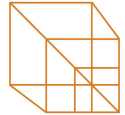


McDowall Affleck Pty Ltd
(ACN 009 033 345) (ABN 23 009 033 345)
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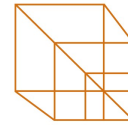
ENGINEERING SERVICING REPORT

PROPOSED LOCAL STRUCTURE PLAN FOR LOTS 100 AND 101
GRANCEY AVENUE, LOTS 22, 25, 26, AND 72 COPPIN ROAD, LOT 59
GAMGEE GROVE, LOTS 4 AND 91 GREAT EASTERN HIGHWAY,
MUNDARING

MAXIMUM SKY

REVISION B

GRANT SPELDEWINDE
MCDOWALL AFFLECK PTY LTD
69 GREAT NORTHERN HIGHWAY, MIDLAND, WA 6056



REVISION STATUS

REVISION	DATE	ISSUED FOR	BY	CHECKED	APPROVED
A	21/11/2022	Comment (DRAFT)	GS	-	GS
B	21/12/2022	Issued for Information	GS	EB	GS

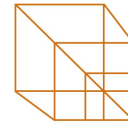
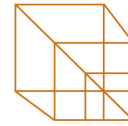


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1. INTRODUCTION

McDowall Affleck Pty Ltd have been engaged by Maximum Sky to conduct an engineering servicing assessment and report to assist with their Local Structure Plan (LSP) over Lots 100 and 101 Grancey Avenue, Lots 22, 25, 26, and 72 Coppin Road, Lot 59 Gamgee Grove, and Lots 4 and 91 Great Eastern Highway, Mundaring (the site). The Local Structure Plan layout is provided in Appendix 1.

The Engineering Service Report seeks to identify any factors that would preclude the subdivision of the site into 51 residential lots by completing a desk top study and an engineering assessment of the information. The desk top study includes publicly available data, site specific reports, and advice from interested authorities.

This report does not consider the development costs of servicing the site because the specific requirements are not known, and it is outside the scope of this report.

2. DESK TOP STUDY

2.1. Site Location

The site is situated within the Shire of Mundaring, located approximately 33 km east of Perth. The site has a total area of approximately 14.36 hectares and is bound by Thomas Road to the north, Grancey Avenue to the east, Great Eastern Highway to the south, and Coppin Road to the west. The site is surrounded by rural residential and residential zoned lots (Shire of Mundaring n.d.) which are serviced by an existing road network and utilities as discussed in more detail in following sections of this report.

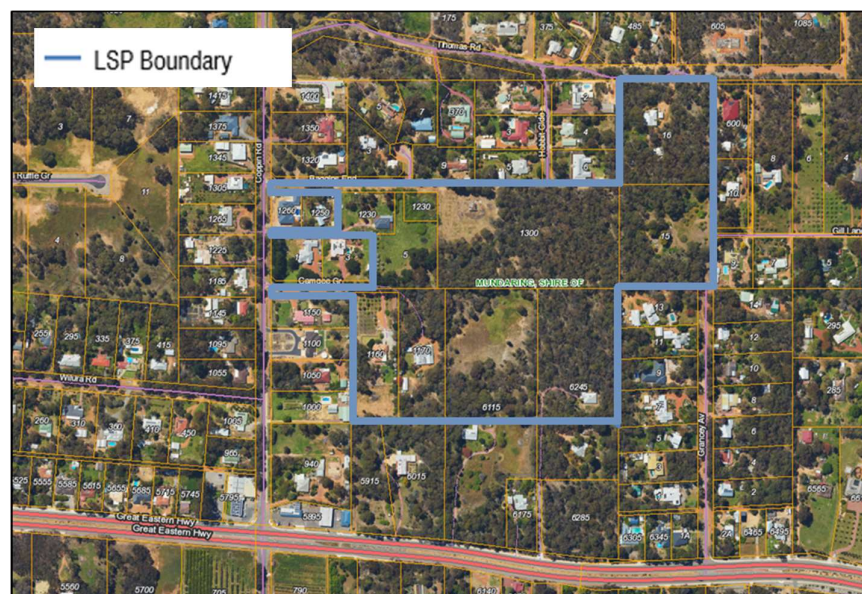
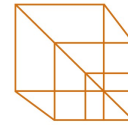


Figure 1: Site aerial image (source: Landgate Map Viewer Plus)



2.2. Topography

Contour information from Water Corporation (n.d.), as shown in Figure 2, indicates that the site is elevated with a ridge line running north-south across the site which provides two watershed boundaries: one discharging west towards Coppin Road, and the other east towards Gill Lane. The gradient of the land is estimated to be up to 9%.

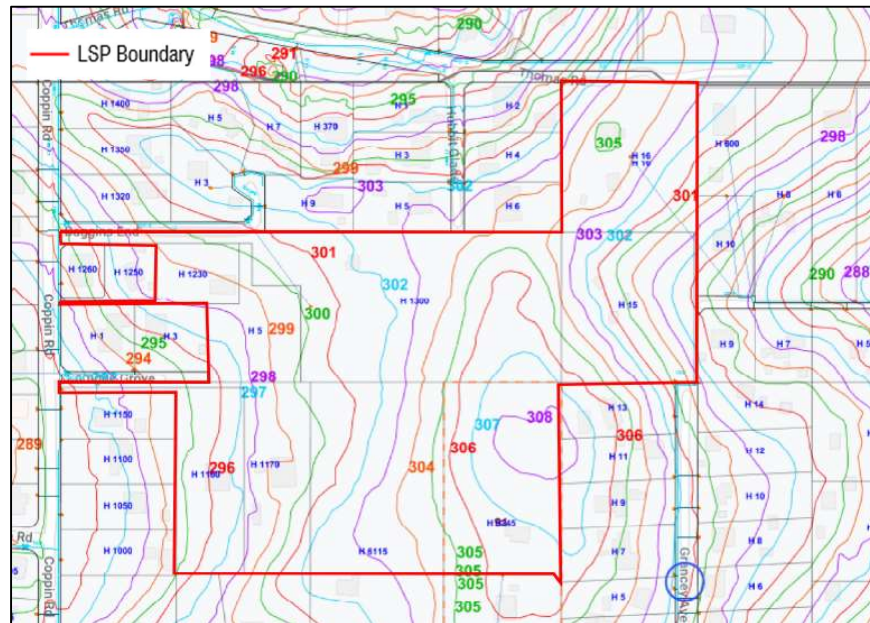


Figure 2: Contour plan of the site (Water Corporation n.d.)

2.3. Acid Sulphate Soils

Acid sulphate risk mapping from Department of Water and Environmental Regulation (n.d. (a)) does not extend to the site.

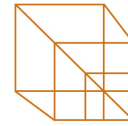
2.4. Site Geology and Soil Assessment

The 1:50,000 scale geological mapping from Department of Mines, Industry Regulation (n.d.) indicates that the surface geology of the site comprises of laterite and gravel. Mapping is provided in Appendix B.

Soil testing and other investigations has determined that the site is suitable for on-site effluent and stormwater disposal (Bayley Environmental Services 2022).

2.5. Groundwater

Publicly available depth to groundwater data from Department of Water and Environmental Regulation (n.d. (b)) does not cover the subject site, but groundwater was detected at depths of 1.44 to 5m in two locations in September 2021 (Bayley Environmental Services 2022).



2.6. Road Network

The site is accessible via existing roads on its western frontage with Coppin Road, Baggins End and Gamgee Grove; Hobbit Glade and Thomas Road on its northern frontage; Gill Lane on its eastern frontage; and Grancey Avenue on its southern frontage. See Table 1 for a summary of the existing road seal widths and features which have been determined through aerial photography, Google Street View and a site inspection on 16 December 2022.

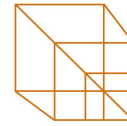
Water Corporation contour data suggests that the geometry of Coppin Road provides an approximate safe intersection sight distance of 120m at Gamgee Grove and Baggins End which is suitable for a 60km/hr design speed (50km/hr posted) in accordance with *Austroads Guide to Road Design Part 4A*. Aerial imagery suggests Coppin Road meets the definition of a built-up area under the *Road Traffic Code 2000* which has a speed limit of 50km/hr.

Table 1: Existing Road Network and Features

Existing Road	Sealed width	Features and Comments
Thomas Road	Approximately 4-6 m	Mountable kerb at the intersection with Coppin Road and approximately 200m long on its southern side. No defined Shire stormwater connection points
Hobbit Glade	Approximately 5m	Semi-mountable kerb at the intersection with Thomas Road. Shallow open drain.
Baggins End	Approximately 3m	No kerb. Shallow open drain.
Gamgee Grove	Approximately 3m	No kerb. Shallow open drain.
Grancey Avenue	Approximately 6m	No kerb. No defined Shire stormwater connection points
Gill Lane	Approximately 3m	Mountable kerb on its southern. No defined Shire stormwater connection points.

2.7. Sewer Reticulation

Water Corporation's planning advice provided in Appendix C notes that the subdivision is outside the district boundary for reticulated sewer, therefore on-site effluent is acceptable. Refer section 2.4 for the site's capability to support on-site effluent.



2.8. Water Reticulation

Water Corporation (n.d.) shows reticulated water is within all road reserves abutting the development with main sizes varying between 63 and 100mm. Water Corporation's planning advice provided in Appendix C notes that the system has adequate capacity and pressure to support the development.

2.9. Power Reticulation

Western Power has a network capacity of 20 to 25 MVA for the site (Western Power n.d.), which is constant between 2023 and 2030 and shown in Figure 3.

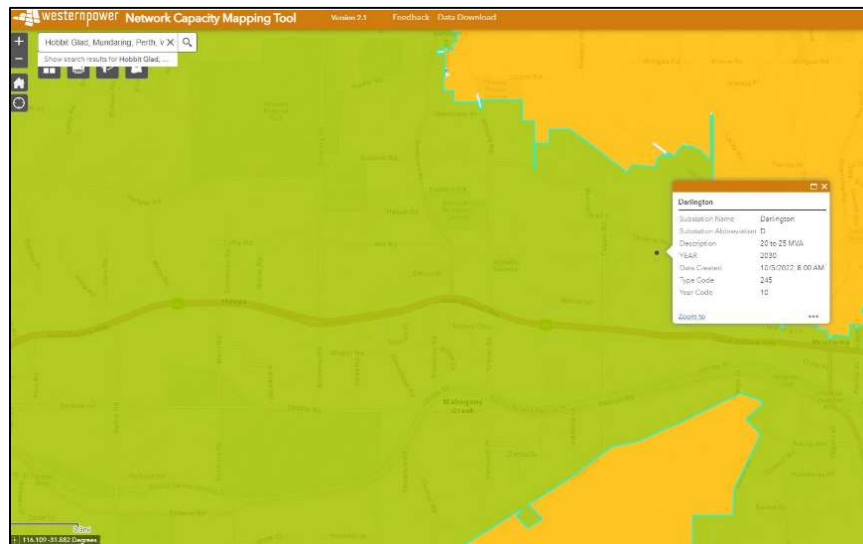


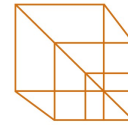
Figure 3: Western Power Network Capacity Map. Green shading covers the site and indicates 20 to 25 MVA capacity.

2.10. Communications

A Dial Before You Dig enquiry shows Telstra assets are within the road reserves of Coppin Road, Great Eastern Highway, Grancey Avenue, Gamgee Grove and Baggins End. A fixed line connection to the NBN is currently available for the site (NBN n.d.).

2.11. Natural Gas Reticulation

A Dial Before You Dig enquiry indicates that there is no reticulated gas to the site and surrounding areas.



3. ENGINEERING ASSESSMENT OF DESK TOP STUDY

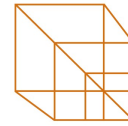
Connection points for power, water and communication reticulation are available adjacent to the site with the desk top study not identifying any factors that would preclude the site from being serviced with these utilities. Sewer and gas reticulation are not available to the site, but these are not considered factors that preclude the subdivision from development because the site is outside the reticulated sewer catchment and the site can support on site effluent disposal, and gas reticulation is not expected to be a condition of subdivision.

In our experience, the site conditions and topography are suitable for road pavements, road geometry, and stormwater drainage conveyance and detention systems when designed in accordance with appropriate standards and guidelines such as *Austroads Guide to Road Design*, *Austroads Guide to Pavement Technology* and *Australian Rainfall and Runoff 2019*.

4. CONCLUSION

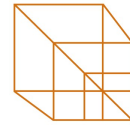
This report presents the desk top study that was completed for the applicable site features such as surface geology, surface gradients and groundwater conditions, and the typical residential utilities, which were assessed without any factors being identified that would preclude development of the site.

This report does not consider the specific requirements of servicing the site or their implementation and associated costs.



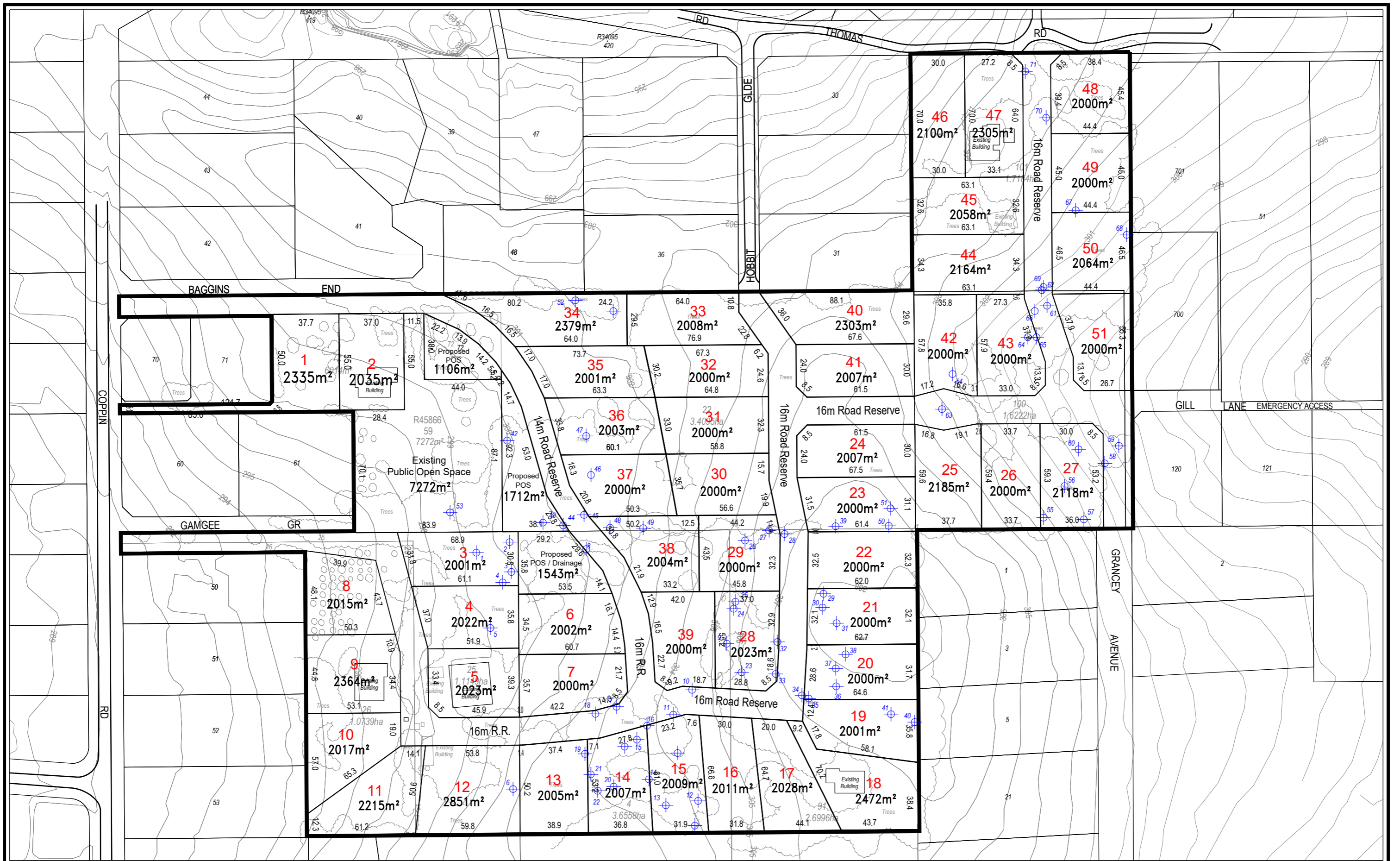
5. REFERENCES

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6. APPENDIX A: LOCAL STRUCTURE PLAN

Source: Stawest Planning



0 20 40 60 80m
 SCALE 1:2000
 ORIGINAL PLAN SIZE: A3



NORTH

Statewest Planning
 Midland House
 69 Great Northern Highway, Midland
 PO Box 1377, Midland WA 6936
 t. 9274 1363 m. 0418 932 792
 e. simon.ohara@statewestplanning.com.au

LEGEND:

Subject Land.....

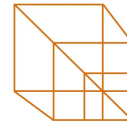
Habitat Trees.....

NOTE:
 1. Areas and dimensions are subject to survey.

DATE: 01.12.2022

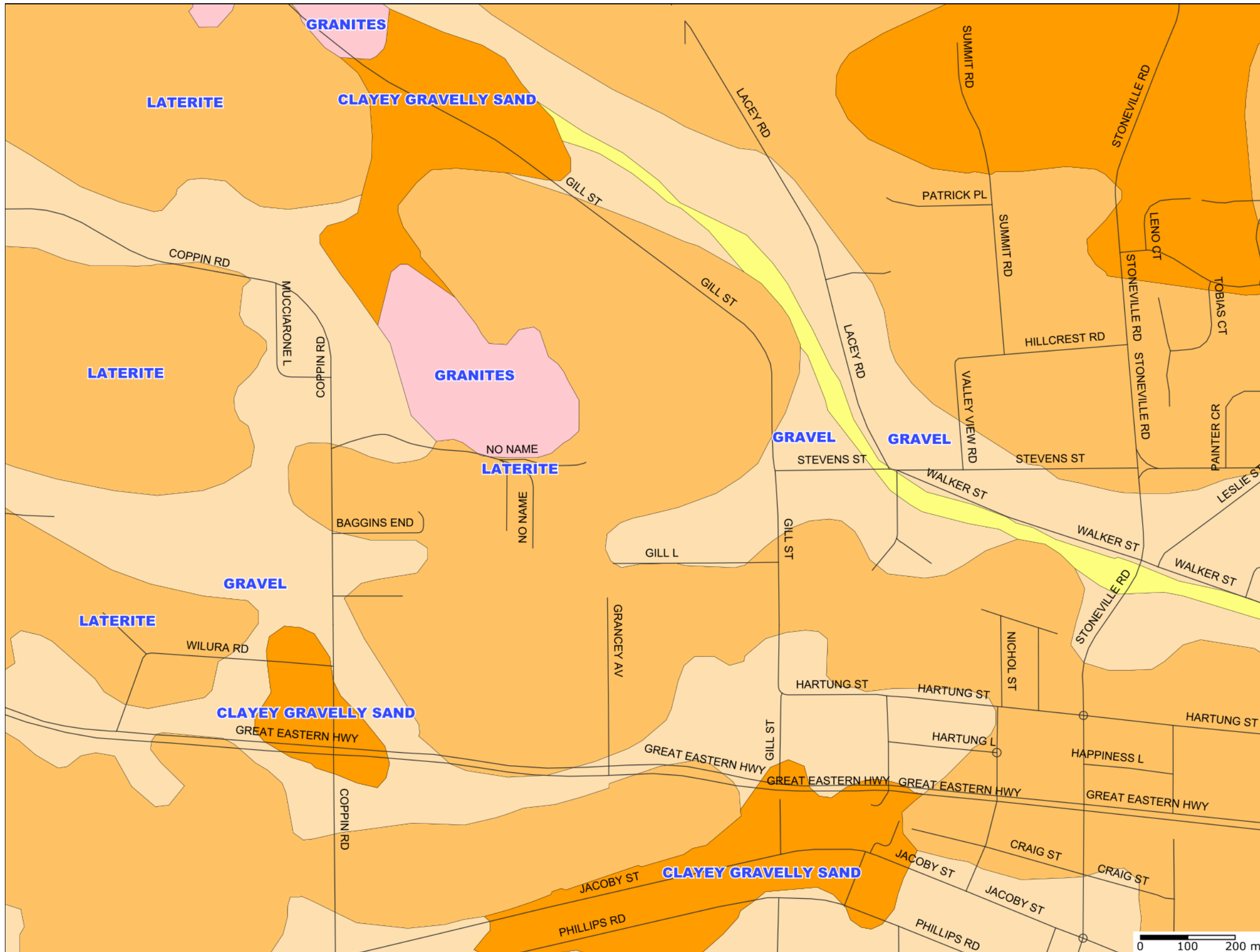
LOCAL STRUCTURE PLAN

THOMAS ROAD, COPPIN ROAD &
 GREAT EASTERN HIGHWAY, MUNDARING
 Shire of Mundaring



7. APPENDIX B: GEOLOGICAL MAPPING

Source: Department of Mines, Industry Regulation and Safety. (n.d)



Soil Information

Type GRAVEL
 Code G2
 Description yellow-brown to reddish brown, loose, fine to coarse, ferruginous pisolites, poorly sorted; variable amounts of sand and silt in matrix, minor recementation; colluvial origin
 Type GRAVEL

Soil Information

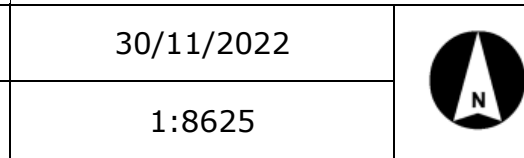
Type LATERITE
 Code LA1
 Description massive hard, cemented, vuggy and pisilitic; up to 4m thick, overlain by and associated with gravels (G2 and G3) of residual origin

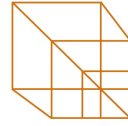


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Job No:
Job Title:

30/11/2022
 1:8625





8. APPENDIX C: WATER CORPORATION PLANNING ADVICE

Grant Speldewinde

From: Matt Calabro <Matt.Calabro@watercorporation.com.au>
Sent: Tuesday, 25 October 2022 11:31 AM
To: Grant Speldewinde
Subject: Service Feasibility Inquiry - SF0009494 - Coppin Road, Mundaring [Filed 01 Nov 2022 15:52]

Categories: Filed by Mail Manager

Hi Grant,

I have been looking in to your Service Feasibility Inquiry for Coppin Road, Mundaring.

The Proposed development is outside of the Mundaring Sewer District Boundary and thus on site effluent disposal will be fine.

For Water Servicing, The proposed subdivision is inside the Sawyers Valley Gravity water zone supplied from Sawyers Valley Tank with TWL of 343.8mAHD.

The highest ground level in the subdivision is 308mAHD.

Modelling at peak demand and with Sawyers Valley Tank at low level of 340mAHD indicates a minimum pressure of 22m at the highest ground level.

Modelling indicates the system has adequate capacity to supply 10L/s fire flows to the subdivision provided the subdivision is supplied with a DN100 main connecting to at least these 2 existing reticulation mains, the 100P12 in Baggins End and the 100CI in Grancey Ave.

If you have any further questions please let me know.

Regards,

Matt Calabro
Advisor – Land Planning
Development Services

E Matt.Calabro@watercorporation.com.au



watercorporation.com.au

