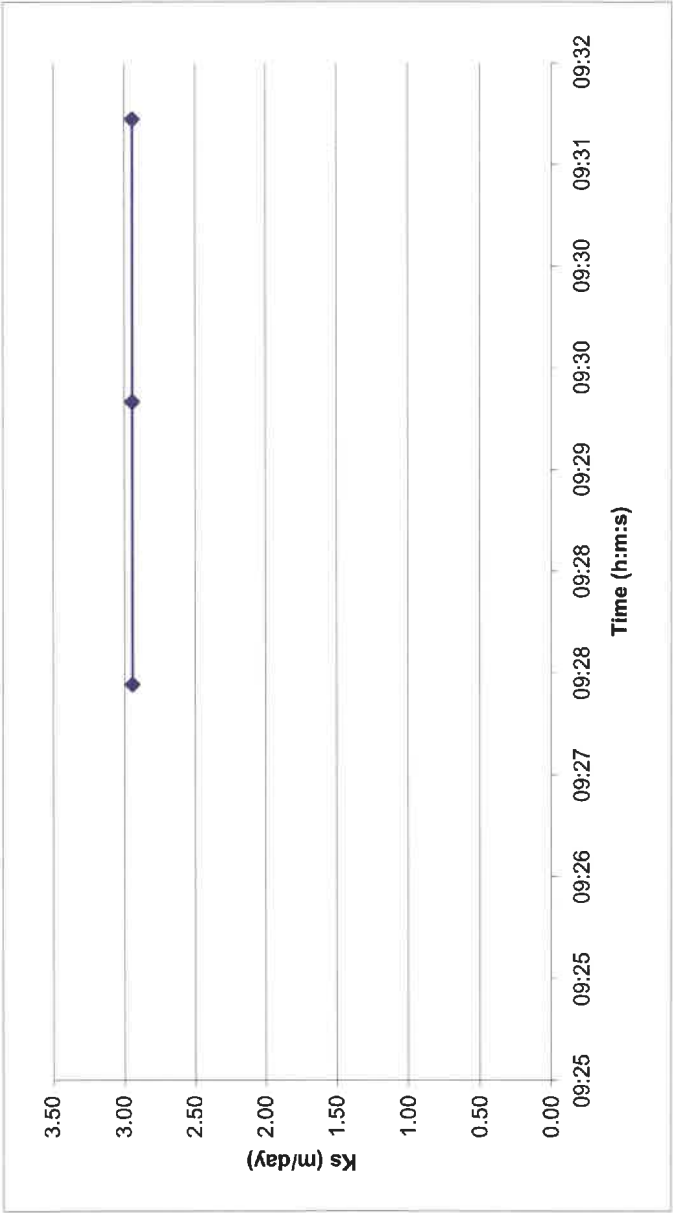
Permeability Test Results

SOIL PERMEABILITY TEST

Site No.	GI1
Date	20/09/21
Easting	395020
Northing	6532991
Depth	0.5

Time (h:m:s)	Weight (kg)	Change in Weight (kg)	Ks (m/d)
09:26:00	38.8		
09:28:00	38.1	0.7	2.94
09:30:00	37.4	0.7	2.94
09:32:00	36.7	0.7	2.94
		36.7	

H = 25
r = 4.5



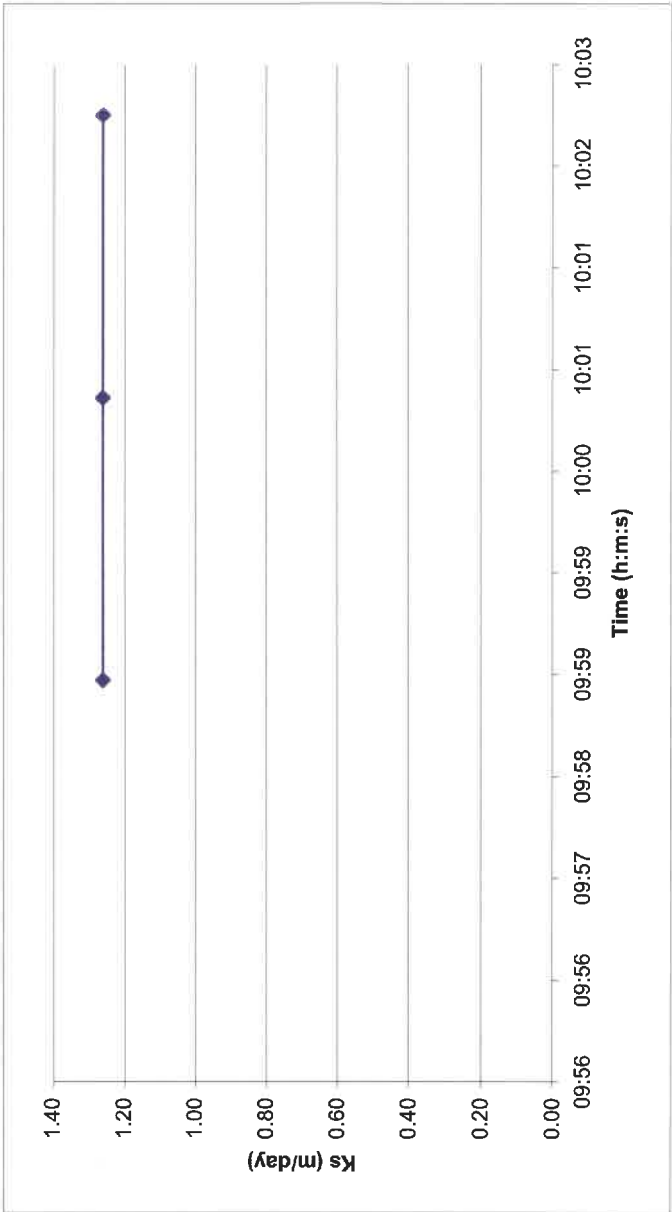
Ks = 2.9 m/day

SOIL PERMEABILITY TEST

Site No.	GI2
Date	20/09/21
Easting	395044
Northing	6533179
Depth	0.5

Time (h:m:s)	Weight (kg)	Change in Weight (kg)	Ks (m/d)
09:57:00	33.9	0.3	1.26
09:59:00	33.6	0.3	1.26
10:01:00	33.3	0.3	1.26
10:03:00	33	33	

H = 25
r = 4.5



Ks = 1.2 m/day

SOIL PERMEABILITY TEST

Site No.	GI3
Date	20/09/21
Easting	395005
Northing	6533080
Depth	0.5

Time (h:m:s)	Weight (kg)	Change in Weight (kg)	Ks (m/d)
10:19:00	30.1		2.52
10:21:00	29.5	0.6	2.52
10:23:00	28.9	0.6	1.68
10:25:00	28.5	0.4	2.52
10:27:00	27.9	0.6	2.10
10:29:00	27.4	0.5	2.10
10:31:00	26.9	0.5	2.52
10:33:00	26.3	0.6	
		26.3	

H = 25
r = 4.5



Ks = 2.3 m/day

SOIL PERMEABILITY TEST

Site No.	GI4
Date	20/09/21
Easting	395055
Northing	6533287
Depth	0.5

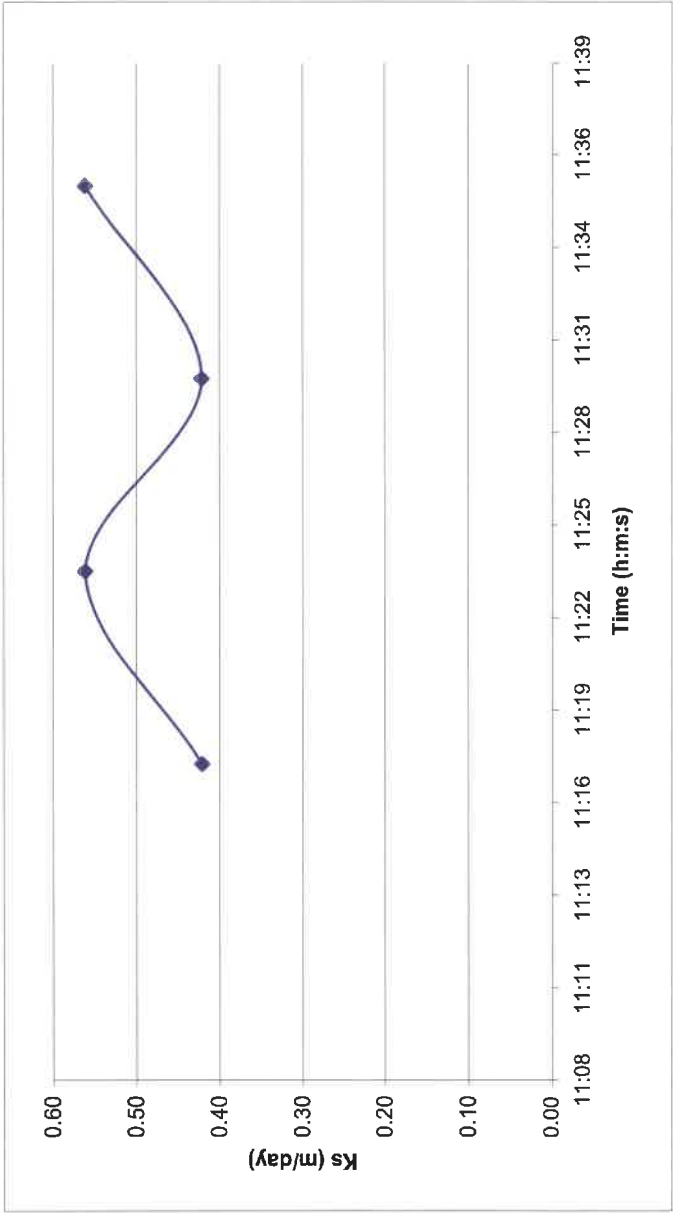
Change in
Weight (kg)

11:12:00	22.6
11:18:00	22.3
11:24:00	21.9
11:30:00	21.6
11:36:00	21.2

Ks (m/d)

0.42
0.56
0.42
0.56

H = 25
r = 4.5



Ks = 0.5 m/day

SOIL PERMEABILITY TEST

Site No.	GI5
Date	20/09/21
Easting	395442
Northing	6533315
Depth	0.5

Time (h:m:s)	Weight (kg)	Change in Weight (kg)	Ks (m/d)
12:24:00	18.5	0.5	2.10
12:26:00	18	0.5	2.10
12:28:00	18	0.3	1.26
12:30:00	17.5	0.3	1.26
12:32:00	17.2	0.2	0.84
12:34:00	16.9	0.2	0.84
12:36:00	16.7	0.2	0.84
12:38:00	16.5	0.3	1.26
12:40:00	16.2	16.2	

H = 25
r = 4.5



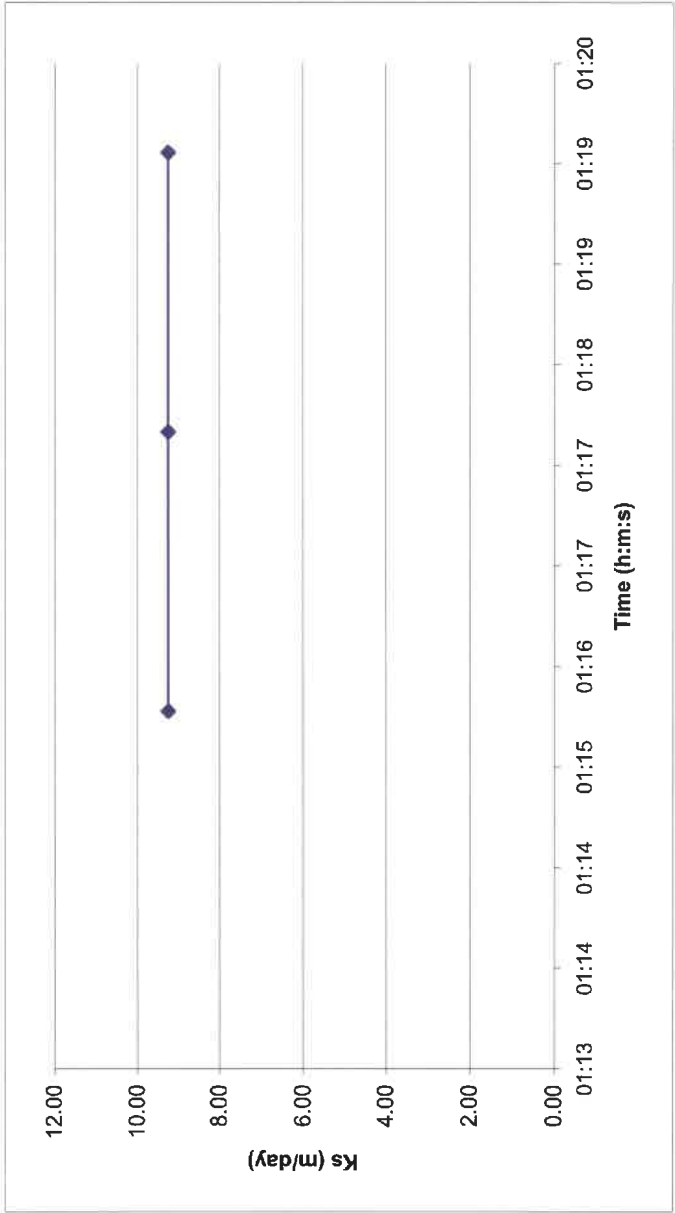
Ks = 1.2 m/day

SOIL PERMEABILITY TEST

Site No.	GI6
Date	20/09/21
Easting	395779
Northing	6533147
Depth	0.5

Time (h:m:s)	Weight (kg)	Change in Weight (kg)	Ks (m/d)
01:14:00	39.5	2.2	9.25
01:16:00	37.3	2.2	9.25
01:18:00	35.1	2.2	9.25
01:20:00	32.9	32.9	

H = 25
r = 4.5



Ks = 9.2 m/day

SOIL PERMEABILITY TEST

Site No.	GI7
Date	20/09/21
Easting	395719
Northing	6532985
Depth	0.4

Change in
Weight (kg)

Time (h:m:s) Weight (kg)

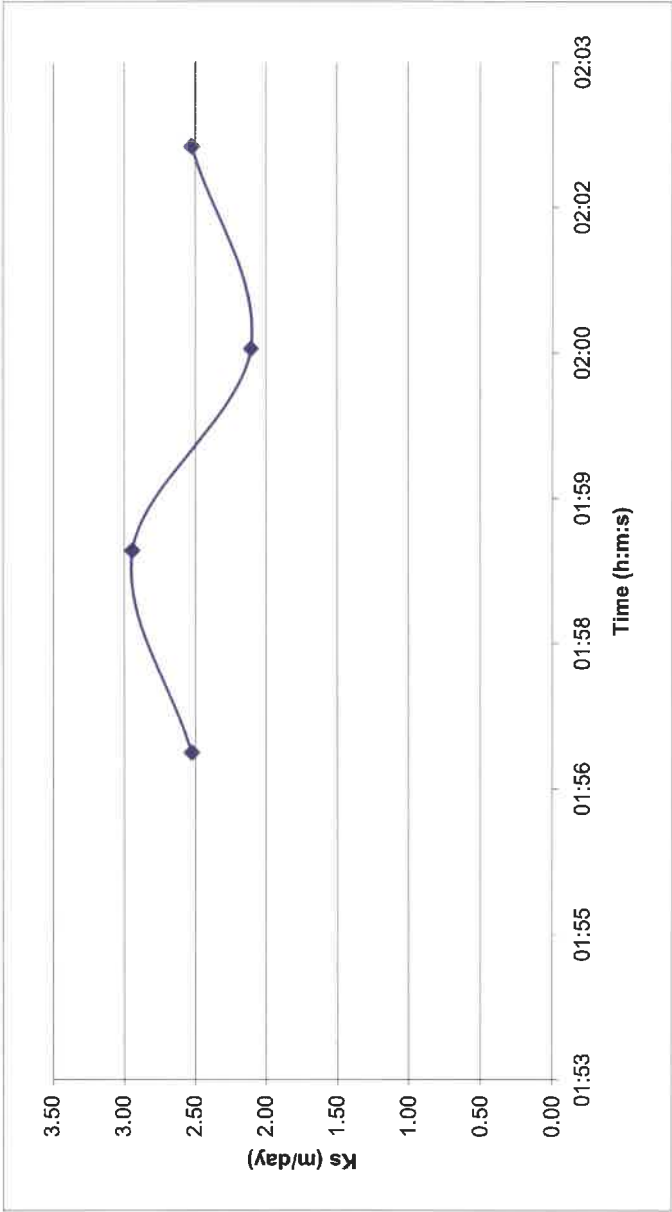
Ks (m/d)

01:55:00	30.7
01:57:00	30.1
01:59:00	29.4
02:01:00	28.9
02:03:00	28.3

0.6
0.7
0.5
0.6
28.3

2.52
2.94
2.10
2.52

H = 25
r = 4.5



Ks = 2.5 m/day

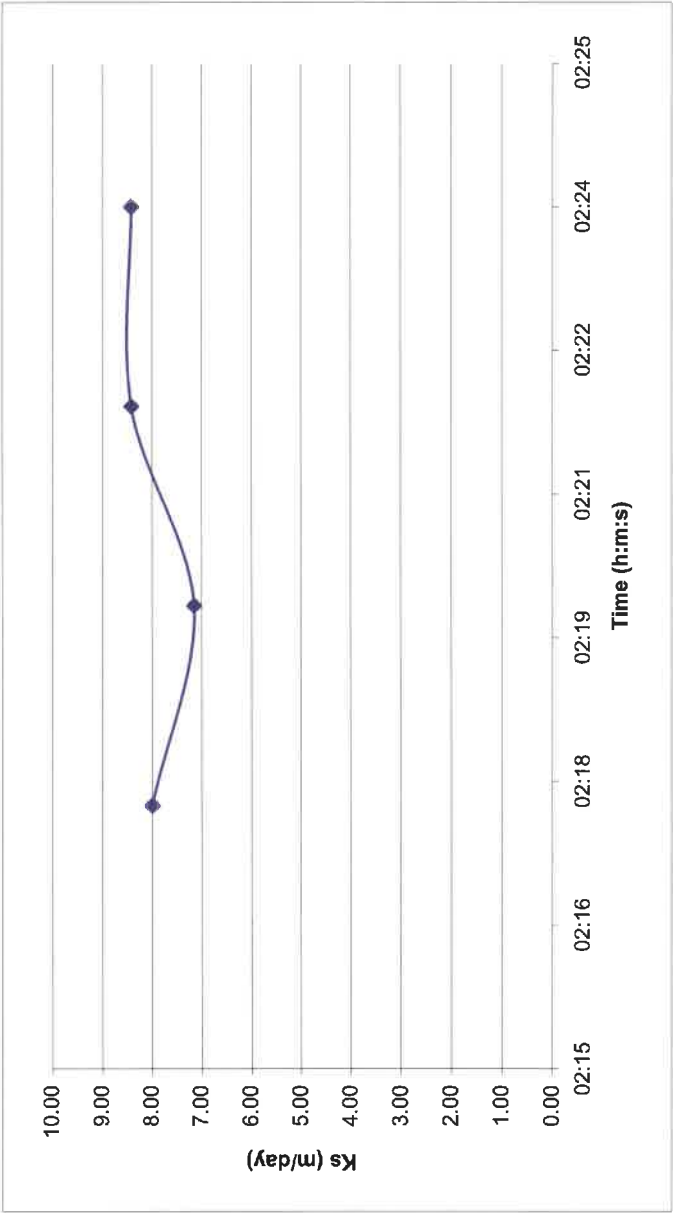
SOIL PERMEABILITY TEST

Site No.	GI8
Date	20/09/21
Easting	395857
Northing	6532950
Depth	0.5

Time (h:m:s)	Weight (kg)	Change in Weight (kg)	Ks (m/d)
02:16:00	25.4	1.9	7.99
02:18:00	23.5	1.7	7.15
02:20:00	21.8	2	8.41
02:22:00	19.8	2	8.41
02:24:00	17.8	17.8	

H = 25

r = 4.5



Ks = 8 m/day

Appendix C

Tree Survey

Ginginup Trees

List of Trees over 0.5m dbh

Wpt	Easting	Northing	Species	DBH (m)	Height (m)	Description
96			Marri	1	20	Heavily branched, senescent, no large hollows, beehive
97			Marri	1.1	20	Senescent, spreading, no visible hollows
98			Marri	0.9	18	Senescent, healthy, no visible hollows
99			Marri	1.1	18	Heavily branched, spreading, senescent, no visible hollows
100			Marri	1	20	Heavily branched, senescent spreading, no visible hollows
101			Marri	1	18	Spreading, heavily branched, senescent, no visible hollows
102			Marri	0.9	10	Broken off at 10m, heavily senescent, several small hollows, all <50mm
103			Marri	1	15	Spreading, heavily branched, senescent, no visible hollows
103a			Marri	0.7	12	Multiple stems from 1.5m, no hollows
104			Marri	0.8	6	Heavily senescent, no hollows
104a			Marri	0.9	10	Spreading, senescent, several small hollows all <50mm
105			Marri	0.8	10	Senescent, no hollows
106			Marri	1.1	15	Spreading, heavily branched from 3m, senescent, no hollows
107			Marri	0.7	6	Broken off at 5m, small possible hollow at 5m, decrepit
108			Marri	0.9	15	Spreading, healthy, no visible hollows, out of property
109			Marri	0.9	15	Healthy, spreading, no hollows
110			Marri	0.9	15	Multiple stems from 1m, no hollows, spreading
111			Marri	1.1	8	Quadrifurcated at 1m, no hollows
112			Marri	0.7	8	Heavily senescent, few small hollows all <50mm
113			Marri	1.1	15	Spreading, heavily branched, few possible small hollows all <50mm
114			Marri	0.8	10	Top mostly dead, heavily senescent, no visible hollows
115			Marri	0.2	5	Large tree lying down, no hollows
116			Marri	0.3	10	Large tree lying down, no hollows
117			Marri	1.1	20	Spreading, heavily branched, healthy, no hollows, outside property
118			Marri	1.2	15	Heavily branched from 3m, no hollows, outside property
119			Marri	1	18	Spreading, heavily branched, no hollows
120			Marri	0.8	15	Spreading, senescent, galahs nesting in small hollow, 28 hanging around, possible spout at 6m
121			Marri	1	20	Spreading, no visible hollows
122			Marri	1	18	Heavily branched from 3m, no hollows
128			Marri	1	15	Senescent, healthy, heavily branched at 2.5m, many small dead branches, no visible hollows
129			Marri	0.9	18	Spreading, healthy, senescent, heavily branched from 2m, no visible hollows
130			Marri	0.8	12	Senescent, spreading, heavily branched from 1.5m, numerous small dead branches, no visible hollows
131		Flooded Gum		1.2	15	Bifurcated at 1.5m, many small dead branches, no visible hollows
132a		Marri		0.9	15	Senescent, heavily branched at 3m, no visible hollows, outside property
132b		Marri		0.8	15	Heavily senescent, trifurcated at 1.5m, many small dead branches, no visible hollows, outside property
133		Flooded Gum		0.8	10	Old, sparse, many small dead branches, few small possible hollows, none cocky sized
134		Flooded Gum		1	8	Old, senescent, bushy, many small dead branches, no visible hollows, outside property
135		Flooded Gum		0.7	4	Old, senescent, numerous small dead branches, no hollows
136		Marri				Dead & fallen
137		Flooded Gum		1.1	8	Senescent, numerous dead small branches, no visible hollows
138		Flooded Gum		1.1	15	Senescent, numerous small dead branches, few possible small hollows, nothing cocky sized or potential
139		Marri		1.1	15	Spreading, trifurcated at 3.5m, old, many small dead branches, not visible hollows
140						

Appendix D

Runoff Calculations

1 YEAR ARI 1 HOUR FLOWS - ROADS

Rainfall Intensity : (mm/h) (1Yr, 1hr Storm)	14.9																											
Runoff Coefficient Road Reserves	0.8																											
Runoff Coefficient Swale	1																											
Runoff Coefficient Lots	0																											
Runoff Coefficient OS	0.0729																											
Permeability Coefficient (mm/hr) (50% of mean measured Ks)	3.0																											
Driveway Width (m)	3.0																											
Swale Side Slope (1/x)																												
Segment	A	Road Reserve (m2)	16825	Swale Length (m)	1117	Swale Depth (m)	0.85	Weir Height (m)	0.3	Swale Base Width (m)	1	Swale Top Width (m)	4.90	Swale Area (m2)	5473	Lots (m2)	312959	POS (m2)	0	AI	14534	Segment Peak Flow (L/s)	61	Segment 1 hr Flow (m3)	215.2			
Trapezoidal Swales																												
Swale Segment	A1	No. Driveways	10	No. Weirs	87	Length	1117	Weir Spacing (m)	13	Long Slope	0.0206	Max US Reach (m)	12.5	Upstream Ht (m)	0.0	1 hr Inflow per Weir (m3)	2.51	Storage per Weir (m3)		3.26	Total Storage (m3)	283.92	Effective Storage per Weir (m3)	4.81	Effective Total Storage (m3)	418.57	Volume Check	OK

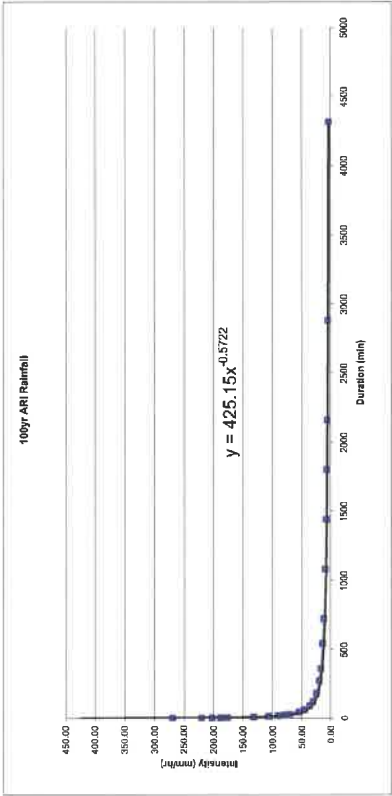
100 YEAR ARI CRITICAL FLOWS - ROADS

CATCHMENT	AREAS (m2)				EFFECTIVE AREAS (m2)				TIME OF CONCENTRATION PRE DEVELOPMENT				TIME OF CONCENTRATION POST-DEVELOPMENT				CRITICAL STORM INTENSITY (mm/hr)		FLOW		STORAGE		FLOW DEPTH			
	Road Reserve (m2)	Swale	Lots (m2)	Total	Pre	Post	Longest Path (m)	RL Top (mAHD)	RL Bottom (mAHD)	Slope (m/km)	TC (min)	Longest Path (m)	RL Top (mAHD)	RL Bottom (mAHD)	Slope (m/km)	TC (min)	Pre-Dev	Post-Dev	Pre Dev	Post Dev	Storage Req (m3)	Effective Storage (m3)	Volume Check	Manning's n	Height Over Weir (m)	
A	16925	5473	0	22398	7639	15207	1117	132	108	20.59	57.5	1117	132	109	20.59	53.8	41.9	43.5	91.17	239.88	773.89	402.92	404.59	ok	0.035	0.1

Runoff Coefficients	Pre-Dev	Post-Dev
Roads	0.35	0.85
Swales/Basins	0.35	1
Lois	0.35	
OS	0.35	

Rainfall IFD

Event	Duration (mins)	Intensity (mm/hr)
1 min	1	269.40
2 min	2	219.90
3 min	3	202.00
4 min	4	187.50
5 min	5	175.20
10 min	10	130.80
15 min	15	105.60
20 min	20	89.10
25 min	25	77.76
30 min	30	69.40
45 min	45	55.50
60 min	60	46.10
1 hr	80	35.40
2 hr	120	30.00
3 hr	160	23.97
4.5 hr	270	19.22
6 hr	360	16.40
9 hr	540	13.00
12 hr	720	10.83
18 hr	1080	8.17
24 hr	1440	6.54
36 hr	2160	4.81
48 hr	2880	3.52
72 hr	4320	2.38

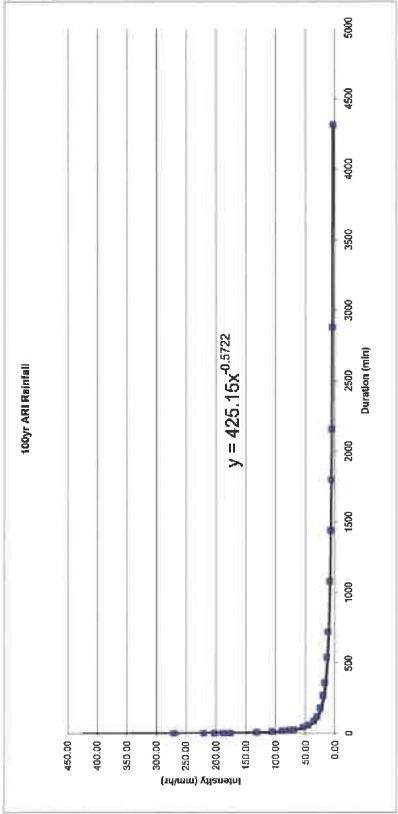


100 YEAR ARI CRITICAL FLOWS - COMBINED

CATCHMENT		AREAS (m2)					EFFECTIVE AREAS (m2)		TIME OF CONCENTRATION PRE DEVELOPMENT				TIME OF CONCENTRATION POST-DEVELOPMENT				CRITICAL STORM INTENSITY				FLOW			STORAGE		FLOW DEPTH		
		Road Reserve (m2)	Swale	Lots (m2)	POS (m2)	Total	Pre	Post	Longest Path (m)	RL Top (mAHD)	RL Bottom (mAHD)	Slope (m/km)	TC (min)	Longest Path (m)	RL Top (mAHD)	RL Bottom (mAHD)	Slope	TC (min)	Pre-Dev	Post-Dev	Pre-Dev	Post Dev	Total Flow (m3)	Storage Req (m3)	Effective Storage (m3)	Volume Check	Manning's n	Height Over Weir (m)
A		16925	5473	312589	0	334987	117245	124613	1214	160	109	42.01	41.3	1214	160	109	42.01	41.1	50.6	50.7	1646.73	1821.89	4488.43	0.00	376.07	ok	0.035	0.31
Runoff Coefficients		Pre-Dav			Post-Dav																							
Roads		0.35			0.85																							
Swales/Basins		0.35			1																							
Lots		0.35			0.35																							
OS		0.35			0.35																							

Rainfall IFD

Event	Duration (mins)	Intensity (mm/hr)
1 min	1	268.00
2 min	2	245.00
3 min	3	202.00
4 min	4	187.50
5 min	5	175.20
10 min	10	130.80
15 min	15	105.60
20 min	20	89.10
25 min	25	77.76
30 min	30	69.40
45 min	45	53.87
1 hr	60	45.10
1.5 hr	90	35.40
2 hr	120	30.60
3 hr	180	23.97
4.5 hr	270	19.22
6 hr	360	16.40
9 hr	540	13.00
12 hr	720	10.83
18 hr	1080	8.17
24 hr	1440	6.54
30 hr	1800	5.40
36 hr	2160	4.61
48 hr	2880	3.52
72 hr	4320	2.38



100 YEAR ARI CREEK FLOWS

CATCHMENT	AREAS (m2)								Effective Total
	Road Reserve (m2)	Cleared Upland (m2)	Forested Upland (m2)	Cleared Lowland (m2)	Forested Lowland (m2)	Cleared Palusplain (m2)	Vegetated Palusplain (m2)	Hardstand (m2)	
Outer	0	1596339	0	0	0	0	0	0	558719
Inner	0	940805	0	0	0	0	0	0	329282

CATCHMENT	TIME OF CONCENTRATION				CRITICAL STORM INTENSITY (mm/h)		Flow (L/s)		Water at Creek Junction	
	Longest Path (m)	RL Top (mAHD)	RL Bottom (mAHD)	Slope (m/km)	TC (min)			Height	Width	
Outer	1888	226	113	59.85	51.2	44.7	6940.23	0.36	28.44	
Inner	2195	213	113	45.56	66.3	38.6	3528.63	0.28	22.20	

Runoff Coefficients

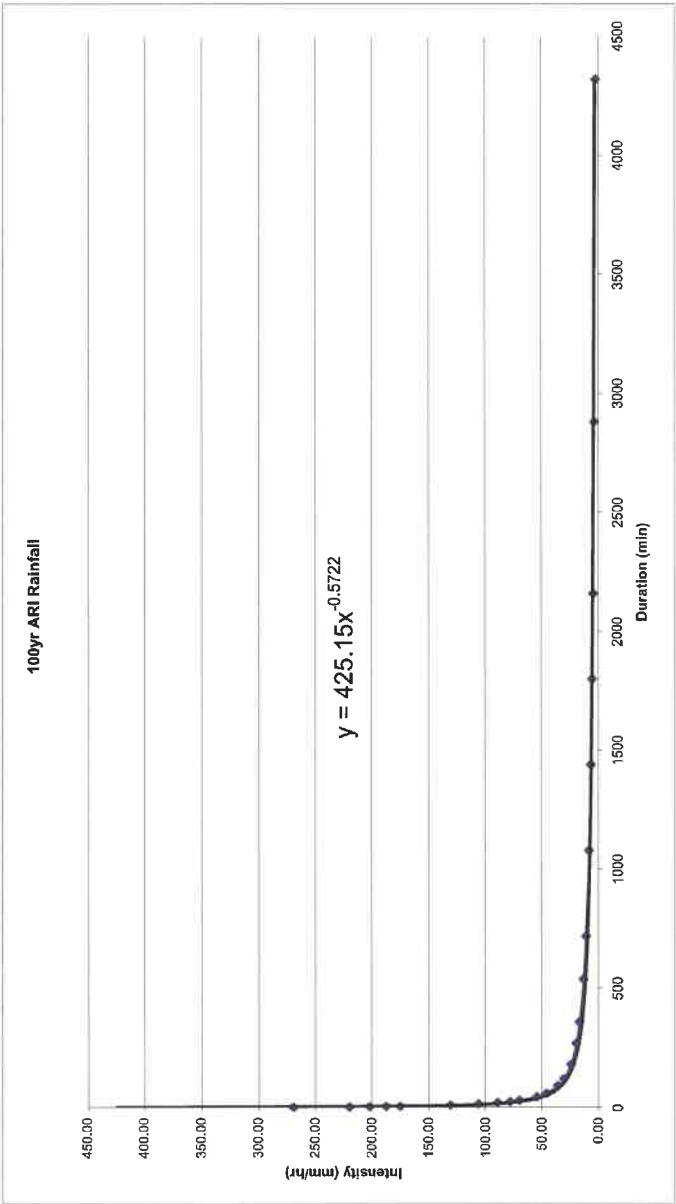
- Road Reserve 0.8
- Cleared Upland 0.35
- Forested Upland 0.25
- Cleared Lowland 0.4
- Forested Lowland 0.25
- Cleared Palusplain 0.9
- Vegetated Palusplain 0.7
- Hardstand 0.8

Initial Loss (mm)

- Road Reserve 10
- Lots 20

Rainfall IFD

Event	Duration (mins)	Intensity (mm/hr)
1	1	269.40
2	2	219.90
3	3	202.00
4	4	187.50
5	5	175.20
10	10	130.80
15	15	105.60
20	20	89.10
25	25	77.76
30	30	69.40
45	45	53.87
60	60	45.10
90	90	35.40
120	120	30.00
180	180	23.97
270	270	19.22
360	360	16.40
540	540	13.00
720	720	10.83
1080	1080	8.17
1440	1440	6.54
1800	1800	5.40
2160	2160	4.61
2880	48 hr	3.52
4320	72 hr	2.38



APPENDIX F

CONCEPT SUBDIVISION PLAN

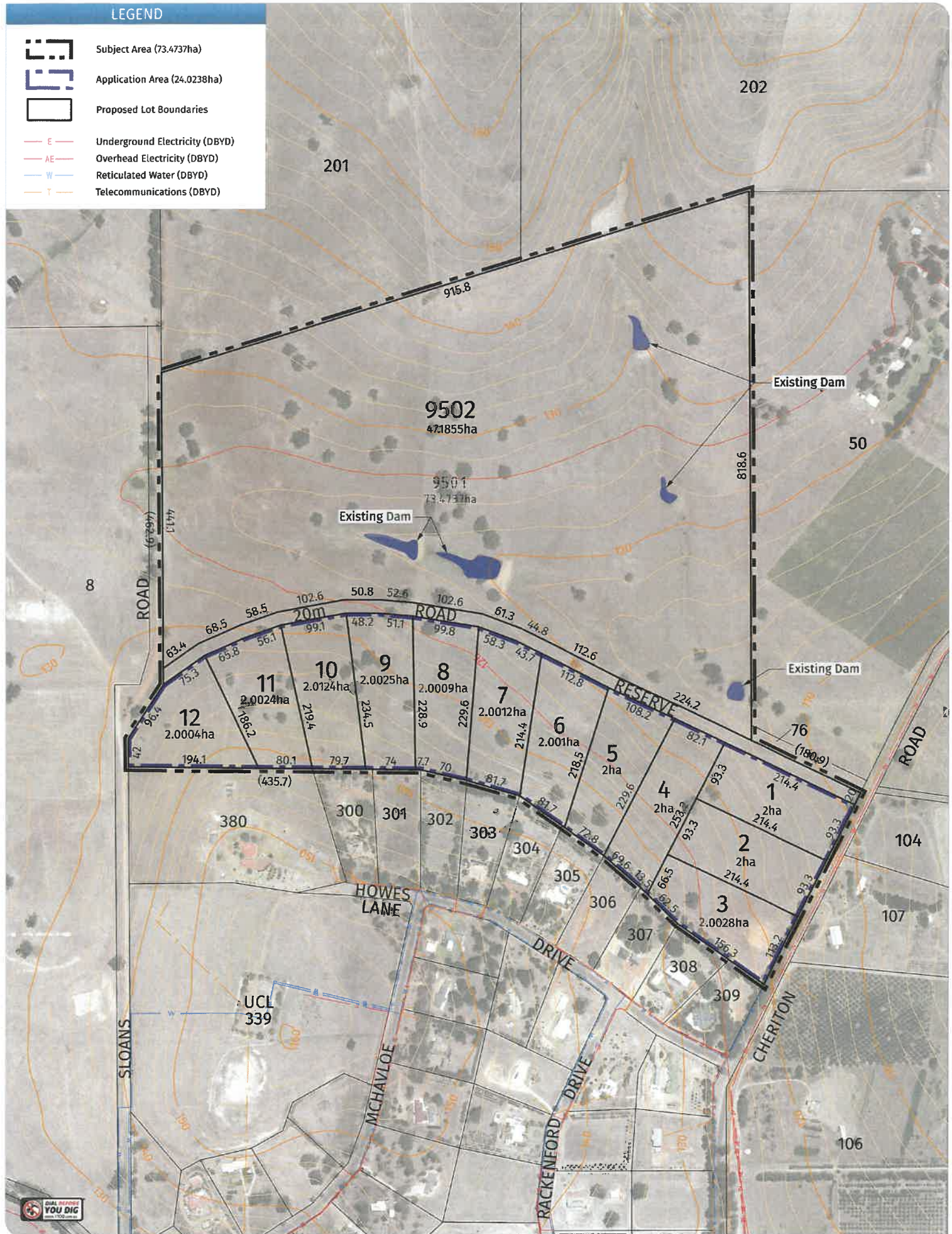
F1 – CONCEPT SUBDIVISION PLAN (ZONING)

F2 – CONCEPT SUBDIVISION PLAN (AERIAL)

LEGEND



- Subject Area (73.4737ha)
- Application Area (24.0238ha)
- Proposed Lot Boundaries
- E Underground Electricity (DBYD)
- AE Overhead Electricity (DBYD)
- W Reticulated Water (DBYD)
- T Telecommunications (DBYD)



CONCEPT SUBDIVISION PLAN (AERIAL)

Pt Lot 9501 Cheriton Road,
GINGIN

Plan No. | 20213-04
Date | 02/05/22
Drawn | NP
Checked | CP
Revision | C

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Scale | 1:5000@A3

0 50m 100m 150m



NOTE: This plan has been prepared for planning purposes. Areas, Contours and Coordinates shown are subject to survey.



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LEGEND



Subject Area (73.4737ha)



Proposed Lot Boundaries

Local Scheme Zones

Rural Living Application Area
(24.0238ha)

Other Categories

RL2 Rural Living

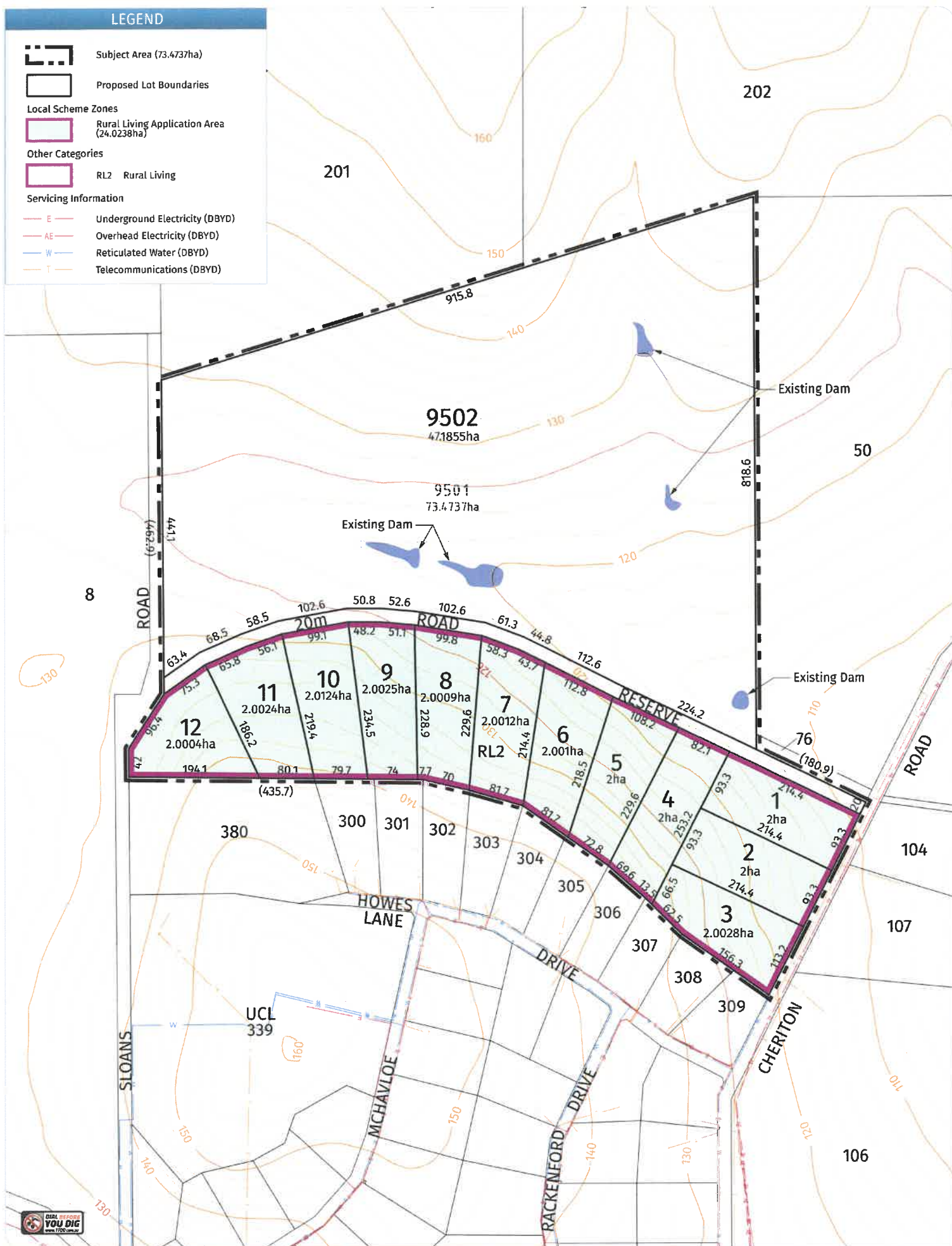
Servicing Information

E Underground Electricity (DBYD)

AE Overhead Electricity (DBYD)

W Reticulated Water (DBYD)

T Telecommunications (DBYD)



CONCEPT SUBDIVISION PLAN (ZONING)

Pt Lot 9501 Cheriton Road,
GINGIN

Plan No. | 20213-04
Date | 02/05/22
Drawn | NP
Checked | CP
Revision | C

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ALBANY | BUNBURY | BUSSELTON | FORRESTDAL | PERTH

Scale | 1:5000@A3

0 50m 100m 150m



NOTE: This plan has been prepared for planning purposes. All-As, Comments and Dimensions shown are subject to survey.

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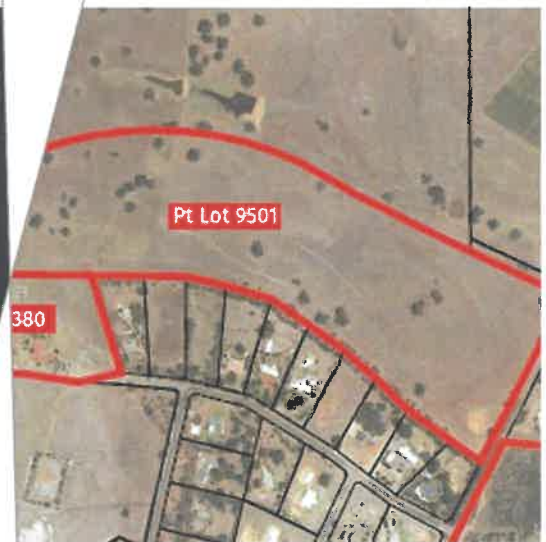
APPENDIX G

TRANSPORT IMPACT STATEMENT

Transport Impact Statement

Proposed Subdivision - Lot 950
1 Cheriton Road, Gingin

CW1200003



Prepared for
Harley Dykstra

22 November 2021

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Approved By:

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Business Leader - Traffic & Transport Planning

Date Approved 22/11/2021

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Our report is based on information made available by the client. The validity and comprehensiveness of supplied information has not been independently verified and, for the purposes of this report, it is assumed that the information provided to Cardno is both complete and accurate. Whilst, to the best of our knowledge, the information contained in this report is accurate at the date of issue, changes may occur to the site conditions, the site context or the applicable planning framework. This report should not be used after any such changes without consulting the provider of the report or a suitably qualified person.

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1 Introduction

1.1 Background

Cardno was commissioned by Harley Dykstra ('the Client') on behalf of the Schofield Trust, to prepare a Transport Impact Statement (TIS) for a rural living subdivision located on Lot 9501 Cheriton Road, within the Shire of Gingin as illustrated in **Figure 1-1**. The lots are part of the scheme amendments that will rez one the lots to rural living.

This TIS has been prepared in accordance with the Western Australian Planning Commission (WAPC) Transport Impact Assessment Guidelines for Developments: Volume 3 – Subdivisions (2016) and the checklist is included at **Appendix A**.

1.2 Existing Site

The site is located on multiple lots within the Shire of Gingin. The Site is vacant. **Figure 1-1** shows an aerial image of the subject site.

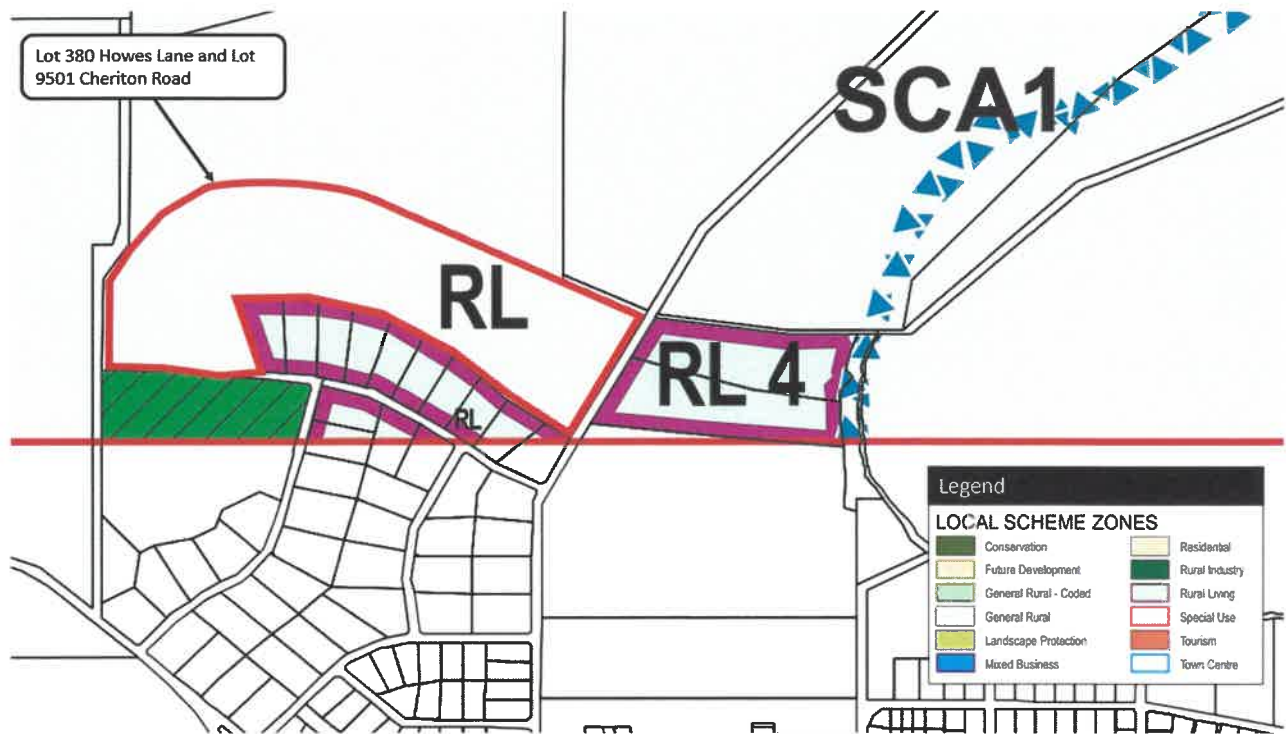
Figure 1-1 Aerial Image



Source: Harley Dykstra

The Sites are zoned as 'General Rural' under the *Local Planning Scheme No. 9 of the Shire of Gingin* as shown in **Figure 1-2**.

Figure 1-2 Zoning



Source: Shire of Gingin Local Planning Scheme No. 9

2 Road Network

2.1 Existing Road Network

Road classifications are defined in the Main Roads Functional Hierarchy as follows:

- > **Primary Distributors (light blue):** Form the regional and inter-regional grid of MRWA traffic routes and carry large volumes of fast-moving traffic. Some are strategic freight routes, and all are National or State Roads WA.
- > **Regional Distributors (red):** Roads that are not Primary Distributors, but which link significant destinations and are designed for efficient movement of people and goods within and beyond regional areas. They are managed by Local Government.
- > **District Distributor A (green):** These carry traffic between industrial, commercial and residential areas and connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining properties. They are managed by Local Government.
- > **District Distributor B (dark blue):** perform a similar function to District Distributor A but with reduced capacity due to flow restrictions from access to and roadside parking alongside adjoining property. These are often older roads with traffic demand in excess of that originally intended. District Distributor A and B roads run between land-use cells and not through them, forming a grid that would ideally be around 1.5 kilometres apart. They are managed by Local Government.
- > **Local Distributors (orange):** Carry traffic within a cell and link District Distributors at the boundary to access roads. The route of the Local Distributor discourages through traffic so that the cell formed by the grid of District Distributors only carries traffic belonging to or serving the area. These roads should accommodate buses but discourage trucks. They are managed by Local Government.
- > **Access Roads (grey):** Provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function. These roads are bicycle and pedestrian friendly. They are managed by Local Government.

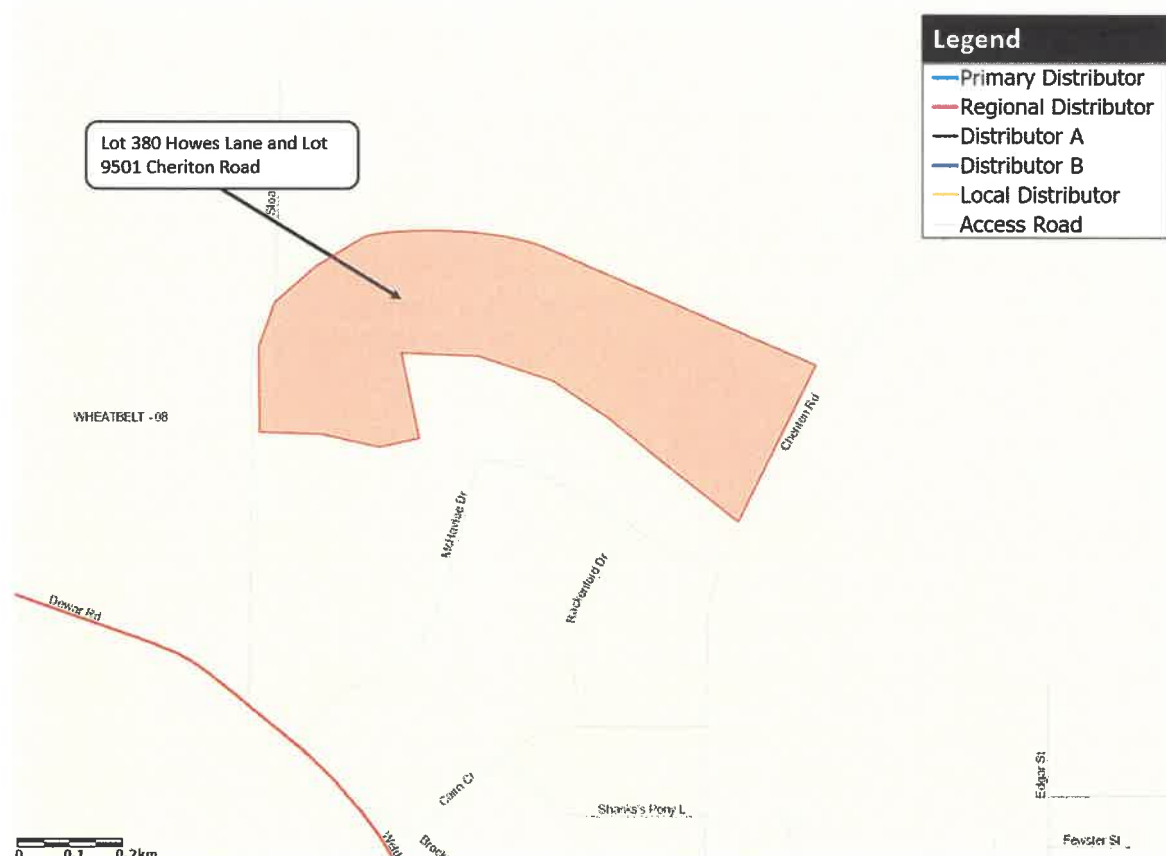
The surrounding road network is further described in **Table 2-1** and **Figure 2-1** shows the road hierarchy as per the *Main Roads WA Road Information Mapping System*.

Table 2-1 Road Network Classification

Street Names	Road Hierarchy		Road Network			
	Road Hierarchy	Jurisdiction	No. of Lanes	No. of Footpaths	Width (m)	Posted Speed (km/h)
Cheriton Road	Access Road	Local Government	2	0	6.5	50 – between Weld Street and Shank's Pony Lane 80 - between Shank's Pony Lane and McHavloe Drive Default rural speed limit – North of McHaveloe Drive
Sloans Road	Access Road	Local Government	2	0	6.5	Not sign posted Default rural speed limit applies
McHavloe Drive	Access Road	Local Government	2	0	6.5	Not sign posted Default rural speed limit applies

Source: *Main Roads Road Information Mapping System*

Figure 2-1 Road Hierarchy



Source: Main Roads Road Information Mapping System

2.2 Traffic Volumes

There is no recent daily traffic volumes data available near the Site. Available daily traffic volumes along the main roads surrounding the Shire of Gingin were sourced from *Main Roads Traffic Map* as summarized in **Table 2-2**.

Table 2-2 Traffic Volumes

Road Name	Date	Average Weekday Daily Traffic Volume
Dewar Road East of Brand Highway	2018/19	980
Weld Street West of Brockman St (South)	2018/19	746

Source: Main Roads Traffic Map

The available average weekly daily traffic volumes surrounding near the Site suggests that traffic volumes within the area are very low.

3 Proposed Development

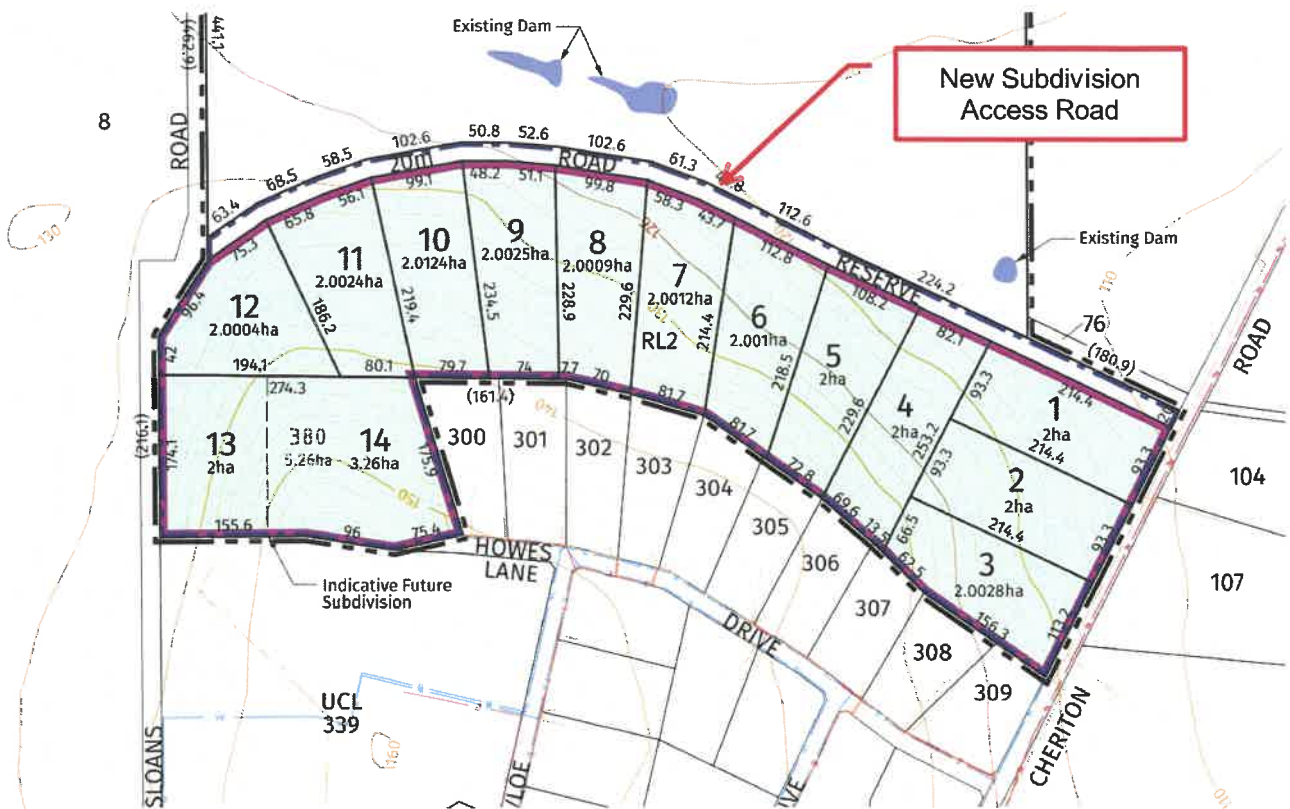
3.1 Overview

The proposal is for a rural living subdivision with a total subject area of 78.74 ha, comprising of the following:

- > 14 rural living lots with an area ranging from 2ha to 3ha; and
- > 20m wide road reserve for a subdivisional road on the northern boundary of the Site, connecting Cheriton Road and Sloans Road.

Figure 3-1 shows the conceptual plan for the above development.

Figure 3-1 Concept Subdivision Plan



3.2 Access Arrangements

A new subdivision road on the northern boundary of the subdivision is proposed to be the main access to the subdivision lots, potentially lots 4 to 12, however this will be determined in a later stage. Lot 1 may have its access located on the new road or on Cheriton Road, while Lots 2 and 3 will have their access off Cheriton Road. Lot 12 access would either be on Sloans Road or the new road and Lot 13 will have its access off Sloans Road. Lot 14 access will be via the existing Howes Lane.

The above describes the expected access arrangement however it will be confirmed at a later stage.

3.3 Traffic Generation

Trip generation rates from the *Institute of Transportation Engineers (ITE) "Trip Generation" 10th* as detailed in **Table 3-1** were used to calculate the estimated trip generation for the subdivision. **Table 3-2** shows the directional distribution and **Table 3-3** shows the total expected trips to be generated by the proposed development.

Table 3-1 Trip Generation Rate

Land Use	ITE CODE	Yield	AM Peak Rate	PM Peak Rate	Daily Rate
Residential	ITE 210	14 dwellings	0.76 trips per dwelling	1 trip per dwelling	9.44 trips per dwelling

Table 3-2 Directional Distribution

Land Use	AM		PM		Daily	
	IN	OUT	IN	OUT	IN	OUT
Residential	26%	74%	64%	36%	50%	50%

Table 3-3 Total Trip Generation

Land Use	AM		PM		Daily	
	IN	OUT	IN	OUT	IN	OUT
Residential	3	8	9	5	66	66
Total	11		14		132	

The Subject Site will have a trip generation of approximately 132 trips daily, with approximately 11 trips during the AM peak hour period and approximately 14 trips in the PM peak hour period. According to the WAPC Transport Impact Assessment Guidelines, developments such generating between 10 and 100 trips during the peak hour is not considered to have any substantial or adverse transport impact on the surrounding road network.

3.4 Review of the New Subdivision Access Road

Currently, some traffic from north of Cheriton Road would use McHavloe Drive to reach Dewar Road to head to Brand Highway and vice versa. The proposed road connection between Cheriton Road and Sloans Road provides an alternative route to Brand Highway and could divert some of the traffic away from McHavloe Drive.

No traffic data is available on Cheriton Road, however it is expected that the volumes are very low, as there is only low rural residential / farms along Cheriton Road north of the Gingin town site. However, the traffic volume is expected to gradually increase, with the progression of the Country Heights Estate located approximately 5km north of the proposed division as shown in **Figure 3-2**.

Based on the approved structure plan, the full build-out of Country Heights Estates would consist of 313 dwellings. This would approximately generate 238 trips in the AM peak, 313 trips in the PM peak, and 2955 daily trips. This additional traffic would be distributed mainly to Cheriton Road, as well as other local roads such as McHavloe Drive to head towards Brand Highway.

The new subdivision road connecting Sloans Road and Cheriton Road, which provides an alternative route to Brand Highway, could help in reducing traffic flow on McHavloe Road heading to Brand Highway, particularly traffic generated from the Country Heights Estate. Therefore, the addition of the new subdivision road would also benefit the existing and future residents by providing more permeability to the road network.

The largest size vehicle that can use the new subdivision road would be 12.5m in length for a rigid truck, 19m in length for a combination, 2.5m in width, and 4.3m in height. Vehicles or agricultural machines larger than specified would require permits.

Figure 3-2 Country Heights Development Location



4 Public Transport Facilities

4.1 Existing Public Transport Facilities

The Site does not have any access to public transport as no public transport is available within the area.

4.2 Proposed Public Transport Facility

The development is not proposing any changes to the public transport network.

5 Pedestrian/Cycle Networks and Facilities

5.1 Existing Pedestrian/Cycle Network Facilities

There is no information on pedestrian/cycle network within the area adjacent to the Site or within the Townsite.

5.2 Proposed Pedestrian / Cycling Facility

The development is not proposing any pedestrian / cycling facility due to its rural nature. This is consistent with the Shire's Guidelines for Road Works, Drainage and Subdivision Development, where footpaths are only required in urban residential areas.

As the area is rural in nature and not in proximity to shops or other trip attractors, it is unlikely there would be any significant demand for designated pedestrian access or cycling. Therefore, it is not necessary to provide footpaths within the subdivision and/or a connection to the surrounding road network.

6 Road Safety Review

6.1 Crash Assessment

A crash assessment for the surrounding road network of the Subject Site has been completed using the Main Roads WA Reporting Centre. The assessment covers all the recorded accidents for the 5-year period between 1 January 2016 to 31 December 2020 for the following locations:

- > Sloans Road SLK 0.00 to SLK 0.90;
- > Cheriton Road SLK 0.63 to SLK 1.35; and
- > McHavloe Dr SLK 0.75 to SLK 1.30.

There were no reported intersection or midblock crashes within the above study area over the time period. Due to the low traffic volume generation, it is considered highly unlikely that the proposed development will have any material impact to the traffic safety of the surrounding road network.

7 Summary

This Transport Impact Statement outlines the transport aspects of the proposed development focusing on traffic operations, access and provision of car parking. Included are discussions regarding pedestrian, cycle, and public transport considerations.

This statement has been prepared in accordance with the *WAPC Transport Assessment Guidelines for Developments: Volume 4 – Individual Developments (2016)*.

The following are conclusions about the proposed development:

- > The proposal is for a rural subdivision with a total subject area of 78.74 ha.
- > A proposal for a new subdivision road which will become the main access for the subdivision lots that will connect Sloan Road and Cheriton Road.
- > It is expected that this new subdivision road will attract some external trips as it provides an alternative route to Brand Highway. This is expected to reduce traffic volumes on McHavloe Road, which is the current route towards Brand Highway from Cheriton Road north, particularly from the future Country Heights Estate, which will be a significant traffic generator when completed (approximately 2955 daily trips). Thus, the new subdivision road would overall provide an overall benefit to the permeability of the road network.
- > The development is conservatively estimated to generate 11 trips in the AM peak hour and 14 trips in the PM peak hour. The volume of trips generated by the subject Site is minimal is not considered to have any substantial impact on the surrounding road network.
- > It is considered highly unlikely that the proposed development will cause any material impact to the traffic safety of the surrounding road network.

Proposed Subdivision - Lot 9501
Cheriton Road, Gingin

APPENDIX

A

WAPC CHECKLIST

Item	Status	Comments/Proposals
Proposed development		
proposed land use	Section 3	
existing land uses	Section 1	
context with surrounds	Section 1	
Vehicular access and parking		
access arrangements	Section 3	
public, private, disabled parking set down/pick up	N/A	
Service vehicles (non-residential)		
access arrangements	N/A	
on/off-site loading facilities	N/A	
Service vehicles (residential)		
Rubbish collection and emergency vehicle access	N/A	
Hours of operation (non-residential only)	N/A	
Traffic volumes		
daily or peak traffic volumes	Section 3	
type of vehicles (e.g. cars, trucks)	N/A	
Traffic management on frontage streets	Section 2	
Public transport access		
nearest bus/train routes	Section 4	
nearest bus stops/train stations	Section 4	
pedestrian/cycle links to bus stops/train station	Section 4	
Pedestrian access/facilities		
existing pedestrian facilities within the development (if any)	Section 5	
proposed pedestrian facilities within development	Section 5	
existing pedestrian facilities on surrounding roads	Section 5	
proposals to improve pedestrian access	N/A	
Cycle access/facilities		
existing cycle facilities within the development (if any)	Section 5	
proposed cycle facilities within the development	Section 5	
existing cycle facilities on surrounding roads	Section 5	
proposals to improve cycle access	N/A	
Site specific issues	N/A	
Safety issues		
identify issues	N/A	
remedial measures	N/A	

Proposed Subdivision - Lot 9501
Cheriton Road, Gingin

APPENDIX

B

SITE PLAN

LEGEND



Subject Area (73.4737ha)



Proposed Lot Boundaries

Local Scheme Zones

Rural Living Application Area
(24.0238ha)

Other Categories

RL2 Rural Living

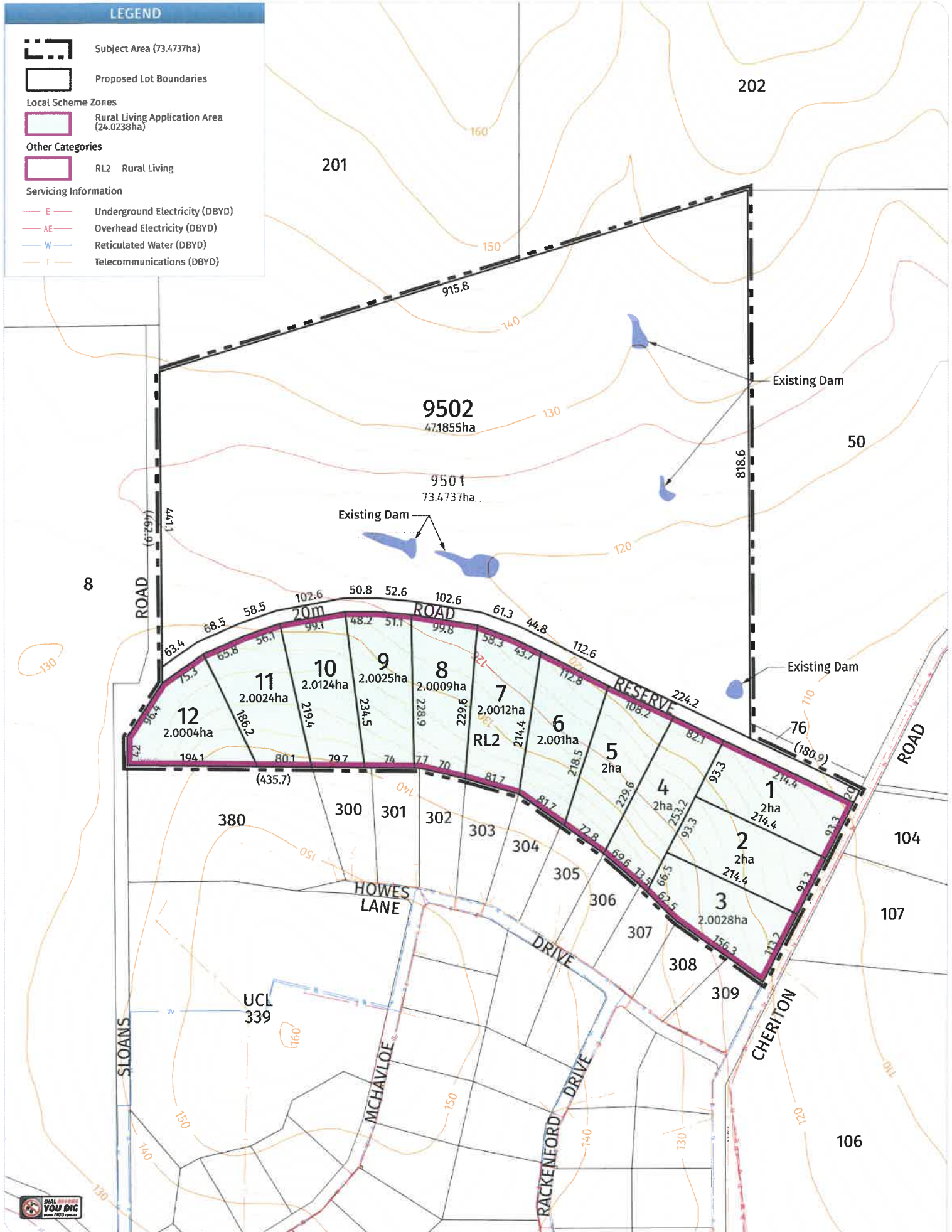
Servicing Information

E Underground Electricity (DBYD)

AE Overhead Electricity (DBYD)

W Reticulated Water (DBYD)

T Telecommunications (DBYD)



CONCEPT SUBDIVISION PLAN (ZONING)

Pt Lot 9501 Cheriton Road,
GINGIN

Plan No. | 20213-04
Date | 02/05/22
Drawn | NP
Checked | CP
Revision | C

PERTH & FORRESTDALE:

Lvl 1, 252 Fitzgerald St
PERTH WA 6000
15/2 Henbrook Loop,
FORRESTDALE WA 6122
T: 08 9408 1914
E: info@harleydykstra.com.au

ALBANY | BUNBURY | BUSSELTON | FORRESTDALE | PERTH

Scale | 1:5000@A3

0 50m 100m 150m



NOTE: This plan has been prepared for planning purposes. Areas, Contours and Dimensions shown are subject to survey.

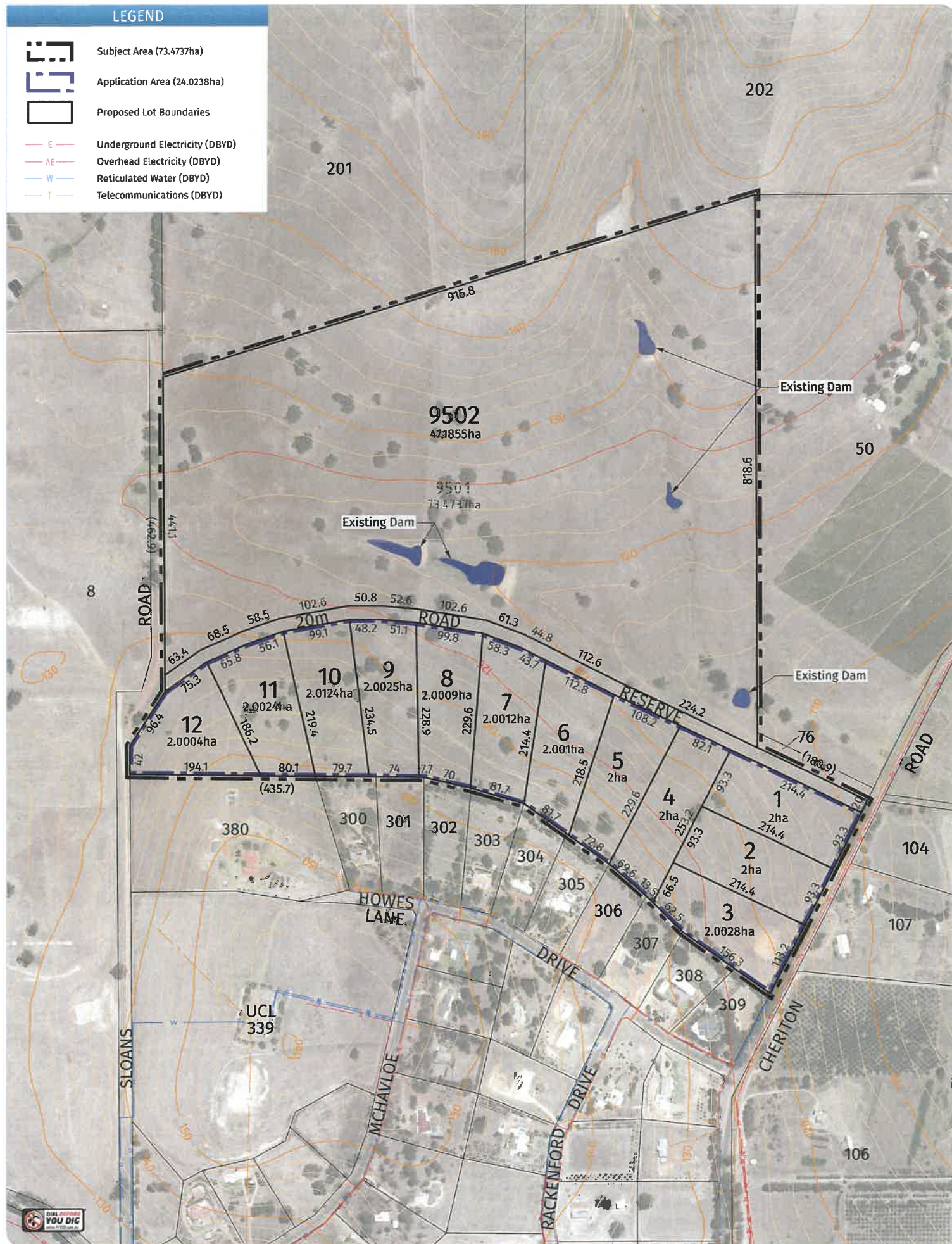
Harley Dykstra

PLANNING & SURVEY SOLUTIONS

LEGEND



- Subject Area (73.4737ha)
- Application Area (24.0238ha)
- Proposed Lot Boundaries
- E Underground Electricity (DBYD)
- AE Overhead Electricity (DBYD)
- W Reticulated Water (DBYD)
- T Telecommunications (DBYD)



CONCEPT SUBDIVISION PLAN (AERIAL)

Pt Lot 9501 Cheriton Road,
GINGIN

Plan No. | 20215-04
Date | 02/05/22
Drawn | NP
Checked | CP
Revision | C

PERTH & FORRESTDALE:
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ALBANY | BUNBURY | BUSSETON | FORRESTDALE | PERTH

Scale | 1:5000@A3

0 50m 100m 150m



NOTE: This plan has been prepared for planning purposes. All areas, contours and dimensions shown are subject to survey.



Harley Dykstra

PLANNING & SURVEY SOLUTIONS

About Cardno

Cardno is a professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno's team includes leading professionals who plan, design, manage and deliver sustainable projects and community programs. Cardno is an international company listed on the Australian Securities Exchange [ASX:CDD].

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Planning and Development Act 2005

FORM 2A

**RESOLUTION TO ADOPT AMENDMENT TO
LOCAL PLANNING SCHEME**

**Shire of Gingin Local Planning Scheme No.9
Amendment No. 23**

Resolved that the local government pursuant to section 75 of the Planning and Development Act 2005, amend the above Local Planning Scheme by:

1. Modifying the Scheme Maps by introducing the Rural Living RL2 zone over Pt Lot 9501 Cheriton Road, Gingin.
2. Insert the definition for building exclusion area under the General Definitions of Schedule 1 – Dictionary of Defined Words and Expressions in alphabetic order as follows:

building exclusion area	Means the area of land within which buildings, effluent disposal facilities and any other works on a lot must not be located or carried out.
-------------------------	--

3. Insert the following into Schedule 8 – Rural Living Zones:

No.	Description of Land	Conditions
2	Pt Lot 9501 Cheriton Road, Gingin	<p>General</p> <ol style="list-style-type: none">1. These conditions shall apply in conjunction with the Scheme requirements for the Rural Living zone, and/or as otherwise approved by the local government. Where conflicts exist, these conditions prevail.2. The long term storage of materials visible from the public realm shall only be permitted where approved by the Shire.3. The erection of any signage on any lot shall only be permitted where approved by the Shire. <p>Structure Plan</p> <ol style="list-style-type: none">4. A structure plan is not required to facilitate subdivision and development subject to the plan of subdivision and application meeting Conditions 5 to 7 below.

		<p>Subdivision</p> <p>5. The plan of subdivision and application must:</p> <ul style="list-style-type: none"> (a) identify building envelopes/exclusion areas which respond to the significant environmental features of the site, (including achieving suitable separation from water resources) and a reduced separation buffer from the General Rural land to the north; (b) provide a logical road network, including a subdivisional road along the northern boundary of the subdivision area designed to link the subdivision area from its eastern boundary to Cheriton Road through to its western boundary to Sloans Road; (c) enter into a Deed of Agreement (at the cost of the applicant/owner) for the upgrade of Sloans Road to the satisfaction of the Shire of Gingin; (d) be supported by: <ul style="list-style-type: none"> i. an approved Local Water Management Strategy to the satisfaction of the Shire of Gingin; ii. an approved Traffic Impact Assessment to the satisfaction of the Shire of Gingin; iii. a site and soil evaluation conducted in accordance with <i>AS/NZS 1547 On-site domestic wastewater management</i>; <p>Local development plan</p> <p>6. A local development plan is to be prepared and approved identifying building envelopes/exclusion areas consistent with Conditions 1 to 5 above.</p> <p>7. Notwithstanding cl. 61(1)(l), where development is inconsistent with the approved local development plan a development application shall be required.</p>

Resolve, pursuant to clause 35(2) of the *Planning and Development (Local Planning Schemes) Regulations 2015* that Local Planning Scheme Amendment No. 23 is a standard scheme amendment in accordance with clause 34 of the Regulations, as the proposal:

- a. is consistent with a local planning strategy for the scheme that has been endorsed by the Commission; and
- b. will have a minimal impact on land in the Scheme area that is not the subject of the amendment, and will not result in any significant environmental, social, economic or governance impacts on land in the Scheme area.

Dated this 18 day of 7 2023



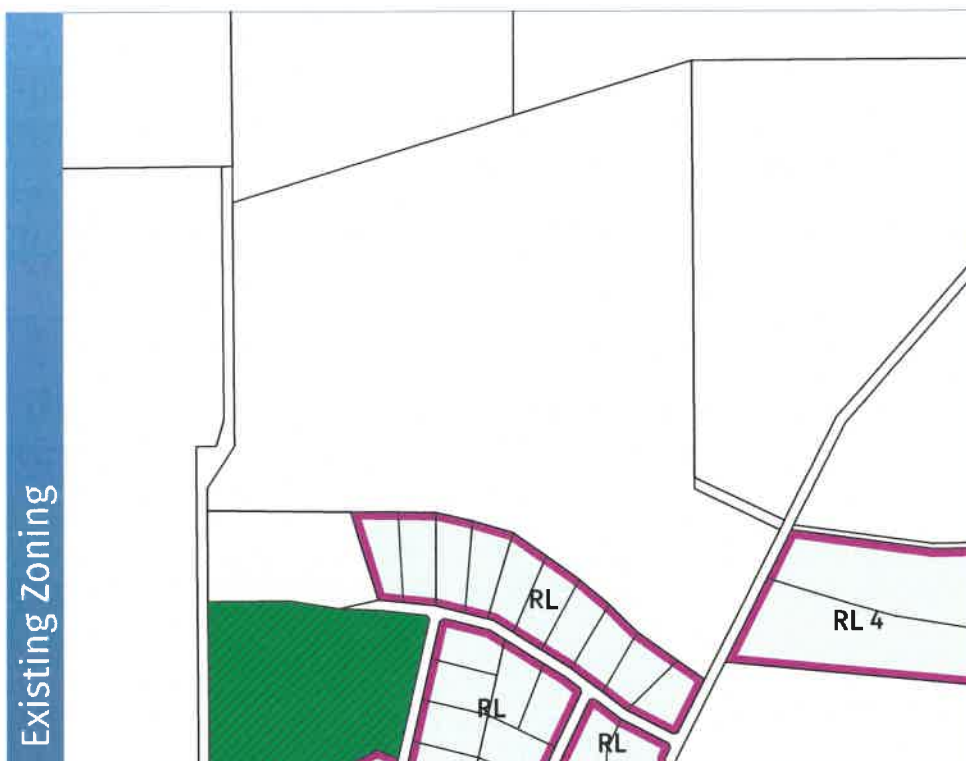
(Chief Executive Officer)

SHIRE OF GINGIN

Local Planning Scheme No. 9

Amendment No. 23

Existing Zoning



LOCAL SCHEME RESERVES

 Parks and Recreation

LOCAL SCHEME ZONES

 General Rural

 Rural Living

OTHER CATEGORIES

 RL1 Rural Living

 No Zone

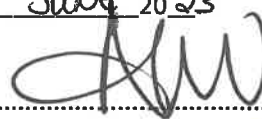
Proposed Zoning



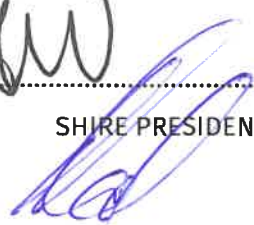
COUNCIL ADOPTION

FORM 6A

This Standard Amendment was adopted by resolution of the Council of the Shire of Gingin at the Ordinary Meeting of the Council held on the 20 day of JUNE 2023



SHIRE PRESIDENT



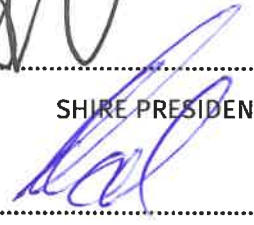
CHIEF EXECUTIVE OFFICER

COUNCIL RESOLUTION TO ADVERTISE

By resolution of the Council of the Shire of Gingin at the Ordinary Meeting of the Council held on the 20 day of JUNE 2023, proceed to advertise this Amendment.



SHIRE PRESIDENT



CHIEF EXECUTIVE OFFICER

COUNCIL RECOMMENDATION

This Amendment is recommended for _____ by resolution of the Gingin at the Ordinary Meeting of the Council held on the _____ day of _____, 20____ and the Common Seal of the Shire of Gingin was hereunto affixed by the authority of a resolution of the Council in the presence of:

(Seal)

SHIRE PRESIDENT

CHIEF EXECUTIVE OFFICER

WAPC RECOMMENDATION FOR APPROVAL

DELEGATED UNDER S.16 OF
THE P&D ACT 2005

DATE.....

APPROVAL GRANTED

.....
MINISTER FOR PLANNING

DATE.....