

ENGINEERING SERVICES REPORT

54 GEORGE ALEXANDER WAY, COOMERA

COOMERA GA PTY LTD ATF THE COOMERA GA UNIT TRUST



IMPROVING QUALITY OF LIFE

54 GEORGE ALEXANDER WAY, COOMERA

ENGINEERING SERVICES REPORT

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RPEQ20152



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Revision Text 03

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Revision	Date	Description	Prepared by	Approved by
01	2/02/2023	Original Issue	GD	JS
02	26/06/2023	IR Response	GD	JS
03	03/08/2023	IR Response – Minor Amendments	GM	JS

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1 EXECUTIVE SUMMARY

Coomera GA Pty Ltd ATF The Coomera GA Unit Trust has commissioned Arcadis to prepare an Engineering Services Report (ESR) for a residential development application for the site located over the following allotments located on George Alexander Way, Coomera:

- Lot 96 on RP187418 (54 George Alexander Way, Coomera 4209).

The proposed development intended for the site is for the creation of 22 residential allotments and a management lot. Supporting infrastructure such as roads, utilities, park area and stormwater management areas are also proposed.

This report addresses the municipal engineering services components of the development and the engineering planning issues associated with the development application. This report demonstrates that the proposed development can connect to the local stormwater, potable water and sewerage reticulation systems as well as transport infrastructure.

Stormwater is currently discharged to four lawful points of discharge, being the road reserve of Pioneer Street, the road reserve of Mercy Street, the southern lot (Lot 95 on RP187418) which is Council reserve and finally the southern lot (Lot 95 on RP187418) into the drainage line.

A pit and pipe network will be required to facilitate basin and pipe drainage outlets. The site incorporates a combined detention and bio retention treatment basin to achieve stormwater management objectives. A Site Based Stormwater Management Plan has been prepared by Arcadis which addresses the stormwater management planning requirements for the development.

Potable water connection for the proposed development to Gold Coast Water & Waste's supply network, will be supplied via connection into the future DN100 water main within Mercy Street and the future DN100 main within Pioneer Street. These pipes will be constructed as part of the subdivision of lot 1 on SP312031 under application number OPW/2022/155.

Connection for the proposed development to the wastewater supply network will be provided via the future DN150 connection stubs in Mercy and Pioneer Street within lot 1 on SP312031. These pipes will be constructed as part of the abovementioned application.

Vehicular access to the development is proposed via connection to existing Mercy Street and Pioneer Street that are presently being constructed in the adjoining subdivision to the north.

The proposed development will involve the undertaking of cut and fill earthworks operations and retaining to facilitate the construction of roads, surface drainage and allotments. Consideration of interfacing with adjoining known development approvals has been made based on current available information, however should be reviewed for any further known information during detailed design.

1.1 REVISION 02

Revision 02 of this report has been generated primarily in response to Council's information request (IR), dated 7/03/2023, for the Development Approval Application COM/2023/16. Given the items Council requested to be addressed, a significant layout change occurred. This revision of the report responds to both Council's IR and the change to development layout.

1.2 REVISION 03

Revision 03 involves drawing amendments only, which specifically revolve around the reduction of earthworks and general disturbance with a view to minimising the impact to vegetation in the balance parcel. Refer amended engineering schematics in Appendix A.

2 SITE CHARACTERISTICS

2.1 Location Details

The subject site is located within Alexander Way, Coomera, Australia over the following allotment:

- Lot 96 on RP 187418 (54 George Alexander Way, Coomera QLD 4209)

A site locality plan is provided in Figure 2-1 below.

The site is bounded George Alexander Way to the west, rural residential allotment to the south, a future residential development to the north and residential dwellings to the east.

- Lot 1 on SP312031 to the north of the site is currently subject to development approval OPW/2022/155. Construction is nearing completion.

The Gold Coast City Council is the local government authority.

The total area of the site is approximately 30,100m².

2.2 Land Usage

In its current state, the project site consists of a residential dwelling and its associated driveway. Figure 2-1 below provides a current locality plan of the site.



Figure 2-1 Site Locality Plan (Aerial Imagery Courtesy of NearMap)

2.3 Topography and Features

The site has slopes ranging from 5 to 12%. The site has a high point at the centre of RL34m therefore, everything slopes away from the centre of the site. The low point of the site is within the north eastern corner at RL24m.

There are two existing dams located on the site, one large dam in the north western corner and a smaller dam located in the northeaster corner.

Further catchment and topographic information can be seen on the Engineering Drawings attached in Appendix A.

3 PROPOSED DEVELOPMENT

The proposed development involves the construction of residential dwellings, including:

- 22 residential allotments, 6 of which will be dual occupancy.
- 1 balance parcel (Will be subject to development applications).
- Residential road network.
- Stormwater management areas.
- LGIP Park

A plan extract of the proposed development has been provided in Figure 3-1.

A full set of development proposal plans are provided within the development application package and should be referred to for further information.

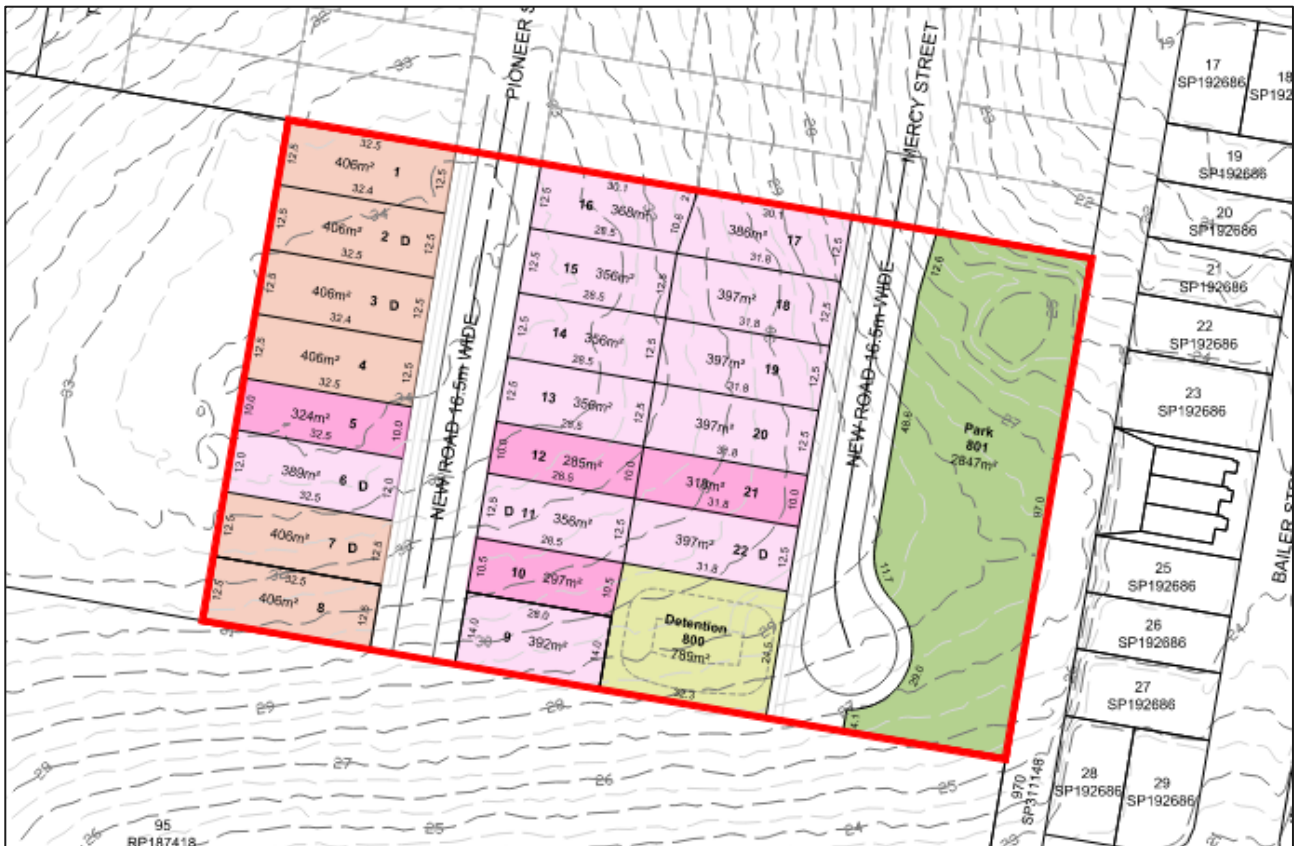


Figure 3-1 Proposed Development Layout (Courtesy of Saunders Havill Group)

3.1 Clarifications

This report assumes that works associated with the development north of the site, summarised as Lot 1 on SP312031 will be completed in full (including modifications as needed to support proposed outcomes of this proposal) to enable relevant services connections and earthworks interfacing. Further details can be found under the following approval:

- Development Approval OPW/2022/155.

To the best of our understanding, these works are close to completion at the time of compiling this report.

4 INFRASTRUCTURE SERVICE

4.1 Stormwater Drainage

A Site based Stormwater Management Plan (SBSMP) has been prepared by Arcadis which addresses the stormwater management planning requirements for the development. The SBSMP should be referred to for a more in-depth analysis of prevailing stormwater constraints and opportunities, however a summary of key engineering requirements is provided herein.

4.1.1 Existing Stormwater Drainage

Stormwater runoff generated by the site generally discharges to four lawful points of discharge illustrated in Figure 4-1.

- There are two catchments that are directed into the lot to the north.
 - Catchment E1 flows north to LPoD 1 into Pioneer Street.
 - Catchment E4 flows north to LPoD 4 into Mercy Street.
- Finally, there are currently two sub catchments draining LPoD3 the east of the site.
 - Catchment E3a flows in a south easterly direction to LPoD 3.
 - Catchment E3b flows in a south easterly direction to LPoD 3.
- There is one catchment draining into the drainage reserve, east of the site.
 - E2 travels east into the pond and north within the drainage reserve.

All of which ultimately drain into McCoy's Creek north east of the site.

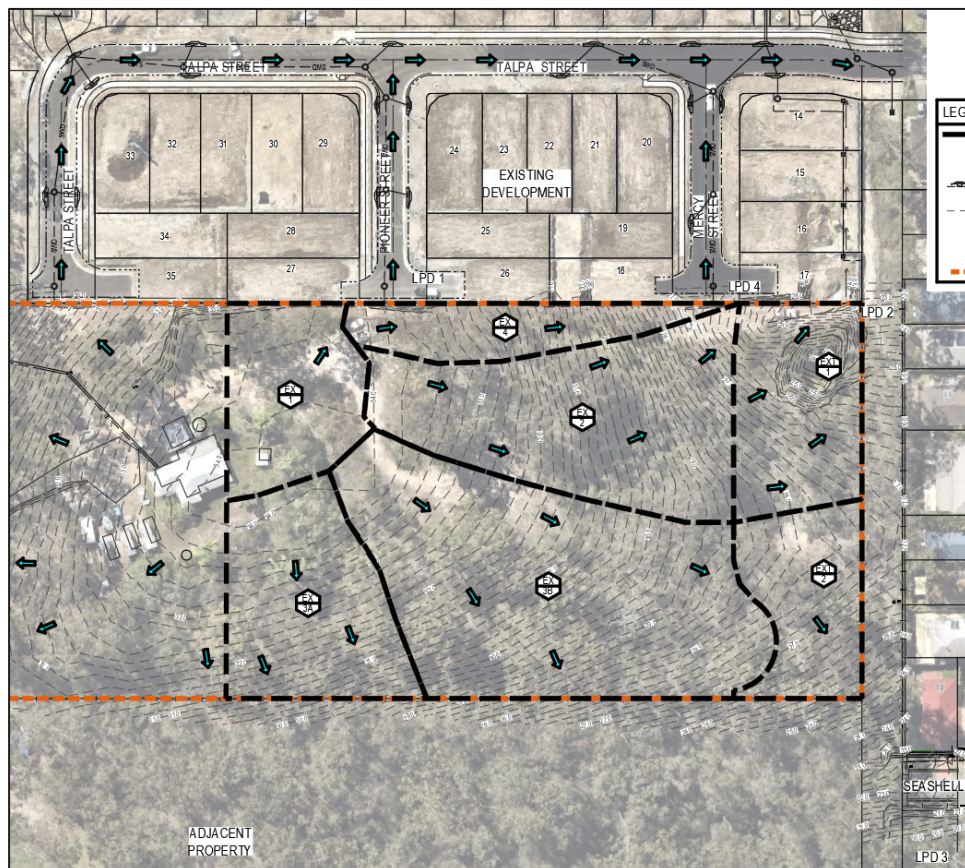


Figure 4-1 Existing Stormwater Catchments (Courtesy: ARCADIS)

4.1.2 Proposed Stormwater Drainage

The site will manage both stormwater quality and quantity through the use of pit and pipe drainage networks, and stormwater basin areas. Stormwater will be discharged to the existing lawful points of discharge being the lot to the north, the drainage corridor to the east and the lot to the south. The development to the north has made provisions in its stormwater systems to cater for the some of the site's stormwater. Ultimately all the stormwater discharge ends up in McCoy's Creek north east of the site.

All pipe flow will be directed towards the combined detention/ bio retention basin.

The SBSMP prepared by Arcadis should be referred to for further details on the exact methodology used to achieve Council objectives. Refer to engineering drawings in Appendix A for a conceptual location of the stormwater connection points.

4.2 Water Network

4.2.1 Existing Potable Water

The following water mains were identified within the vicinity of the development site:

- 1 x DN300 potable water main within the western verge of George Alexander Way to the west of the site. There are no plans to connect to this infrastructure.
- 2 x DN100 potable water mains in the northern verges of Mercy and Pioneer Streets.

It is understood that there we be water mains constructed north of the site within lot 1 on SP312031 under application number OPW/2022/155.

4.2.2 Planned Potable Water

Version 8 City Plan Water Supply Network – Infrastructure Map – 15 (refer to Appendix B) indicates that there is no planned upgrade for the water main in the immediate vicinity of the site.

4.2.3 Proposed Potable Water

Connection for the proposed development to the GCWW's supply network will be provided via two connections to the two water mains to be constructed under application number OPW/2022/155. One connection will be made to the DN100 main within Mercy Street and the other will connect into the DN100 main within Pioneer Street. It is noted this infrastructure will need to be live and accepted on-maintenance by Council before connection can occur.

The Developer shall design and construct an internal water reticulation network for the proposed development which will be the subject of future Operational Works applications.

Fire hydrants shall be placed at appropriate intervals along the internal new water main to ensure coverage of the site.

Refer to engineering drawings in Appendix A for the proposed water reticulation and connection point.

4.2.4 Projected Development Loadings

The development has been assessed under two loading cases in order to better determine the anticipated impact it will have on the surrounding network. These cases are the:

- **Planned Demand** – A demand assigned to the site via the City of Gold Coast 2018 City Plan which is derived from GCWW 'Water and Sewerage Demand Table' <https://www.goldcoast.qld.gov.au/files/sharedassets/public/pdfs/brochures-amp-factsheets/water-sewage-demand-table.pdf> and the property's net area.
- **Project Development Loading** – The calculated demand for the property based on proposed development yield and conversion rates from GCWW 'Water and Sewerage Demand Table' <https://www.goldcoast.qld.gov.au/files/sharedassets/public/pdfs/brochures-amp-factsheets/water-sewage-demand-table.pdf>

It is noted that the site has been split into two different development areas. The area subject to this application and the management lot. As noted above, the management lot will be subject future applications and thus has been excluded from this assessment.

Table 4-1 Planned Demand

Category	Area (ha)	Conversion Rate	Planned Demand (EP)
RD3	0.615	78EP/ha	48
RD7	0.615	412EP/ha	253.4
Total			301.4

Table 4-2 Projected Development Loading

Category	Area (ha)	Conversion Rate	Proposed Demand (EP)
RD1 - 25 dwellings/ha	1.23	70EP/ha	86.1
Total			86.1

There is a decrease of approximately 215.3EP between planned and proposed demands. No further network assessment has been undertaken for the purposes of this application submission.

4.3 Sewer Network

4.3.1 Existing Sewer

The following sewer infrastructure was identified adjacent to the development site:

- A DN150 gravity sewer main located at the end of Seashell Avenue, located directly south east of the site.
- A DN225 rising sewer main within the western verge of George Alexander Way to the west of the site.
- 2 x DN150 gravity sewer mains in the eastern verges of Mercy and Pioneers Streets, north of the site.
 - It is understood that there we be sewer mains constructed north of the site within lot 1 on SP312031 under application number OPW/2022/155.

4.3.2 Planned Sewer

Version 8 City Plan Wastewater Supply Network – Infrastructure Map – 15 (refer to Appendix B) indicates that there are no planned upgrades within the immediate vicinity of the site.

4.3.3 Proposed Sewer

Connection for the proposed development to the GCWW's wastewater supply network will be provided via the two DN150 connection stubs within Mercy Street and Pioneer Street. It is noted this infrastructure will need to be live and accepted on-maintenance by Council before connection can occur. A new internal gravity network will be installed in order to provide each new allotment with a sewer service.

Refer to engineering drawings included Appendix A for further details.

4.3.4 Projected Development Loadings

Due to the nature of the development and its location, the wastewater demand is calculated in the same manner as the water supply. Refer to section 4.2 for further details.

The proposed development presents a decrease in loading, of 215.3EP when compared to the current planned demand. No further assessment has been undertaken for the purposes of this application.

4.4 Other Services

A Dial Before You Dig (DBYD) search has identified telecommunications services within George Alexander Way to the west of the development site.

Overhead power has been identified fronting the site within the western verge of George Alexander Way. It can be seen in Figure 4-2 there is overhead power running east from George Alexander Way through the site. Therefore, provisions must be made to decommission these power lines.



Figure 4-2 Overhead Power Lines in the Site

The proposed development will incorporate low-voltage electricity and telecommunications supply designed by a specialist electrical and telecommunications consultant in accordance with Council and Energex requirements. It is expected that connection to these services shall be provided via extension of services from the development to the north.

The DBYD search results are provided in Appendix C and should be referred to for the locations of the above-mentioned services within the vicinity of the site.

5 ROADS AND ACCESS

Primary vehicular access to the development is proposed via extension of Mercy Street and Pioneer Street to the north of the site.

The following road profiles are proposed:

- Residential Access Street – 16.50m (min.) road reserve, 7.50m kerb to kerb pavement, and 4.50m verges.

All proposed roads within the site will be constructed in accordance with Council standards.

Mercy Street will provide a Cul-de-sac turn around arrangement at its southern end of its extension. Pioneer Street will provide a temporary turn around at the end of its point under the Stage 2 parcel of the development. Once road connection is made to the south of Pioneer Street, the temporary turn around infrastructure and be removed and stage 2 can be activated into allotments.

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Refer to Appendix A for engineering drawings.

6 EARTHWORKS

6.1 EARTHWORKS OPERATIONS

The proposed development will involve the undertaking of cut and fill earthworks and retaining operations to facilitate the construction of allotment pads, access driveways, surface drainage and utility connections.

It is understood that no geotechnical investigations or assessment have been undertaken at this stage. It is recommended that such works are undertaken to inform the suitability of site material, proposed earthworks intent and overall stability.

6.2 Acid Sulfate Soil Assessment

According to the acid sulfate map the site does not contain acid sulfate soils therefore no further assessment has been undertaken by the applicant at this time.

7 CONCLUSION

This report has concluded that the site can readily connect to the existing engineering services. Future Operational Works applications will be sought to permit the works to be undertaken.

Stormwater

- Stormwater will be discharged to four lawful points of discharge, being;
 - The northern lot (Lot 1 on SP312031) into Pioneer Street
 - The southern lot (Lot 95 on RP187418) into the reserve
 - The southern lot (Lot 95 on RP187418) into the drainage line

Potable Water

- Proposed connection GCCC Water's supply network will be via connection into the future DN100 water mains within Mercy and Pioneer Streets.

Sewer

- Site will be connected into the GCCC wastewater supply network via the future DN150 connection stubs in Mercy and Pioneer Streets.

Roads and Footpaths

- Vehicular access to the development is proposed via extension of Mercy and Pioneer Streets from the adjoining lot to the north.
- New roads will be constructed to provide access for all the lots within the site.

APPENDIX A

ENGINEERING DRAWINGS

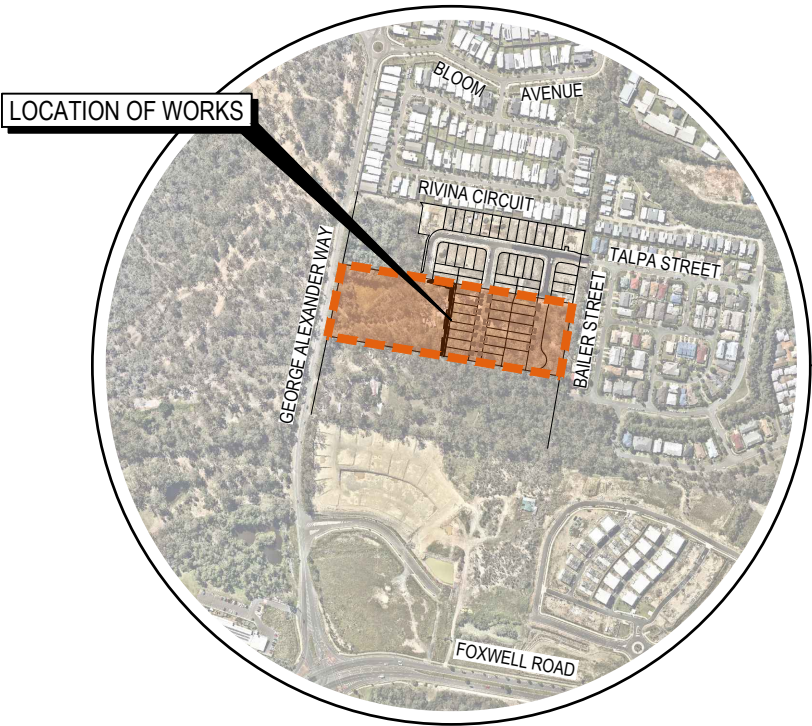
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DEVELOPMENT APPLICATION

CITY OF GOLD COAST

DRAWING SCHEDULE

DWG. No.	DESCRIPTION
GENERAL	
0001	COVER SHEET, LOCALITY PLAN & DRAWING SCHEDULE
EARTHWORKS	
0100	BULK EARTHWORKS CUT & FILL LAYOUT PLAN
0105	TYPICAL RETAINING WALL DETAILS
0110	BULK EARTHWORKS SECTIONS
ROADWORKS	
0210	ROADWORKS AND DRAINAGE LAYOUT PLAN
0211	ROADWORKS AND DRAINAGE DETAILS & NOTES
0220	PIONEER STREET AND MERCY STREET LONGITUDINAL SECTIONS
0240	ON-STREET PARKING PLAN
STORMWATER DRAINAGE	
0310	STORMWATER CATCHMENT PLAN - PRE DEVELOPMENT
0311	STORMWATER CATCHMENT PLAN - POST DEVELOPMENT
0380	COMBINED DETENTION - BIO-RETENTION BASIN 1 LAYOUT PLAN
0381	BIO-RETENTION TYPICAL SECTIONS AND DETAILS
SERVICES	
0400	SEWER AND WATER RETICULATION LAYOUT PLAN

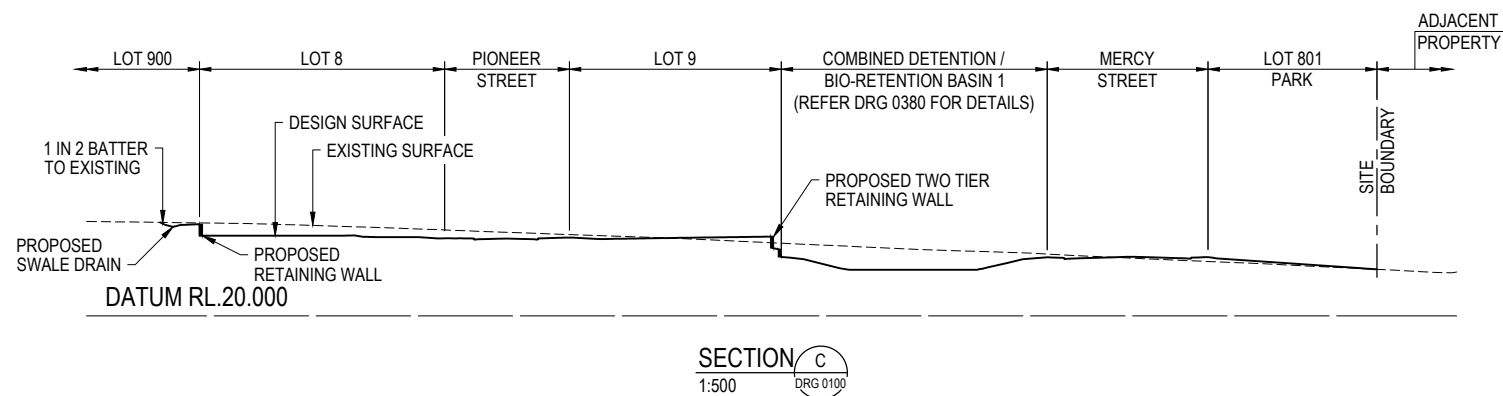
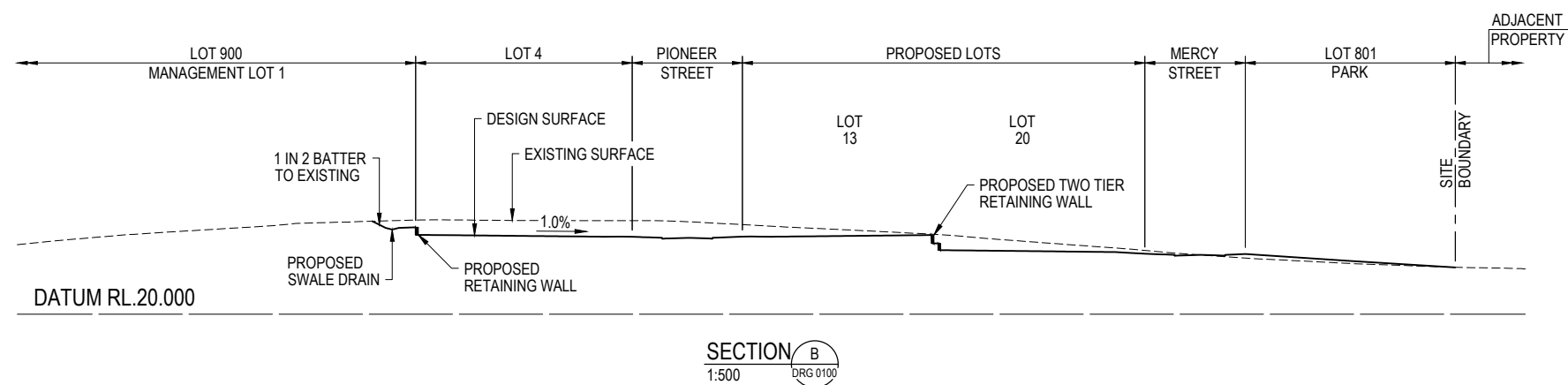
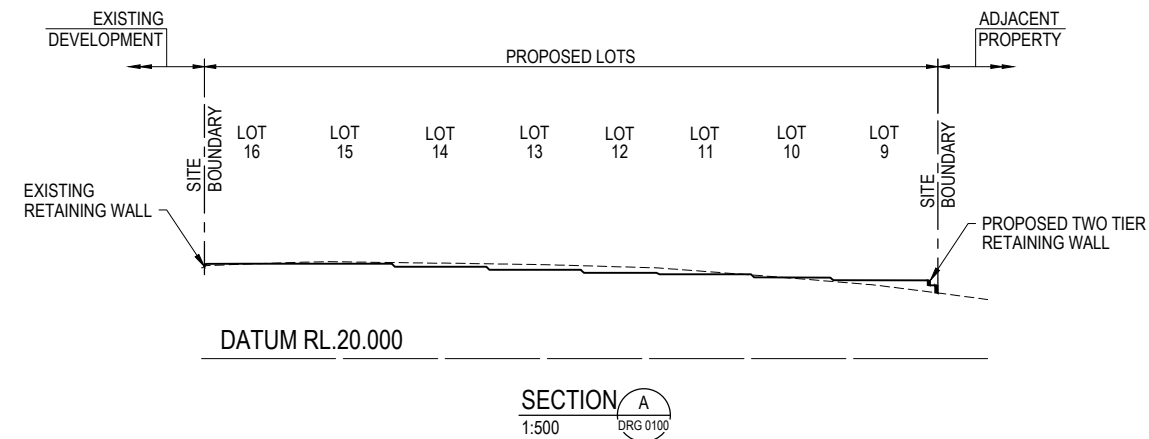


LOCALITY PLAN
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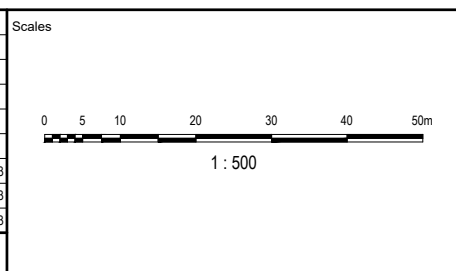
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03	LIMIT OF EARTHWORKS AMENDED	DK	GM		31.07.2023
02	RFI ISSUE	DK	GM		22.06.2023
01	ORIGINAL ISSUE	DK	GM		01.02.2023
Issue	Description	DR	CH	VE	Date



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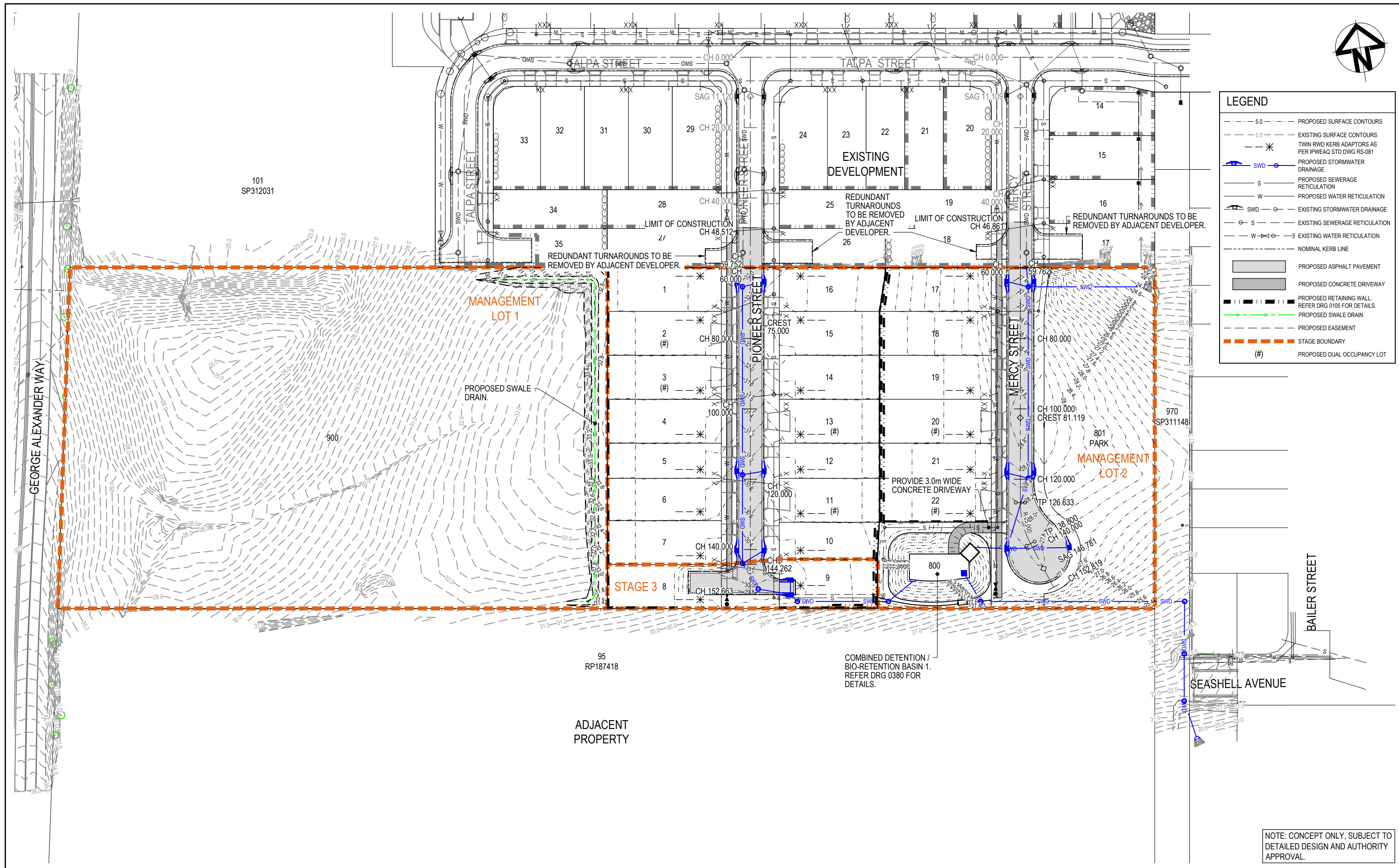
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Project Manager	G. MENZIES	Grid	MGA (ZONE 56)
Verified	-		

Project	54 GEORGE ALEXANDER WAY, COOMERA
Title	BULK EARTHWORKS SECTIONS



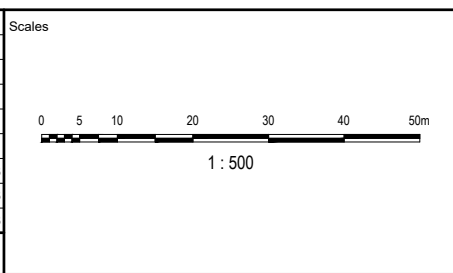
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Fax No: +61 7 5591 4778
www.arcadis.com

Project No.	Folker Prefix	Zone Stage Phase	Discipline	Type	Drawing No.	Issue
30157884	- DABA	- 0000DA	- CV	- DRG	- 0110	- 03



LEGEND	
	PROPOSED SURFACE CONTOURS 5.0
	EXISTING SURFACE CONTOURS 5.0
	TWIN RWD KERB ADAPTORS AS PER IPWEAQ STD DWG RS-081
	PROPOSED STORMWATER DRAINAGE
	PROPOSED SEWERAGE RETICULATION
	PROPOSED WATER RETICULATION
	EXISTING STORMWATER DRAINAGE
	EXISTING SEWERAGE RETICULATION
	EXISTING WATER RETICULATION
	NOMINAL KERB LINE
	PROPOSED ASPHALT PAVEMENT
	PROPOSED CONCRETE DRIVEWAY
	PROPOSED RETAINING WALL. REFER DRG 0105 FOR DETAILS.
	PROPOSED SWALE DRAIN
	PROPOSED EASEMENT
	STAGE BOUNDARY
	PROPOSED DUAL OCCUPANCY LOT (#)

Issue	Description	DR	CH	VE	Date
03	LIMIT OF EARTHWORKS AMENDED	DK	GM		31.07.2023
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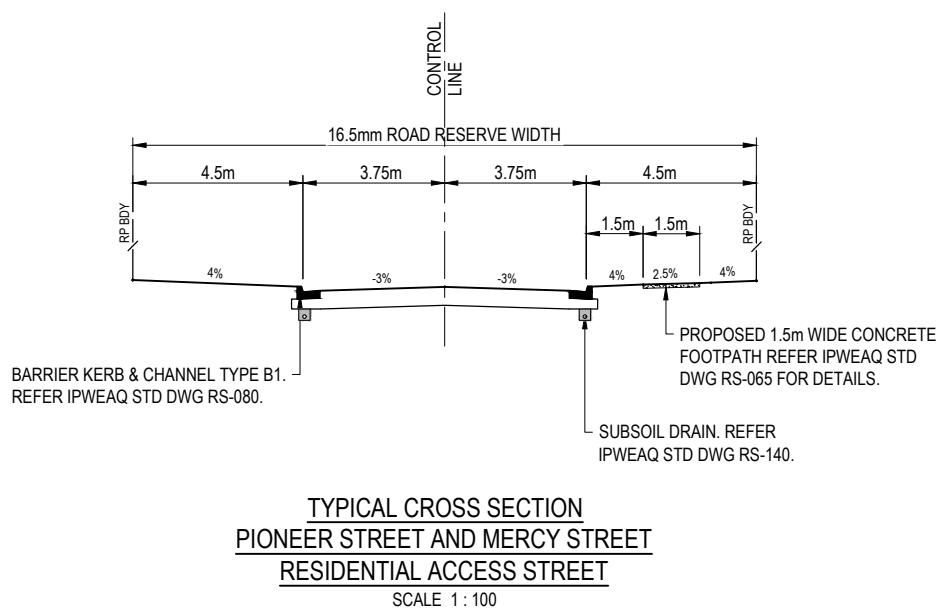
Project	
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Title	
ROADWORKS AND DRAINAGE LAYOUT PLAN	

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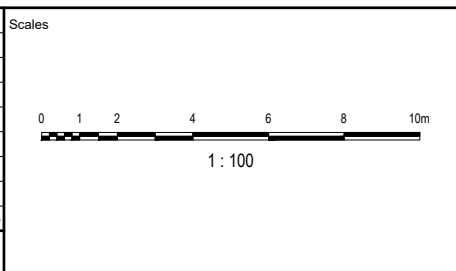
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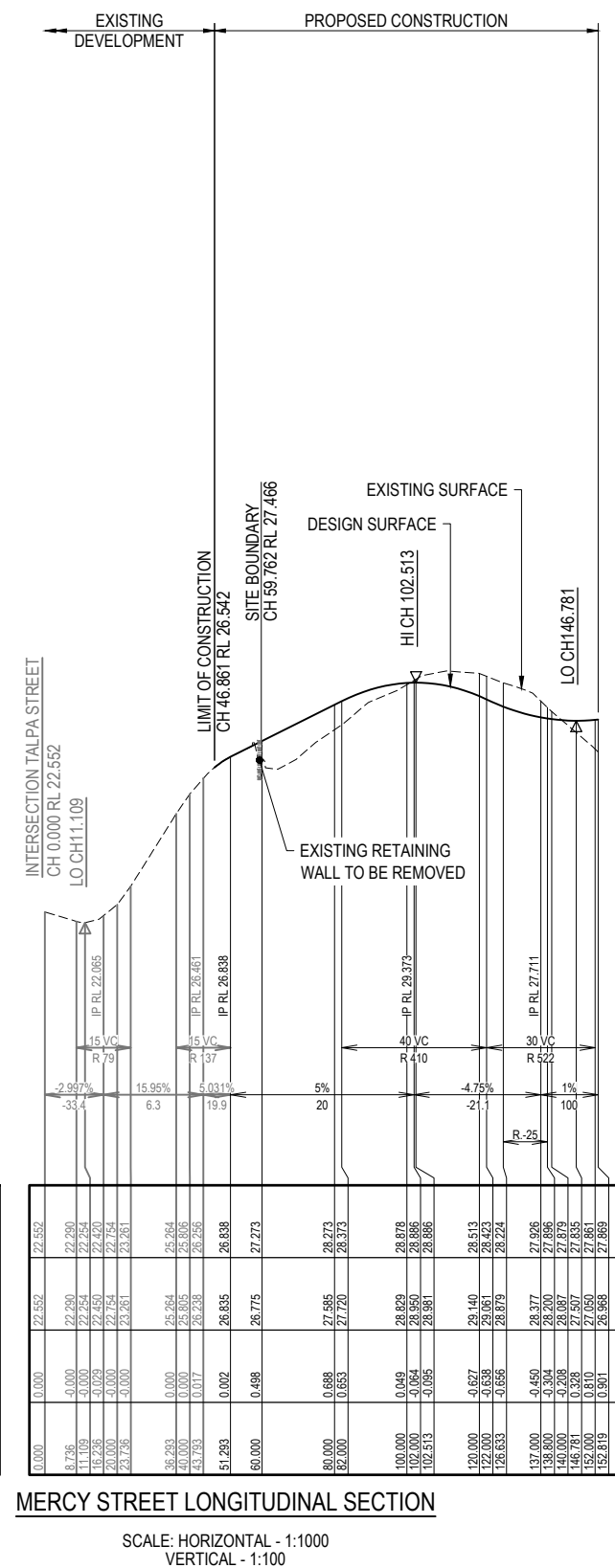
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Title	ROADWORKS AND DRAINAGE DETAILS & NOTES

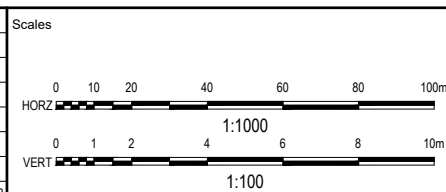
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Project No.	Folker Prefix	Zone Stage Phase	Discipline	Type	Drawing No.	Issue
30157884	- DABA	- 0000DA	- CV	- DRG	- 0211	- 01



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Issue	Description	DR	CH	VE		Date



Surveyor

SH saunders
havill
group

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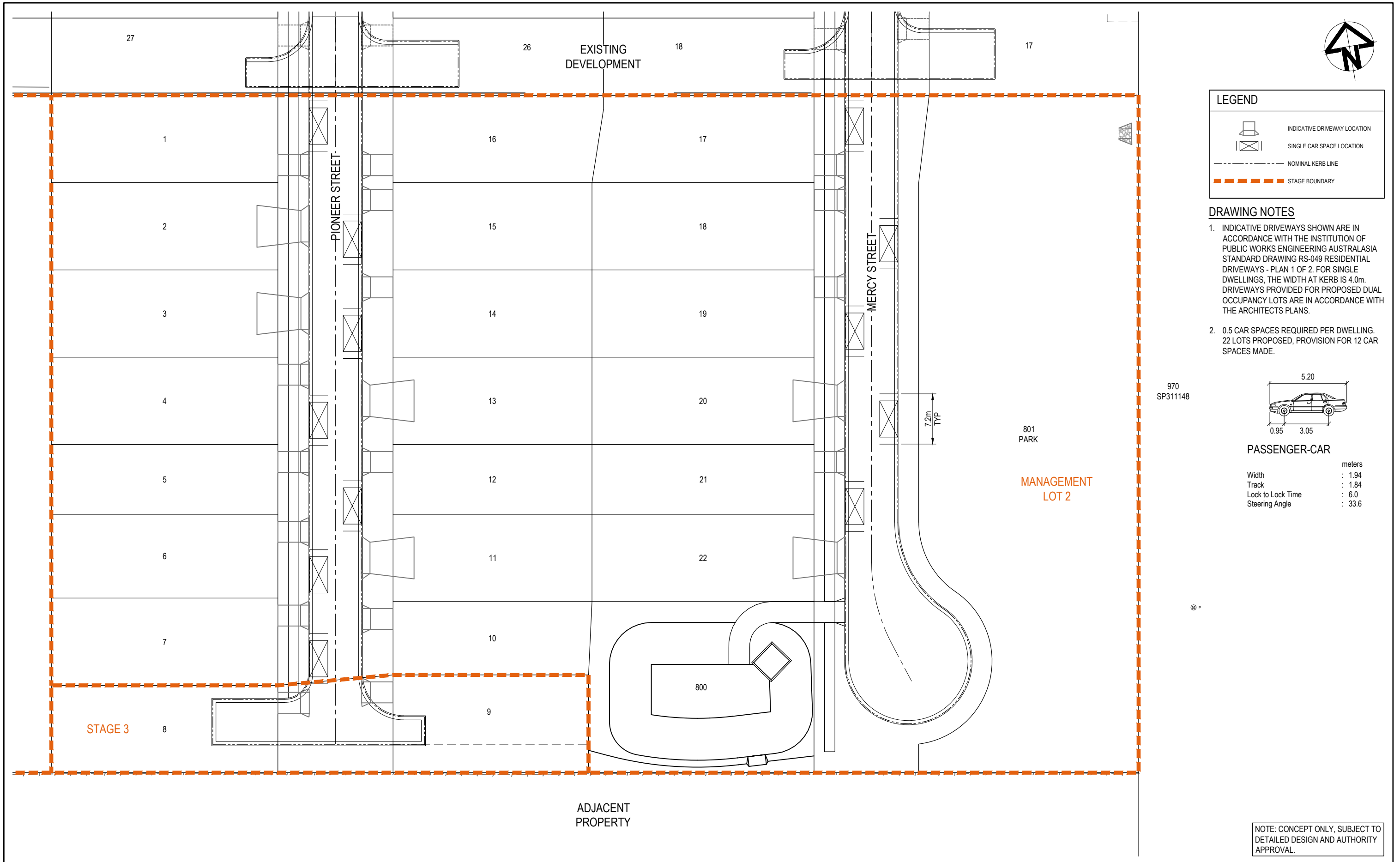
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Title	PIONEER STREET AND MERCY STREET LONGITUDINAL SECTIONS



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01 ORIGINAL ISSUE						DK GM		22.06.2023													
Issue Description						DR CH VE		Date													

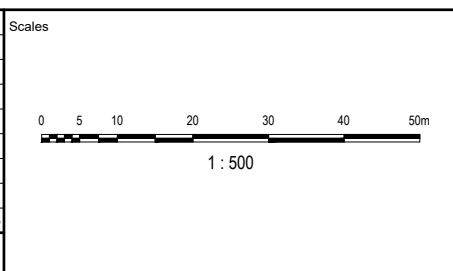


LEGEND

- CATCHMENT BOUNDARY
- CATCHMENT IDENTIFIER
- EXISTING STORMWATER RETICULATION AND STRUCTURE
- EXISTING SURFACE CONTOURS
- DIRECTION OF OVERLAND FLOW
- LPD
- SITE BOUNDARY

CATCHMENT TABLE	
CATCHMENT LABEL	AREA (ha)
EX/1	0.14
EX/2	0.31
EX/3A	0.20
EX/3B	0.48
EX/4	0.10
EXT/1	0.16
EXT/2	0.12

01	ORIGINAL ISSUE	DK	GM	22.06.2023
Issue	Description	DR	CH	VE
				Date



Surveyor

Coomera GA Pty Ltd
ATF The Coomera
GA Unit Trust

Status			
PRELIMINARY			
NOT TO BE USED FOR CONSTRUCTION			
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Original Issue Signatures			
Drawn	D. KEARNEY	Original Size	A1
Designed	G. DJELOVIC	Height Datum	AHD
Project Manager	G. MENZIES	Grid	MGA (ZONE 56)
Verified	.		

Project

54 GEORGE ALEXANDER WAY,
COOMERA

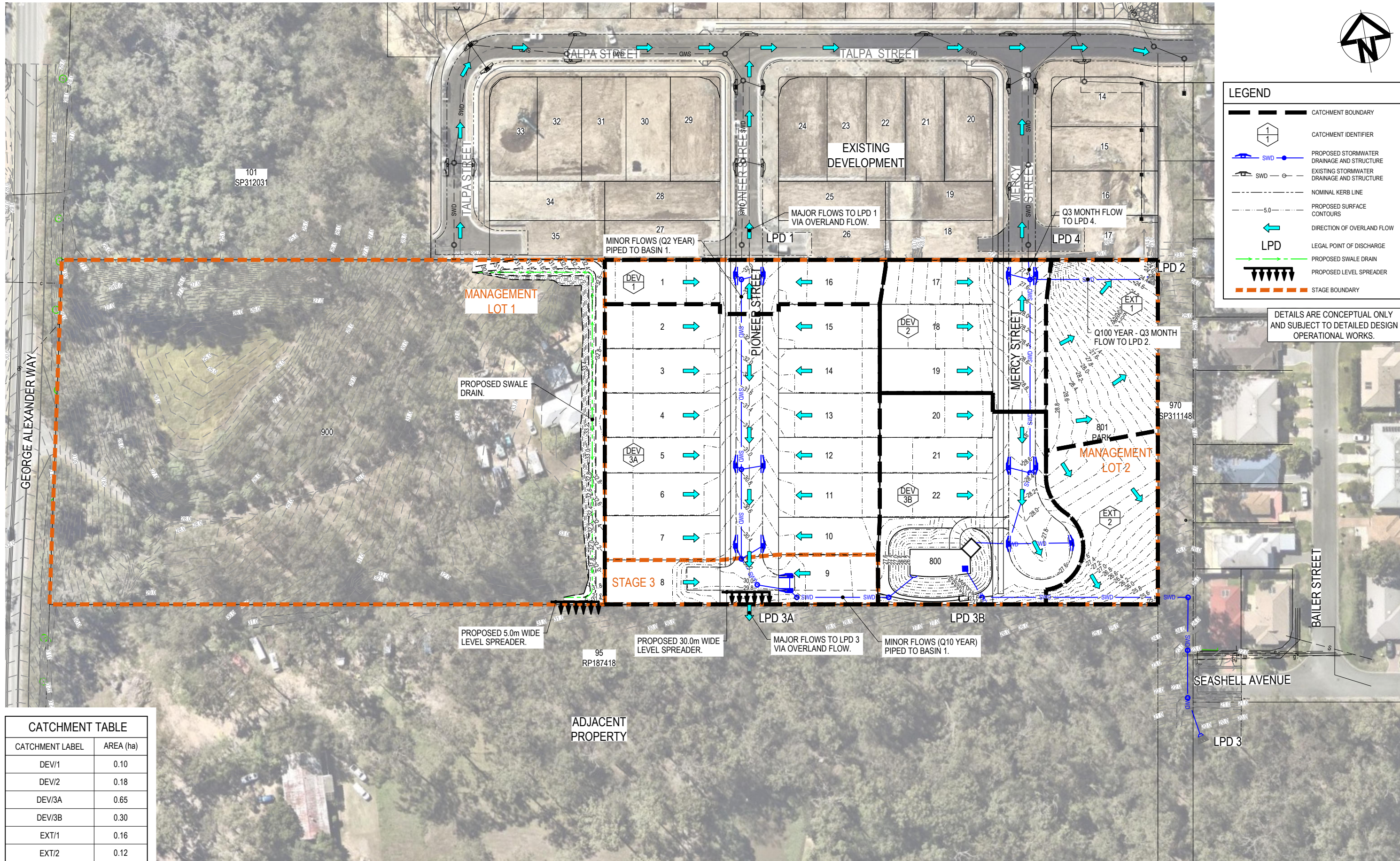
Title

STORMWATER
CATCHMENT PLAN -
PRE DEVELOPMENT

Arcadis Australia Pacific Pty Limited
P O Box, 1653
Southport QLD 4215
ABN 76 104 485 289
Tel No: +61 7 5532 3933
Fax No: +61 7 5591 4778
www.arcadis.com

Project No. | Folder Prefix | Zone | Stage | Phase | Discipline | Type | Drawing No. | Issue

30157884 - DABA - 0000DA - CV - DRG - 0310 - 01



LEGEND

CATCHMENT BOUNDARY

1

1

CATCHMENT IDENTIFIER

PROPOSED STORMWATER DRAINAGE AND STRUCTURE

EXISTING STORMWATER DRAINAGE AND STRUCTURE

NOMINAL KERB LINE

PROPOSED SURFACE CONTOURS

DIRECTION OF OVERLAND FLOW

LEGAL POINT OF DISCHARGE

PROPOSED SWALE DRAIN

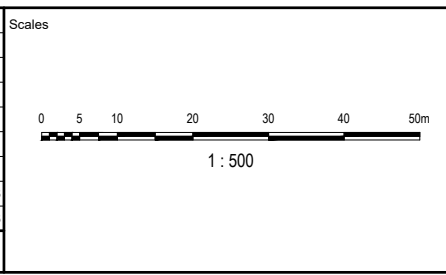
PROPOSED LEVEL SPREADER

STAGE BOUNDARY

DETAILS ARE CONCEPTUAL ONLY
AND SUBJECT TO DETAILED DESIGN
OPERATIONAL WORKS.

CATCHMENT TABLE	
CATCHMENT LABEL	AREA (ha)
DEV/1	0.10
DEV/2	0.18
DEV/3A	0.65
DEV/3B	0.30
EXT/1	0.16
EXT/2	0.12

02	LIMIT OF EARTHWORKS AMENDED	DK	GM	31.07.2023	
01	ORIGINAL ISSUE	DK	GM	22.06.2023	
Issue	Description	DR	CH	VE	Date



Surveyor

SH

saunders
havill
group

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ATF The Coomera
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Status

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Original Issue Signatures

Drawn

D. KEARNEY

Original Size

A1

Designed

G. DJELOVIC

Height Datum

AHD

Project Manager

G. MENZIES

Grid

MGA (ZONE 56)

Verified

Project

54 GEORGE ALEXANDER WAY,
COOMERA

Title

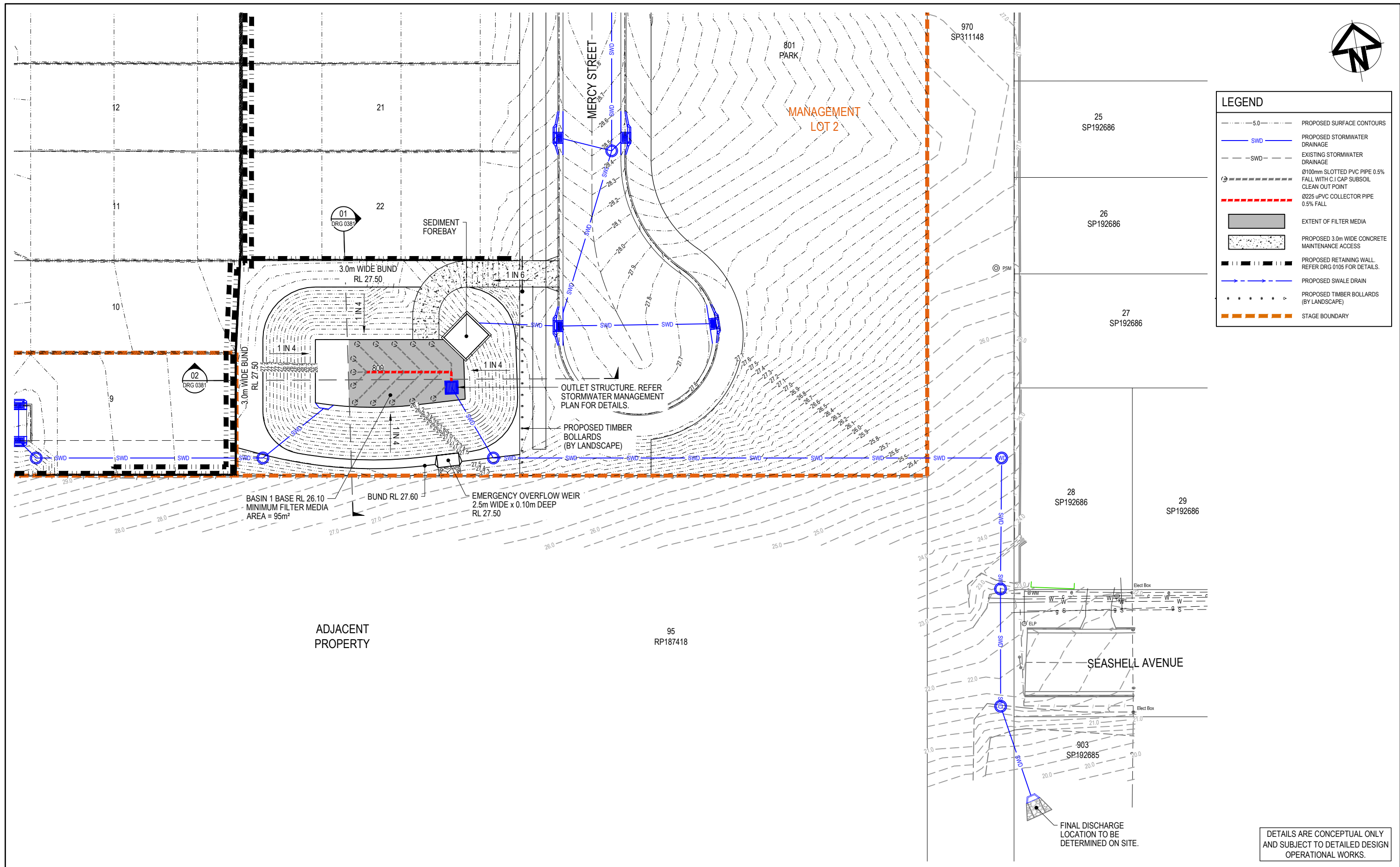
STORMWATER
CATCHMENT PLAN -
POST DEVELOPMENT

ARCADIS

Arcadis Australia Pacific Pty Limited
P O Box, 1653
Southport QLD 4215
ABN 76 104 485 289
Tel No: +61 7 5532 3933
Fax No: +61 7 5591 4778
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Project No. | Folder Prefix | Zone | Stage | Phase | Discipline | Type | Drawing No. | Issue

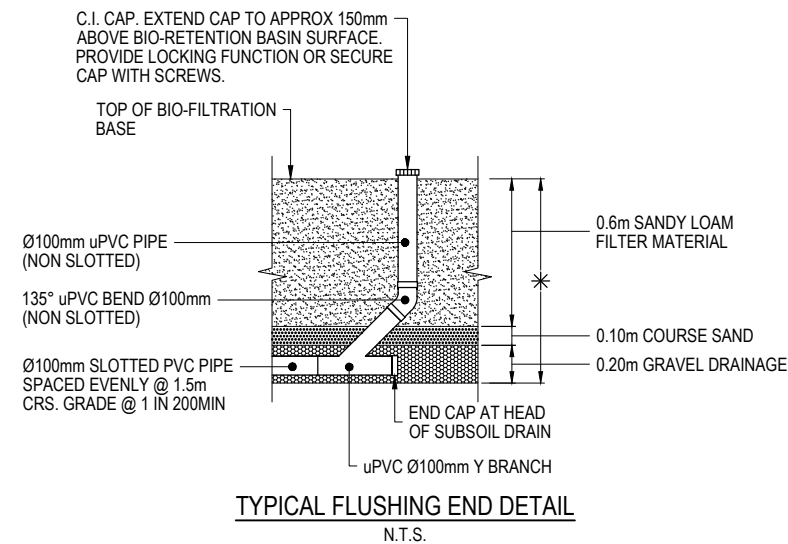
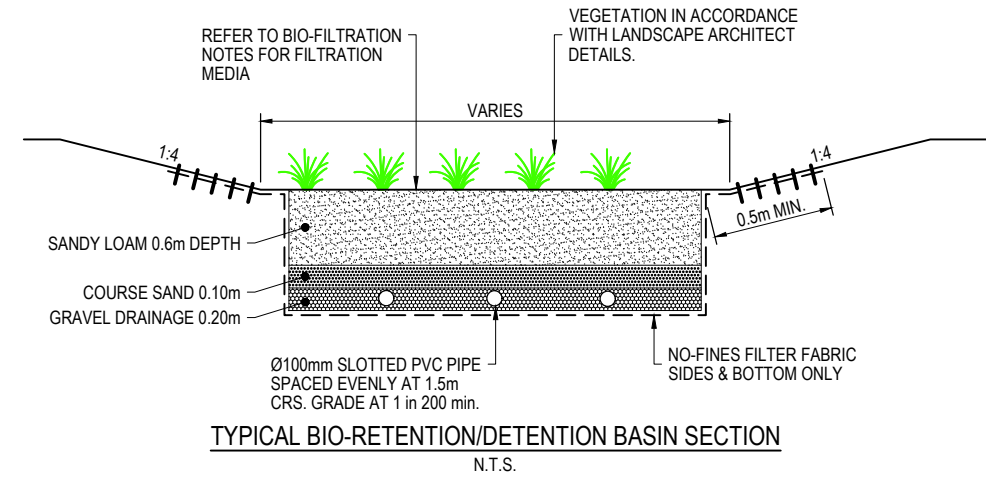
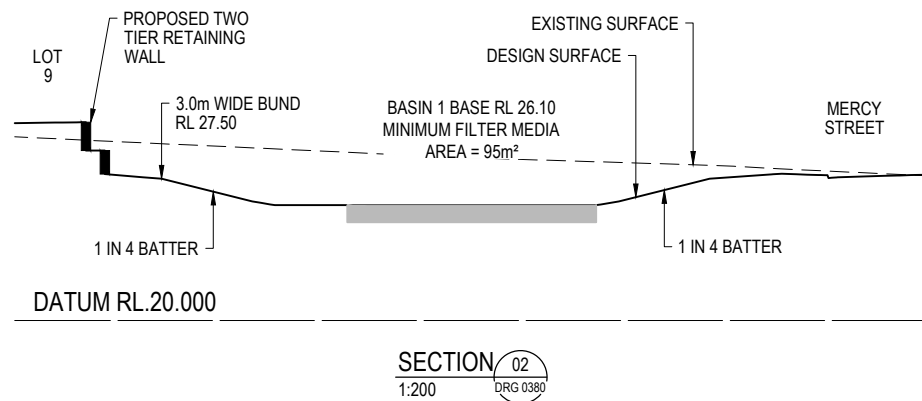
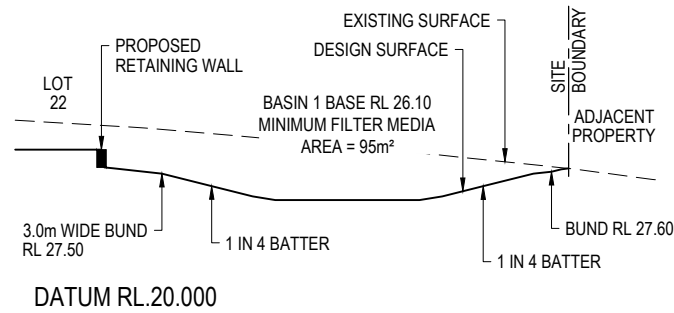
30157884 - DABA - 0000DA - CV - DRG - 0311 - 02



					Scales		Surveyor						Status		Project		ARCADIS	
									Coomera GA Pty Ltd ATF The Coomera GA Unit Trust		PRELIMINARY NOT TO BE USED FOR CONSTRUCTION		54 GEORGE ALEXANDER WAY, COOMERA		Arcadis Australia Pacific Pty Limited P O Box, 1653 Southport QLD 4215 ABN 76 104 485 289 Tel No: +61 7 5532 3933 Fax No: +61 7 5591 4778 www.arcadis.com			
					1 : 200						© Copyright reserved				Title		30157884 - DABA - 0000DA - CV - DRG - 0380 - 02	
02 RFI ISSUE					DK GM		22.06.2023				Original Issue Signatures				COMBINED DETENTION / BIO-RETENTION BASIN 1 LAYOUT PLAN			
01 ORIGINAL ISSUE					DK GM		01.02.2023				Drawn D. KEARNEY		Original Size A1					
											Designed G. DJELOVIC		Height Datum AHD					
											Project Manager G. MENZIES		Grid MGA (ZONE 56)					
Issue Description					DR CH VE		Date				Verified							

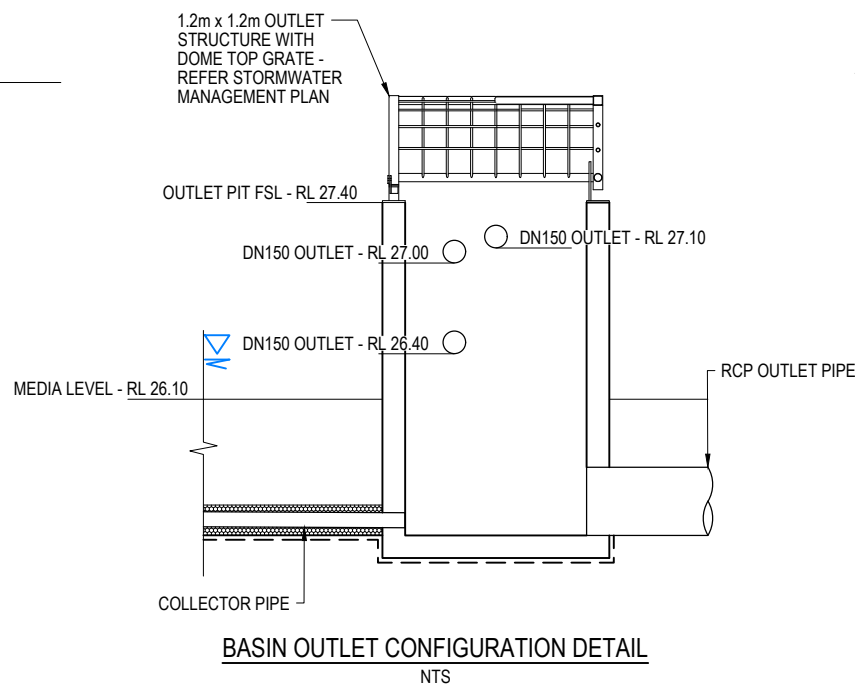
100mm on Original

Date Plotted: 28 Jul 2023 - 03:26PM File Name: C:\Users\ldkaz3682\ARCADIS\30157884 - 54 George Alexander Way - DA & - Project Documents\IE-Eng\EA-Civil\Civil Drawings\30157884-DABA-0000DA-CV-DRG-0380-SWDBasin.dwg

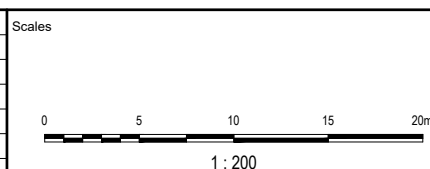


NOTE: CONCEPT ONLY, SUBJECT TO DETAILED DESIGN AND AUTHORITY APPROVAL.

- BIO-FILTRATION NOTES**
- MINIMUM FILTER DEPTH IS TO BE 0.9m AND IS TO CONSIST OF THE FOLLOWING MEDIA:
- 0.6m OF SANDY LOAM MATERIAL WITH A HYDRAULIC CONDUCTIVITY OF 50-500mm/h (200 PREFERRED).
 - TRANSITION LAYER - MINIMUM 100mm COARSE SAND TYPICALLY 1mm PARTICLE SIZE DIAMETER WITH <2% FINES.
 - DRAINAGE LAYER - FINE GRAVEL (NOMINAL 2-5mm) WITH <2% FINES.
 - ALL UNDERDRAINAGE PIPES TO BE COVERED BY A MINIMUM 50mm DRAINAGE LAYER MATERIAL.
 - CONTRACTOR TO ERECT SIGNAGE IDENTIFYING THE PURPOSE OF THE BIO-RETENTION BASIN AS PER COUNCIL REQUIREMENTS.
 - CONTRACTOR TO INSTALL GEOFABRIC, LAY TOPSOIL AND TURF AFTER BASIN INTERNAL DRAINAGE AND FILTER MEDIA IS INSTALLED TO PROTECT FILTER MEDIA. TURF AND GEOFABRIC TO BE REMOVED AFTER 80% OF BUILDINGS AND CONSTRUCTION IS COMPLETE.



01	ORIGINAL ISSUE	DK	GM		22.06.2023
Issue	Description	DR	CH	VE	Date



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Status	PRELIMINARY			
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Drawn	D. KEARNEY	Original Size	A1	
Designed	G. DJELOVIC	Height Datum	AHD	
Project Manager	G. MENZIES	Grid	MGA (ZONE 56)	
Verified	-			

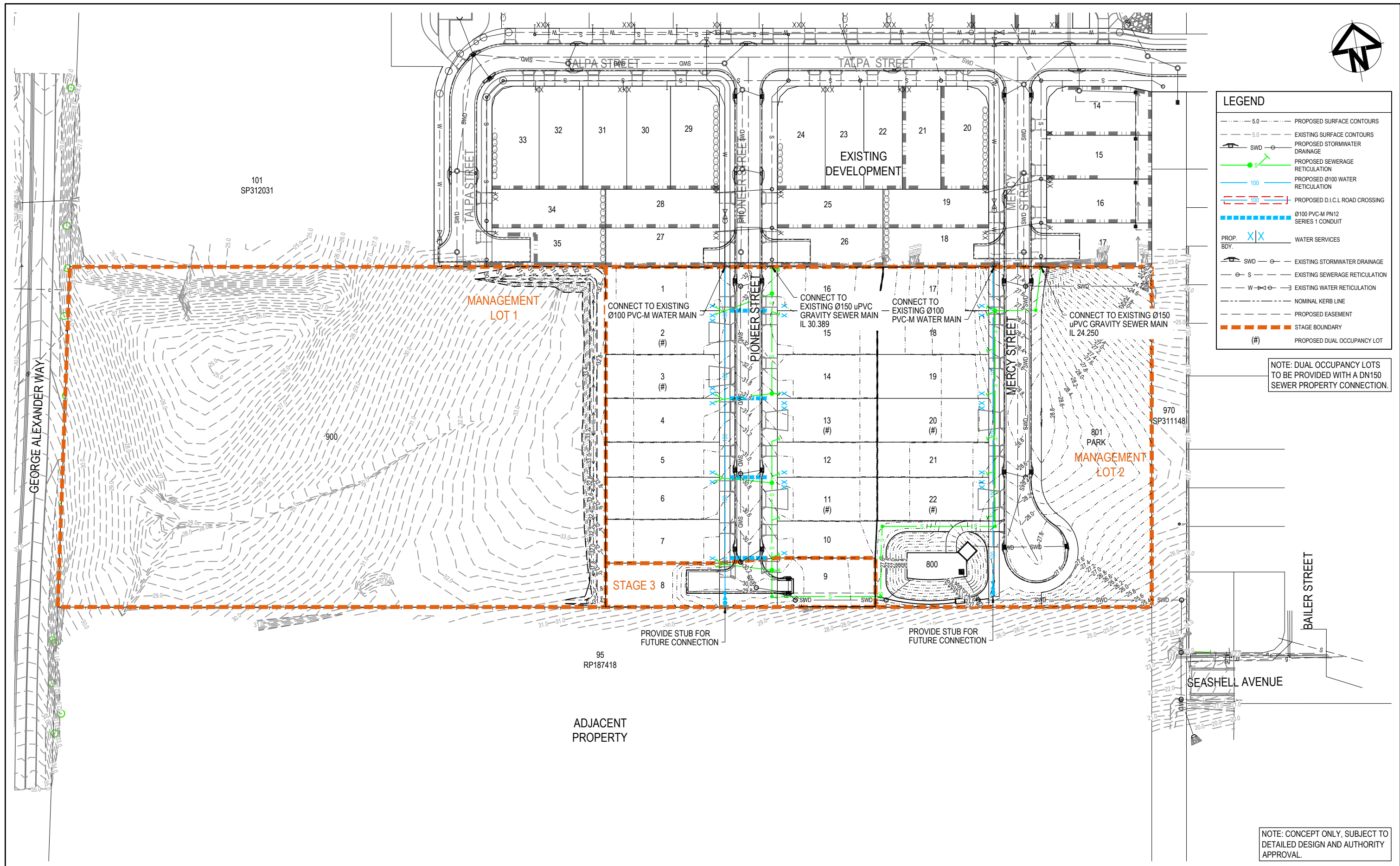
Project	54 GEORGE ALEXANDER WAY, COOMERA
Title	BIO-RETENTION TYPICAL SECTIONS AND DETAILS

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Project No: 30157884 - DABA - 0000DA - CV - DRG - 0380 - 01

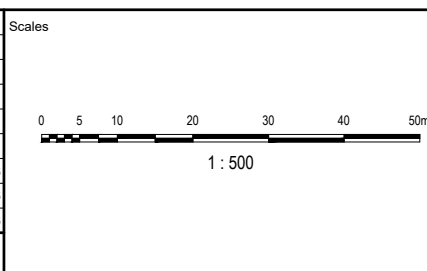


LEGEND	
5.0	PROPOSED SURFACE CONTOURS
5.0	EXISTING SURFACE CONTOURS
SWD	PROPOSED STORMWATER DRAINAGE
S	PROPOSED SEWERAGE RETICULATION
100	PROPOSED Ø100 WATER RETICULATION
100	PROPOSED D.I.C.L. ROAD CROSSING
Ø100 PVC-M PN12 SERIES 1 CONDUIT	
PROP. X X	WATER SERVICES
BDY.	
SWD	EXISTING STORMWATER DRAINAGE
S	EXISTING SEWERAGE RETICULATION
W	EXISTING WATER RETICULATION
	NOMINAL KERB LINE
	PROPOSED EASEMENT
	STAGE BOUNDARY
(#)	PROPOSED DUAL OCCUPANCY LOT

NOTE: DUAL OCCUPANCY LOTS TO BE PROVIDED WITH A DN150 SEWER PROPERTY CONNECTION.

NOTE: CONCEPT ONLY, SUBJECT TO DETAILED DESIGN AND AUTHORITY APPROVAL.

Issue	Description	DR	CH	VE	Date
03	LIMIT OF EARTHWORKS AMENDED	DK	GM		31.07.2023
02	RFI ISSUE	DK	GM		22.06.2023
01	ORIGINAL ISSUE	DK	GM		01.02.2023



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Drawn	D. KEARNEY	Original Size	A1
Designed	G. MENZIES	Height Datum	AHD
Project Manager	G. MENZIES	Grid	MGA (ZONE 56)
Verified			

Project	
54 GEORGE ALEXANDER WAY, COOMERA	
Title	
SEWER AND WATER RETICULATION LAYOUT PLAN	

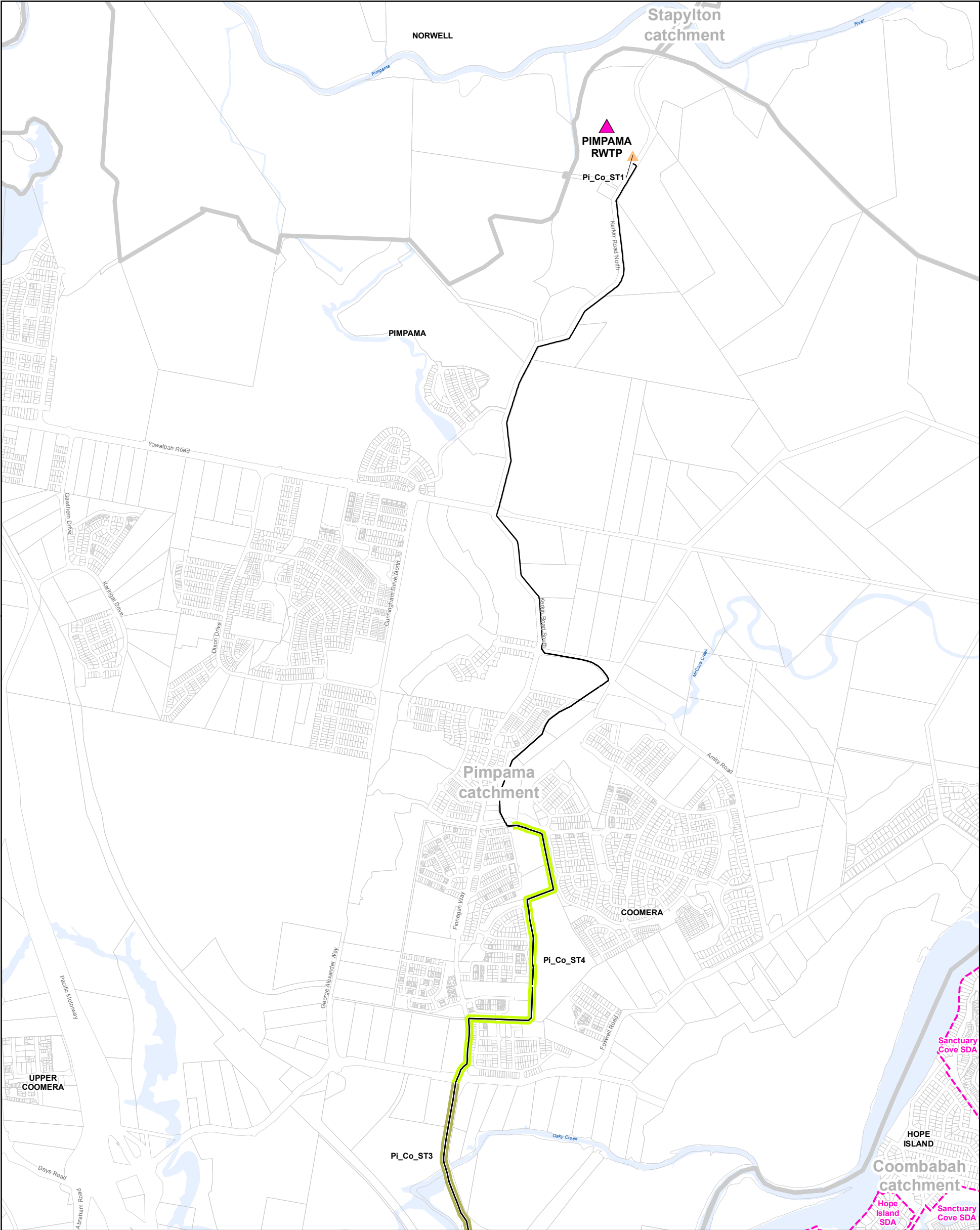
Arcadis Australia Pacific Pty Limited
P O Box, 1653
Southport QLD 4215
ABN 76 104 485 289
Tel No: +61 7 5532 3933
Fax No: +61 7 5591 4778
www.arcadis.com

Project No.	Forker Prefix	Zone Stage Phase	Discipline	Type	Drawing No.	Issue
30157884	DABA	0000DA	CV	DRG	0400-03	V1



APPENDIX B

COUNCIL INFRASTRUCTURE MAPS



New/augmented trunk recycled water release

- 2021
- 2026
- 2036
- Ultimate

New/augmented trunk recycled water diffuser

- 2021
- 2026
- 2036
- Ultimate

New/augmented trunk recycled water pump station

- 2021
- 2036

Sewerage service catchment

Existing trunk recycled water release

Existing trunk recycled water treatment plant

Land affected by other development legislation, refer to Context map and Part 10 of the City Plan

Cadastre boundary

Local government area boundary

Waterway or waterbody

City Plan

Disclaimer:
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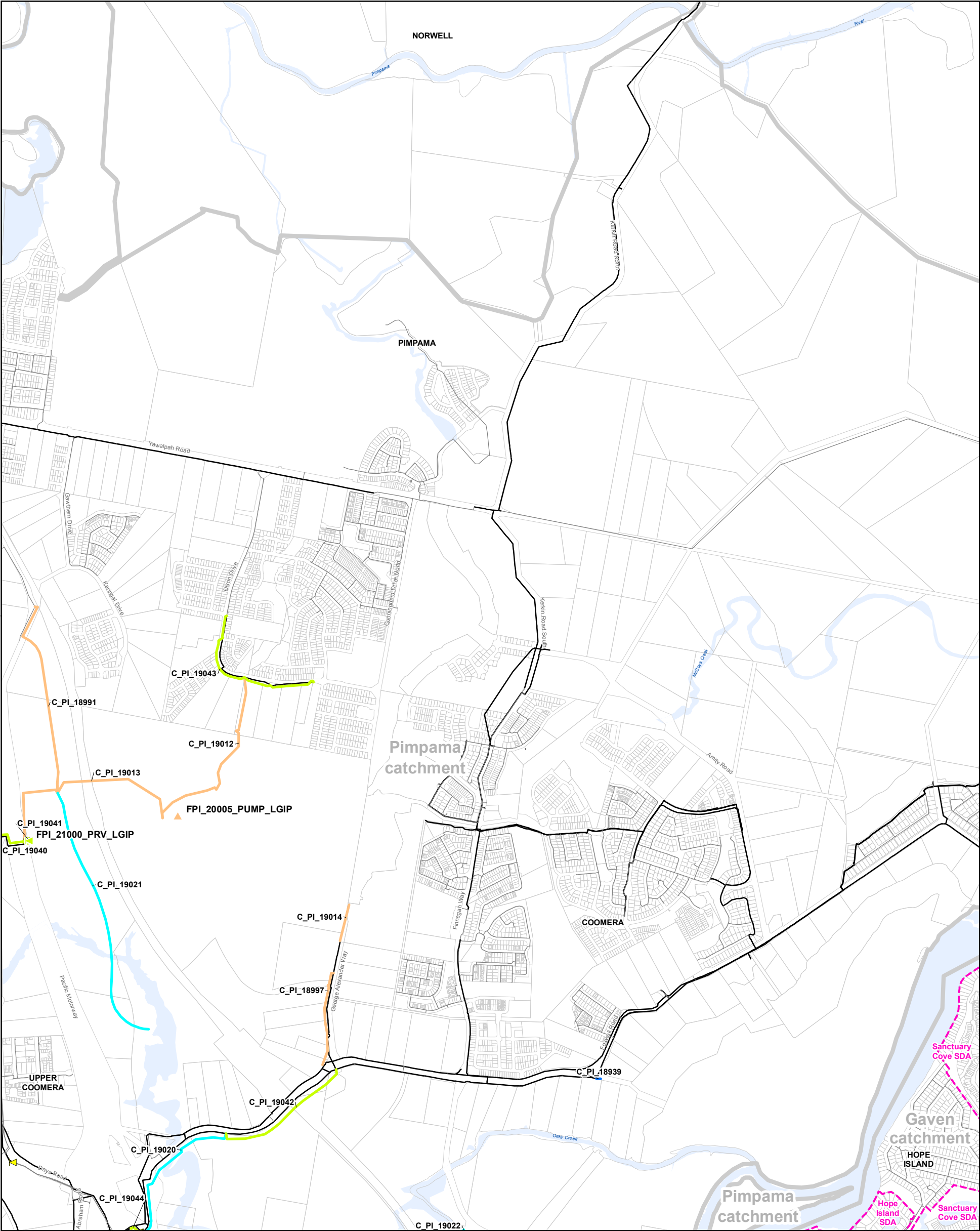
Map Version 3.00
18 Jul 2017

Data Sources:
Recycled water infrastructure - CoGC
Waterways - CoGC
Cadastre (February 2016) - State

Projection:
MGA94
Zone 56

0 150 300 600 m
Approx Scale @ A3 1:20,000

CITY OF GOLD COAST



	Water main	Water pump station	Water reservoir	Water valve
Existing infrastructure				
Trunk				
Non-trunk				
New / augmented trunk infrastructure				
2021				
2026				
2031				
2036				
Ultimate				

Existing SEQ Water pump station

Existing SEQ Water reservoir

Water supply service catchment

Land affected by other development legislation, refer to Context map and Part 10 of the City Plan

Cadastrate boundary

Local government area boundary

Waterway or waterbody

City Plan

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Map Version 3.00
18 Jul 2017

Data Sources:
Water supply infrastructure - CoGC
Waterways - CoGC
Cadastrate (February 2016) - State

Projection:
MGA94
Zone 56

0 150 300 600 m
Approx Scale @ A3 1:20,000

APPENDIX C
DIAL BEFORE YOU DIG
Table

All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX DBYD map, then ENERGEX shall be contacted immediately.

For Emergency Situations
please call 13 19 62



DBYD

Sequence: 218922492

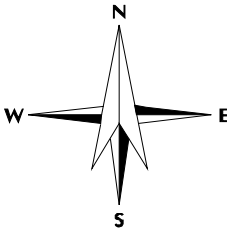
Date: 02/12/2022

Scale: 1:1538

OVERVIEW

For a full list of Map
Symbols, please
refer to the supplied
DBYD Symbology
Legend page

AS5488 Category "D" Plan



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This output provides details of the ENERGEX electrical network. As variations map exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX DBYD map, then ENERGEX shall be contacted immediately.

For Emergency Situations
please call 13 19 62

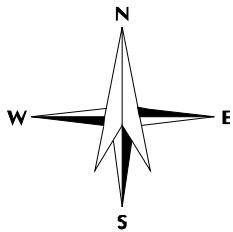


DBYD

Sequence: 218922492
Date: 02/12/2022
Scale: 1:500
Tile No: 1

For a full list of Map
Symbols, please
refer to the supplied
DBYD Symbolology
Legend page

AS5488 Category “D” Plan



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For Emergency Situations
please call 13 19 62

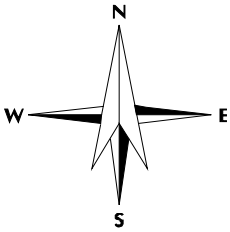


DBYD

Sequence: 218922492
Date: 02/12/2022
Scale: 1:500
Tile No: 2

For a full list of Map
Symbols, please
refer to the supplied
DBYD Symbolology
Legend page

AS5488 Category “D” Plan



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For Emergency Situations
please call 13 19 62

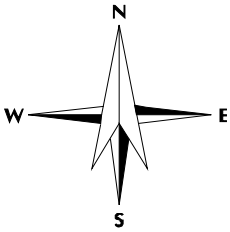


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Sequence: 218922492
Date: 02/12/2022
Scale: 1:500
Tile No: 3

For a full list of Map
Symbols, please
refer to the supplied
DBYD Symbology
Legend page

AS5488 Category "D" Plan



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All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX DBYD map, then ENERGEX shall be contacted immediately.

For Emergency Situations
please call 13 19 62

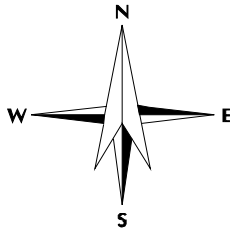


DBYD

Sequence: 218922492
Date: 02/12/2022
Scale: 1:500
Tile No: 4

For a full list of Map
Symbols, please
refer to the supplied
DBYD Symbology
Legend page

AS5488 Category “D” Plan



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please call 13 19 62

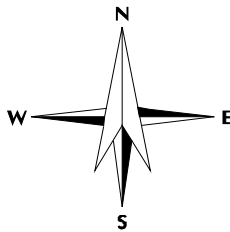


DBYD

Sequence: 218922492
Date: 02/12/2022
Scale: 1:500
Tile No: 5

For a full list of Map
Symbols, please
refer to the supplied
DBYD Symbology
Legend page

AS5488 Category “D” Plan



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For Emergency Situations
please call 13 19 62

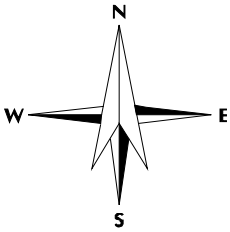


DBYD

Sequence: 218922492
Date: 02/12/2022
Scale: 1:500
Tile No: 6

For a full list of Map
Symbols, please
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DBYD Symbology
Legend page

AS5488 Category "D" Plan



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For Emergency Situations
please call 13 19 62

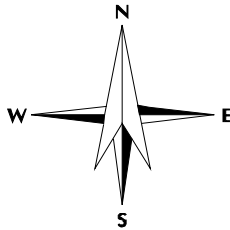


DBYD

Sequence: 218922492
Date: 02/12/2022
Scale: 1:500
Tile No: 7

For a full list of Map
Symbols, please
refer to the supplied
DBYD Symbology
Legend page

AS5488 Category “D” Plan



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please call 13 19 62

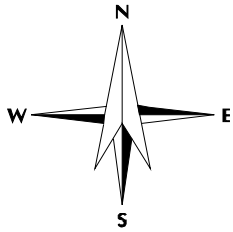


DBYD

Sequence: 218922492
Date: 02/12/2022
Scale: 1:500
Tile No: 8

For a full list of Map
Symbols, please
refer to the supplied
DBYD Symbology
Legend page

AS5488 Category "D" Plan



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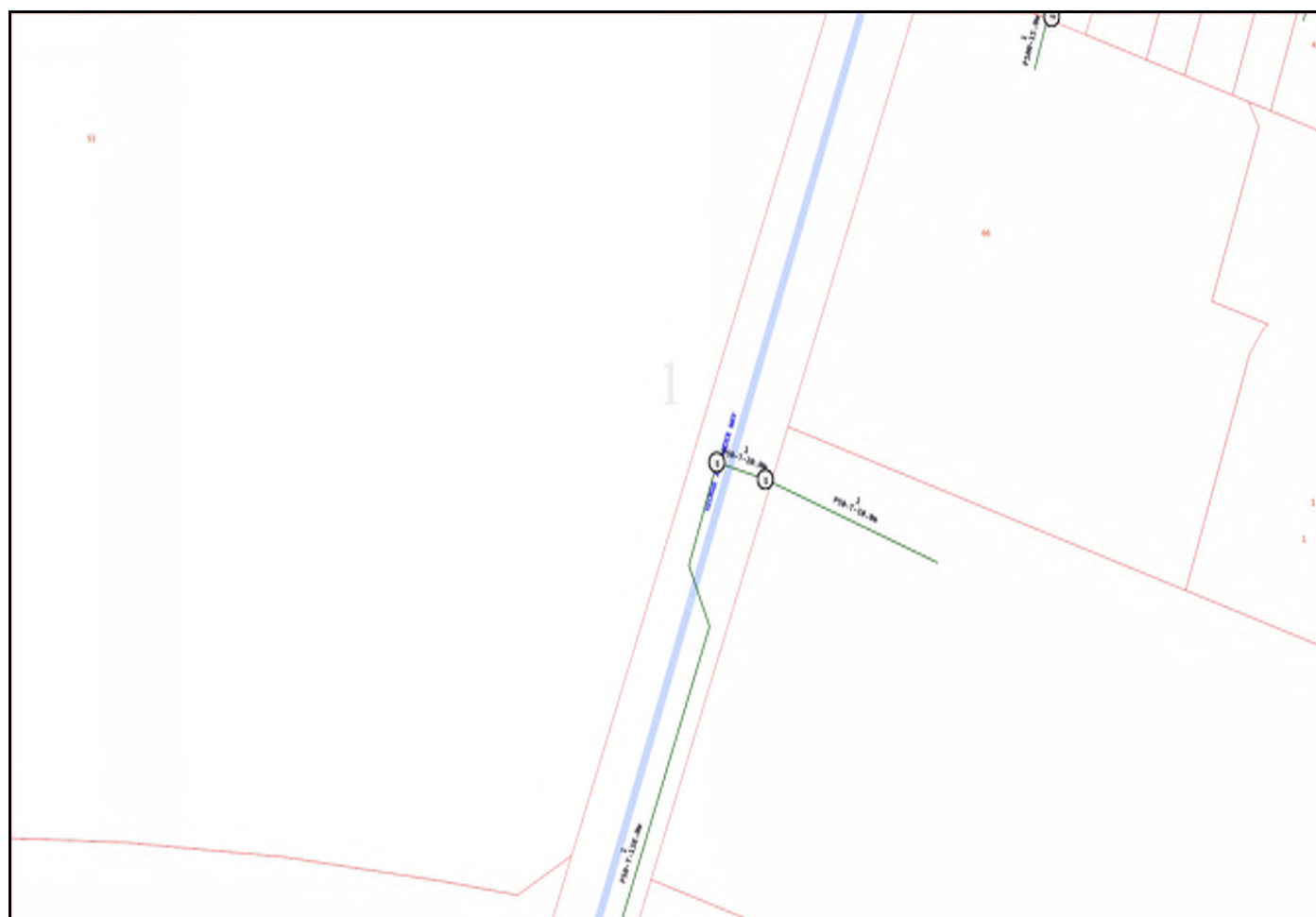
This output provides details of the ENERGEX electrical network. As variations map exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

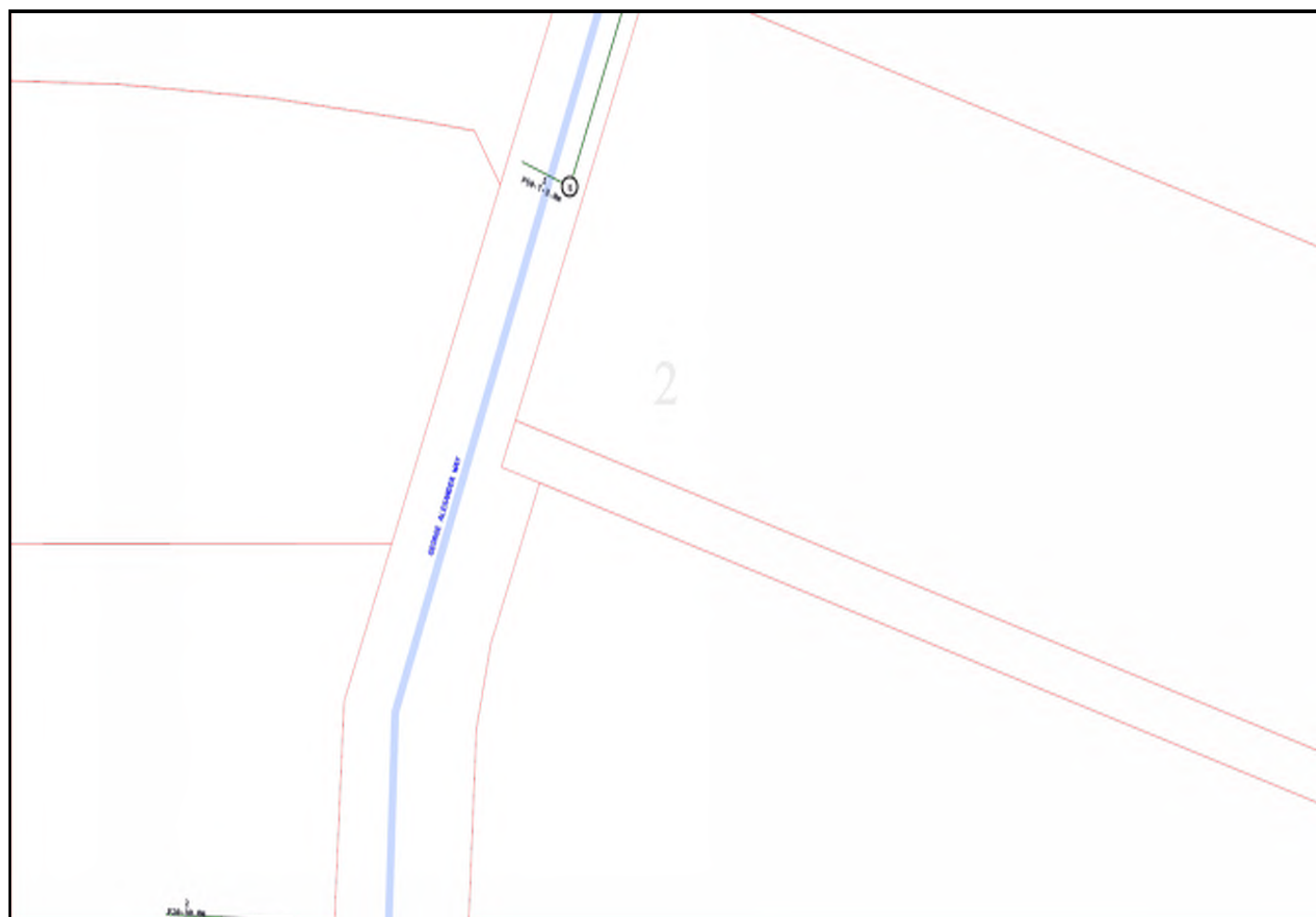


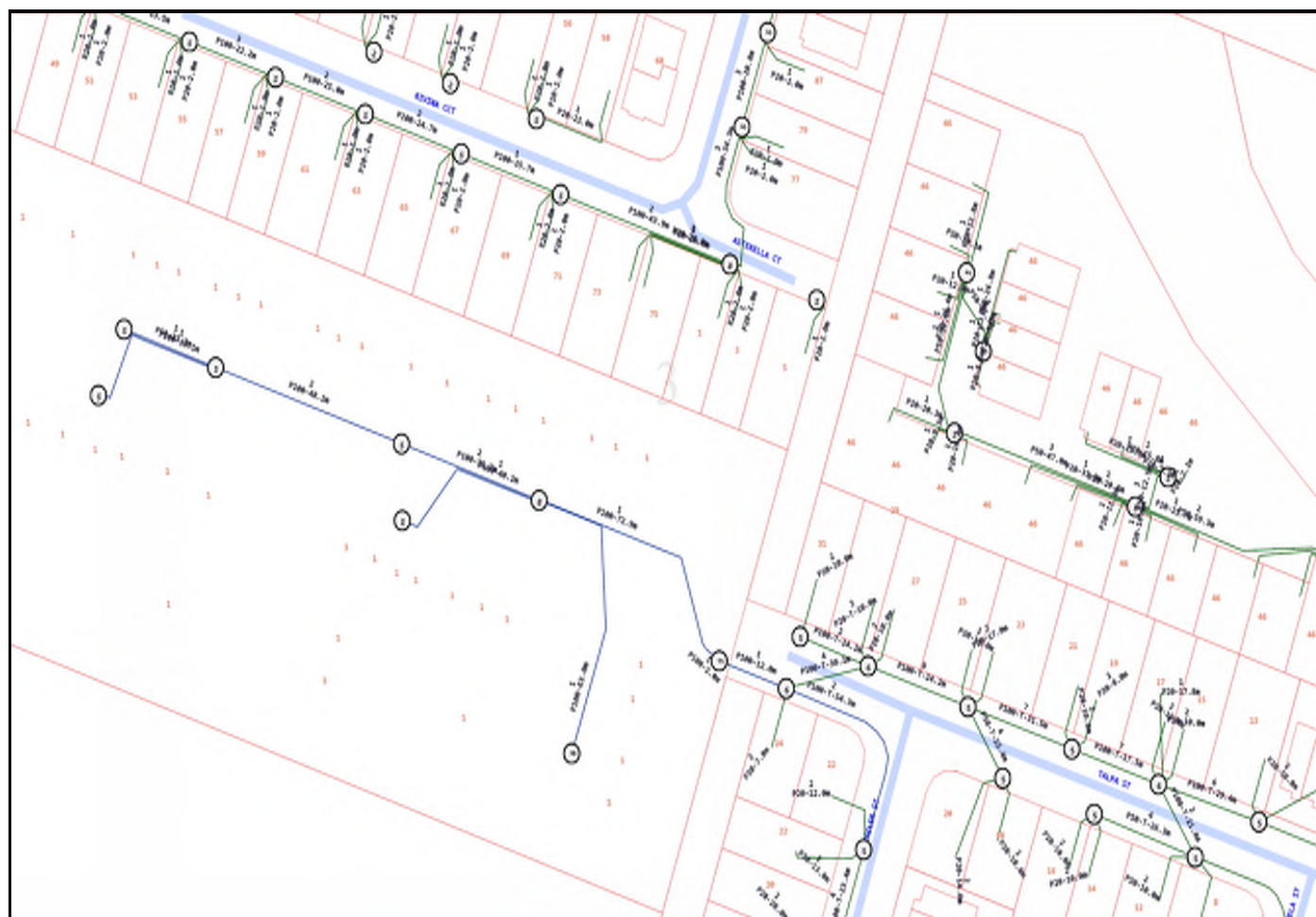
LEGEND



	Parcel and the location
	Pit with size "5"
	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (T), between pits of sizes, "5" and "9" are 25.0m apart. One 60mm PVC conduit (P80) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
	2 Direct buried cables between pits of sizes, "5" and "9" are 10.0m apart.
	Trench containing any INSERVICE/CONSTRUCTED [Copper/RF/Fibre] cables.
	Trench containing only DESIGNED/PLANNED [Copper/RF/Fibre/Power] cables.
	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m





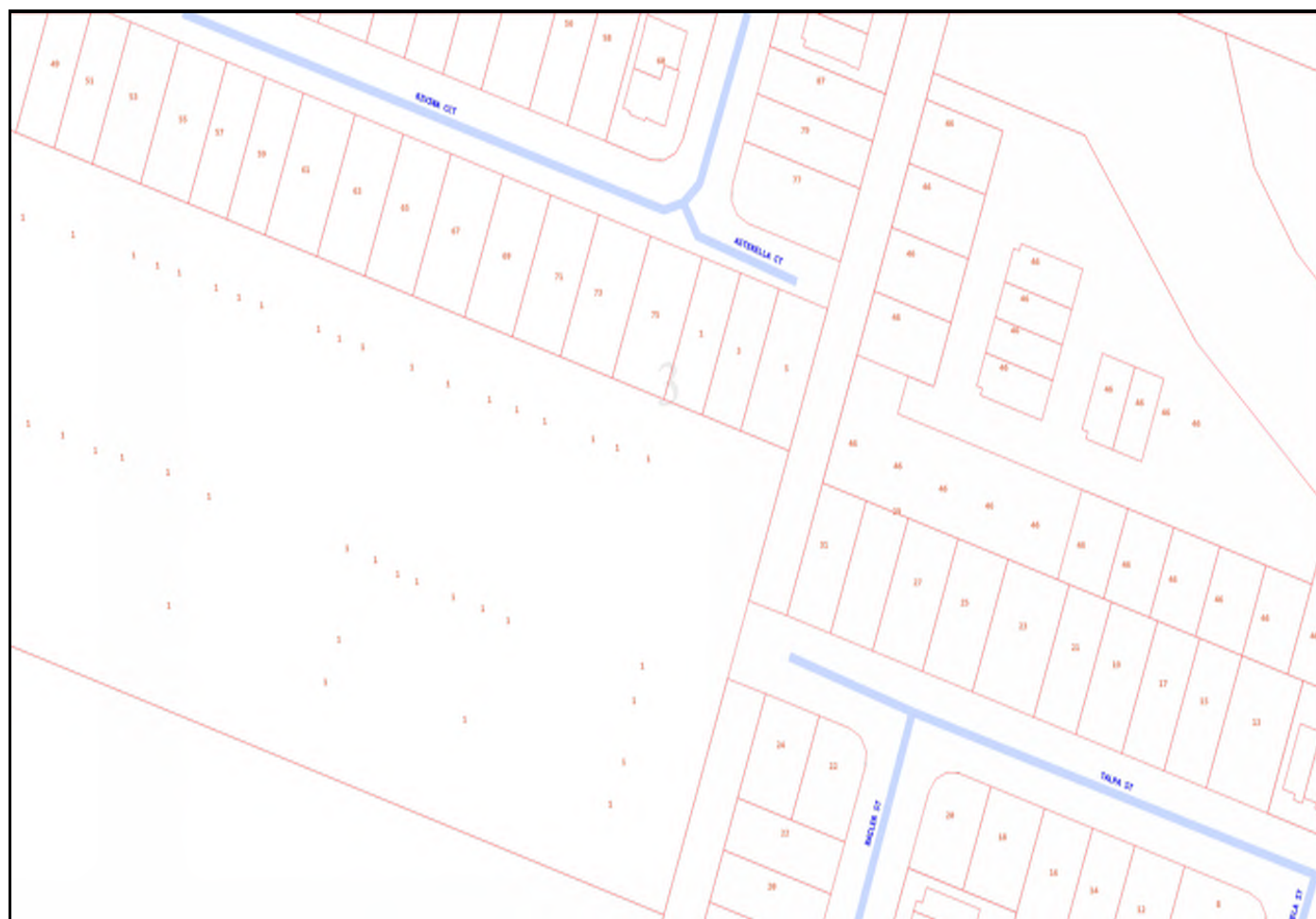


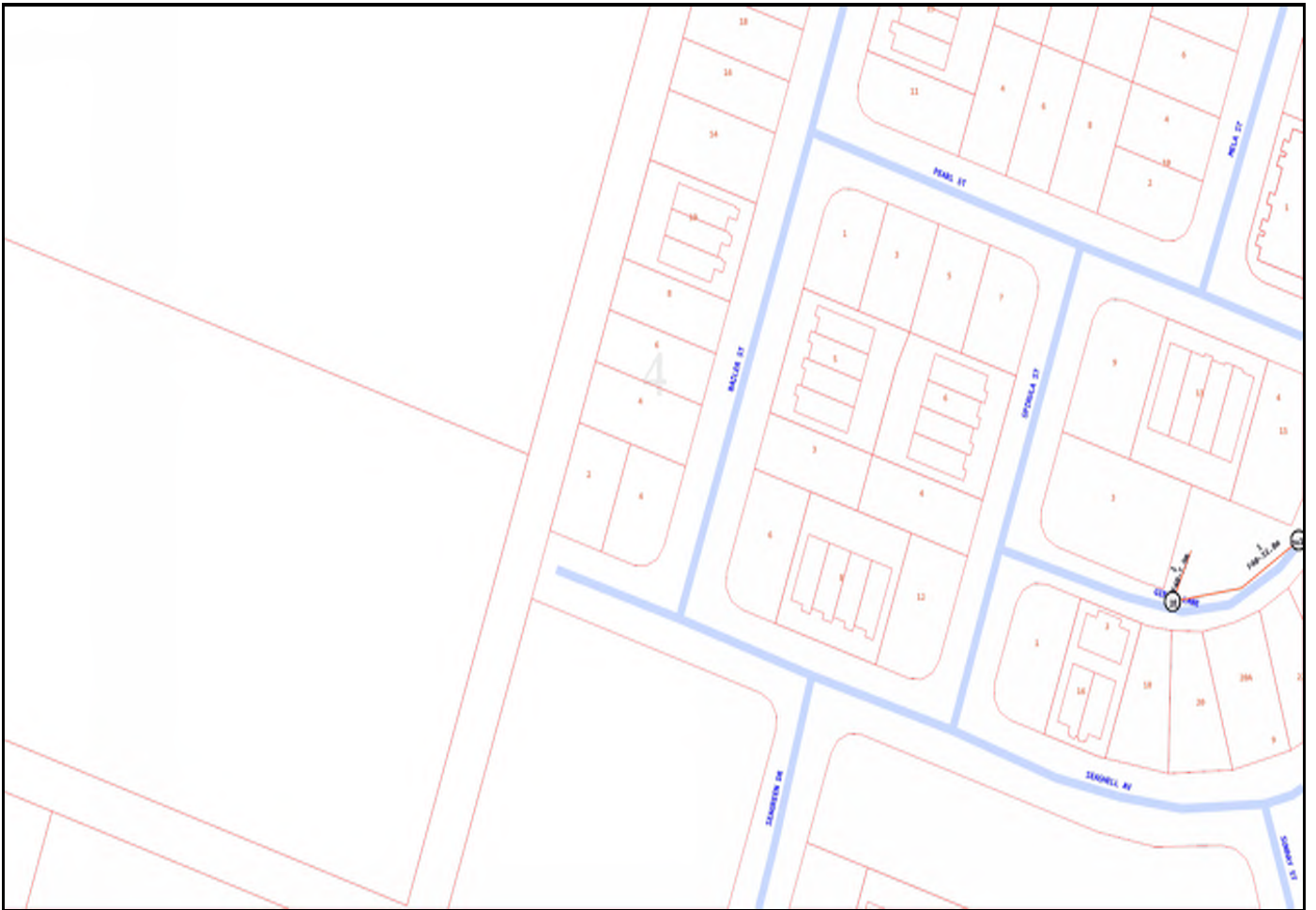


You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.





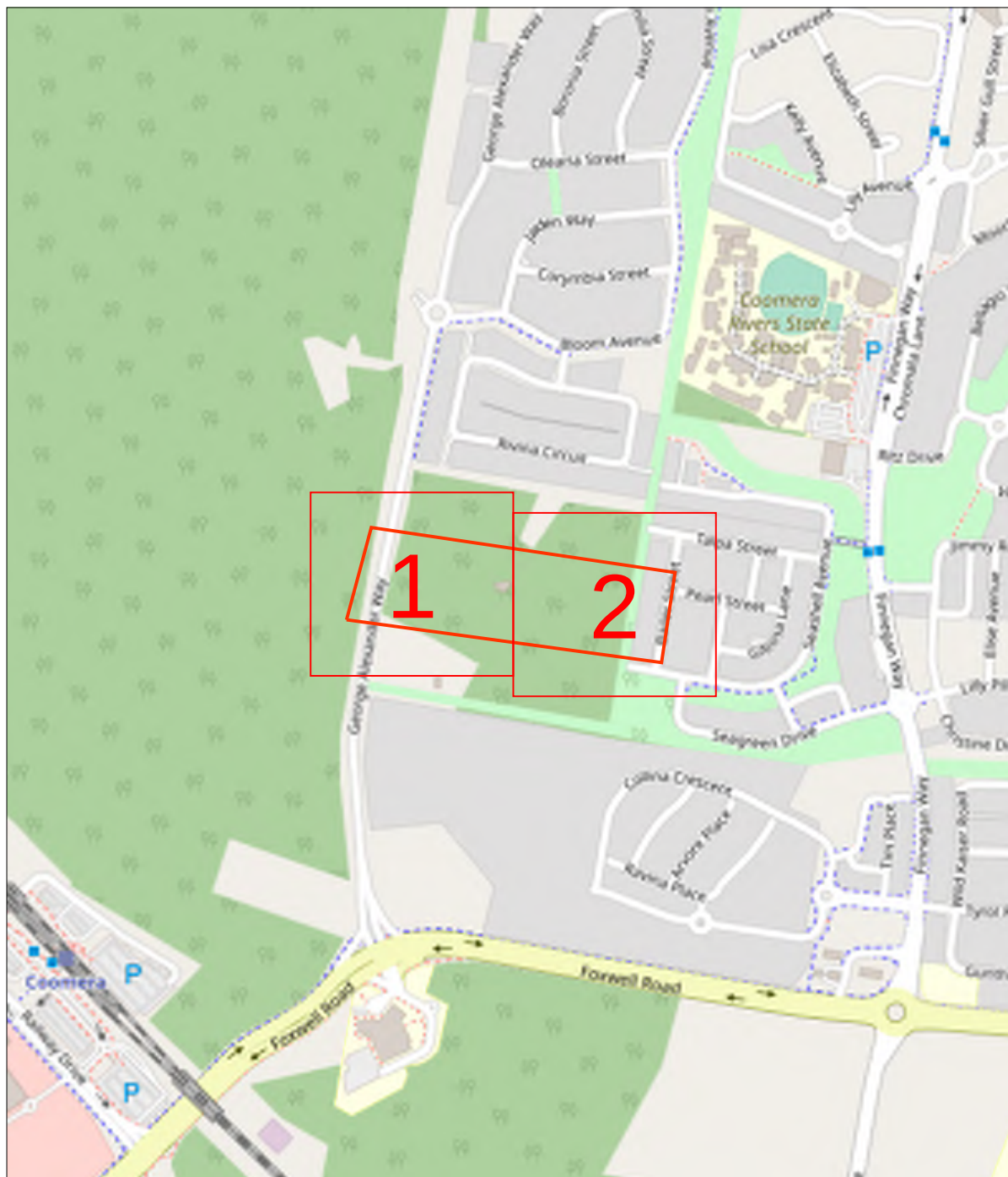




Emergency Contacts

You must immediately report any damage to the **nbn**[™] network that you are/become aware of. Notification may be by telephone - 1800 626 329.

Site Address	54 George Alexander Way Coomera 4209	Sequence No	218922494
Name	Gabrielle Djelovic		
Email	gabby.djelovic@arcadis.com		



Scale 1: 6000



Enquiry Area

Map Key Area



APA Group does not guarantee the accuracy or completeness of the map and does not make any warranty about the data. APA Group is not under any liability to the user for any loss or damage (including consequential loss or damage) which the user may suffer resulting from the use of this map.

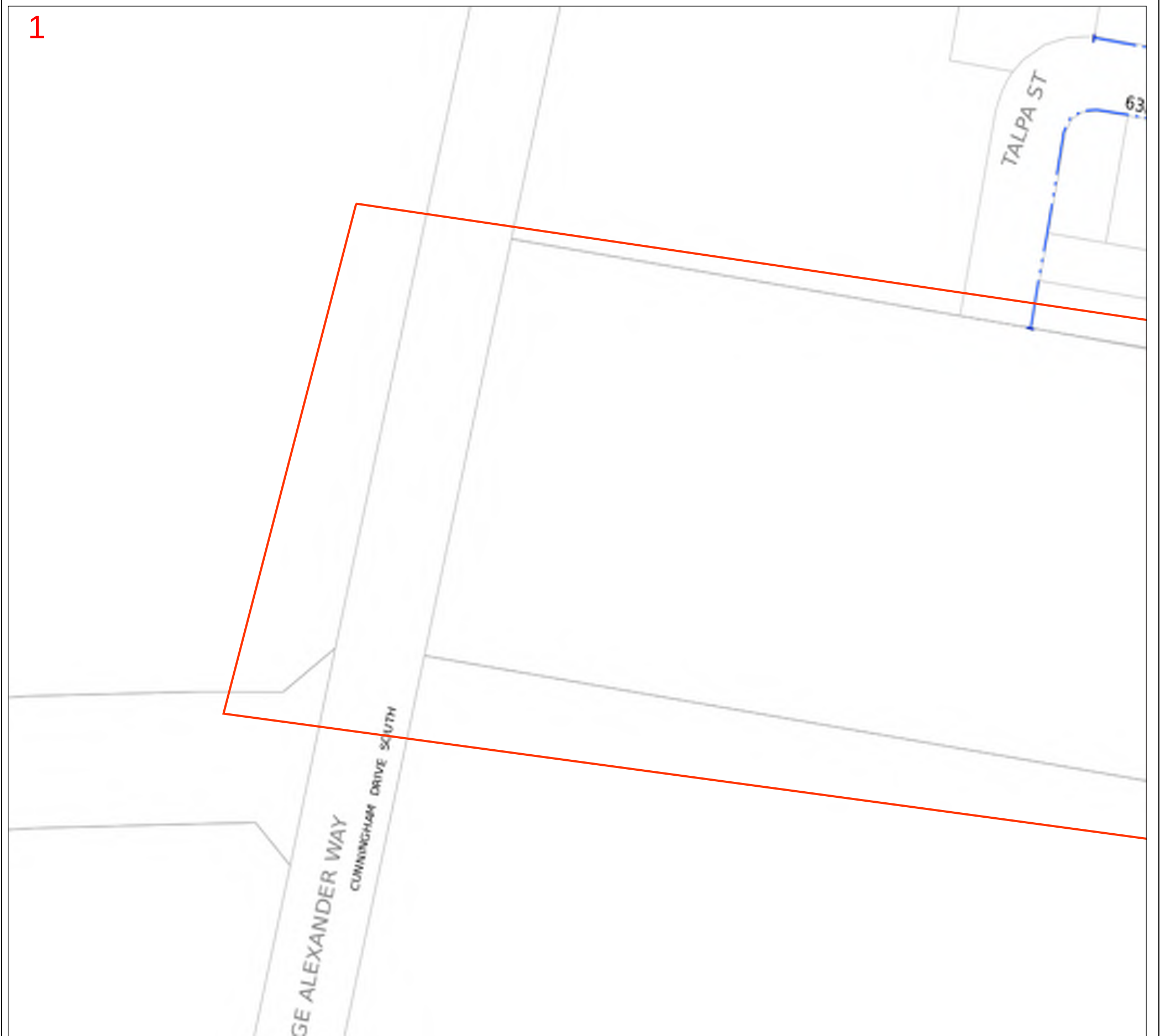
Mapping information is provided as AS5488-2013 Quality Level D

APA Group • PO Box 6014 Halifax Street SA 5000 • Email: DBYDNetworksAPA@apa.com.au • Template: QLD Critical Jan 2022

Page 4 of 9 • 02/12/2022

Site Address	54 George Alexander Way Coomera 4209	Sequence No	218922494
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Before you commence any works you are required to complete the attached 'Work In The Vicinity Of Critical Gas Assets' request form and forward this to APA as soon as practicable.



PIPE AND BOUNDARIES		PIPE CODE / MATERIALS		OBJECTS or TERMS		
SERVICE (COLOUR BY PRESSURE)		C2, CI	Cast Iron	VALVES		
LOW PRESSURES		CU	Copper	BURIED VALVES		
MEDIUM PRESSURES		N2, NY, NY11	Nylon	GATE / REGULATORS		
HIGH PRESSURES		P# (e.g. P6)	Polyethylene (PE)	GAS SUPPLIED = YES		
TRANSMISSION PRESSURES		P6,P7,P9-P12	Medium Density PE	CP RECTIFIER UNIT		
PRIORITY MAIN (BEHIND PIPE)		P2,P4,P8	High Density PE	CP TEST POINT/ ANODE		
PROPOSED (COLOUR BY PRESSURE)		ST or S#	Steel	SYPHON		
LPG (COLOUR BY PRESSURE)		S6# (e.g. S61)	Steel Class 600	TRACE WIRE POINT		
ABANDONED		S3# (e.g. S33)	Steel Class 300	PIPELINE MARKER		
IDLE		W2 or GAL	Wrought Galv. Iron	NOT TIED IN	N.T.I.	
SLEEVE		W3 or PGAL	Poly Coat Wrought Galv. Iron	COUPLING & END CAP		
CASING / SPLIT (BEHIND PIPE)		<i>Pipe diameter in millimetres is shown before pipe code</i> e.g. 40P6 = 40mm nominal diameter			DEPTH OF COVER	C
UNKNOWN						
EASEMENT/ JURISDICTION						
EXAMPLES						
		40mm High Pressure Medium Density Polyethylene in an 80mm Cast Iron Casing				
		63mm Medium Pressure Steel				

Line / Polygon Request

This map is created in colour and shall be printed in colour

Scale 1:700

0 0.008km

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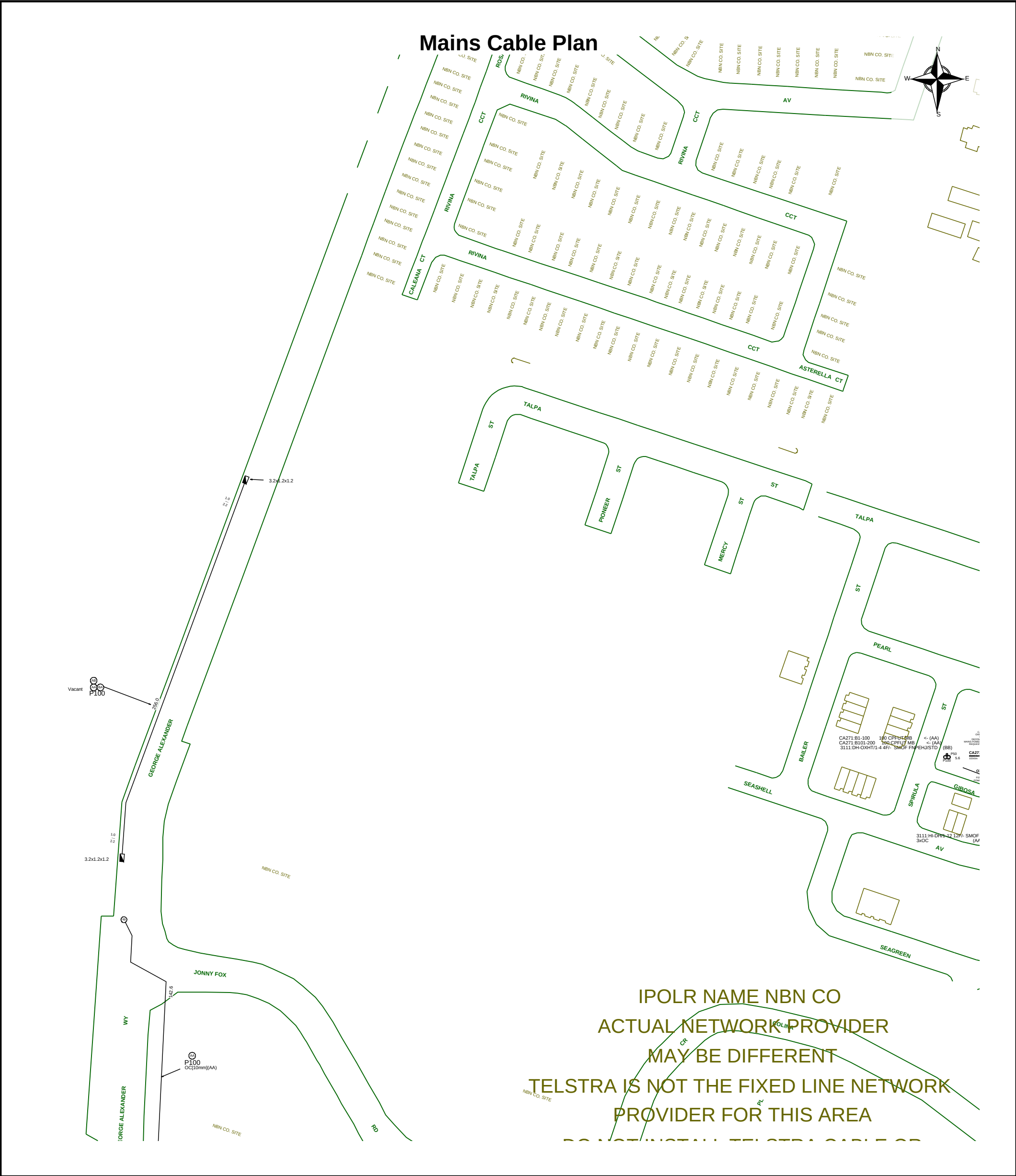
Site Address	54 George Alexander Way Coomera 4209	Sequence No	218922494
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LOW PRESSURES	————	CU	Copper	BURIED VALVES		
MEDIUM PRESSURES	—— — —	N2, NY, NY11	Nylon	GATE / REGULATORS		
HIGH PRESSURES	—— — —	P# (e.g. P6)	Polyethylene (PE)	GAS SUPPLIED = YES		
TRANSMISSION PRESSURES	—— — —	P6,P7,P9-P12	Medium Density PE	CP RECTIFIER UNIT		
PRIORITY MAIN (BEHIND PIPE)	————	P2,P4,P8	High Density PE	CP TEST POINT/ ANODE		
PROPOSED (COLOUR BY PRESSURE)	—— — —	ST or S#	Steel	SYPHON		
LPG (COLOUR BY PRESSURE)	—— — —	S6# (e.g. S61)	Steel Class 600	TRACE WIRE POINT		
ABANDONED	—— — —	S3# (e.g. S33)	Steel Class 300	PIPELINE MARKER		
IDLE	————	W2 or GAL	Wrought Galv. Iron	NOT TIED IN	N.T.I.	
SLEEVE	—— — —	W3 or PGAL	Poly Coat Wrought Galv. Iron	COUPLING & END CAP		
CASING / SPLIT (BEHIND PIPE)	—— — —	Pipe diameter in millimetres is shown before pipe code				
UNKNOWN	————	e.g. 40P6 = 40mm nominal diameter				
EASEMENT/ JURISDICTION	—— — —					
EXAMPLES						
		40mm High Pressure Medium Density Polyethylene in an 80mm Cast Iron Casing				
		63mm Medium Pressure Steel				
		Line / Polygon Request				
This map is created in colour and shall be printed in colour						
Scale 1:700		0 0.008km				

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	Report Damage: https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment Ph - 13 22 03 Email - Telstra.Plans@team.telstra.com Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries	Sequence Number: 218922495
	TELSTRA CORPORATION LIMITED A.C.N. 051 775 556	Please read Duty of Care prior to any excavating
	Generated On 02/12/2022 11:42:16	

WARNING
Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy. Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work. A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.

See the Steps- Telstra Duty of Care that was provided in the email response.



DBYD SYMBOLOLOGY LEGEND

	Cross Bonding Link Box - Critical		Planned Cross Bonding Link Box - New/Updated
	Disconnect Box - Critical		Planned Cross Bonding Link Box - Remove
	Ring Main Unit		Planned Disconnect Box - New/Updated
	Distribution Pad Substation		Planned Disconnect Box - Remove
	Earth		Planned Distribution Pad Substation - New/Updated
	Remote Earth		Planned Distribution Pad Substation - Remove
	Cable Marker		Planned Distribution Ground Substation - New/Updated
	Handhole		Planned Distribution Ground Substation - Remove
	Manhole		Planned Ring Main Unit - New/Updated
	Commercial Industrial Pillar		Planned Ring Main Unit - Remove
	Distribution Cabinet		Planned Earth - New/Updated
	Link Pillar		Planned Earth - Remove
	Service Pillar		Planned Cable Marker - New/Updated
	Feeder Pillar		Planned Cable Marker - Remove
	Pole		Planned Remote Earth - New/Updated
	Streetlight Column		Planned Remote Earth - Remove
	Communication Junction Pillar		Planned Underground Warning Post - New/Updated
	Communication Pit		Planned Underground Warning Post - Remove
	Fibre Patch Panel		Planned Pilot Cubicle - New/Updated
	Pilot Cubicle		Planned Pilot Cubicle - Remove
	Underground Asset 33kV and above		Planned Fibre Patch Panel - New/Updated
	Underground Asset below 33kV		Planned Fibre Patch Panel - Remove
	Underground Conduit with or without cable		Planned Commercial Industrial Pillar - New/Updated
	Pit		Planned Commercial Industrial Pillar - Remove
	Communication Boundary		Planned Distribution Cabinet - New/Updated
	Reserve (RE)		Planned Distribution Cabinet - Remove
	Water Resource (WR)		Planned Link Pillar - New/Updated
	Cadastral Parcels		Planned Link Pillar - Remove
	Planned Jointing Pit - New/Updated		Planned Service Pillar - New/Updated
	Planned Jointing Pit - Remove		Planned Service Pillar - Remove
	Planned Communication Boundary - New/Updated		Planned Pole - New/Updated
	Planned Communication Boundary - Remove		Planned Pole - Remove
	Planned Tunnel/Trench/Bore - New/Updated		Planned Streetlight Column - New/Updated
	Planned Tunnel/Trench/Bore - Remove		Planned Streetlight Column - Remove
			Planned Handhole - New/Updated
			Planned Handhole - Remove
			Planned Communication Junction Pillar - New/Updated
			Planned Communication Junction Pillar - Remove

LEGEND

IT'S HOW
WE CONNECT



For more info contact a [Certified Locating Organisation](#) or Telstra Plan Services 1800 653 935

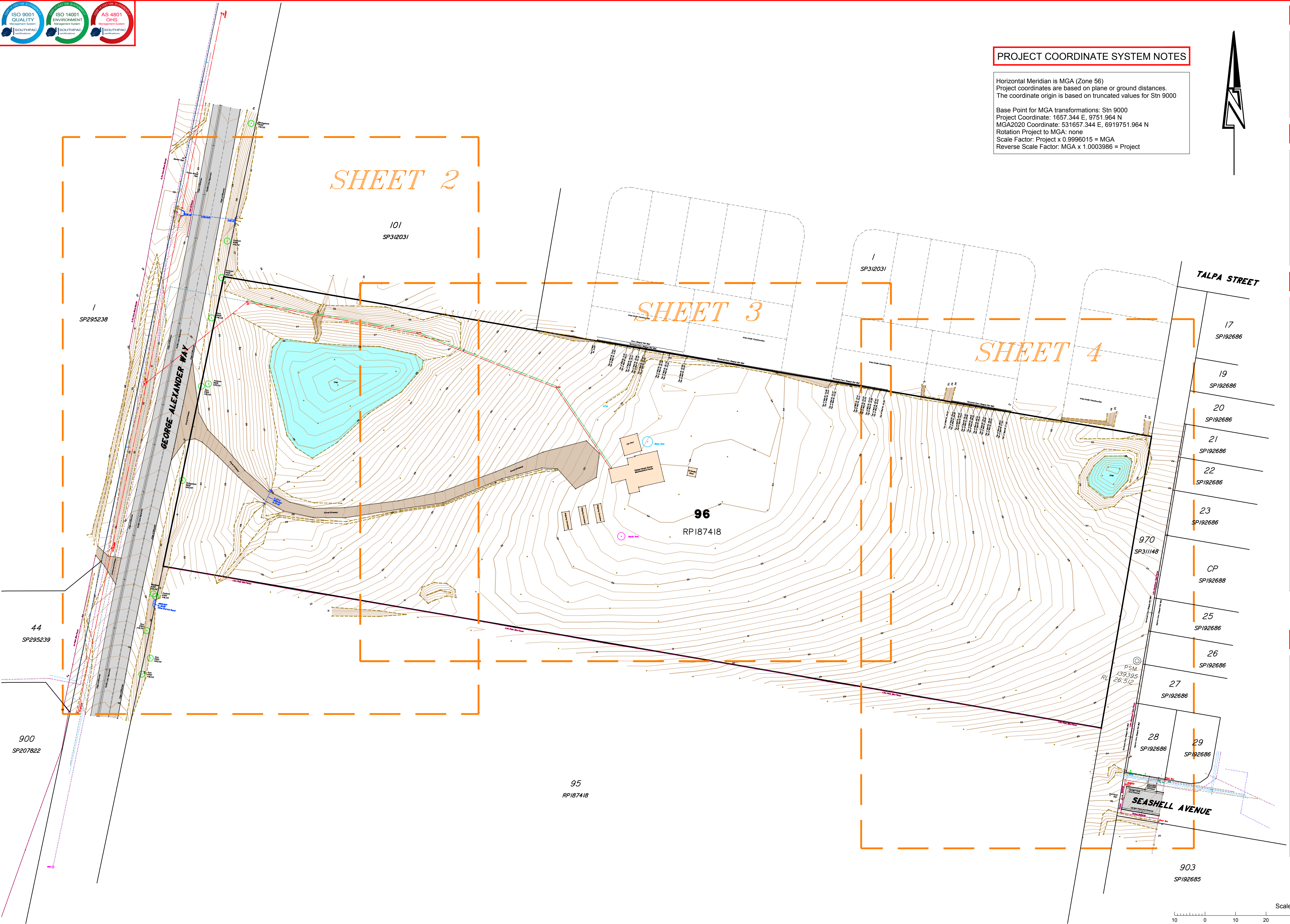
	Exchange (Major Cable Present)		Cable Jointing Pit (number / Letter indicating Pit Type)
	Footway Access Chamber (can vary from 1-lid to 12-lid)		Elevated Joint (above ground joint on buried cable)
	Pillar / Cabinet (above ground / free standing)		Telstra Plant in shared Utility trench
	Above ground complex equipment housing (eg RIM) Please Note: This equipment is powered by 240V Electricity		Aerial Cable
	Other Carrier Telecommunications Cable/Asset		Aerial Cable (attached to joint Use Pole eg. Power)
	Distribution cables in Main Cable ducts		Direct Buried Cable
	Main Cable ducts on a Distribution plan Blocked or damaged duct.		Marker Post Installed
	Roadside / Front Boundary 2 pair lead-in to property from pit in street 1		Buried Transponder
	pair working (pair ID 059) 1 pair dead (i.e. spare, not connected)		Marker Post, Transponder
	Side / Rear Property Boundary Property Number		Optical Fibre cable direct buried
	Single to multiple round conduit Configurations 1.2.4.9 respectively (attached text denotes conduit type and size)	Some examples of conduit type and size: A - Asbestos cement, P - PVC / Plastic, C - Concrete, GI - Galanised iron, E - Earthenware Conduit sizes <i>nominally</i> range from 20mm to 100mm P50 50mm PVC conduit P100 100mm PVC conduit A100 100mm asbestos cement conduit	
	Multiple square conduit Configurations 2, 4, 6 respectively (attached text denotes conduit type and size)		
Some Examples of how to read Telstra Plans			
	-50- 10 30 P50 20.0	One 50mm PVC conduit (P50) containing a 50-pair and a 10-pair cable between two 6-pits. approximately 20.0m apart, with a direct buried 30-pair cable along the same route	
	C100 P100 245.0	Two separate conduit runs between two footway access chambers (manholes) approximately 245m apart A nest of four 100mm PVC conduits (P100) containing assorted cables in three ducts (one being empty) and one empty 100mm concrete duct (C100) along	

WARNING: Telstra plans and location information conform to Quality Level 'D' of the Australian Standard AS 5488 - Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans. FURTHER ON SITE INVESTIGATION IS REQUIRED TO VALIDATE THE EXACT LOCATION OF TELSTRA PLANT PRIOR TO COMMENCING CONSTRUCTION WORK. A plant location service is an essential part of the process to validate the exact location of Telstra assets and to ensure the assets are protected during construction works. The exact position of Telstra assets can only be validated by physically exposing them. Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers.



APPENDIX D

SURVEY



PROJECT COORDINATE SYSTEM NOTES

Horizontal Meridian is MGA (Zone 56)
Project coordinates are based on plane or ground distances.
The coordinate origin is based on truncated values for Stn 9000

Base Point for MGA transformations: Stn 9000
Project Coordinate: 1657.344 E, 9751.964 N
MGA2020 Coordinate: 531657.344 E, 6919751.964 N
Rotation Project to MGA: none
Scale Factor: Project x 0.9996015 = MGA
Reverse Scale Factor: MGA x 1.0003986 = Project

LEGEND

Quality levels are shown on linetypes along with service type eg.
—E(A)— First Letter is the Service (Elec) and the second is Quality Level (A)

	by Survey	by Records
U/G ELECTRICITY	—E(A)—	—E(D)—
O/H ELECTRICITY	—E—	—E—
U/G TELECOMMUNICATIONS	—T(A)—	—T(D)—
U/G DRAINAGE	—D(A)—	—D(D)—
SEWERAGE	—S(A)—	—S(D)—
WATER	—W(A)—	—W(D)—
GAS	—G(A)—	—G(D)—
FENCE	—F—	—F—

SYMBOLS

Sewer Manhole	○ SMH	MH	Manhole
Gully Trap	○ GT	SL	Surface Level
Stormwater Manhole	○ SWMH	IL	Invert Level
Fire Hydrant	○ FH	BM	Bench Mark
Valve	○ V	Ø	Diameter
Water Meter	○ WM	RCP	Reinforced Concrete Pipe
Electricity Box / Pillar	□ Elect Box	GI	Galvanised Iron
Electric Light Pole	○ ELP	Ø, H, S	Trunk diameter, Height, Spread (canopy diameter)
Power Pole	○ PP		
Electricity Manhole	□ Elect MH		
Electricity Pit	□ Elect PH		
Traffic Signal Pit	□ Traffic PH		
Traffic Light	○ Traffic		
Telecommunications Manhole	□ Tel MH		
Telecommunications Pit	□ Tel PH		
Tree / Shrub	○		

ABBREVIATIONS

NOTES

This Plan has been prepared from a combination of field survey and existing records for the purpose of showing the physical features of the land to assist in designing future development, and should not be used for any other purpose.

See IS313805 for survey of external boundaries of Lot 96 on RP187418. All other boundaries shown hereon were not verified or marked at the time of survey, but were determined by existing title dimensions and occupation (where available), not be field measurement. As such, these dimensions could be out of date and incorrect by modern standards. This plan should not be used for building to boundary, or to prescribed set-backs, without further boundary survey.

Services shown hereon were located where possible by field survey. If not able to be so located, known services have been shown from the records of the relevant authorities or service providers where available and have been noted accordingly on this plan. All services shown from records only will need verification prior to, or during work on site.

Prior to any demolition, excavation or construction on site, the relevant authority should be contacted for:

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Before starting any demolition, excavation or construction on the site, the relevant person should make an independent and updated enquiry of "dial before you dig" and any relevant service providers to ascertain the existence of further services (if any) and the accurate location of those not able to have been surveyed at the time of preparing this plan.

* No responsibility can be accepted by Saunders Havill Group Pty Ltd, for any damage caused to any underground service or any loss or injury so suffered if enquiry and verification have not been completed in accordance with this note.

** This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

QUALITY LEVELS

This plan shows Quality classifications of sub surface utility data as per AS4588-2013. The following classifications apply.

Quality Level D - (least accurate level and if used on its own has a high risk of damage) QL-D information is generally obtained from existing records provided by utilities as a result of a Dial Before You Dig enquiry being lodged. In many cases the asset depicted on the plan is in a schematic format only and intended only to indicate its presence.

Quality Level C - (low accuracy and a high risk of damage) Is described as a surface feature correlation or an interpretation of the approximate location and attributes of a subsurface utility asset using a combination of existing records and site survey of visible evidence – for example you can see the pit lids shown on the plan but the actual position of underground connection between pits is still assumed.

Quality Level B - (significant risk reduction) Provides relative subsurface feature locations in three dimensions. The minimum requirement for QL-B is relative spatial position, this can be achieved via an electromagnetic frequency locating device. An electronic location provided by a DBYD Certified Locator to QL-B standard would have a maximum horizontal tolerance of plus or minus 300mm and a maximum vertical tolerance of plus or minus 500mm.

Quality Level A - (meets location accuracy standards for minimum risk when excavating) Is the highest Quality Level accuracy and consists of positive identification of the attribute and location of a subsurface utility at a point to an absolute spatial position in three dimensions. It is the only quality level that defines a subsurface utility as 'Validated'.

No.	Drawn	Date	Description	Checked
A	MD	31/10/2022	Original Issue	JC

Plan of

DETAIL PLAN

Sheet 1 of 4

Project

54 George Alexander Way, Coomera

Client

Coomera GA Pty Ltd ATF The Coomera GA Unit Trust

Surveyed

BC

Date

Oct 2022

Level Datum: AHD der.

Origin of Levels: PM139395

RL of Origin: 26.512

Contour Interval: 0.2m

Lot Description

Lot 96 on RP187418

Locality: Coomera

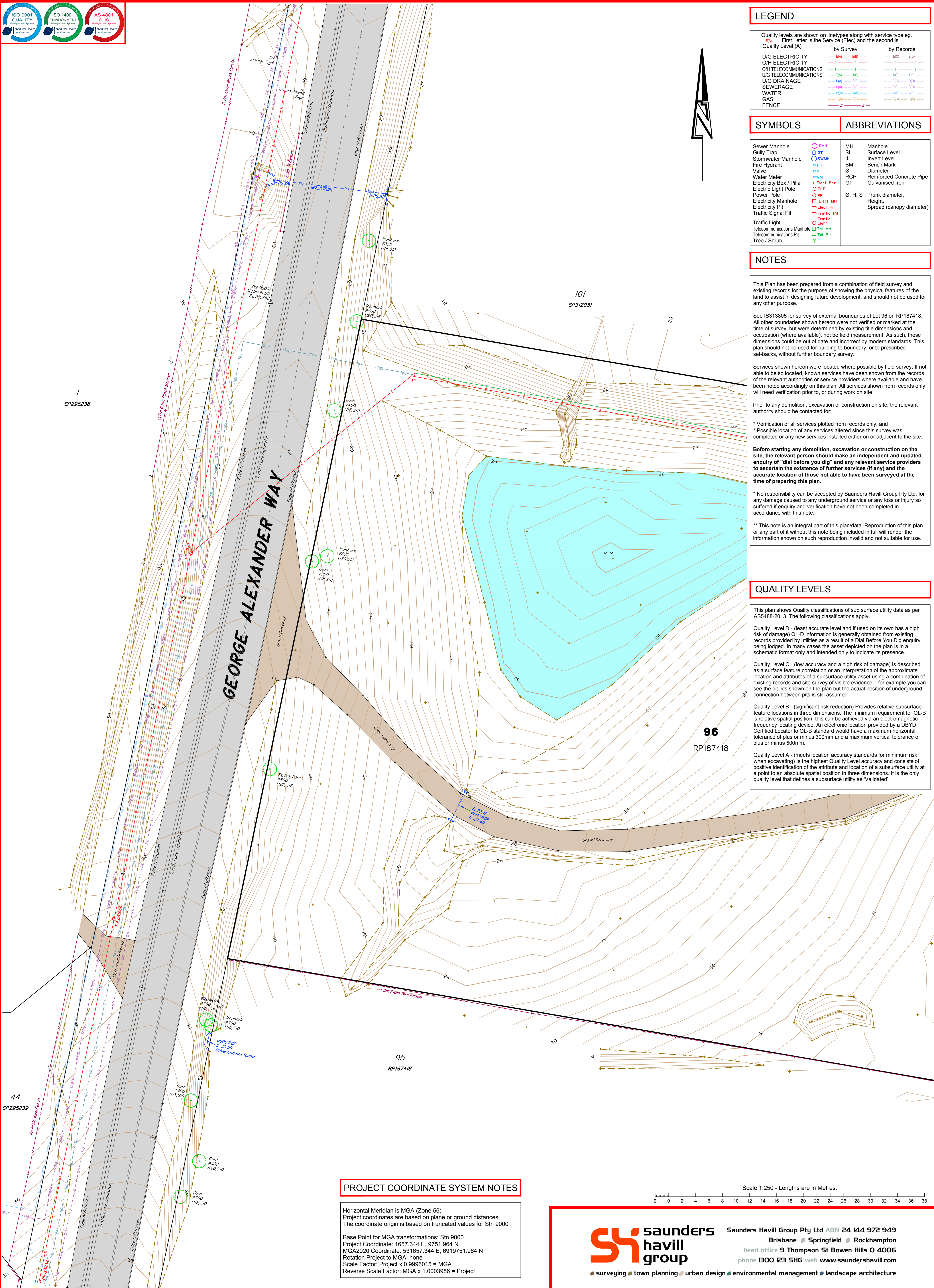
Local Government: Gold Coast City

■ surveying

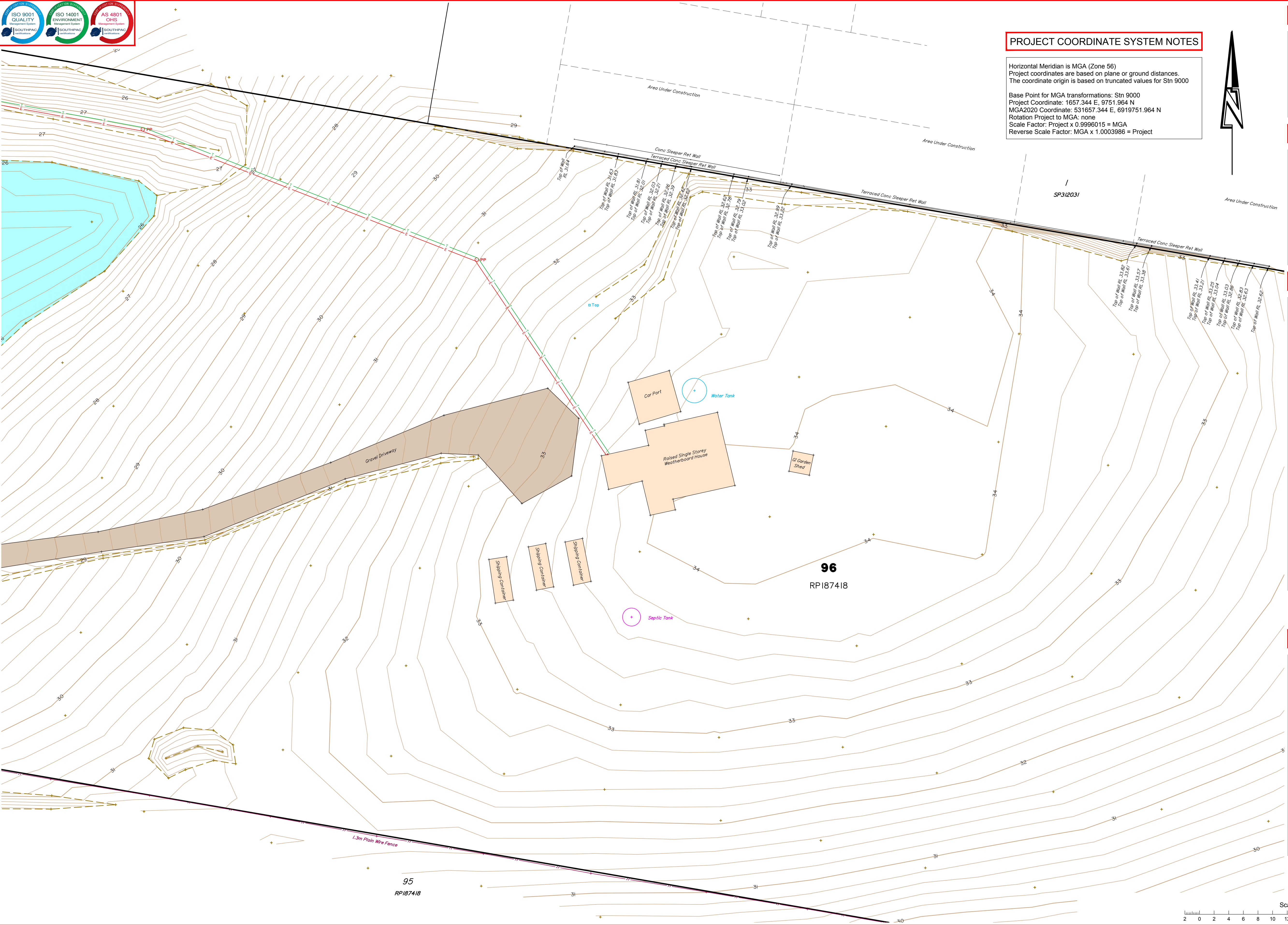
Scale @A1 1: 600

@A3 1: 1200

Dwg No. 11241 S 03 DT A



Issues	No.	Drawn	Date	Description	Checked	Plan of DETAIL PLAN Sheet 2 of 4 Project 54 George Alexander Way, Coomera Client Coomera GA Pty Ltd ATF The Coomera GA Unit Trust	Surveyed	Date	Lot Description Lot 96 on RP187418 Locality: Coomera Local Government: Gold Coast City	surveying Scale @A1 1: 250 @A3 1: 500 Dwg No. 11241 S 03 DT A
	A	MD	31/10/2022	Original Issue	JC		BC	Oct 2022		
							Level Datum: <u>AHD der.</u>			
							Origin of Levels: PM139395			
							RL of Origin: 26.512			
							Contour Interval: 0.2m			



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LEGEND

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	by Survey	by Records
U/G ELECTRICITY	-E(A) -E(B) -E(C) -E(D) -E(E)	-E -E -E -E -E
O/H ELECTRICITY	-E -E -E -E -E	-E -E -E -E -E
O/H TELECOMMUNICATIONS	-T -T -T -T -T	-T -T -T -T -T
U/G TELECOMMUNICATIONS	-TA -TB -TC -TD -TE	-T -T -T -T -T
U/G DRAINAGE	-DA -DB -DC -DD -DE	-D -D -D -D -D
SEWERAGE	-SA -SB -SC -SD -SE	-S -S -S -S -S
WATER	-WA -WB -WC -WD -WE	-W -W -W -W -W
GAS	-GA -GB -GC -GD -GE	-G -G -G -G -G
FENCE	-F -F -F -F -F	-F -F -F -F -F

SYMBOLS

Sewer Manhole	SMH	MH	Manhole
Gully Trap	GT	SL	Surface Level
Stormwater Manhole	SWMH	IL	Invert Level
Fire Hydrant	FH	BM	Bench Mark
Valve	V	Ø	Diameter
Water Meter	WM	RCP	Reinforced Concrete Pipe
Electricity Box / Pillar	EB	GI	Galvanised Iron
Electric Light Pole	ELP		
Power Pole	PP	Ø, H, S	Trunk diameter, Height, Spread (canopy diameter)
Electricity Manhole	EMH		
Electricity Pit	EHP		
Traffic Signal Pit	TSP		
Traffic Light	TL		
Telecommunications Manhole	TMH		
Telecommunications Pit	TP		
Tree / Shrub	T		

ABBREVIATIONS

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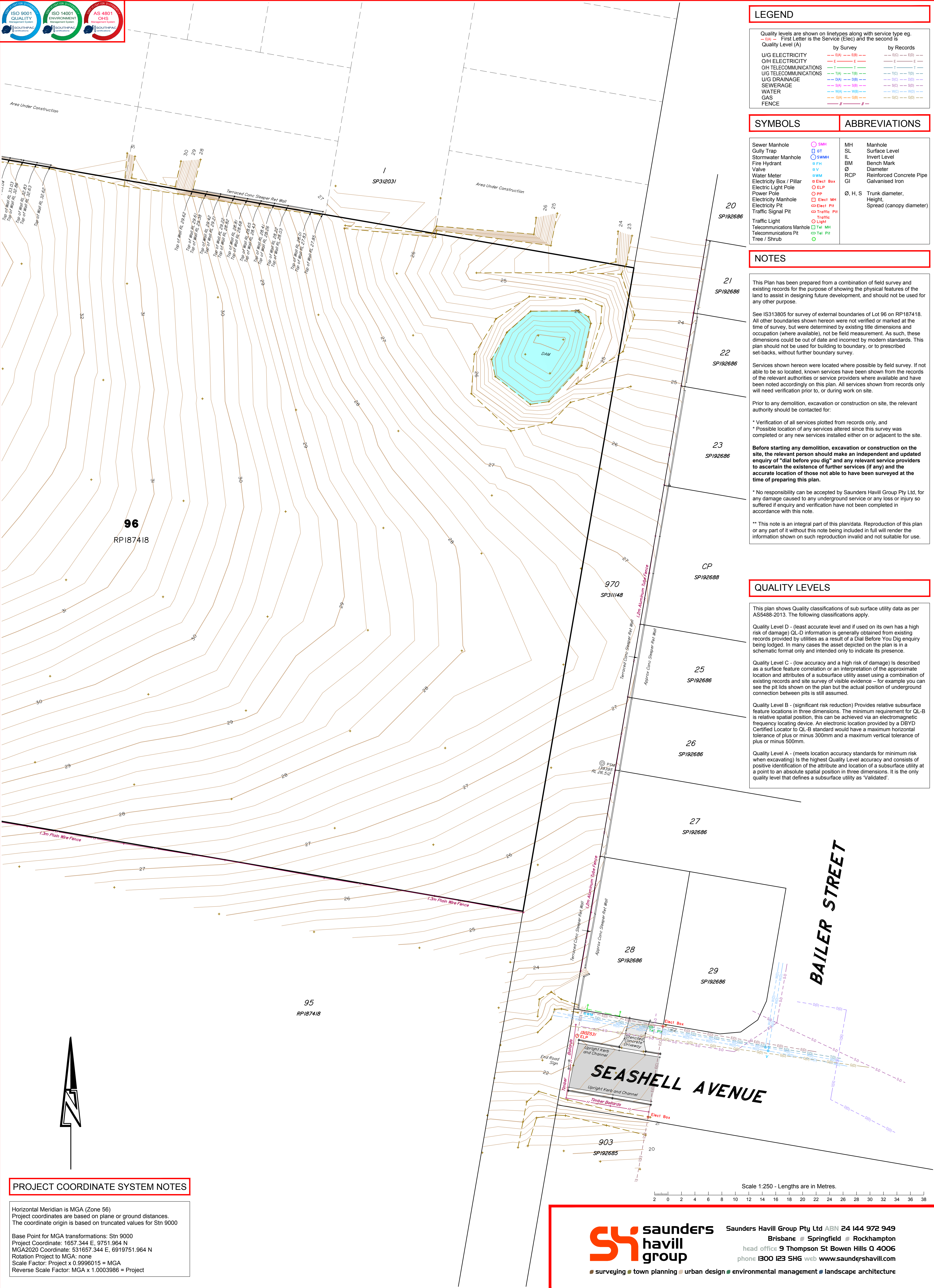
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No.	Drawn	Date	Description	Checked
A	MD	31/10/2022	Original Issue	JC

Plan of	DETAIL PLAN Sheet 3 of 4
Project	54 George Alexander Way, Coomera
Client	Coomera GA Pty Ltd ATF The Coomera GA Unit Trust

Surveyed BC	Date Oct 2022	Lot Description
Level Datum: AHD der.		Lot 96 on RP187418
Origin of Levels: PM139395 RL of Origin: 26.512		Locality: Coomera Local Government: Gold Coast City
Contour Interval: 0.2m		



LEGEND

Quality levels are shown on linetypes along with service type eg. - 14 - First Letter is the Service (Elec) and the second is Quality Level (A)		
	by Survey	by Records
U/G ELECTRICITY	--- 14A --- 14B ---	--- 14C --- 14D ---
O/H ELECTRICITY	--- 14E --- 14F ---	--- 14G --- 14H ---
O/H TELECOMMUNICATIONS	--- 14I --- 14J ---	--- 14K --- 14L ---
U/G TELECOMMUNICATIONS	--- 14M --- 14N ---	--- 14O --- 14P ---
U/G DRAINAGE	--- 14Q --- 14R ---	--- 14S --- 14T ---
SEWERAGE	--- 14U --- 14V ---	--- 14W --- 14X ---
WATER	--- 14Y --- 14Z ---	--- 14AA --- 14AB ---
GAS	--- 14AC --- 14AD ---	--- 14AE --- 14AF ---
FENCE	--- 14AG --- 14AH ---	--- 14AI --- 14AJ ---

SYMBOLS

Sewer Manhole	○ SMH	MH	Manhole
Gully Trap	□ GT	SL	Surface Level
Stormwater Manhole	○ SWMH	IL	Invert Level
Fire Hydrant	■ FH	BM	Bench Mark
Valve	■ V	Ø	Diameter
Water Meter	■ WM	RCP	Reinforced Concrete Pipe
Electricity Box / Pillar	■ Elect Box	GI	Galvanised Iron
Electric Light Pole	○ ELP	Ø, H, S	Trunk diameter, Height, Spread (canopy diameter)
Power Pole	○ PP		
Electricity Manhole	□ Elect MH		
Electricity Pit	□ Elect PH		
Traffic Signal Pit	□ Traffic PH		
Traffic Light	○ Light		
Telecommunications Manhole	□ Tel MH		
Telecommunications Pit	□ Tel PH		
Tree / Shrub	○		

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This Plan has been prepared from a combination of field survey and existing records for the purpose of showing the physical features of the land to assist in designing future development, and should not be used for any other purpose.

See IS313805 for survey of external boundaries of Lot 96 on RP187418. All other boundaries shown hereon were not verified or marked at the time of survey, but were determined by existing title dimensions and occupation (where available), not be field measurement. As such, these dimensions could be out of date and incorrect by modern standards. This plan should not be used for building to boundary, or to prescribed set-backs, without further boundary survey.

Services shown hereon were located where possible by field survey. If not able to be so located, known services have been shown from the records of the relevant authorities or service providers where available and have been noted accordingly on this plan. All services shown from records only will need verification prior to, or during work on site.

Prior to any demolition, excavation or construction on site, the relevant authority should be contacted for:

- * Verification of all services plotted from records only, and
- * Possible location of any services altered since this survey was completed or any new services installed either on or adjacent to the site.

Before starting any demolition, excavation or construction on the site, the relevant person should make an independent and updated enquiry of "dial before you dig" and any relevant service providers to ascertain the existence of further services (if any) and the accurate location of those not able to have been surveyed at the time of preparing this plan.

* No responsibility can be accepted by Saunders Havill Group Pty Ltd, for any damage caused to any underground service or any loss or injury so suffered if enquiry and verification have not been completed in accordance with this note.

** This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

QUALITY LEVELS

This plan shows Quality classifications of sub surface utility data as per AS5488-2013. The following classifications apply.

Quality Level D - (least accurate level and if used on its own has a high risk of damage) QL-D information is generally obtained from existing records provided by utilities as a result of a Dial Before You Dig enquiry being lodged. In many cases the asset depicted on the plan is in a schematic format only and intended only to indicate its presence.

Quality Level C - (low accuracy and a high risk of damage) Is described as a surface feature correlation or an interpretation of the approximate location and attributes of a subsurface utility asset using a combination of existing records and site survey of visible evidence - for example you can see the pit lids shown on the plan but the actual position of underground connection between pits is still assumed.

Quality Level B - (significant risk reduction) Provides relative subsurface feature locations in three dimensions. The minimum requirement for QL-B is relative spatial position, this can be achieved via an electromagnetic frequency locating device. An electronic location provided by a DBYD Certified Locator to QL-B standard would have a maximum horizontal tolerance of plus or minus 300mm and a maximum vertical tolerance of plus or minus 500mm.

Quality Level A - (meets location accuracy standards for minimum risk when excavating) Is the highest Quality Level accuracy and consists of positive identification of the attribute and location of a subsurface utility at a point to an absolute spatial position in three dimensions. It is the only quality level that defines a subsurface utility as 'Validated'.

PROJECT COORDINATE SYSTEM NOTES

Horizontal Meridian is MGA (Zone 56)
Project coordinates are based on plane or ground distances.
The coordinate origin is based on truncated values for Stn 9000

Base Point for MGA transformations: Stn 9000
Project Coordinate: 1657.344 E, 9751.964 N
MGA2020 Coordinate: 531657.344 E, 6919751.964 N
Rotation Project to MGA: none
Scale Factor: Project x 0.9996015 = MGA
Reverse Scale Factor: MGA x 1.0003986 = Project

Issues	No.	Drawn	Date	Description	Checked	Plan of	Surveyed	Date	Lot Description	surveying
	A	MD	31/10/2022	Original Issue	JC		BC	Oct 2022		
							Level Datum:	AHD der.		
							Origin of Levels:	PM139395		
							RL of Origin:	26.512		
							Contour Interval:	0.2m		
DETAIL PLAN							Scale @A1 1: 250			
Sheet 4 of 4							@A3 1: 500			
Project 54 George Alexander Way, Coomera							Dwg No. 11241 S 03 DT A			
Client Coomera GA Pty Ltd ATF The Coomera GA Unit Trust										

