

APPENDIX E

Engineering Drawings and Code Responses prepared by Empower

brazier motti





Infrastructure Assessment Report

Somers & Hervey Residential Estate

Stage 12A, Lot 907 - Material Change of Use (MCU)

Project No: B00873

Prepared for: Urbex 118 Pty Ltd

Date: 21 January 2026

**POWERING FUTURES,
CREATING LEGACIES.**

Document Control Sheet

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Previous versions of this document are superseded by the most recent version.

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1. Introduction

Empower Engineers & Project Managers Pty Ltd (Empower) has been engaged by Urbex 118 Pty Ltd (Urbex) (as the developer of the subject land) to assess civil engineering aspects of the development to support a *Material Change of Use (MCU)* application for Stage 12A, Lot 907 of the Somers & Hervey Residential Estate with respect to development of 48 Low-Medium Density Housing products.

This Engineering Infrastructure Report outlines the necessary infrastructure required to service Stage 12A, Lot 907 of the Somers & Hervey Residential Estate. This report has been compiled based on the overall masterplan prepared by RPS Urban Design (RPS) as included in **Appendix A** and proposed Civil Design Drawings prepared by Empower as included in **Appendix B**.

1.1 Background

The consultant team involved in assisting Urbex with this development include:

| Discipline | Consultant |
|---------------------------|--------------------------------------|
| Town Planning | Brazier Motti |
| Urban Design | RPS Group |
| Civil Engineering | Empower Engineers & Project Managers |
| Water and Sewer Modelling | DPM Water |
| Flood Modelling | Northern Consulting Engineers |
| Traffic Modelling | SLR |
| Water Quality | Design Flow |
| Landscape Design | RPS Group |

1.2 Objectives

The objectives of this report are to:

- *Confirm that the integration of proposed site infrastructure with the existing local infrastructure including roadworks, earthworks, erosion and sediment control, stormwater drainage, sewerage reticulation and water supply is feasible; and*
- *Confirm that proposed Stage 12A, Lot 907 Infrastructure Services satisfy demands of the proposed 48 Low-Medium density housing development.*

2. Site Characteristics

2.1 Location

Precinct 4, Stage 12A (the Site) is located approximately 6km downstream from the Ross River Dam and is bounded as shown below in **Figure 1 - Location of Site**:

- To the East by existing private Rasmussen allotments fronting Riverway Drive, and
- To the North and South and by existing Somers & Hervey lots and to the West by future stages of Somers & Hervey - Precinct 3.

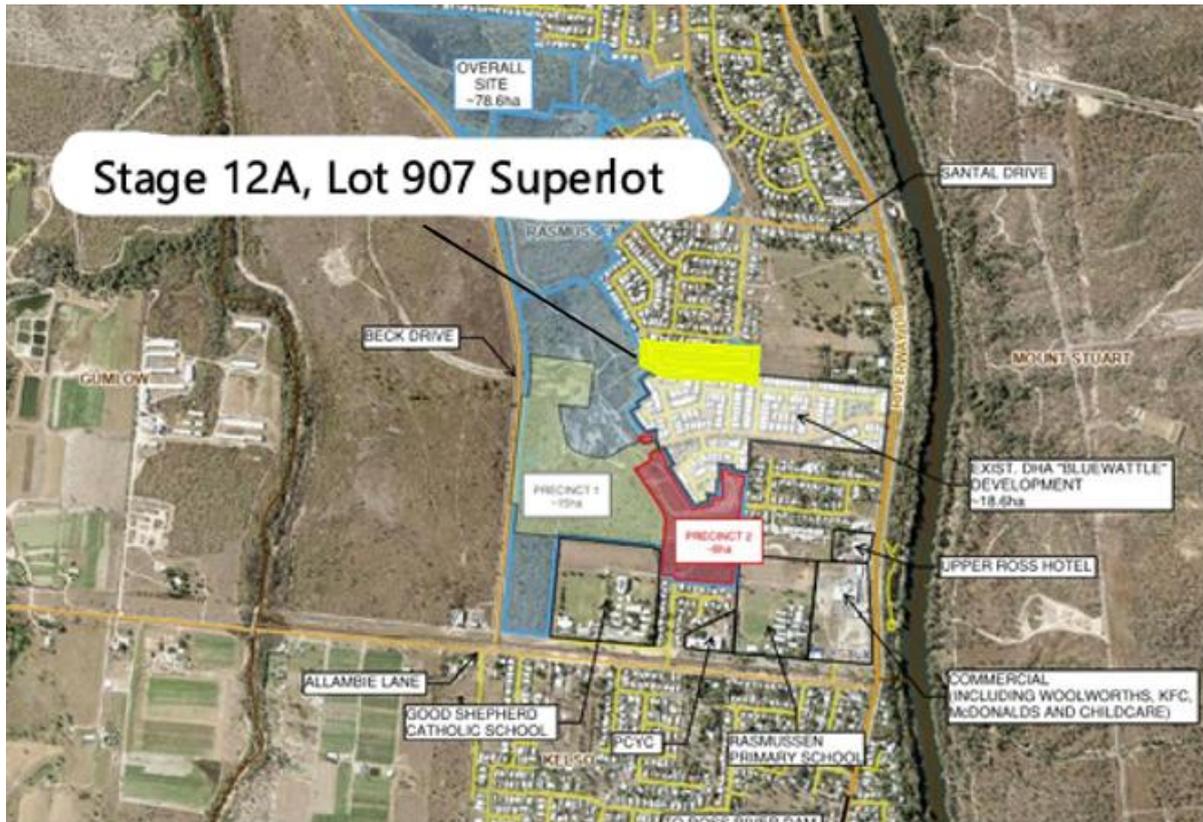


Figure 1: Location of Site

2.2 Vegetation

The overall Somers & Hervey Residential Estate generally consists of a mixture of grassed areas with scattered trees and vegetation, with the site having been cleared as part of previous developments.

2.3 Proposed Development

Stage 12A will consist of one (1) Superlot and five (5) Residential Lots, with internal road network, open space, and underground services. The Superlot is the subject of this MCU Application for a proposed Low-Medium Density Housing development (48 dwellings).

The **Proposed Development Layout - Stage 12A, Lot 907** is shown below in **Figure 2** and the proposed **Low-Medium Density Housing Development (48 Dwellings) - Stage 12A, Lot 907** is shown below in **Figure 3**.

Infrastructure to be provided as part of the development includes Earthworks, Stormwater drainage, Sewer connection point, Water connection point, and Electrical and communication connection point.

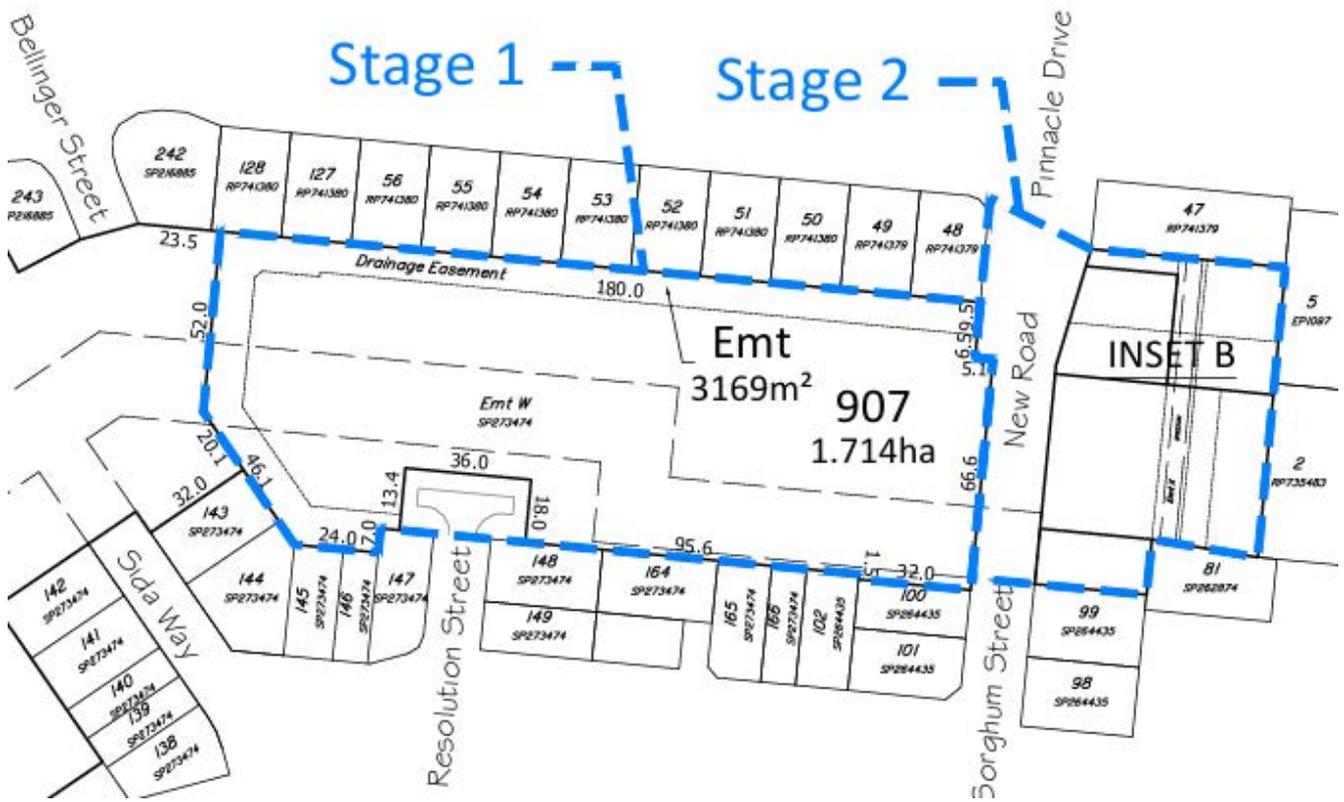


Figure 2: Proposed Development Layout - Stage 12A



Figure 3: Proposed Low-Medium Density Housing Development (48 Dwellings) - Stage 12A, Lot 907

3. Roadworks and Traffic

3.1 General

This report shall be read in conjunction with:

Traffic Impact Assessment

- SLR Australia Pty Ltd 'Stage 12A Multiple Dwellings Development, Somers & Hervey Residential Estate, Rasmussen – Traffic Impact Assessment included in **Appendix D**.

Access to Stage 12A will be via the connection of Pinnacle Drive and Sorghum Street.

The general arrangement road connectivity and **Stage 12A Development Access** is shown in **Figure 4** below.



Figure 4: Stage 12A Development Access

3.2 Road Hierarchy

The Townsville City Plan road network infrastructure planning scheme policy (SC6.4.5) includes the definition of an **Urban Major Collector Road** (<12,000 vpd) and **Urban Minor Collector Street** (<3,000 vpd).

The **Pinnacle Drive - Typical Road Cross Section** is shown below in **Figure 5**.

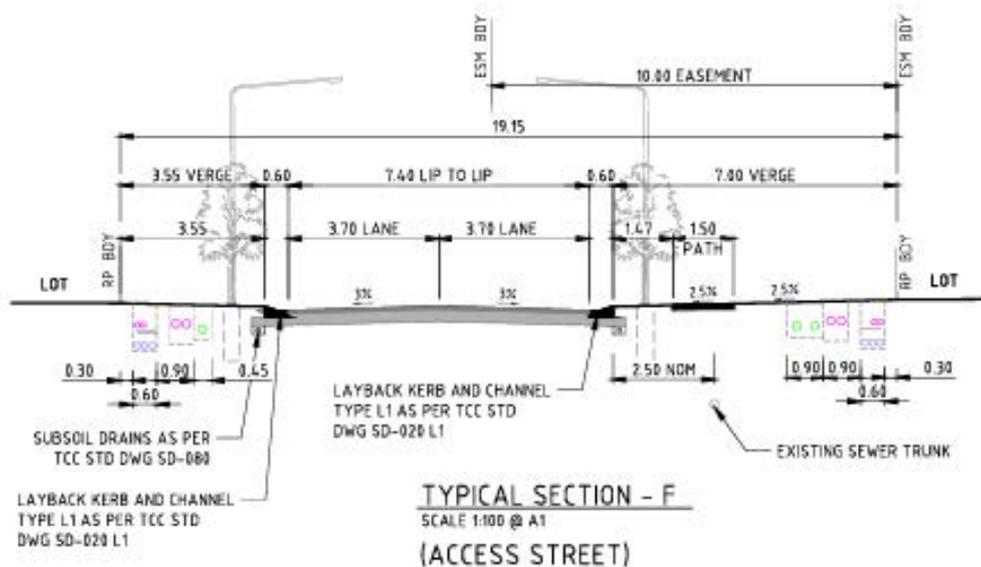


Figure 5: Pinnacle Drive - Typical Road Cross Section

Typical Access Street includes the following typical elements:

- 19.15m wide road reserve;
- 7.40m wide road pavement (lip to lip);
- Two-way crossfall;
- One traffic lane in each direction (3.7m); and
- Footpath (1.5m) on one side of the road.

3.3 Pedestrian Network

As an Access Street, Pinnacle Drive is expected to have a 1.5m wide footpath on one side of the road.

3.4 Future Bus Route

It is expected that a bus route will operate in the future along Pinnacle Drive.

Indicative Bus Stop Pairs Locations and 400m Catchments shown below in **Figure 6**.

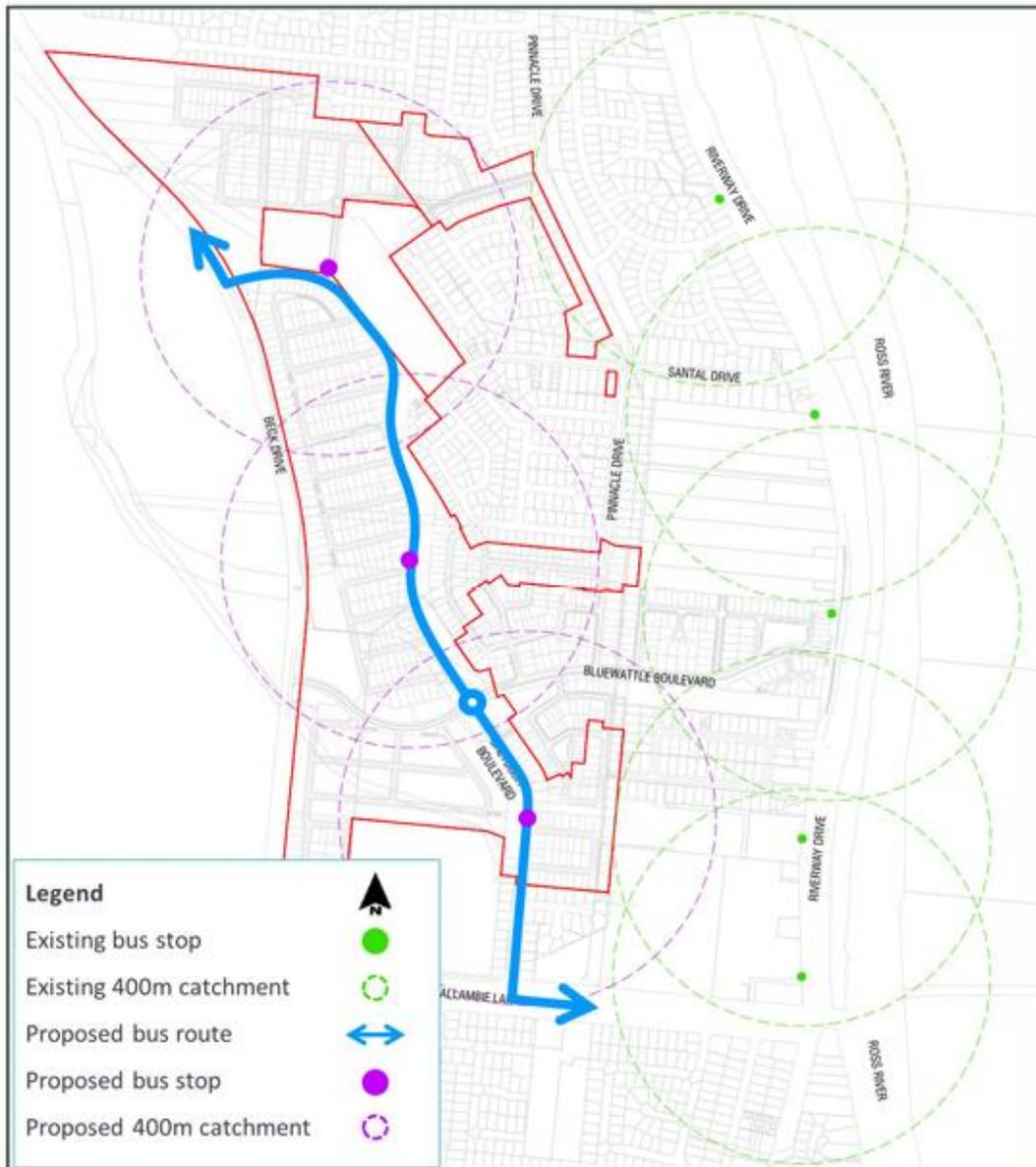


Figure 6: Indicative Bus Stop Pairs Locations and 400m Catchments

4. Earthworks

4.1 General

Earthworks operations were generally carried out along the following lines:

- The Superlot will be filled above Q100 (1% AEP) flood levels, while also allowing for sufficient stormwater/ floodwater conveyance and attenuation through the site,
- The Superlot will be reshaped with a minimum grade of 1 in 200 falling towards the road reserve to alleviate the need for rear of lot roof water drainage systems and the associated easements,
- Given the very flat nature of the Site, operating levels for linear wetlands, end of line wetlands and temporary sediment basins have been carefully considered to allow for a free draining outlet under South Beck Drive.

Proposed Stage 12A Lot 907 Superlot Earthworks Management Plan is shown in **Figure** below and is included as part of **Appendix B**.



Figure 7: Stage 12A - Concept Earthworks Management Plan

5. Stormwater

5.1 General

The proposed stormwater strategy to manage stormwater quantity, quality and overland flow has been developed in accordance with the Townsville City Plan.

Concept Stage 12A Roadworks and Stormwater Drainage Plan is shown in Figure 8 below and is included as part of Appendix B.

5.2 Topography and Site Drainage

The Site is largely flat (<0.3% gradient), with minimal fall from the south-east to the north-west with stormwater discharging generally to four existing culverts under South Beck Drive before ultimately continuing to the Bohle River.

The Site contains existing stormwater outlets and unlined open drains. Stormwater flows from existing land holdings from adjoining developed catchments are contained within several stormwater easements on the site. There is also a newly constructed HESB and buffer pond network which receives flows from the southern half of the site including the previous DHA development area.

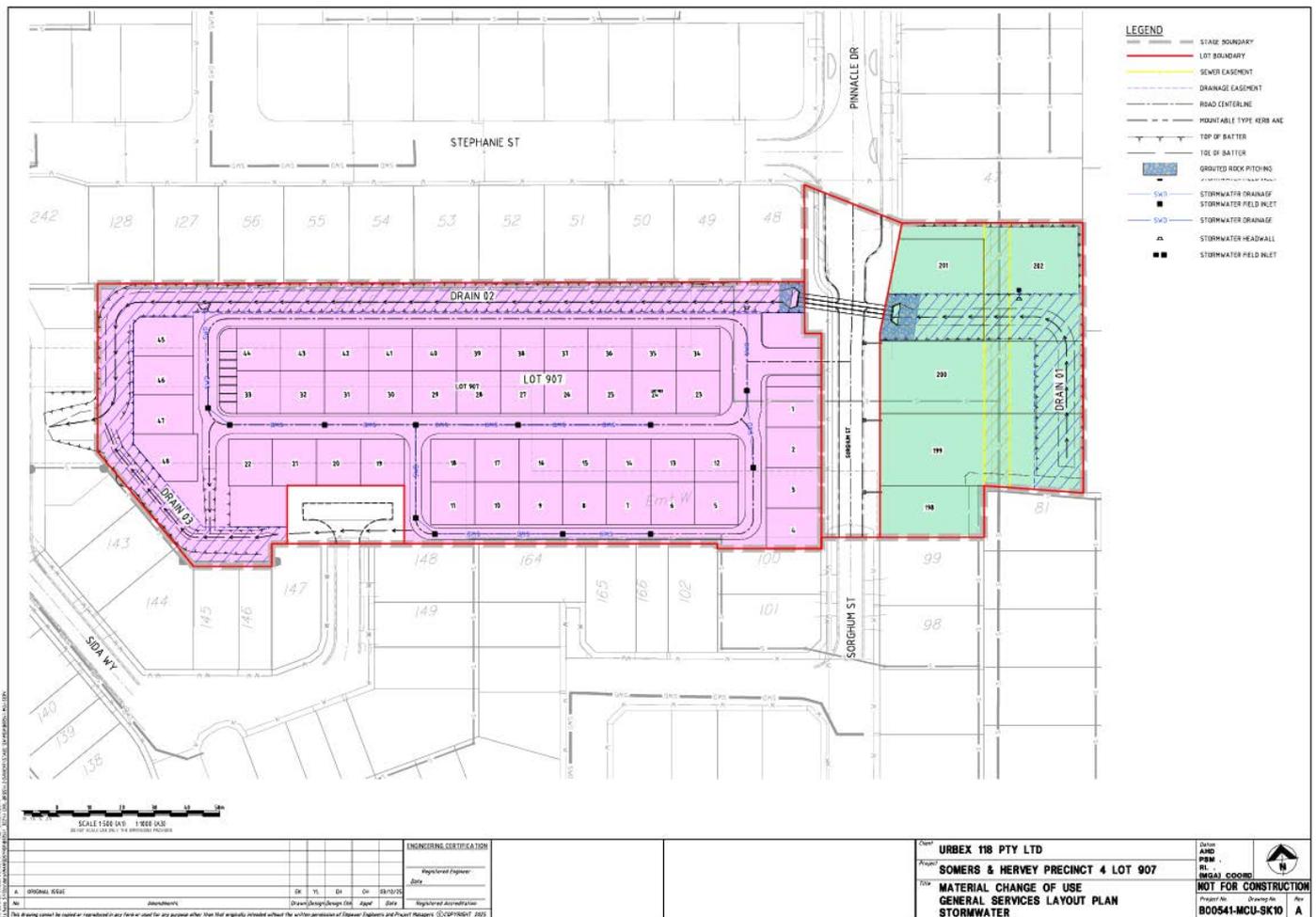


Figure 8: Stage 12A - Concept Roadworks and Stormwater Drainage Plan

5.3 Lawful Points of Discharge

Stage 12A, Lot 907 has one distinct point of discharge to the West via an open drain constructed as part of the Stage 12A works. Stormwater drainage will be connected into the existing open drain system then utilise the high efficiency sediment basin (HESB).

5.4 Proposed Infrastructure

The proposed stormwater infrastructure shall be designed in accordance with the *Townsville City Plan Schedule 6.4, SC6.4.8 Stormwater Management* and the *Queensland Urban Drainage Manual - Fourth Edition, 2016*.

Stage 12A, Lot 907 internal stormwater system designed in accordance with *AS/NZS 3500.3*.

5.4.1 Minor System

Road pit and pipe drainage will collect minor stormwater flows (2-year ARI, 39% AEP) stormwater which will be discharged to open drains and linear wetlands.

Stage 12A, Lot 907 internal stormwater system designed to collect 10-year ARI.

5.4.2 Major System

Major stormwater flows (100-year ARI, 1% AEP) will be contained within the road reserve and will discharge to either an open drain adjacent to South Beck Drive (0.20% gradient), an open drain to the east of Precinct 1 (0.25% gradient) or a linear wetland north of Treeline Drive/ Bluewattle Boulevard (flat base, no gradient).

Open drains will have a minimum longitudinal grade of 0.2% which is slightly flatter than the minimum grade of 0.3% nominated in the 'Townsville City Plan'.

5.5 Stormwater Quantity Management Strategy

This report shall be read in conjunction with:

- The Northern Consulting Engineers Pty Ltd 'Precinct 4 - Stage 12A - Somers & Hervey Estate, Rassmussen Residential Development Flood Impact Assessment dated 19 December 2025 included in **Appendix E**.

The proposed development increases the impervious area when compared with the pre-development scenario.

The interim stormwater quantity strategy is to install an appropriately sized sediment/ detention basin to ensure that the post development peak flows are mitigated to pre-development flow rates. High flow bypasses from the sediment basin will discharge over a spillway and into an open drain.

The ultimate strategy (once 80-90% of Precincts 1 and 2 are built out) is to convert the sediment basin into an end of line wetland. High flow bypasses from the wetland will discharge over a spillway and flow into the existing open drain.

Concept Roadworks and Drainage Plan is provided in **Drawing B00541-RAL-SK14, Rev A** located in **Appendix B**.

5.5.1 Flood Modelling

Peak 100-year ARI (1% AEP) overland flows within the proposed development can be contained wholly within the road and drainage reserves. All allotments are immune to the Q100 ARI flood event.

The results of the Flood Impact Assessment and subsequent addendums and Northern Consulting Engineers Pty Ltd Flood Impact Assessment cover letter dated 3 July 2025 in **Appendix D demonstrates that Stages 12A can be developed in accordance with the Townsville City Plan including Flood Hazard Overlay Code 8.2.6**.

Furthermore, it is considered that the mapping and reporting provided as part of the original URB0001-P2_FIA report still adequately represents the **flood impacts and conditions for the updated Stage 12A Lot 907 Superlot and comply with the flood hazard planning scheme policy and therefore the outcomes are still acceptable**.

5.5.2 Environmental Values and Ultimate Water Quality Objectives

Stormwater from the proposed development flows to four discharge points on South Beck Drive. All runoff eventually flows to the regionally significant Bohle River and subsequently to Halifax Bay.

Water Sensitive Urban Design (WSUD) aims to minimise the impact of a subdivision development on the natural water cycle by reducing the export of pollutants, sediments and nutrients from the site released into the natural watercourse. To treat the stormwater runoff from the site, various treatment devices are proposed to be used throughout the development area, and these concepts can be integrated into the overall design of the road layouts, road cross sections, stormwater layouts and water supply reticulation systems.

It is proposed that sediment, pollutants, and nutrients in the stormwater run-off will be treated so that the final discharge from the site will meet the following environmental guidelines:

- Construction and residential build out phases - State Planning Policy 2017 – Appendix 2 - Table A: Construction Phase – Stormwater Management Design Objectives, and
- Ultimate operational phase (following 80-90% build out of Precinct 1 and 2) - State Planning Policy 2017 – Appendix 2 - Table B: Post Construction Phase – Stormwater Management Design Objectives.

5.6 Stormwater Quality Management Strategy

This report shall be read in conjunction with the following:

- 'Bluewattle Development, Rasmussen - Updated Stormwater Quality Management Plan' prepared by DesignFlow dated 16 August 2022,
- 'Bluewattle Development - HES Basin Configuration Update Technical Memorandum' prepared by DesignFlow dated 6 May 2024,
- 'Somers & Hervey ESC Plan' prepared by Empower Engineers & Project Managers dated 3 June 2024,
- 'Bluewattle Development - HES Basin Configuration Update Technical Memorandum' prepared by DesignFlow dated 24 October 2024, and
- DesignFlow 'Somers & Hervey Estate - Precinct 4 - Stage 12A Development - Technical Memorandum' dated 5 December 2025 included in **Appendix F**.

As concluded in the 'Somers & Hervey Estate - Precinct 4 - Stage 12A Development - Technical Memorandum' prepared by DesignFlow dated 5 December 2025, Somers & Hervey, Precinct 4, Stage 12A development covers an area of approx. 2.995Ha. the Stormwater Treatment Strategy previously reported for the development has been determined based on ultimate development conditions. The catchment and drainage assumptions made relating to future development remain valid for Stage 12A development and the **stormwater treatment strategy previously reported is unaltered with the inclusion of Stage 12A**.

5.6.1 Erosion and Sediment Control

The erosion and sediment control strategy for Precinct 4 is detailed in the above reports, with the erosion and sediment control plan (ESCP) for Precinct 1 also referenced.

New erosion and sediment control plans will be prepared for each construction package once the extents of each package and construction programs are known.

5.6.1.1 High Efficiency Sediment Basin

The erosion and sediment control strategy for Precinct 4 includes the utilisation of a high efficiency sediment basin (HESB) with a Type E configuration. The intent is to buffer inflows and regulate discharge to a smaller treatment pond. This reduces the required footprint and is a more efficient treatment configuration.

As detailed in the latest referenced technical memorandum titled 'Bluewattle Development - HES basin configuration update', the original HESB design has been updated to include:

- Twin DN600 pipes connecting the buffer pond to the HESB, and
- Raising the HESB weirs to minimise the impacts of backwater.

5.6.2 Treatment Zones

The overall stormwater treatment strategy for the site is broken into two distinct treatment zones being:

- The Southern Treatment Zone (including Precinct 4 - Stage 12A Lot 907 Superlot) which treats approximately 23.7Ha of the development plus an additional 3.0Ha of the existing DHA development, and
- The Northern Treatment Zone which treats most of the development (approximately 44.8Ha) plus an additional 15.6Ha of the existing DHA development.

5.6.3 Southern Treatment Zone Strategy - Construction and Residential Build Out

The development of the site will involve land disturbance for the purpose of creating residential lots and the associated access roads.

During the construction phase, the most significant water quality objective will be that of suspended solids.

A temporary high efficiency sediment basin (HESB) with automated flocculant dosing will be installed at the bottom of the catchment and will have sufficient capacity to treat Stage 12A stormwater flows.

It is proposed that the HESB will be decommissioned and replaced with an end of line wetland (as part of future Precinct 3 works) when 80-90% of the build out is complete for Precincts 1, 2 and 4. This ensures that construction sediment is adequately managed and the proposed wetland treatments are staged to avoid excessive sediment loadings.

5.6.4 Southern Treatment Zone Strategy - Ultimate Operational Phase

The ultimate treatment strategy for the southern zone (following 80-90% build out of Precincts 1, 2 and 3 focuses on in-line linear wetlands and end of line wetlands. This strategy can be summarised as follows:

- Stormwater which falls within residential allotments shall fall towards the turfed road verges and into the pit and pipe network in the road reserve;
- Stormwater shall be conveyed to an open drain or linear wet land;
- The treatment train will commence at the outlet of the pipe network and stormwater will be treated by a vegetated open drain or linear wetland;
- Further treatment will occur at end of line wetland; and
- Once appropriately treated stormwater shall be discharged from the end of line wetland and subsequently from site.

In order to further control course sediment and gross pollutants entering the linear wetlands, a pre-treatment course sediment fore-bay and trash racks/socks will be installed at selected pipe outlets. Maintenance access to the sediment forebays will be provided by a 3m wide access ramp.

The linear wetlands are proposed to have a flat (0%) longitudinal grade with a 400mm deep permanently wetted invert and an additional 400mm deep ephemeral floodplain zone. The ephemeral floodplain zone has a notional detention time of 36 hours. Side batters are proposed to have a slope of 1V:3H and be vegetated.

Where the linear wetland is adjacent to properties, it is proposed that there will be a 3m wide maintenance access between the property boundary and the top of the liner wetland.

6. Sewerage Reticulation

6.1 General

This report shall be read in conjunction with:

- 'Water and Sewer Infrastructure Planning Report' prepared by DPM Water Pty Ltd, dated 19 September 2024.
- 'Stage 12A (48 Group Title Homes) Water & Sewer Infrastructure Planning Report' prepared by DPM Water Pty Ltd, dated December 2025 (Rev. A) included in **Appendix C**.

Concept Stage 12A Concept Sewer Reticulation Plan is shown in **Figure 9** below and is included as part of **Appendix B**.

6.2 Existing Infrastructure

The Upper Ross area is currently serviced with a reticulated sewer system that is directed to the Condon Sewerage Treatment Plant, located on the western side of the Bohle River.

Pump Station PS C5C is located on the northern end of St Lucia Drive towards the northeastern end of the Somers & Hervey Estate. PS C5C pumps sewage to the north and into a DN525 gravity sewer in the PS C6B catchment.

A DN450 gravity sewer extends to the south from PS C5C through to Allambie Lane (from MH 0/C5C to MH 16/C5C). Sewage from the eastern half of Kelso was previously directed via the DN450 sewer into PS C5C, however, in 2007 a DN450 diversion sewer was constructed along Allambie Lane from MH 16A/C5C to MH 38A/WT. This diversion directs sewerage flows into the Upper Ross DN600 western trunk sewer and onto PS C36A (Bowhunters Road). The eastern portion of the Somers & Hervey Estate is connected to this existing DN450 trunk sewer in the catchment of PS C5C, including Stage 12A.

6.3 Existing Capacity

According to the 'Water and Sewer Infrastructure Planning Report' there is capacity in the existing DN600 common pressure main and DN525 and DN450 gravity sewer mains to cater for additional peak wet weather flows generated from Precinct 4 of the Somers & Hervey Residential Estate.

The conversion of Stage 12A, Lot 907 of Precinct 4 into a super lot supporting development of 48 Low-Medium Density Housing products **will be adequately serviced with respect to sewer.**

Please refer to DPM Water Pty Ltd 'Stage 12A (48 Group Title Homes) Water & Sewer Infrastructure Planning Report', dated December 2025, Rev A in **Appendix C.**

6.4 Concept Infrastructure

It is proposed that sewer loads generated from Precinct 4 will be conveyed through existing Somers & Hervey stages to the existing DN600 trunk gravity main via DN150 and DN225 reticulation mains.

Internal gravity sewer mains shall be designed in accordance with AS/NZS 3500.2.

An operational works application is to be lodged with Townsville City Council and approved prior to the commencement of any construction works associated with sewerage infrastructure.

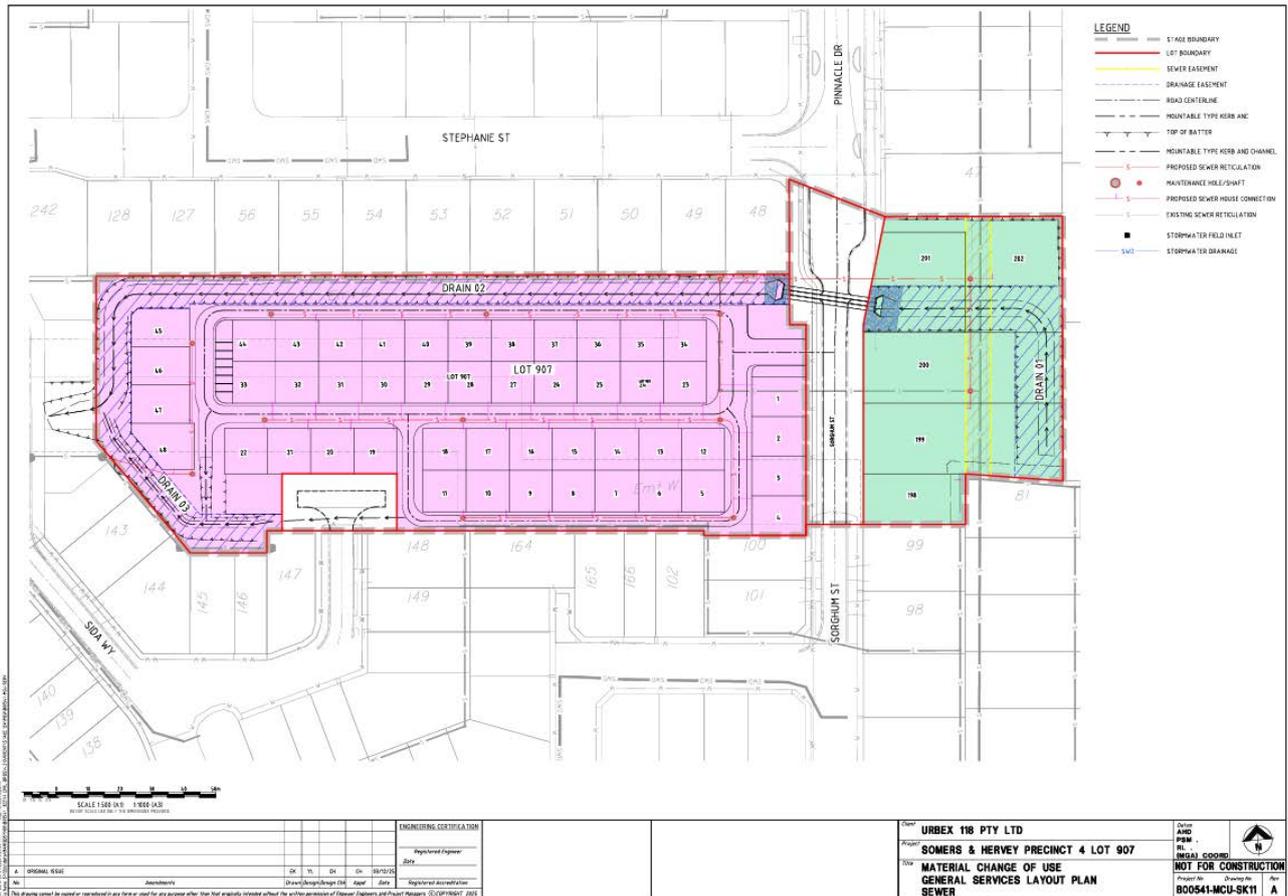


Figure 9: Stage 12A, Lot 907 - Proposed Sewerage Reticulation Plan

7. Water Supply

7.1 General

This report shall be read in conjunction with:

- 'Water and Sewer Infrastructure Planning Report' prepared by DPM Water Pty Ltd, dated 19 September 2024.
- DPM Water Pty Ltd 'Stage 12A (48 Group Title Homes) Water & Sewer Infrastructure Planning Report', dated December 2025, Rev. A included in **Appendix C**.

Concept Stage 12A Concept Water Reticulation Plan is shown in **Figure 10** below and is included as part of **Appendix B**.

7.2 Existing Infrastructure

The existing water infrastructure consists of both reticulation and trunk infrastructure.

The two (2) x 16.5 ML existing Douglas reservoirs (No. 2 and No. 3) are located on the foothills of Mt Stuart. These two (2) reservoirs are supplied from the Douglas Water Treatment Plant and have a base level of 54m AHD and a top water level of 64m AHD.

A DN300 water main extends to the west along Santal Drive from Riverway Drive to its current temporary end of this road. This includes a connection to the existing DN375 main at the Pinnacle Drive intersection.

7.3 Existing Capacity

Existing water infrastructure including a DN300 water main extending to the west along Santal Drive from Riverway Drive to its current temporary end of this road, and a connection to the existing DN375 main at the Pinnacle Drive intersection is adequately sized to service the existing residential developments in the Upper Ross area along with the inclusion of Precinct 4 of the Somers & Hervey Residential Estate.

The conversion of Stage 12A, Lot 907 into a single Superlot supporting development of 48 Low-Medium Density Housing products **will be adequately serviced with respect to water**.

Please refer to DPM Water Pty Ltd *Stage 12A (48 Group Title Homes) Water & Sewer Infrastructure Planning Report*, dated December 2025, Rev A in **Appendix C**.

7.4 Concept Infrastructure

To adequately service Somers & Hervey, Stage 12A, Lot 907 with respect to water reticulation, the following Water Infrastructure will be required:

- *DN150 PVC water main on the eastern side of Sorghum Street extension. This will be a 100m long section of DN150 water main on the eastern side of Sorghum Street extension and will connect to an existing DN150 PVC water main on the southern end and an existing DN150 AC water main on the northern end;*
- *This proposed DN150 PVC water main will link the reticulation network from the original stages of Somers & Hervey (formally Bluewattle Estate) to the original water network in the former Santal Park development area;*
- *The proposed DN150 PVC main on the eastern side of Sorghum Street will also service some planned residential lots on the eastern side of the road extension. The capacity of the new water main to service these additional residential lots on the eastern side of Sorghum Street will be included in a separate water assessment report.*
- *A new DN100 water main crossing under Sorghum St from the above DN150 PVC main. This DN100 water main crossing will deliver water to the entrance of the proposed Stage*

12A Group Title site (note, it is understood that a direct connection off the existing DN375 PVC trunk water main along the frontage of the development site will not be permitted by Townsville City Council.

Proposed Stage 12A, Lot 907 Superlot (48 Low-Medium Density Housing products) Water Reticulation Plan is shown in **Figure 10** and is included as part of **Appendix B**.

Design of Stage 12A, Lot 907 internal potable water reticulation will be in accordance with AS/NZS 3500.1.

It is proposed that all water infrastructure will be contained within road reserve verges.

An operational works application is to be lodged with Townsville City Council and approved prior to the commencement of any construction works associated with water infrastructure.

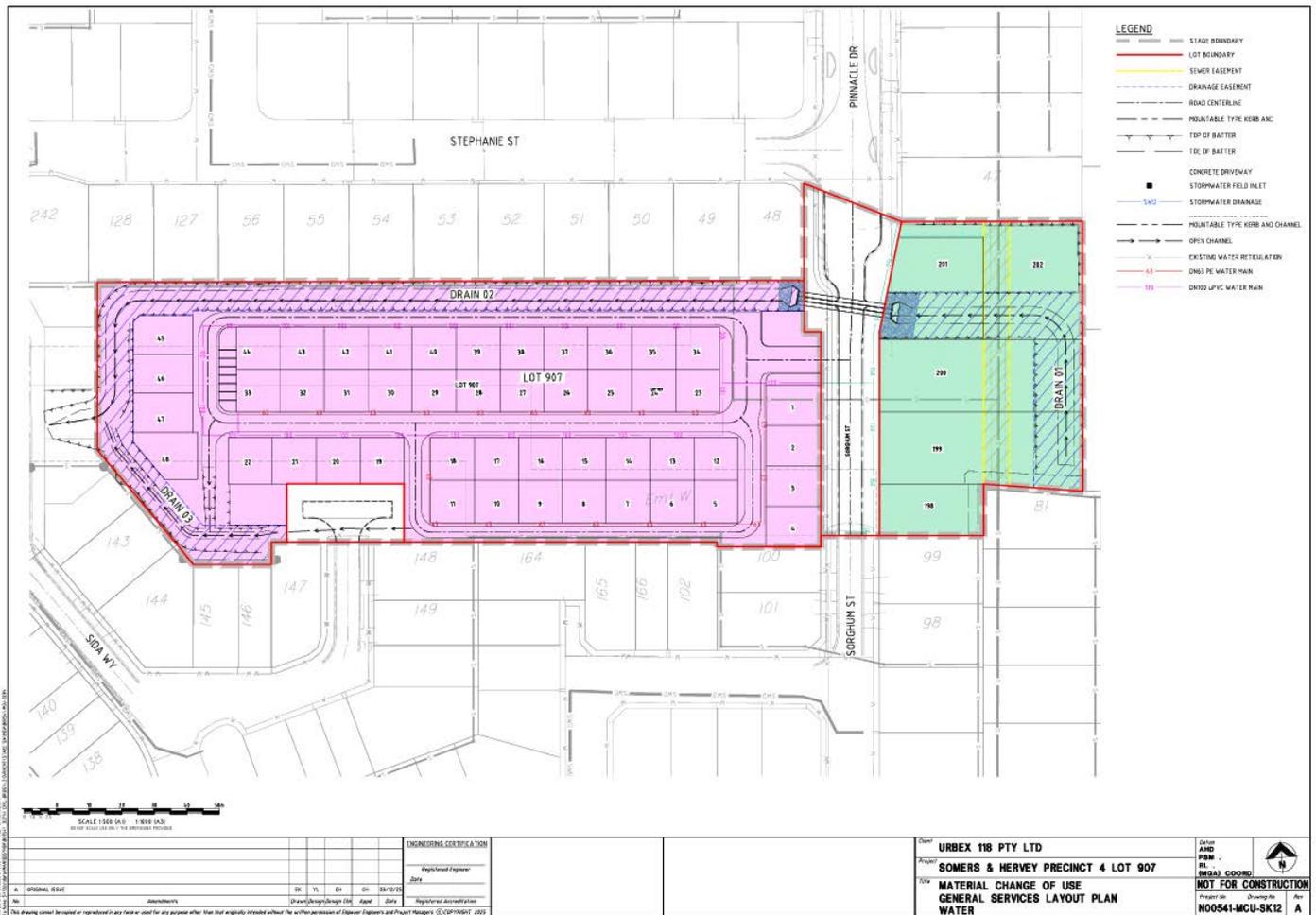


Figure 10: Stage 12A, Lot 907 - Proposed Water Reticulation Plan

8. Power and Communications

Design and negotiations by SPA Consulting Engineers are continuing with utility service providers for the supply of electricity and telecommunications to Stage 12A, Lot 907 of the Somers & Hervey Residential Estate.

9. Response to Relevant Council Codes

Refer to **Appendix G** for responses to Townsville City Council’s Works Code and **Appendix H** for responses to Townsville City Council’s Healthy Waters Code.

10. Proposed General Internal Services Layouts

Refer to **Appendix I** for General Internal Services Layout Plans reflective of the proposed 48 dwelling Low-Medium Density Housing development on Stage 12A with respect to **Stormwater, Sewerage and Water** services. Ultimate design of these services will be undertaken by the developer of the Stage 12A; however, these plans indicate feasible services reticulation options.

11. Concept Landscape Plans

Refer to **Appendix J** for Concept Landscape Plans reflective of the proposed 48 dwelling Low-Medium Density Housing development on Stage 12A. Ultimate design of these services will be undertaken by the developer of the Stage 12A; however, these plans indicate feasible landscape layout options.

12. Conclusion

This Infrastructure Assessment Report outlines the necessary infrastructure required to service Stage 12A of the Somers & Hervey Residential Estate in support of the MCU Application. The report has addressed the integration of proposed civil infrastructure with the existing infrastructure including roadworks, earthworks, erosion and sediment control, stormwater drainage, sewerage reticulation and water supply.

Stage 12A is ideal for infill development and consolidation of the residential suburb and existing landholdings to the north, south, and east. There is good connection to the existing DHA Bluewattle Estate via Bluewattle Boulevard and Pinnacle Drive.

The existing trunk water and sewer infrastructure are adequately sized to service the existing residential developments as well as Stage 12A of the Somers & Hervey Residential Estate in support of the MCU Application.

The results of the *Flood Impact Assessment* demonstrate that the proposed Stage 12A development can be carried out in accordance with the Townsville City Plan, and the development is expected to be non-worsening.

Empower Engineers & Project Managers considers Stage 12A of the Somers & Hervey Residential Estate suitable for infrastructure servicing and it is therefore recommended that Townsville City Council support the development of the site and the MCU Application.

Appendix A

Masterplan Layout



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- Legend**
- Site boundary
 - Previous Bluewattle Development
 - 1% AEP Digitised Flood Line
 - Existing sewer line
 - Linear Open Space and Stormwater quality.
 - Local Park
 - Superlot
- 1 Entry Statement.
 - 2 Stormwater treatment and flood mitigation. Create entry feature along the major collector road and connect to the extended Birdwing Park.
 - 3 Preserve view line to Birdwing Park (Tower slide).
 - 4 Future Community Facility
 - 5 Emergency vehicle connection
 - 6 Minor Collector - 1 x 2.5m shared Path, 1x 1.5m path, 1 x 2.4m parking, double street tree planting.
 - 7 Possible realignment of sewer required. Cost benefit analysis required.
 - 8 Precinct 4 - Part access via existing developed areas.
 - 9 Secondary pedestrian spine. Embellish with additional landscaping road breaks.
 - 10 Land swap to facilitate minimum curve radius for pavement design.
 - 11 Embellish existing Neil McCarthy Park in lieu of providing district sports parkland. Negotiate I.A.

Note:
All Lot Numbers, Dimensions and Areas are approximate only, and are subject to survey and Council approval.
Dimensions have been rounded to the nearest 0.1 metres.
Areas have been rounded down to the nearest 5m².
The boundaries shown on this plan should not be used for final detailed engineers design.
Source Information:
Site boundaries: Registered Survey Plans.
Adjoining Information: DCDB August 2021
Contours: Detail Survey
Aerial photography: Near Map
Environment constraints: Digitised 1% AEP

PLAN REF: 150498 - 09b
DATE: 14 AUGUST 2022
CLIENT: URBEX
DRAWN BY: MJB
CHECKED BY: MJB

**BLUEWATTLE
CONCEPT YIELD PLAN
OPTION 3 - NO DISTRICT SPORTS**



URBAN DESIGN
Unit 1
5-7 Barlow Street
South Townsville QLD 4810
T +61 7 4724 4244
W rpsgroup.com



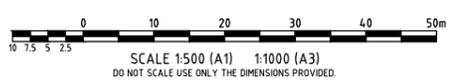
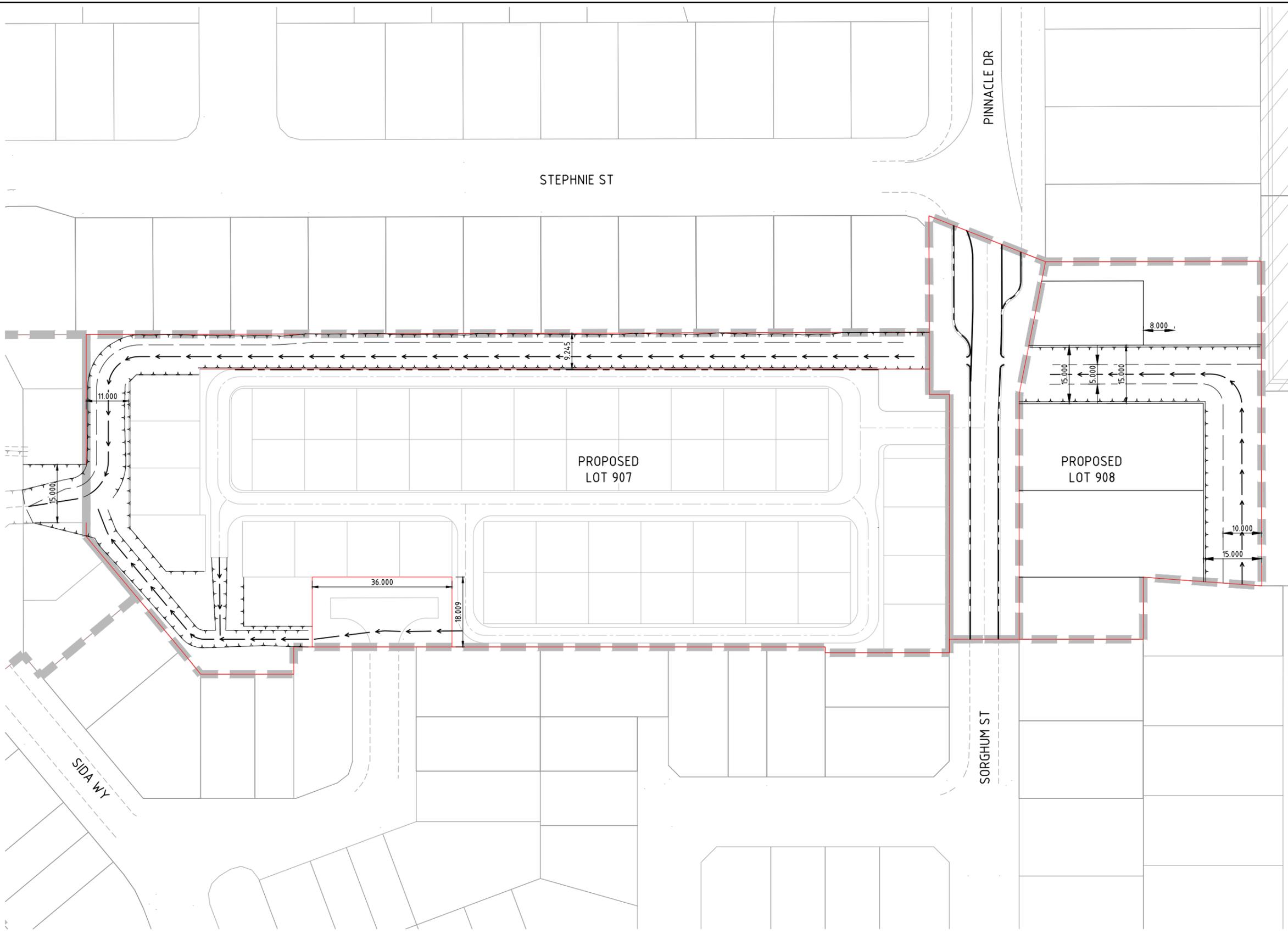
Appendix B

Stages 12A, Lot 907 Superlot
Proposed Civil Design Drawings



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| LEGEND | |
|--------|-----------------|
| | STAGE BOUNDARY |
| | LOT BOUNDARY |
| | ROAD CENTERLINE |
| | TOP OF BATTER |
| | TOE OF BATTER |
| | EDGE OF BITUMEN |
| | OPEN CHANNEL |



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| Date | | | | | |
| Registered Accreditation | | | | | |

Somers & Hervey
ESTATE

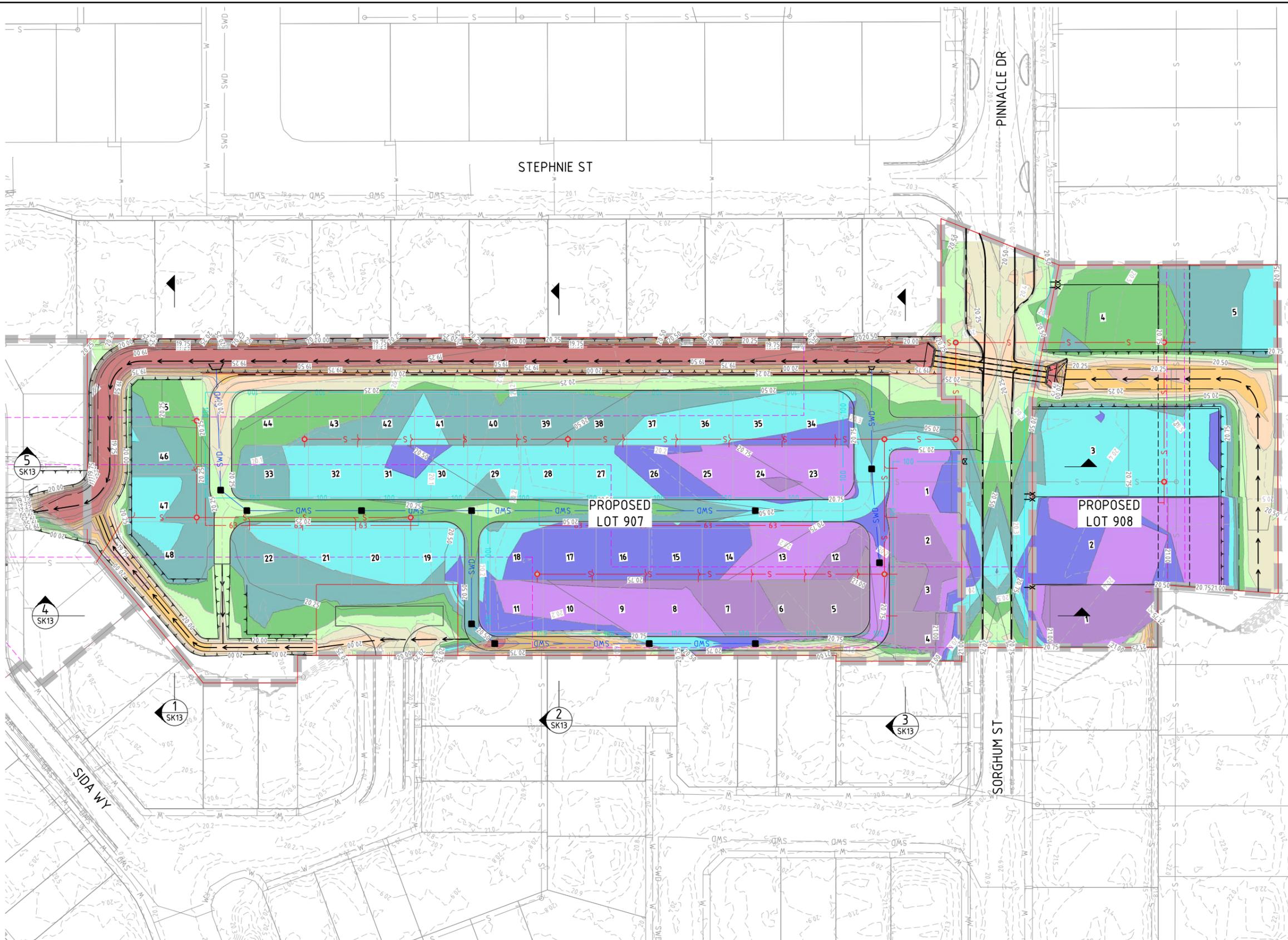
URBEX

EMPOWER

| | |
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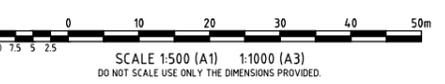
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| Drawing No. | |
| Rev | A |





- LEGEND**
- 57.50--- FINISHED SURFACE CONTOURS (0.25m INTERVALS)
 - 5.50--- EXISTING SURFACE CONTOURS
 - LOT BOUNDARY
 - LOT EASEMENT
 - ROAD CENTERLINE
 - TOP OF BATTER
 - TOE OF BATTER
 - EDGE OF BITUMEN
 - OPEN CHANNEL
 - SWD --- STORMWATER DRAINAGE
 - S --- SEWER RETICULATION
 - STORMWATER CULVERT
 - 100 --- Ø100 WATER RETICULATION
 - 63 --- Ø63 WATER RETICULATION
 - EXISTING EASEMENT

- EARTHWORKS DEPTH RANGE**
fin EXISTING TO fin DESIGN (0.10m INTERVALS)
- | | |
|--------------------|-------------------|
| FILL 0.70m + | CUT 0.00m - 0.10m |
| FILL 0.60m - 0.70m | CUT 0.10m - 0.20m |
| FILL 0.50m - 0.60m | CUT 0.20m - 0.30m |
| FILL 0.40m - 0.50m | CUT 0.30m - 0.40m |
| FILL 0.30m - 0.40m | CUT 0.40m - 0.50m |
| FILL 0.20m - 0.30m | CUT 0.50m - 0.60m |
| FILL 0.10m - 0.20m | CUT 0.60m - 0.70m |
| FILL 0.00m - 0.10m | CUT 0.70m + |



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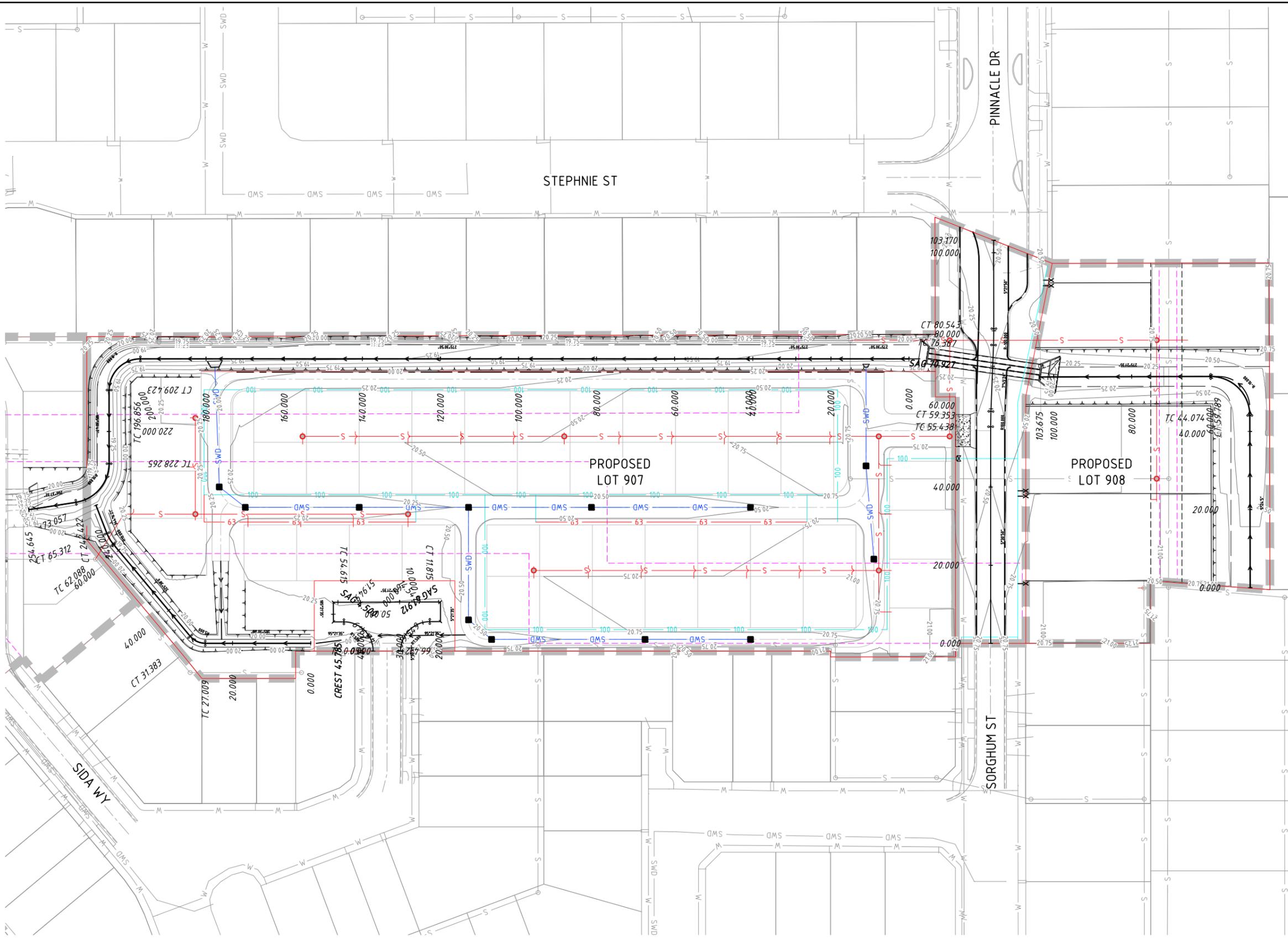
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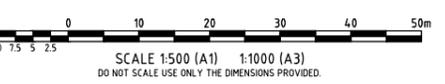


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| Project | SOMERS & HERVEY PRECINCT 4 |
| Title | EARTHWORKS MANAGEMENT PLAN |

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| PSM | RL |
| (MGA) COORD | |
| NOT FOR CONSTRUCTION | |
| Project No. | Drawing No. |
| B00541-RAL-SK12 | A |



- LEGEND**
- STAGE BOUNDARY
 - - - -57.50- - - FINISHED SURFACE CONTOURS (0.25m INTERVALS)
 - LOT BOUNDARY
 - - - - LOT EASEMENT
 - ROAD CENTERLINE
 - TOP OF BATTER
 - TOE OF BATTER
 - EDGE OF BITUMEN
 - OPEN CHANNEL
 - SWD STORMWATER DRAINAGE
 - S SEWER RETICULATION
 - CONCRETE DRIVEWAY
 - STORMWATER CULVERT
 - WATER RETICULATION
 - TRUNK WATER RETICULATION BY OTHERS NOT PART OF SUBDIVISION WORKS
 - E ELECTRICAL CONDUIT
 - NBN ELECTRICAL NBN CONDUIT
 - CONCRETE PATHWAY
 - SUBSOIL DRAINAGE
 - MOUNTABLE TYPE KERB AND CHANNEL
 - EXISTING EASEMENT
 - 100 Ø100 WATER RETICULATION
 - 63 Ø63 WATER RETICULATION



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| A | ORIGINAL ISSUE | EK | YL | CH | CH | 24/11/25 |
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ENGINEERING CERTIFICATION

Registered Engineer
Date

Registered Accreditation



Client **URBEX**

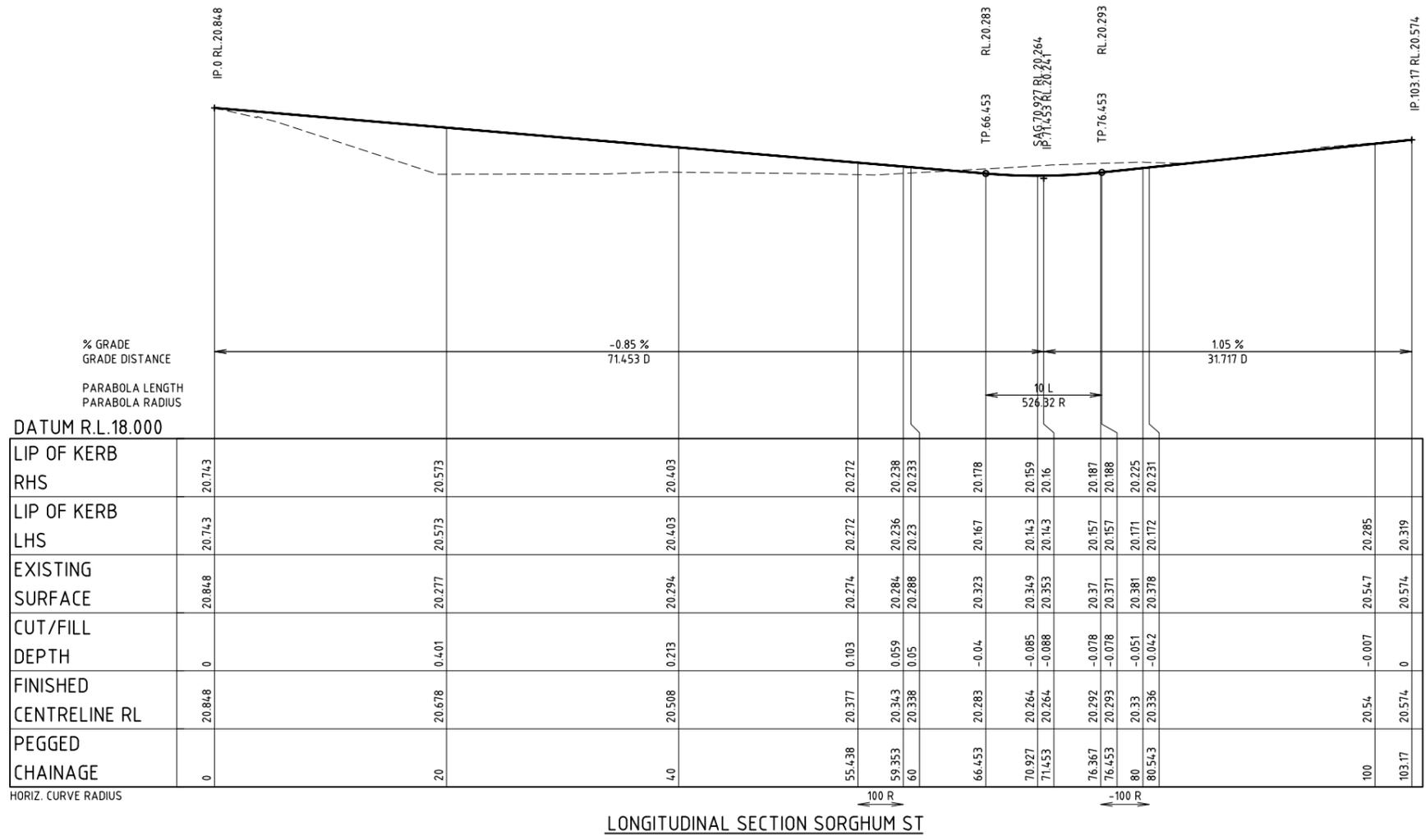
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NOT FOR CONSTRUCTION

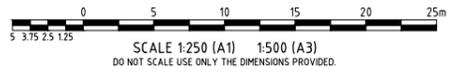
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B00541-RAL-SK14 A



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|---------------------------|--------|------------------------------------|--------|---------------------|--------|
| LIP OF KERB RHS | 20.743 | 20.573 | 20.403 | 20.272 | 20.238 |
| LIP OF KERB LHS | 20.743 | 20.573 | 20.403 | 20.272 | 20.233 |
| EXISTING SURFACE | 20.848 | 20.277 | 20.294 | 20.274 | 20.288 |
| CUT/FILL DEPTH | 0 | 0.401 | 0.213 | 0.103 | 0.05 |
| FINISHED CENTRELINE RL | 20.848 | 20.678 | 20.508 | 20.377 | 20.343 |
| PEGGED CHAINAGE | 0 | 20 | 40 | 55.438 | 59.353 |
| | | | | 66.453 | 70.927 |
| | | | | 71.453 | 76.367 |
| | | | | 76.453 | 80 |
| | | | | 80.543 | 100 |
| | | | | 103.17 | 103.17 |

LONGITUDINAL SECTION SORGHUM ST

SCALE 1:250 (HORIZ.) 1:25 (VERT.)



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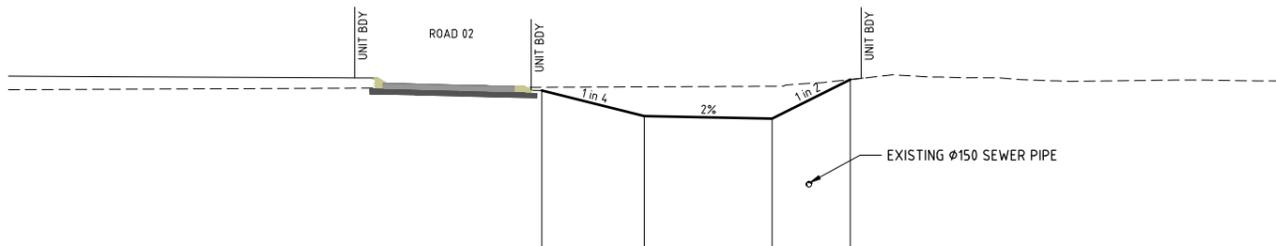
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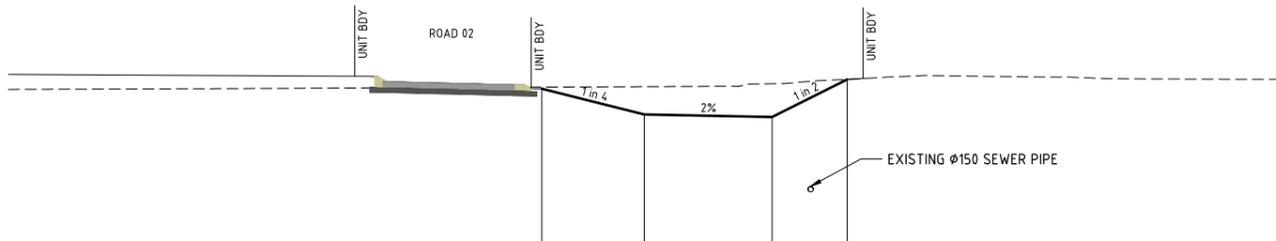
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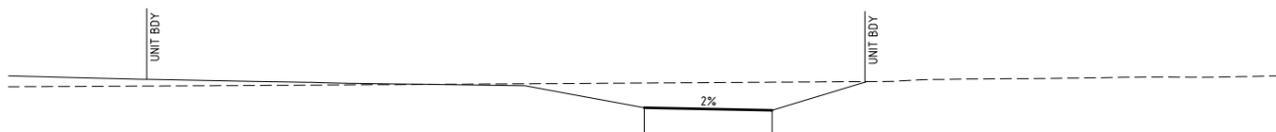
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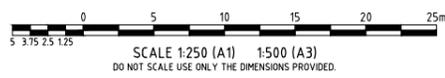
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| EXISTING SURFACE LEVEL | 20.282 |
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CH 20



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CH 0



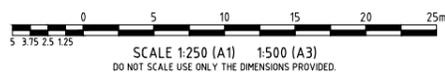
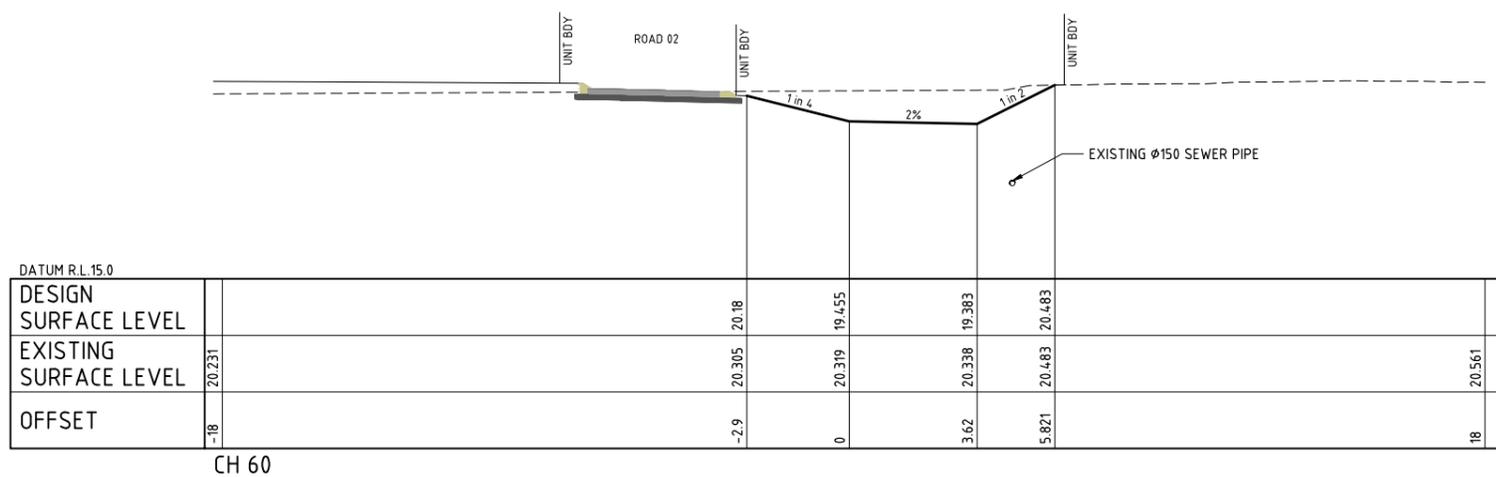
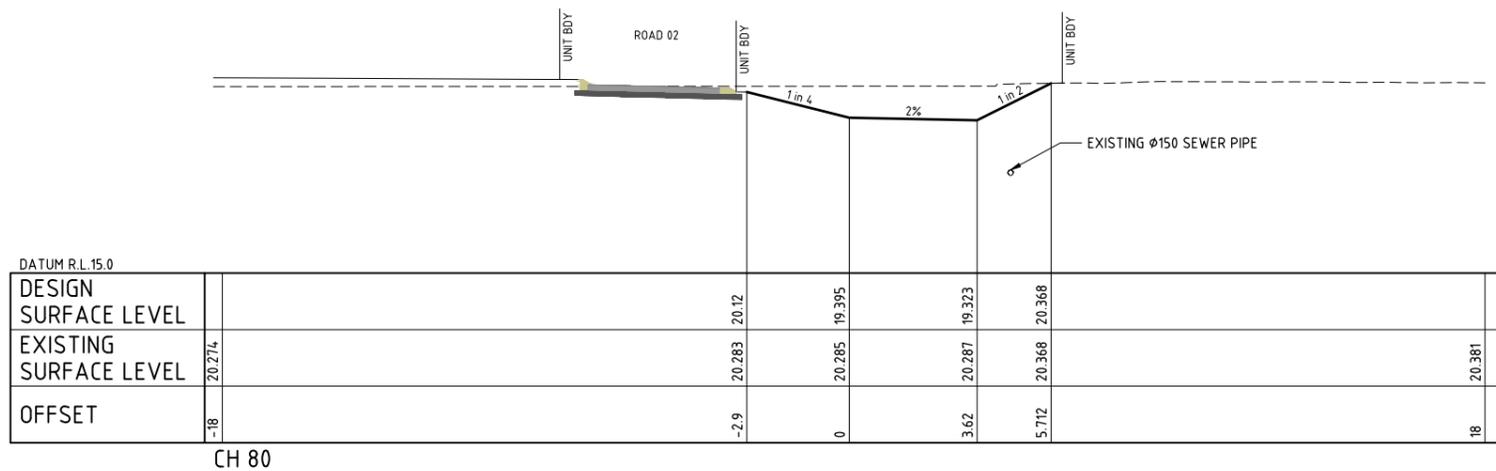
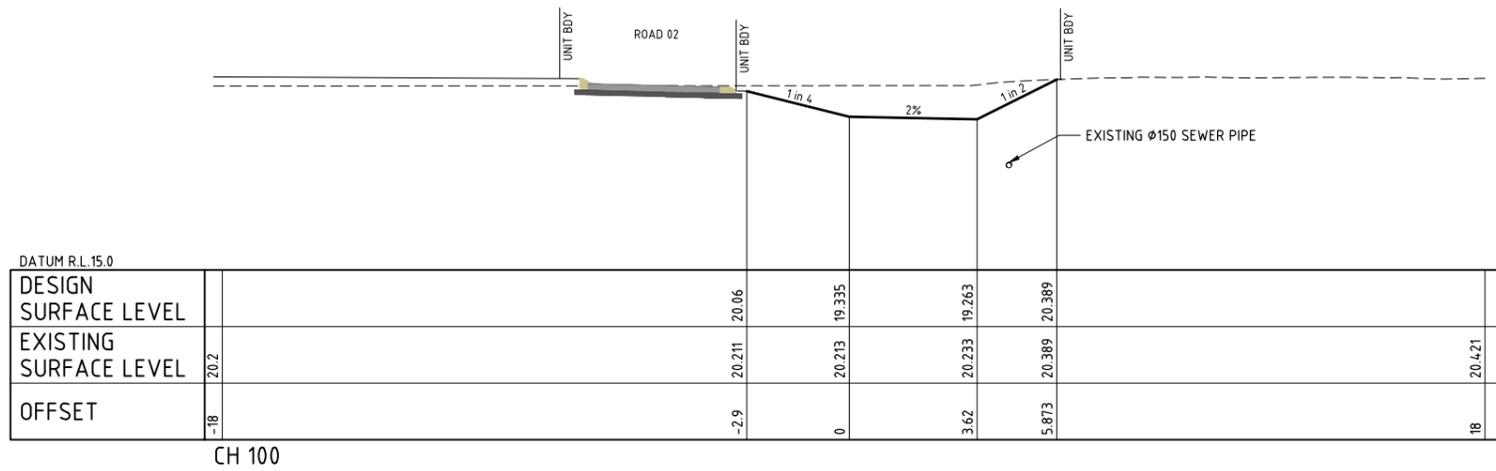
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| Registered Accreditation | |



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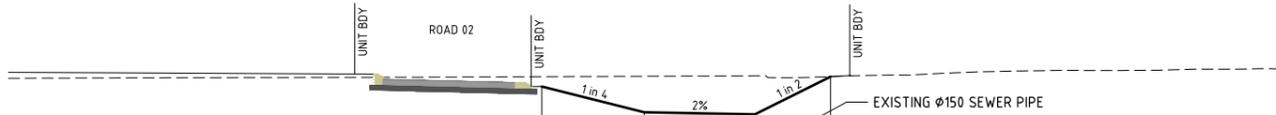
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| Registered Accreditation | |



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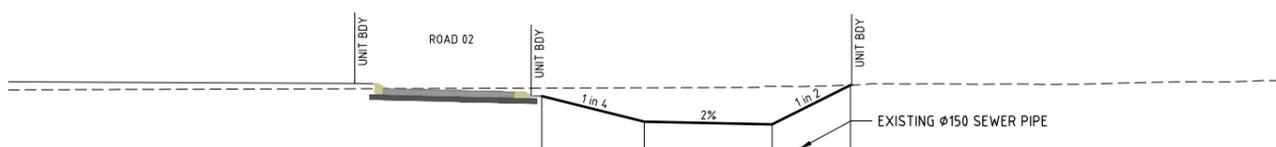




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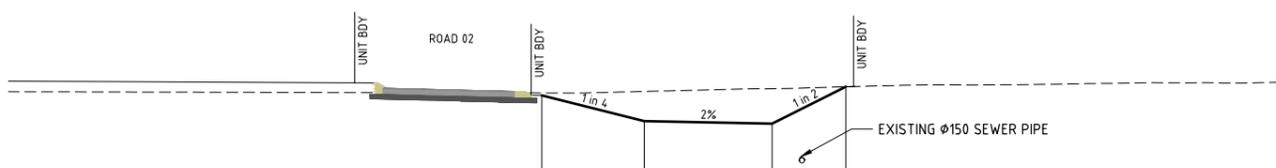
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DATUM R.L. 16.0

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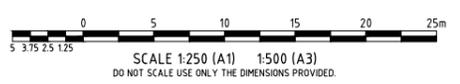
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| EXISTING SURFACE LEVEL | 20.106 | 20.071 | 20.114 | 20.191 | 20.246 | 20.373 |
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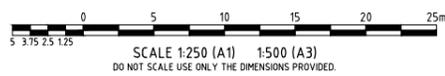
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| EXISTING SURFACE LEVEL | 20.178 | 20.145 | 20.168 | 20.196 | 20.289 |
| OFFSET | -18 | 0 | 3 | 5.442 | 18 |

CH 200

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| DESIGN SURFACE LEVEL | | | | | |
| EXISTING SURFACE LEVEL | 20.337 | 20.169 | 20.181 | 20.256 | 20.428 |
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CH 180



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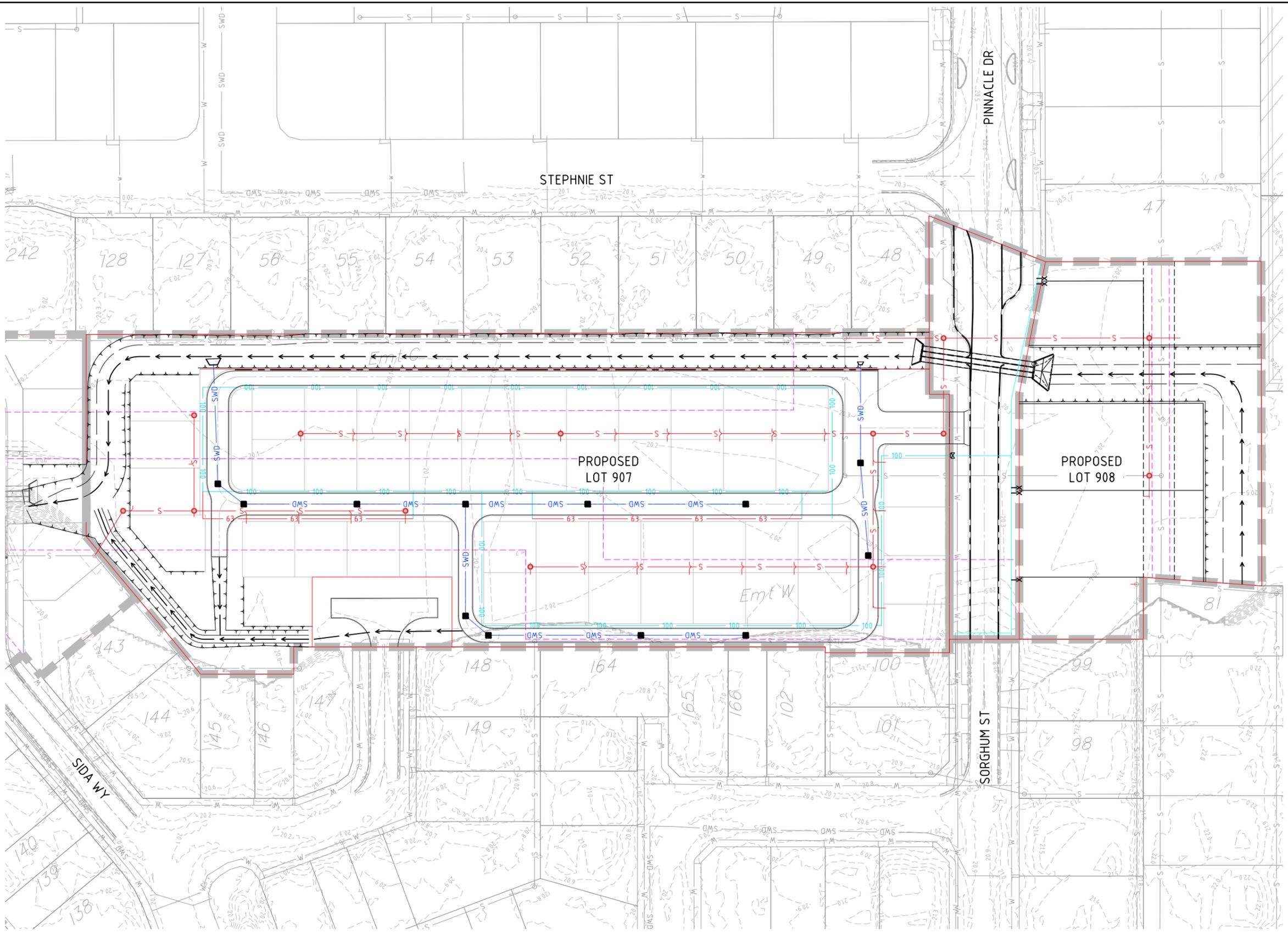


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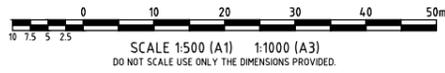
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- LEGEND**
- STAGE BOUNDARY
 - - - - - EXISTING SURFACE CONTOURS
 - EXISTING LOT BOUNDARY
 - PROPOSED LOT BOUNDARY
 - SWD EXISTING STORMWATER DRAINAGE
 - S EXISTING SEWER RETICULATION
 - EXISTING WATER RETICULATION
 - E EXISTING UNDERGROUND POWER
 - EXISTING OVERHEAD POWER
 - EXISTING TELSTRA LINE
 - EXISTING NBN LINE
 - EXISTING GAS LINE
 - S PROPOSED SEWER RETICULATION MAIN
 - PROPOSED WATER RETICULATION MAIN
 - PROPOSED WATER CONDUIT CROSSING
 - SWD PROPOSED STORMWATER DRAINAGE
 - E PROPOSED ELECTRICAL CONDUIT
 - NBN PROPOSED NBN CONDUIT
 - - - - - EXISTING EASEMENT
 - 100 Ø100 WATER RETICULATION
 - 63 Ø63 WATER RETICULATION



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ENGINEERING CERTIFICATION

Registered Engineer
Date

Registered Accreditation



Client **URBEX**

Project **SOMERS & HERVEY PRECINCT 4**

Title **COMBINED SERVICES PLAN**

Datum **AHD**
 PSM
 RL
 (MGA) COORD

NOT FOR CONSTRUCTION

Project No. Drawing No. Rev
B00541-RAL-SK20 A

Appendix C

DPM Water Stage 12A (48 Group Title Homes) Water & Sewer
Infrastructure Planning Report, Rev. A

December 2025



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URBEX PTY LTD

SOMERS & HERVEY ESTATE

**STAGE 12A (48 GROUP TITLE HOMES)
WATER & SEWER INFRASTRUCTURE
PLANNING REPORT**

Dec 2025 (Rev A)

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2 POPULATION ASSESSMENT 3

3 WATER SUPPLY PLANNING 4

 3.1 Somers & Hervey Stage 12A Performance 5

4 SEWER INFRASTRUCTURE PLANNING 7

 4.1 Somers & Hervey Stage 12A - Sewer Capacity Assessment 8

Appendix A – Somers & Hervey Estate – Stage 12A Preliminary Development Figures
 Appendix B – Somers & Hervey Stage 12A WaterGEMS Modelling Figures & Results
 Appendix C – Somers & Hervey Stage 12A SewerGEMS Modelling Figures & Results

DOCUMENT STATUS

| Revision | Purpose | Date |
|----------|-----------------|-----------|
| A | Initial Version | 5/12/2025 |

DOCUMENT AUTHORISATION

| | |
|-----------|---|
| AUTHOR | DESMOND MOSELEY |
| Signature |  |

1 INTRODUCTION

The Somers & Hervey Estate (formally Bluewattle Estate) is situated on the eastern side of South Beck Drv and to the west of Riverway Drv in Rasmussen. The southern boundary of the site is a combination of Allambie Lane, The Good Shepherd Catholic School and some existing residential lots while the northern boundary includes existing residential lots generally along Amber Ave. The previous Santal Park development is located in the central portion of the development site.

The development site was acquired by Urbex Pty Ltd in 2022 from Defense Housing Australia (DHA) who had developed a number of residential lots on both sides of Bluewattle Boulevard. Prior to DHA owning the site it was part of the Santal Park development.

The remaining undeveloped area of the Somers & Hervey Estate is expected to yield around 848 residential lots. The final development layout and yield will likely be adjusted over time as more detailed development planning is undertaken for future precincts. The recent “Somers & Hervey Estate – Overall Development & Precinct 1 Water & Sewer Infrastructure Planning Report (DPM Water – August 2024)” assesses the performance of the water & sewer system for the full development yield.

This report details the network modelling and infrastructure sizing for the proposed 48 Group Title Homes in Stage 12A of the Somers & Hervey area. The following image illustrates the proposed 48 Group Title Homes.

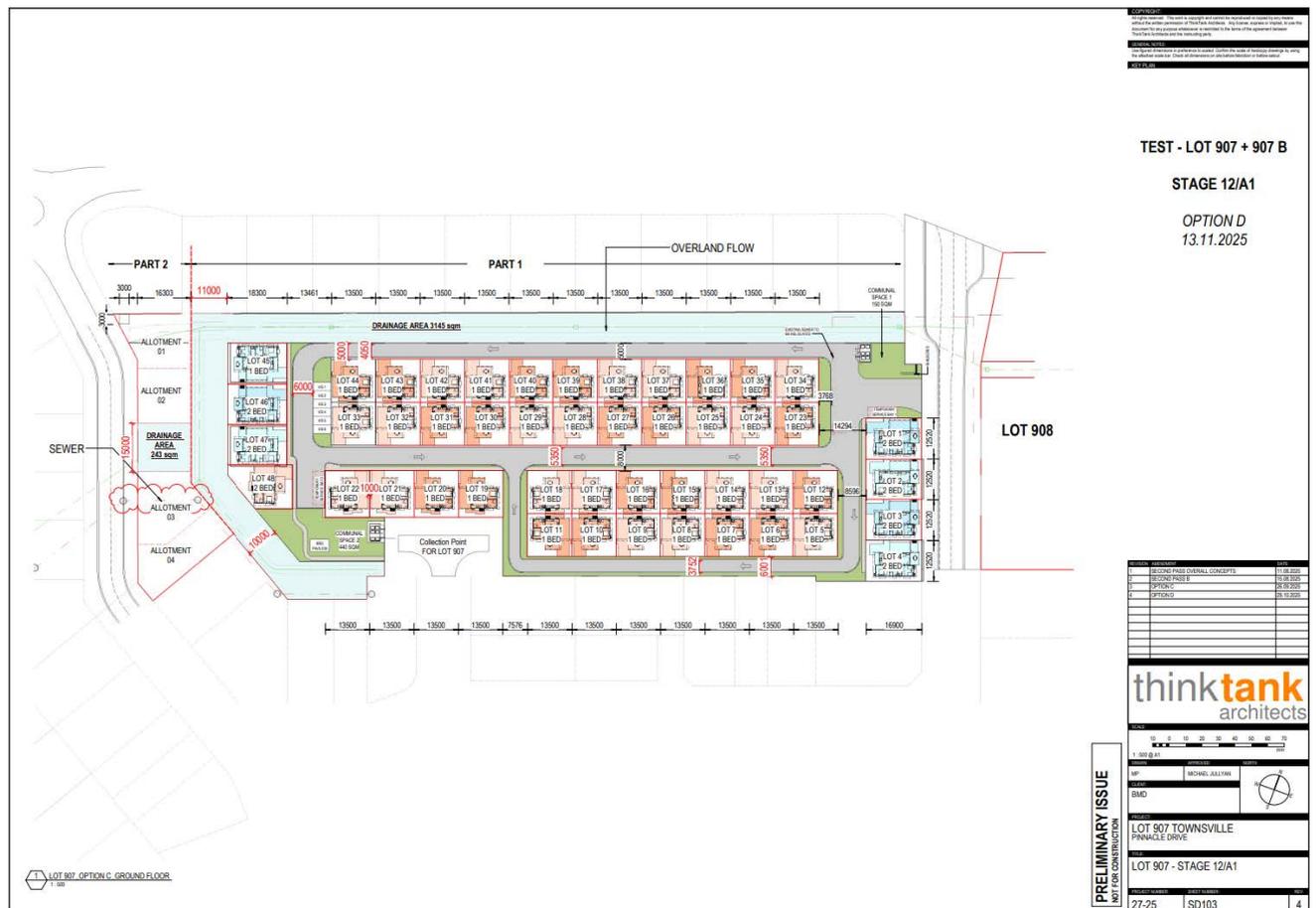


Figure 1 – Somers & Hervey Estate – Stage 12A

The following report sections detail the water & sewer system performance to service Stage 12A of the Somers & Hervey development.

2 POPULATION ASSESSMENT

The population assessment for the Stage 12A Group Title site along with the recent development lots in Precinct 2 of the Somers & Hervey estate is provided in Table 2.1 and 2.2 below.

Table 2.1 – Somers & Hervey Estate – Water Population Assessment

| Precinct | Development Type | Loading Rate | EP |
|-------------------------|--|----------------------------|----------|
| 1 | Residential – 117 lots | 2.8 EP/lot | 327.6 EP |
| 2 (Stage 3C) | Residential – 28 lots | 2.8 EP/lot | 78.4 EP |
| 2 (Stage 4A) | Residential – 48 group title homes | 1.8 EP/lot | 82.8 EP |
| 2 (Stage 4B) | Residential – 21 lots | 2.8 EP/lot | 58.8 EP |
| 2 (Stage 4C) | Residential – 9 lots | 2.8 EP/lot | 25.2 EP |
| 2 (Stage 4D) | Commercial – 1 lot (3,116 m ²) | 2.11 EP/100 m ² | 65.7 EP |
| 2 (Stage 4E) | Residential – 3 lots | 2.8 EP/lot | 8.4 EP |
| Stage 12A | Residential – 48 group title homes | 1.8 EP/lot | 86.4 EP |
| Riverstone (Precinct 1) | Residential – 171 lots | 2.8 EP/lot | 478.8 EP |

Table 2.2 – Somers & Hervey Estate – Sewer Population Assessment

| Precinct | Development Type | Loading Rate | EP |
|-------------------------|--|----------------------------|----------|
| 1 | Residential – 117 lots | 2.8 EP/lot | 327.6 EP |
| 2 (Stage 3C) | Residential – 28 lots | 2.8 EP/lot | 78.4 EP |
| 2 (Stage 4A) | Residential – 48 group title homes | 1.8 EP/lot | 82.8 EP |
| 2 (Stage 4B) | Residential – 21 lots | 2.8 EP/lot | 58.8 EP |
| 2 (Stage 4C) | Residential – 9 lots | 2.8 EP/lot | 25.2 EP |
| 2 (Stage 4D) | Commercial – 1 lot (3,116 m ²) | 2.74 EP/100 m ² | 85.4 EP |
| 2 (Stage 4E) | Residential – 3 lots | 2.8 EP/lot | 8.4 EP |
| Stage 12A | Residential – 48 group title homes | 1.8 EP/lot | 86.4 EP |
| Riverstone (Precinct 1) | Residential – 171 lots | 2.8 EP/lot | 478.8 EP |

The above equivalent population has been used to assess the performance of the existing water and sewer infrastructure that services the Upper Ross area and the expansion of the Somers & Hervey Estate, specifically the 48 group title homes proposed for Stage 12A.

In addition to the above, a residential development is underway on the western side of Beck Drv being the Riverstone development. The initial stages of the Riverstone development are under construction and will be serviced from the extension of the DN300 water main on Bluewattle Blvd. The 171 lots associated with the initial Precinct 1 of the Riverstone development has also been included in the water & sewer network modelling to confirm the existing and proposed infrastructure is able to service the expansion of the Somers & Hervey Estate site, specifically Stage 12A Group Title site, along with the Riverstone development.

3 WATER SUPPLY PLANNING

Water network modelling has been undertaken for the Kirwan and Upper Ross areas of Townsville, which includes the Somers & Hervey Estate. The water network modelling has been updated over a number of years as the development layout, lot yields and design standards have changed.

The existing water supply system that services the Somers & Hervey Estate and Upper Ross area is summarised below:

- The existing 2 x 16.5 ML Douglas No 2 & 3 reservoirs that are located on the foothills of Mt Stuart. These two reservoirs are supplied from the Douglas WTP and have a base level of 54mAHD and a top water level of 64mAHD.
- DN600 MSCL trunk water main outlet from the reservoir that extends along Angus Smith Drv and then along the northern boundary of the Douglas WTP to Ross River. The DN600 main crosses under Ross River from Douglas to Condon. A parallel DN375 main was taken out of service (damaged) in 2019 following the Townsville floods.
- A replacement DN750 PE water main was constructed under Ross River in 2022 and interconnected to the existing DN600 and DN300 water mains on the western side of Riverway Drv and to the existing DN900 MSCL water main on the eastern (Douglas WTP) side of the river.
- The existing DN300 AC water main on the western side of Riverway Drv extends to the south through to Allambie Lane and have several offtakes from it to service the existing residential areas.
- The existing DN600 DICL/AC water main on the western side of Riverway Drv extends to the intersection with Gouldian Ave and then extends to the west along Gouldian Ave to Pinnacle Drv (as a DN500 DI main). The DN600 AC main continues to the south along Riverway Drv but is the pumped main that supplies the Ponti Rd reservoir and the Kelso water supply area.
- A DN500/450/375 water main connects to the above DN500 DI main on Gouldian Ave and continues to the south along Pinnacle Drive and then Sorghum St to Bluewattle Boulevard. This trunk water main runs along the Sorghum St frontage of the proposed Stage 12A site.
- There is a short section of Pinnacle Drv/Sorghum St that has not yet been constructed which is the frontage of the development site. A short section of new DN150 water main will be constructed along this section of road (on the eastern side) and will service the proposed Stage 12A Group Title development site.
- A DN300 water main extends to the west along Santal Drive from Riverway Drive to its current temporary end of this road. This includes a connection to the existing DN375 main at the Pinnacle Drive intersection.
- A DN300 water main extends to the west along Bluewattle Boulevard from Riverway Drive through to South Beck Drv. A DN375 main then extends to the north along South Beck Drv to the entrance of the Riverstone residential development area.

The above illustrates the Upper Ross area and Somers & Hervey Estate is well serviced with a trunk water network including the proposed Stage 12A Group Title development site.

The performance of the existing water network to service Stage 12A of the Somers & Hervey Estate and the other existing developments in the Rasmussen area is provided in the following report sections.

3.1 Somers & Hervey Stage 12A Performance

Stage 12A of Somers & Hervey is located on the western side of the un-constructed section of road on the northern extension of Sorghum St through to the southern end of existing Pinnacle Drv. This section of planned road reserve already has a DN375 trunk water main along its western side.

To service the Stage 12A Group Title development area, the following water infrastructure will be required:

- DN150 PVC water main on the eastern side of Sorghum St extension. This will be a 100m long section of DN150 water main on the eastern side of Sorghum St extension and will connect to an existing DN150 PVC water main on the southern end and an existing DN150 AC water main on the northern end.
- This proposed DN150 PVC water main will link the reticulation network from the original stages of Somers & Hervey (formally Bluewattle Estate) to the original water network in the former Santal Park development area.
- The proposed DN150 PVC main on the eastern side of Sorghum St will also service some planned residential lots on the eastern side of the road extension. The capacity of the new water main to service these additional residential lots on the eastern side of Sorghum St will be included in a separate water assessment report.
- A new DN100 water main crossing under Sorghum St from the above DN150 PVC main. This DN100 water main crossing will deliver water to the entrance of the proposed Stage 12A Group Title site. It is understood that a direct connection off the existing DN375 PVC trunk water main along the frontage of the development site will not be allowed by TCC.

The existing and proposed water infrastructure to service Stage 12A is illustrates on the extract from Council's GIS below.

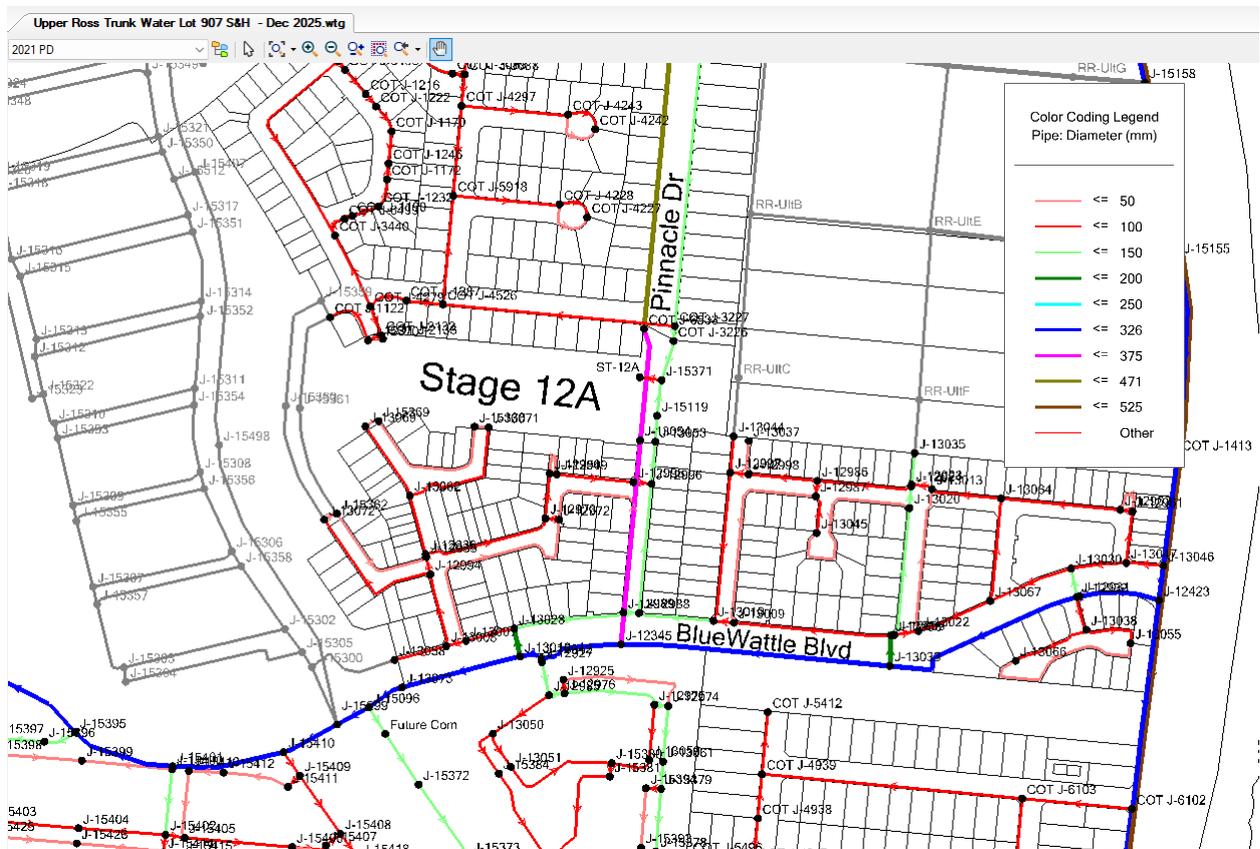


Figure 3.1 – Existing & Planned Water Mains

It is noted that there are a couple of streets that have current temporary ends onto the northern and southern sides of the Stage 12A Group Title site. These streets are expected to be formally ended with the existing water mains and DN63PE poly loops kept in place.

The performance of the existing water network in the Upper Ross area along with the additional water mains to service the 48 Group Title Houses in Stage 12A is summarised below and illustrated on the WaterGEMS model figure below and in Appendix B.

- The water pressures on the Sorghum St frontage of Stage 12A is 324 kPa. This is the water pressure on the end of the proposed DN100 water main crossing under Sorghum St to the Stage 12A entrance.
- The water pressures around the Stage 12A development area of Somers & Hervey Estate and in the Riverstone development area are all above 320 kPa for the peak hour demands. These are all above the minimum 220 kPa standard.
- The velocity and headloss gradient along the existing and proposed water mains in the surrounding area are up to 0.70 m/s and 0.003 m/m respectively. These both meet Council standards.
- With the inclusion of the 15 l/s fire flow on the end of the proposed DN100 water main crossing under Sorghum St and at the frontage of the 48 Lot Group Title House site (Stage 12A), the water pressures are reduced to around 290 kPa. This meets the 120 kPa minimum fire flow water pressures.
- The WaterGEMS network modelling results are provided in Appendix B.



4 SEWER INFRASTRUCTURE PLANNING

The Upper Ross area is currently serviced with a reticulated sewer system that is directed to the Condon STP, which is located on the western side of the Bohle River. The Upper Ross sewer area generally consists of the suburbs of Condon, Rasmussen and Kelso with the sewer area illustrated on Figure 1.1 from the “Upper Ross Sewer Infrastructure Planning Report (DPM Water, 2017)” below.

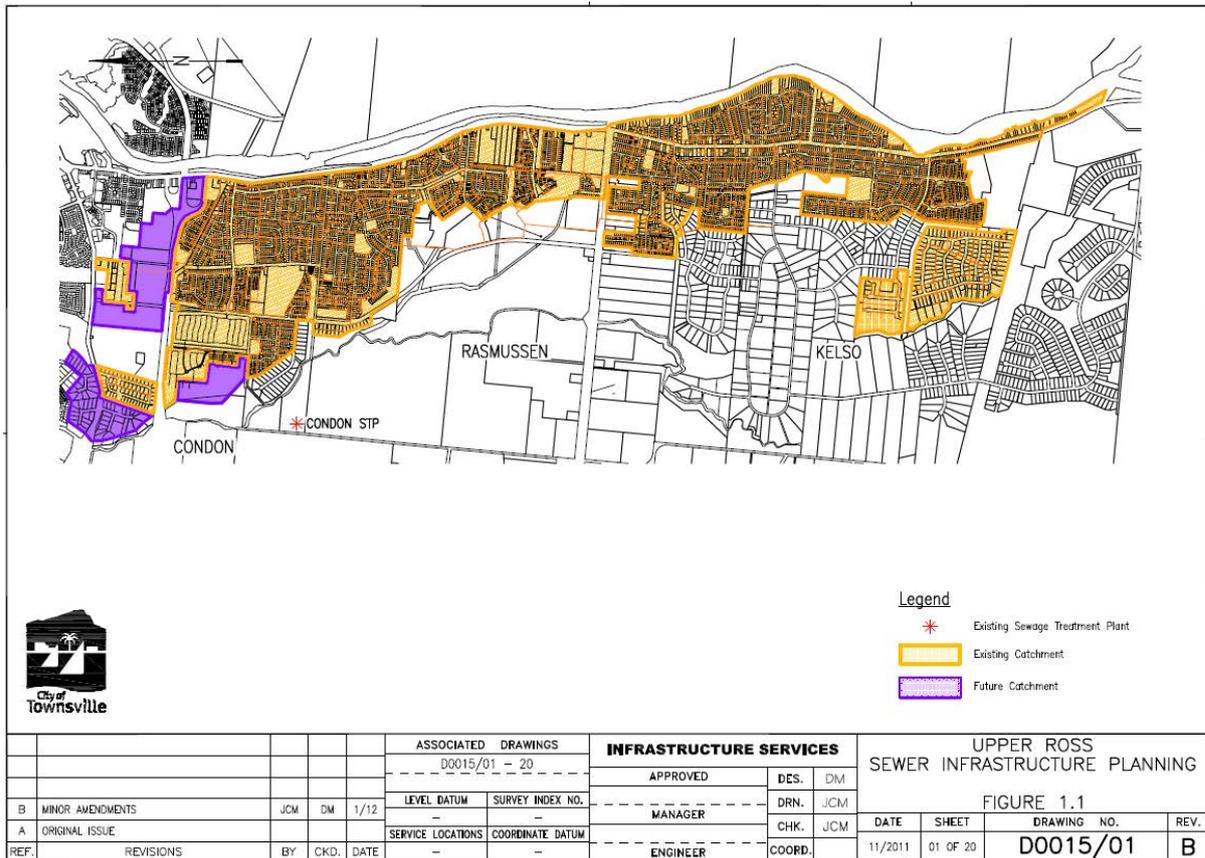


Figure 4.1 – Upper Ross Sewer Infrastructure Plan

The Upper Ross sewer system generally consists of the following trunk sewer infrastructure that services the Somers & Hervey Estate:

- PS C6B (Vickers Rd).
 - This pump station discharges sewage to the Condon STP via a DN450 pressure main and then a DN600 common pressure main with PS C36A (Bowhunters Rd).
 - It services the eastern area of Condon & Rasmussen. PS C6B has a large local gravity catchment but also receives pumped flows from PS C5C which discharges into the southern end of its DN525 gravity sewer.
- PS C5C (St Lucia Drv).
 - The pump station is located on the northern end of St Lucia Drv which is towards the north eastern end of the Somers & Hervey Estate. PS C5C pumps sewage to the north and into a DN525 gravity sewer in the PS C6B catchment.
 - A DN450 gravity sewer extends to the south from PS C5C through to Allambie Lane (ie from MH 0/C5C to MH 16/C5C).

- Sewage from the eastern half of Kelso used to be directed along the DN450 sewer into PS C5C but in 2007 a DN450 diversion sewer was constructed along Allambie Lane from MH 16A/C5C to MH 38A/WT. This diversion sewer directed flows into the Upper Ross DN600 western trunk sewer and onto PS C36A (Bowhunters Rd).
- The eastern portion of the Somers & Hervey Estate is (and will be) connected to this existing DN450 trunk sewer in the catchment of PS C5C. This includes Stage 12A.
- PS C36A (Bowhunters Rd).
 - This existing sewage pump station discharges sewage to the Condon STP via a DN600 common pressure main with PS C6B (Vickers Rd).
 - It services the western area of Condon & Rasmussen, along with all of the Kelso sewer area. PS C36A has a large local gravity catchment including a DN750/600 trunk sewer to the south that extends through the western portion of the Somers & Hervey development area.

The performance of the Upper Ross sewer system with the inclusion of the sewage loads from Stage 12A of the Somers & Hervey Estate is provided in the following report sections.

4.1 Somers & Hervey Stage 12A - Sewer Capacity Assessment

Stage 12A of Somers & Hervey Estate will be directed to the existing DN450 trunk sewer in the catchment of PS C5C (St Lucia Drv). The layout plans for Stage 12A are provided in Appendix A.

The SewerGEMS model was updated to include the additional sewage flows from the proposed 48 Group Title Lots in Stage 12A. The additional sewage flows were included in the SewerGEMS model onto existing MH 1/C5C10. This existing MH is located within the proposed Stage 12A development area with a DN150 AC sewer extending to the east and under the proposed Sorghum St extension to existing MH 10/C5C that is located on the existing DN450 trunk sewer. The extract from Council's GIS below illustrates the existing sewer infrastructure that will service Stage 12A.



Figure 4.1 – Existing Sewer Infrastructure for Stage 12A

With the inclusion of additional sewage flows the sewer system performance is as follows:

- There is no change to the current sewer performance for the DN600 and DN750 trunk sewer that services the western half of the Somers & Hervey Estate and is in the catchment of PS C36B, as Stage 12A development lots are not directed to this existing trunk sewer line.
- With Stage 12A flows and the previously approved lots in Precinct 2 of Somers & Hervey, the existing DN450 trunk sewer in the catchment of PS C5C flows up to 42% full.
- The existing DN150 gravity sewers within the Stage 12A Group Title site that have the additional sewage directed to them from Stage 12A flow up to 25% full.
- The existing reticulation and trunk gravity sewer system that will service Stage 12A & Precinct 2 of the Somers & Hervey Estate flows less than the CTM code requirement of a maximum of 75% full and therefore has capacity to service the additional residential lots.

The figure below from the SewerGEMS network model illustrates the performance of the existing gravity sewer system that will service the proposed 48 Group Title Houses in Stage 12A of the Somers & Hervey Estate. A larger version of this figure is provided in Appendix C.

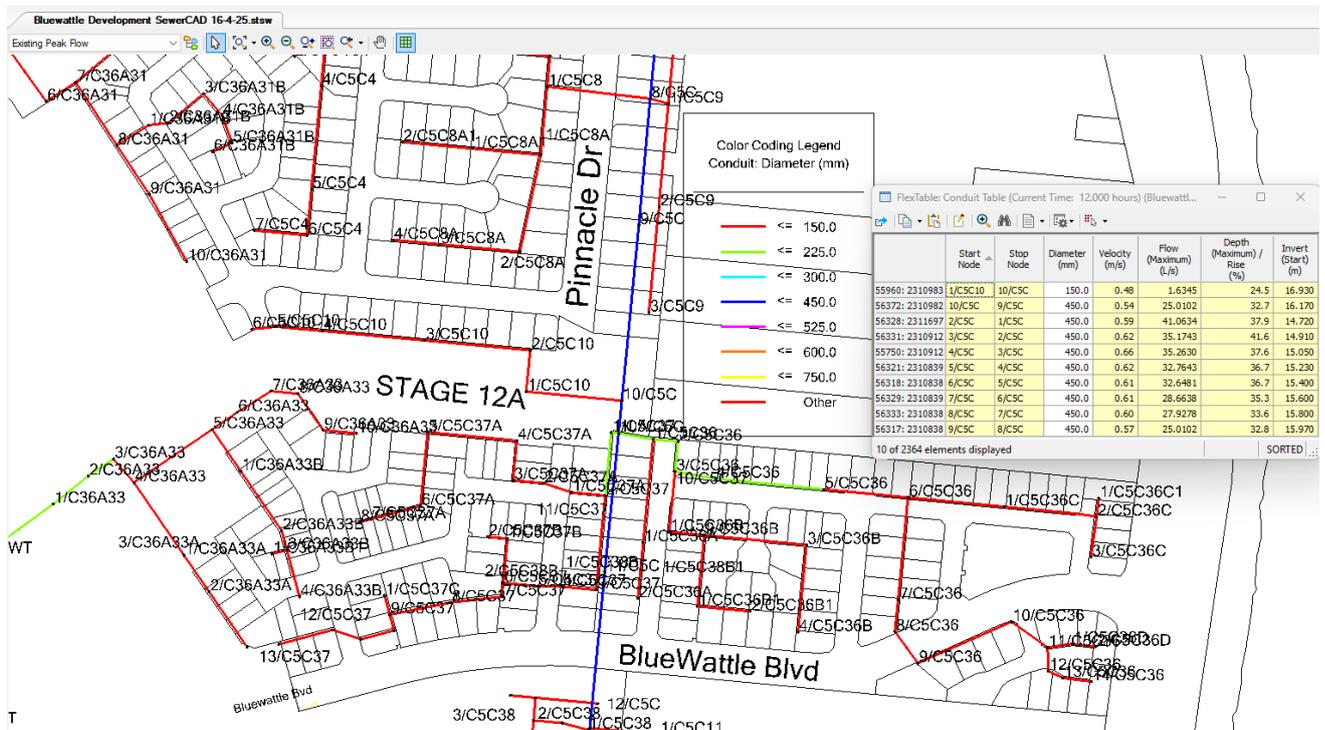


Figure 4.2 – Stage 12A – SewerGEMS Modelling Results

The SewerGEMS modelling illustrates that the existing sewer infrastructure is adequately sized to service Stage 12A of the Somers & Hervey development with no upgrades required.

APPENDIX A

SOMERS & HERVEY ESTATE

STAGE 12A - PRELIMINARY DEVELOPMENT FIGURES

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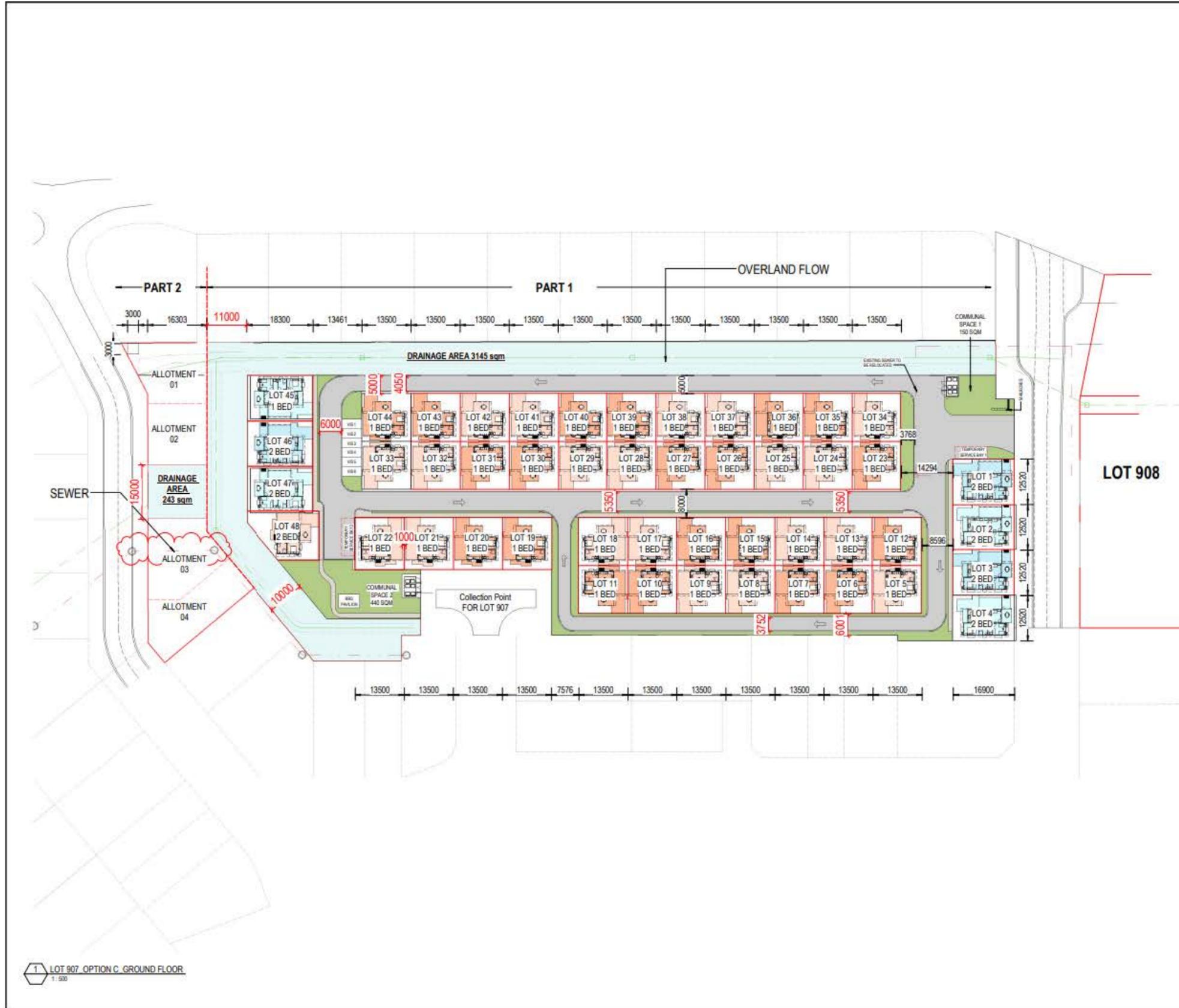
GENERAL NOTES
 Use figure dimensions in preference to scaled. Confirm the scale of landscape drawings by using the attached scale bar. Check all dimensions on site before buildout or before sunset.

KEY PLAN

TEST - LOT 907 + 907 B

STAGE 12/A1

OPTION D
 13.11.2025



| REVISION | AMENDMENT | DATE |
|----------|------------------------------|------------|
| 1 | SECOND PASS OVERALL CONCEPTS | 11.08.2025 |
| 2 | SECOND PASS B | 15.08.2025 |
| 3 | OPTION C | 28.09.2025 |
| 4 | OPTION D | 29.10.2025 |
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thinktank
 architects

SCALE
 10 20 30 40 50 60 70
 1:500 @ A1

DRAWN: MP
 APPROVED: MICHAEL JULLYAN
 CLIENT: BMD
 NORTH

PROJECT:
 LOT 907 TOWNSVILLE
 PINNACLE DRIVE
 TITLE:
 LOT 907 - STAGE 12/A1

| PROJECT NUMBER | SHEET NUMBER | TOTAL |
|----------------|--------------|-------|
| 27-25 | SD103 | 4 |

PRELIMINARY ISSUE
 NOT FOR CONSTRUCTION

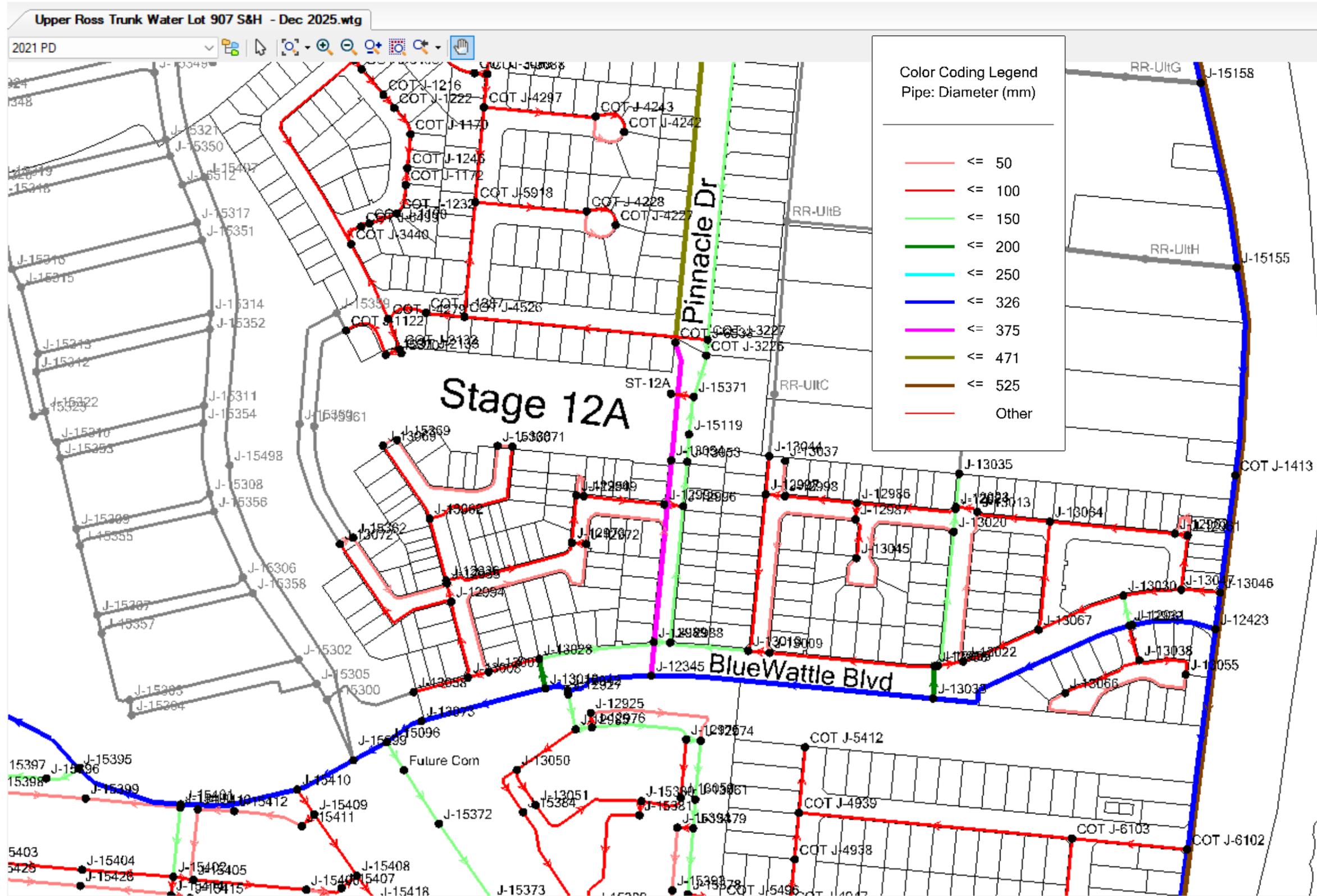
1 LOT 907 OPTION C GROUND FLOOR
 1:500

APPENDIX B

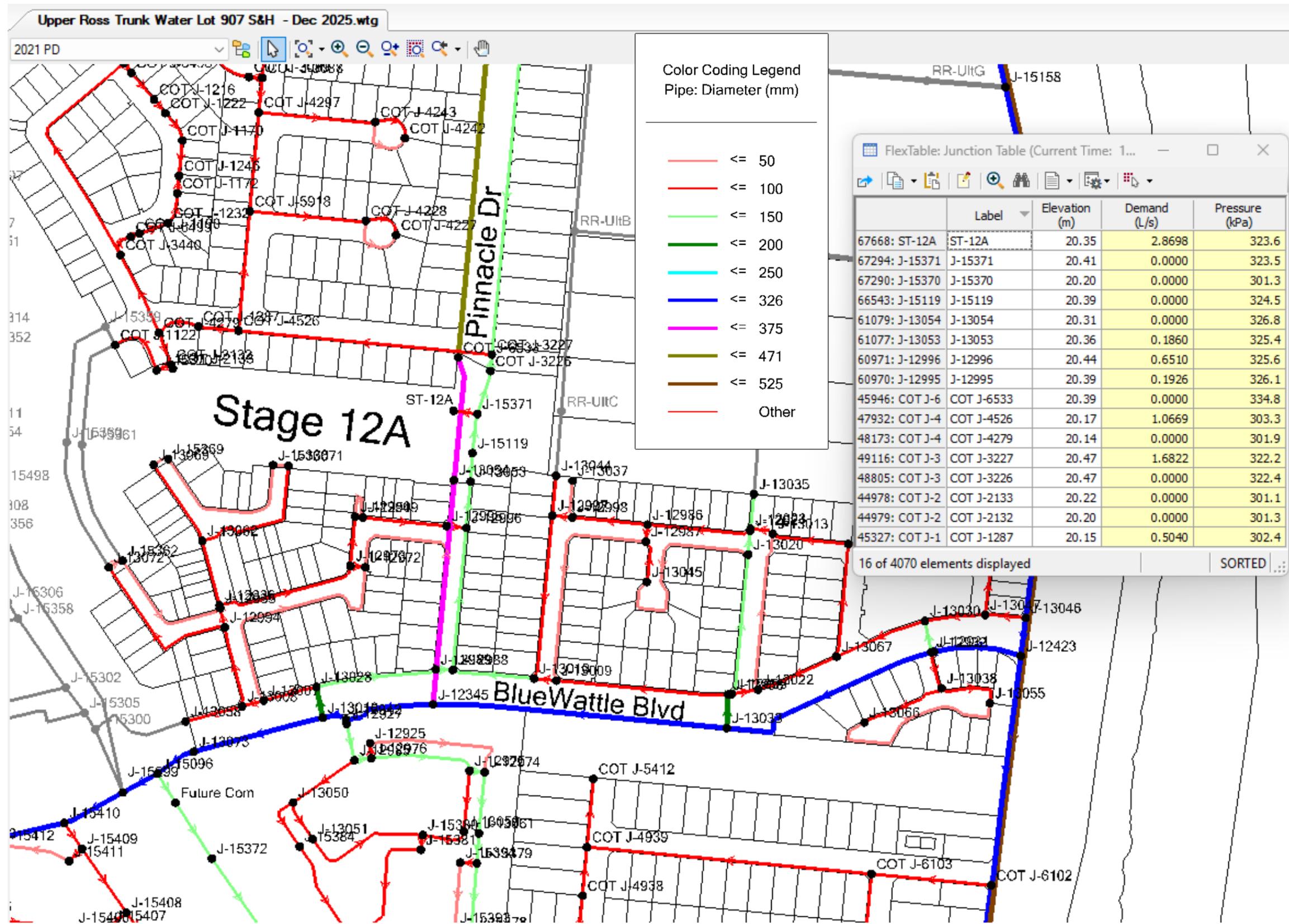
SOMERS & HERVEY ESTATE

STAGE 12A WATERGEMS MODELLING

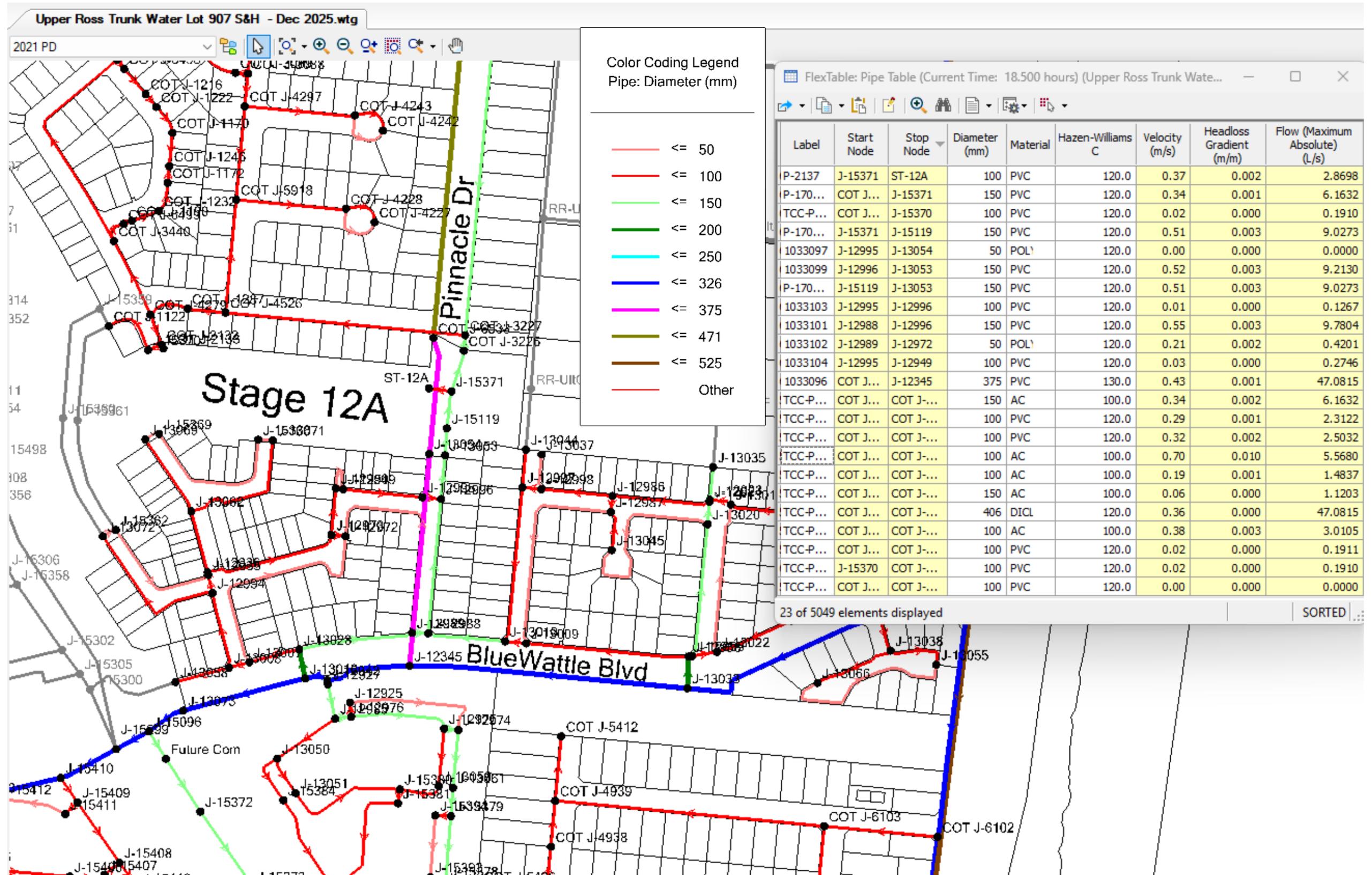
FIGURES & RESULTS



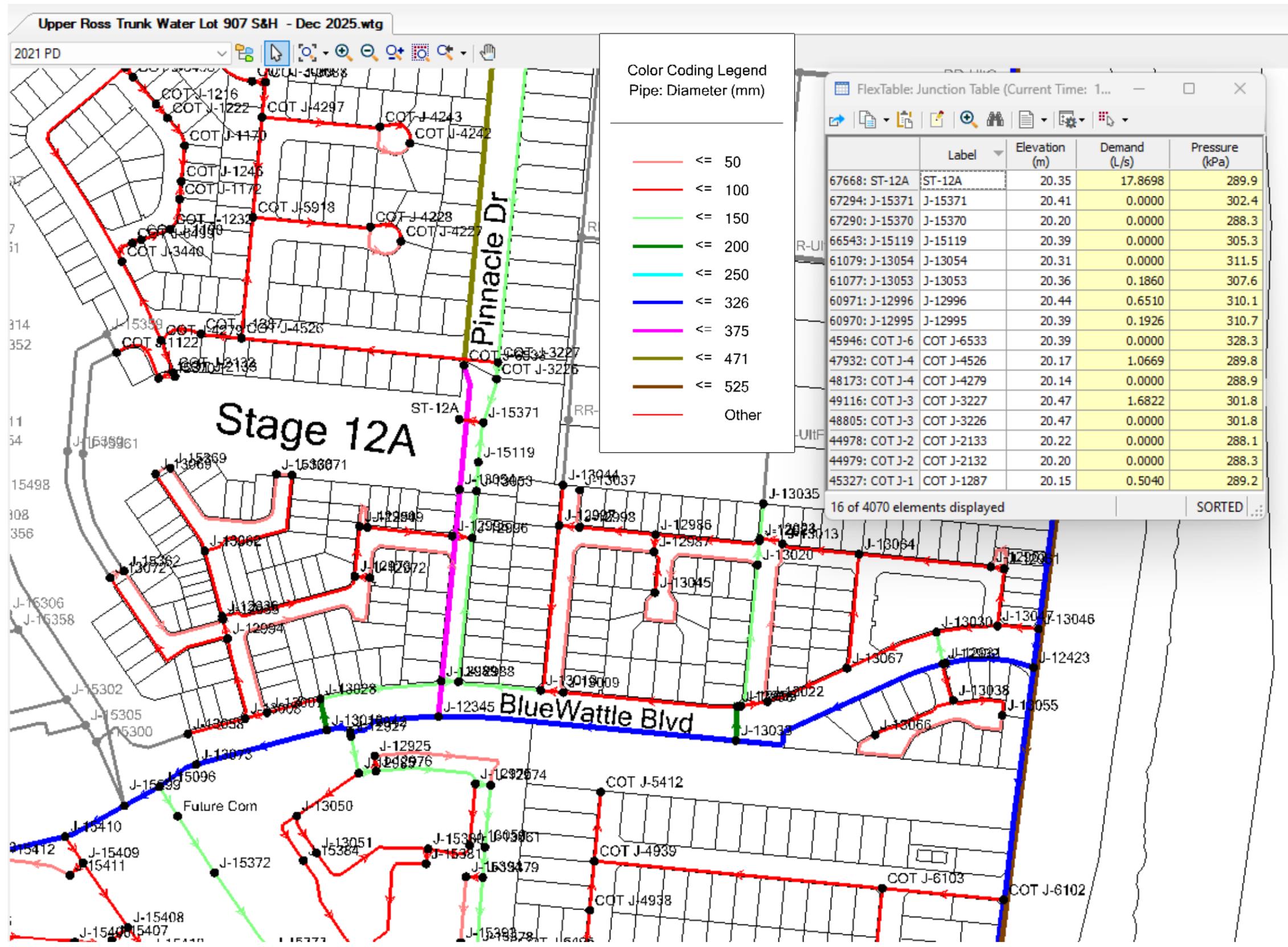
Somers & Hervey Estate Stage 12A - WaterGEMS Model Figure



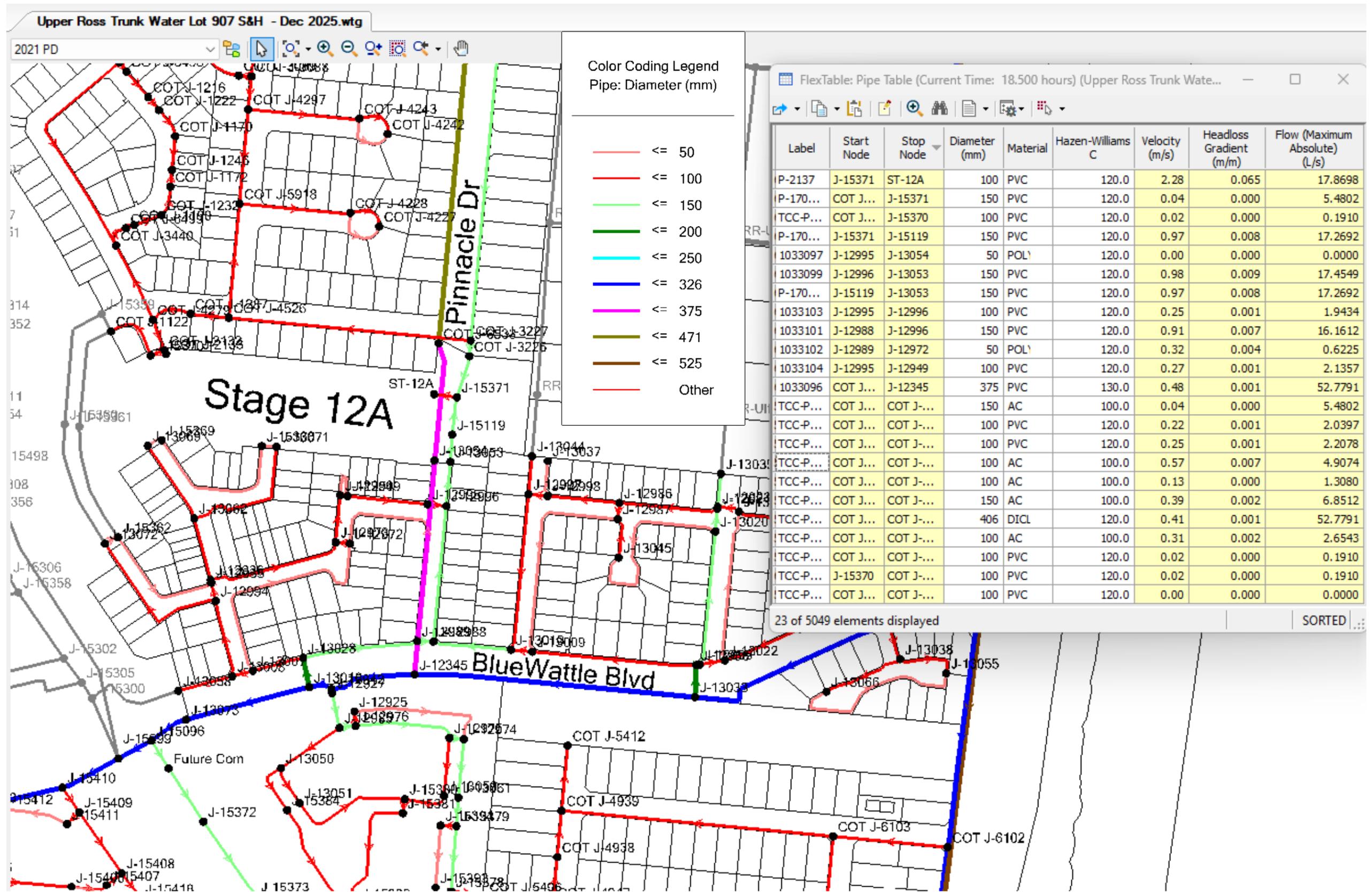
Somers & Hervey Stage 12A – Peak Hour Pressures



Somers & Hervey Stage 12A - Pipes Peak Hour



Somers & Hervey Stage 12A - Peak Hour Pressures & 15 l/s Fire Flow



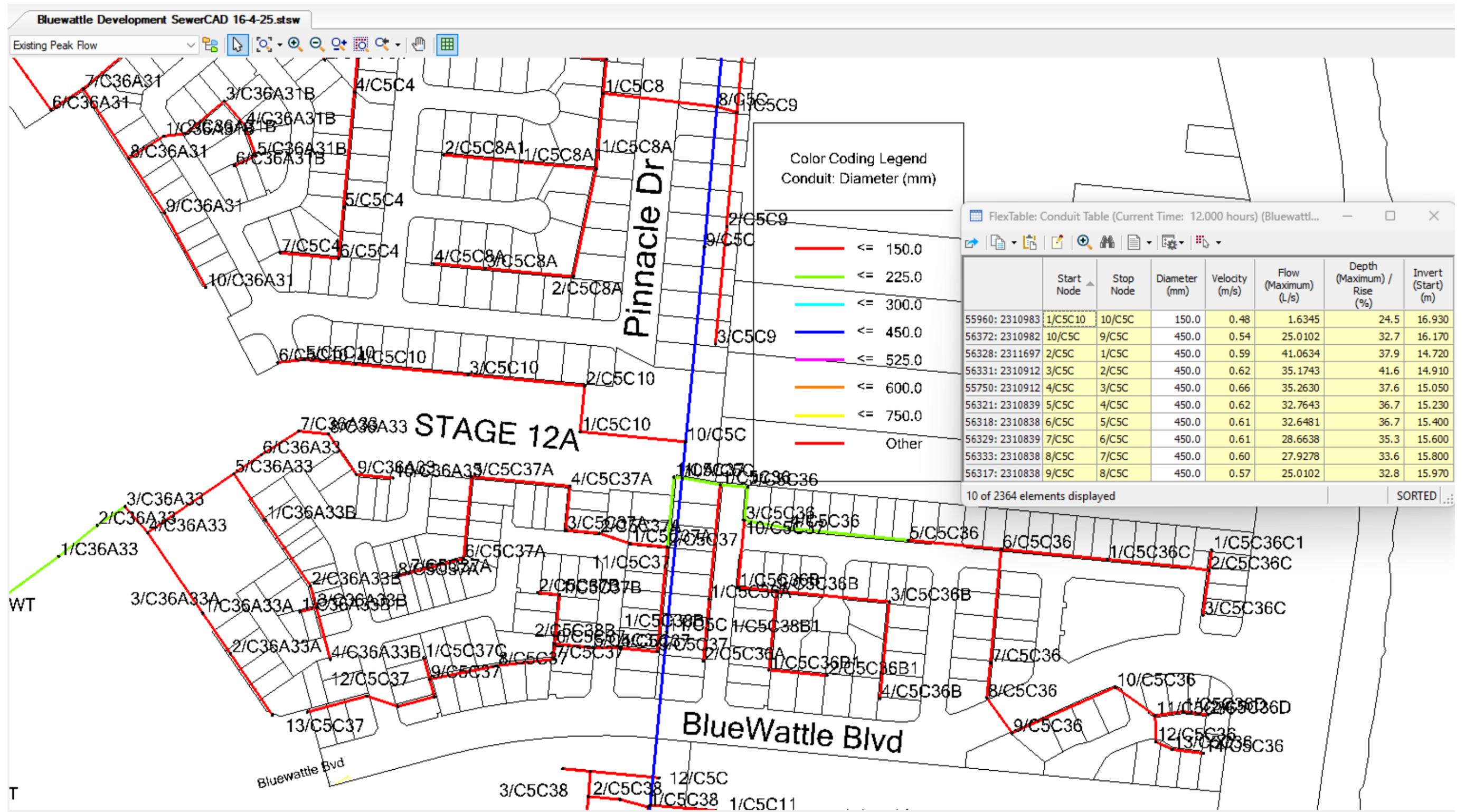
Somers & Hervey Stage 12A - Pipes Peak Hour & 15 l/s Fire Flow

APPENDIX C

SOMERS & HERVEY ESTATE

STAGE 12A SEWERGEMS MODELLING

FIGURES & RESULTS



SOMERS & HERVEY – STAGE 12A – SEWERGEMS MODELLING RESULTS

Appendix D

SLR Consulting Australia Pty Ltd Somers & Hervey
Estate Precinct 4 - Stage 12A Development
Traffic Impact Assessment Cover Letter



www.bmdgroup.global



Stage 12A Multiple Dwellings Development, Somers & Hervey Residential Estate, Rasmussen, Townsville

Traffic Impact Assessment

Urbex Pty Ltd

PO BOX 197
Wynnum QLD 4178

Prepared by:

SLR Consulting Australia Pty Ltd

SLR Project No.: 620.30870.00107

Client Reference No.: WID402

18 December 2025

Revision: 1.0

Revision Record

| Revision | Date | Prepared By | Checked By | Authorised By |
|----------|------------------|---------------|---------------|---------------|
| 1.0 | 18 December 2025 | Mitchell Else | Raymond Logan | Raymond Logan |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Basis of Report

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Urbex Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.



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Appendices

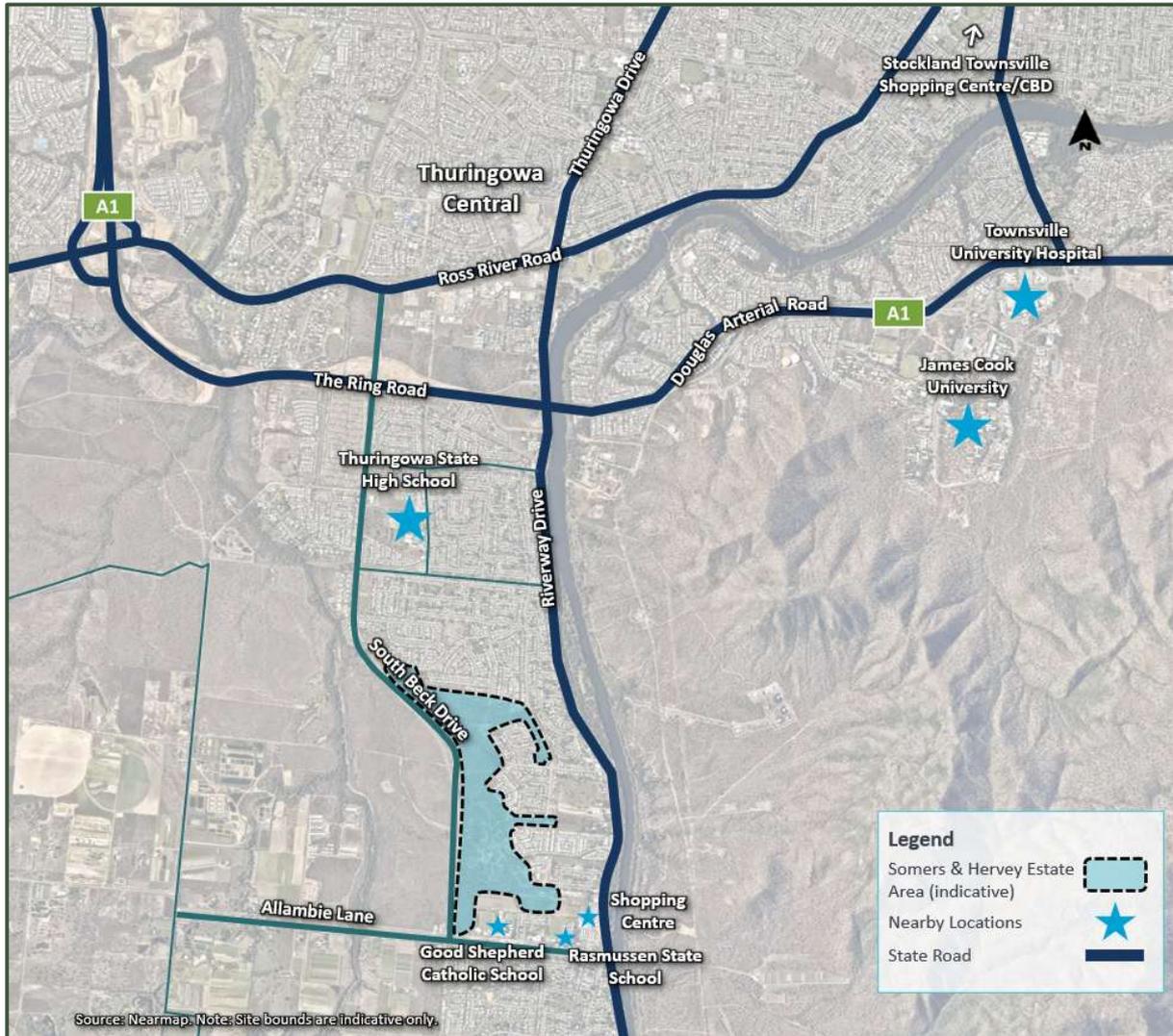
| | |
|-------------------|-------------------------------|
| Appendix A | Development Plans |
| Appendix B | Swept Path Assessments |
| Appendix C | Code Responses |



1.0 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been commissioned by Urbex Pty Ltd WID402 (Urbex) to prepare a Traffic Impact Assessment (TIA) for the proposed multiple dwellings development located in Stage 12A of the Somers & Hervey Estate, a residential development in Rasmussen, south of Townsville. The Somers & Hervey Estate site in the regional context is shown on **Figure 1**.

Figure 1 Site Regional Context



1.1 Objective

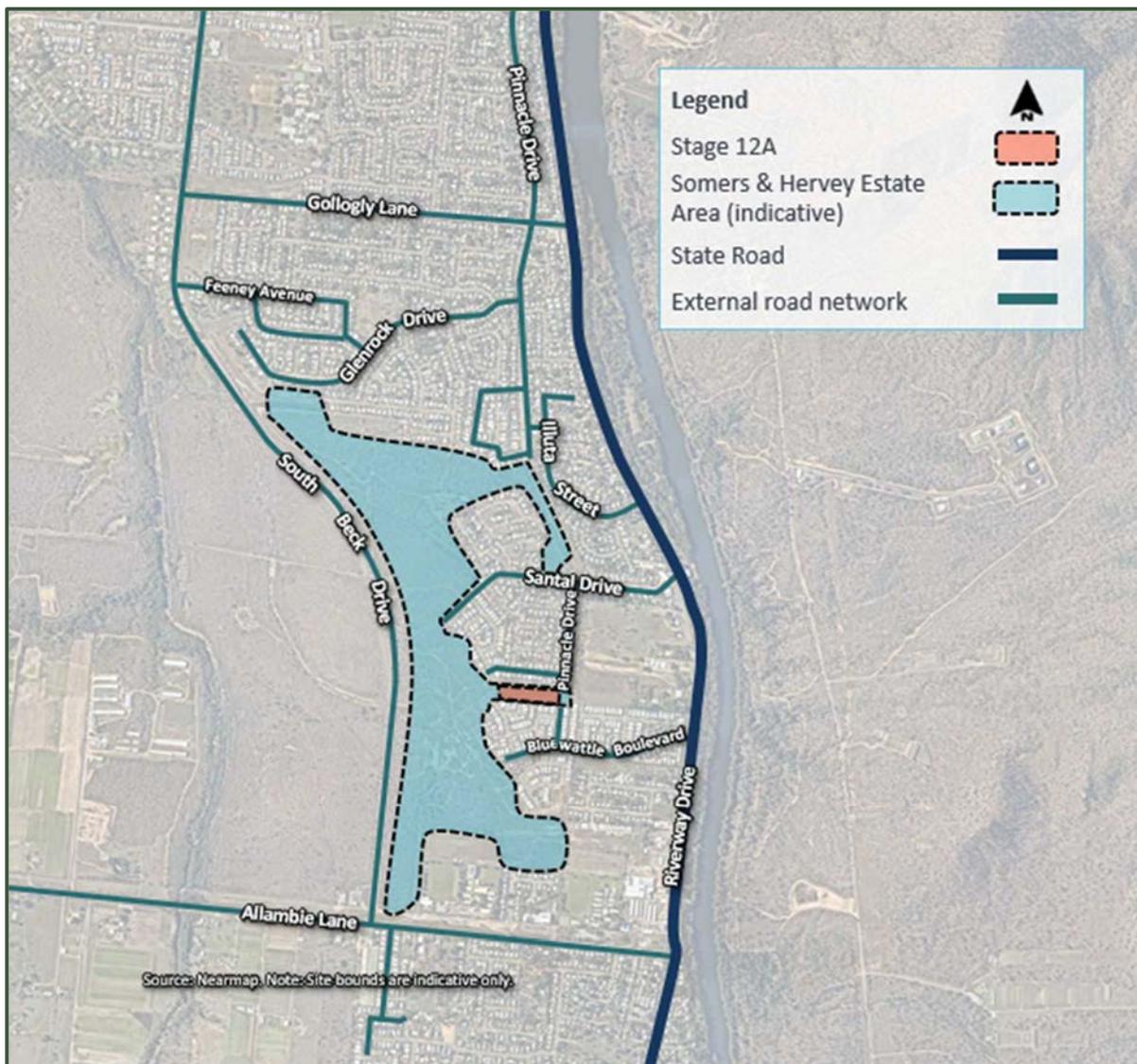
The objective of this report is to inform the Townsville City Council (TCC or Council) assessment of the development application by identifying and addressing the traffic and transport matters relevant to the proposed Stage 12A multiple dwelling development. The matters assessed herein include traffic generation and impact on the external road network, internal site layout including parking and waste servicing.

2.0 Subject Site

2.1 Site Context

Stage 12A is located within the Somers & Hervey Estate, located at South Beck Drive, Rasmussen. The site is within the Townsville Local Government Area and is currently zoned as low density residential as per the Townsville City Plan 2014. The subject site is located along the eastern boundary of the Estate, tying into Sorghum Street and Pinnacle Drive (see **Figure 2**). The subject site is currently unoccupied.

Figure 2 Overall Somers & Hervey Estate and Stage 4A in Local Context



2.2 Proposed Development

2.2.1 Development Overview

Based on the development plans prepared by Thinktank Architects, which are included at **Appendix A**, it is proposed to develop the site with multiple dwellings. The land uses and yields are summarised in **Table 1**.

Table 1 Stage 12A Yields

| Land Use | Type | Yield |
|--------------------|------------|---------------------|
| Multiple dwellings | 1 bedroom | 40 dwellings |
| | 2 bedrooms | 8 dwellings |
| Total | | 48 dwellings |

Stage 12A will be accessed from a new driveway crossover onto an extension of Sorghum Street and Pinnacle Drive. The extension of Sorghum Street and Pinnacle Drive is to be constructed as part of the wider Somers and Hervey development. The proposed Stage 12A development in context to the surrounding area is shown on **Figure 3**.

Figure 3 Proposed Stage 12A within Local Area



3.0 Public Transport

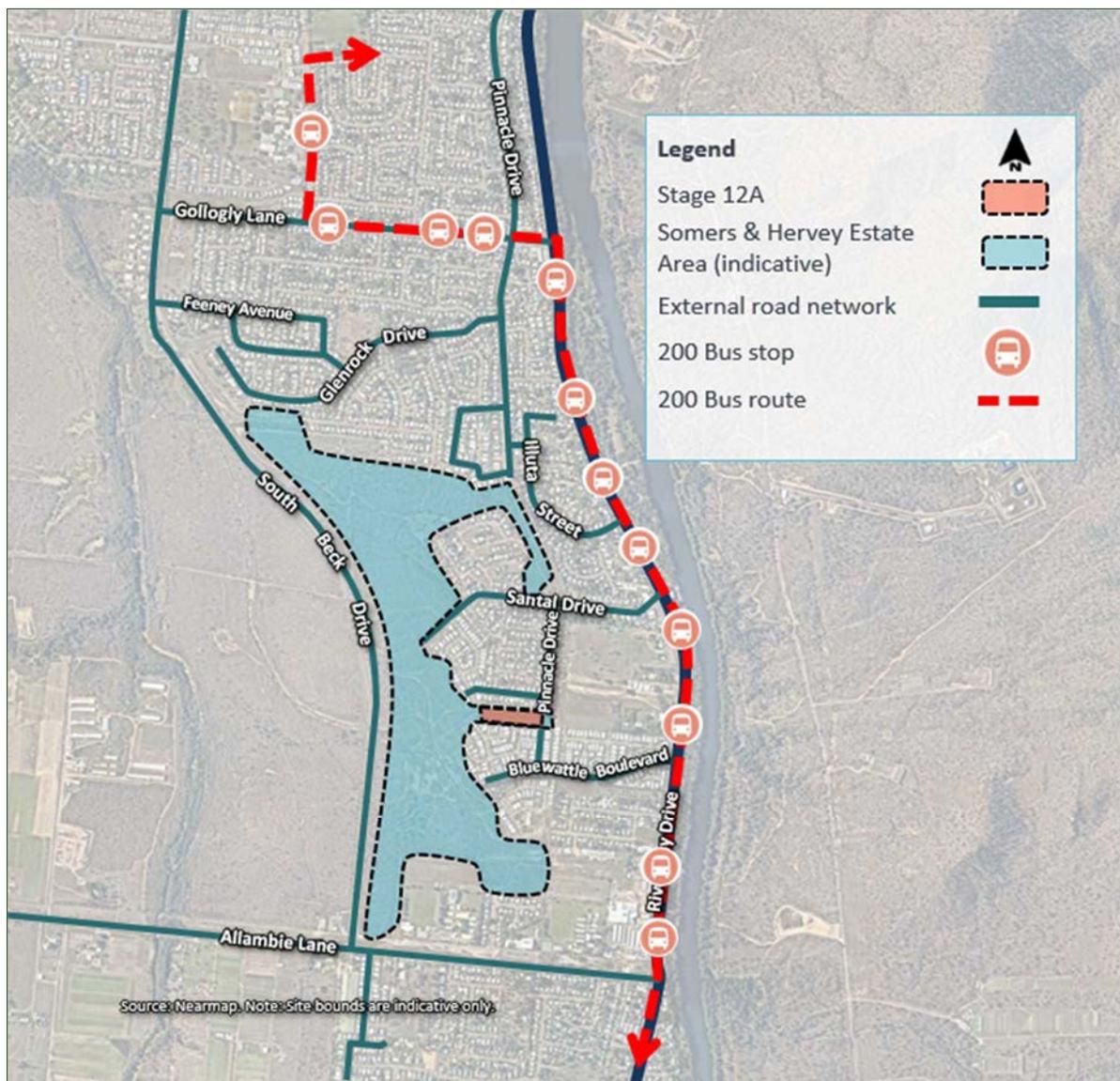
3.1 Existing Bus Routes

Currently there are two bus routes operating in the Rasmussen area, though no services exist directly at the current site location. The nearest service route stops are:

- Route 200: Riverway Drive at Bluewattle Boulevard, Rasmussen;
- Route 200: Riverway Drive at Loam Island, Rasmussen.

The route plan on **Figure 4** shows the Route 200 alignment and its bus stops.

Figure 4 Rasmussen Public Transport Network



3.2 Proposed Bus Route

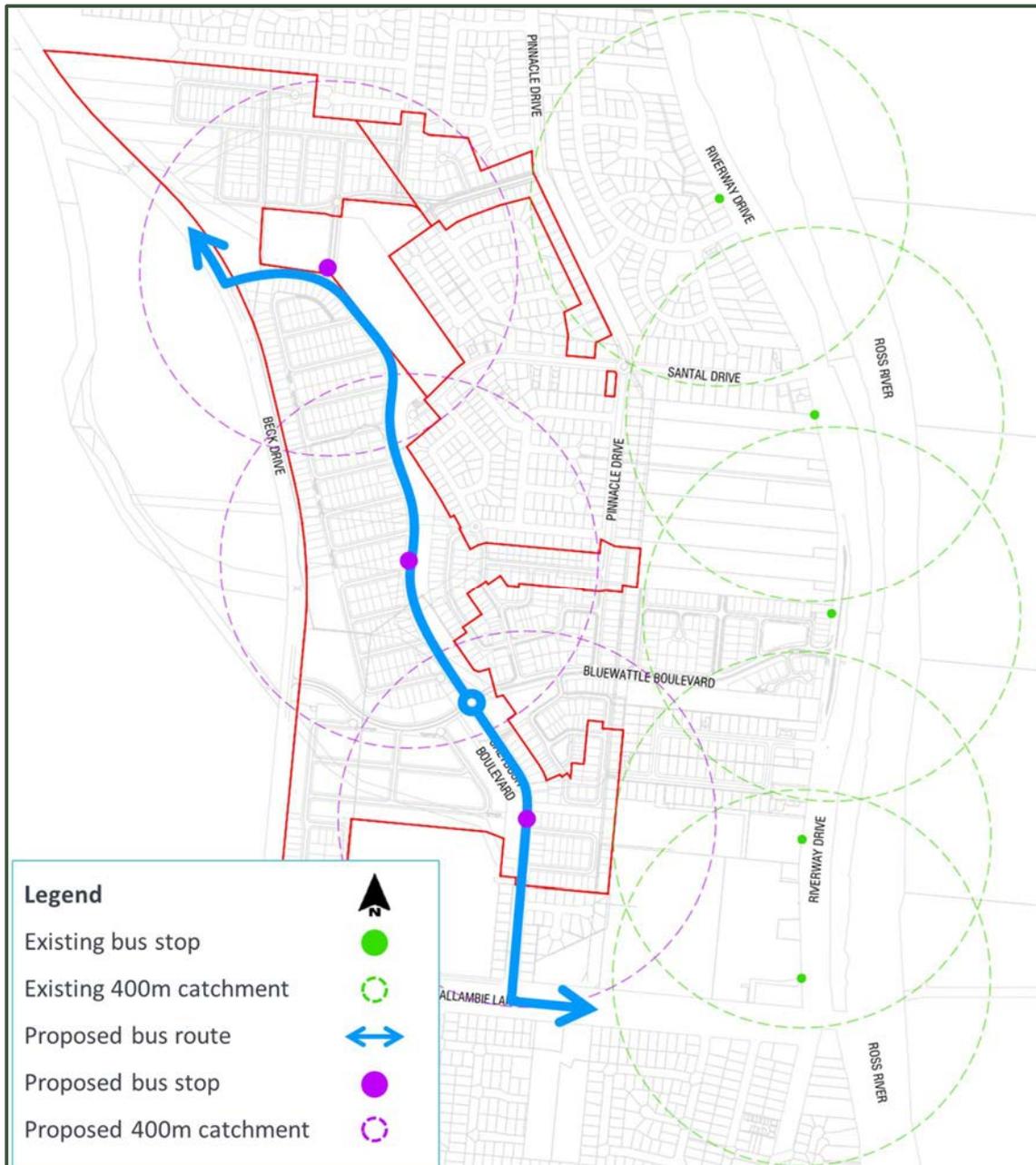
As part of the wider Somers & Hervey Estate development it is recommended that a bus route be introduced through the site, along the spine road. This road will be designed with



sufficient width to accommodate bus movements and localised road reserve widening to allow for bus stops that will be included in the design.

Indicative locations of each bus stop pair (i.e. a bus stop on each side of the road) are shown on **Figure 5**, along with the 400m (5 minute walk) radius catchment area for each bus stop pair. A bus stop will be located directly west of Stage 12A.

Figure 5 Indicative Bus Stop Pairs Locations and 400m Catchments



4.0 Traffic Impacts

4.1 Development Traffic Demand

The *Guide to Traffic Generating Developments* recommends a peak hour traffic generation rate of 0.4 – 0.5vph per unit for smaller units (i.e. up to two bedrooms) in ‘Medium density residential flat buildings’. Given the high number of one-bedroom dwellings and accessibility of the site by public transport, a trip rate at the lower bound (i.e. 0.4vph per unit) of that recommended by TfNSW guideline has been adopted.

Reflective of the above, the traffic demand estimate for the proposed development is presented in **Table 2**.

Table 2 Development Peak Hour Traffic Demand Estimate

| Land Use | Yield | Peak Hour trip rate | Vehicle Trips | |
|----------------------------|----------|---------------------|---------------|--------------|
| | | | AM Peak Hour | PM Peak Hour |
| Medium density residential | 48 units | 0.4vph per unit | 19vph | 19vph |

Table 2 demonstrates that the proposed development is anticipated to generate 19 additional trips during peak hour periods, which is approximately equivalent to one (1) new vehicle trip every three (3) minutes. Furthermore, this traffic is expected to disperse through the local network before entering the arterial system via South Beck Drive at the South Beck/Treeline priority intersection or via Riverway Drive at the Bluewattle Boulevard and Santal Drive signalised intersections.

This increase in traffic demand is considered to be insignificant from a traffic engineering perspective, especially for signalised intersections, and therefore the subject development is not anticipated to materially impact on the operational performance, safety or amenity of the adjoining road network compared with the existing situation.

5.0 Design Considerations

5.1 Access

The driveway access to Pinnacle Drive has an access width of 7.8m at the property boundary. This is in excess of the minimum access width at property boundary for two-way access for Multiple Dwellings noted on TCC Standard Drawing SD-030. Furthermore, swept path diagrams have been prepared that demonstrate the proposed access can accommodate refuse collection vehicles (RCVs). A copy of the swept path diagrams is included at **Appendix B**.

The proposed driveway location provides >100m of sight distance in either direction, complying with AS2890 stopping sight distance requirements for a 50km/h posted speed on the frontage road (69m).

5.2 Road width

The minimum internal road width is 4.2m. This proposed minimum width is suitable for one-way road circulation as per AS2890.1 which requires a minimum of 3m. Furthermore, swept path diagrams have been prepared which demonstrate that the proposed road width is suitable to allow for vehicles to enter or exit proposed carports. A copy of the swept path diagrams is included at **Appendix B**.



The minimum road width at the proposed visitor parking spaces is 6.2m wide, complying with AS2890.1 for visitor parking which requires a minimum 5.8m road width for 2.6m wide spaces.

5.3 Garages

All proposed garages have a clear door width of 3m and are at least 6m long, complying with AS2890.1 requirements.

5.4 Parking

5.4.1 Provision

Each dwelling will be provided with one undercover carport and space to park an additional vehicle on the driveway. This parking will be supplemented by six (6) unallocated parking spaces near the western edge of the site. This equates to a total of 102 parking spaces on the site (2 spaces per dwelling x 48 dwellings + 6 unallocated spaces = 102 spaces).

5.4.2 Acceptable Outcome

The TCC City *Plan Transport impact, access and parking code* acceptable outcome for on-site vehicle parking is provision in accordance with the standards identified in Parking rates planning scheme policy no. SC6.10. (Table SC6.10.2.1 Parking rates). The parking rate for Multiple Dwelling and Acceptable Outcome parking requirement is summarised in **Table 3**.

Table 3 Acceptable Outcome Parking Requirements

| Land use | Type | Yield | Car parking rate (spaces per dwelling) | Requirement (spaces) |
|-------------------|----------|--------------|--|----------------------|
| Multiple dwelling | Spaces | 48 dwellings | 1.7 | 82 (81.6) |
| | Visitors | | 0.2 | 10 (9.6) |
| Total | | | | 93 |

The Acceptable Outcome parking requirement is 93 spaces. The provision of 102 parking spaces therefore exceeds the Acceptable Outcome required parking rate in the City Plan.

5.5 Waste

The site will be serviced with the use of bulk bins. Bulk bin storage is conveniently located near the entry, in the north eastern portion of the site. Residents would typically carry their waste to the Bin Store for collection, and are also able to drive their waste to the bulk bins on their way out of the development if necessary.

The bulk bins will be stored in an enclosure that restricts visibility of the bins from the street frontage.

Waste recovery vehicles servicing the bulk bins are able to enter and exit the site in a forward gear. This is shown on the swept paths presented at **Appendix B**.

6.0 Code Responses

The development has been assessed against the requirements of the Townsville City Plan Transport Impact, Access and Parking (TIAP) Code. The responses to the requirements of the code are included at **Appendix C**.



7.0 RPEQ Certification

This assessment and report have been prepared under the direction of a Registered Professional Engineer of Queensland (RPEQ) who is experienced in traffic engineering and transport planning. They are endorsed by that RPEQ accordingly.

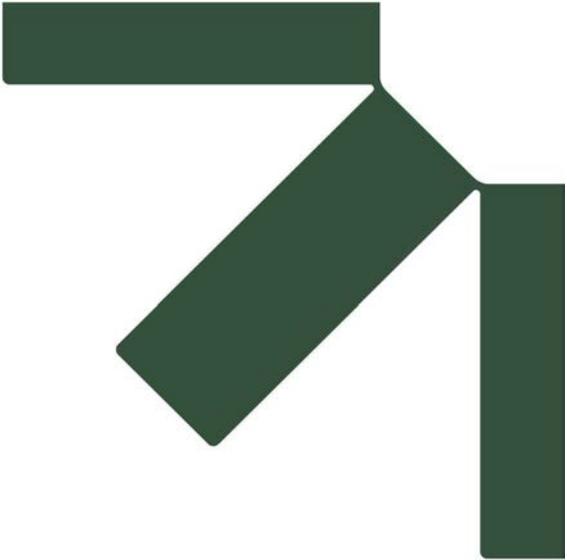
Regards,

SLR Consulting Australia



Raymond Logan, RPEQ No. 27227
Principal – Transport Advisory





Appendix A Development Plans

Stage 12A Multiple Dwellings Development, Somers & Hervey Residential Estate, Rasmussen, Townsville

Traffic Impact Assessment

Urbex Pty Ltd

SLR Project No.: 620.30870.00107

18 December 2025





Client: BMD

LOT 907 _ PINNACLE DRIVE, TOWNSVILLE

DA-1

Document Set ID: 27988765
Version: 1, Version Date: 28/01/2026

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KEY PLAN:

PLANNING SUMMARY

LOT 907

| | |
|-------------------------|-------------------------------|
| SITE AREA part 1 | 17145 sqm |
| Usable Area | 13964 sqm |
| Drainage Area | 3181 sqm (*TO BE CONFIRMED) |
| SITE AREA part 2 | 1569 sqm |
| Usable Area | 1326 sqm |
| Drainage Area | 243 sqm |
| SITE COVER | |
| over PART 1 | 4748 sqm (34% of Usable Area) |

PROPOSED MIX

| | |
|---------------|------------------|
| PART 1 | |
| 1 BED TYPE | 41 HOUSES |
| 2 BED TYPE | 7 HOUSES |
| TOTAL | 48 HOUSES |
| PART 2 | |
| 4 ALLOTMENTS | |

PROPOSED CARS

| | |
|---|----------------|
| 1 CAR / HOUSE (COVERED) | 48 CARS |
| + 1 CAR / HOUSE (UNCOVERED) (to be used for visitors) | 48 CARS |
| EXTRA / VISITOR CARS | 6 CARS |
| TOTAL | 98 CARS |

PROPOSED LANDSCAPE

| | |
|------------------------------------|-----------------------|
| PRIVATE LANDSCAPE part 1 | TOTAL 3318 sqm |
| PUBLIC LANDSCAPE part 1 | TOTAL 1182 sqm |
| TOTAL private + public | 4500 sqm |

COMMUNAL OPEN SPACE

| | |
|--------------|----------------|
| C.O.S. 1 | 95 sqm |
| C.O.S. 2 | 450 sqm |
| TOTAL | 545 sqm |



DA LIST

| SHEET | SHEET NAME |
|-------|-----------------------------------|
| SD000 | COVER SHEET |
| SD010 | PLANNING SUMMARY |
| SD050 | ARTIST'S IMPRESSION |
| SD051 | ARTIST'S IMPRESSION |
| SD100 | OVERALL GROUND LEVEL |
| SD101 | OVERALL ROOF PLAN |
| SD102 | GROUND PART A |
| SD103 | GROUND PART B |
| SD200 | SECTIONS |
| SD201 | SECTIONS |
| SD300 | ELEVATIONS |
| SD301 | ELEVATIONS |
| SD302 | ELEVATIONS |
| SD303 | ELEVATIONS |
| SD400 | 1 BED HOUSE - TYPE 1_PLANS |
| SD401 | 1 BED HOUSE - TYPE 1_ELEVATIONS |
| SD402 | 1 BED HOUSE - TYPE 2_PLANS |
| SD403 | 1 BED HOUSE - TYPE 2_ELEVATIONS |
| SD404 | 2 BED HOUSE - TYPE 1_PLANS |
| SD405 | 2 BED HOUSE - TYPE 1_ELEVATIONS |
| SD406 | 2 BED HOUSE - TYPE 2_PLANS |
| SD407 | 2 BED HOUSE - TYPE 2_ELEVATIONS |
| SD500 | BIN ENCLOSURE DETAIL |
| SD501 | MAILBOXES & BBQ PAVILION DETAIL |
| SD600 | GFA |
| SD601 | SITE COVER |
| SD602 | LANDSCAPE AREAS |
| SD603 | LOTS AREAS |
| SD700 | 1 BED_TYPE 1 & 2 - SHADOWS DETAIL |
| SD701 | 2 BED_TYPE 1 & 2 - SHADOWS |
| SD800 | SHADOW DIAGRAMS, SUMMER |
| SD801 | SHADOW DIAGRAMS, WINTER |
| SD900 | PERSPECTIVES |
| SD901 | PERSPECTIVES |

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| 8 | LOT 45-48 | 20.11.2025 |
| 9 | DA-1 | 26.11.2025 |
| 10 | DA-1_BINS ENCLOSURE UPDATE | 01.12.2025 |



| | | |
|---------|-----------------|--------|
| DRAWN: | APPROVED: | NORTH: |
| MP | MICHAEL JULLYAN | |
| CLIENT: | | |
| BMD | | |

PROJECT:
LOT 907 TOWNVILLE
PINNACLE DRIVE

TITLE:
PLANNING SUMMARY

| PROJECT NUMBER: | SHEET NUMBER: | REV. |
|-----------------|---------------|------|
| 27-25 | SD010 | 10 |



1 SITE PLAN, PROPOSED
1:500

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KEY PLAN

STAGE 12/A1
01.12.2025



1 LOT 907 OVERALL GROUND FLOOR
1:500

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| | | | | |
|---------|-----|-----------|-----------------|-------|
| DRAWN: | MP | APPROVED: | MICHAEL JULLYAN | NORTH |
| CLIENT: | BMD | | | |

PROJECT:
**LOT 907 TOWNVILLE
PINNACLE DRIVE**

TITLE:
OVERALL GROUND LEVEL

| | | |
|-----------------|---------------|------|
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KEY PLAN

STAGE 12/A1
01.12.2025



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| DRAWN: | APPROVED: | NORTH: |
| MP | MICHAEL JULLYAN | |
| CLIENT: | | |
| BMD | | |

PROJECT:
LOT 907 TOWNVILLE
PINNACLE DRIVE

TITLE:
OVERALL ROOF PLAN

| | | |
|-----------------|---------------|------|
| PROJECT NUMBER: | SHEET NUMBER: | REV. |
| 27-25 | SD101 | 10 |

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1 LOT 907 OVERALL ROOF PLAN
1:500

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KEY PLAN

STAGE 12/A1
01.12.2025



300mm
200mm
100
50
10mm

1 LOT 907_GROUND - part A
1:250

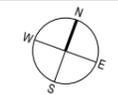


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SCALE
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mm

DRAWN: Author
APPROVED: MICHAEL JULLYAN
CLIENT: BMD
PROJECT: LOT 907 TOWNVILLE Pinnacle Drive



TITLE: GROUND PART A

| PROJECT NUMBER | SHEET NUMBER | REV. |
|----------------|--------------|------|
| 27-25 | SD102 | 10 |

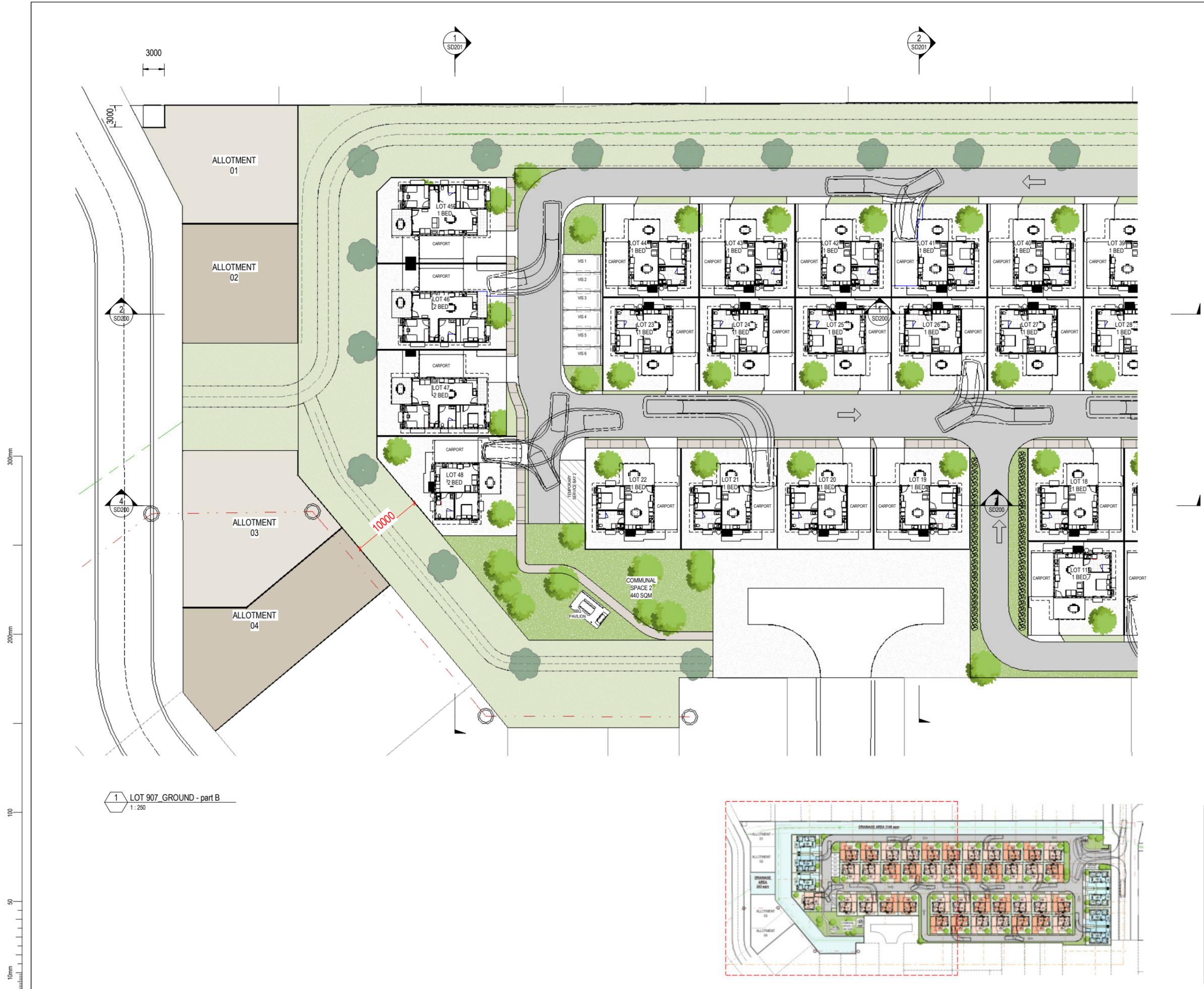
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KEY PLAN

STAGE 12/A1
01.12.2025



3000

300mm

200mm

100

50

10mm

1 LOT 907_GROUND - part B
1:250

| REVISION | AMENDMENT | DATE |
|----------|------------------------------|------------|
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SCALE
1:250 @ A1

DRAWN: [Name] APPROVED: MICHAEL JULLYAN NORTH
CLIENT: BMD

PROJECT: LOT 907 TOWNVILLE
PINNACLE DRIVE
TITLE: GROUND PART B

PROJECT NUMBER: 27-25 SHEET NUMBER: SD103 REV: 10

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KEY PLAN

STAGE 12/A1
01.12.2025



1 Section 1 - Part A
1:250



2 Section 1 - Part B
1:250

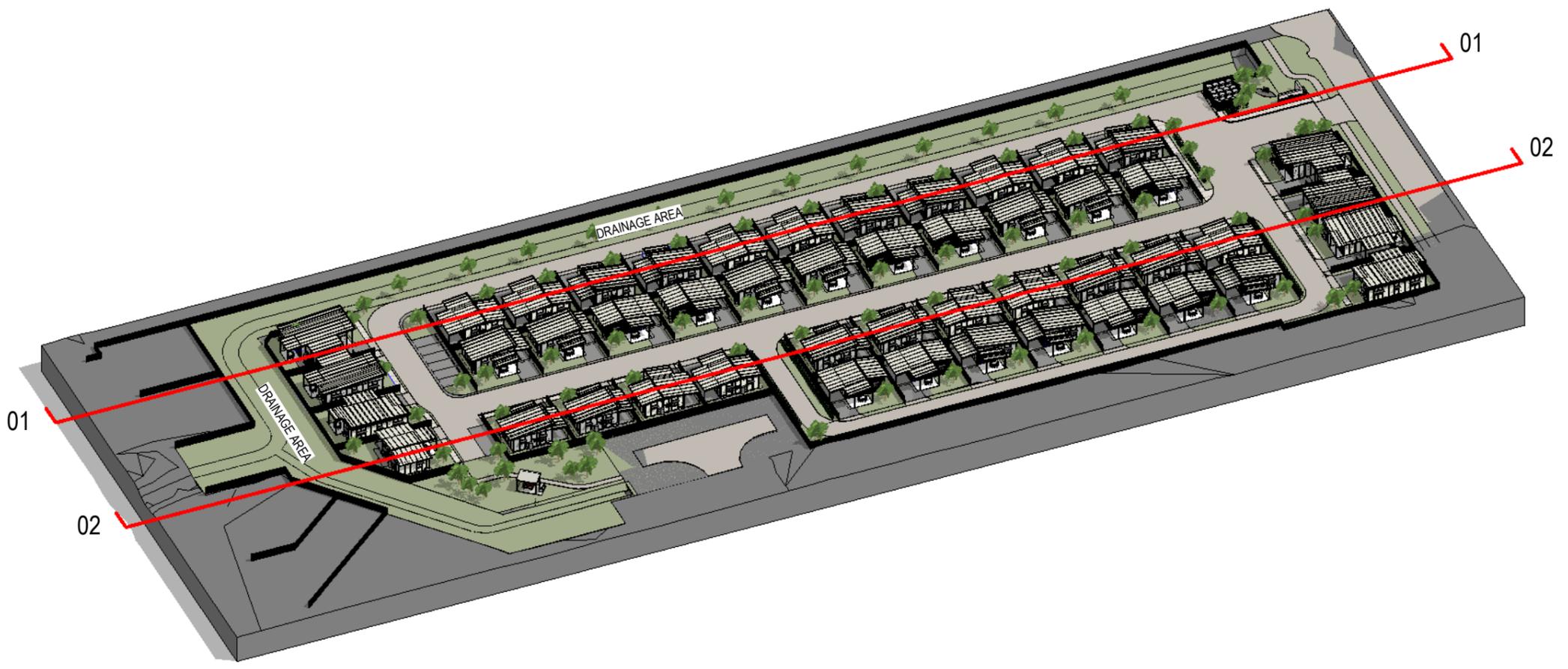


3 Section 2 - Part A
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4 Section 2 - Part B
1:250

300mm
200mm
100
50
10mm

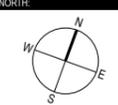


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SCALE
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mm

DRAWN: MP APPROVED: MICHAEL JULLYAN NORTH
CLIENT: BMD



PROJECT:
LOT 907 TOWNVILLE
PINNACLE DRIVE

TITLE:
SECTIONS

| PROJECT NUMBER: | SHEET NUMBER: | REV. |
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KEY PLAN



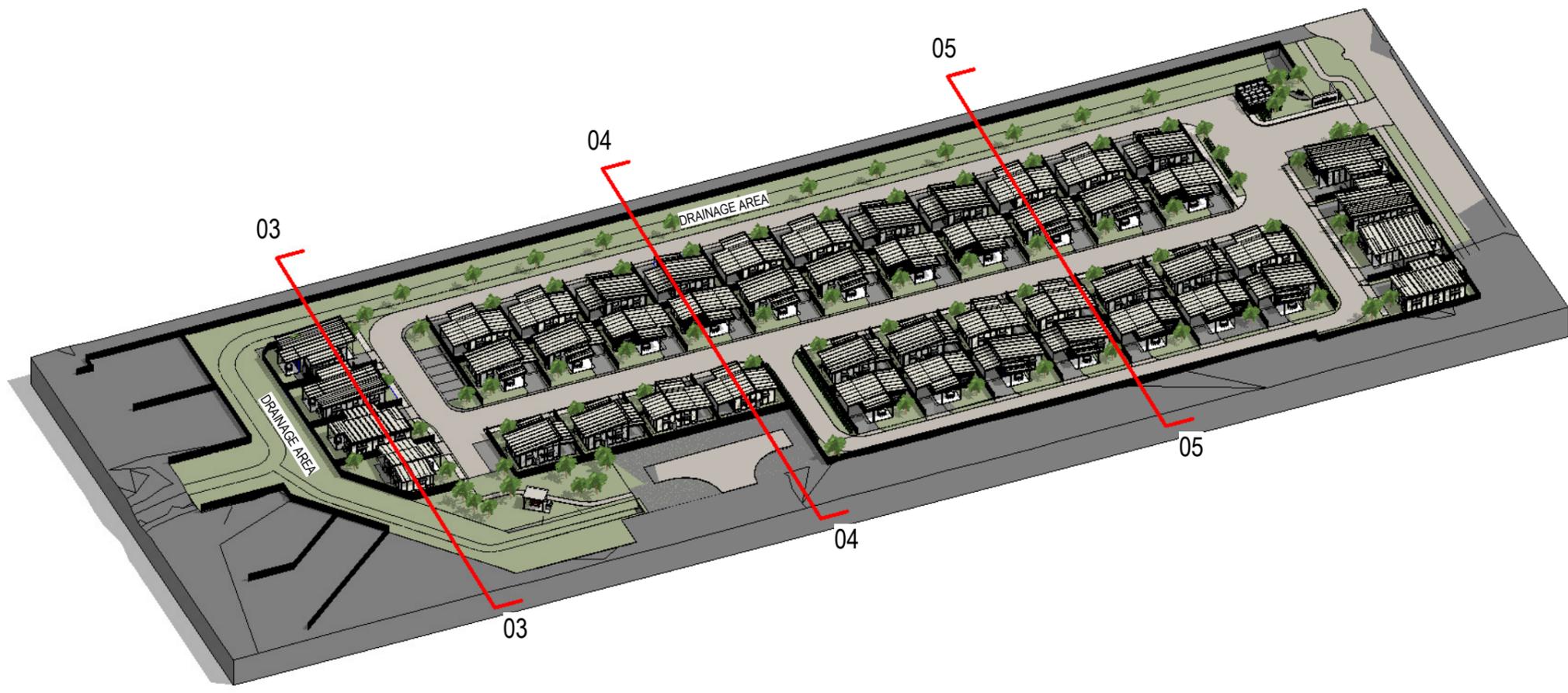
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2 Section 4
1:250



3 Section 5
1:250



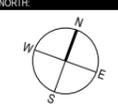
300mm
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10mm

| REVISION | AMENDMENT | DATE |
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SCALE
1:250 @ A1
10 0 10 20 30 40 50 60 70
mm

DRAWN: Author
APPROVED: MICHAEL JULLYAN
CLIENT: BMD
PROJECT: LOT 907 TOWNVILLE
PINNACLE DRIVE



TITLE: SECTIONS

| PROJECT NUMBER: | SHEET NUMBER: | REV. |
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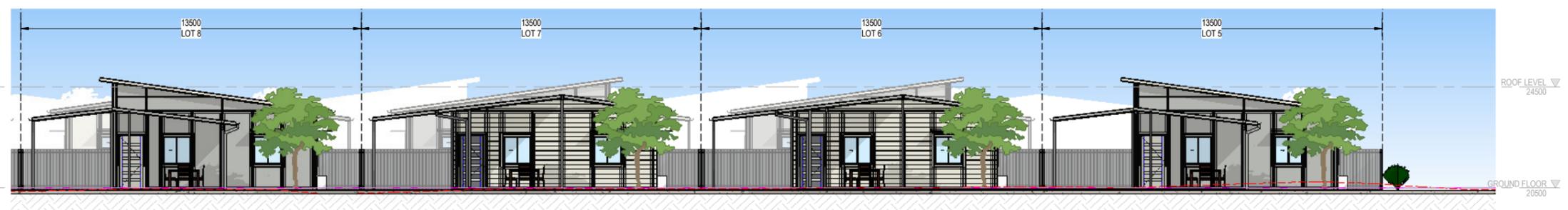
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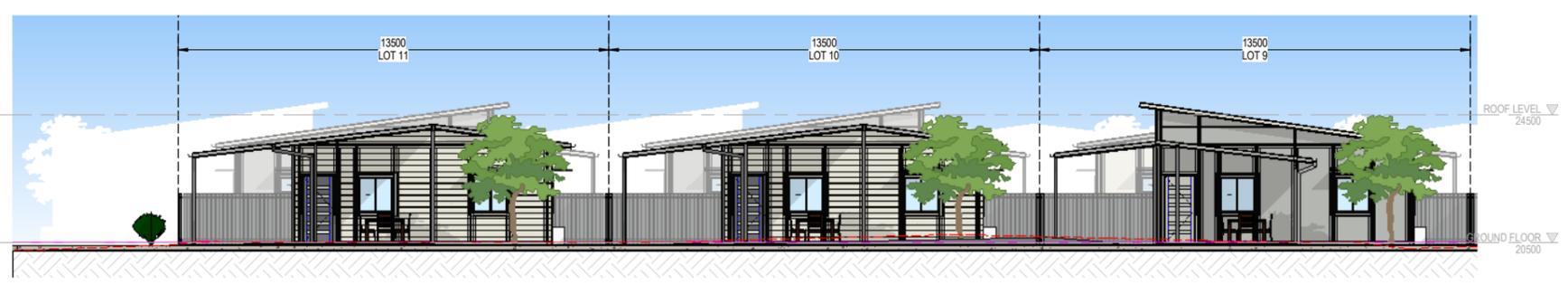
STAGE 12/A1
01.12.2025



1 STREETScape - LOT 1-4
1:100



2 STREETScape - LOT 5-8
1:100



3 Elevation 2 - b Copy 1
1:100

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| MP | MICHAEL JULLYAN | |
| CLIENT: | BMD | |

PROJECT:
LOT 907 TOWNVILLE
PINNACLE DRIVE

TITLE:
ELEVATIONS

| | | |
|-----------------|---------------|------|
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| 27-25 | SD300 | 10 |

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300mm
200mm
100
50
10mm

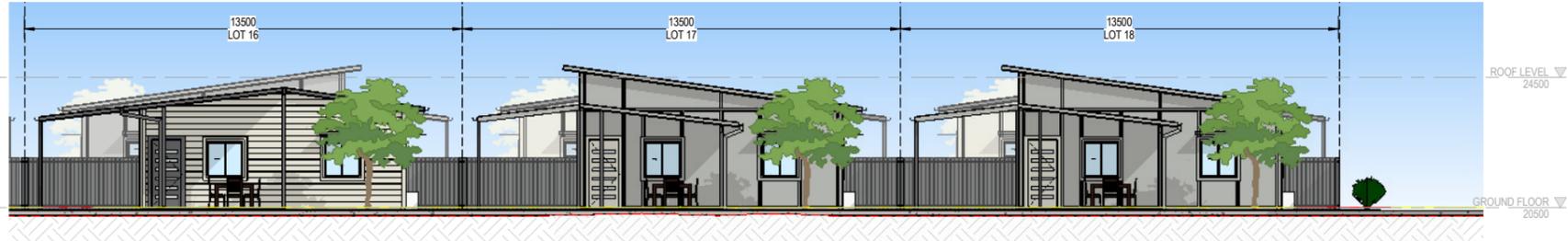
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KEY PLAN:



2 STREETScape - LOT 12-15
1:100



1 STREETScape - LOT 16-18
1:100



3 STREETScape - LOT 19-22
1:100



4 STREETScape - LOT 23-26
1:100

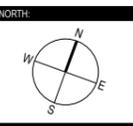
300mm
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SCALE
10 0 10 20 30 40 50 60 70
1:100 @ A1
mm

DRAWN: MP APPROVED: MICHAEL JULLYAN NORTH
CLIENT: BMD



PROJECT:
LOT 907 TOWNVILLE
PINNACLE DRIVE

TITLE:
ELEVATIONS

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KEY PLAN:



1 STREETScape - LOT 27-30
 1:100



2 STREETScape - LOT 31-33
 1:100



3 STREETScape - LOT 34-36
 1:100



4 STREETScape - LOT 37-40
 1:100

300mm
200mm
100
50
10mm

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| 10 | DA-1_BINS ENCLOSURE UPDATE | 01.12.2025 |



DRAWN: Author
 APPROVED: MICHAEL JULLYAN
 CLIENT: BMD
 PROJECT: LOT 907 TOWNVILLE Pinnacle Drive
 TITLE: ELEVATIONS

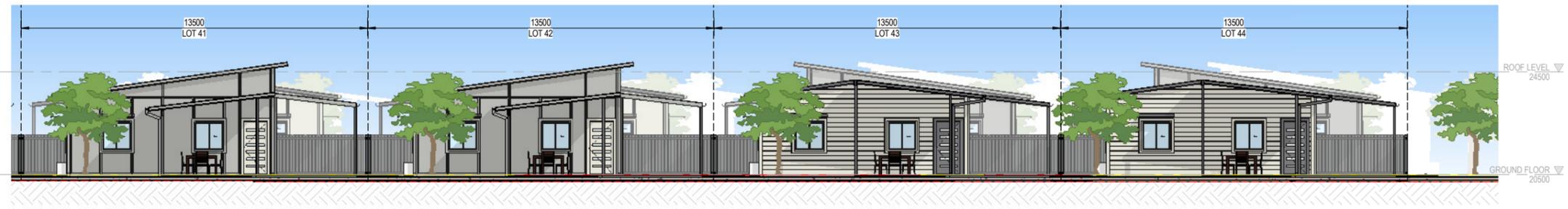
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KEY PLAN



1 STREETScape - LOT 41-44
1:100



2 STREETScape - LOT 45-48
1:100

300mm
200mm
100
50
10mm

| REVISION | AMENDMENT | DATE |
|----------|------------------------------|------------|
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| 6 | OPTION D | 29.10.2025 |
| 7 | TEST ADJOINING SITE 908/B | 03.11.2025 |
| 8 | LOT 45-48 | 20.11.2025 |
| 9 | DA-1 | 26.11.2025 |
| 10 | DA-1_BINS ENCLOSURE UPDATE | 01.12.2025 |



| | | |
|---------|-----------------|--------|
| DRAWN: | APPROVED: | NORTH: |
| MP | MICHAEL JULLYAN | |
| CLIENT: | BMD | |

PROJECT:
**LOT 907 TOWNVILLE
PINNACLE DRIVE**

TITLE:
ELEVATIONS

| | | |
|-----------------|---------------|------|
| PROJECT NUMBER: | SHEET NUMBER: | REV. |
| 27-25 | SD303 | 10 |

**PRELIMINARY ISSUE
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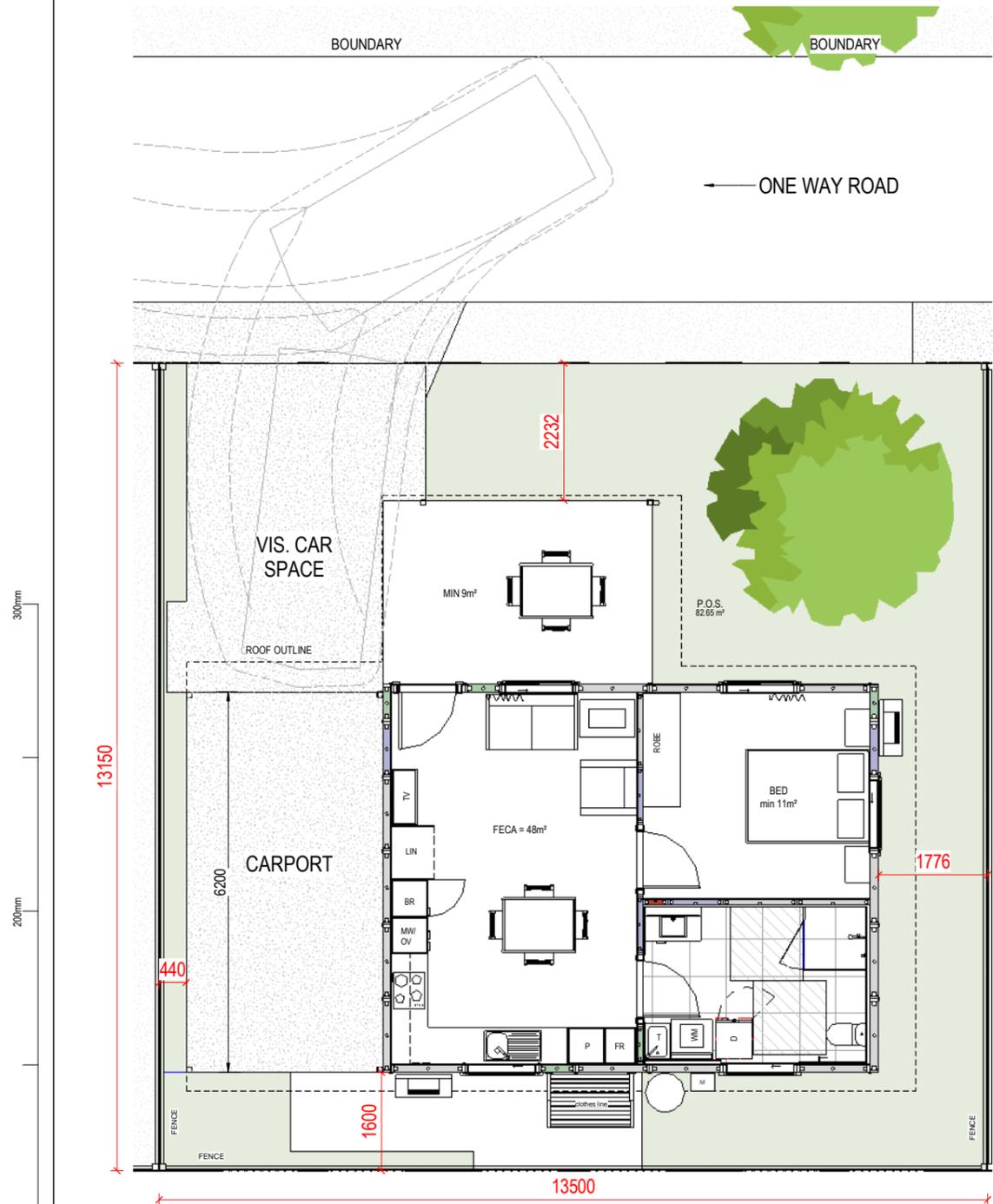
HOUSE 1_1 BED - TYPE 1

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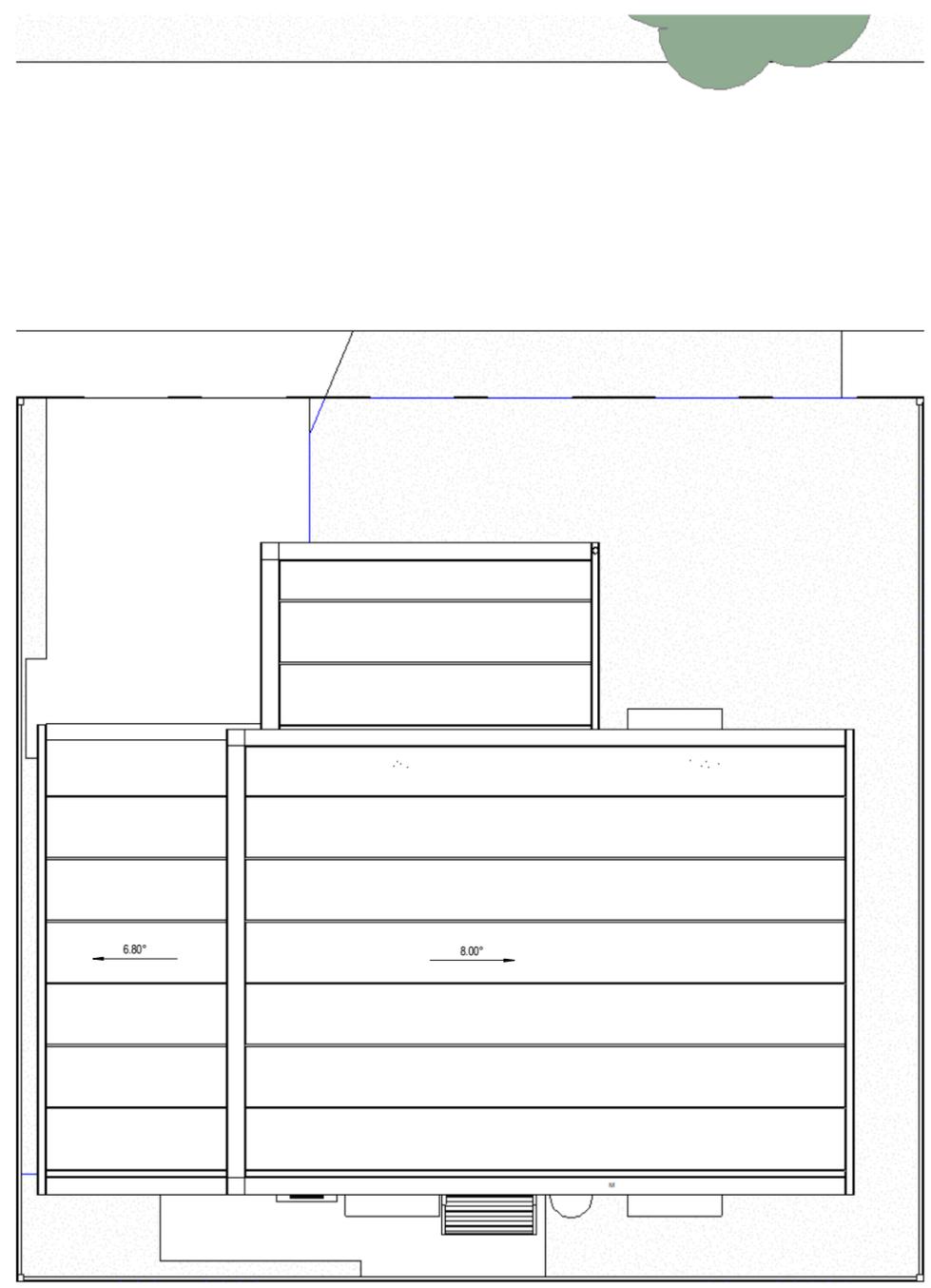
GENERAL NOTES:
Use figured dimensions in preference to scaled. Confirm the scale of hardcopy drawings by using the attached scale bar. Check all dimensions on site before fabrication or before setout.

KEY PLAN

STAGE 12/A1
01.12.2025



1 1 BEDROOM, TYPE 1 GROUND
1:50



2 1 BEDROOM, TYPE 1 ROOF
1:50

| AREAS | |
|---|----------|
| FECA | 48 sqm |
| CARPORT | 19.7 sqm |
| PRIVATE OPEN SPACE | 82.6 sqm |
| <i>CARPORT AND VISITOR BAY EXCLUDED</i> | |
| LOT48 ONLY PRIVATE OPEN SPACE | 130 sqm |
| <i>CARPORT AND VISITOR BAY EXCLUDED</i> | |

| REVISION | AMENDMENT | DATE |
|----------|------------------------------|------------|
| 1 | PRELIMINARY SITE COMPOSITION | 27.05.2025 |
| 2 | INTERSECTION DETAIL | 12.06.2025 |
| 3 | SECOND PASS OVERALL CONCEPTS | 11.08.2025 |
| 4 | SECOND PASS B | 15.08.2025 |
| 5 | OPTION C | 26.09.2025 |
| 6 | OPTION D | 29.10.2025 |
| 7 | TEST ADJOINING SITE 908/B | 03.11.2025 |
| 8 | LOT 45-48 | 20.11.2025 |
| 9 | DA-1 | 26.11.2025 |
| 10 | DA-1_BINS ENCLOSURE UPDATE | 01.12.2025 |

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SCALE
10 0 10 20 30 40 50 60 70
mm

As indicated @ A1
DRAWN: MP APPROVED: MICHAEL JULLYAN NORTH
CLIENT: BMD
PROJECT: LOT 907 TOWNVILLE Pinnacle Drive

TITLE:
1 BED HOUSE - TYPE 1_PLANS

PROJECT NUMBER: 27-25 SHEET NUMBER: SD400 REV: 10

PRELIMINARY ISSUE
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HOUSE 1_1 BED - TYPE 1

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KEY PLAN



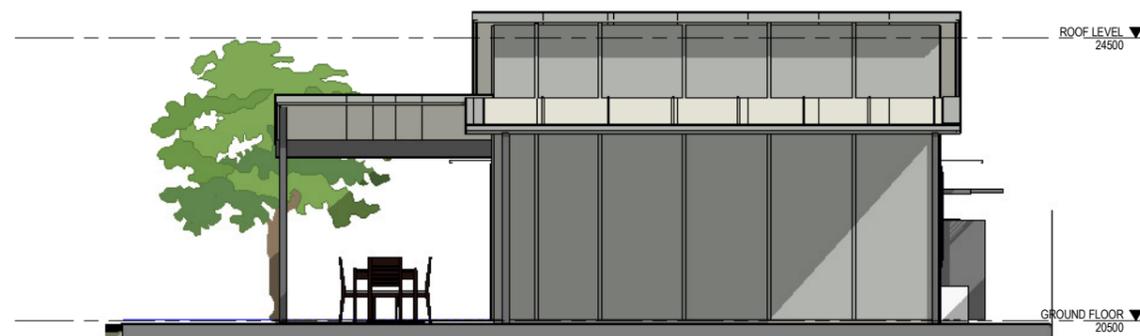
3 1 BED HOUSE - TYPE 1 - FRONT ELEVATION
1:50



2 1 BED HOUSE - TYPE 1 - SIDE 1 ELEVATION
1:50



1 1 BED HOUSE - TYPE 1 - REAR ELEVATION
1:50



4 1 BED HOUSE - TYPE 1 - SIDE 2 ELEVATION
1:50

| COLORS LEGEND | | COLOR SCHEME 1 |
|---------------|----------------------|----------------|
| WALLS | Colorbond SHALE GREY | ● |
| FRONT DOOR | Colorbond SURFMIST | ● |
| WINDOWS | Colorbond SHALE GREY | ● |
| ROOF | Colorbond SURFMIST | ● |
| POSTS | Colorbond BASALT | ● |
| DOWNPIPE | Match Gutter/Fascia | |
| FENCE | Colorbond BASALT | ● |
| SCREENS | Colorbond BASALT | ● |
| SOFFIT | Colorbond SURFMIST | ● |
| GUTTER | Colorbond SHALE GREY | ● |
| FASCIA | Colorbond SHALE GREY | ● |
| HOODS | Colorbond BASALT | ● |

| REVISION | AMENDMENT | DATE |
|----------|------------------------------|------------|
| 1 | PRELIMINARY SITE COMPOSITION | 27.05.2025 |
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| 4 | SECOND PASS B | 15.08.2025 |
| 5 | OPTION C | 26.09.2025 |
| 6 | OPTION D | 29.10.2025 |
| 7 | TEST ADJOINING SITE 908/B | 03.11.2025 |
| 8 | LOT 45-48 | 20.11.2025 |
| 9 | DA-1 | 26.11.2025 |
| 10 | DA-1_BINS ENCLOSURE UPDATE | 01.12.2025 |



| DRAWN | APPROVED | NORTH |
|---------|-----------------|-------|
| MP | MICHAEL JULLYAN | |
| CLIENT: | BMD | |

PROJECT:
**LOT 907 TOWNVILLE
PINNACLE DRIVE**

TITLE:
1 BED HOUSE - TYPE 1_ELEVATIONS

| PROJECT NUMBER | SHEET NUMBER | REV |
|----------------|--------------|-----|
| 27-25 | SD401 | 10 |



**PRELIMINARY ISSUE
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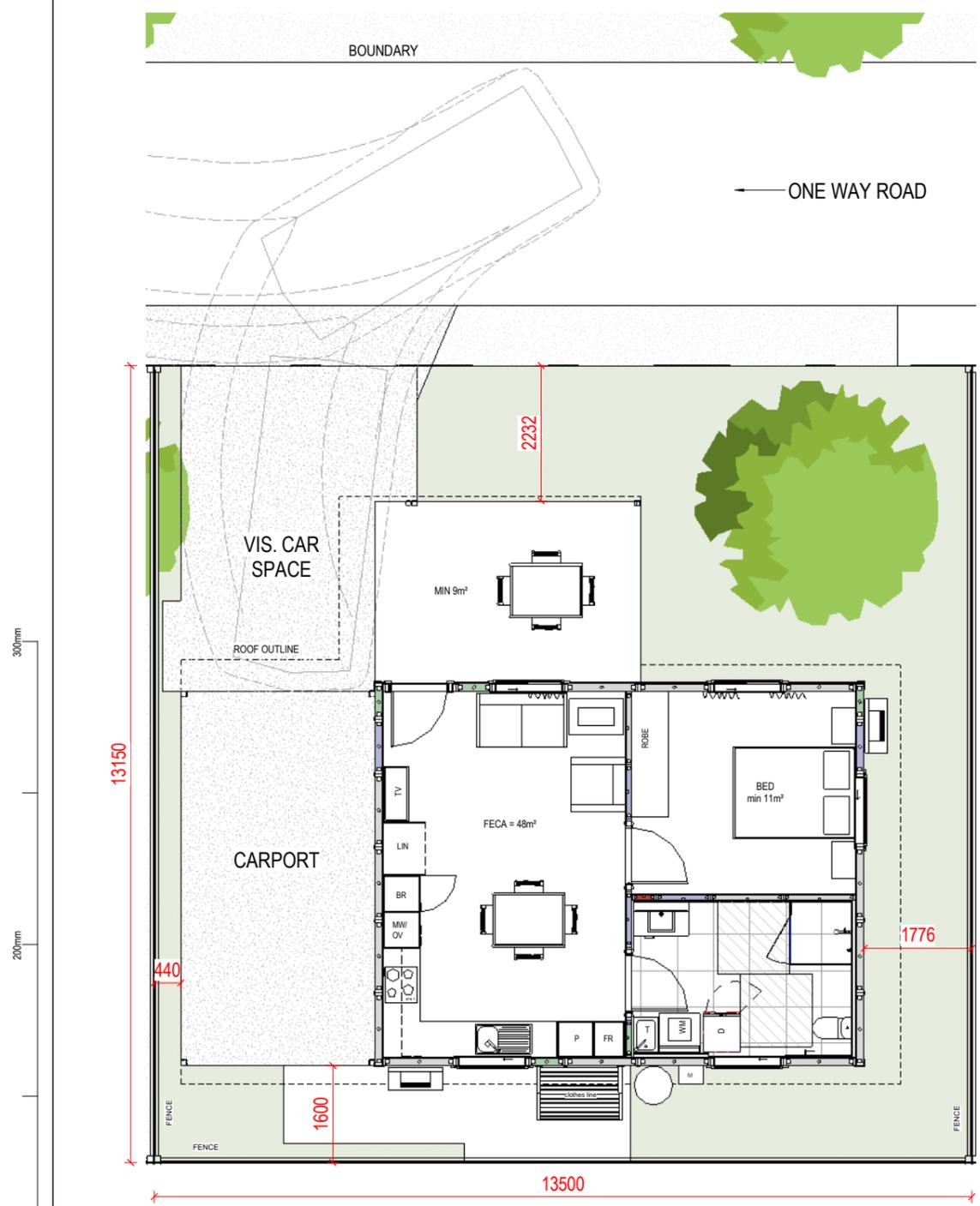
HOUSE 2_1 BED - TYPE 2

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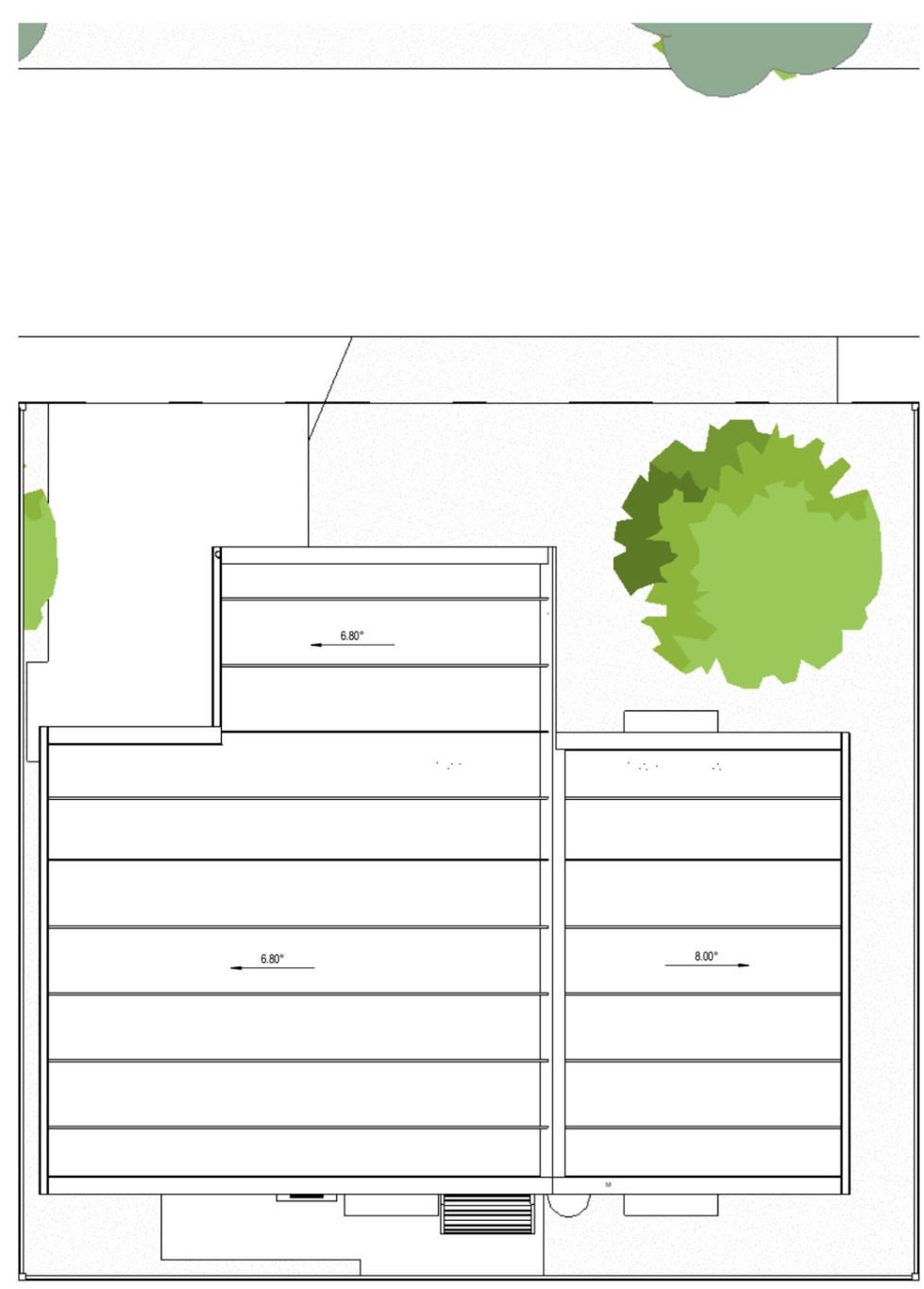
GENERAL NOTES:
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KEY PLAN

STAGE 12/A1
01.12.2025



1 1 BEDROOM TYPE 2_GROUND
1:50



2 1 BEDROOM TYPE 2 ROOF
1:50

| AREAS | |
|---|----------|
| FECA | 48 sqm |
| CARPORT | 19.7 sqm |
| PRIVATE OPEN SPACE | 82.6 sqm |
| <i>CARPORT AND VISITOR BAY EXCLUDED</i> | |
| LOT48 ONLY PRIVATE OPEN SPACE | 130 sqm |
| <i>CARPORT AND VISITOR BAY EXCLUDED</i> | |

LOT48 ONLY

| REVISION | AMENDMENT | DATE |
|----------|------------------------------|------------|
| 1 | PRELIMINARY SITE COMPOSITION | 27.05.2025 |
| 2 | INTERSECTION DETAIL | 12.06.2025 |
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| 5 | OPTION C | 26.09.2025 |
| 6 | OPTION D | 29.10.2025 |
| 7 | TEST ADJOINING SITE 908/B | 03.11.2025 |
| 8 | LOT 45-48 | 20.11.2025 |
| 9 | DA-1 | 26.11.2025 |
| 10 | DA-1_BINS ENCLOSURE UPDATE | 01.12.2025 |



| | | |
|---------|-----------------|--------|
| DRAWN: | APPROVED: | NORTH: |
| MP | MICHAEL JULLYAN | |
| CLIENT: | BMD | |

PROJECT:
**LOT 907 TOWNVILLE
PINNACLE DRIVE**

TITLE:
1 BED HOUSE - TYPE 2_PLANS

| | | |
|-----------------|---------------|------|
| PROJECT NUMBER: | SHEET NUMBER: | REV. |
| 27-25 | SD402 | 10 |

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HOUSE 2_1 BED - TYPE 2

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KEY PLAN



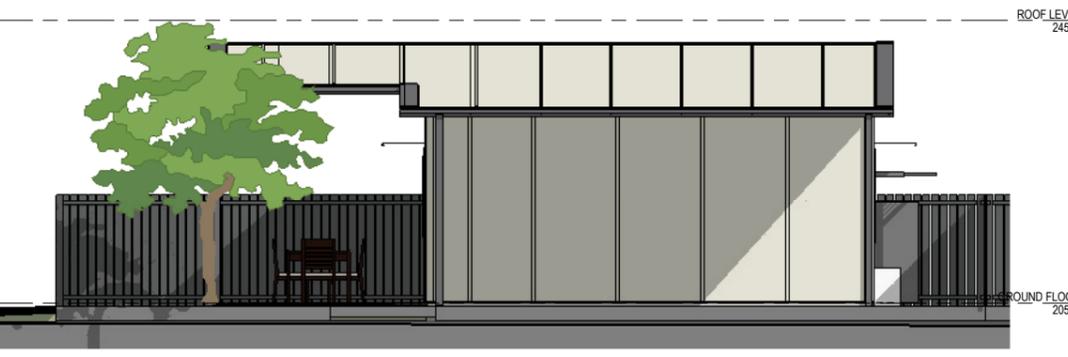
3 1 BED HOUSE - TYPE 2 - FRONT ELEVATIONS
1:50



2 1 BED HOUSE - TYPE 2 - SIDE 1 ELEVATIONS
1:50



1 1 BED HOUSE - TYPE 2 - REAR ELEVATIONS
1:50



4 1 BED HOUSE - TYPE 2 - SIDE 2 ELEVATIONS
1:50

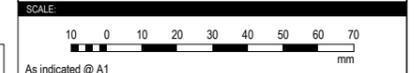
300mm
200mm
100
50
10mm

| COLORS LEGEND | | COLOR SCHEME 2 |
|---------------|---------------------|----------------|
| WALLS | Colorbond SURFMIST | |
| FRONT DOOR | Colorbond BASALT | |
| WINDOWS | Colorbond SURFMIST | |
| ROOF | Colorbond SURFMIST | |
| POSTS | Colorbond BASALT | |
| DOWNPIPE | Match Gutter/Fascia | |
| FENCE | Colorbond BASALT | |
| SCREENS | Colorbond BASALT | |
| SOFFIT | Colorbond SURFMIST | |
| GUTTER | Colorbond BASALT | |
| FASCIA | Colorbond BASALT | |
| HOODS | Colorbond BASALT | |



| REVISION | AMENDMENT | DATE |
|----------|------------------------------|------------|
| 1 | PRELIMINARY SITE COMPOSITION | 27.05.2025 |
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| 6 | OPTION D | 29.10.2025 |
| 7 | TEST ADJOINING SITE 908/B | 03.11.2025 |
| 8 | LOT 45-48 | 20.11.2025 |
| 9 | DA-1 | 26.11.2025 |
| 10 | DA-1_BINS ENCLOSURE UPDATE | 01.12.2025 |

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| DRAWN | APPROVED | NORTH |
|---------|-----------------|-------|
| MP | MICHAEL JULLYAN | |
| CLIENT: | BMD | |

PROJECT:
LOT 907 TOWNSVILLE
PINNACLE DRIVE

TITLE:
1 BED HOUSE - TYPE 2_ELEVATIONS

PRELIMINARY ISSUE
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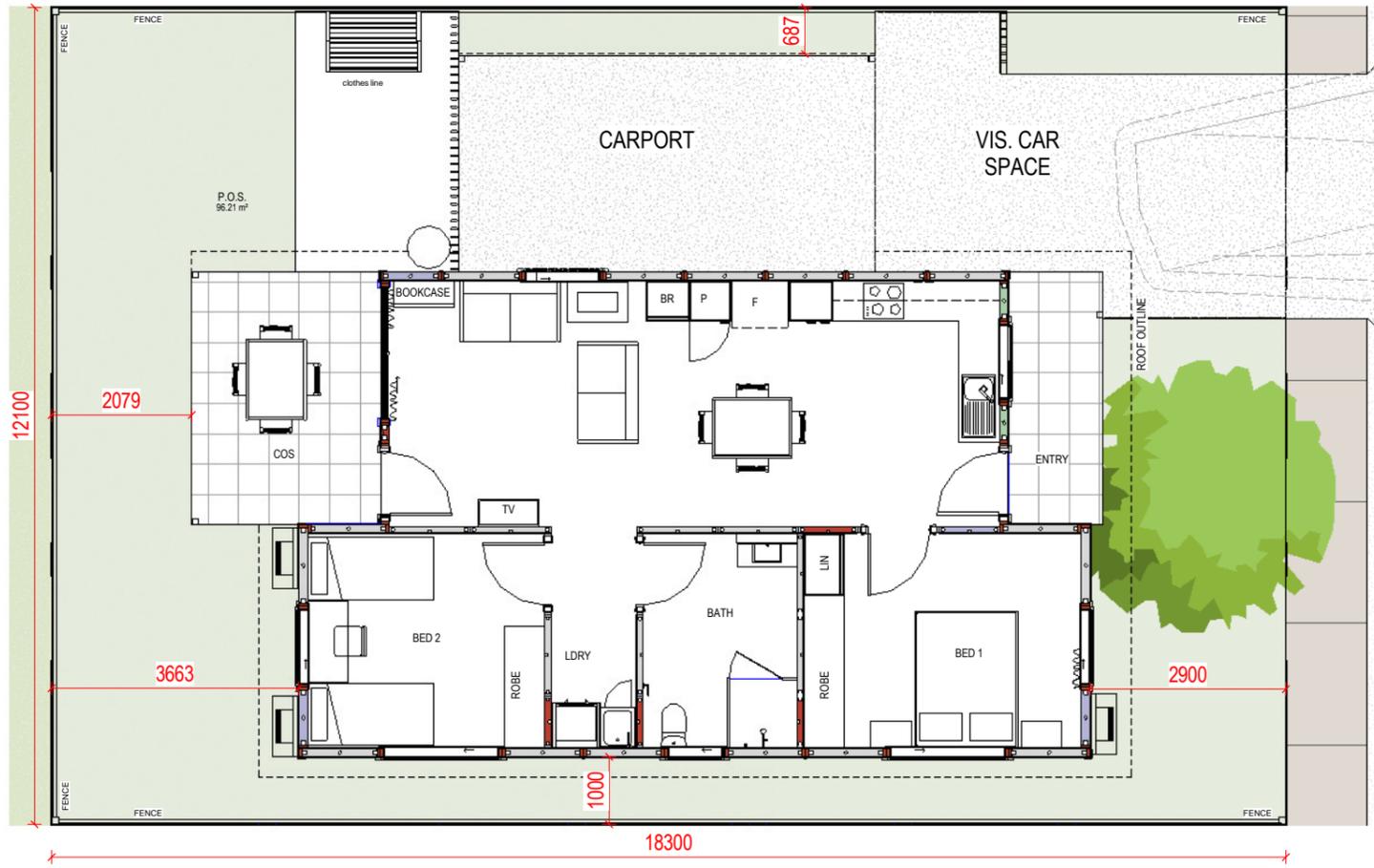
| PROJECT NUMBER: | SHEET NUMBER: | REV. |
|-----------------|---------------|------|
| 27-25 | SD403 | 10 |

HOUSE 3_2 BED - TYPE 1

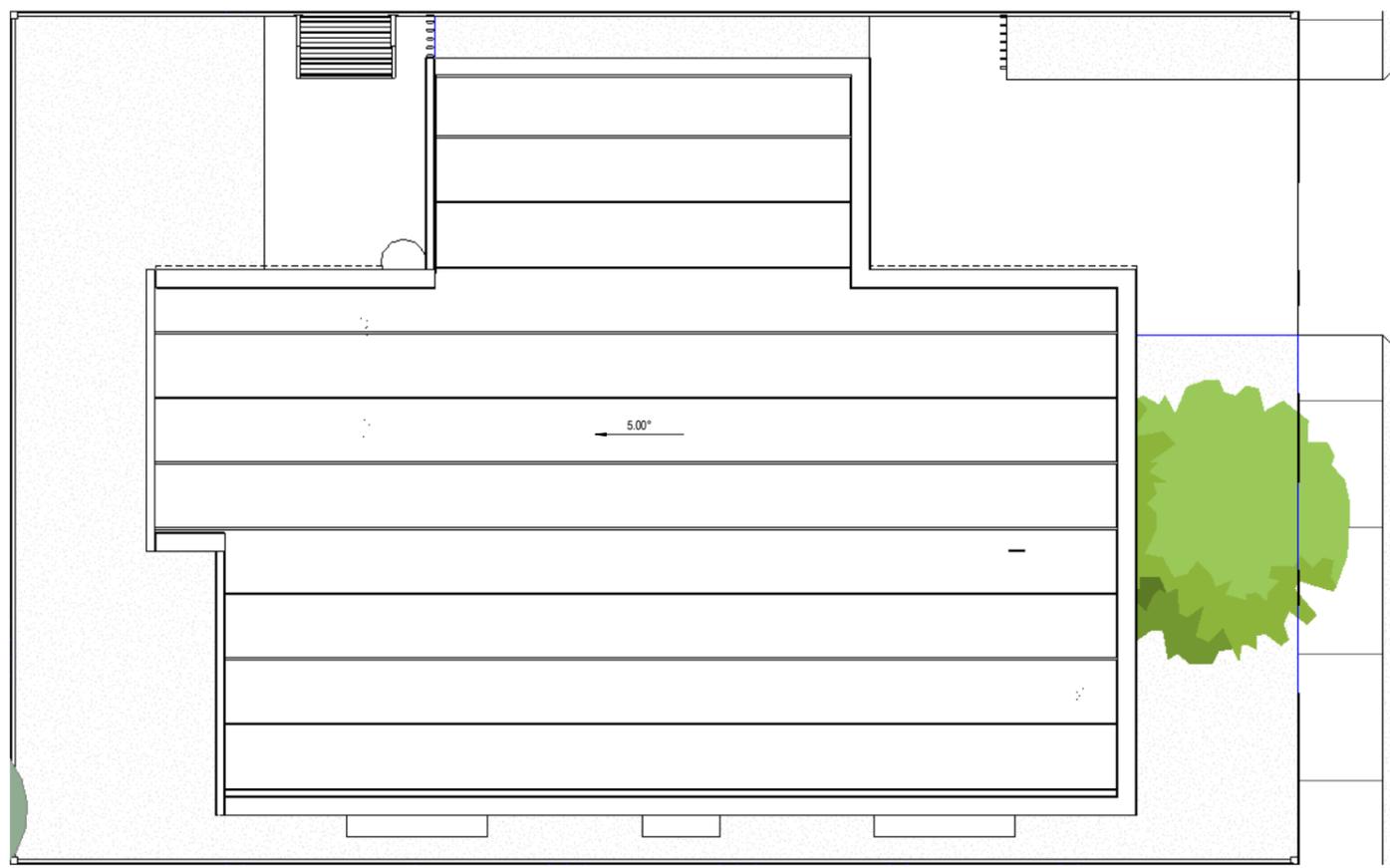
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KEY PLAN



1 2 BEDROOM, TYPE 1, GROUND
1:50



2 2 BEDROOM, TYPE 1, ROOF
1:50

| AREAS | |
|-------------------------------|---|
| FECA | 70 sqm |
| CARPORT | 19.7 sqm |
| LOTS 1-4 PRIVATE OPEN SPACE | 82 sqm <small>CARPORT AND VISITOR BAY EXCLUDED</small> |
| LOTS 45-47 PRIVATE OPEN SPACE | 96.2 sqm <small>CARPORT AND VISITOR BAY EXCLUDED</small> |

| REVISION | AMENDMENT | DATE |
|----------|------------------------------|------------|
| 1 | PRELIMINARY SITE COMPOSITION | 27.05.2025 |
| 2 | INTERSECTION DETAIL | 12.06.2025 |
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| 6 | OPTION D | 29.10.2025 |
| 7 | TEST ADJOINING SITE 908/B | 03.11.2025 |
| 8 | LOT 45-48 | 20.11.2025 |
| 9 | DA-1 | 26.11.2025 |
| 10 | DA-1_BINS ENCLOSURE UPDATE | 01.12.2025 |



DRAWN: MP APPROVED: MICHAEL JULLYAN NORTH

CLIENT: BMD

PROJECT: LOT 907 TOWNSVILLE PINNACLE DRIVE

TITLE: 2 BED HOUSE - TYPE 1_PLANS

| PROJECT NUMBER: | SHEET NUMBER: | REV. |
|-----------------|---------------|------|
| 27-25 | SD404 | 10 |

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

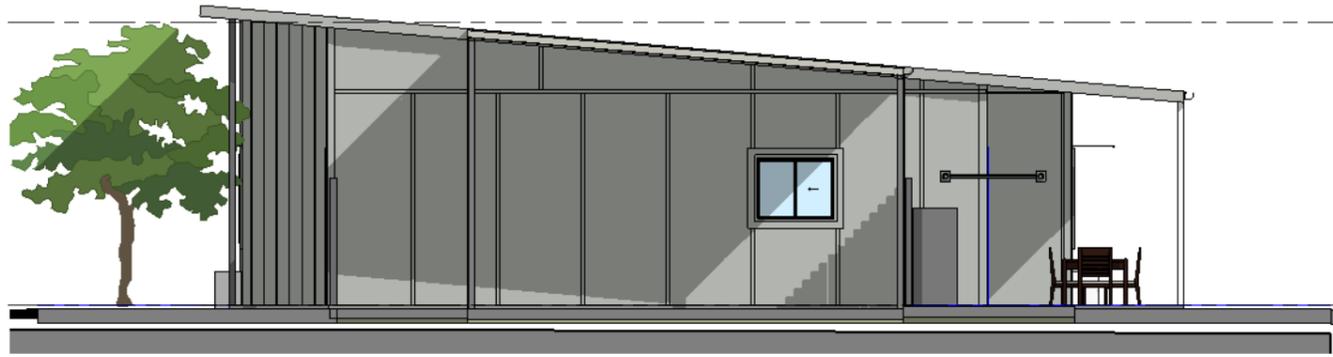
300mm
200mm
100
50
10mm

HOUSE 3_2 BED - TYPE 1

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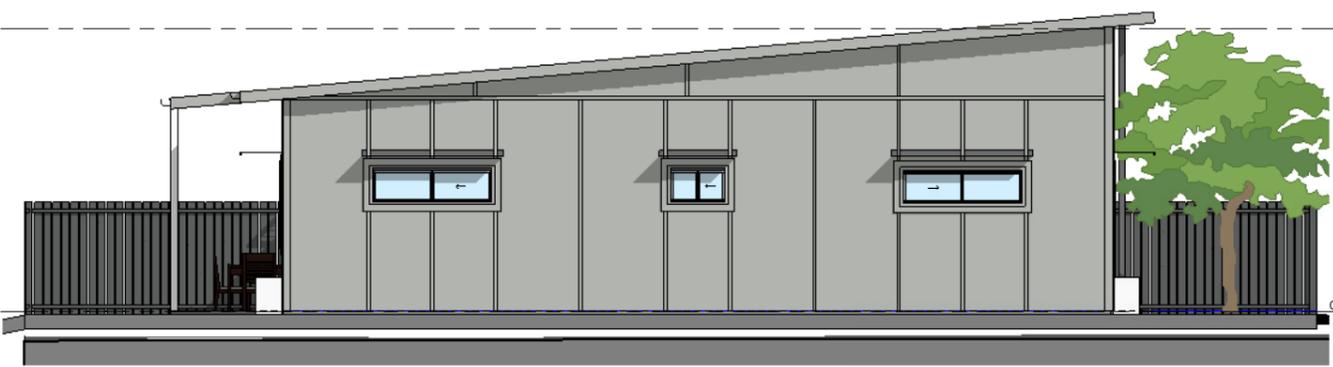
KEY PLAN



1 2 BED HOUSE - TYPE 1 - FRONT ELEVATIONS1
1:50



3 2 BED HOUSE - TYPE 1 - SIDE 1 ELEVATIONS1
1:50



2 2 BED HOUSE - TYPE 1 - REAR ELEVATIONS1
1:50



4 2 BED HOUSE - TYPE 1 - SIDE 2 ELEVATIONS1
1:50

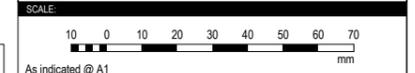
300mm
200mm
100
50
10mm

| COLORS LEGEND | | COLOR SCHEME 1 |
|---------------|----------------------|----------------|
| WALLS | Colorbond SHALE GREY | ● |
| FRONT DOOR | Colorbond SURFMIST | ● |
| WINDOWS | Colorbond SHALE GREY | ● |
| ROOF | Colorbond SURFMIST | ● |
| POSTS | Colorbond BASALT | ● |
| DOWNPIPE | Match Gutter/Fascia | |
| FENCE | Colorbond BASALT | ● |
| SCREENS | Colorbond BASALT | ● |
| SOFFIT | Colorbond SURFMIST | ● |
| GUTTER | Colorbond SHALE GREY | ● |
| FASCIA | Colorbond SHALE GREY | ● |
| HOODS | Colorbond BASALT | ● |



| REVISION | AMENDMENT | DATE |
|----------|------------------------------|------------|
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| 6 | OPTION D | 29.10.2025 |
| 7 | TEST ADJOINING SITE 908/B | 03.11.2025 |
| 8 | LOT 45-48 | 20.11.2025 |
| 9 | DA-1 | 26.11.2025 |
| 10 | DA-1_BINS ENCLOSURE UPDATE | 01.12.2025 |

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| | | | |
|-------------------|-------------|---------------------------|-------|
| As indicated @ A1 | DRAWN: MP | APPROVED: MICHAEL JULLYAN | NORTH |
| | CLIENT: BMD | | |

PROJECT:
LOT 907 TOWNVILLE
PINNACLE DRIVE

TITLE:
2 BED HOUSE - TYPE 1_ELEVATIONS

| | | |
|-----------------------|---------------------|---------|
| PROJECT NUMBER: 27-25 | SHEET NUMBER: SD405 | REV: 10 |
|-----------------------|---------------------|---------|

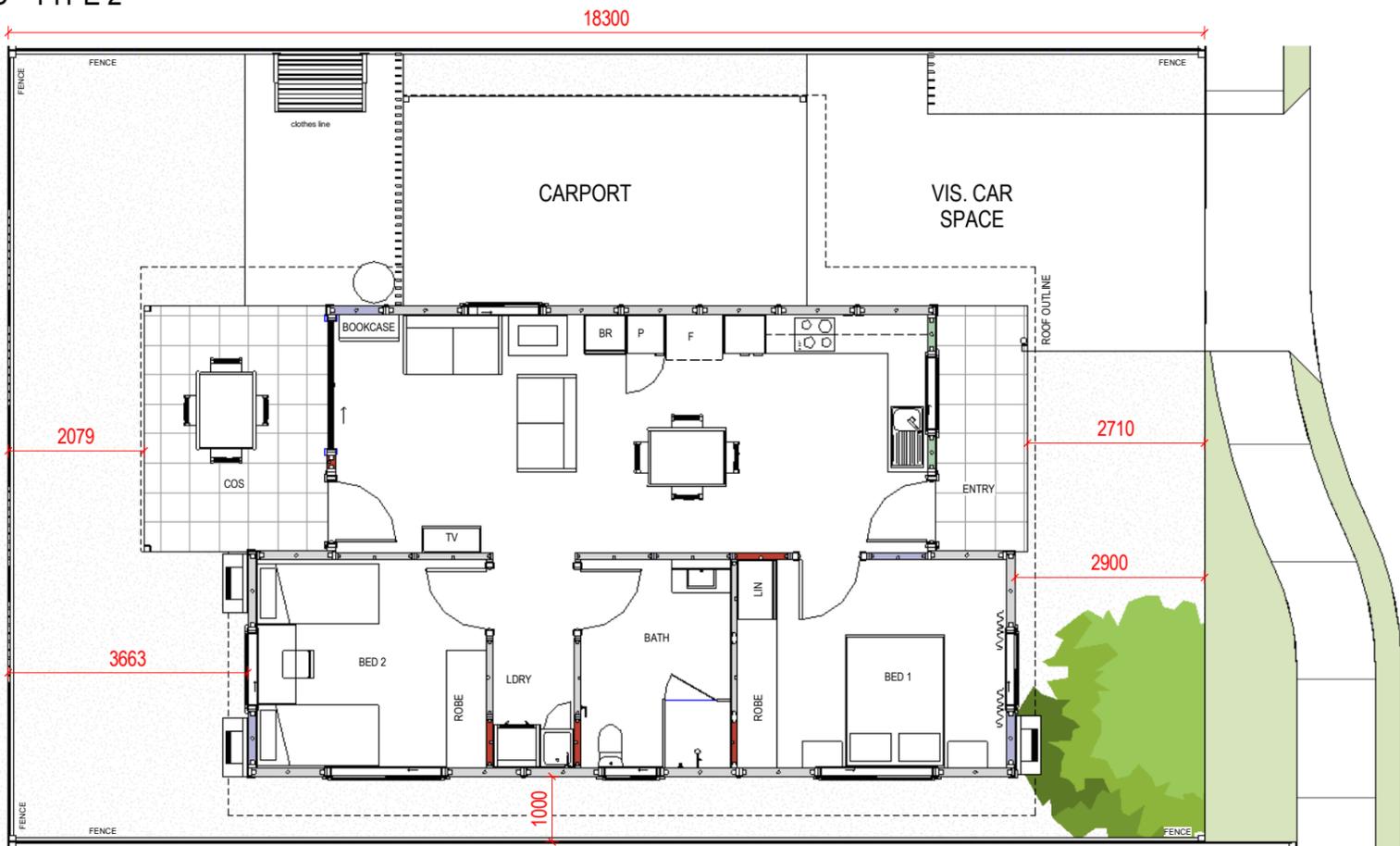
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HOUSE 4_2 BED - TYPE 2

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KEY PLAN



1 2 BEDROOM_TYPE 2_GROUND
1:50



2 2 BEDROOM_TYPE 2_ROOF
1:50

| AREAS | |
|-------------------------------|---|
| FECA | 70 sqm |
| CARPORT | 19.7 sqm |
| LOTS 1-4 PRIVATE OPEN SPACE | 82 sqm <small>CARPORT AND VISITOR BAY EXCLUDED</small> |
| LOTS 45-47 PRIVATE OPEN SPACE | 96.2 sqm <small>CARPORT AND VISITOR BAY EXCLUDED</small> |

| REVISION | AMENDMENT | DATE |
|----------|------------------------------|------------|
| 1 | PRELIMINARY SITE COMPOSITION | 27.05.2025 |
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| 6 | OPTION D | 29.10.2025 |
| 7 | TEST ADJOINING SITE 908/B | 03.11.2025 |
| 8 | LOT 45-48 | 20.11.2025 |
| 9 | DA-1 | 26.11.2025 |
| 10 | DA-1_BINS ENCLOSURE UPDATE | 01.12.2025 |



DRAWN: MP APPROVED: MICHAEL JULLYAN NORTH

CLIENT: BMD

PROJECT: LOT 907 TOWNVILLE PINNACLE DRIVE

TITLE: 2 BED HOUSE - TYPE 2_PLANS

| PROJECT NUMBER: | SHEET NUMBER: | REV. |
|-----------------|---------------|------|
| 27-25 | SD406 | 10 |

PRELIMINARY ISSUE
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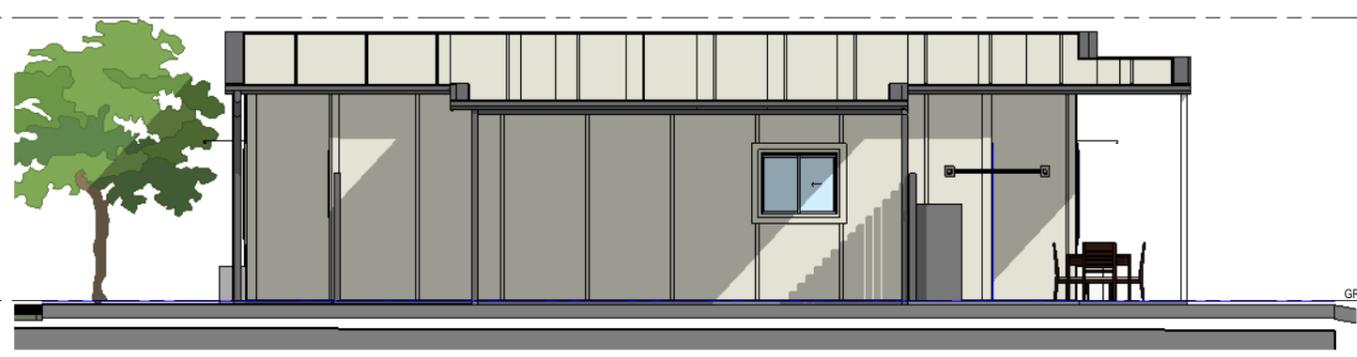


HOUSE 4_ 2 BED - TYPE 2

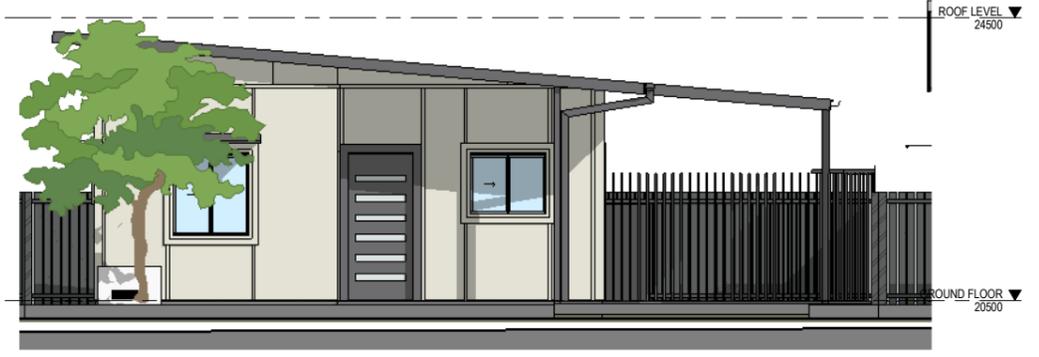
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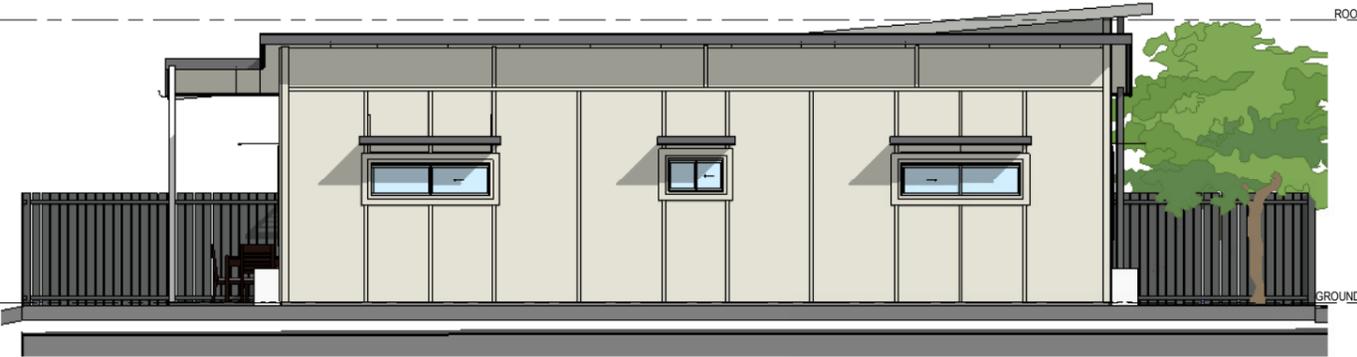
KEY PLAN:



1 2 BED HOUSE - TYPE 2 - FRONT ELEVATIONS2
1:50



3 2 BED HOUSE - TYPE 2 - SIDE 1 ELEVATIONS2
1:50



2 2 BED HOUSE - TYPE 2 - REAR ELEVATIONS2
1:50



4 2 BED HOUSE - TYPE 2 - SIDE 2 ELEVATIONS2
1:50

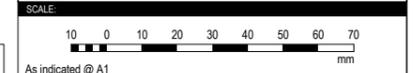
300mm
200mm
100
50
10mm

| COLORS LEGEND | | COLOR SCHEME 2 |
|---------------|---------------------|----------------|
| WALLS | Colorbond SURFMIST | ● |
| FRONT DOOR | Colorbond BASALT | ● |
| WINDOWS | Colorbond SURFMIST | ● |
| ROOF | Colorbond SURFMIST | ● |
| POSTS | Colorbond BASALT | ● |
| DOWNPIPE | Match Gutter/Fascia | |
| FENCE | Colorbond BASALT | ● |
| SCREENS | Colorbond BASALT | ● |
| SOFFIT | Colorbond SURFMIST | ● |
| GUTTER | Colorbond BASALT | ● |
| FASCIA | Colorbond BASALT | ● |
| HOODS | Colorbond BASALT | ● |



| REVISION | AMENDMENT | DATE |
|----------|------------------------------|------------|
| 1 | PRELIMINARY SITE COMPOSITION | 27.05.2025 |
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| 9 | DA-1 | 26.11.2025 |
| 10 | DA-1_BINS ENCLOSURE UPDATE | 01.12.2025 |

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| | | |
|---------|-----------------|-------|
| DRAWN: | APPROVED: | NORTH |
| MP | MICHAEL JULLYAN | |
| CLIENT: | | |
| BMD | | |

PROJECT:
LOT 907 TOWNVILLE
PINNACLE DRIVE

TITLE:
2 BED HOUSE - TYPE 2_ELEVATIONS

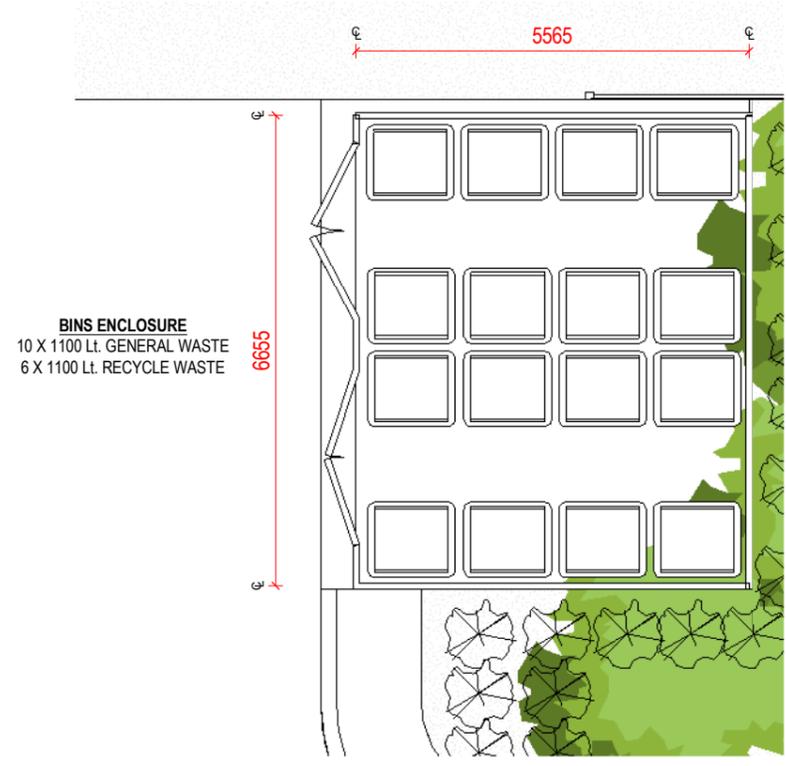
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| PROJECT NUMBER: | SHEET NUMBER: | REV. |
| 27-25 | SD407 | 10 |

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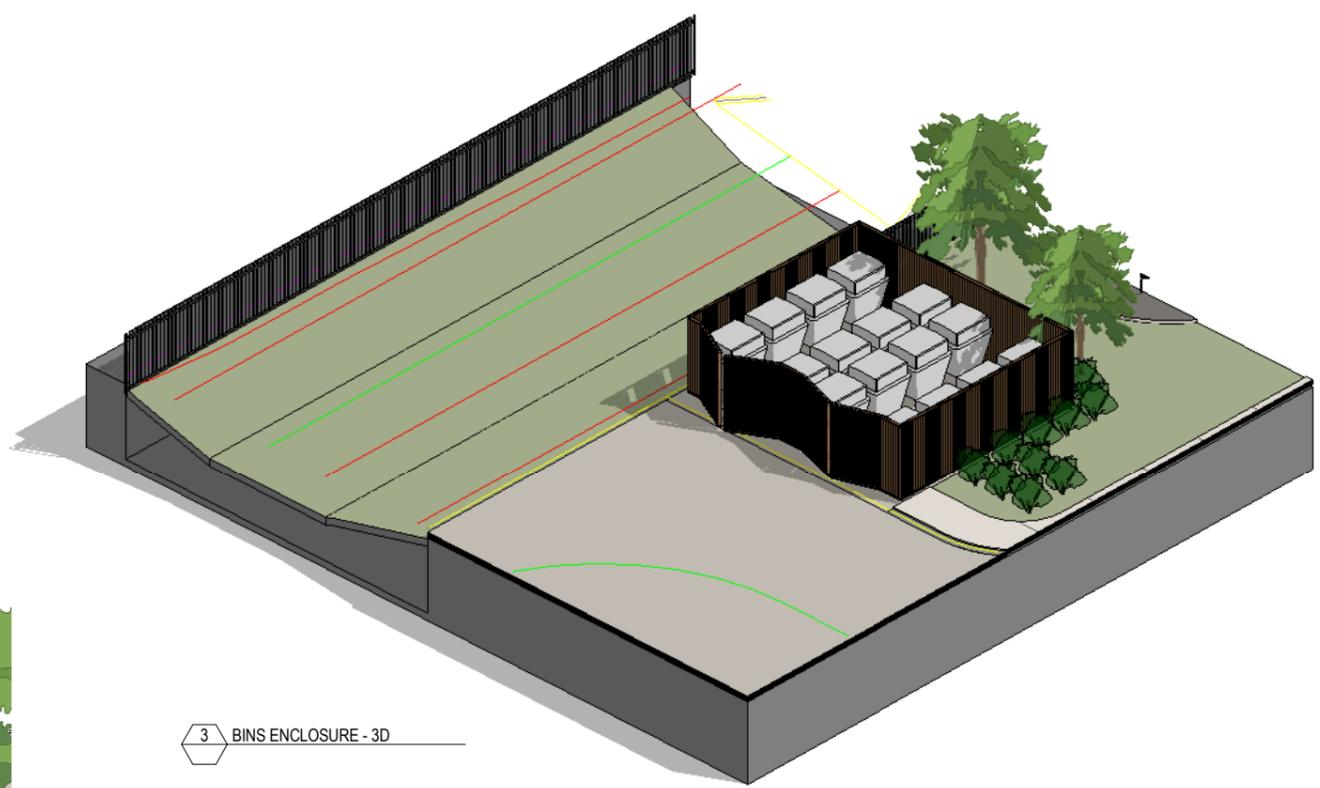
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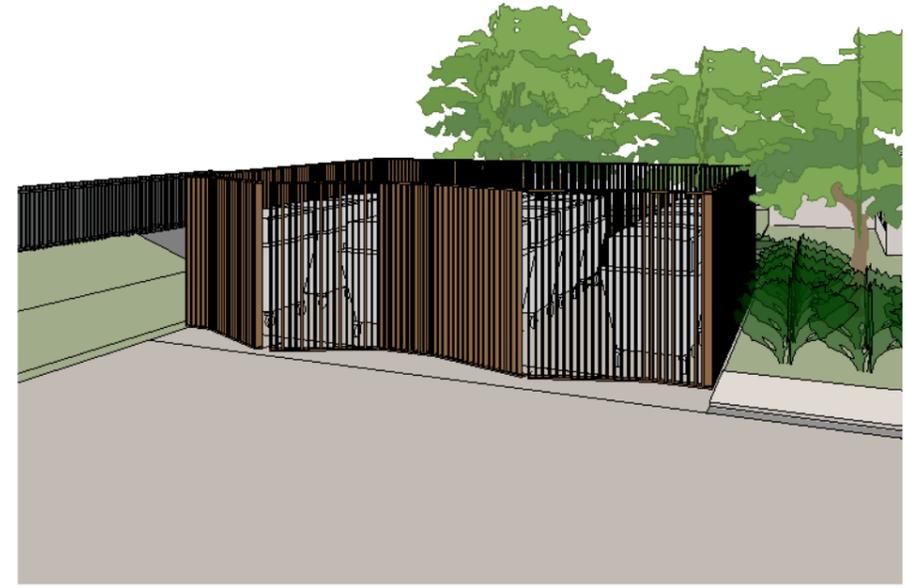
KEY PLAN



1 BINS ENCLOSURE 1
1:50



3 BINS ENCLOSURE - 3D



2 BINS ENCLOSURE 1 - 3D

| REVISION | AMENDMENT | DATE |
|----------|------------------------------|------------|
| 1 | PRELIMINARY SITE COMPOSITION | 27.05.2025 |
| 2 | INTERSECTION DETAIL | 12.06.2025 |
| 3 | SECOND PASS OVERALL CONCEPTS | 11.08.2025 |
| 4 | SECOND PASS B | 15.08.2025 |
| 5 | OPTION C | 26.09.2025 |
| 6 | OPTION D | 29.10.2025 |
| 7 | TEST ADJOINING SITE 908/B | 03.11.2025 |
| 8 | LOT 45-48 | 20.11.2025 |
| 9 | DA-1 | 26.11.2025 |
| 10 | DA-1_BINS ENCLOSURE UPDATE | 01.12.2025 |

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| | | |
|---------|-----------------|--------|
| DRAWN: | APPROVED: | NORTH: |
| MP | MICHAEL JULLYAN | |
| CLIENT: | | |
| BMD | | |

PROJECT:
LOT 907 TOWNSVILLE
PINNACLE DRIVE

TITLE:
BIN ENCLOSURE DETAIL

| | | |
|-----------------|---------------|------|
| PROJECT NUMBER: | SHEET NUMBER: | REV. |
| 27-25 | SD500 | 10 |

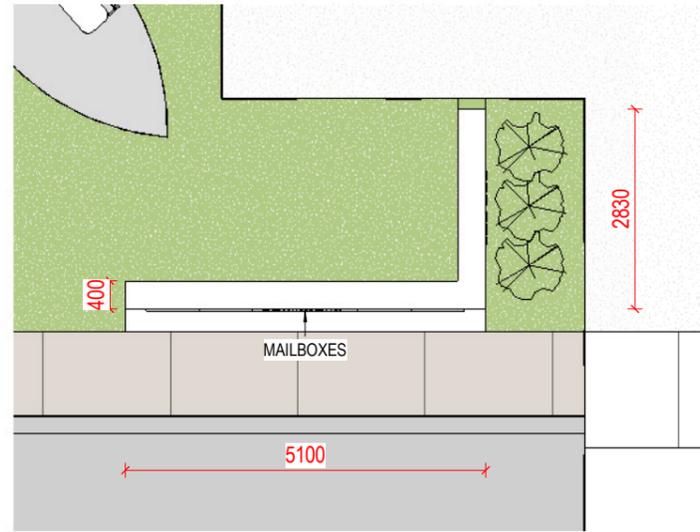
PRELIMINARY ISSUE
NOT FOR CONSTRUCTION



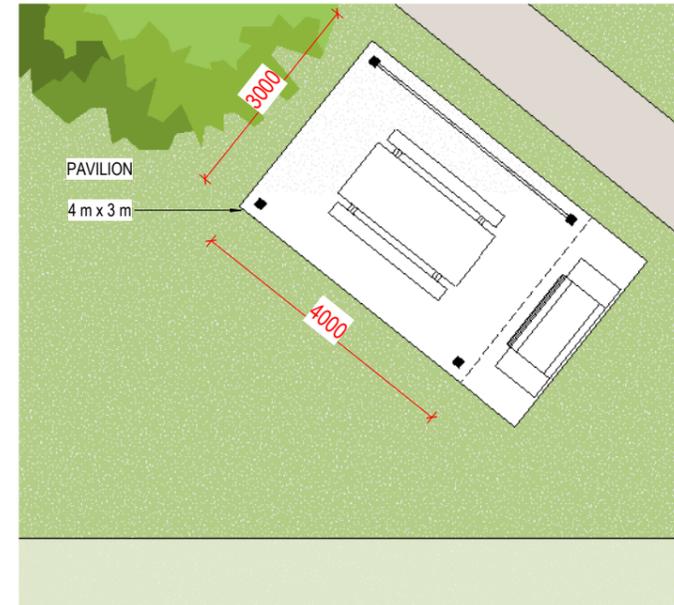
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GENERAL NOTES:
Use figured dimensions in preference to scaled. Confirm the scale of hardcopy drawings by using the attached scale bar. Check all dimensions on site before fabrication or before setup.

KEY PLAN



1 MAILBOXES - PLAN
1:50



2 BBQ PAVILION - PLAN
1:50



3 MAILBOXES - VIEW 1



5 3D View 5



4 MAILBOXES - VIEW 2



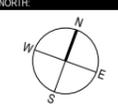
6 3D View 6

| REVISION | AMENDMENT | DATE |
|----------|------------------------------|------------|
| 1 | PRELIMINARY SITE COMPOSITION | 27.05.2025 |
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SCALE
1:50 @ A1
10 0 10 20 30 40 50 60 70
mm

DRAWN: MP APPROVED: MICHAEL JULLYAN NORTH
CLIENT: BMD



PROJECT:
LOT 907 TOWNVILLE
PINNACLE DRIVE

TITLE:
MAILBOXES & BBQ PAVILION DETAIL

| PROJECT NUMBER: | SHEET NUMBER: | REV. |
|-----------------|---------------|------|
| 27-25 | SD501 | 10 |

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

300mm
200mm
100
50
10mm

