ATTACHMENT 7

Amended Infrastructure Report

Prepared by:

Kehoe Myers

Kehoe Myers

ENGINEERING INFRASTRUCTURE REPORT

HOMEBUSH ROAD, GOWRIE JUNCTION, QLD

TOOWOOMBA REGIONAL COUNCIL

ISSUE 2 | FRIDAY, JUNE 5, 2026 | PROJECT NO. C2526271

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1.1	11/03/2026	For Approval	TB	MS	PS
2	05/06/2026	RFI Response	MS	MS	PS

Certification						
Author/s:	Tyana Bachmann					
Approver:	Peter Sparksman	RPEQ: 20985	Signature:		Date:	05/06/2026

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1. INTRODUCTION AND EXECUTIVE SUMMARY

Kehoe Myers Consulting Engineers has been engaged to prepare an Engineering Infrastructure Report as part of the planning documentation in support of the Development Application with the Toowoomba Regional Council (TRC) for the Reconfiguration of a Lot (RAL, 1 into 15 Development Application (DA) at Old Homebush Road, described as Lot 7 on SP311097 in Gowrie Junction, Queensland.

The proposed development consists of a 1 into 15 allotment subdivision on a vacant allotment on Old Homebush Road, Gowrie Junction. Works will include earthworks to provide a new road, stormwater, water reticulation, power and telecommunications services.

This report seeks to address the onsite engineering issues associated with the proposed development works, including:

- Existing services within the subject area;
- Siteworks and proposed earthworks;
- Site access and transport impacts;
- Stormwater quantity and quality management;
- Water reticulation and requirements;
- Electrical and telecommunication supply.

The report concludes that the development will be able to be connected to the local transport, stormwater, water reticulation and power/telecommunication networks with minimal impact on all existing services.

From the preliminary analysis of the site, the development will require earthworks to form the proposed road. These earthworks are to be generally in accordance with expected development works and will be detailed as part of a future Operational Works application.

Stormwater quantity and quality have been addressed in the accompanying Stormwater Management Plan prepared by Kehoe Myers.

Finally, from the overall assessment of the Water, Electrical and Telecommunication supply, the development can be readily serviced by the existing adjacent infrastructure. Further details of these proposed connections are provided below and will be detailed in a future Operational Works application.

1.1. SITE DESCRIPTION

The proposed development is located on a 66,650m^2 site located at Old Homebush Road, Gowrie Junction. The real property description is Lot 7 on SP311097. A Locality Plan highlighting the proposed development site is shown below.

Refer to **FIGURE 1** below for site location with respect to adjoining roads and lots.

FIGURE 1 SITE LOCALITY MAP (QUEENSLAND GLOBE 2026)

1.2. EXISTING SITE CONDITIONS

From the available LiDAR elevation model, the site is currently an open and gently graded allotment. The current development site is vacant and consists of an open grassed area. The development has a single road frontage to Old Homebush Road, which provides access to the site.

Topographically, most of the site falls from the north-western boundary corner toward the eastern boundary. A small portion of the north-western corner also grades to the west. The south-western corner of the allotment falls to the south, while the remaining south-eastern portion grades toward the south-eastern corner of the site

The average gradient of the subject allotment is approximately 6%, and subsequently, minimal earthworks will be required to provide the final allotments.

A current aerial image of the proposed development site is shown below in **FIGURE 2**.

FIGURE 2 SITE CONTOUR IMAGE (QUEENSLAND GLIOBE, 2026)

1.3. PROPOSED DEVELOPMENT LAYOUT

The proposed development layout has been developed in association with the Client. Based on the proposed site layout, a conceptual engineering design was undertaken to provide access and services for the proposed allotments. It is proposed that a new road be created from Old Homebush Road to form a cul-de-sac within the development site. This new road link will provide ample access and amenities to 12 of the created allotments, Lots 34-45. Allotments 31-33 will gain access directly from Old Homebush Road.

The proposed final 15-lot layout for the subdivision is shown in **FIGURE 3** below and attached in **APPENDIX A.** Proposed allotment sizes vary, with a minimum of 4000m^2.

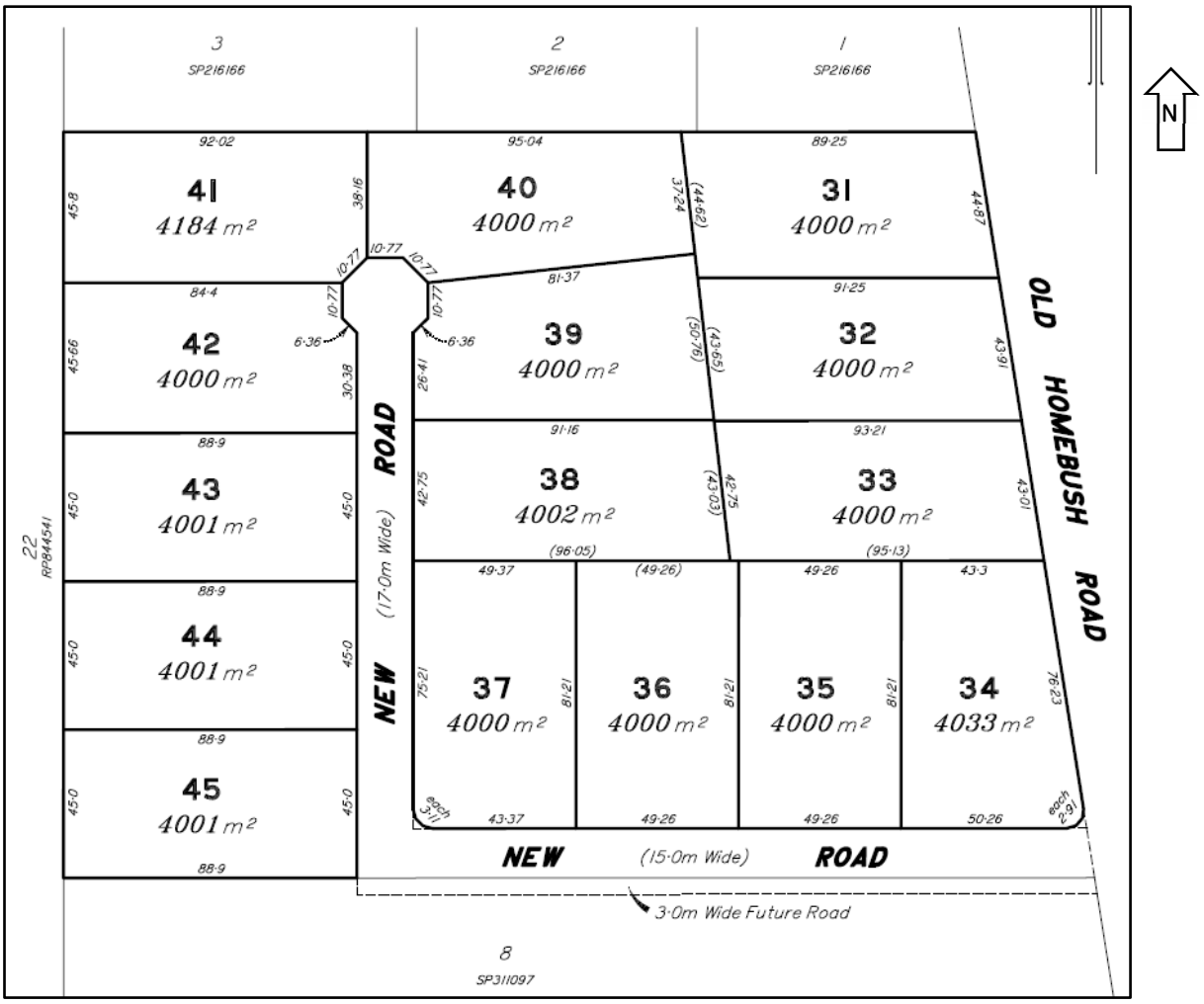


FIGURE 3 PLAN OF PROPOSED SUBDIVISION (K.J. WILSON DRAWING: K4822)

2. SITEWORKS AND TRANSPORT

2.1. EARTHWORKS

From the preliminary analysis, the development will require earthworks to form the proposed road and required services.

The earthworks for the planned road and required infrastructure will follow the proposed allotment layout attached in **APPENDIX A** and the proposed services plan is attached in **APPENDIX B**. These earthworks are seen to be generally in accordance with expected development works and will be detailed as part of a future Operational Works application.

From a preliminary design of the proposed road, an earthworks layout and quantities have been prepared. This preliminary layout is presented in **APPENDIX C** and below in **FIGURE 4**.

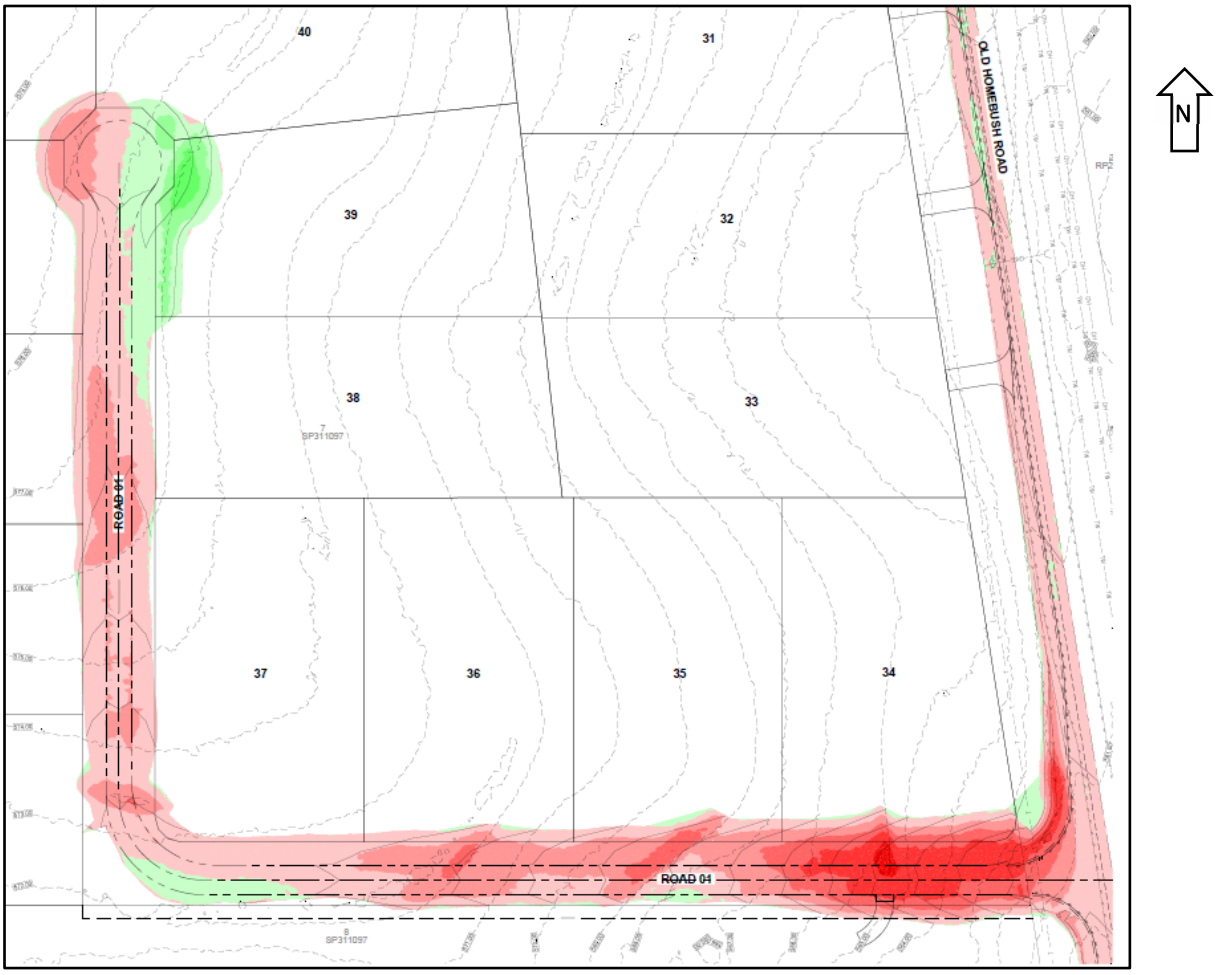


FIGURE 4 PRELIMINARY EARTHWORKS LAYOUT (KEHOE MYERS DRAWING: C2526271-PR03)

2.2. ROADWORKS

To enable access to the created allotments, a new internal road will be created and connected to Old Homebush Road. It is proposed that the internal road shall be a 7.0m roadway (measured between kerb inverts) paved with asphaltic concrete with layback kerb and channel on both sides. This internal roadway will be consistent with the TRC 'Local Access' profile. This roadway provides development potential to any future subdivision of the adjoining land to the south. The Local Access profile will continue to a 90-degree bend in the roadway, at which point the road will transition to a 6.0m pavement, consistent with the 'Cul-de-sac' profile per TRC Planning Scheme Policies. The new roadway will service Lots 34-45. Remaining Lots 31-33 will gain direct access from Old Homebush Road and have crossovers constructed in accordance with the IPWEA standard drawing RS-056 for rural driveways. Appropriate driveway culverts will be provided and sized as part of a future operational works application.

From a preliminary roadway design, it has been shown that the internal road will have a maximum vertical gradient of 11%, to match as closely as possible the existing terrain and minimise the impacts of required earthworks. Horizontal and vertical grading of the streets shall be in accordance with the Toowoomba Regional Council Planning Scheme Policies and Austroads Guide to Road Design, Part 3: Geometric Design. All details of the further roadway design will be subject to a future Operational Works application.

The image, **FIGURE 5**, below, indicates a new typical 18.0m wide road reserve cross-section that is proposed for the internal road network. A layout of the proposed road network is included in **APPENDIX A.**

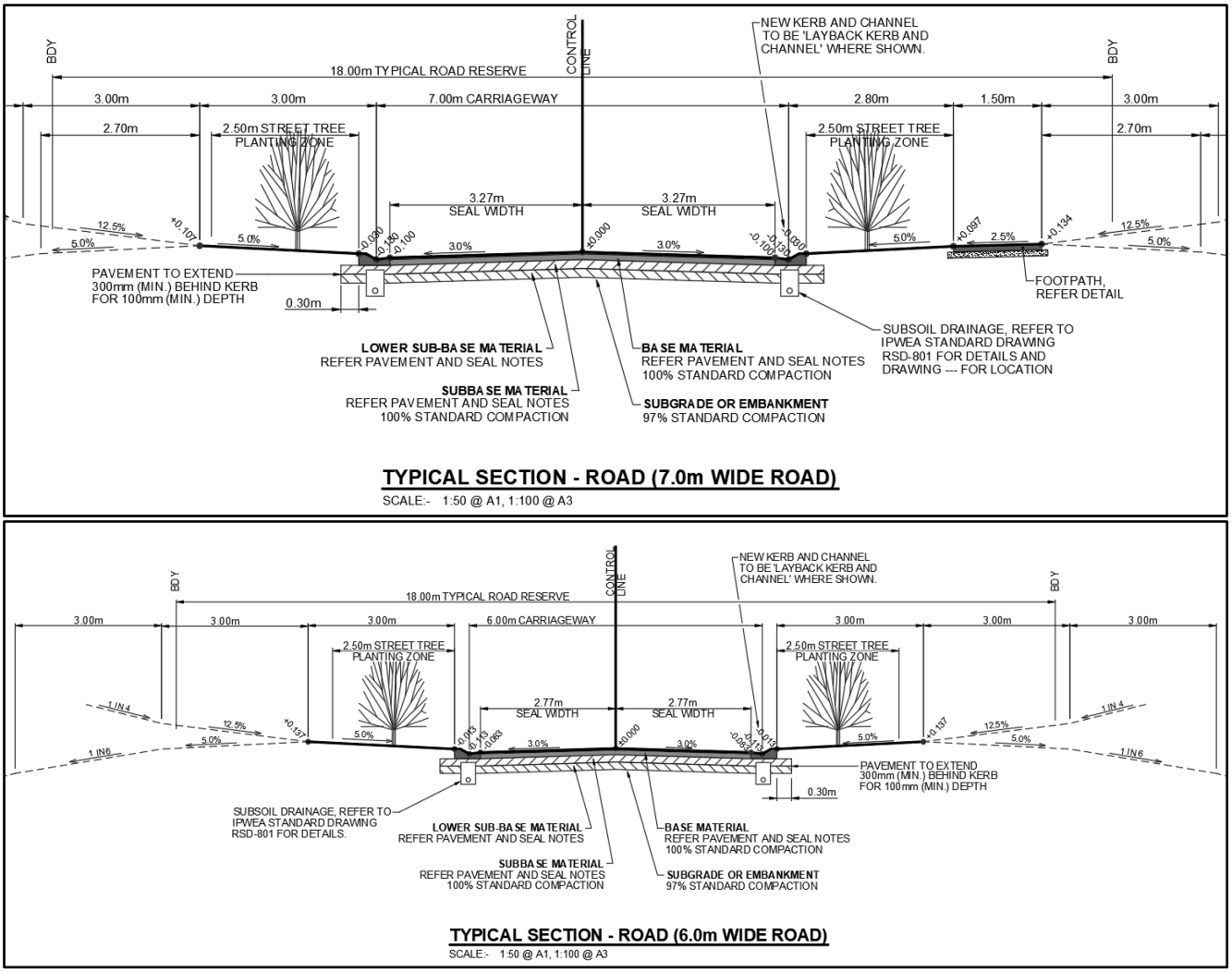


FIGURE 5 NEW INTERNAL ROAD RESERVE TYPICAL CROSS-SECTIONS

2.3. TRAFFIC IMPACT

From the conceptual subdivisional design, a preliminary traffic impact assessment was undertaken. Adopting the rate of 10 vehicle movements per allotment (NSW RTA Guide to Traffic Generating Developments (2002)), the estimated number of vehicle movements per day generated from the proposed 15 lot subdivision is 150 AADT. As the only access from the proposed development will be Old Homebush Road, all vehicle movements generated from the proposed subdivision will be directed to this road.

Under the current planning scheme, Old Homebush Road is currently designated as a 'Distributor' order roadway. Adopting the design traffic for a Distributor Road of 3.0 x 10^6 vehicle movements per year, we can estimate that the current daily traffic on Old Homebush Road is more than 8,000 vehicles per day. From the Council's available traffic data, Old Homebush Road currently experiences 2,243 ADT. Since all traffic from the development will be directed to Old Homebush Road, the post-development AADT can be estimated as 2,393 ADT. It is therefore shown that Old Homebush Road has sufficient capacity to carry the proposed development traffic.

In addition, as per Austroads Part 12, Table 4.1, as the development is under 50 allotments, the development is classified as a 'minor development' and will also not trigger the need for a detailed Traffic Impact Statement or Assessment.

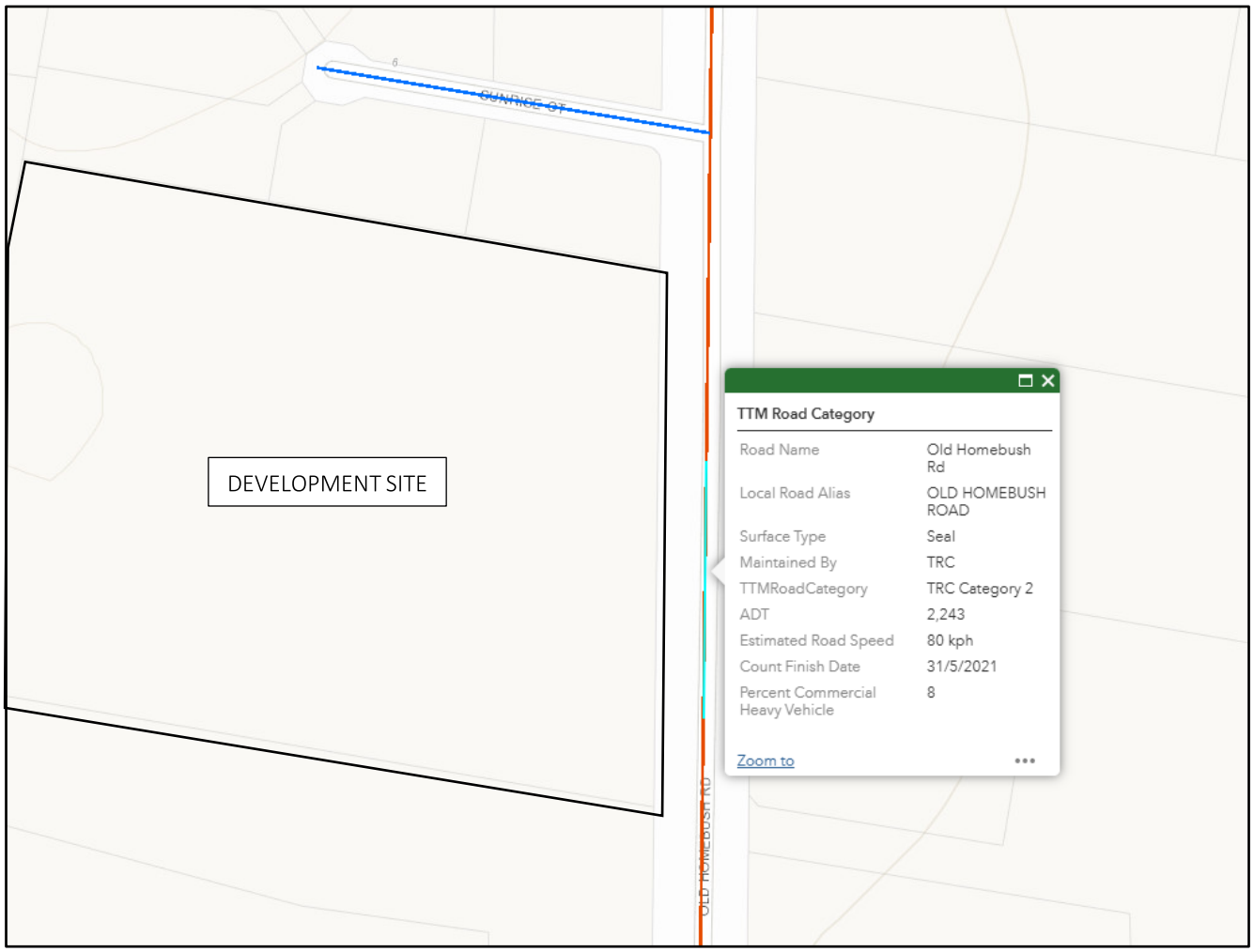


FIGURE 6 TOOWOOMBA REGIONAL COUNCIL ONLINE TRAFFIC MAPPING DATA (2026)

2.4. INTERSECTION WORKS

As identified in **Section 2.3** above, Old Homebush Road is designated as a 'Distributor' level road. For this reason, the new intersection with Old Homebush Road is to accommodate the ultimate road profile. Details of the new intersection geometry are presented in **APPENDIX D**. Parabolic kerb turnouts are proposed at the intersection, with asphalt tapers to tie back to the existing pavement. On the Southern side of the proposed intersection, a Basic Auxiliary Left (BAL) turning treatment is proposed, with geometry as per Austroads Guide to Road Design Part 4A. As the majority of traffic into the development will be coming from the South (towards the Gowrie Junction and Toowoomba), a BAL is deemed to be the only necessary turning treatment.

An intersection layout showing a preliminary design of the proposed intersection is provided in **APPENDIX D**.

2.5. INTERSECTION SIGHT DISTANCE

In accordance with Austroads Guide to Road Design Part 4A: Unsignalised Intersections, a Safe Intersection Sight Distance (SISD) check for the new intersection with Old Homebush Road was analysed in accordance with Section 3.2.2. The required SISD for the new intersection were calculated as 186m to the North, and 178m to the South, both for an 80km/hr design speed, (which is the posted speed of Old Homebush Road) and variable average road gradients on either side of the intersection. The required line of sight to achieve this sight distance was measured and is shown in **FIGURE 7**.

The concept design indicates that the required sight distance to the North and South of the intersection is sufficient. Vertical sight distance along these alignments was also checked and is compliant with the requirements of Austroads. All intersection sight distance checks will be confirmed once a detailed survey is undertaken as part of the detailed design stage of the future road connection.

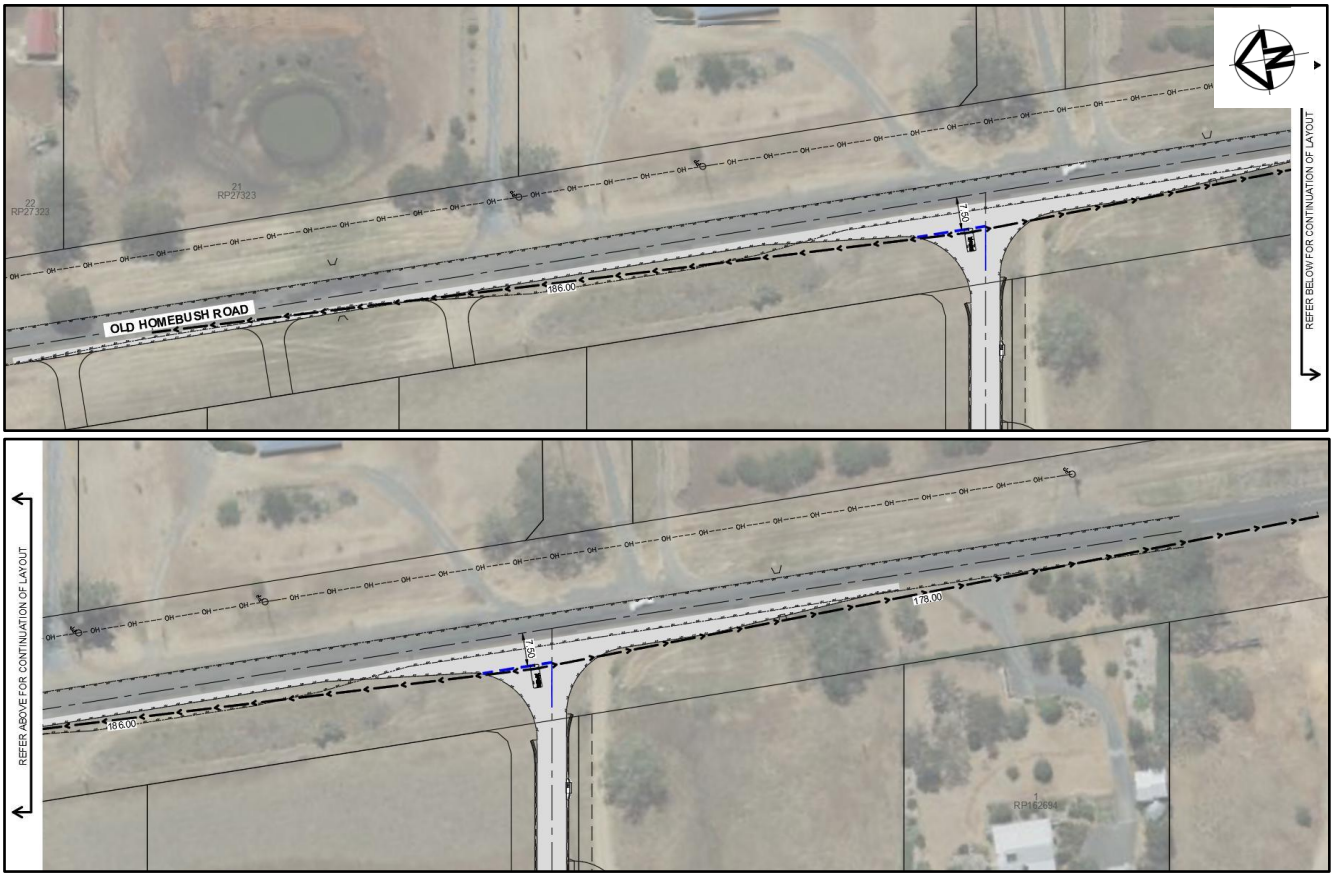


FIGURE 7 SAFE INTERSECTION SIGHT DISTANCE CHECKS

3. STORMWATER MANAGEMENT PLAN

3.1. STORMWATER QUANTITY MANAGEMENT

Stormwater Quantity Management for the proposed development has been addressed within the accompanying Stormwater Management Plan prepared by Kehoe Myers.

3.2. STORMWATER QUALITY MANAGEMENT

Stormwater Quality Management for the proposed development has been addressed within the accompanying Stormwater Management Plan prepared by Kehoe Myers.

4. WASTEWATER

4.1. EXISTING COUNCIL SEWER INFRASTRUCTURE

Council's reticulated sewer network is not available to the subject site; therefore, an appropriate on-site effluent management system will be installed to service the proposed allotment waste requirements.

The site is generally clear and gently graded, and all proposed allotments exceed the Toowoomba Regional Council minimum lot size of 4000 m^2 for on-site effluent disposal. Given these characteristics, it is considered reasonable that compliant on-site effluent disposal systems can be configured for each allotment without requiring atypical earthworks or specialised treatments. The available area and grading provide flexibility for system layout and allow designers to position land application areas to suit localised soil conditions as part of future plumbing and drainage approvals.

5. WATER SUPPLY

5.1. EXISTING COUNCIL WATER INFRASTRUCTURE

Currently, there is no Council water infrastructure within the proposed development site. It is proposed that a connection is made to the 150mm PVC trunk main within Old Homebush Road, indicated on the preliminary services layout.in **APPENDIX B**.

It is assumed that the existing mains are on the current standard alignment with the required cover. **FIGURE 8** below indicates the existing water network adjacent to the site.

A pressure and flow test model report from Council confirms that the network has sufficient capacity at this location to service the development. This report is attached as **APPENDIX E**.

FIGURE 8 EXISTING WATER MAIN INFRASTRUCTURE (TR MAPS 2026)

5.2. INTERNAL WATER DEMAND

From the proposed allotment layout, detailed above in **Section 1.3,** the proposed development will provide 15 additional allotments of minimum size 4000m^2 or 15 additional Equivalent Tenements (ETs). By adopting the Toowoomba Regional Council's water loadings as per SC6.3.2.7 TRC Addendum for Water Code of Australia, WSA 03 – 2011 V3.2 an estimate of development water loading can be made. These adopted parameters include:

- 3.1 equivalent persons per tenement;
- 200 litres per person, per day;
- MDMM = 1.5 AD;
- PD = 2.25 AD;
- PH = 4.5 AD;
- NRW = 34.5 L/EP/d;

Adopting these parameters, the full water loading can be calculated for the proposed development. These calculated development loadings are presented in **TABLE 1** below.

TABLE 1 DEVELOPMENT WATER LOADINGS

EQUIVALENT TENEMENTS (ET)	15	
EQUIVALENT PERSONS (EP) PER TENEMENT	2.5	
TOTAL EQUIVALENT PERSONS (EP)	37.5	
LOADING RATE (L/EP/DAY)	200.00	
NON-REVENUE WATER (L/DAY)	1,293.75	
DEMAND	(L/DAY)	(L/SEC)
AVERAGE DAY DEMAND (AD)	7,500.0	0.087
MEAN DAY MAXIMUM MONTH (MDMM)	11,250.0	0.130
PEAK DAY DEMAND (PD)	16,875.0	0.195
PEAK HOUR DEMAND (PH)	(L/HR)	(L/SEC)
	1,406.25	0.391

As the above development loadings are typical of a residential subdivision and connection to this area was provisioned in the previous stage, it has been assumed that no further analysis of the adjacent network is required.

5.3. PROPOSED INTERNAL WATER INFRASTRUCTURE

The proposed development will be serviced by a new internal water network connecting to the existing service, as detailed in **Section 5.2** above. This proposed water network will be designed in accordance with the requirements of Toowoomba Regional Council's planning scheme and the Water Code of Australia, WSA 03.

The proposed water main will be installed from a new connection into the water main along Old Homebush Road and terminate in a loop at the proposed cul-de-sac head. The connection link to Old Homebush Road will be ø150mm to match the existing diameter. Fire hydrants will be provided internally so that each allotment is within 40m of a fire hydrant, in accordance with Councils and QFES hydrant coverage requirements.

Details of the proposed water reticulation layout for the site are shown on the Proposed Services Layout Plan attached in **APPENDIX B** of this report. All further details of the proposed internal water network will be provided as part of a future Operational Works application.

6. ELECTRICAL, STREET LIGHTING AND COMMUNICATIONS

6.1. EXISTING INFRASTRUCTURE

From a 'Before You Dig Australia' search of the proposed development site, it was seen that a number of existing electrical and telecommunication services run in the streets adjacent to the subject allotment.

6.2. PROPOSED DEVELOPMENT WORKS

Reticulated underground electricity services will be provided to each allotment in accordance with the requirements of Ergon Energy. Connections will be made to the existing Ergon cables located within the surrounding streets.

Street Lighting will be provided in accordance with the requirements of the TRC Planning Scheme, AS/NZS 1158 Lighting for Roads and Public Spaces and AS4282 Control of the obtrusive effects of outdoor lighting.

Reticulated telecommunication services will be provided to each allotment in accordance with the requirements of NBN Co/Telstra. Connections will be made to the existing telecommunication services that exist within the adjoining streets.

A plan of the proposed services to each allotment and their connections to existing assets is attached in **APPENDIX B**. All further details regarding electrical, street lighting & telecommunications will be subject to a further detailed design by an electrical engineer.

7. CONCLUSION

As detailed in the sections above, the proposed development works will provide adequate Transport Access, Stormwater, Water Reticulation, and Power/Telecommunications services to the subdivisional land development of 1 into 15 lots.

The current site conditions have been assessed, and it is seen that only general site works will be required to construct the proposed subdivision, including earthworks to construct roads and services.

To service the new allotments, it is proposed that a new intersection be created with Old Homebush Road and connected to an internal cul-de-sac. From an assessment of the existing network and the proposed traffic demands in **Section 2.3** above, it was also concluded that the development will have no adverse effect on the local traffic network. It was also seen from this investigation that the increase in traffic was below the Austroads trigger amount of 5% increase in design traffic, and no further Traffic Impact Statement or Assessment is required.

Stormwater Quantity and Quality Management have been addressed for the proposed development within the accompanying Stormwater Management Plan prepared by Kehoe Myers.

From **Section 4**, the site's clear conditions, gentle grading and compliant allotment sizes indicate that suitable on-site effluent disposal systems can be accommodated for each lot without requiring specialised treatments.

From **Section 5** above, it was concluded that the proposed development can be connected to the existing water network in Old Homebush Road. From a preliminary analysis of expected demands, the proposed development will have a negligible impact on the existing system, and no further analysis of these systems is required. All further details of these proposed internal networks will be provided as part of a future Operational Works application.

Finally, from the overall assessment of the electrical and telecommunication supply, it was seen that the development can be serviced by existing adjacent electrical and telecommunications networks. All further details regarding electrical, street lighting & telecommunications will be subject to a further detailed design by an electrical engineer.

Hence, as summarised above, the proposed development is able to be serviced by all applicable infrastructure services by utilising existing services and the creation of new connecting and complementary assets.

8. REFERENCES

Text References

Toowoomba Regional Council, Toowoomba Regional Planning Scheme
https://www.tr.qld.gov.au/planning-building/planning-scheme-strategies-tools/planning-scheme-new/13289-access-the-toowoomba-regional-planning-scheme-9

Queensland Government 2017, State Planning Policy, July 2017, Department of Infrastructure, Local Government Planning, Brisbane, Australia

Department of Energy and Water Supply (DEWS), "Planning Guidelines for Water Supply and Sewerage – April 2010

Austroads Ltd 2020, Guide to Traffic Management Part 12: Traffic Impacts of Developments

Institute of Public Works Engineering Australasia, Queensland, 2017, Queensland Urban Drainage Manual –Fourth Edition, 2016, Institute of Public Works Engineering Australasia, Queensland

Software Used

12d Model

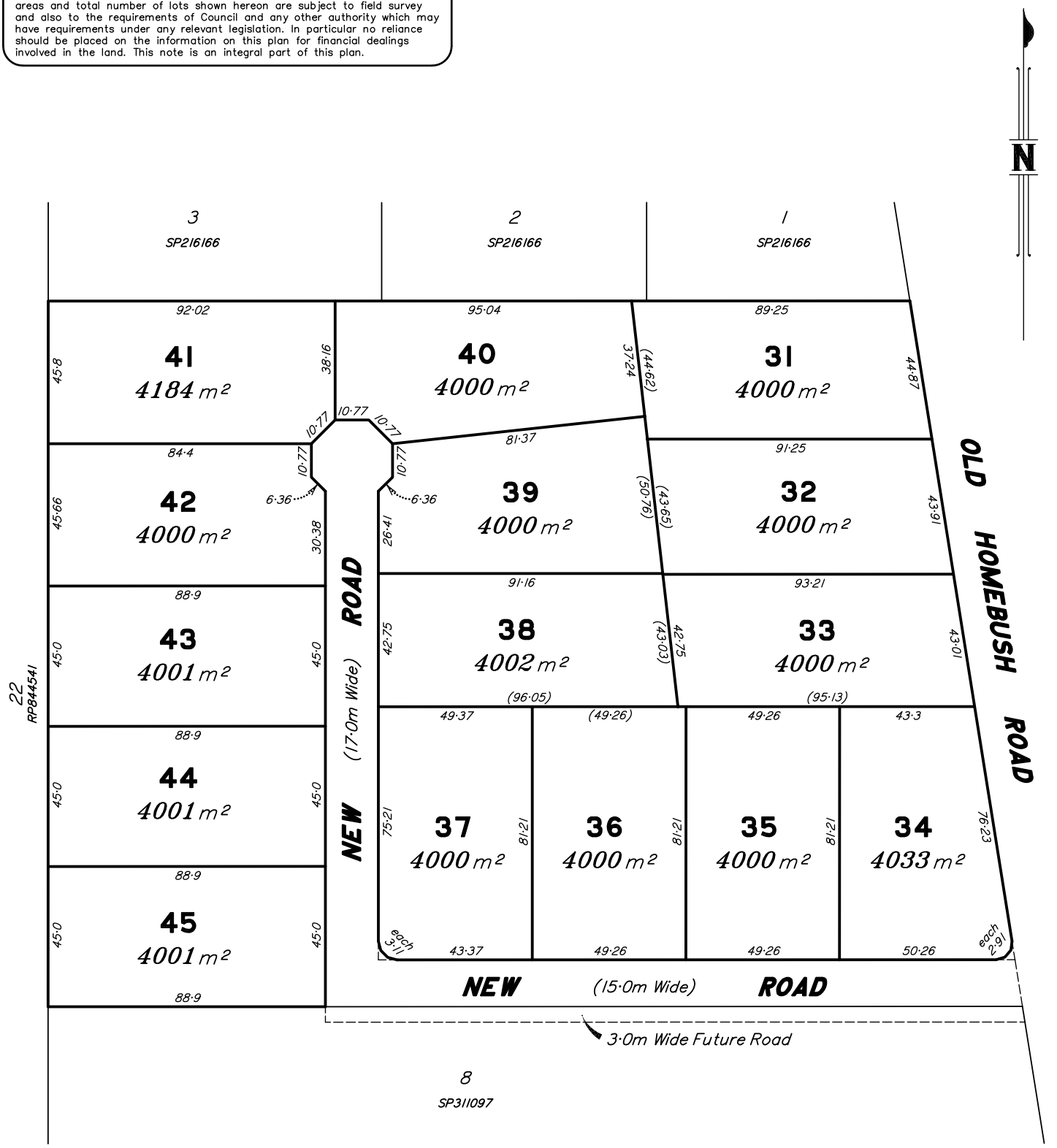
DRAINS by Watercom Pty Ltd

9. APPENDICES

APPENDIX A. **PLAN OF PROPOSED SUBDIVISION (*K.J. WILSON* DRAWING: K4822)**

IMPORTANT NOTE

This plan was prepared for Neue Projects Three Pty Ltd as a proposed subdivision to accompany a subdivision application to Toowoomba Regional Council and should not be used for any other purpose. The dimensions, areas and total number of lots shown hereon are subject to field survey and also to the requirements of Council and any other authority which may have requirements under any relevant legislation. In particular no reliance should be placed on the information on this plan for financial dealings involved in the land. This note is an integral part of this plan.



Scale 1:1250 – Lengths are in Metres.

10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190

0 50 mm 100 mm 150 mm

K.J. Wilson
Cadastral Surveyor
12/01/2026

MAP REF: .	SCALE: 1:1250(A3)	FILE REF: K4822	VERSION: A

CLIENT: Neue Projects Three Pty Ltd
CHECKED: K.Wilson
DRAWN: PlanPrep

PLAN OF PROPOSED SUBDIVISION

Lots 31 –45

Cancelling Lot 7 on SP311097

(Old Homebush Road, Gowrie Junction)

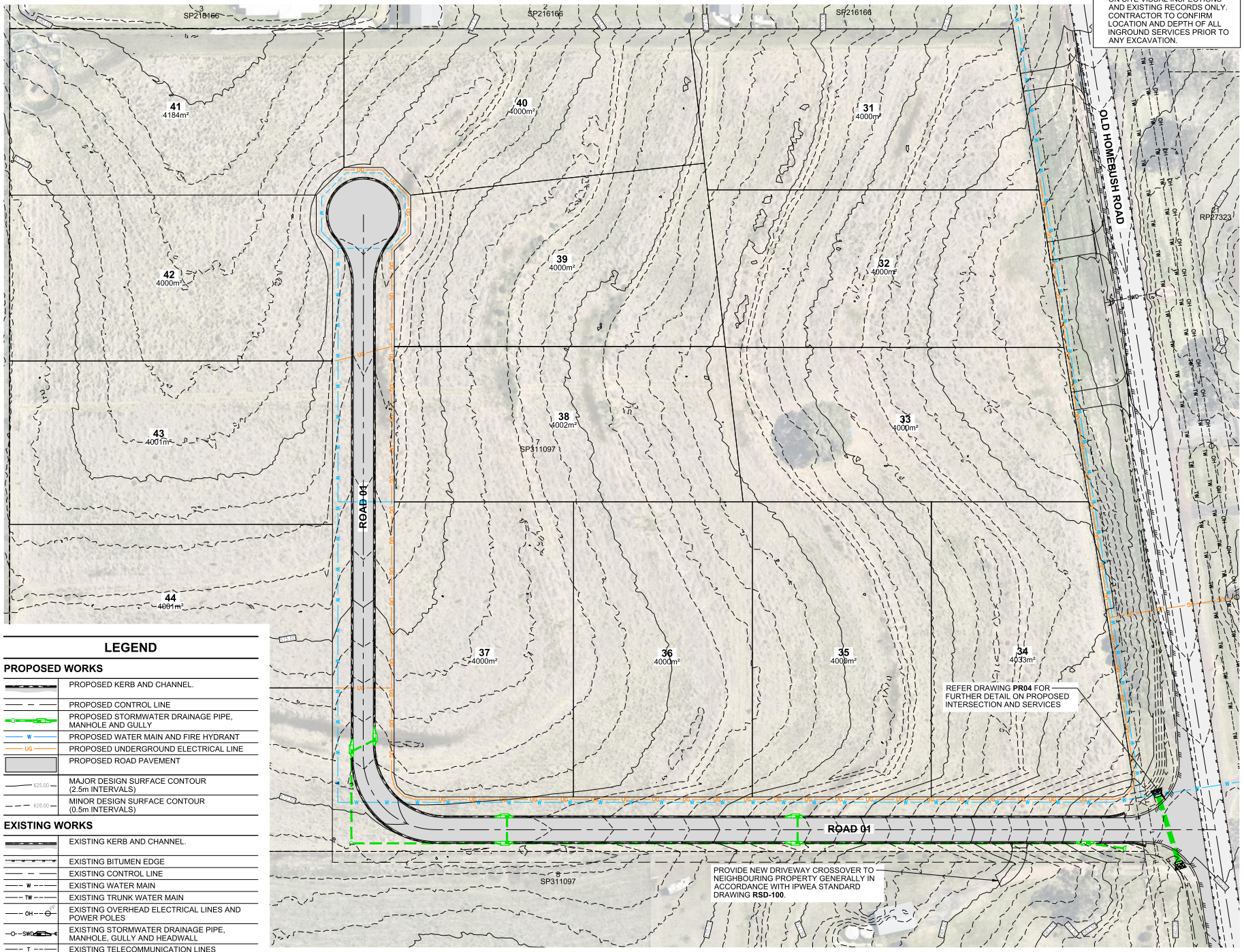
LOCAL AUTHORITY: Toowoomba Regional Council

LOCALITY: Gowrie Junction

K.J. Wilson
B.Surv.
Cadastral Surveyor

Phone: 4639 6644 Phone: 4630 8662(A/H)
Email: ken.jwilson@bigpond.com Mobile: 0427151725
Email: george@kjwsurveys.com.au Mobile: 0418599339
7 Rees Drive, Highfields, 4352
P.O. Box 2437, Toowoomba, 4350

APPENDIX B. PROPOSED SERVICES PLAN (*KEHOE MYERS* DRAWING: C2526271-PR02)



NOTE:

+ ALL SHOWN SERVICES ARE FROM ON SITE VISUAL INSPECTIONS AND EXISTING RECORDS ONLY. CONTRACTOR TO CONFIRM LOCATION AND DEPTH OF ALL INGROUND SERVICES PRIOR TO ANY EXCAVATION.

LEGEND

PROPOSED WORKS

- PROPOSED KERB AND CHANNEL.
- PROPOSED CONTROL LINE
- PROPOSED STORMWATER DRAINAGE PIPE, MANHOLE AND GULLY
- PROPOSED WATER MAIN AND FIRE HYDRANT
- PROPOSED UNDERGROUND ELECTRICAL LINE
- PROPOSED ROAD PAVEMENT
- MAJOR DESIGN SURFACE CONTOUR (2.5m INTERVALS)
- MINOR DESIGN SURFACE CONTOUR (0.5m INTERVALS)

EXISTING WORKS

- EXISTING KERB AND CHANNEL.
- EXISTING BITUMEN EDGE
- EXISTING CONTROL LINE
- EXISTING WATER MAIN
- EXISTING TRUNK WATER MAIN
- EXISTING OVERHEAD ELECTRICAL LINES AND POWER POLES
- EXISTING STORMWATER DRAINAGE PIPE, MANHOLE, GULLY AND HEADWALL
- EXISTING TELECOMMUNICATION LINES
- EXISTING NBN TELECOMMUNICATION LINES
- EXISTING ROAD PAVEMENT

PRELIMINARY SERVICES LAYOUT

SCALE:- 1:500 @ A1, 1:1,000 @ A3

DATUM
DCDB
LiDAR

DRAWING ISSUE

ISSUE	DATE	DETAILS	INITIAL
P1	10.03.26	FOR APPROVAL	
P2	05.06.26	RFI RESPONSE	

0 5m 10m 15m 20m 25m

SCALE 1:500 @ A1
SCALE 1:1,000 @ A3

PRELIMINARY
NOT FOR CONSTRUCTION
DATE 05.06.26 04:56 PM

PRINT IN COLOUR

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CLIENT
BRC PROPERTY GROUP

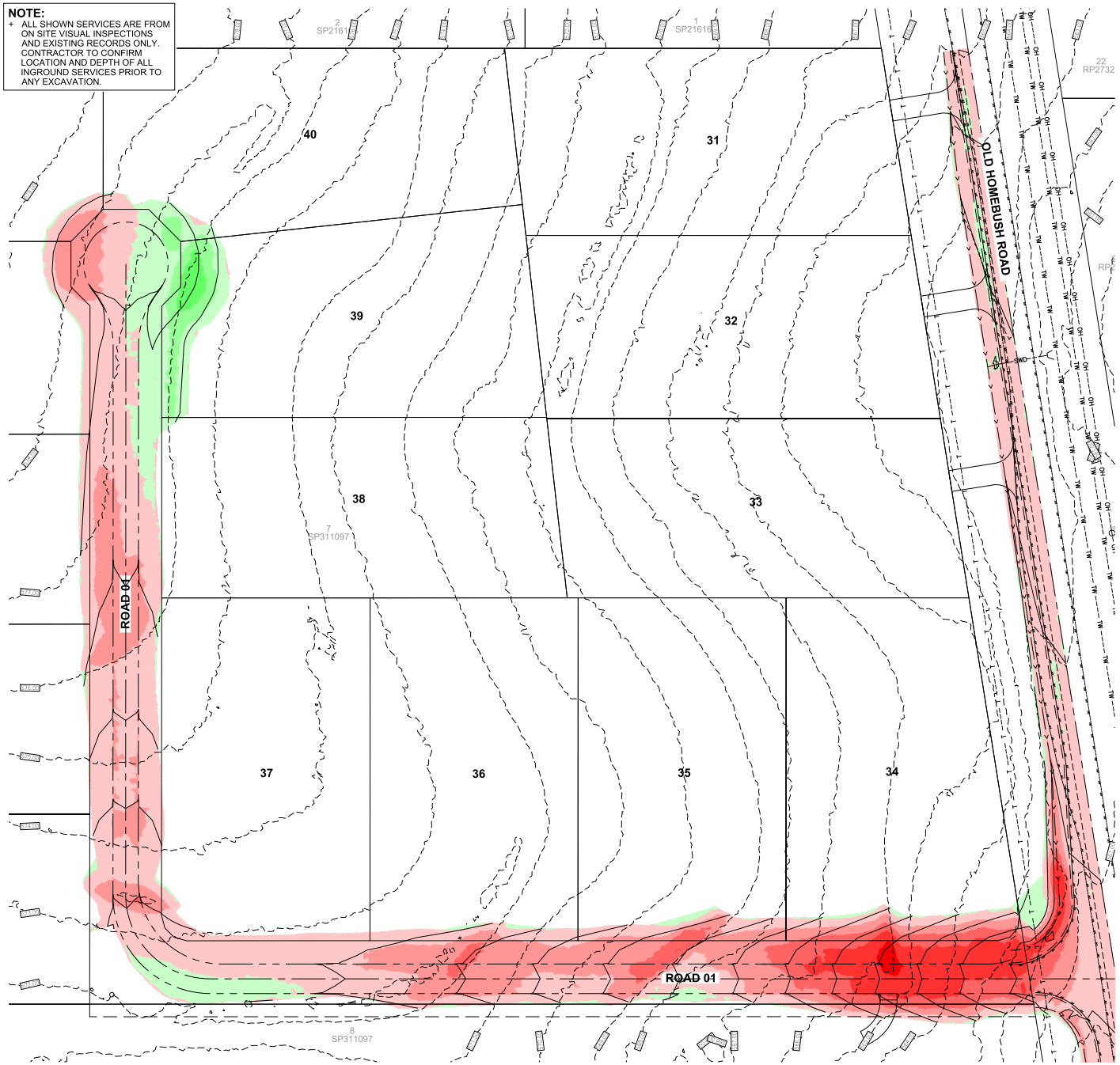
PROJECT
OLD HOMEBUSH ROAD SUBDIVISION

DRAWING TITLE
PRELIMINARY SERVICES LAYOUT

DESIGN	MB	ORIGINAL SIZE	A1
DRAWN	NJ/MC	PROJECT NUMBER	C2526271
CHECKED	PJB		
APPROVED		DRAWING NUMBER	PR02
DATE		ISSUE	P2

APPENDIX C. PRELIMINARY EARTHWORKS LAYOUT (*KEHOE MYERS* DRAWING: C2526271-PR03)

NOTE:
+ ALL SHOWN SERVICES ARE FROM ON SITE VISUAL INSPECTIONS AND EXISTING RECORDS ONLY. CONTRACTOR TO CONFIRM LOCATION AND DEPTH OF ALL INGROUND SERVICES PRIOR TO ANY EXCAVATION.



PRELIMINARY EARTHWORKS LAYOUT
SCALE:- 1:500 @ A1, 1:1,000 @ A3

EARTHWORKS LEGEND

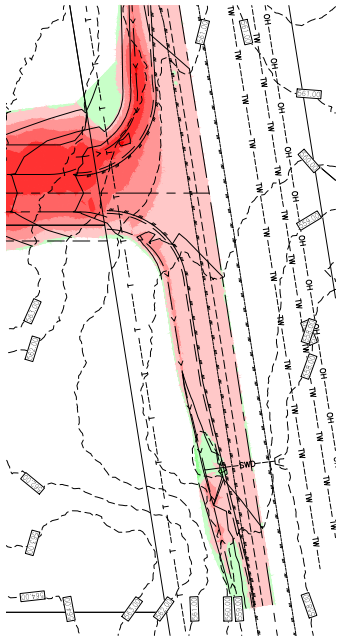
	MAJOR DESIGN SURFACE CONTOUR (1.0m INTERVALS)
	MAJOR EXISTING SURFACE CONTOUR (1.0m INTERVALS)

EXISTING WORKS

	EXISTING BITUMEN EDGE
	EXISTING CONTROL LINE
SWD	EXISTING STORMWATER DRAINAGE PIPE
TW	EXISTING TRUNK WATER MAIN
OH	EXISTING OVERHEAD ELECTRICAL LINES AND POWER POLES
T	EXISTING TELECOMMUNICATION LINES

SURFACE ANALYSIS DEPTH RANGES

Colour	Minimum Depth (m)	Maximum Depth (m)
	-10.00	-2.00
	-2.00	-1.50
	-1.50	-1.00
	-1.00	-0.50
	-0.50	0.00
	0.00	0.50
	0.50	1.00
	1.00	1.50
	1.50	2.00
	2.00	10.00



DATUM
DCDB
LiDAR

DRAWING ISSUE

ISSUE	DATE	DETAILS	INITIAL
P1	10.03.26	FOR APPROVAL	
P2	05.06.26	RFI RESPONSE	

0 5m 10m 15m 20m 25m
SCALE 1:500 @ A1
SCALE 1:1,000 @ A3

PRELIMINARY
NOT FOR CONSTRUCTION
DATE 05.06.26 04:56 PM

PRINT IN COLOUR

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CLIENT
BRC PROPERTY GROUP

PROJECT
OLD HOMEBUSH ROAD SUBDIVISION

DRAWING TITLE
PRELIMINARY EARTHWORKS LAYOUT

DESIGN	MB	ORIGINAL SIZE	A1
DRAWN	NJ/MC	PROJECT NUMBER	C2526271
CHECKED	PJB		
APPROVED		DRAWING NUMBER	PR03
DATE		ISSUE	P2

APPENDIX D. PRELIMINARY INTERSECTION LAYOUT (*KEHOE MYERS* DRAWING: C2526271-PR04)

INTERSECTION DETAIL LEGEND

PROPOSED WORKS

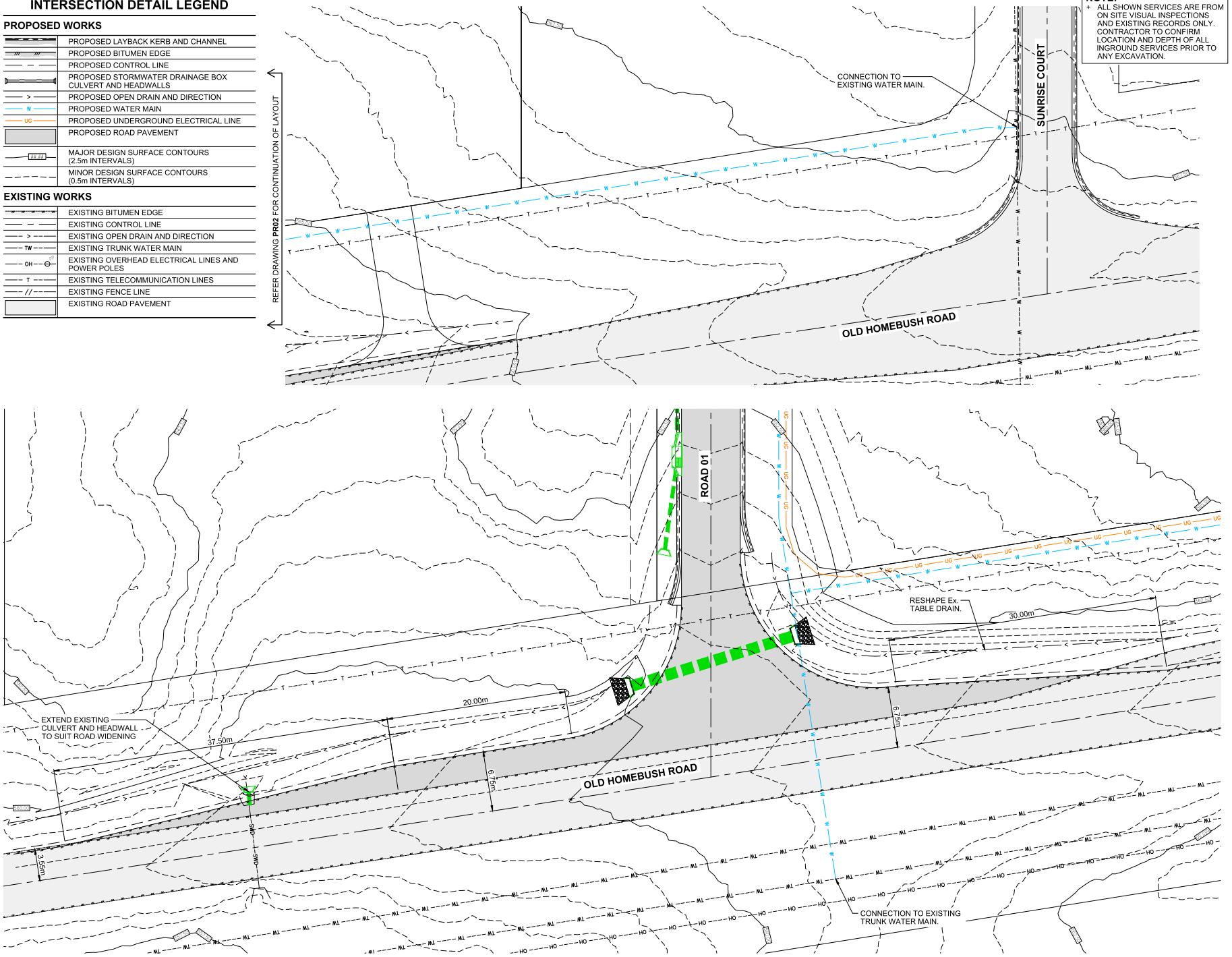
	PROPOSED LAYBACK KERB AND CHANNEL
/// ///	PROPOSED BITUMEN EDGE
— — —	PROPOSED CONTROL LINE
	PROPOSED STORMWATER DRAINAGE BOX CULVERT AND HEADWALLS
— > —	PROPOSED OPEN DRAIN AND DIRECTION
— W —	PROPOSED WATER MAIN
— UG —	PROPOSED UNDERGROUND ELECTRICAL LINE
	PROPOSED ROAD PAVEMENT
	MAJOR DESIGN SURFACE CONTOURS (2.5m INTERVALS)
	MINOR DESIGN SURFACE CONTOURS (0.5m INTERVALS)

EXISTING WORKS

	EXISTING BITUMEN EDGE
— — —	EXISTING CONTROL LINE
— > —	EXISTING OPEN DRAIN AND DIRECTION
— TW —	EXISTING TRUNK WATER MAIN
— OH —	EXISTING OVERHEAD ELECTRICAL LINES AND POWER POLES
— T —	EXISTING TELECOMMUNICATION LINES
— // —	EXISTING FENCE LINE
	EXISTING ROAD PAVEMENT

REFER DRAWING **PR02** FOR CONTINUATION OF LAYOUT

NOTE:
+ ALL SHOWN SERVICES ARE FROM ON SITE VISUAL INSPECTIONS AND EXISTING RECORDS ONLY. CONTRACTOR TO CONFIRM LOCATION AND DEPTH OF ALL INGROUND SERVICES PRIOR TO ANY EXCAVATION.



PRELIMINARY INTERSECTION LAYOUT

SCALE:- 1:200 @ A1, 1:400 @ A3

DATUM
DCDB
LiDAR

DRAWING ISSUE

ISSUE	DATE	DETAILS	INITIAL
P1	10.03.26	FOR APPROVAL	
P2	05.06.26	RFI RESPONSE	

0 2m 4m 6m 8m 10m

SCALE 1:200 @ A1
SCALE 1:400 @ A3

PRELIMINARY
NOT FOR CONSTRUCTION
DATE 05.06.26 04:56 PM

PRINT IN COLOUR

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CIVIL | STRUCTURAL | HYDRAULIC

CLIENT
BRC PROPERTY GROUP

PROJECT
OLD HOMEBUSH ROAD SUBDIVISION

DRAWING TITLE
PRELIMINARY INTERSECTION LAYOUT

DESIGN	MB	ORIGINAL SIZE	A1
DRAWN	NJ/MC	PROJECT NUMBER	C2526271
CHECKED	PJB		
APPROVED		DRAWING NUMBER	PR04
DATE		ISSUE	P2

APPENDIX E. HYDRAULIC MODEL PRESSURE & FLOW RESULTS (*TRC*)

HYDRAULIC MODEL PRESSURE & FLOW RESULTS

DA:	N/A
Location:	Old Goombungee Rd
Lot/Plan:	Lot 7 SP311097
Development Type:	Rural Residential
Zoning:	Rural Residential
Connection Point:	J-1840: Old Homebush Rd
Water Supply Zone:	Burkes
Node Elevation:	J-1840: 561.5 mAHD

The application is for a residential subdivision off Old Homebush Road, Gowrie Junction. The development site falls within the Burkes pressure zone which is supplied from the Burkes Reservoir. The assessment has been completed using the *Highfields and Rosalie Water Supply Model* completed in 2018, with the 2026 planning horizon taken as existing conditions.

Based on advice provided by the consultants the demands for this assessment have been summarised in the table below. A ratio of 3.1 EP per ET has been adopted based on 2021 census data. Full development is assumed to occur within the 2026 Planning Horizon.

EP Demands:

Development lots	Residential EP
14	43.4

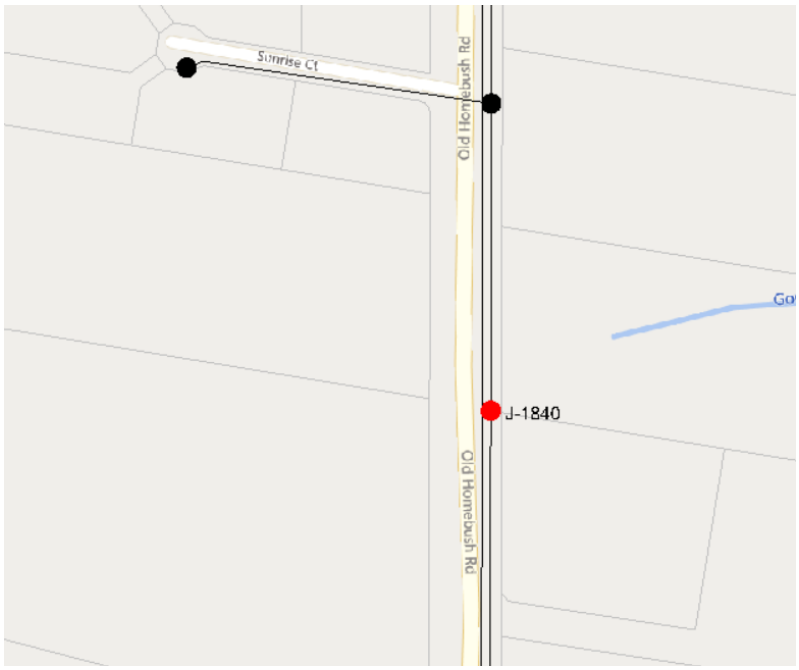
Results:

Results have been provided at the requested connection point off the DN150 PVC main on Old Homebush Road.

	2026 Pre-Development		2026 Post-Development		2056	
	PD	Fireflow	PD	Fireflow	PD	Fireflow
J-1840						
Development EP:	0		43.4		43.4	
Max Development Flow	0 L/s	15 L/s	0.5 L/s	15.3 L/s	0.5 L/s	15.3 L/s
Min Pressure	40.9 m	37.5 m	40.8 m	37.5 m	40.5 m	36.7 m
Max Pressure	41.7 m	-	41.7 m	-	41.7 m	-

The existing and future pressures at the connection point fall within Council's pressure service standards and the proposed development does not trigger the need to bring forward any augmentations.

Existing Network:



Comments:

- Results based on design rate of 200 L/EP/d
- Peak Hour (PH) = 07:00
- Fireflow modelled at 2/3 PH (19:30 on 3rd consecutive Peak Day).
- Fireflow results are the residual pressure and flow taken at the maximum flow needed to meet fireflow requirements and background demand.
- Results are taken from a Peak Day (PD) scenario as maximum flow and minimum pressure occur during PH.
- Maximum pressure results provided are representative of static pressure with a minimum baseline flow.
- Full demand for this stage of the development is 43.4 EP as per advice provided by the consultant
- 2026 has been used as the existing planning horizon from the *Highfields and Rosalie Water Supply Study* (2018).
- The results assume that all augmentations proposed in the *Highfields and Rosalie Water Supply Study* (2018) have been undertaken for the respective planning horizons.

The information provided is based on the best available information at the time of publication and is subject to variation over time.

Network models are verified with limited data and conditions in the field may vary from modelling assumptions.

Field investigations and inspections should be undertaken to satisfy the user that the data is suitable for its intended purpose. Users relying on hydraulic modelling information do so at their own risk.

Assessed By:	C Wright
Reviewed By:	T Millikan
Date:	27 February 2026

ATTACHMENT 8

Amended Stormwater Management Plan

Prepared by:

Kehoe Myers

STORMWATER MANAGEMENT PLAN

BRC PROPERTY GROUP - OLD HOMEBUSH ROAD - SUBDIVISION

OLD HOMEBUSH ROAD, GOWRIE JUNCTION, QLD

TOOWOOMBA REGIONAL COUNCIL

ISSUE 2 | FRIDAY, JUNE 5, 2026 | PROJECT NO. C2526271

Document Control Page					
Issue	Date	Status	Author	Review	Approver
1	10/03/2026	For Approval	TB	MS	PS
1.1	11/03/2026	For Approval	TB	MS	PS
2	05/06/2026	RFI Response	MS	MS	PS

Certification						
Author/s:	Tyana Bachmann					
Approver:	Peter Sparksman	RPEQ: 20985	Signature:		Date:	05/06/2026

DISCLAIMER

This report has been prepared by Kehoe Myers Consulting Engineers for the exclusive use of the client specified in this document. It is based on the scope of work agreed upon and is intended solely for the purposes outlined within. No warranties or guarantees, expressed or implied, are provided regarding the completeness, accuracy, or suitability of the information contained herein for any purpose other than that expressly stated.

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The recommendations and conclusions presented in this report are based on available information at the time of preparation. Changes in conditions, data, or other relevant factors may impact the validity of these findings. Kehoe Myers shall not be responsible for any loss or damage arising from the use of or reliance on this report beyond the limitations set out herein.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1 INTRODUCTION AND EXECUTIVE SUMMARY

Kehoe Myers Consulting Engineers has been engaged to prepare a Conceptual Stormwater Management Plan (CSMP) as part of the design documentation in support of the Development Application for the Reconfiguration of a Lot (RAL 1 into 15) with the Toowoomba Regional Council (TRC) at Old Homebush Road, described as Lot 7 on SP311097 in Gowrie Junction, Queensland.

The proposed development consists of a 1 into 15 allotment rural residential subdivision on a vacant site at Old Homebush Road, Gowrie Junction. Works will include earthworks to provide a new road, stormwater, water reticulation, power and telecommunications services.

This report seeks to address onsite stormwater management for the proposed development. The following items will be addressed in this report:

- Hydraulic analysis to assess the required mitigation to ensure a case of 'non-worsening' or not incurring an actionable nuisance is achieved.

- Compliance with TRC's pollutant reduction policy and the State Planning Policy (SPP).

From the analysis below, it was determined that stormwater discharge conditions from the site can be maintained at or below pre-developed conditions, or within the capacity of the existing drainage infrastructure. As such, the proposed development can achieve a case of 'non-worsening' or no 'actionable nuisance' at the lawful points of discharge.

As a result of this analysis, it is then shown that the proposed development complies with the guidelines set by both the TRC and Queensland Urban Drainage Manual (QUDM). The report below details the achievement of these lawful points of discharge requirements.

Additionally, the developed site was assessed for water quality requirements as per the TRC Planning Scheme and the Queensland State Planning Policy. Since the development does not include any proposal for '*urban use'*, water quality treatment is not required under the State Planning Policy (SPP).

2 SITE DESCRIPTION

The proposed development is located on a 66,650m^2 site located at Old Homebush Road, Gowrie Junction. The real property description is Lot 7 on SP311097. A Locality Plan highlighting the proposed development site is shown below.

Refer to **FIGURE 1** below for site location with respect to adjoining roads and lots.

FIGURE 1 SITE LOCALITY MAP (QUEENSLAND GLOBE 2026)

2.1 EXISTING SITE CONDITIONS

From the available LiDAR elevation model, the site is currently an open and gently graded allotment. The current development site is vacant and consists of an open grassed area. The development has a single road frontage to Old Homebush Road, which provides access to the site.

Topographically, most of the site falls from the north-western boundary corner toward the eastern boundary. A small portion of the north-western corner also grades to the west. The south-western corner of the allotment falls to the south, while the remaining south-eastern portion grades toward the south-eastern corner of the site

The average gradient of the subject allotment is approximately 6%, and subsequently, minimal earthworks will be required to provide the final allotments.

A current aerial image of the proposed development site is shown below in **FIGURE 2**.

FIGURE 2 SITE CONTOUR IMAGE (QUEENSLAND GLIOBE, 2026)

2.2 PROPOSED DEVELOPMENT

The proposed development layout has been developed in association with the Client. Based on the proposed site layout, a conceptual engineering design was undertaken to provide access and services for the proposed allotments. It is proposed that a new road be created from Old Homebush Road to form a cul-de-sac within the development site. This new road link will provide ample access and amenities to 12 of the created allotments, Lots 34-45. Allotments 31-33 will gain access directly from Old Homebush Road.

These proposed infrastructure services are detailed within the accompanying Engineering Infrastructure Report prepared by Kehoe Myers.

The proposed final 15-lot layout for the subdivision is shown below in **FIGURE 3** and a full plan of the proposed site is attached in **APPENDIX A**. Proposed allotment sizes vary, with a minimum of 4000m^2.

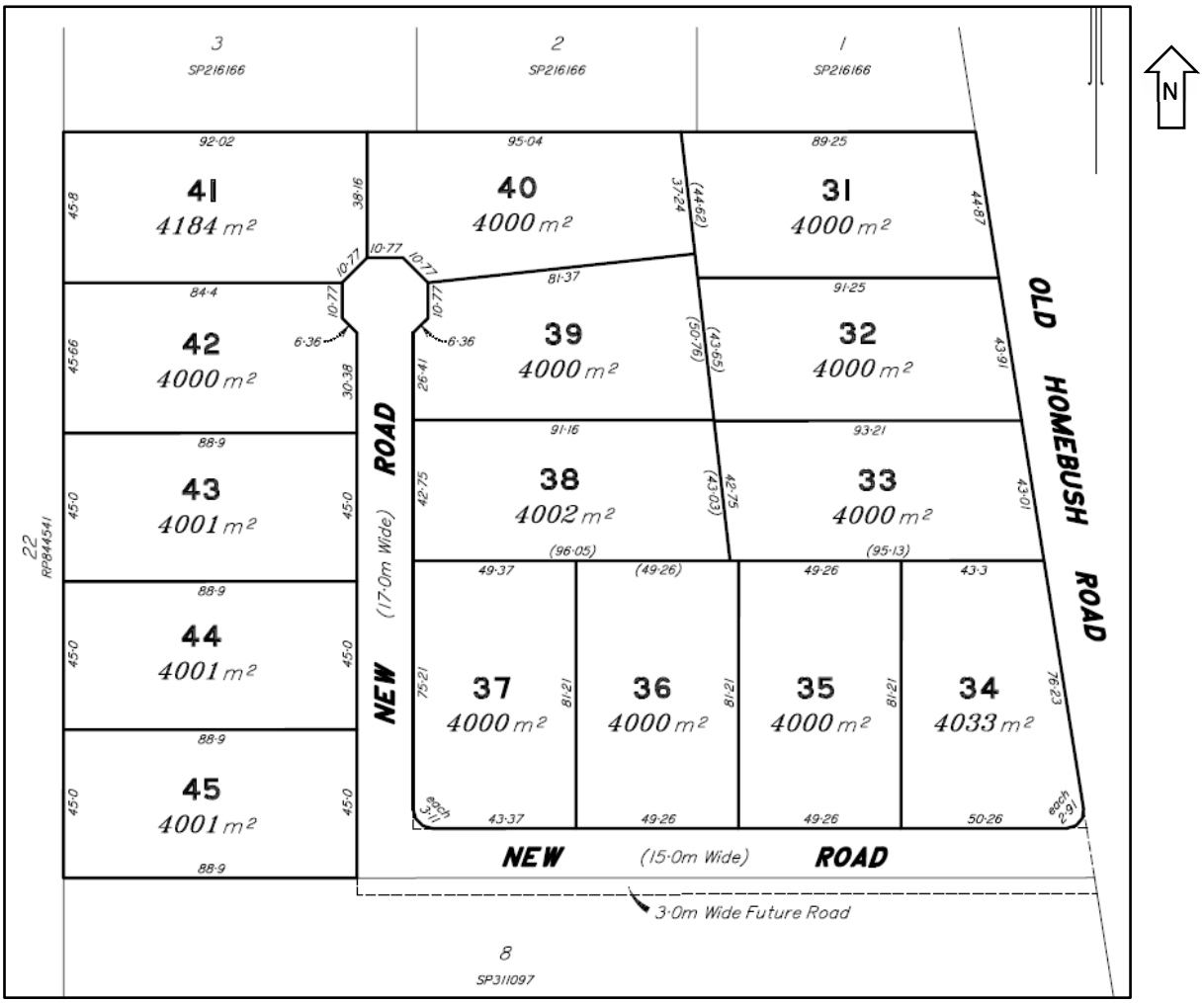


FIGURE 3 PLAN OF PROPOSED SUBDIVISION (K.J. WILSON DRAWING: K4822)

3 HYDROLOGY

To enable the detailed hydraulic analysis of the stormwater management system, the development site has been assessed for both the pre-developed and post-development cases. This analysis has been undertaken to check that the development achieves a case of 'non-worsening' or not incurring an actionable nuisance at the lawful point of discharge.

3.1 EXISTING SITE INFRASTRUCTURE

A review of the TRC Infrastructure Maps confirms that there is no existing stormwater infrastructure located within the development site. However, onsite assessments identified two existing 675mm cross-road culverts along Old Homebush Road that provide the primary drainage outlet for stormwater runoff from the site.

Runoff from the site flows toward the road frontage in two locations, enters the existing table drain on the Western side of Old Homebush Road, before discharging through the existing culverts, as illustrated in **Figure 4**.

FIGURE 4 EXISTING STORMWATER NETWORK (TRC INFRASTRUCTURE MAPS 2026)

3.2 PRE-DEVELOPMENT CATCHMENTS

From an assessment of the existing site conditions and existing infrastructure, pre-developed catchments were derived for the subject site. There is an upstream catchment to the north, which contributes stormwater runoff through the subject site.

From this analysis, pre-developed catchments were calculated for the development site. A snapshot of these determined pre-developments catchments is included in **FIGURE 5** below and attached in **APPENDIX C**.

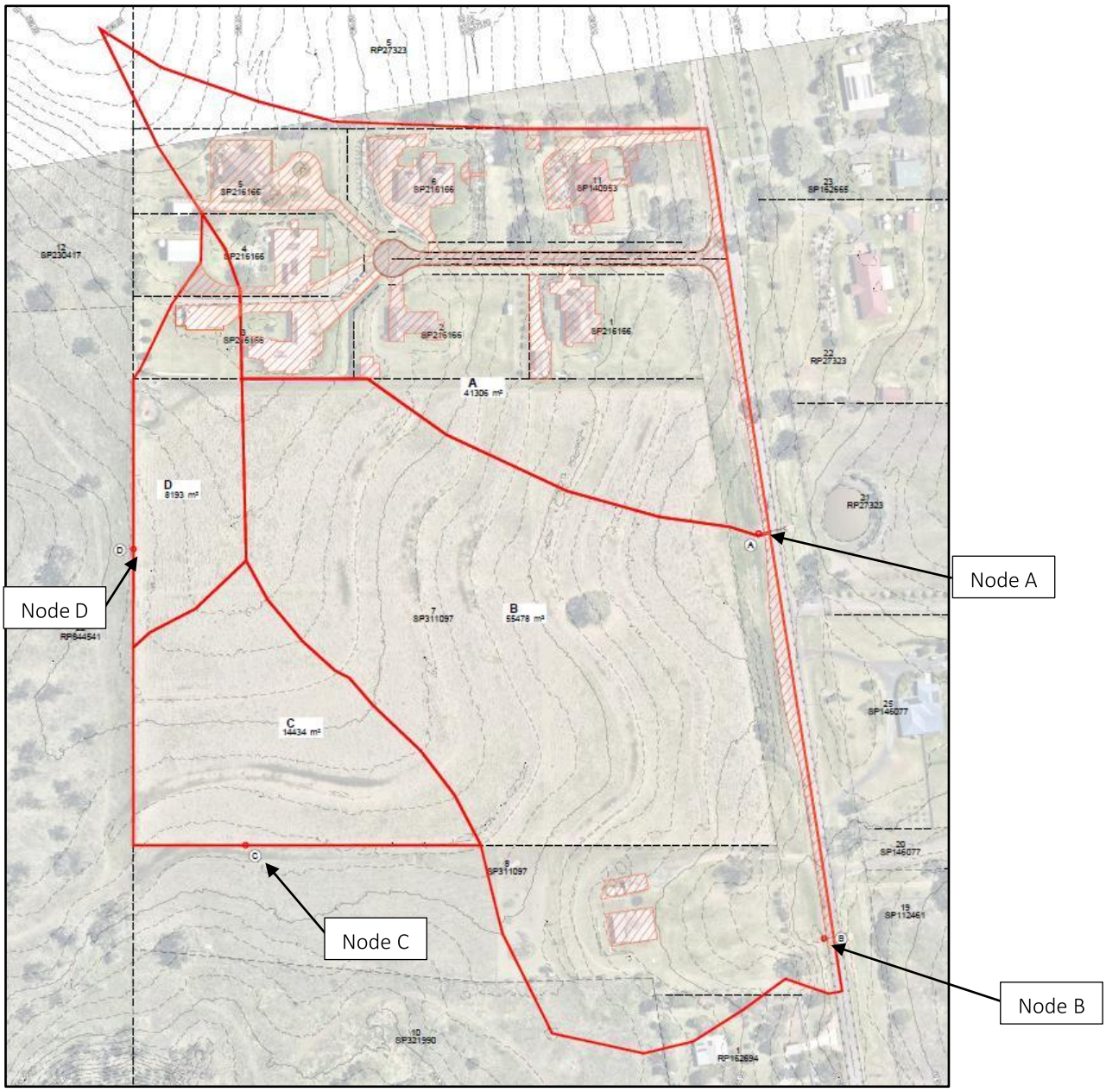


FIGURE 5 PRE-DEVELOPED STORMWATER CATCHMENT PLAN

From the detailed assessment of the existing stormwater catchments, the design attributes have been determined and are presented in **TABLE 1** below.

TABLE 1 PRE-DEVELOPED SUB-CATCHMENT PROPERTIES

CATCHMENT NAME	AREA (HA)	IMPERVIOUS TC (MIN)	PERVIOUS TC (MIN)	FRACTION IMPERVIOUS (%)
A	4.1306	14	14	24
B	0.8193	8	8	7
C	1.4434	6	6	0
D	5.5478	17	17	3
TOTAL	**11.9411**			

3.3 POST-DEVELOPMENT CATCHMENTS

Earthworks will be required to construct the new road and achieve compliant surface drainage grades for the proposed development. The proposed stormwater system consists of overland flows into the existing under-road culverts. These details are documented in the Preliminary Services Layout attached in **APPENDIX B**.

From the proposed site plan, the conceptual stormwater catchments have been determined and are presented in **FIGURE 6** below and attached in **APPENDIX C**.

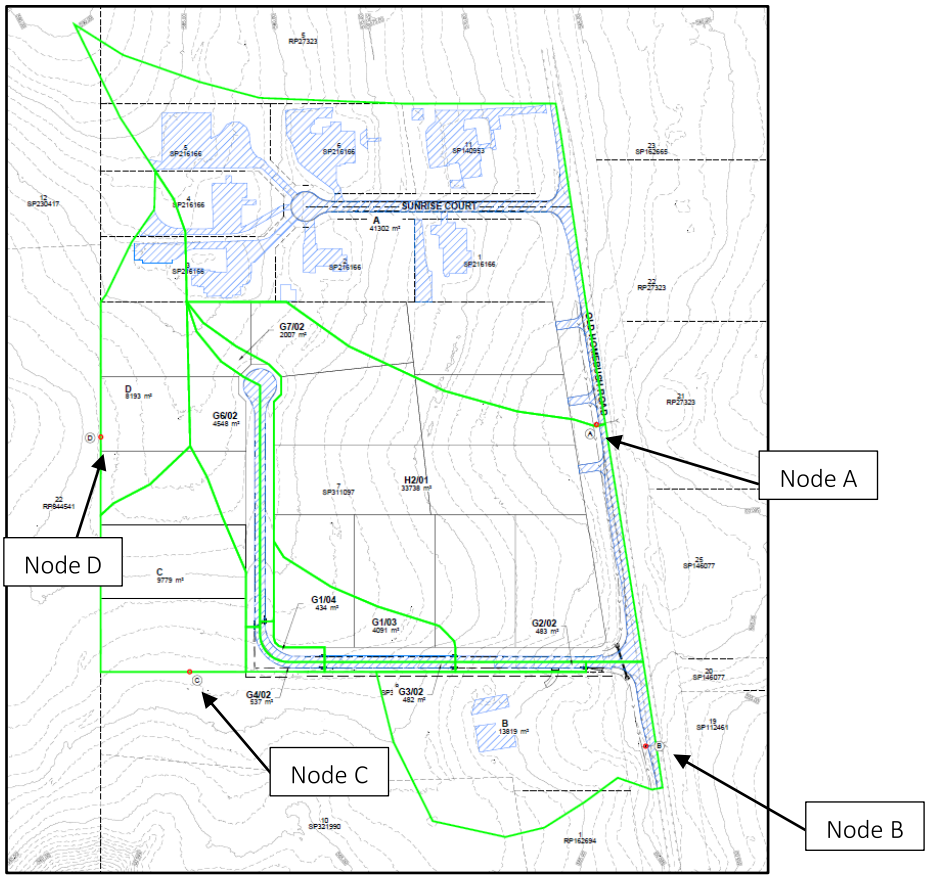


FIGURE 6 POST-DEVELOPED STORMWATER CATCHMENT PLAN

From the detailed assessment of the post-development catchments, the design attributes have been determined and are presented in **TABLE 2** below.

TABLE 2 POST-DEVELOPED SUB-CATCHMENT PROPERTIES

CATCHMENT NAME	AREA (HA)	IMPERVIOUS TC (MIN)	PERVIOUS TC (MIN)	FRACTION IMPERVIOUS
A	4.1302	14	14	28
B	1.3819	7	7	8
C	0.9779	6	6	20
D	0.8193	8	8	15
H2/01	3.3738	15	15	22
G2/02	0.0483	5	5	41
G3/02	0.0482	5	5	63
G4/02	0.0537	5	5	32
G6/02	0.4548	5	11	27
G7/02	0.2007	5	12	39
G1/03	0.4091	5	7	24
G1/04	0.0434	5	5	52
TOTAL	**11.9413**			

3.4 DISCHARGE REPORTING LOCATIONS

From the site assessment of all stormwater flows, two discharge nodes have been identified and are reported on further within this report. These locations have been selected to assess pre-development against post-development flows. These discharge nodes are shown in **FIGURE 5** and **FIGURE 6** and is listed below:

A. Old Homebush Road; existing under road culvert - North
B. Old Homebush Road, existing under road culvert – South
C. Southern Property Boundary (surface flow)
D. Western Property Boundary (surface flow)

4 PEAK FLOW COMPARISONS

Stormwater analysis for this report has been undertaken using *DRAINS*. *DRAINS* is an engineering software package for designing urban stormwater drainage systems. The "Extended Rational Method" hydrology loss model was used to convert Australian Rainfall and Runoff (AR&R) Temporal Patterns and rainfall data into runoff Hydrographs.

A range of rainfall event durations were analysed from the 5- to 120-minute storm duration. Analyses have been conducted within the catchments to determine Pre and Post development flows for the 39% AEP (0.5EY) to the 1% AEP rainfall events. Pre- and post-development median peak flow results are provided in **TABLE 3** below.

TABLE 3 MEDIAN PEAK STORMWATER FLOWS (m^3/s) – DISCHARGE NODE A

DEVELOPMENT STAGE	39% AEP (0.5EY) (m^3/s)	18% AEP (0.2EY) (m^3/s)	10% AEP (m^3/s)	5% AEP (m^3/s)	2% AEP (m^3/s)	1% AEP (m^3/s)
Pre-developed	0.445	0.629	0.763	0.922	1.17	1.38
Post-developed	0.46	0.645	0.787	0.951	1.21	1.41
Change	**0.015**	**0.016**	**0.024**	**0.029**	**0.04**	**0.03**

As per **TABLE 3** above, the peak discharge to Node A increases post-development.

TABLE 4 MEDIAN PEAK STORMWATER FLOWS (m^3/s) – DISCHARGE NODE B

DEVELOPMENT STAGE	39% AEP (0.5EY) (m^3/s)	18% AEP (0.2EY) (m^3/s)	10% AEP (m^3/s)	5% AEP (m^3/s)	2% AEP (m^3/s)	1% AEP (m^3/s)
Pre-developed	0.452	0.637	0.784	0.947	1.18	1.43
Post-developed	0.463	0.557	0.623	0.678	0.756	0.829
Change	**0.011**	**0.08**	**-0.161**	**-0.269**	**-0.424**	**-0.601**

As per **TABLE 4** above, the peak discharge to Node B decreases post-development.

TABLE 5 MEDIAN PEAK STORMWATER FLOWS (m^3/s) – DISCHARGE NODE C

DEVELOPMENT STAGE	39% AEP (0.5EY) (m^3/s)	18% AEP (0.2EY) (m^3/s)	10% AEP (m^3/s)	5% AEP (m^3/s)	2% AEP (m^3/s)	1% AEP (m^3/s)
Pre-developed	0.161	0.225	0.281	0.34	0.433	0.523
Post-developed	0.13	0.182	0.227	0.274	0.346	0.406
Change	**-0.031**	**-0.043**	**-0.054**	**-0.066**	**-0.087**	**-0.117**

As per **TABLE 4** above, the peak discharge to Node C decreases post-development.

TABLE 6 MEDIAN PEAK STORMWATER FLOWS (m^3/s) – DISCHARGE NODE D

DEVELOPMENT STAGE	39% AEP (0.5EY) (m^3/s)	18% AEP (0.2EY) (m^3/s)	10% AEP (m^3/s)	5% AEP (m^3/s)	2% AEP (m^3/s)	1% AEP (m^3/s)
Pre-developed	0.092	0.129	0.16	0.194	0.247	0.295
Post-developed	0.098	0.138	0.172	0.208	0.264	0.312
Change	**0.006**	**0.009**	**0.012**	**0.014**	**0.017**	**0.017**

As per **TABLE 4** above, the peak discharge to Node D increases post-development.

The decrease in flows at Node B occurs due to the new road capturing and conveying upstream flows much faster than the existing undeveloped catchments. The time of concentration of flows which enter the road network and subsequently the new pit and pipe system is much shorter than that of upstream catchments, which rely on surface flows. This change is hence seen to decrease peak stormwater flow to Node B, and as such, the capacity of this culvert is confirmed to be sufficient in the post-development scenario.

Due to the increase in peak flows, the impact of the flows on the existing infrastructure at Node A was assessed. Capacity checks were assessed on the existing cross-drainage culvert.

The Northern culvert at Node A is a 675mm culvert at approximately 5% grade.

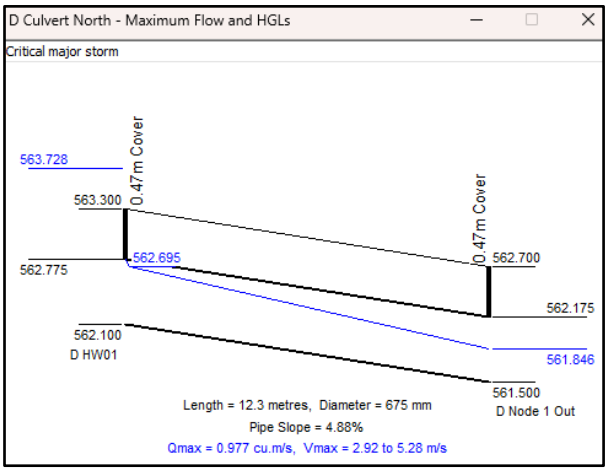


FIGURE 7 EXISTING NODE A CULVERT MAJOR STORM (1% AEP)

A calculation of pipe capacity using Manning's equation gives the capacity of a 675mm RCP at 5% grade as 2.12m^3/s

Pipe Flow Capacity Chart *For circular pipes running full but not under head.*		
Computed by Q= 1/n * AR^(2/3)*S^(1/2)		
Manning's n	0.013	
Grade	0.05	m/m
Pipe Size	675	mm
Flow	2.126	m^3/s
Velocity	5.752	m/s

The developed flows are therefore within the capacity of the existing cross-drainage infrastructure and are acceptable.

Further, the impacts at Nodes C and D were assessed. At both discharge locations, stormwater is dispersed across the surface as sheet flow into neighbouring properties. The downstream property at both locations consists of open rural land with no structures within the vicinity. To the South, surface flows through open cultivation toward a forming gully and to the West, through open pasture to another, separate forming gully. The increase in flows from the development therefore produces no actionable nuisance flow to the downstream properties.

4.1 DRAINS MODEL VALIDATION

From the QUDM guidelines, it is recommended that computer models are calibrated to flow data or "be 'compared' with the peak discharge derived for the same catchment using the Rational Method" (QUDM 2013).

As this report utilises the "Extended Rational Method" hydrology loss model, all 'peak discharge' catchment flows are derived directly from the Rational Method and as such, a direct 'comparison' back to the 'Rational Method' can be assumed.

5 STORMWATER QUALITY MANAGEMENT

5.1 STORMWATER QUALITY LEGISLATION

The State Planning Policy (SPP) released in July 2017 provides guidelines on the requirement for stormwater quality treatment. Further advice on stormwater quality is provided in Toowoomba Regional Council's Planning Scheme Policy.

SPP states that the pollutant reduction design objectives for the Western Queensland climatic region are applicable to:

- A material change of use for an urban purpose that involves premises 2,500 m^2 or greater in size and;
  - will result in six or more dwellings; or
  - an impervious area greater than 25 percent of the net developable area; or
- Reconfiguring a lot for an urban purpose that involves premises 2,500 m^2 or greater in size and will result in six or more lots; or
- Operational Works for an urban purpose that involves disturbing a land area 2,500 m^2 or greater in size.

Since the proposed development is solely rural residential and does not include development for *'urban purposes'*, Stormwater Quality Management is not triggered based on the requirements of the Queensland State Planning Policy (SPP). As such, stormwater quality treatment is not required to be provided as part of this development

5.2 CONSTRUCTION PHASE STORMWATER QUALITY MANAGEMENT

While the development will ultimately comply with objectives of State Planning Policy - July 2017, Water Quality, Section 1, it is also required to comply with the requirements of Appendix 2 Table A: Construction Phase – Stormwater Management Design Objectives during the construction works.

Pollutants typically generated during the construction phase include:

- Litter
- Sediment
- Hydrocarbons
- Toxic Materials
- pH Altering Substances

During the detailed design and construction phase, an erosion and sediment control plan will be prepared for the site. The erosion and sediment control plan will be based on the ICEA document *'Best Practice Erosion and Sediment Control',* International Erosional Control Association (Australasia) to achieve compliance under the *Environmental Protection Act 1994.*

The erosion and sediment control plan shall address the following:

- Use and location of sediment control devices including; sediment fencing and sediment traps for stormwater entry pits.
- Erosion control measures during earthworks, including any staging or sequencing of the works.

6 CONCLUSION

This report summarises the stormwater management practices proposed to manage the stormwater quantity and quality generated by the proposed development.

The development results in an increase in flows generated from the site. There is an increase in peak flows to some discharge nodes and a decrease to Node B in the major events. A pipe capacity check of the existing cross-drainage infrastructure confirms that developed flows remain within the capacity of the existing infrastructure.

Stormwater runoff, which previously discharged across the boundary as sheet flow, will continue to do so in the developed case. Downstream of these surface flow locations, there is no existing infrastructure or built form. As such, the proposed development is not expected to incur actionable nuisance flows or any quantifiable loss to downstream properties.

The development does not trigger the stormwater pollutant reduction requirements of the SPP July 2017.

As such, the proposed development will meet both the stormwater Quantity and Quality objectives as detailed within the Queensland State Planning Policy and the Toowoomba Regional Council's Planning Scheme.

7 REFERENCES

Text References

Toowoomba Regional Council, Toowoomba Regional Planning Scheme
https://www.tr.qld.gov.au/planning-building/planning-scheme-strategies-tools/planning-scheme-new/13289-access-the-toowoomba-regional-planning-scheme-9

Ball J, Babister M, Nathan R, Wees W, Weinmann E, Retallick M, Testoni I, (Editors) 2019, Australian Rainfall & Runoff: A Guide to Flood Estimation, © Commonwealth of Australia (Geoscience Australia)

Institute of Public Works Engineering Australasia, Queensland 2017, Queensland Urban Drainage Manual –Fourth Edition, 2016, Institute of Public Works Engineering Australasia, Queensland

Queensland Government 2017, State Planning Policy, July 2017, Department of Infrastructure, Local Government Planning, Brisbane, Australia

Software Used

12d Model

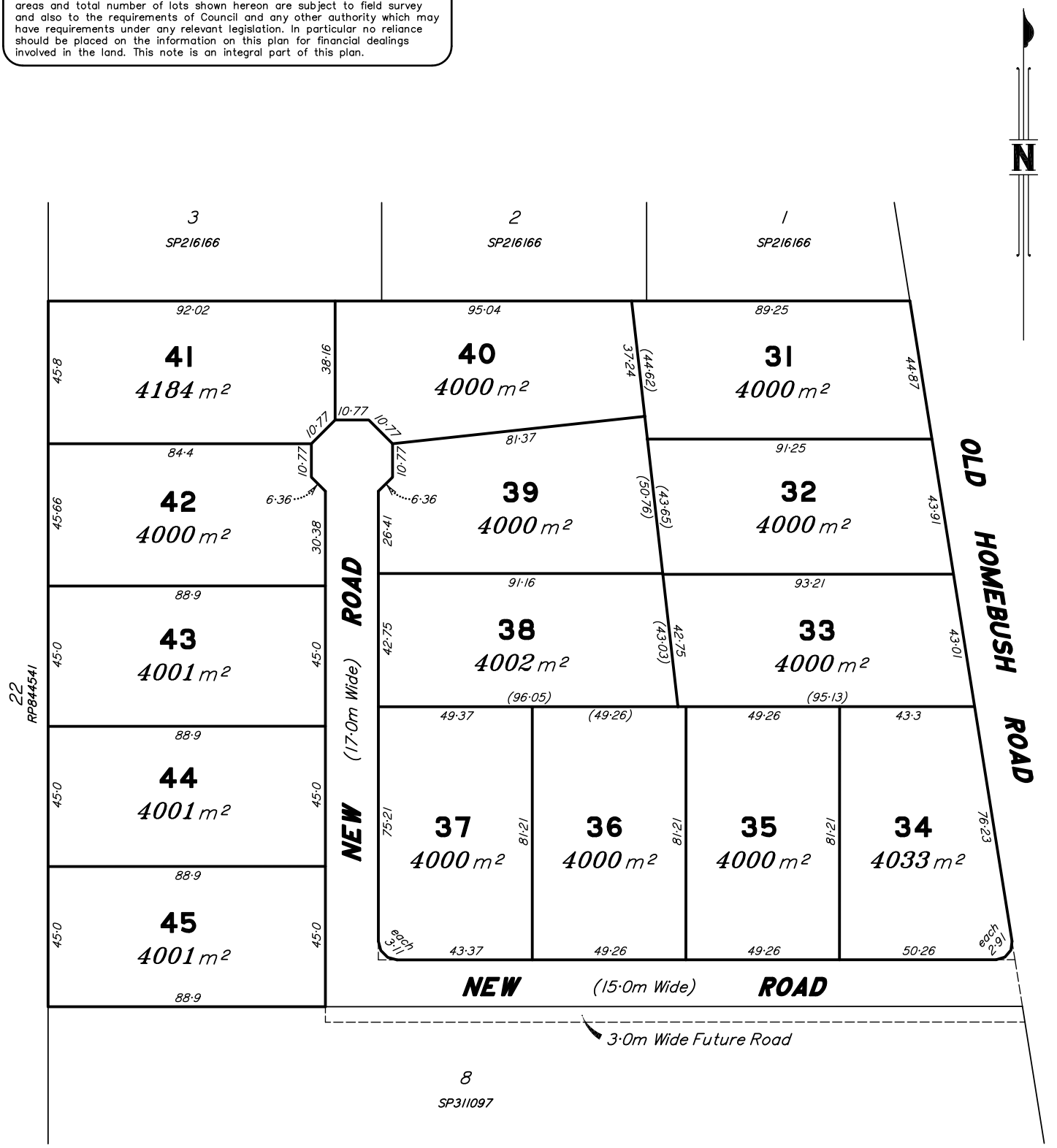
DRAINS by Watercom Pty Ltd

8 APPENDICES

APPENDIX A. **PLAN OF PROPOSED SUBDIVISION (*K.J. WILSON* DRAWING: K4822)**

IMPORTANT NOTE

This plan was prepared for Neue Projects Three Pty Ltd as a proposed subdivision to accompany a subdivision application to Toowoomba Regional Council and should not be used for any other purpose. The dimensions, areas and total number of lots shown hereon are subject to field survey and also to the requirements of Council and any other authority which may have requirements under any relevant legislation. In particular no reliance should be placed on the information on this plan for financial dealings involved in the land. This note is an integral part of this plan.



Scale 1:1250 – Lengths are in Metres.

10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190

0 50 mm 100 mm 150 mm

K.J. Wilson
Cadastral Surveyor
12/01/2026

MAP REF: .	SCALE: 1:1250(A3)	FILE REF: K4822	VERSION: A

CLIENT: Neue Projects Three Pty Ltd
CHECKED: K.Wilson
DRAWN: PlanPrep

PLAN OF PROPOSED SUBDIVISION

Lots 31 –45

Cancelling Lot 7 on SP311097

(Old Homebush Road, Gowrie Junction)

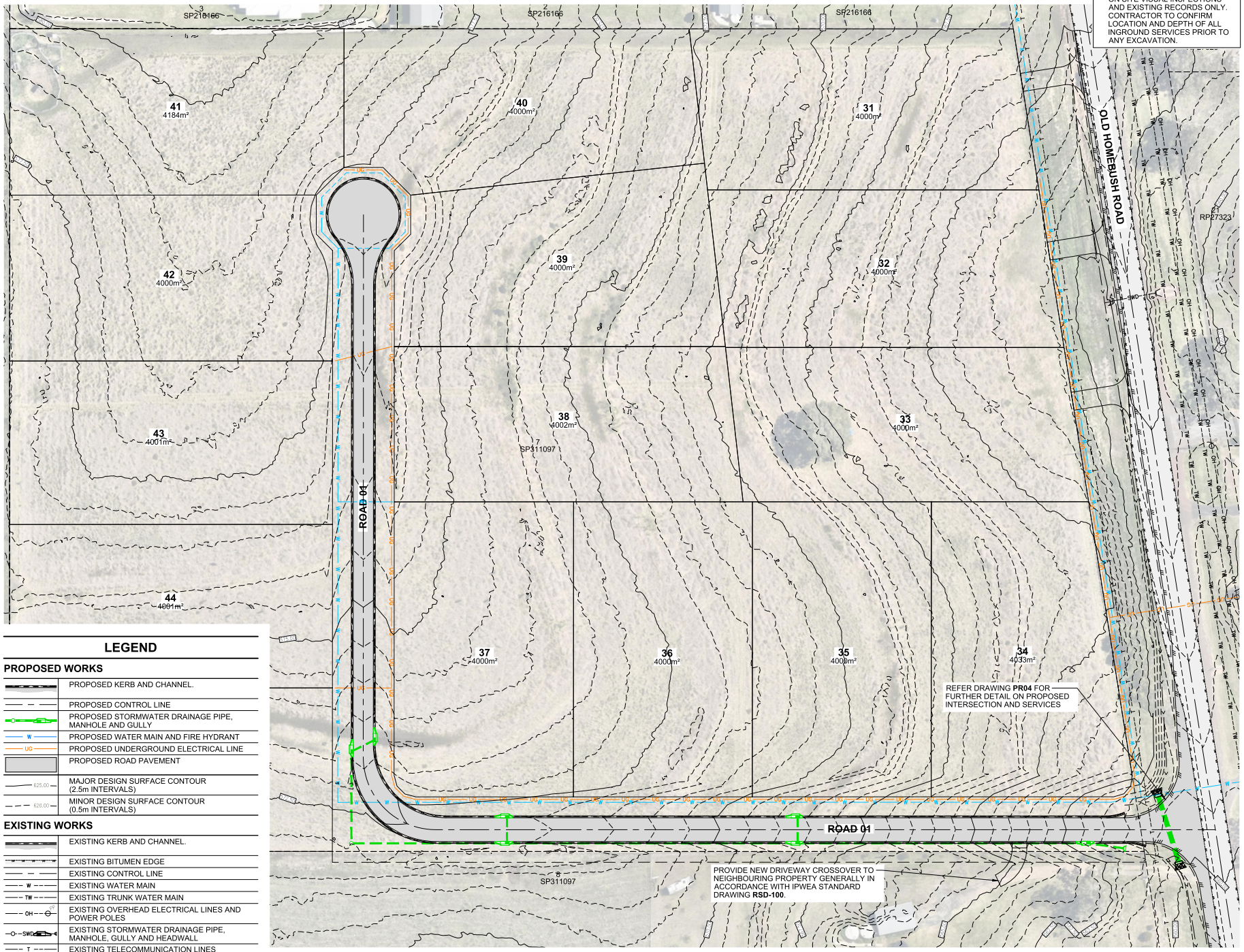
LOCAL AUTHORITY: Toowoomba Regional Council

LOCALITY: Gowrie Junction

K.J. Wilson
B.Surv.
Cadastral Surveyor

Phone: 4639 6644 Phone: 4630 8662(A/H)
Email: ken.jwilson@bigpond.com Mobile: 0427151725
Email: george@kjwsurveys.com.au Mobile: 0418599339
7 Rees Drive, Highfields, 4352
P.O. Box 2437, Toowoomba, 4350

APPENDIX B. PRELIMINARY SERVICES LAYOUT (*KEHOE MYERS* DRAWING: C2526271-PR02)



NOTE:

+ ALL SHOWN SERVICES ARE FROM ON SITE VISUAL INSPECTIONS AND EXISTING RECORDS ONLY. CONTRACTOR TO CONFIRM LOCATION AND DEPTH OF ALL INGROUND SERVICES PRIOR TO ANY EXCAVATION.

LEGEND

PROPOSED WORKS

- PROPOSED KERB AND CHANNEL.
- PROPOSED CONTROL LINE
- PROPOSED STORMWATER DRAINAGE PIPE, MANHOLE AND GULLY
- PROPOSED WATER MAIN AND FIRE HYDRANT
- PROPOSED UNDERGROUND ELECTRICAL LINE
- PROPOSED ROAD PAVEMENT
- MAJOR DESIGN SURFACE CONTOUR (2.5m INTERVALS)
- MINOR DESIGN SURFACE CONTOUR (0.5m INTERVALS)

EXISTING WORKS

- EXISTING KERB AND CHANNEL.
- EXISTING BITUMEN EDGE
- EXISTING CONTROL LINE
- EXISTING WATER MAIN
- EXISTING TRUNK WATER MAIN
- EXISTING OVERHEAD ELECTRICAL LINES AND POWER POLES
- EXISTING STORMWATER DRAINAGE PIPE, MANHOLE, GULLY AND HEADWALL
- EXISTING TELECOMMUNICATION LINES
- EXISTING NBN TELECOMMUNICATION LINES
- EXISTING ROAD PAVEMENT

PRELIMINARY SERVICES LAYOUT

SCALE:- 1:500 @ A1, 1:1,000 @ A3

DATUM
DCDB
LiDAR

DRAWING ISSUE

ISSUE	DATE	DETAILS	INITIAL
P1	10.03.26	FOR APPROVAL	
P2	05.06.26	RFI RESPONSE	

0 5m 10m 15m 20m 25m

SCALE 1:500 @ A1
SCALE 1:1,000 @ A3

PRELIMINARY
NOT FOR CONSTRUCTION
DATE 05.06.26 04:56 PM

PRINT IN COLOUR

Kehoe Myers
CONSULTING ENGINEERS
KEHOEMYERS.COM.AU
PH +617 4632 8100

CIVIL | STRUCTURAL | HYDRAULIC

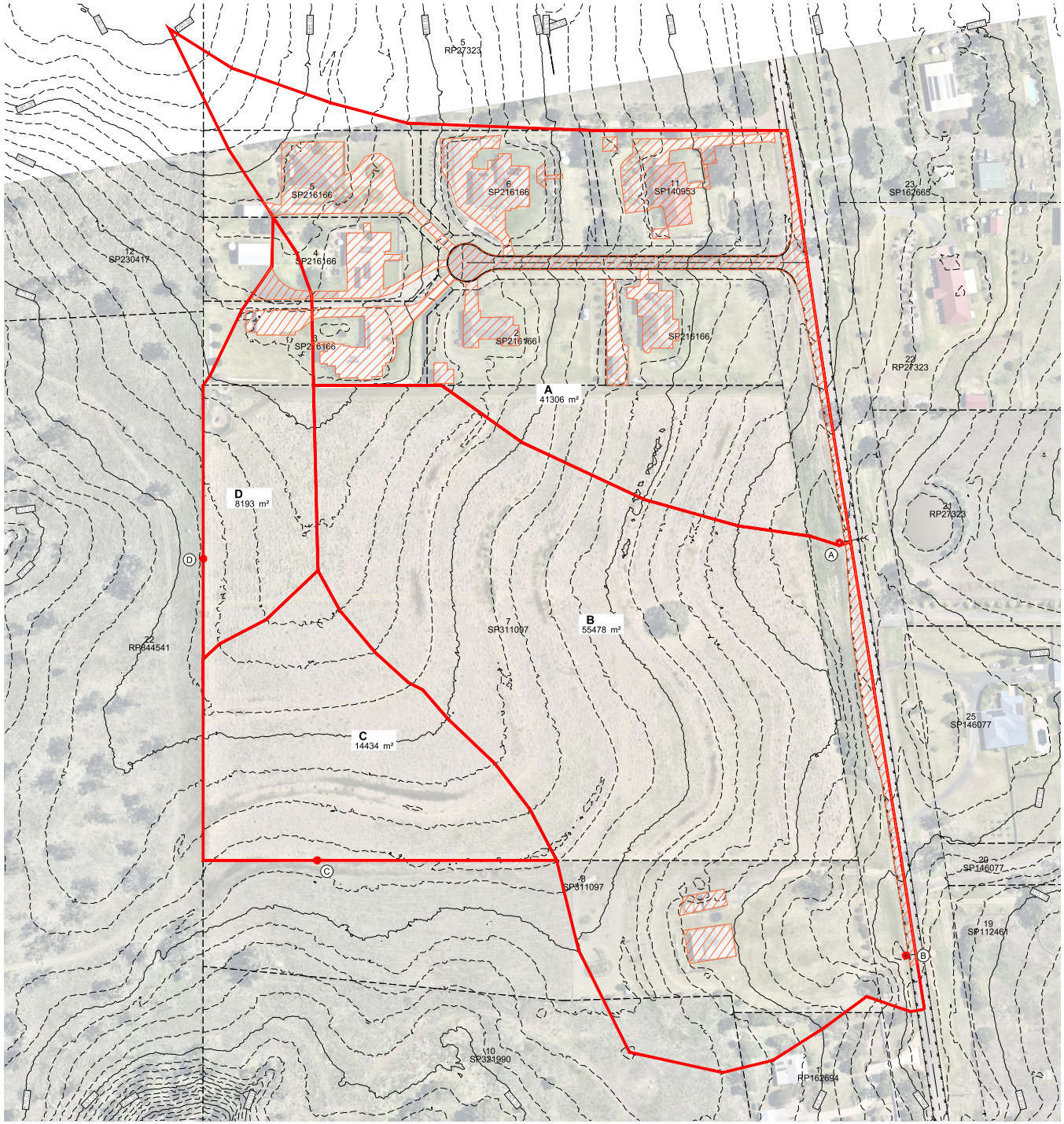
CLIENT
BRC PROPERTY GROUP

PROJECT
OLD HOMEBUSH ROAD SUBDIVISION

DRAWING TITLE
PRELIMINARY SERVICES LAYOUT

DESIGN	MB	ORIGINAL SIZE	A1
DRAWN	NJ/MC	PROJECT NUMBER	C2526271
CHECKED	PJB		
APPROVED		DRAWING NUMBER	PR02
DATE		ISSUE	P2

APPENDIX C. STORMWATER CATCHMENT PLANS (*KEHOE MYERS* DRAWING: C2526271-SWM01 & SWM02)



PRE-DEVELOPED STORMWATER CATCHMENT PLAN

SCALE:- 1:1,000 @ A1, 1:2,000 @ A3

NOTE:

+ ALL SHOWN SERVICES ARE FROM ON SITE VISUAL INSPECTIONS AND EXISTING RECORDS ONLY. CONTRACTOR TO CONFIRM LOCATION AND DEPTH OF ALL INGROUND SERVICES PRIOR TO ANY EXCAVATION.

STORMWATER CATCHMENT LEGEND

	PRE-DEVELOPED CATCHMENT BOUNDARY
	PRE-DEVELOPED IMPERVIOUS AREAS
SWD	EXISTING STORMWATER PIPE, MANHOLE AND GULLY
#	DISCHARGE NODE
	MAJOR EXISITING SURFACE CONTOUR (5.0m INTERVALS)
	MINOR EXISTING SURFACE CONTOUR (1.0m INTERVALS)

DATUM
DCDB
LiDAR

DRAWING ISSUE

ISSUE	DATE	DETAILS	INITIAL
P1	10.03.26	FOR APPROVAL	
P2	05.06.26	RFI RESPONSE	

0 10m 20m 30m 40m 50m

SCALE 1:1,000 @ A1
SCALE 1:2,000 @ A3

PRELIMINARY

NOT FOR CONSTRUCTION

DATE 05.06.26 04:55 PM

PRINT IN COLOUR

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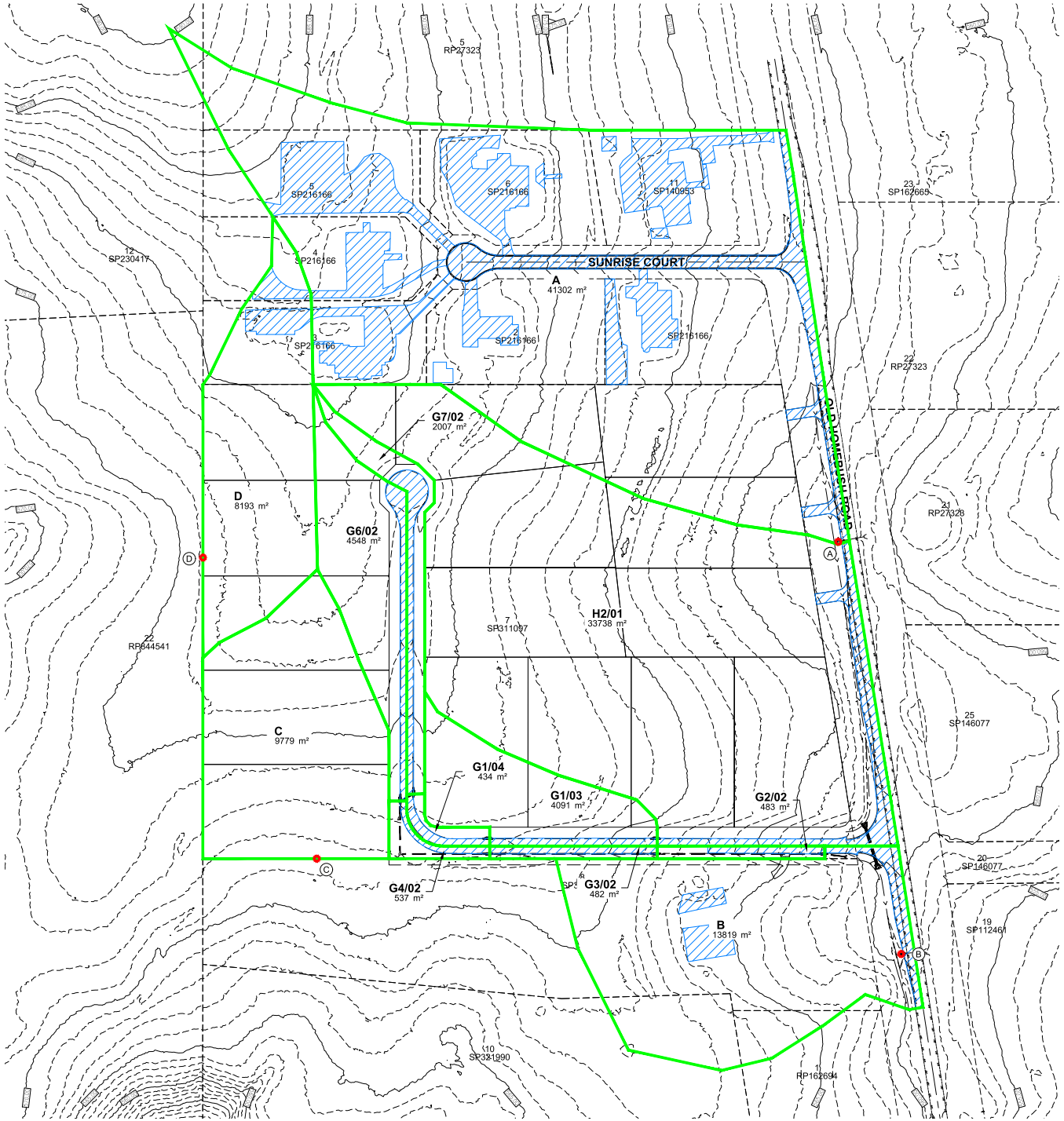
CLIENT
BRC PROPERTY GROUP

PROJECT
OLD HOMEBUSH ROAD SUBDIVISION

DRAWING TITLE
PRE-DEVELOPED STORMWATER CATCHMENT PLAN

DESIGN	MB	ORIGINAL SIZE	A1
DRAWN	NJ/MC	PROJECT NUMBER	C2526271
CHECKED	FJB		
APPROVED		DRAWING NUMBER	SWM01
DATE		ISSUE	P2



POST-DEVELOPED STORMWATER CATCHMENT PLAN
SCALE:- 1:1,000 @ A1, 1:2,000 @ A3

NOTE:
+ ALL SHOWN SERVICES ARE FROM ON SITE VISUAL INSPECTIONS AND EXISTING RECORDS ONLY. CONTRACTOR TO CONFIRM LOCATION AND DEPTH OF ALL INGROUND SERVICES PRIOR TO ANY EXCAVATION.

STORMWATER CATCHMENT LEGEND

	POST-DEVELOPED CATCHMENT BOUNDARY
	POST DEVELOPED IMPERVIOUS AREAS
	PROPOSED STORMWATER DRAINAGE PIPE, MANHOLE AND GULLY
>	PROPOSED OPEN DRAIN AND DIRECTION
	PROPOSED KERB INVERT
SWD	EXISTING STORMWATER PIPE, MANHOLE AND GULLY
#	DISCHARGE NODE
	MAJOR DESIGN SURFACE CONTOUR (5.0m INTERVALS)
	MINOR DESIGN SURFACE CONTOUR (1.0m INTERVALS)

DATUM
DCDB
LiDAR

DRAWING ISSUE

ISSUE	DATE	DETAILS	INITIAL
P1	10.03.26	FOR APPROVAL	
P2	05.06.26	RFI RESPONSE	

0 10m 20m 30m 40m 50m
SCALE 1:1,000 @ A1
SCALE 1:2,000 @ A3

PRELIMINARY
NOT FOR CONSTRUCTION
DATE 05.06.26 04:55 PM

PRINT IN COLOUR

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CLIENT
BRC PROPERTY GROUP

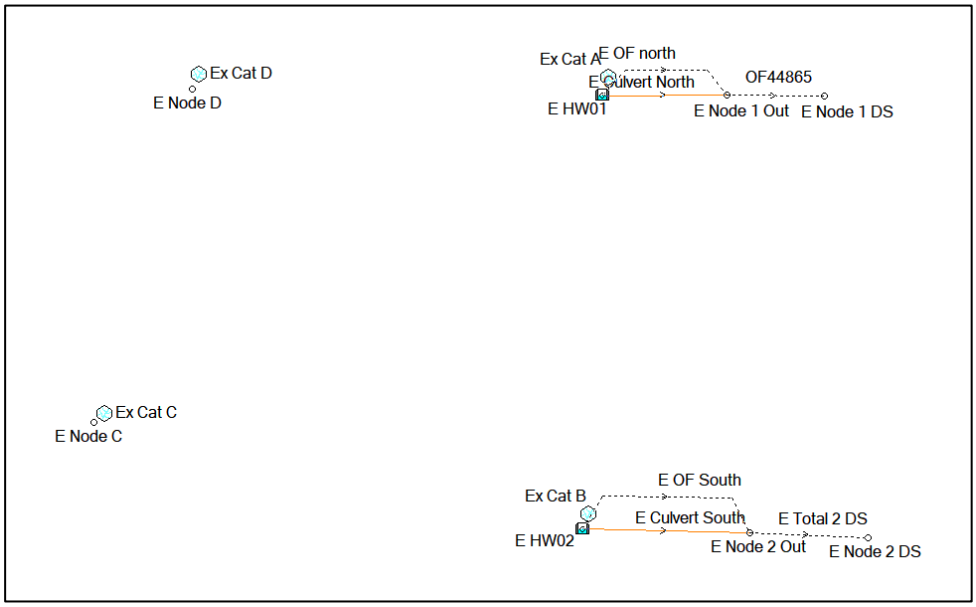
PROJECT
OLD HOMEBUSH ROAD SUBDIVISION

DRAWING TITLE
POST-DEVELOPED STORMWATER CATCHMENT PLAN

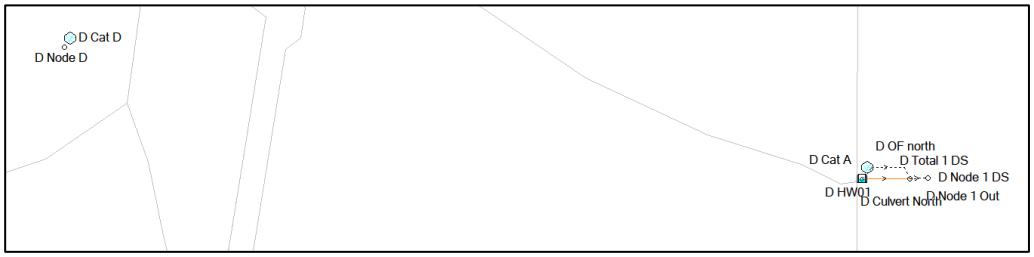
DESIGN	MB	ORIGINAL SIZE	A1
DRAWN	NJ/MC	PROJECT NUMBER	C2526271
CHECKED	PJB		
APPROVED		DRAWING NUMBER	SWM02
DATE		ISSUE	P2

APPENDIX D. DRAINS MODEL RESULTS

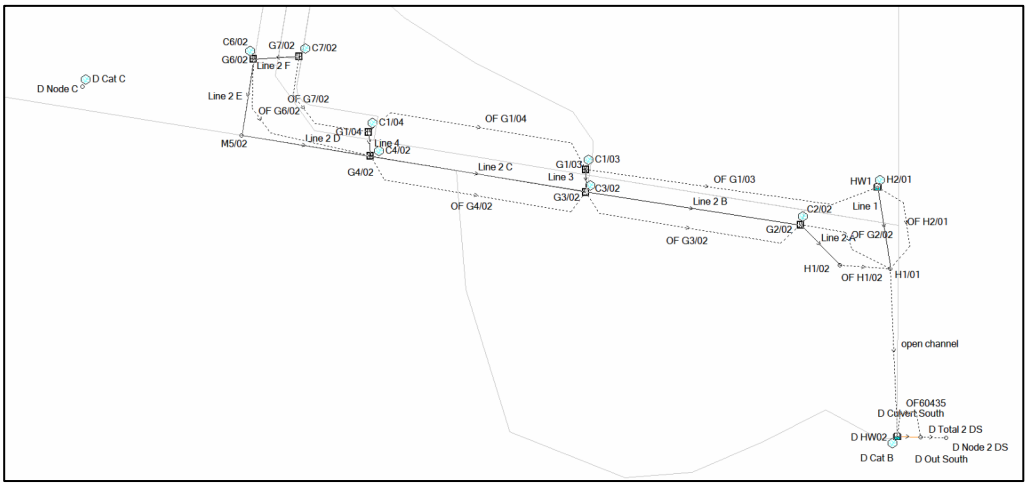
DRAINS Layout Pre and Post Developed Scenario's



Layout Pre Development

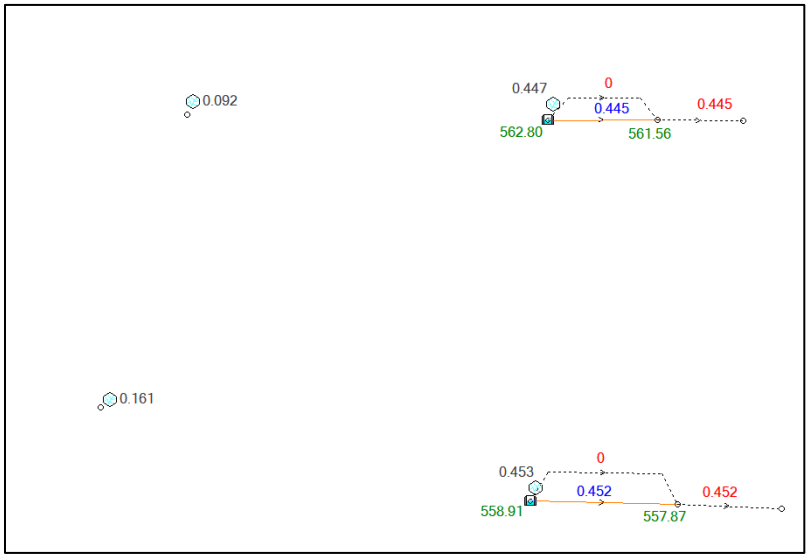


Layout Post Developed (North)

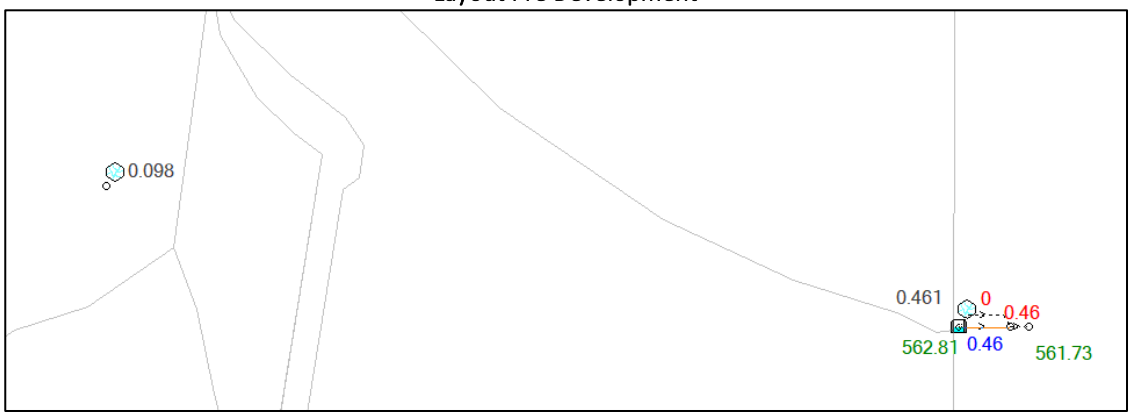


Layout Post Development (South)

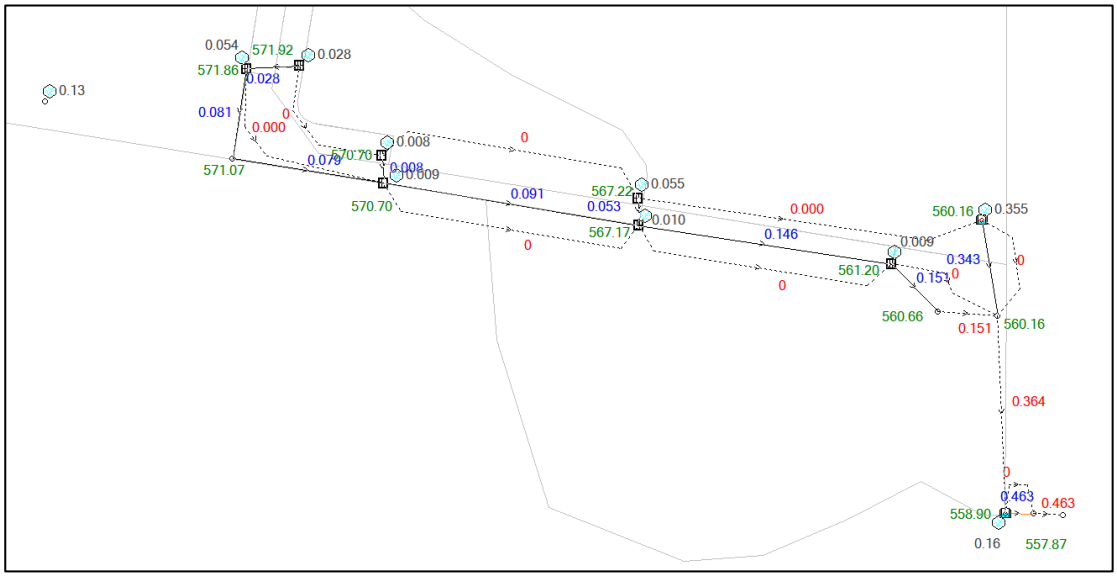
DRAINS 0.5EY Model Run



Layout Pre Development

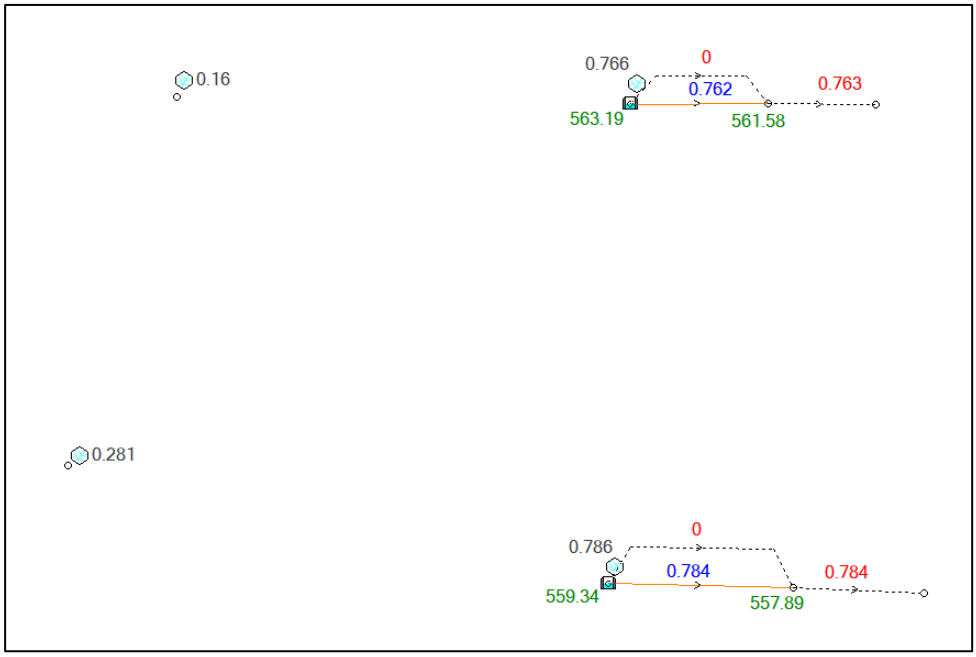


Layout Post Development (North)

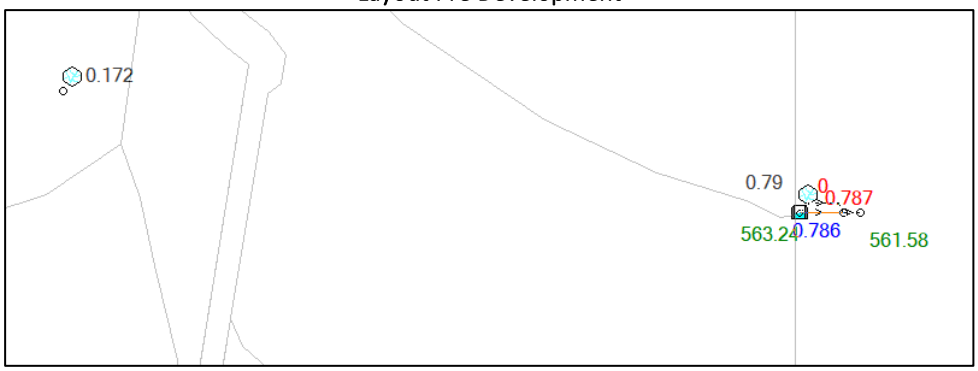


Layout Post Development (South)

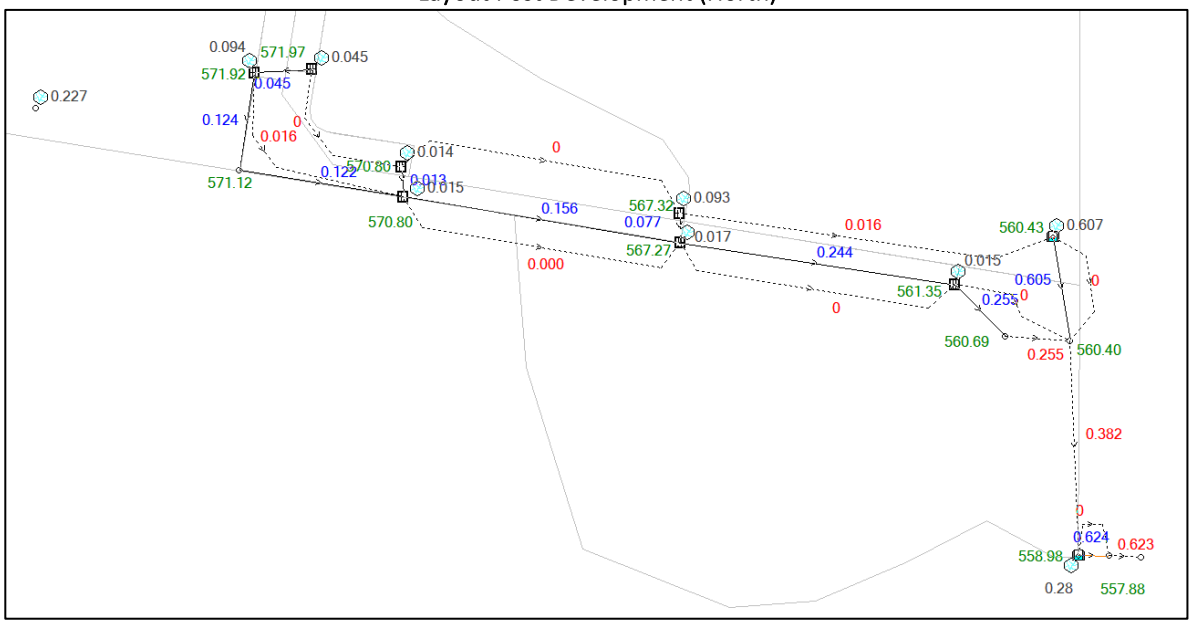
DRAINS 10% AEP Model Run



Layout Pre Development

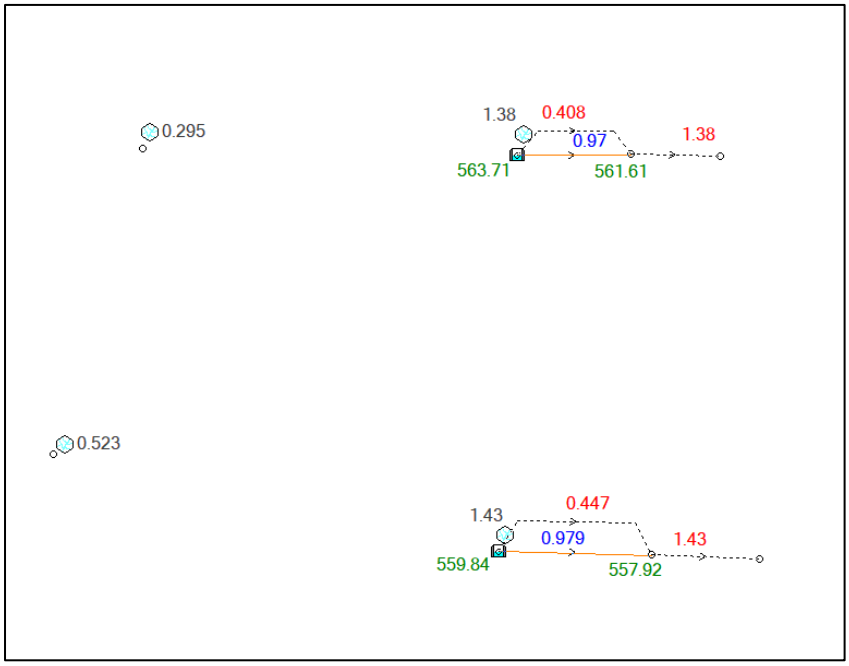


Layout Post Development (North)

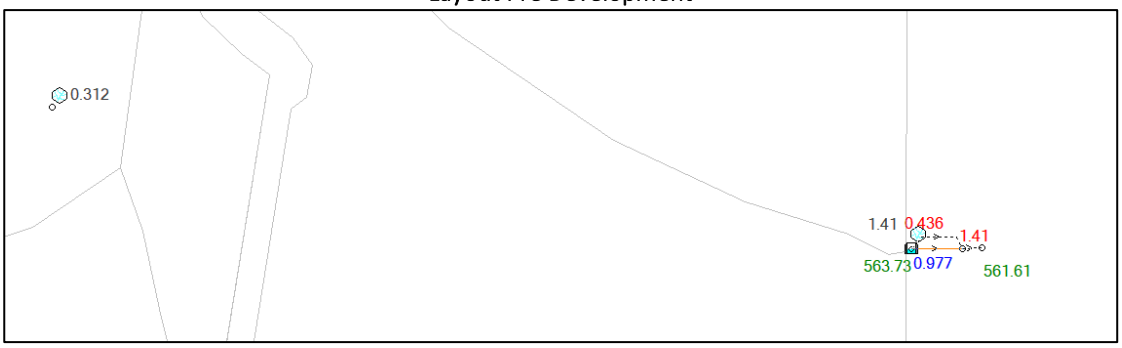


Layout Post Development (South)

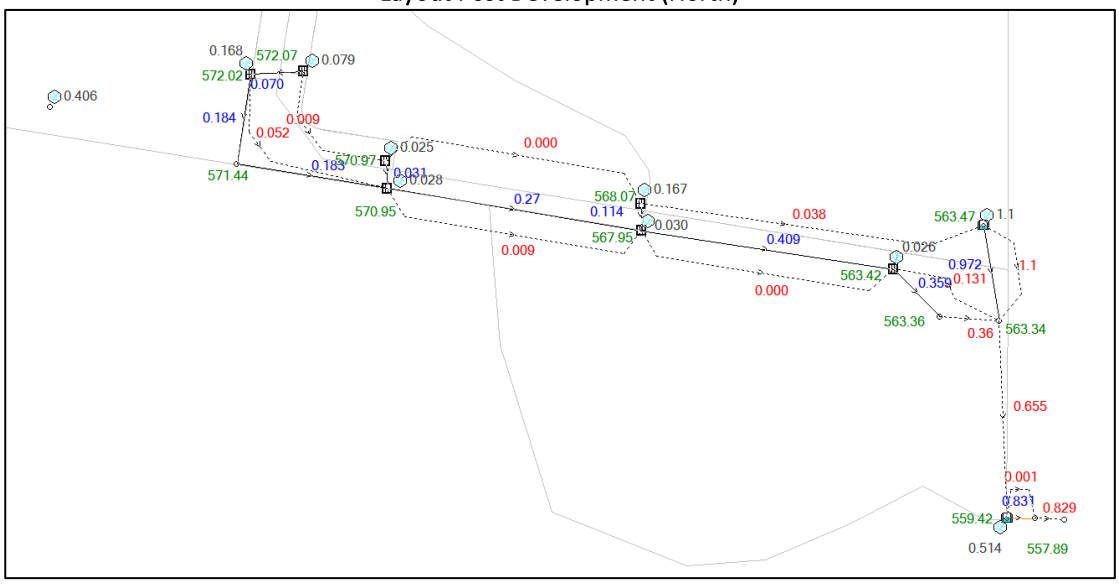
DRAINS 1%AEP Model Run



Layout Pre Development



Layout Post Development (North)



Layout Post Development (South)