



SITE BASED STORMWATER MANAGEMENT PLAN

Proposed Commercial Development
Joy ELC Holdings Pty Ltd ATF Joy ELC Holdings Unit Trust
Lot 10 Aura Boulevard, Baringa

Approved by:
Mr Tristan Nelson
Director
Cozens Regan Group Pty Ltd
RPEQ 15735

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EXECUTIVE SUMMARY

This report examines and evaluates options for Stormwater Management during the construction and operational phase for the proposed subdivision and commercial development at Lot 10 Aura Boulevard, Baringa.

The strategies proposed in this report will provide short and long term community benefits with an Environmentally Sensitive Design emphasis.

The Water Sensitive Urban Design objectives are met by:

Erosion and Sediment Control

Provision of sediment fencing and drainage structure protection during construction.

Stormwater Quality

Stormwater quality management associated with the development has been assessed as part of the approved SMEC Technical Memorandum for Aura Business Park Stage 22A.

In accordance with the requirements of the approved plan, rainwater tanks are to be provided for reuse of harvested roofwater for all buildings and at-source stormwater pit filter baskets are to be installed to provide stormwater quality treatment prior to discharge from the site

Stormwater Quantity

The lawful point of discharge is to be maintained following development of the site. The lawful point of discharge comprises the proposed stormwater pit and pipe system located at the south-eastern corner of the site, which discharges to the proposed stormwater drainage network within the new circulating roadway to the east.

Mitigation of peak stormwater discharge is not required, as the original subdivision design incorporated allowances for the full development potential of all lots within the estate, including the subject site.

1.0 INTRODUCTION

1.1 GENERAL INTRODUCTION

Cozens Regan Group Pty Ltd has been commissioned by Joy ELC Holdings Pty Ltd ATF Joy ELC Holdings Unit Trust to prepare a Site Based Stormwater Management Plan for the proposed subdivision and commercial development at Lot 10 Aura Boulevard, Baringa.

This Site Based Stormwater Management Plan is required to support a Reconfiguration of Lot and Material Change of Use application to Economic Development Queensland (EDQ). The proposed area of works is shown on the architectural site plan contained in Appendix A.

1.2 SCOPE OF PLAN

In accordance with Sunshine Coast City Council's Planning Scheme Policy the matters which have been addressed within the scope of this report are described below.

- Erosion and Sediment Control
- Stormwater Quality
- Stormwater Quantity
- Flooding and Overland Flow

1.3 SITE LOCATION

At the time of writing this report the subject lot does not exist, however it is proposed as Lot 10 as part of the proposed Aura Business Park (ABP) within Precinct 4 Stage 22A as referred to in the approved DEV2013/439 Plan of Development (PoD) dated 25/01/2024.

The site will be bound by a circulating road proposed as part of the overarching subdivision and the site is currently located to the west of Aura Boulevard and South of Graf Drive.

The location of the subject site and broader overarching subdivision is also shown below.



Figure 1 - Aura Business Park Stage 22A Precinct Plan

1.4 SITE DESCRIPTION

The site is currently vacant due to its recent creation under the Aura Business Park subdivision.

The site falls generally from the north to south with grade of approximately 1% towards new circulating roadway. The levels of the site range from RL 9.90m in the north-west corner down to RL 8.60 m in the south-east corner of the site.

The total site area is equal to 7,731m².

An existing stormwater connection is provided on site with an existing field inlet in the southern corner connecting to the council drainage network in the new circulating roadway.

Other services including sewer and water supply are also being made available to the site as part of the associated subdivision.

1.5 DESCRIPTION OF DEVELOPMENT

The proposed development involves a proposed combined Reconfiguration of Lot and Mixed use commercial development involving the creation of 3 new allotments and including retail tenancies, parkland and childcare centre over the site.

Proposed works involve the construction of buildings, carparking, parklands, outdoor dining, outdoor play areas and landscaping.

Refer Architectural Plans contained within Appendix A for more information in regard to the proposed development.

2.0 SEDIMENT AND EROSION CONTROL

2.1 OBJECTIVES

The objectives of this erosion and sediment control plan are:

- a) To ensure that the water quality of the receiving waters is not worsened by the site development.
- b) Minimise sediment transport in surface water runoff during the construction and operational stages.
- c) Provide a monitoring and maintenance programme for implementation during the construction phase.

2.2 POTENTIAL SEDIMENT GENERATION

The development will result in one catchment from which sediment can be generated. The area to be disturbed is approximately 0.77 ha which is the entire site. While the potential exists for sediment to be generated during the construction phase, the potential sediment volume is dependent upon rainfall, site topography, the material type exposed, flow characteristics, and the construction practices and programme.

Control of the construction impacts is the primary objective for sediment and erosion control practices.

The management of erosion and sediment control for the development has been undertaken in accordance with Sunshine Coast Regional Council Planning Scheme and the referenced Best Management Practices for Sediment and Erosion Control.

Construction works shall be staged such that the maximum disturbed area does not exceed 2,500 m² at any one time, thereby permitting at-source primary treatment measures to remain effective and adequate, in accordance with the IECA Best Practice Erosion and Sediment Control Guidelines.

Based on the expected potential for sediment generated, the provision of a series of sediment fence traps and stormwater pit protection measures are proposed. These provisions are considered adequate to control the mobilisation of sediment.

The installation of pollution control devices in the operational phase will decrease further the potential sediment loading; however, the effect of these is ignored.

2.3 CONSTRUCTION PHASE CONTROL MEASURES

The works proposed to control erosion are:

- a) Erect sediment and dust fences at the perimeter of the site. Sediment fences to be included on site safety fence, including hessian or approved dust control cloth.
- b) Remove from the site any material which is not required for rehabilitation of disturbed areas.
- c) Installation of stormwater drainage system.
- d) Preparation of building pads and pavement works and removal of surplus material off site.
- e) Exposed soils and stockpiles are to be watered, as required, to minimise soil losses as a result of wind.
- f) Place geo-textile field gully inlet filters and drainage structure protection around entry points to the drainage system until the pavement is complete or until grass is established.
- g) Finalised earthworks to be top soiled and seeded/hydro-mulched or landscaped as directed.

- h) Construct buildings.
- i) Geo-textile filters to be replaced with mesh filters until landscaping is complete and stabilised.
- j) Maintain all sediment devices and other interim controls regularly. Including the removal of accumulated sediment.
- k) Remove sediment fences and inlet filters including accumulated sediment after the establishment of the landscaping and grass cover.

2.4 MAINTENANCE

The installation of erosion and sediment control devices requires maintenance of these devices to ensure their effectiveness in the control of potential environmental impact. Summary of the maintenance requirements for this project are detailed below.

The Contractor is responsible for the installation and maintenance of the sediment and erosion control measures during the construction phase and the defects liability period (normally six months).

Maintenance responsibilities for the establishment of vegetation, that is the requirement to irrigate the plants and grass used to generate ground cover lies with the Contractor initially but ultimately reverts to the owner once the defects liability period has expired.

Maintenance will require:

- a) Inspection of silt fences and drainage paths during construction and after any rainfall event.
- b) Clean out sediment build-up following each event that causes deposits.
- c) Clean up soil and sediment deposits promptly as they occur.
- d) Provide inlet protection where soil disturbance is to occur.

2.5 RESPONSES TO COMPLAINTS

Complaints during this type of construction usually relate to noise and dust. Generally, the complaint is made known to the Contractor, the Principal, the Superintendent and/or the Council.

The Contractor shall keep a record of all complaints identifying the nature of the complaint and any remedial action taken to address such complaint. The Contractor shall act as soon as possible to remedy the problem, if the complaint is considered valid and reasonable. A complaints record shall be made available by the contractor for regular inspection by the Superintendent. For the purpose of direction by others, the Contractor's details are to be supplied to Council prior to commencement of the works.

Complaints relating to dust shall require the Contractor to immediately water the exposed earth surfaces and any soil stockpile areas as well as haul roads to control dust. Such watering shall occur immediately after the complaint is registered with the Contractor. Watering should continue periodically until conditions suit, or the works are completed to a state that prevents dust transport.

2.6 MONITORING

The installation of the erosion and sediment control measures as detailed in this report and attached figures will ameliorate potential impact to water quality in the receiving waters. A monitoring program is proposed to ensure that the control measures achieve the desired goals. It is considered appropriate that only a visual monitoring program be required. Following rainfall events and prior to discharge water quality monitoring will be conducted on the any stored water to check suspended solids.

3.0 STORMWATER QUALITY ASSESSMENT

The proposed subdivision and commercial development of Lot 10 forms part of the approved Aura Business Park (ABP) Precinct 4 Stage 22A development.

Stormwater quality management associated with the broader Stage 22A development were assessed by SMEC within Technical Memorandum No. 30031870-1194-001, which was subsequently approved by Economic Development Queensland (EDQ) under Development Approval DEV2024/2552 dated 9 April 2025. The assessment confirmed that the proposed development is consistent with the approved Aura Business Park development framework and relevant requirements of the Sunshine Coast Regional Council Planning Scheme Policy for Development Works.

The approved Technical Memorandum assessed the ultimate subdivision layout and associated stormwater management strategy for the entire Stage 22A development, including Lot 10. Stormwater quality treatment for the precinct is primarily achieved through the approved subdivision-wide Water Sensitive Urban Design (WSUD) network, comprising end-of-line sediment basins, wetlands and bioretention systems designed to treat runoff from the contributing parent catchments prior to discharge. The approved stormwater quality treatment strategy applicable to Lot 10 is documented within the approved SMEC Technical Memorandum, which is included in Appendix C.

In accordance with the requirements of the approved SMEC Technical Memorandum, rainwater tanks are required to be provided for all non-residential development to achieve a minimum 50% roof water capture and reuse. Rainwater tanks are to be sized at a minimum of 1 kL per toilet or urinal, with a minimum tank size of 5 kL.

Each proposed building will be required to incorporate a rainwater tank that will be connected to and supply non-potable demands including toilets, irrigation and other approved reuse applications in accordance with the requirements of the approved Technical Memorandum.

In accordance with the requirements of the approved SMEC Technical Memorandum, stormwater management for ground level runoff is to be provided via gross pollutant management measures to remove litter and other gross pollutants prior to discharge from the allotment.

Accordingly, all field inlet pits and at-grade stormwater entry pits are proposed to be fitted with Atlan Stormsack devices, or an approved equivalent, to provide gross pollutant capture at source. These devices will remove litter and other gross pollutants from runoff prior to discharge to the subdivision drainage network and downstream WSUD treatment systems. SQIDEP certification details for the nominated treatment device are provided in Appendix D.

Refer to plan Concept Engineering Plan 260184 C04 Civil Works Plan for more information relating to the proposed stormwater quality management.

4.0 STORMWATER QUANTITY

As outlined above, the proposed childcare development on Lot 10 forms part of the approved Aura Business Park (ABP) Precinct 4 Stage 22A development.

Stormwater quantity management associated with the broader Stage 22A development was assessed by SMEC within Technical Memorandum No. 30031870-1194-001, which was subsequently approved by Economic Development Queensland (EDQ) under Development Approval DEV2024/2552 dated 9 April 2025. The assessment confirmed that the proposed development is consistent with the approved Aura Business Park development framework and relevant requirements of the Sunshine Coast Regional Council Planning Scheme Policy for Development Works.

The approved subdivision works provides a stormwater pit and pipe drainage system to service Lot 10, including a connection point located at the south-eastern corner of the site. The approved drainage network and associated downstream infrastructure were designed to accommodate the ultimate development of the Stage 22A precinct, including the anticipated commercial development of Lot 10. Accordingly, no additional peak flow detention or stormwater quantity mitigation measures are considered necessary for the proposed development.

In accordance with Section 3 of the Queensland Urban Drainage Manual (QUDM), all development is required to address the Lawful Point of Discharge Test.

The proposed development will discharge to the approved stormwater drainage infrastructure constructed as part of the Stage 22A subdivision works. The receiving drainage system was designed to accommodate ultimate developed catchment conditions and therefore no adverse impacts on downstream properties are anticipated. Accordingly, the proposed development satisfies the requirements for a lawful point of discharge.

Stormwater runoff from the proposed development will be collected and conveyed via a privately owned internal stormwater drainage system, which will connect to the approved subdivision drainage infrastructure at the lawful point of discharge. Separate stormwater connections are proposed for each allotment, with appropriate easements established over shared private drainage infrastructure where required to ensure ongoing access, maintenance and ownership responsibilities are clearly defined.

Refer to Drawing 260184-C04 Civil Works Plan for further details regarding the proposed stormwater drainage system and connection to the lawful point of discharge.

As the receiving stormwater drainage network was designed to accommodate the ultimate developed catchment conditions associated with the approved Stage 22A development, sufficient downstream capacity is available to service the proposed development and no further stormwater quantity assessment is considered necessary.

Accordingly, the proposed development is considered consistent with the stormwater quantity management strategy adopted for the approved Stage 22A development.

5.0 FLOODING AND OVERLAND FLOW

The development site is not identified as being affected by flooding within the Aura Flood Risk Management Report (2020) for the 1% AEP developed flood event. Accordingly, the site is not subject to flood-related development constraints and no further flood assessment is considered necessary.

The proposed development has been designed to maintain the established overland flow paths within the surrounding road and drainage network. Preliminary finished floor levels are proposed to be set above adjacent overland flow paths, ensuring appropriate freeboard is achieved and that stormwater runoff can be safely conveyed through surrounding roads, drainage reserves and landscaped areas without adversely impacting the development.

6.0 QUALIFICATIONS

This site-based stormwater management plan for Lot 10 Aura Boulevard, Baringa has been prepared specifically for this development as requested by Joy ELC Holdings Pty Ltd ATF Joy ELC Holdings Unit Trust. Our analysis and approach is limited to the scope stated at the beginning of the report. As such third parties are not authorised to utilise this report without the written approval and advice from Cozens Regan Group Pty Ltd.

Cozens Regan Group Pty Ltd relied on the following supplied information in preparation of this report:

- Building and site layout supplied by Elevation Architecture & Reddog Architectura.
- Design Drawings and Tech Memo information provided by SMEC.
- Rainfall data for Banya supplied by the Bureau of Meteorology.

The accuracy of this report is dependent on the accuracy of the information supplied.

While Cozens Regan Group Pty Ltd has taken every precaution to ensure the accuracy of the assessment it should be noted that the catchment is ungauged and as such future observed flows may vary from that predicted.

REFERENCES

- The Sunshine Coast Planning Scheme Policy 2014 Planning Scheme Policy for Development Works
- State Planning Policy 2017 (SPP 2017)
- Sunshine Coast Council – Flooding and Stormwater Management Guidelines September 2020
- Queensland Urban Drainage Manual 2016(Natural Resources and Water)
- Urban Stormwater – Queensland best practice environmental guidelines January 2009 (Environmental Protection Agency)
- Queensland Water Quality Guidelines Version 3 September 2009 (Department of Environment and Resource Management)
- Urban Stormwater Quality Planning Guidelines (Department of Environment and Resource Management 2010)

Appendix A

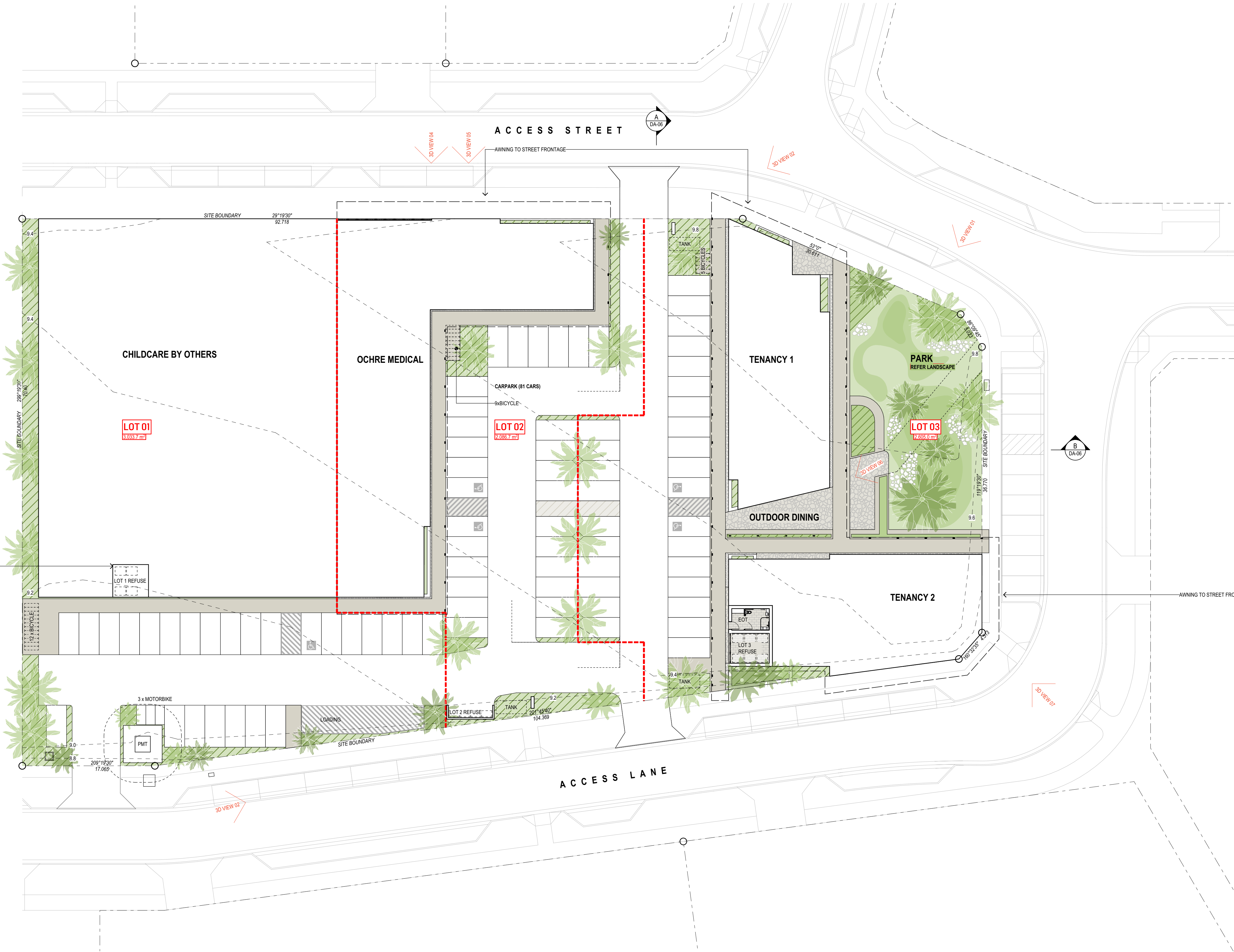
ARCHITECTURAL SITE PLANS

DEVELOPMENT DATA	
SITE ADDRESS	
BARINGA BUSINESS VILLAGE LOT 10	
RPD	
LOT 01, 02 AND 03	
LOCAL COUNCIL	
SUNSHINE COAST COUNCIL	
SITE AREA	
7,731m²	
SITE COVER	
2648.7m² (34.26%)	
GFA	
CHILDCARE	1008m²
111 PLACES	
OCHRE MEDICAL	813.2m²
TENANCY 01	410.1m²
TENANCY 02	417.4m²
TOTAL PROPOSED GFA	2648.7m²
CARPARKING	
PROVIDED	81
ADJACENT STREET CARPARKS	28
BICYCLES	
PROVIDED	26 (19 EMPLOYEE + 7 CUSTOMER)
LANDSCAPING	
CHILDCARE OUTDOOR PLAY	920m²
PARK	662.3m²
OTHER LANDSCAPING	439.2m²
TOTAL LANDSCAPING	2021.5 (26%)

LEGEND	
BOL	BOLLARD
COL	COLUMN
EG	EAVES GUTTER
FFL	FINISHED FLOOR LEVEL
FL	FLOOR LEVEL
GD	GRADED DRAIN
GFA	GROSS FLOOR AREA
MRS-1	METAL ROOF SHEETING
MRS-2	METAL ROOF SHEETING
MSN-1	MASONRY FINISH
MSN-2	MASONRY FINISH
MWS-1	METAL WALL SHEETING
PMT	PAD MOUNT TRANSFORMER
PYL-1	PYLON SIGN - 6.0m x 1.5m
RL	REDUCED LEVEL
S-1	TENANT SIGNAGE
SCR-1	BATTEN SCREEN
SW	STORMWATER PIT
VG	VALLEY GUTTER
WH	WATER HEATER
WS	WHEEL STOP

DRAWING SCHEDULE	
DA-00	COVERPAGE
DA-01	SITE PLAN
DA-02	FLOOR PLAN
DA-03	ROOF PLAN
DA-04	ROL PLAN
DA-05	ELEVATIONS & SITE SECTIONS - SHEET 1
DA-06	ELEVATIONS & SITE SECTIONS - SHEET 2
DA-07	3D VIEW 01
DA-08	3D VIEW 02
DA-09	3D VIEW 03
DA-10	3D VIEW 04
DA-11	3D VIEW 05
DA-12	3D VIEW 06
DA-13	3D VIEW 07
DA-14	SIGNAGE

REFUSE FOR CHILDCARE LOCATED WITHIN BUILDING ENVELOPE
- REFER OTHERS

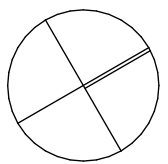


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SCALE 1:250@A1

ISSUE	DATE	BY	DESCRIPTION	CHKD
A	01.07.2026	CL	DEVELOPMENT APPLICATION	GT

Aura Baringa

DRAWING

SITE PLAN

PROJECT NO.

2955-437

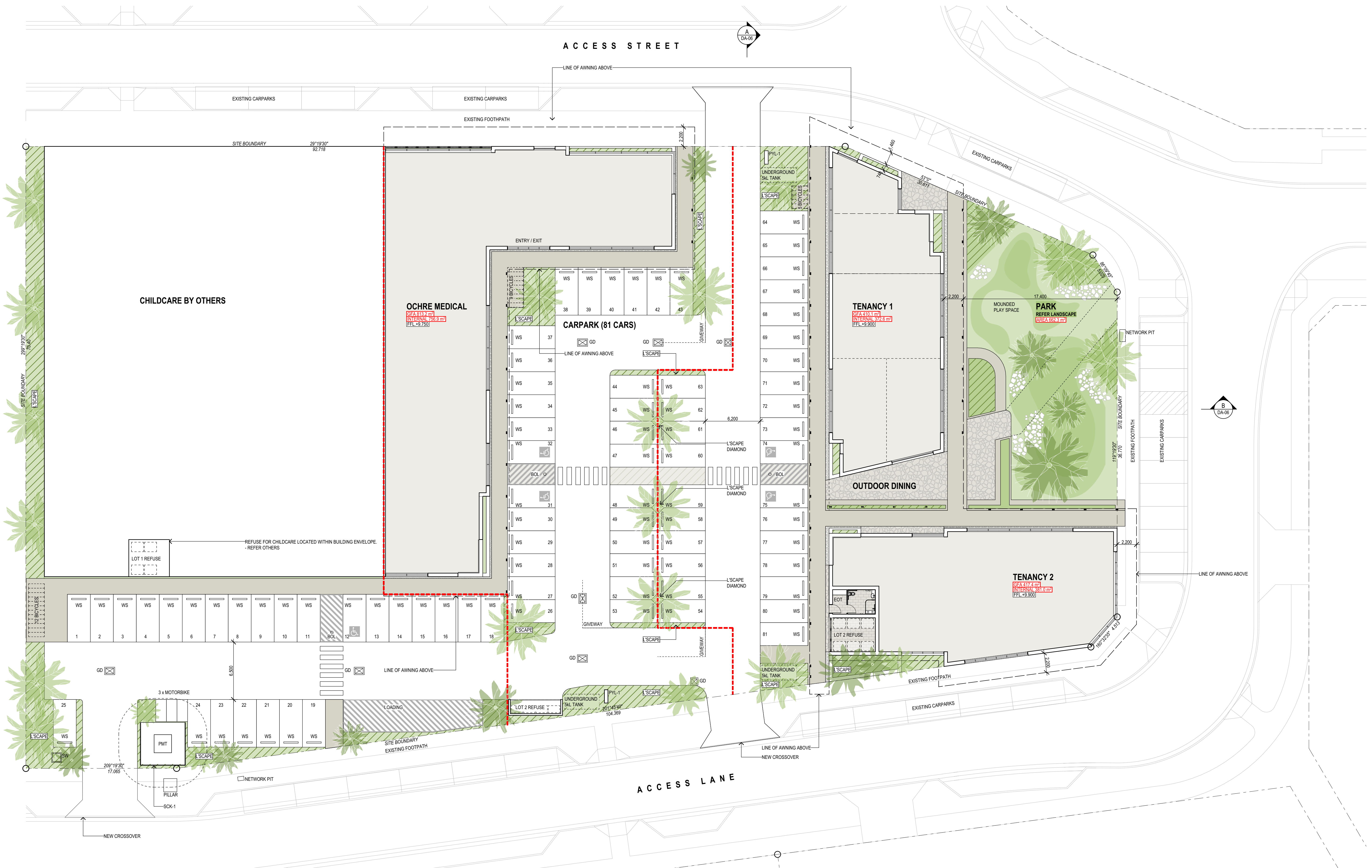
DRAWING NO.

DA-01

ISSUE

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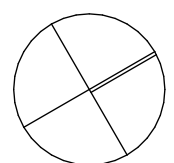




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ISSUE	DATE	BY	DESCRIPTION	CHKD
A	01.07.2026	CL	DEVELOPMENT APPLICATION	GT

Aura Baringa

DRAWING

FLOOR PLAN

PROJECT NO.

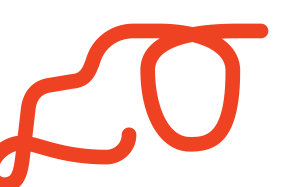
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DRAWING NO.

DA-02

ISSUE

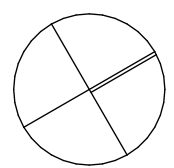
A





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ISSUE	DATE	BY	DESCRIPTION	CHKD
A	01.07.2026	CL	DEVELOPMENT APPLICATION	GT

Aura Baringa

DRAWING

ROL PLAN

PROJECT NO.

2955-437

DRAWING NO.

DA-04

ISSUE

A



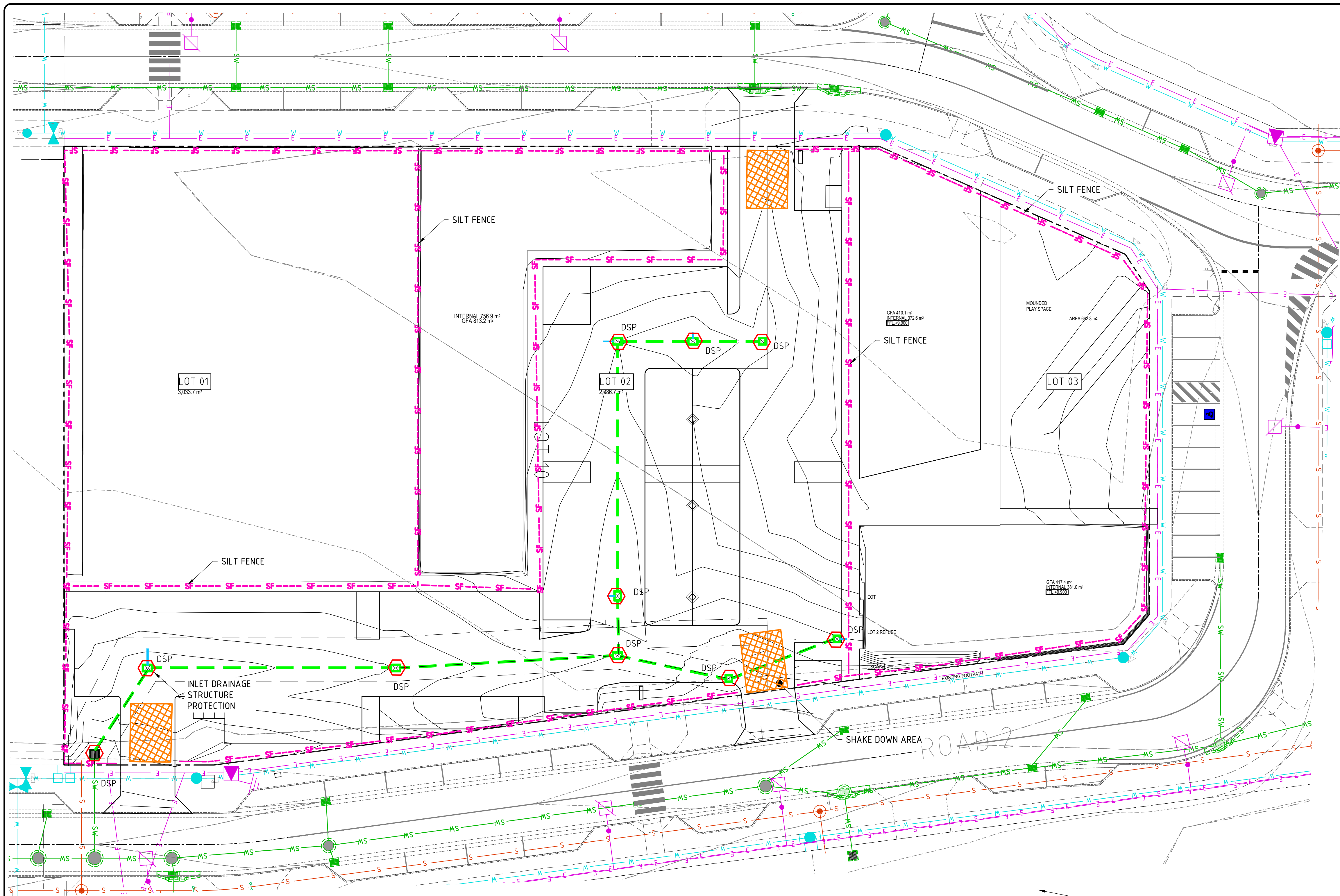


**PRELIMINARY
FOR REVIEW**



Appendix B

ENGINEERING PLANS



IMPORTANT NOTE:

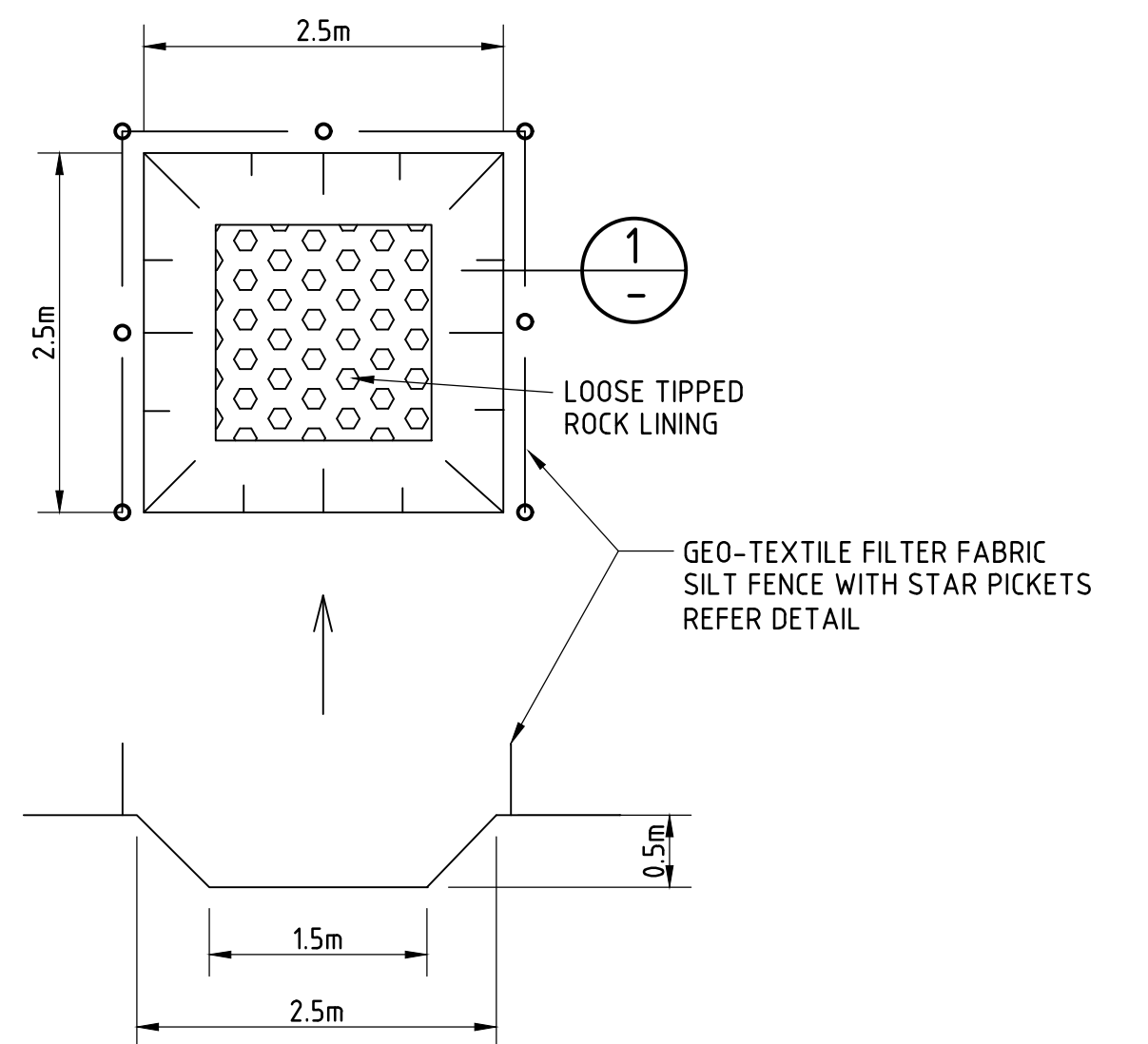
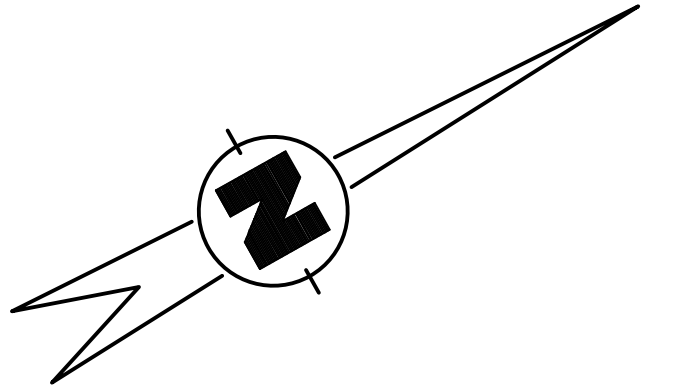


ALL UNDERGROUND SERVICES SHOULD BE LOCATED ONSITE BY RELEVANT AUTHORITIES BEFORE ANY WORK IS COMMENCED.

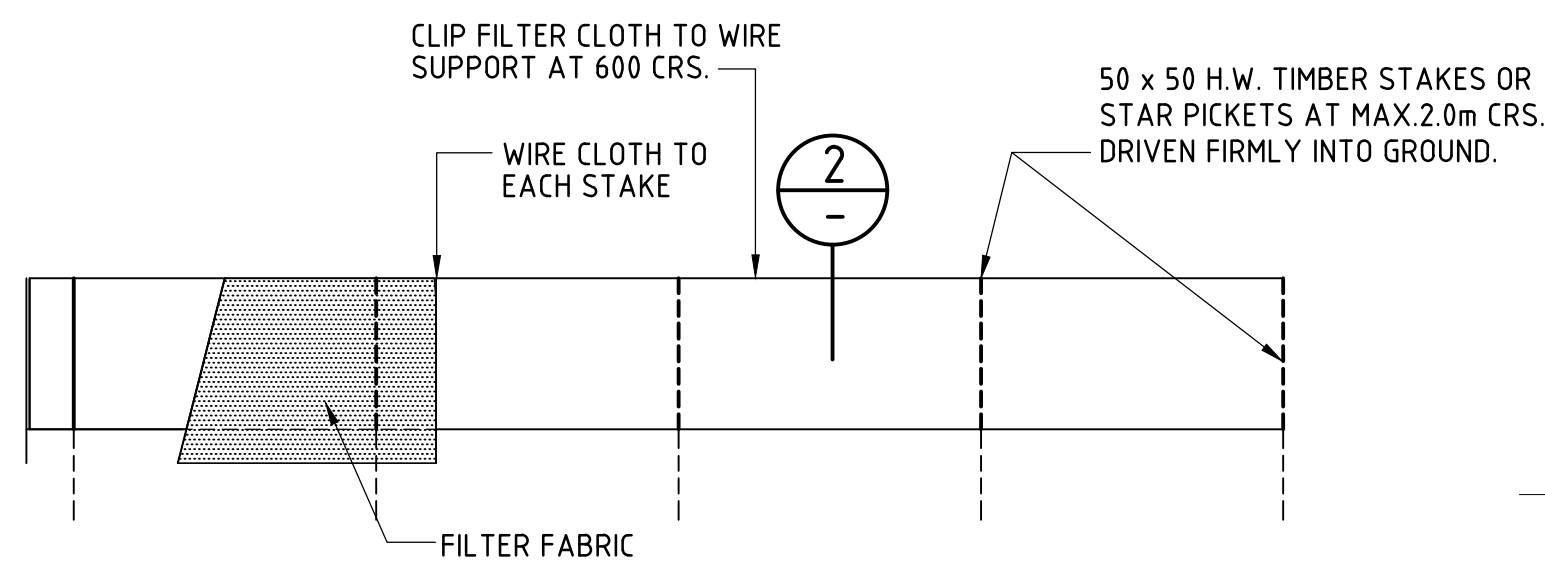
UNDER QUEENSLAND LEGISLATION, THE GENERAL BIOSECURITY OBLIGATION REQUIRES ALL REASONABLE STEPS TO BE TAKEN TO PREVENT THE SPREAD OF FIRE ANTS.

ALL SUSPECTED SIGHTINGS OF FIRE ANTS MUST BE REPORTED WITHIN 24 HOURS OF THEIR DISCOVERY (PH: 13 25 23). THE MOVEMENT OF FIRE ANTS IS PROHIBITED. FAILING TO COMPLY MAY INCUR PENALTIES.

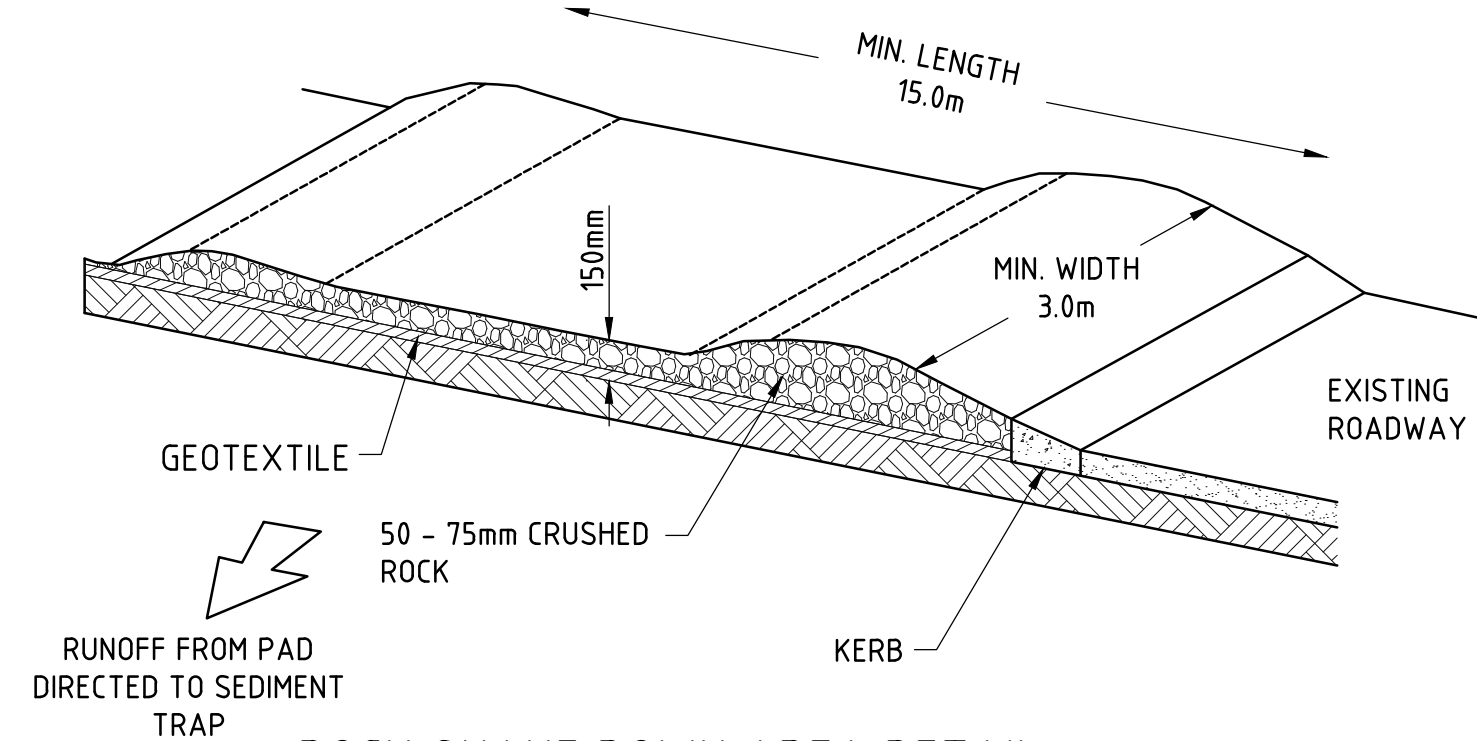
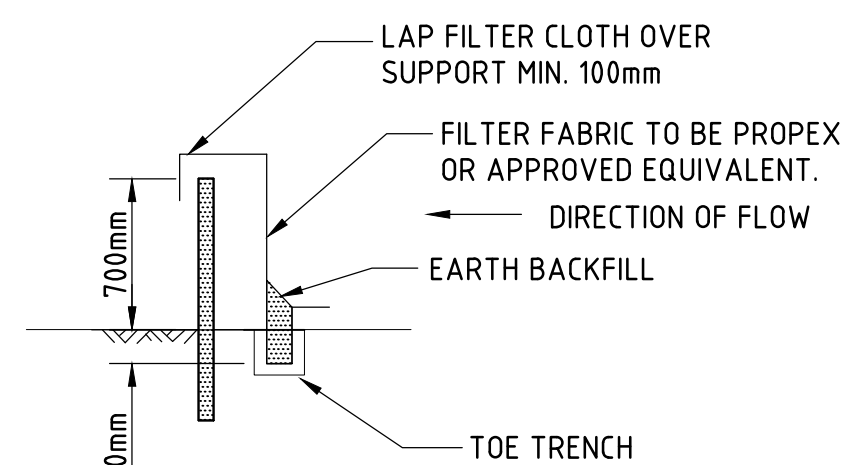
THE CONTRACTOR SHALL ACQUIRE THE NECESSARY PERMITS AND EDUCATION TO MOVE ORGANIC MATERIALS THAT MAY CONTAIN FIRE ANTS.



SECTION 1
SILTATION TRAP DETAILS
SCALE 1:50



SEDIMENT FENCE DETAILS
SCALE 1:50



ROCK SHAKE DOWN AREA DETAIL
SCALE N.T.S.

LEGEND

- SF SF DENOTES SILTATION FENCE REFER TO IPWEA STD DRG DSD-301
- SHAKE DOWN AREA REFER TO IPWEA STD DRG DSD-301
- DSP DENOTES DRAINAGE STRUCTURE PROTECTION REFER TO IPWEA STD DRG DSD-302

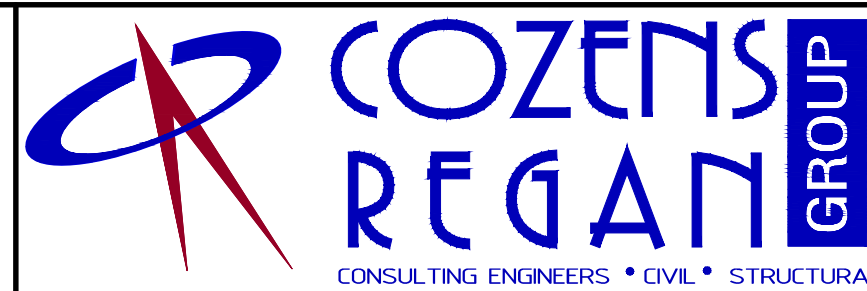
NOTE: SITE WORKS TO BE UNDERTAKEN SEQUENTIALLY TO ENSURE DISTURBED AREAS ARE MINIMISED THROUGHOUT CONSTRUCTION AND ENTIRE SITE NOTE EXPOSED ALL AT ONE TIME.

No.	DATE	ISSUE	REVISED	CHECKED
P2	07/26	ARCH UPDATE ISSUE	JL	J.A.W
P1	06/26	ORIGINAL ISSUE	J.L	J.A.W

IN ASSOCIATION WITH
PRELIMINARY
NOT FOR CONSTRUCTION

SCALE A
SCALE B
0 5 10
1:250

DATUM AHD (U.N.O.) SCALES SHOWN ARE AT A1 SIZE

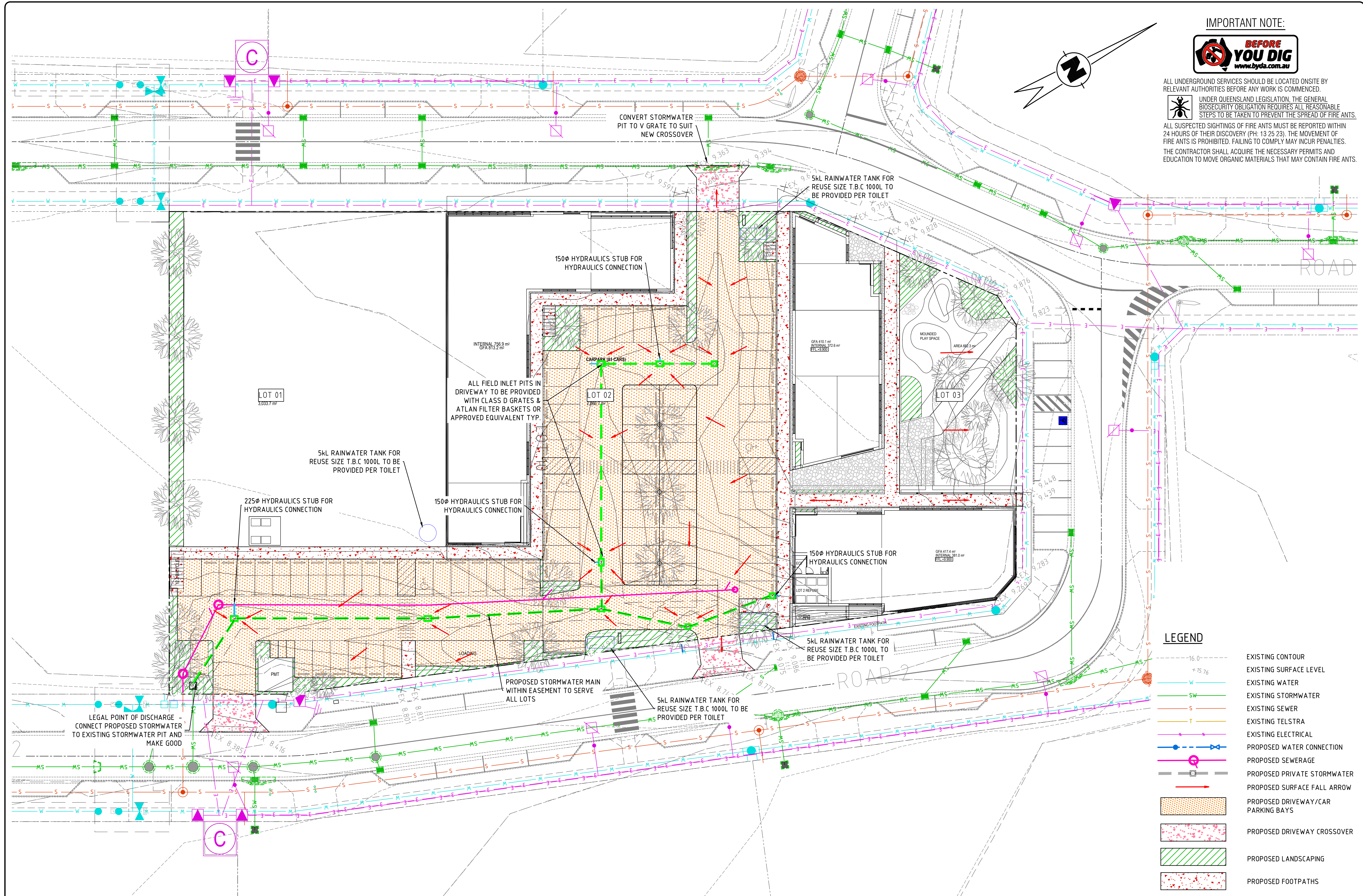


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DESIGNED JL
DRAWN BAR
CHECKED TWN
APPROVED FOR AND ON BEHALF OF
COZENS REGAN GROUP PTY LTD
(NER No 540920)
(RPEQ No 43361)

CLIENT
JOY ELC HOLDINGS PTY LTD ATF JOY ELC HOLDINGS UNIT TRUST
PROJECT
PROPOSED MIXED USE DEVELOPMENT
LOT 10 AURA BARINGA, BANYA QLD 4551
CONCEPT EROSION & SEDIMENT CONTROL PLAN

JOB NO.
260184
DRAWING NO.
SK01
ISSUE
P1P2



IMPORTANT NOTE:



ALL UNDERGROUND SERVICES SHOULD BE LOCATED ON SITE BY RELEVANT AUTHORITIES BEFORE ANY WORK IS COMMENCED.

UNDER QUEENSLAND LEGISLATION, THE GENERAL BIOSECURITY OBLIGATION REQUIRES ALL REASONABLE STEPS TO BE TAKEN TO PREVENT THE SPREAD OF FIRE ANTS.

ALL SUSPECTED SIGHTINGS OF FIRE ANTS MUST BE REPORTED WITHIN 24 HOURS OF THEIR DISCOVERY (PH: 13 25 23). THE MOVEMENT OF FIRE ANTS IS PROHIBITED. FAILING TO COMPLY MAY INCUR PENALTIES.

THE CONTRACTOR SHALL ACQUIRE THE NECESSARY PERMITS AND EDUCATION TO MOVE ORGANIC MATERIALS THAT MAY CONTAIN FIRE ANTS.

No.	DATE	ISSUE	REVISED	CHECKED
P2	07/26	ARCH UPDATE ISSUE	JL	J.A.W
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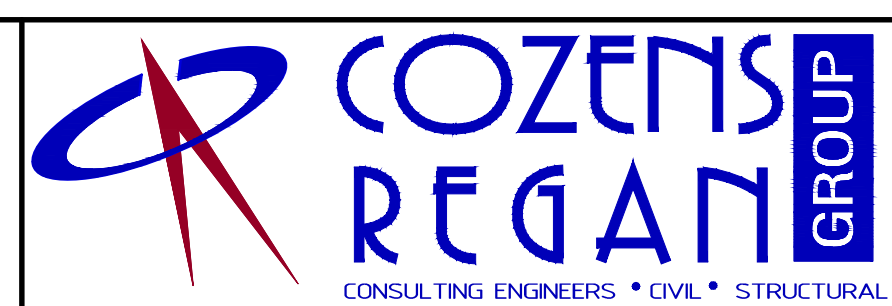
IN ASSOCIATION WITH

PRELIMINARY
NOT FOR CONSTRUCTION

SCALE A
SCALE B

0 5 10
1 : 250

DATUM AHD (I.N.O.) SCALES SHOWN ARE AT A1 SIZE



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W: www.cozreg.com.au

DESIGNED JL
DRAWN BAR
CHECKED TWN
APPROVED FOR AND ON BEHALF OF
COZENS REGAN GROUP PTY LTD
(NER No 540920)
(RPEQ No 4536)

CLIENT
JOY ELC HOLDINGS PTY LTD ATF JOY ELC HOLDINGS UNIT TRUST
PROJECT
PROPOSED MIXED USE DEVELOPMENT
LOT 10 AURA BARINGA, BANYA QLD 4551
CONCEPT STORMWATER MANAGEMENT PLAN

JOB NO.
260184
DRAWING NO.
SK02
ISSUE
P1P2

Appendix C

SMEC TECH MEMO

Technical Memorandum

Memo No.	30031870-1194-001	Date of Issue	20/09/2024
Subject	Aura Precinct 4 Stage 22A Development	Discipline	Civil
Project Name	Aura Business Park	Project No.	30031870
Document No.	30031870-1194-001	Revision	0
Author	Andriena Ortega		
Reviewed by	Tim Wood	Approved by	Tim Wood
Prepared for	Stockland Development Pty Ltd	Attention to	Liam Hiscock
Attachments	Appendix A – Stage 22A ROL Plans; Appendix B – Existing Bulk Earthworks/Combined Services Plans; Appendix C – Lot 1194 Preliminary Civil Design Plans		

1 Project Background

SMEC Australia Pty Ltd (SMEC) was commissioned by Stockland Development Pty Ltd to complete an assessment of civil engineering aspects associated with the development of Aura Business Park (ABP) Precinct 4 Stage 22A as referred to in the approved DEV2013/439 Plan of Development (PoD) dated 25/01/2024. The location of Precinct 4 within the Caloundra South PDA is shown in Figure 1 below.

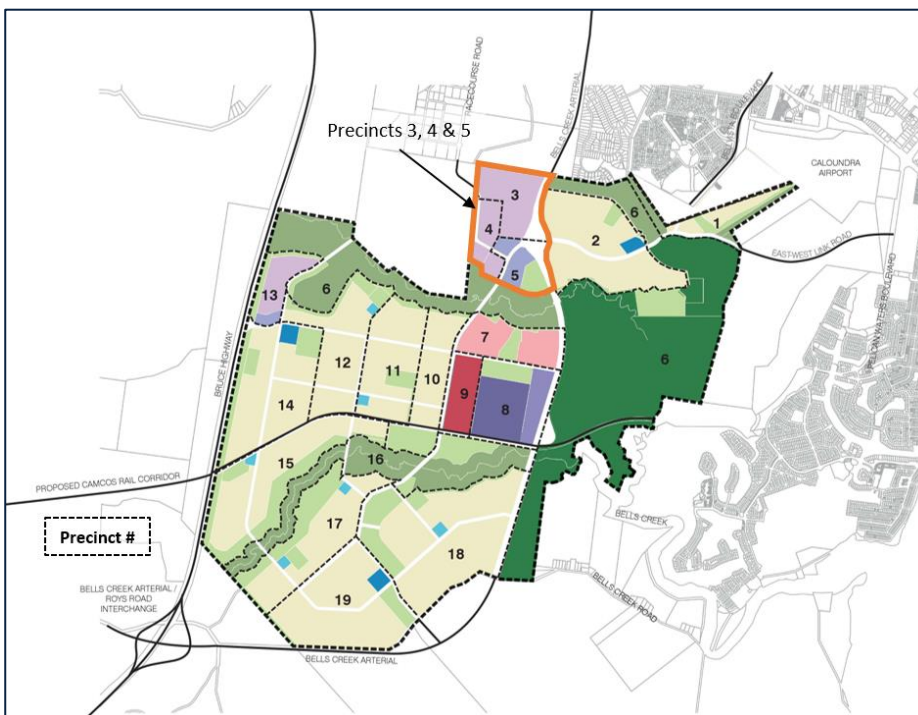


Figure 1: Aura Development Precincts (Extract from Unitywater Infrastructure Agreement: map produced by URBIS)

3 Proposed Development Civil Assessment

3.1 Proposed ROL Layout

The Lot 1194 super lot is proposed to be reconfigured into 14 lots, intended for commercial and industrial uses including several multi-story and large GFA buildings. The site will have three external access points and an internal circulating road network. The proposed ROL plans are attached in Appendix A.

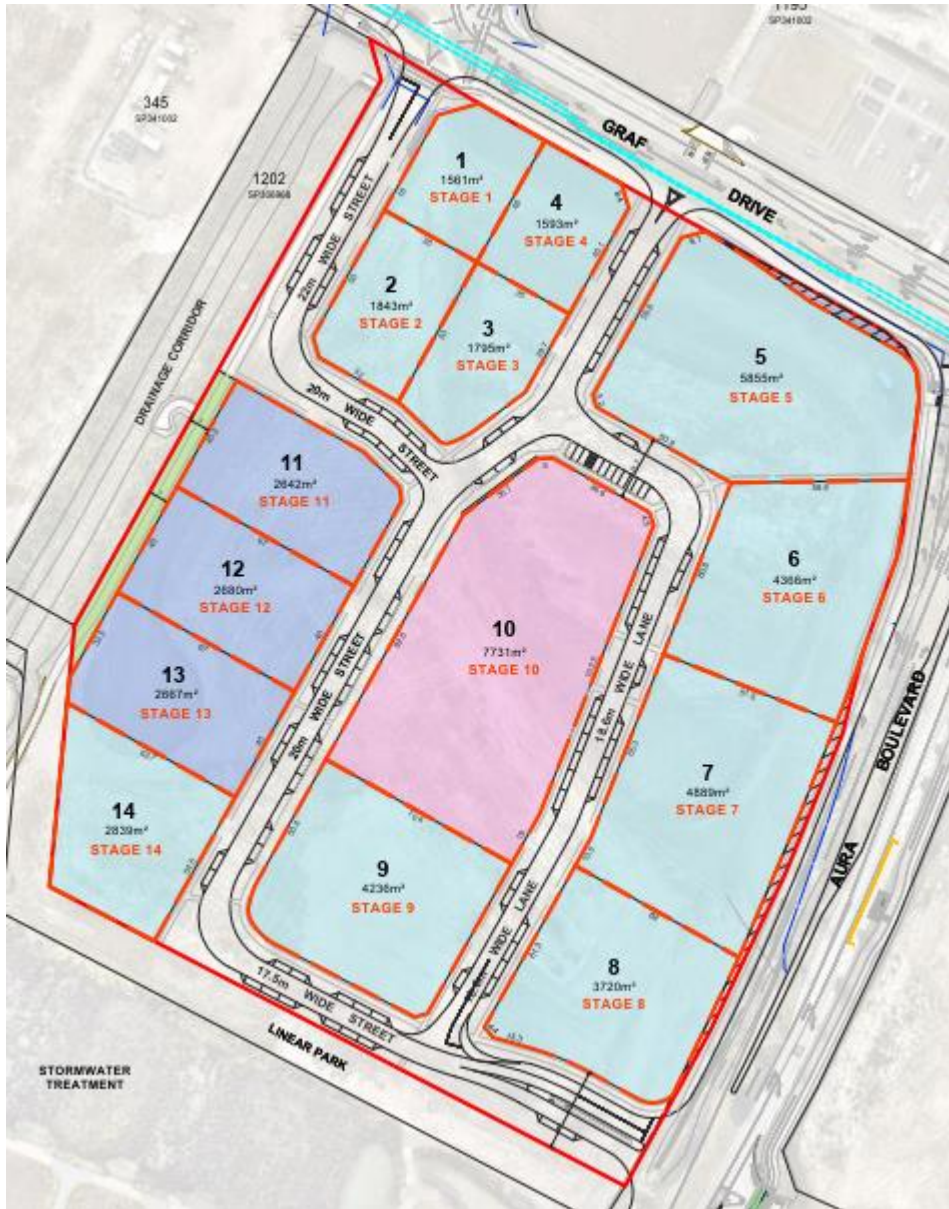


Figure 3: Stage 22A Plan of Development: Appendix C – Staging Plan (RPS 20/09/2024)

3.2 Bulk Earthworks

3.2.1 Existing Surface

Bulk earthworks have previously been completed on the site in 2022/2023 as part of DEV2013/439 P3-5 Bulk Earthworks and are supported by a Level 1 report in accordance with AS3798 by Douglas Partners (Report 207929.00.R.001.Rev 0). As shown in Figure 4 Lot 1194 is entirely Level 1 fill of an average 2m depth and is generally flat, graded at approximately 1% from north-west to the south-east corner.

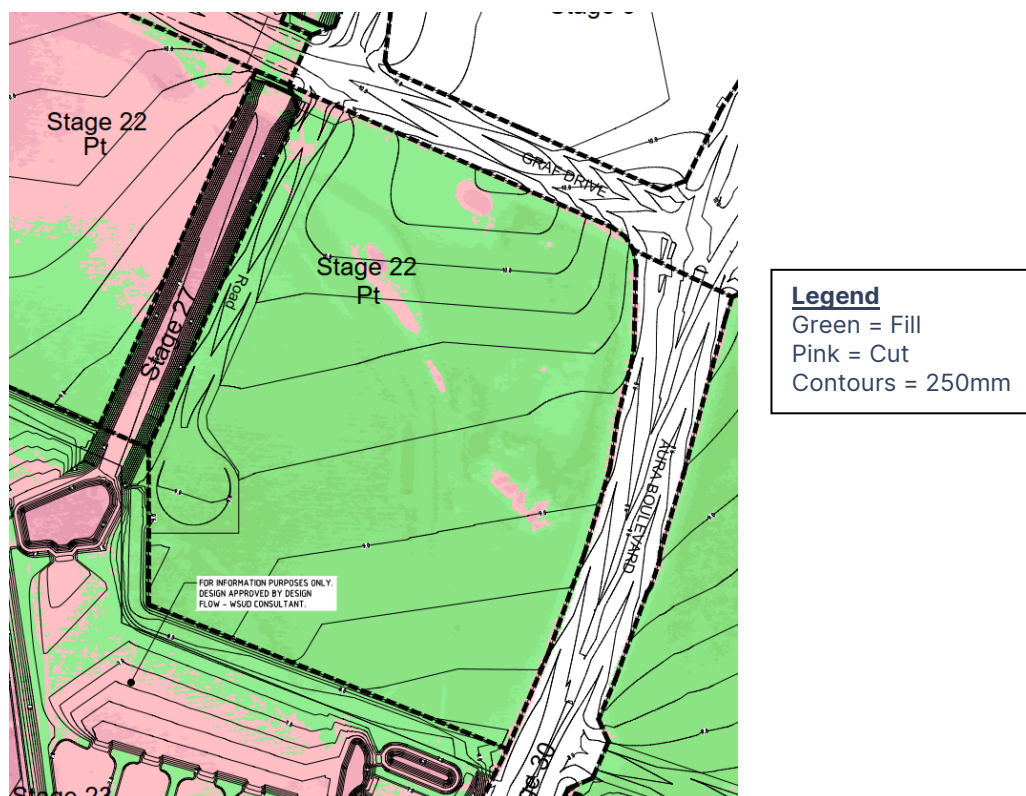


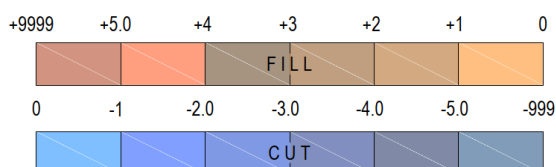
Figure 4: Bulk Earthworks Design Plan 30031846-BE-103 (SMEC 30/10/2019)

The existing bulk earthworks design for Lot 1194 is attached in Appendix B.

3.2.2 Preliminary Design

The proposed earthworks strategy is aligned with creating stormwater catchments that generally match those approved within the *Aura Precincts 3-5 Stormwater Quality Management Plan V1.7* by Design Flow 15/09/2022 and facilitate balanced distribution of stormwater flows to the end of line WSUD wetland and bioretention devices (refer Figure 12).

It is anticipated all required earthworks fill material will be sourced from on-site material and road box/trench spoil. A small volume of material could be imported from local area sources should on-site material not be able to be sourced.



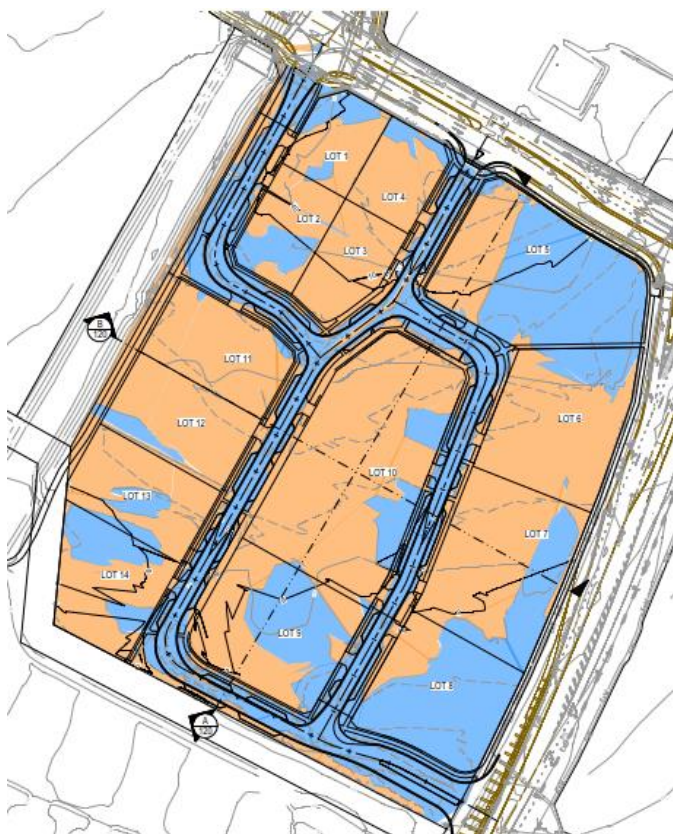


Figure 5: Bulk Earthworks Design Plan 30031846-1194-120 (SMEC 19/09/2024)

The preliminary bulk earthworks design (to be further refined as part of detailed design) for Lot 1194 is attached in Appendix C.

3.3 Roadworks

3.3.1 Traffic Model

The *Aura Precincts 3-5 Traffic Modelling Refresh* by PwC August 2023 (endorsed by EDQ under the DEV2013/439 PoD) documents the ultimate road network, forecast trip generation and Gross Floor Area (GFA) assumptions for the business park. Stage 22A is considered within the traffic model as Node 1019. Note 1019 connections include two signalised intersections and a left-in/left-out as shown in Figure 11.

Note 1019 currently facilitates trip generation for 30,000m2 commercial land use GFA, a Fast Food Outlet (with drive-thru) and a Service Station. Should a Fast Food Outlet and Service Station not be proposed or industrial land use be proposed, it is intended to reallocate the trip generation towards increasing the allowable commercial GFA. This is discussed further in the proposed Stage 22A Plan of Development design criteria DS1.2.

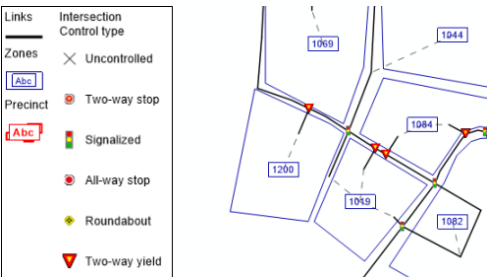


Figure 6: Aura Precincts 3-5 Traffic Modelling Refresh: Figure 2 Road Network Summary (PwC August 2023)

3.3.2 Development Access Locations

In line with the traffic model, the proposed development will be accessed from three separate locations as shown in the following figures.

Graf Dr & Packer Rd Signalised Intersection

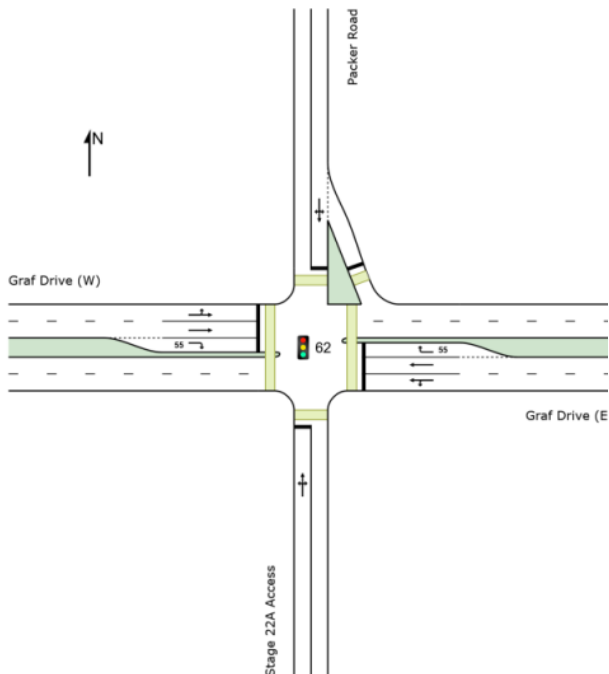


Figure 7: Graf Dr & Packer Road Intersection SIDRA Layout (SMEC 16/04/2024)

Aura Blvd & Stage 22A Signalised Intersection

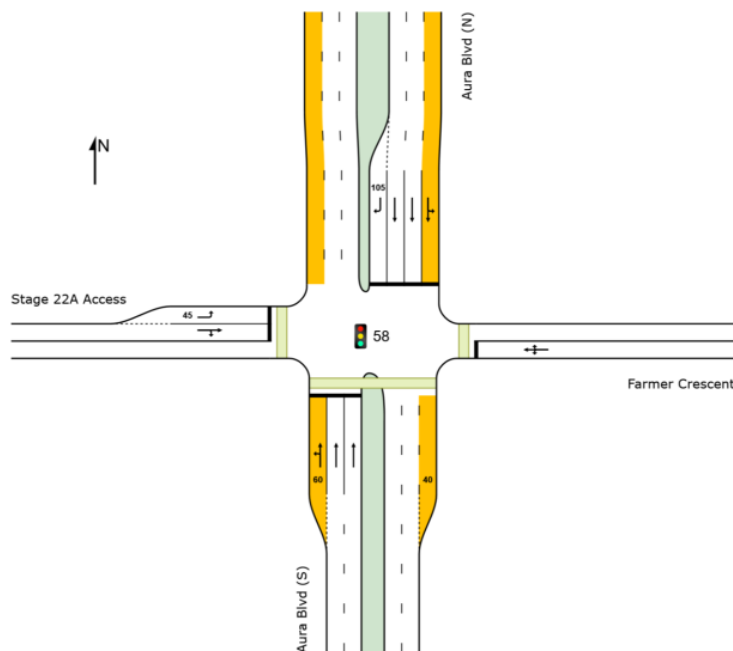


Figure 8: Aura Blvd & Stage 22A Access Intersection SIDRA Layout (SMEC 16/04/2024)

Graf Dr & Stage 22A Left In/Left Out Intersection

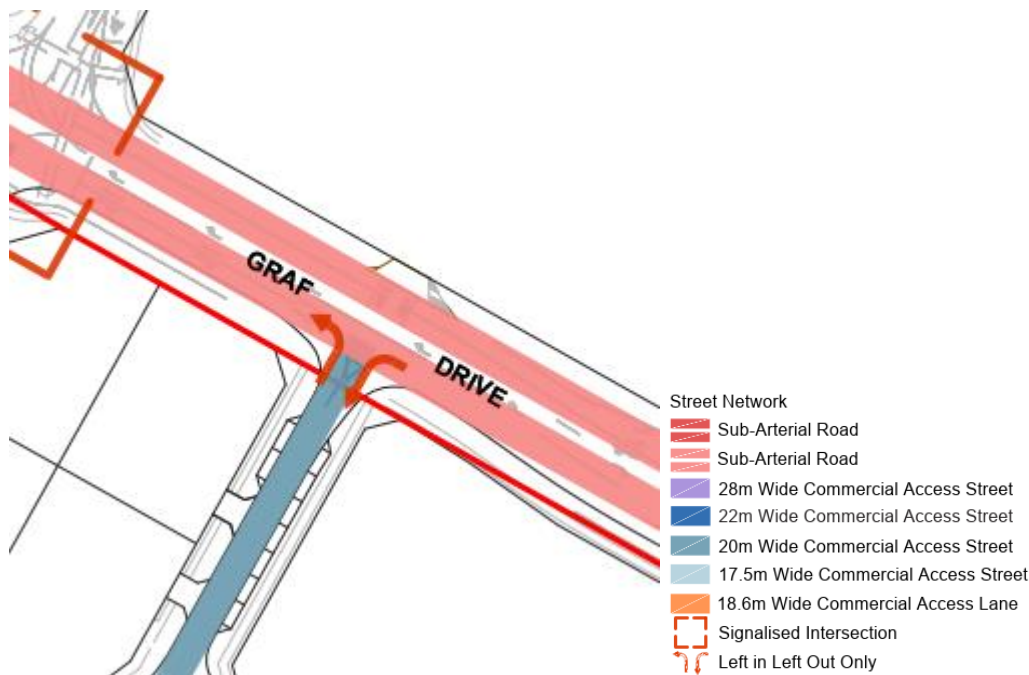


Figure 9: Stage 22A Plan of Development: Appendix G - Road Hierarchy (RPS 20/09/24)

The two signalised intersections are documented in the *Aura Business Park Signalised Intersection Technical Memorandum* by SMEC 16/04/2024. Compliance assessment approval of the Graf Dr & Packer Rd intersection was received from EDQ on 08/07/2024. Construction of the intersection has commenced in September 24 and is anticipated to be completed and operating in 2025.

The left in/left out is proposed to utilise a raised central median island to negate the apparent 4-way intersection and a raised threshold treatment for pedestrians and cyclists along Graf Dr. This intent is shown indicatively on the preliminary design plans and will be refined during detailed design.

3.3.3 Road Hierarchy

The road network proposed within Lot 1194 is documented in the proposed *Stage 22A Plan of Development Appendix G -Road Hierarchy* and *Appendix H - Road Cross Sections* by RPS 20/09/24 and is summarised below.

28m Wide Commercial Access Street:

- 28m Road Reserve
- 5m RHS Verge – 2m Footpath
- 7m RHS Carriageway – 3.5m Left Turn Lane & 3.5m Through/Right Turn Lane
- 3.5m Landscaped Median Island with SM3 Kerb Type
- 5m LHS Carriageway – Through Lane
- 7.5 m LHS Verge – No Footpath (located with adjacent linear park)
- Typical B1 Kerb Type

22m Wide Commercial Access Street:

- 22m Road Reserve
- 6.5m RHS Verge – 1.5m Footpath and 2.3m Indented Parking
- 7m Carriageway – 2 x 3.5m Lanes
- 8.5 m LHS Verge – 3m Footpath and 2.3m Indented
- Typical B1 Kerb Type
- 900mm Invert Kerb Type through Indented Parking Bays

20m Wide Commercial Access Street:

- 20m Road Reserve

- 6.7m RHS Verge – 2m Footpath and 2.3m Indented Parking
- 7m Carriageway – 2 x 3.5m Lanes
- 6.3 m LHS Verge – 1.5m Footpath and 2.3m Indented Parking
- Typical B1 Kerb Type
- 900mm Invert Kerb Type through Indented Parking Bays

17.5m Wide Commercial Access Street:

- 17.5m Road Reserve
- 6.7m RHS Verge – 2m Footpath and 2.3m Indented Parking
- 7m Carriageway – 2 x 3.5m Lanes
- 3.8m LHS Verge – No Footpath and 2.3m Indented Parking
- Typical B1 Kerb Type
- 900mm Invert Kerb Type through Indented Parking Bays

18.6m Wide Commercial Access Lane:

- 18.6m Road Reserve
- 6.05m RHS Verge – 2m Footpath and 2.3m Indented Parking
- 7m Carriageway – 2 x 3.5m Lanes
- 5.55m LHS Verge – 1.5m Footpath and 2.3m Indented
- Typical B1 Kerb Type
- 900mm Invert Kerb Type through Indented Parking Bays

The proposed road hierarchy and cross sections are considered appropriate for the intended low speed environment and the *IPWEAQ Street Design Manual* guidelines (replacement to *Queensland Streets*) is proposed to be adopted in detailed design.

The preliminary roadworks design (to be further refined as part of detailed design) for Lot 1194 is attached in Appendix C.

3.3.4 Design Vehicles

The adopted design vehicle for the proposed roadworks is a 12.5m Rigid Truck/Bus in accordance with Austroads. A 19m AV Semi-Trailer in accordance with Austroads was used as the design check vehicle. The combination of design/check vehicles align with the intended use of the precinct being narrower streets with a low-speed environment that facilitate the proposed commercial uses and heavy pedestrian activity.

A 19m AV Semi-trailer as the design vehicle would result in overly wide intersections and could lead to traffic passenger cars travelling faster than desirable/safe around corners. It's use as a check vehicle ensures that any accidental entry can be facilitated through the road network without conflict.

All roads have been reviewed with swept path analysis to identify localised widening and line marking adjustments. Trafficable 50mm height concrete median build outs are proposed through some intersections to ensure passenger cars maintain low speeds and larger vehicles can be accommodated.

A plan demonstrating turn path compliance can be provided on request.

3.3.5 On-Street Parking

All on-street parking shall be in accordance with *AS2890.5:2020 On-street parking facilities*. To maximise verge widths parallel parking has predominately been adopted throughout the road network with one section of 90° bays adjacent to the "Village Heart". There are a total of 80 parallel bays and 10 x 90° bays. It is anticipated that at least 1 of the 90° will be marked for disability parking.

3.3.6 Lot Access/Driveways

Where an Austroads 12.5m Rigid Truck/Bus (HRV) access is required, the driveway will be required to comply with Sunshine Coast Council Standard Drawing *RS-051 Heavy Duty Vehicle Crossing General Wide Flared*. It has been assumed for the purposes of space proofing that this will be required for all lots. The actual driveway size and configuration may be reduced during detailed design depending on the design vehicle adopted.

3.3.7 Open Drainage Channel Maintenance Access

The existing central open drainage channel within the adjacent Stage 27 requires a maintenance vehicle access for Council to existing sediment forebays and linkage to the end-of-line WSUD systems. This has been facilitated by joint use of the 3m Shared Path within a 7m pedestrian link corridor bordering the drainage channel, which provides broader connectivity via the path within the future western Linear Park (Stage 23D).

3.3.8 Waste Collection Access

As the proposed development includes only streets and no roads, all lots can utilise a Type B Access where the design vehicle access must:

- i. enable standing wholly within the site without occupying any designated queue areas, or blocking access to more than 50% of car parking spaces; and
- ii. limit any on-street manoeuvring to reversing on or off the site in one movement only. The swept path of the vehicle may cover the overall width of a two-way undivided driveway.

Based on a Type B access it is anticipated that all lots can be serviced by an Austroads 12.5m Rigid Truck/Bus (HRV) design vehicle. Alternatively, future development can arrange privately managed waste collection agreements if required.

3.4 Stormwater Quantity

The surrounding stormwater network on Graf Dr, Packer Road and Aura Blvd has not been designed to convey flows generated by Lot 1194 with the exception of the Packer Road/Graf Dr intersection which facilitates a small area. The western half of Lot 1194 will discharge to the central open drainage channel (Stage 27) and western WSUD inlet, while the eastern half will discharge into the eastern WSUD inlet.

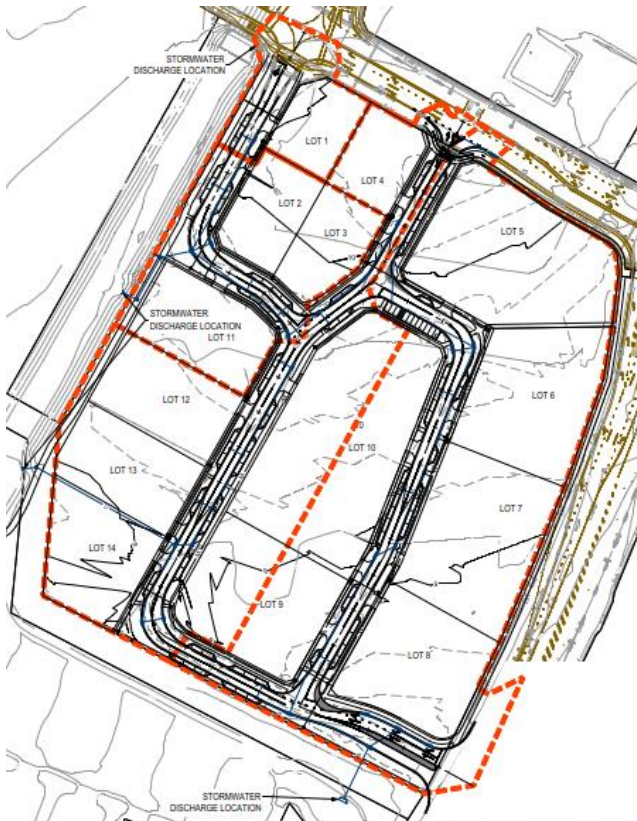


Figure 10: Preliminary Design Stormwater Catchments (SMC 19/09/24)

QUDM suggests that commercial precincts adopt a 10% AEP minor event, however due to the road hierarchy generally being access streets/lanes with no collector roads it is proposed to adopt a 2% AEP in line with the balance of industrial access streets within the business park. A 1% AEP major event will be adopted.

Imperviousness in line with commercial development will be adopted in accordance with QUDM and allowance made for climate change in accordance with Sunshine Coast Council Planning Scheme.

The preliminary stormwater design (to be further refined as part of detailed design) for Lot 1194 is attached in Appendix C.

3.5 Stormwater Quality

Full construction build-out of the end-of-line wetland and bioretention stormwater quality WSUD devices have been completed in accordance with the *Aura Precincts 3-5 Stormwater Quality Management Plan V1.7* by Design Flow 15/09/2022. Lot 1194's southern boundary is bordered by a linear park (Stage 23D) that interfaces with the WSUD system. The WSUD system has two inlet sediment ponds, one at each end as shown in Figure 11.

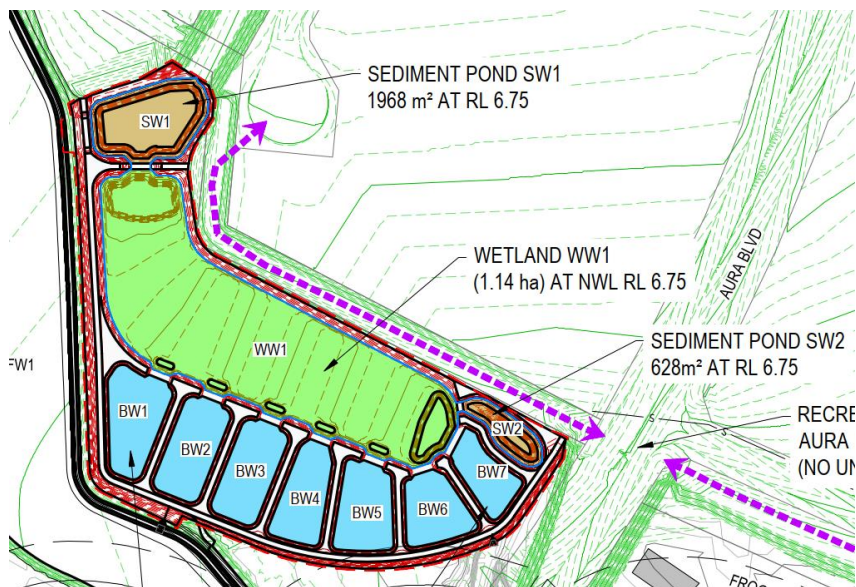


Figure 11: Aura P3-5 WSUD General Arrangement 4334-002 (DesignFlow 17/12/2019)

The stormwater catchments shown in Figure 12 show the approximate catchment area that can discharge into each inlet which will generally be maintained within the proposed design.



Figure 12: Stormwater Quality Treatment Catchments (DesignFlow 15/09/2022)

The on lot development requirements of the SQMP as described in section 4.2 and 4.3 and proposed for the Stage 22A Plan of Development Design Criteria are as follows:

- DS 6.3 For all non-residential buildings, rainwater tanks are to be installed to ensure minimum 50% roof capture and reuse. Tanks are to be sized as 1KL per toilet or urinal (with a minimum size of 5KL). Tanks must be installed in accordance with all Council, State Government, Federal Government and industry plumbing standards for rainwater tanks. Tanks must be connected to and supply water to all of the following:
 - Toilets (all toilets)
 - Urinals (all urinals)
 - Laundry (all cold taps in laundry)
 - Outdoor taps (all outdoor taps) and irrigation
 - All non-potable taps (i.e. wash down taps)
- DS 6.4 Stormwater management is to be provided via Gross Pollutant Management for all ground level runoff to remove litter and other gross pollutants prior to discharge from the allotment (noting bioretention pods are not required). No specific oil management is required because the risk of oil is very low and suitable treatment is provided in the end-of-line wetland and bioretention systems.

3.6 Water & Sewerage

3.6.1 Demand Assessment

The approved EP allocation for Lot 1194 is 725.1 EP in *Appendix C EP Plan* of the Unitywater approved *Aura Precincts 3, 4, 5 & 6 (Part) Final Precinct Network Plan (FPNP)* by SMEC 20/11/2017. This is made up of an allowed 37,500m² of GFA at a Business use rate of 1.1 EP/100m² GFA to 412.5EP and several specific uses (refer Figure 13) for an additional 312.6 EP.

Lot 1194			312.6 EP	
Fast Food	3	1800	4.7	84.6
Indoor Sport and Rec	2	4000	1.3	52
Indoor Entertainment	2	4000	2.5	100
Shop	4	1000	2	20
Service Station	1	400	1.5	6
Various				50

Figure 13: Aura Precincts 3, 4, 5 & 6 (Part) FPNP: Table of Additional Uses - Lot 1194 (SMEC 20/11/2017)

The new EP allocation based on the proposed land uses and forecast GFA is as follows:

Lot No.	Land Use	Lot Area	GFA (m2)	EP/100 m2	EP
1	Commercial	1561	1000	1.1	11
2	Commercial	1843	1300	1.1	14.3
3	Commercial	1795	1100	1.1	12.1
4	Commercial	1593	1000	1.1	11
5	Commercial	5855	4250	1.1	46.75
6	Commercial	4366	3000	1.1	33
7	Commercial	4889	3250	1.1	35.75
8	Commercial	3720	2500	1.1	27.5
9	Commercial	4236	2900	1.1	31.9
10	Co-work/Offices	7331	1600	1.1	17.6
	Retail/Food		1650	4.7	77.55
	Childcare		1000	1.4	14
11	Industrial	2642	1310	0.2	2.62
12	Industrial	2680	1180	0.2	2.36
13	Industrial	2667	1180	0.2	2.36
14	Commercial	2839	1780	1.1	19.58
			Total 30,000 GFA		
				Total Proposed EP Allocation	360 EP
				Existing Approved EP Allocation	725 EP
				Remaining Approved EP Allocation	365 EP

Based on the above table, the existing water and sewerage infrastructure has sufficient capacity for the proposed development.

3.6.2 Servicing Points

Lot 1194 will have two external water connection points to the existing water main within Graf Dr, one via the proposed left in-left out intersection and one via the intersection with Packer Road. The watermain within Lot 1194 will be installed to both sides of the road and looped around the internal road network. There will be no watermain connection to the Aura Blvd road reserve at the south-eastern intersection as there is no main to connect to.

The sewerage connection point is existing and is located at the south-east corner of Lot 1194 and already has live downstream infrastructure connecting to Aura Precinct 2 to the east.

The preliminary water & sewerage design (to be further refined as part of detailed design) for Lot 1194 is attached in Appendix C.

3.7 EDQ Guidelines

The proposed development is in accordance with, and does not compromise future compliance with:

- EDQ Guideline 6 (Street and Movement network)
- EDQ Guideline 13 (Engineering standards)

4 CONCLUSION

SMEC Australia Pty Ltd (SMEC) has been commissioned by Stockland Development Pty Ltd to complete an assessment of civil engineering aspects associated with the development of Aura Business Park (ABP) Precinct 4, Stage 22A.

Detailed earthworks will be designed to align with the existing EDQ approval DEV2013/439 and is not expected to compromise future compliance.

Traffic modelling, site access and roadworks aspects has been considered and aligns with the existing EDQ approval DEV2013/439 and is not expected to compromise future compliance.

Stormwater drainage (quantity & quality) has been considered and aligns with the existing EDQ approval DEV2013/439 and is not expected to compromise future compliance.

Sewerage and water servicing has been considered and aligns with the existing approval DEV2013/439 and Unitywater approved Final Precinct Network Plan and is not expected to compromise future compliance.

The proposed development is in accordance with and does not compromise future compliance with relevant civil EDQ Guidelines.

Appendix A **Stage 22A ROL Plans**



General

-  Site Boundary
 Future Road Dedication
 Lot Types
 Village Heart
 Commercial Office
 Boutique Manufacture & Technology
 Pedestrian Link
 Road Services
 Electricity
 Water
 Stormwater

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: SMEC

Adjoining information: SMEC

Aerial photography: Nearmap

Land Budget		
Land Use	Area	Percentage
Area of Subject Site	6.758 ha	100.0%
Future Road Dedication	0.055 ha	0.8%
Saleable Area		
Village Heart	0.773 ha	11.4%
Commerical Office	3.270 ha	48.4%
Boutique Manufacture & Technology	0.799 ha	11.8%
Total Area of Allotments	4.842 ha	71.6%
Road		
Public Road	1.788 ha	26.5%
Pedestrian Link	0.073 ha	1.1%
Total Area of New Road	1.861 ha	27.5%
Yield Breakdown		
Village Heart	1	7.1%
Commerical Office	10	71.4%
Boutique Manufacture & Technology	3	21.4%
Total Number of Allotments	14	100.0%



Legend

General

Site Boundary

Path Facilities:

3m Cycle Path

3m Shared Pedestrian / Cycle Path

3m Pedestrian / Cycle Path
& Maintenance Track

Full Width Path Where Shop Fronts Adjoining

2.0m Pedestrian Path

1.8m Pedestrian Path

1.5m Pedestrian Path

2m Pedestrian Path

Signalised Intersection

Left in Left Out Only

Raised Cycle and
Pedestrian Crossing

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.

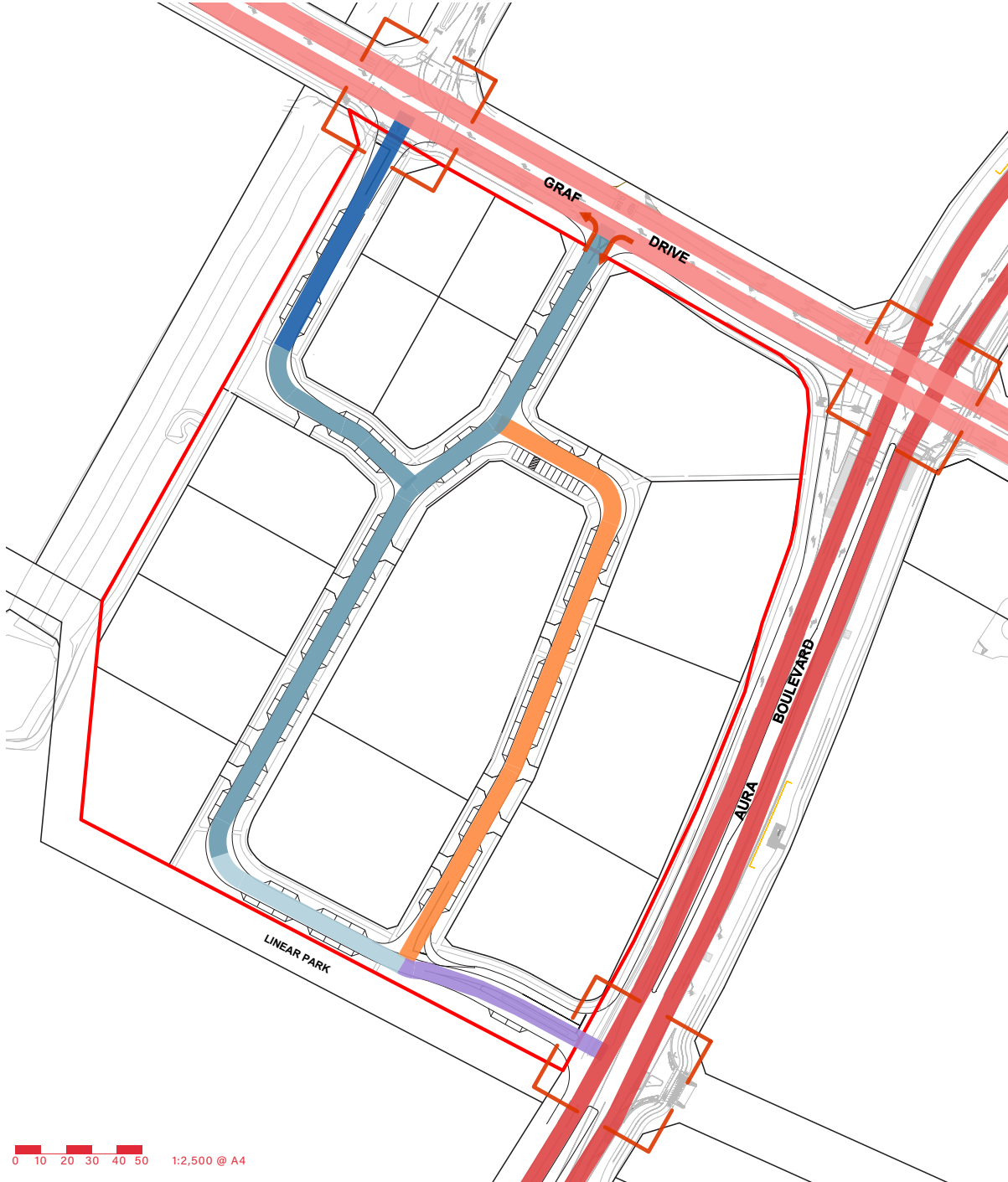
The boundaries shown on this plan should not be used for final detailed engineers design.

Source Information:

Site boundaries: SMEC

Adjoining information: SMEC

Aerial photography: Nearmap



0 10 20 30 40 50 1:2,500 @ A4

Legend

General

Site Boundary

Street Network

Sub-Arterial Road

Sub-Arterial Road

28m Wide Commercial Access Street

22m Wide Commercial Access Street

20m Wide Commercial Access Street

17.5m Wide Commercial Access Street

18.6m Wide Commercial Access Lane

Signalised Intersection

Left in Left Out Only

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.

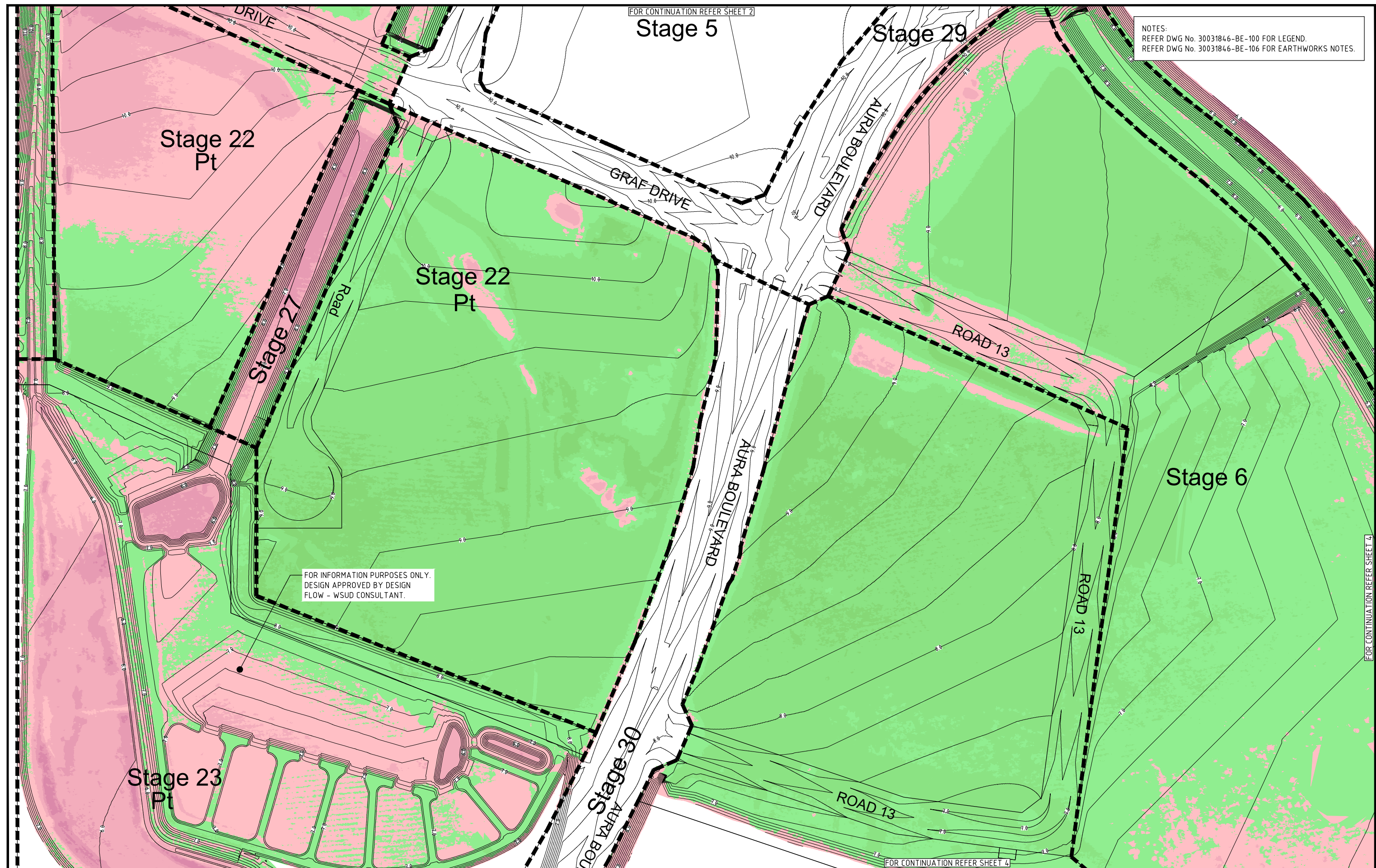
Source Information:

Site boundaries: SMEC

Adjoining information: SMEC

Aerial photography: Nearmap

Appendix B **Existing Bulk Earthworks and Combined Services Plans**



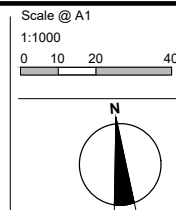
1	Issue for Information	30.10.19	JC/SM	MF
REVISION		DATE	DES/DFT	WVR
				APPD

Matthew Figg
RPEQ 19245

Principal
Stockland Development Pty Ltd

All setting out should be carried out in accordance with GAA/Council's standard drawings or as nominated on hard copy plans provided by SMEC. Any digital information supplied by this office is for information only. Any discrepancies should be discussed with the superintendent.

Project Leader
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J. Callahan
Drawn
S.Mango
Checked
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M.Figg
Date
Sept. 2019



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Canberra	+61 2 6126 1900	Perth	+61 8 9323 5900

Aura Precinct P3, P4 & P5
Bulk Earthworks Strategy Drawings
Economic Development Queensland

Earthworks Layout Plan - Sheet 3 of 5
Drawing No. 30031846-BE-103
Dev. App. No. DEV2013/439
 Sheet No. 3 of 5

Rev0.1

Issue for Information



NOTES
1. FOR EARTHWORKS, LEGEND AND GENERAL NOTES REFER PROJECT DRAWING 101.

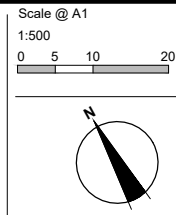
REVISION	DATE	DES/OFT	WVR	APPD
C	9/07/18	JC/SM		MF
B	18/05/18	JC/CH		MF
A	20/03/18	JC/SM		MF

Matthew Figg
RPEQ 19245

Principal
Stockland Development Pty Ltd

All setting out should be carried out in accordance with GAA/Council's standard drawings or as nominated on hard copy plans provided by SMEC. Any digital information supplied by this office is for information only. Any discrepancies should be discussed with the superintendent.

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Date
March 2018



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Canberra	+61 2 6126 1900	Perth	+61 8 9323 5900

Aura Precinct P3, P4 & P5
Stages 5 and 29 Detailed Design
Economic Development Queensland
Bulk Earthworks
Bulk Earthworks Layout Plan
Drawing No. 30031846-05-102
Dev. App. No. DEV2013/439
Sheet No. 2 of 2

Rev C

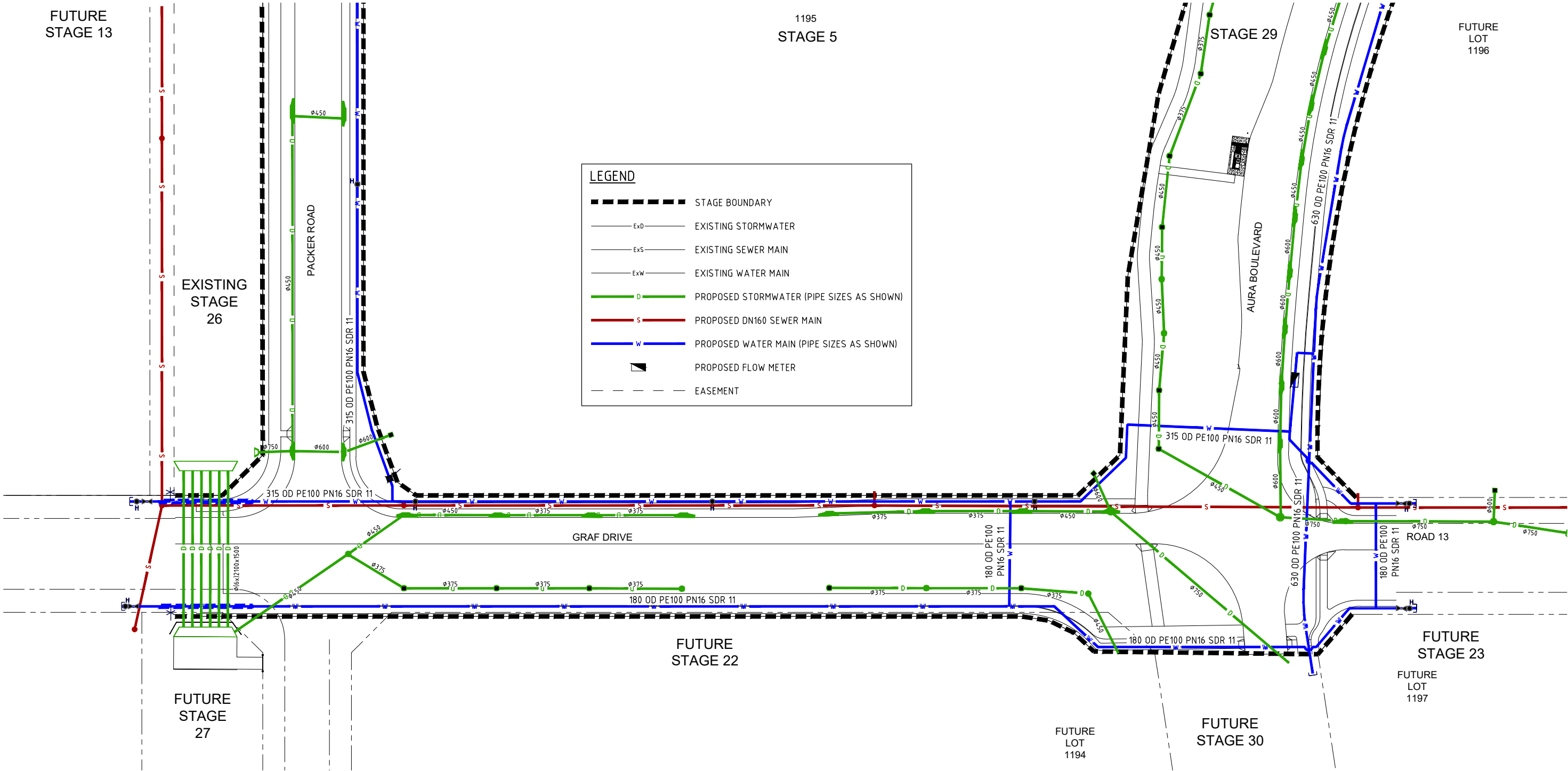
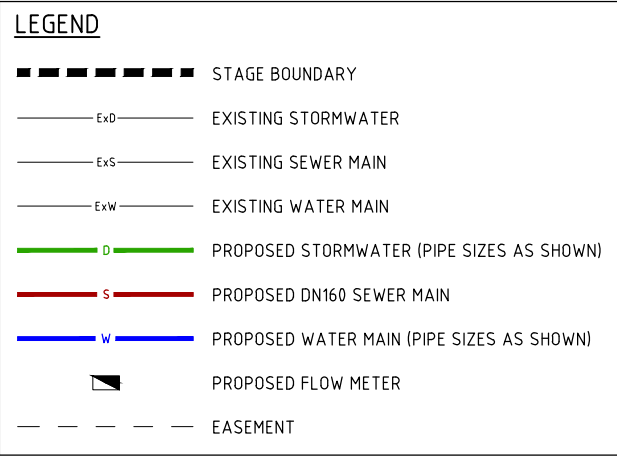
Issue for Construction

FUTURE
STAGE 13

1195
STAGE 5

STAGE 29

FUTURE
LOT
1196



FOR CONTINUATION REFER TO DWG 30031846-05-603

WARNING
BEWARE OF UNDERGROUND SERVICES
The locations of underground services are approximate only and their exact position should be proven on site.
No guarantee is given that all existing services are shown.
Locate all underground services before commencement of works
DIAL 1100 BEFORE YOU DIG
www.1100.com.au

REVISION	DATE	DES/OFT	WVR	APPD
C Drainage Channel Outlets Added & SW lines 265 & 268 Amended	9/05/18	JC/SM		MF
B Revised for Construction	18/05/18	JC/CH		MF
A Issue for Construction	20/03/18	JC/SM		MF

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RPEQ 19245

Principal
Stockland Development Pty Ltd

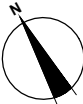
All setting out should be carried out in accordance with GAA/Council's standard drawings or as nominated on hard copy plans provided by SMEC. Any digital information supplied by this office is for information only. Any discrepancies should be discussed with the superintendent.

Project Leader
M.Figg
Designed
J. Callahan
Drawn
S.Mango
Checked
C.Green
Authorised
M.Figg
Date
March 2018

Scale @ A1

1:500

0 5 10 20



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ABN 47 065 475 149

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SMEC AUSTRALIA
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Adelaide +61 8 8225 9800 Brisbane +61 7 3531 8988 Campbelltown +61 2 4640 8222 Canberra +61 2 6126 1900 Geelong +61 3 5228 3100 Gold Coast +61 7 5578 0200 Melbourne +61 3 9869 0800 Perth +61 8 9523 5900

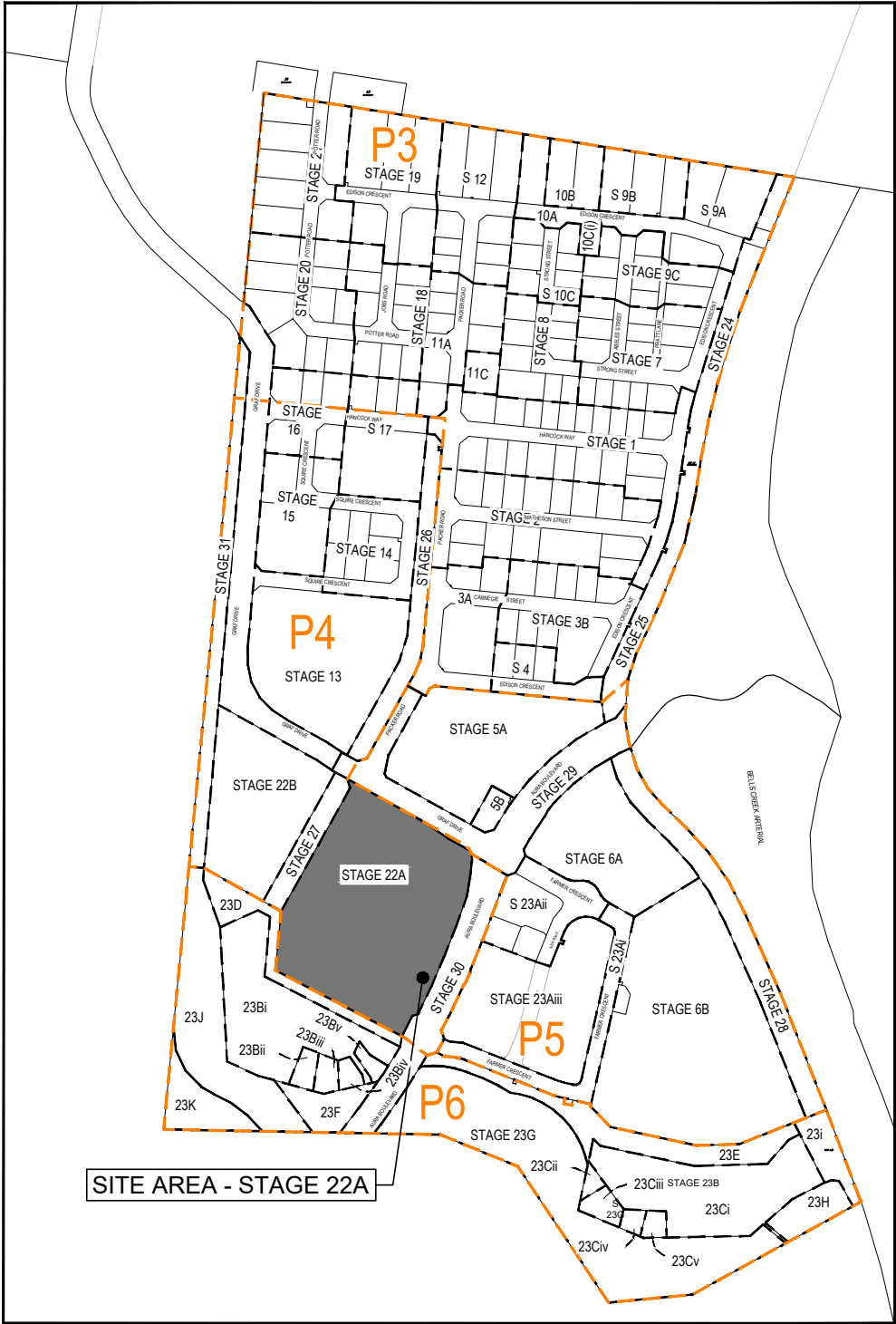
Aura Precinct P3, P4 & P5
Stages 5 and 29 Detailed Design
Unitywater
Services
Combined Services Layout Plan
Drawing No. 30031846-05-602
Dev. App. No. DEV2013/439
Sheet No. 2 of 3

Rev C

Issue for Construction

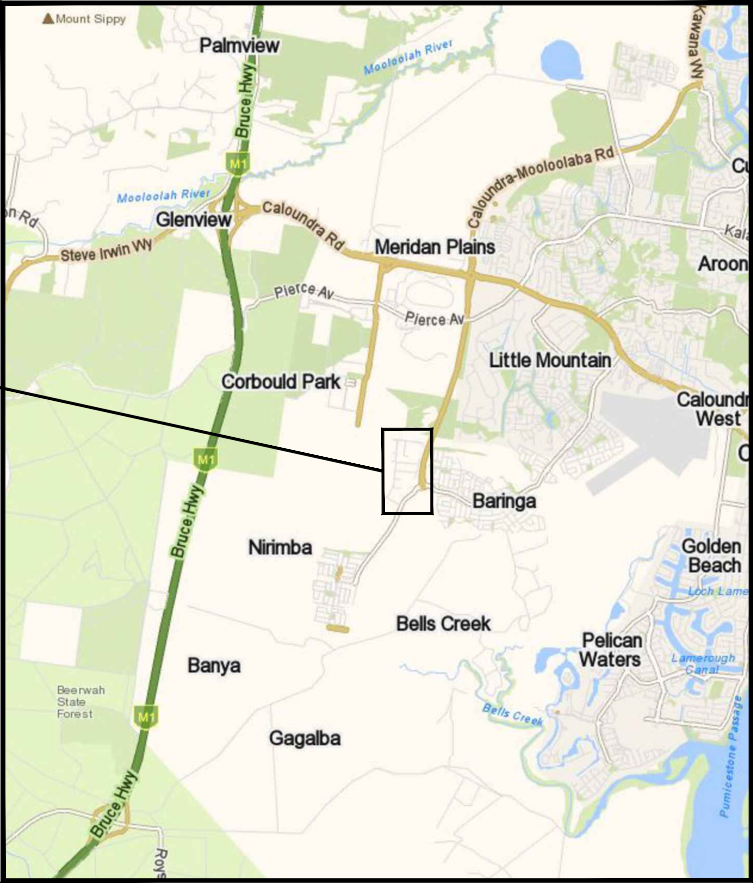
Appendix C **Preliminary Civil Design Plans**

AURA PRECINCTS 3-6
STAGE 1194 PRELIMINARY DESIGN
ECONOMIC DEVELOPMENT QUEENSLAND



REAL PROPERTY DESCRIPTION
PROPOSED SUBDIVISION FOR STOCKLAND
DEVELOPMENT PTY LTD.
Lot 345 ON SP341002
PARISH OF BRIBIE, COUNTY OF CANNING.

LOCALITY PLAN
SCALE 1:5000



LOCALITY MAP

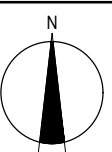
DRAWING INDEX

30031846-1194-100	GENERAL COVER SHEET
30031846-1194-120	BULK EARTHWORKS LAYOUT PLAN
30031846-1194-200	ROADWORKS LAYOUT PLAN
30031846-1194-220	ROADWORKS LONGITUDINAL SECTIONS
30031846-1194-240	ROADWORKS TYPICAL CROSS SECTIONS
30031846-1194-310	STORMWATER LAYOUT PLAN
30031846-1194-410	SEWER LAYOUT PLAN
30031846-1194-510	WATER LAYOUT PLAN
30031846-1194-600	COMBINED SERVICES LAYOUT PLAN

REV	DATE	AMENDMENT / REVISION DESCRIPTION	DRAFT	DESIGN	WVR No.	STATUS
1	19.09.2024	ISSUED FOR APPROVAL	ECF	DS	58	SUBJECT TO APPROVAL
						APPROVED RPEQ 29318
						T. WOOD DATE 19.09.2024



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LEVEL 1, THE EDGE EAST, 10 LAKE KAWANA BLVD
BIRTINYA QLD 4575
SMEC PROJECT No 30080127



0 50 100 200
Scale 1:5000



PROJECT NAME
**AURA PRECINCTS 3-6
(DEV2013/439)
AURA BUSINESS PARK
STAGE 22A - DETAILED DESIGN**

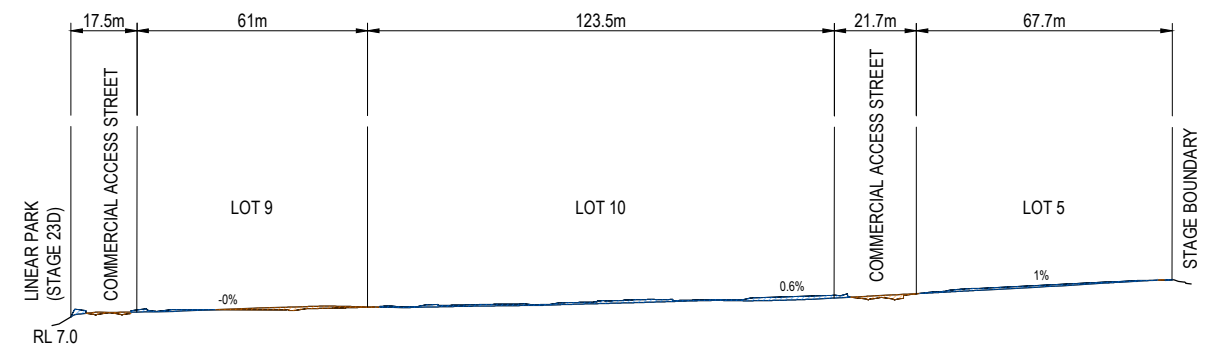
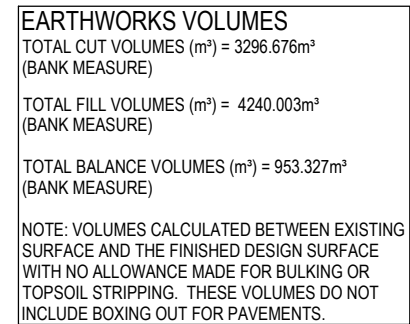
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AHD

SCALE
AS SHOWN

SIZE
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PROJECT/DRAWING No
30031846-1194-100

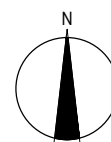
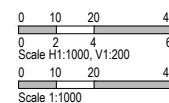
REVISION
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Plan view of the proposed drainage system showing the layout of the drainage channel, access paths, and lot boundaries. The diagram includes dimensions for various sections: 7m, 67m, 20m, 65.5m, 18.8m, and 61.7m. It also shows the locations of 'LOT 11/12', 'LOT 10', and 'LOT 7', as well as 'COMMERCIAL ACCESS STREET' and 'STAGE BOUNDARY'. The drainage channel is labeled 'OPEN DRAINAGE CHANNEL (STAGE 27)' and the access path is labeled 'ACCESS PATH'. The ground level is indicated as 'RL 6.0'.

[illegible]

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LEVEL 1, THE EDGE EAST, 10 LAKE KAWANA BLVD
BIRTINYA QLD 4575
SMEC PROJECT No 30080127



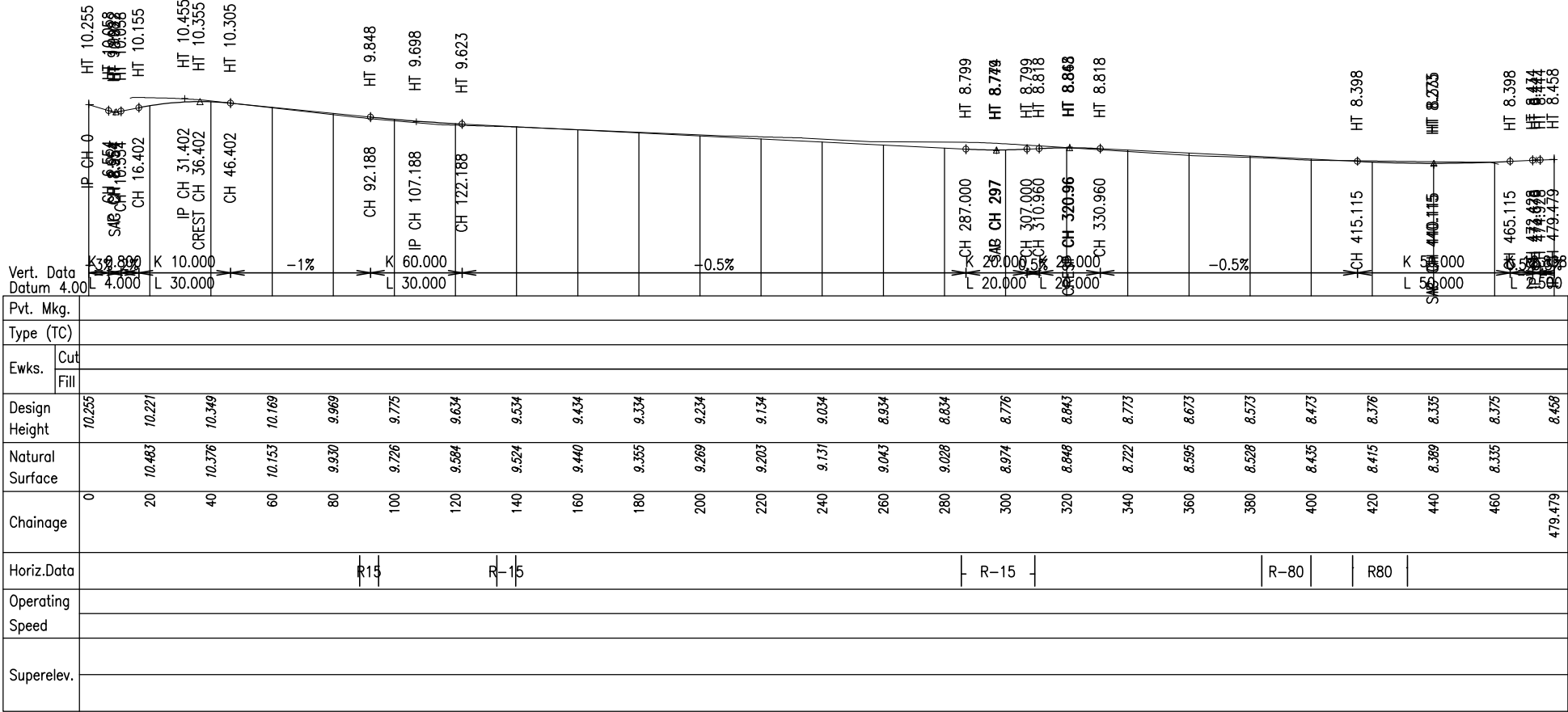
	CLIENT
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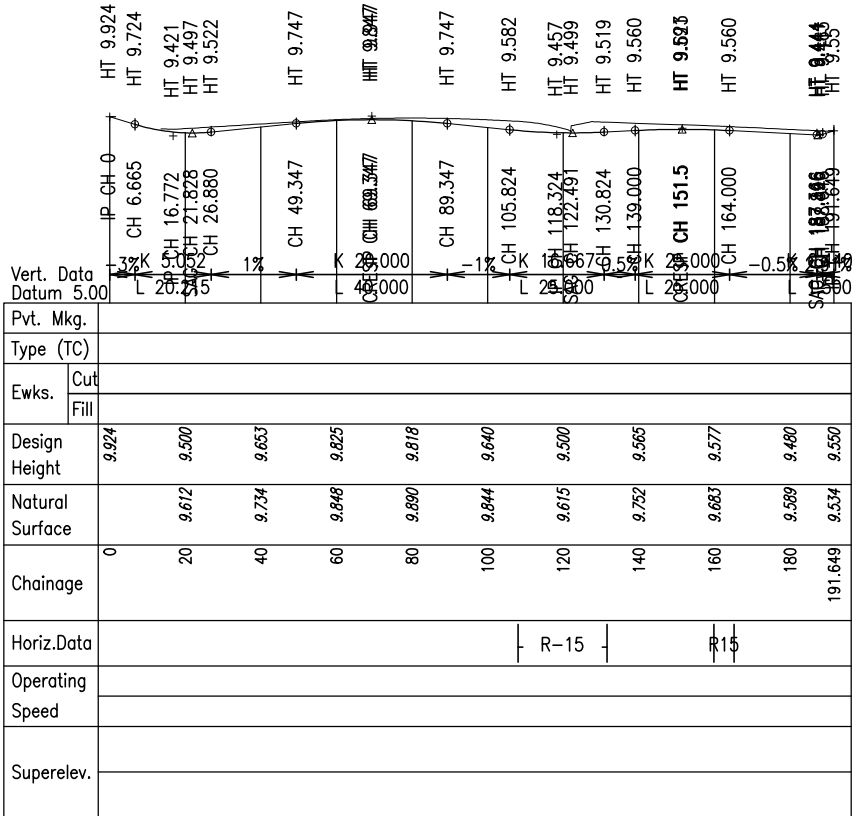
PROJECT NAME
AURA PRECINCTS 3-6
(DEV2013/439)
AURA BUSINESS PARK
STAGE 22A - DETAILED DESIGN

DRAWING TITLE	BULK EARTHWORKS LAYOUT PLAN
---------------	--------------------------------

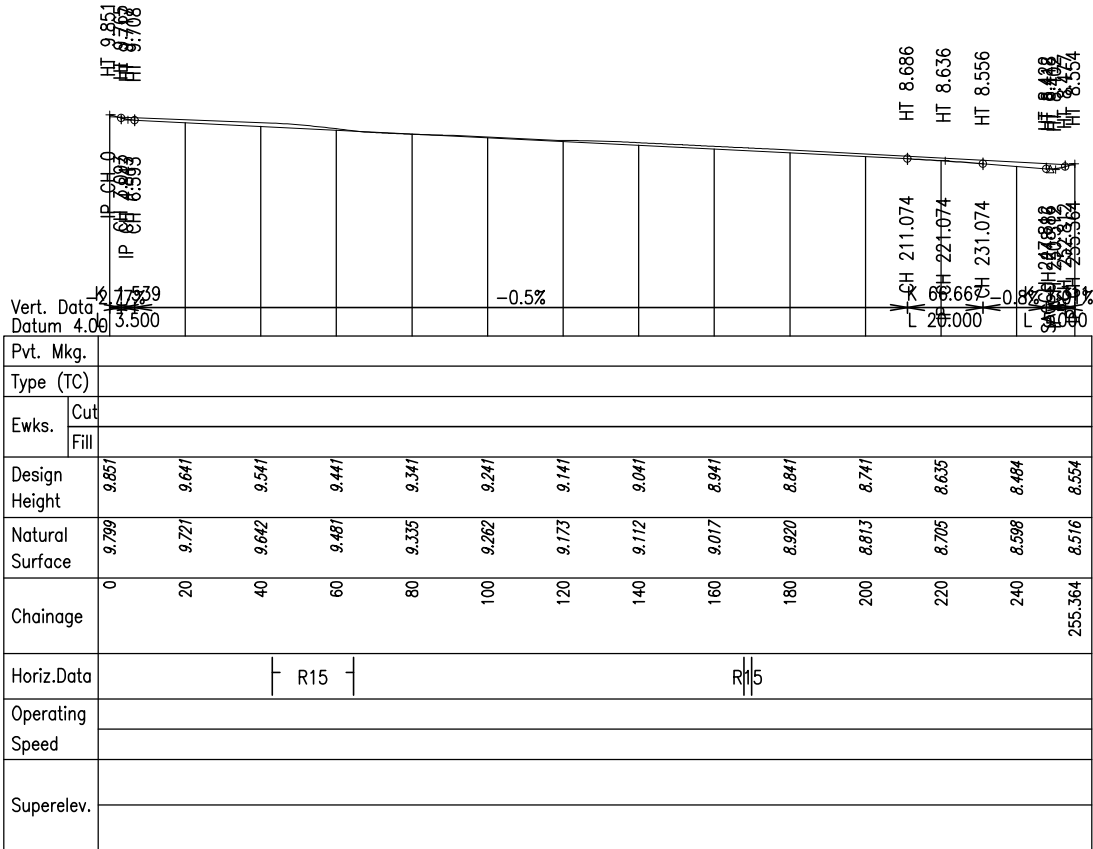
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MCA1

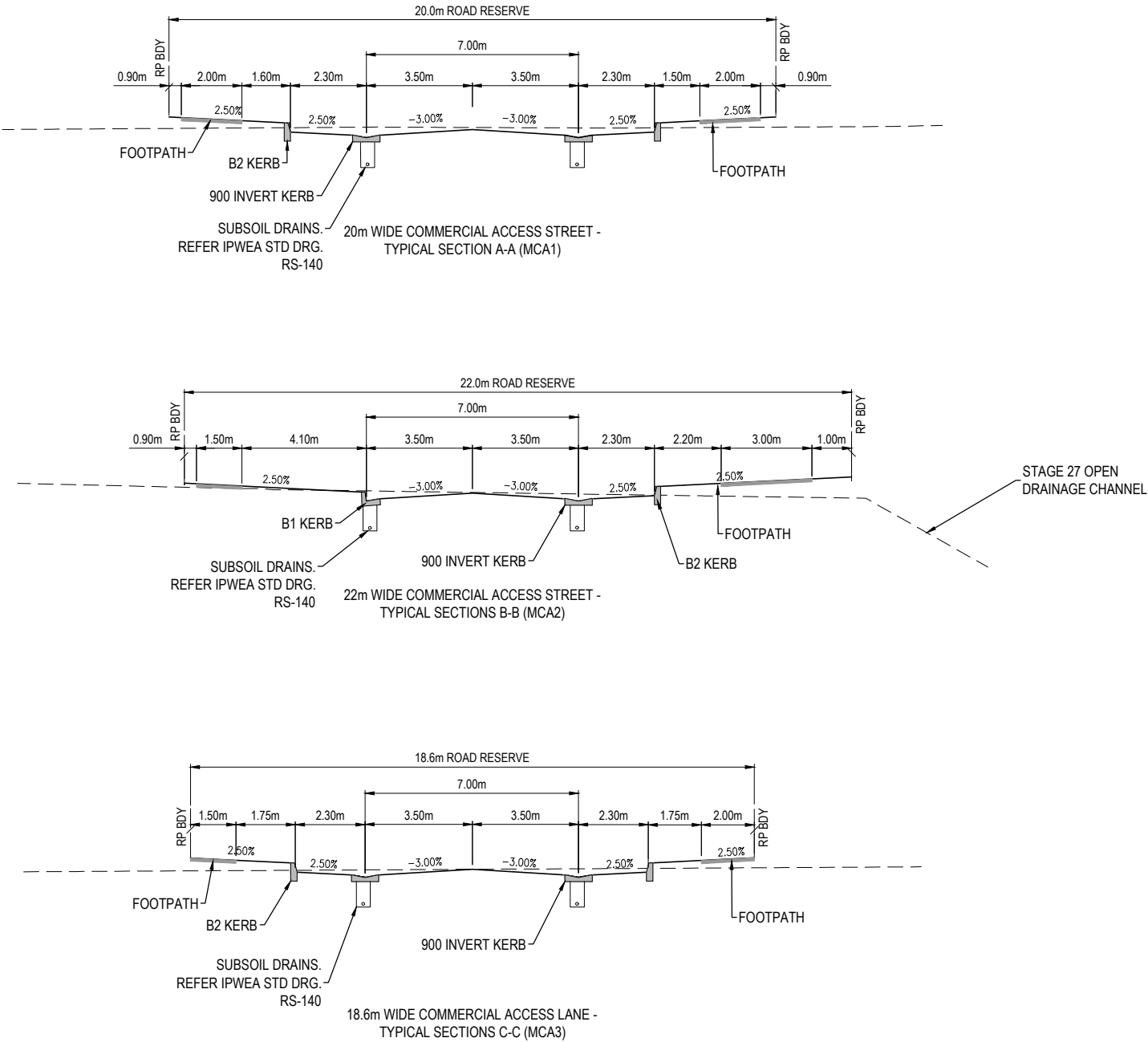


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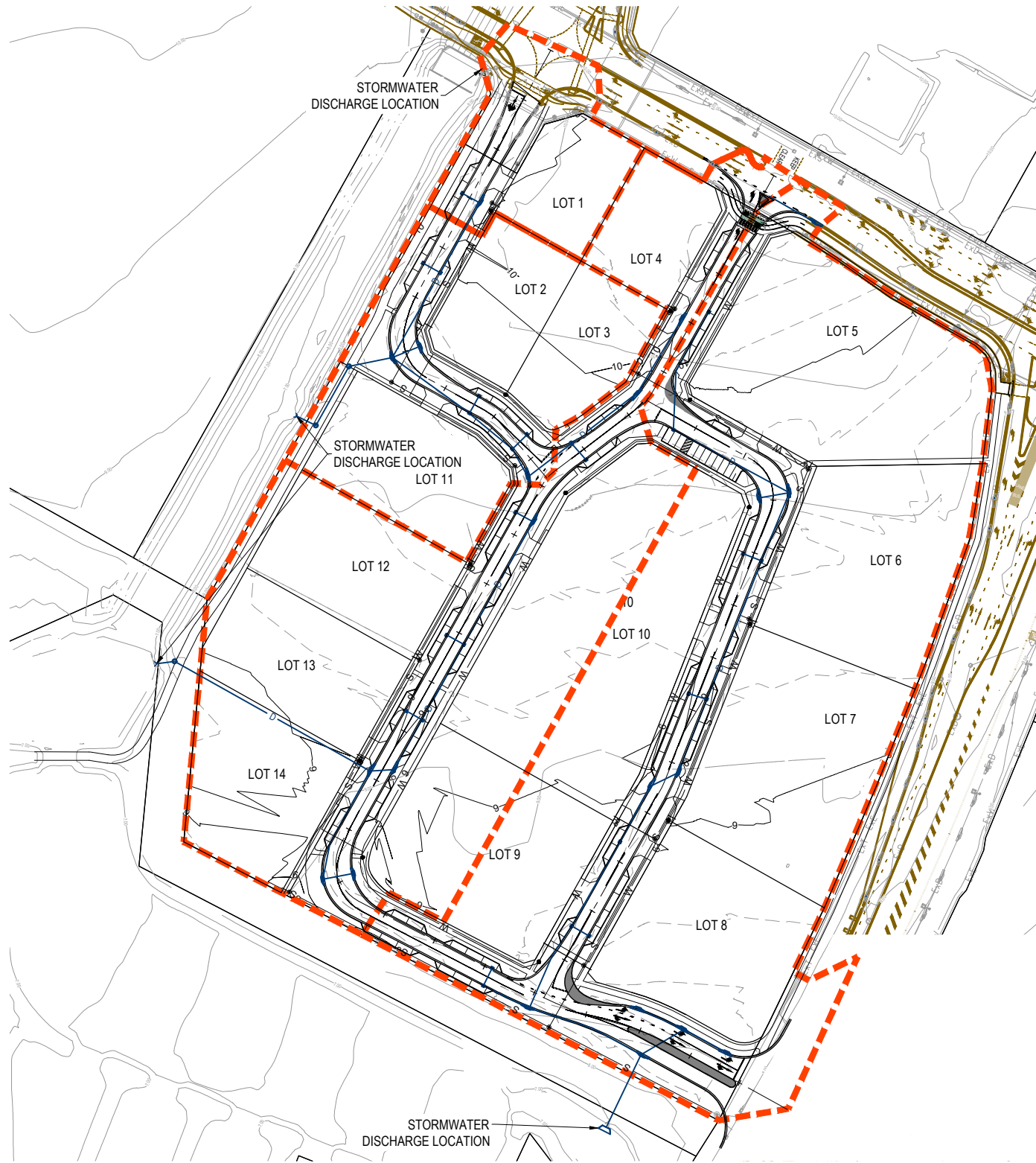


MCA3

LEGEND	
	DESIGN SURFACE
	EXISTING SURFACE



REV	DATE	AMENDMENT \ REVISION DESCRIPTION	DRAFT	DESIGN	WVR No.	STATUS		PROJECT NAME		DRAWING TITLE	
1	19.09.2024	ISSUED FOR APPROVAL	ECF	DS	58	SUBJECT TO APPROVAL		 an  company © SMEC AUSTRALIA PTY LTD (ABN 47 065 475 149) LEVEL 1, THE EDGE EAST, 10 LAKE KAWANA BLVD BIRTINYA QLD 4575 SMEC PROJECT No 30080127			
						APPROVED RPEQ 29318		AURA PRECINCTS 3-6 (DEV2013/439) AURA BUSINESS PARK STAGE 22A - DETAILED DESIGN		ROADWORKS TYPICAL CROSS SECTIONS	
						T. WOOD		DATE 19.09.2024		PROJECT/DRAWING No 30031846-1194-240	
								DATUM AHD		SCALE AS SHOWN	
								SIZE A1		REVISION 1	

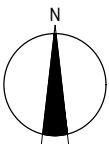
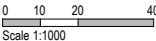


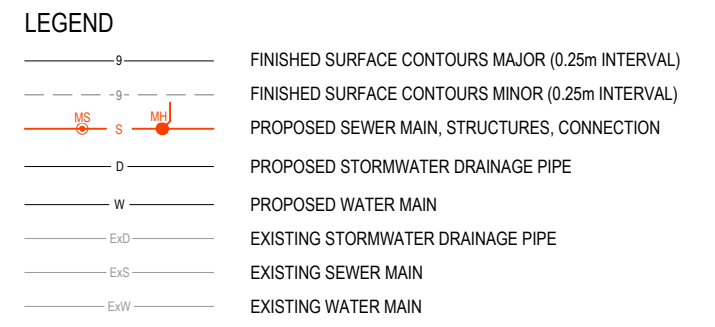
LEGEND	
	PROPOSED CATCHMENT BOUNDARY
	FINISHED SURFACE CONTOURS MAJOUR (0.25m INTERVAL)
	FINISHED SURFACE CONTOURS MINOR (0.25m INTERVAL)
	EXISTING SURFACE CONTOURS(0.25m INTERVAL)
	PROPOSED STORMWATER DRAINAGE PIPE
	EXISTING STORMWATER DRAINAGE PIPE
	EXISTING SEWER MAIN
	PROPOSED SEWER MAIN
	PROPOSED WATER MAIN

REV	DATE	AMENDMENT \ REVISION DESCRIPTION	DRAFT	DESIGN	WVR No.	STATUS		PROJECT NAME		DRAWING TITLE	
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						T. WOOD		SCALE AS SHOWN		REVISION 1	

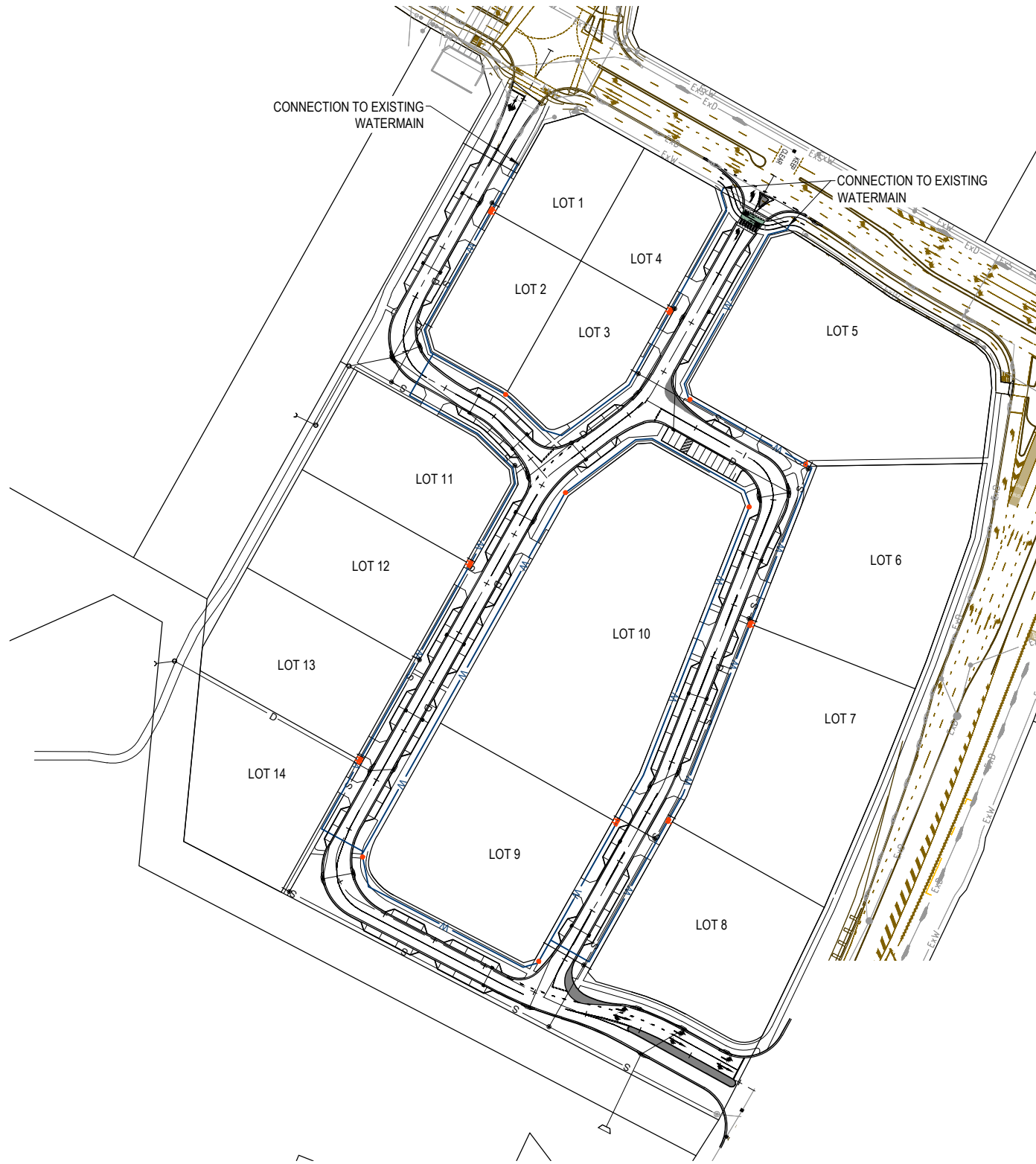


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LEVEL 1, THE EDGE EAST, 10 LAKE KAWANA BLVD
BIRTINYA QLD 4575
SMEC PROJECT No 30080127

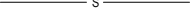
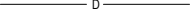




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					APPROVED		RPEQ: 29318	© SMEC AUSTRALIA PTY LTD (ABN 47 065 475 149) LEVEL 1, THE EDGE EAST, 10 LAKE KAWANA BLVD BIRTINYA QLD 4575 SMEC PROJECT No 30080127 						DATUM	SCALE
						T. WOOD	DATE 19.09.2024				AHD	AS SHOWN	A1	30031846-1194-410	1



LEGEND



PROPOSED WATER MAIN, VALVE, HYDRANT AND PROPERTY CONNECTION
EXISTING STORMWATER DRAINAGE PIPE
EXISTING SEWER MAIN
EXISTING WATER MAIN
PROPOSED STORMWATER DRAINAGE PIPE
PROPOSED SEWER MAIN

REV	DATE	AMENDMENT \ REVISION DESCRIPTION	DRAFT	DESIGN	WVR No.	STATUS		PROJECT NAME		DRAWING TITLE	
1	19.09.2024	ISSUED FOR APPROVAL	ECF	DS	58	SUBJECT TO APPROVAL		AURA PRECINCTS 3-6 (DEV2013/439) AURA BUSINESS PARK STAGE 22A - DETAILED DESIGN		WATER LAYOUT PLAN	
						APPROVED		RPEQ 29318		PROJECT/DRAWING No	
						T. WOOD		DATE 19.09.2024		30031846-1194-510	
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								AS SHOWN		1	
								SIZE			
								A1			
								DATUM			
								AHD			

Appendix D

ATLAN FILTER BASKET SQUIDEP CERTIFICATE



Stormwater Quality Improvement Device Evaluation Protocol (SQIDEP)

VERIFICATION CERTIFICATE

Applicant Information

Applicant Name	Atlan Stormwater
Applicant Address	130 Sandstone Place, Parkinson, QLD 4115
Website	www.atlan.com.au
Contact Email	Andy.hornbuckle@atlan.com.au

Verified Technology

Product Title	Atlan Stormsack
SQIDEP Pathway	Field Evaluation via reviewed QAPP
Reviewed Documents	The following documents form the basis of this independent evaluation: - Stormsack detailed performance report (Stormsack DPR) (Issue 2) Drapper, D., Waldron, S., & Nyakas, L. (2024). SQIDEP Detailed Performance Report – Stormsack (Issue 2), Drapper Environmental Consultants, Crestmead, Queensland, Australia - Hydraulic Performance (Treatable Flowrate) Lab Testing report (Issue 1), 5 July 2024 Drapper, D., Nyakas, L. (2024). Hydraulic Performance (Treatable Flowrate) Lab Testing report (Issue 1), Drapper Environmental Consultants, Crestmead, Queensland, Australia - ATLAN Stormsack Device Lab Testing Report (Issue 3), 5 July 2024 Drapper, D.; Nyakas, L. ATLAN Stormsack Device Lab Testing Report (Issue 3); Drapper Environmental Consultants: Crestmead, Queensland, Australia, 2024. - StormSack Performance Assessment, Report Number: MHL2325, Manly Hydraulics Laboratory, November 2014.

Technology Information

Applicant's Verified Performance Claims (ER)	<table border="1" data-bbox="480 136 1121 360"> <thead> <tr> <th colspan="2">Parameter</th></tr> </thead> <tbody> <tr> <td>Total suspended solids</td><td>45%</td></tr> <tr> <td>Total phosphorus</td><td>47%</td></tr> <tr> <td>Total nitrogen</td><td>25%</td></tr> <tr> <td>Total petroleum hydrocarbons</td><td>Not claimed</td></tr> <tr> <td>Gross pollutants</td><td>100 %</td></tr> </tbody> </table> IEP's comments: Nil. IEP's recommendations: All performance claims are considered compliant up to the treatment flow rate for the applicable device. Verified flow rates are included in the table below: <table border="1" data-bbox="480 539 1236 792"> <thead> <tr> <th>Size of Stormsack (Pit dimensions) (mm)</th><th>TFR for MUSIC modelling – high flow bypass in litres per second</th></tr> </thead> <tbody> <tr> <td>450 x 450</td><td>10</td></tr> <tr> <td>600 x 600</td><td>25</td></tr> <tr> <td>600 x 900</td><td>32</td></tr> <tr> <td>900 x 900</td><td>39</td></tr> <tr> <td>1200 x 900</td><td>50</td></tr> <tr> <td>1200 x 1200</td><td>65</td></tr> </tbody> </table>	Parameter		Total suspended solids	45%	Total phosphorus	47%	Total nitrogen	25%	Total petroleum hydrocarbons	Not claimed	Gross pollutants	100 %	Size of Stormsack (Pit dimensions) (mm)	TFR for MUSIC modelling – high flow bypass in litres per second	450 x 450	10	600 x 600	25	600 x 900	32	900 x 900	39	1200 x 900	50	1200 x 1200	65
Parameter																											
Total suspended solids	45%																										
Total phosphorus	47%																										
Total nitrogen	25%																										
Total petroleum hydrocarbons	Not claimed																										
Gross pollutants	100 %																										
Size of Stormsack (Pit dimensions) (mm)	TFR for MUSIC modelling – high flow bypass in litres per second																										
450 x 450	10																										
600 x 600	25																										
600 x 900	32																										
900 x 900	39																										
1200 x 900	50																										
1200 x 1200	65																										
Test Stormwater Runoff	21 compliant stormwater events. Water chemistry was compliant with Table 1 in SQIDEP v1.3. Minimum number of aliquots collected, and samples were representative.																										
Test Catchment	- The field testing for the ATLAN Stormsack (200) was carried out at Griffith University, Carpark H, Parkland Campus, Griffith Way, Southport, QLD, 4215. - The catchment area draining to the device was reported to be 1,181 m² directly connected to the Stormsack. The catchment was reported to be 66% impervious with the remainder including a eucalyptus forested area which drains to the Stormsack.																										
Maintenance Performed during monitoring	The Stormsack should be cleaned/maintained when accumulated pollutants reach the trigger level of 150mm depth in the bag, or 50% capacity by volume. The monitored Stormsack was maintained twice during the SQIDEP monitoring program due to construction loads received from earthworks undertaken in the upstream catchment. Regular inspection of the Stormsack is recommended, as per the manufacturer's O&M manual.																										

STORMWATER
AUSTRALIA

Verified method:

The Reviewers have verified that the method undertaken complies with the intent and specifics of SQIDEP v1.3.

A more detailed Independent Evaluatores Report is available to get an understanding of what was checked and how the claim was verified.

Conditions/Notes	MUSIC modelling shall be carried out as follows:		
	A generic node is to be used in MUSIC with a high flow bypass set to the applicable TFR (see table below) for the size of the Atlan Stormsack proposed and with inlet and outlet concentrations as follows:		
	Pollutant	Inlet concentration	Outlet Concentration
	TSS	100	55
	TP	100	53
	TN	10	7.5
	Size of Stormsack (Pit dimensions) (mm)	TFR for MUSIC modelling – high flow bypass in litres per second	
	450 x 450	10	
	600 x 600	25	
	600 x 900	32	
	900 x 900	39	
	1200 x 900	50	
	1200 x 1200	65	

Independent Reviewers

Evaluator Name	Evaluator Signature
Mark Liebman	
Baden Myers	

Issue of Verification Certificate

Acceptance by SQIDEP Governance Panel	
Acceptance by Stormwater Australia Board of Directors	
Verification Issued	
Stormwater Australia Verification Certificate Number Reference	SA-2024/12-VC

Verified under SQIDEP Version 1.3

Body of Evidence Pathway

