



Engineering Services Report
Annerley Health Hub
97–99 Cornwall Street & 275–281 Ipswich Road,
Annerley QLD 4103

Prepared for:
Cornerstone Healthcare Properties

Prepared by:
Toby Wilson

A handwritten signature in black ink, appearing to read "T. Wilson".

Approved by:
Erin Hogan RPEQ (21411)

A handwritten signature in black ink, appearing to read "E Hogan".

EDGE CONSULTING
58 KINGSTON DRIVE
HELENSVALE, QLD, 4212, AUSTRALIA

16/03/2023

Ref: 221058

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Document Control

Author	Toby Wilson	
Reviewer	Carl Hager	
Approver RPEQ	Erin Hogan 21411	
Report Title	Engineering Services Report – Annerley Health Hub	

Revision History

Revision	Date	Author	Reviewer	Approver	Description
01	24.01.2023	CH	KO	EH	Draft for Review
02	15.03.2023	TW	CH	EH	Issued for Approval
03	16.03.2023	TW	CH	EH	Issued with Client Amendments

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1. Introduction

This report has been prepared to support the lodgement of a Development Application for the construction of a new Medical Office Building ‘Annerley Health Hub’ over five (5) levels, including four (4) level basement car parking and waste management area, with the development to comprise a mix and diversity of health and medical uses, including integrated General Practice, Diagnostic Imaging, Pharmacy, Pathology, Radiology, Same Day or Short Stay Surgery, Oncology, Specialist Suites, Health Care Administration and a Café. The development is proposed to take place over the following parcel of land:

Property Address:	97–99 Cornwall Street & 275–281 Ipswich Road Annerley QLD 4103
Property Description:	Lots: 72–73 RP37992 & Lots1–4 RP 37992
Council:	Brisbane City Council
Registered Site Area:	2,473 m ² (existing site area total all lots)
Post Developed Site Area:	2,134 m ² (reduced site developable area due to road dedication)

The report describes the civil engineering infrastructure associated with the development of the proposed land and includes discussion on the following engineering items;

- Stormwater Drainage;
- Flooding;
- Earthworks;
- Erosion and Sediment Control;
- Water Connection; and
- Sewer Connection.

This report demonstrates that the proposed development can be suitably serviced with all engineering services described and supports the type and scale of development that is proposed.

1.1 Related Reporting

This report is intended to be read in conjunction with the associated development submission documents current as of the date of this report.

A Stormwater Management Plan (Ref: 221058-SMP) has been prepared for the proposed development and should be read in conjunction with this report.

2. Property Description

2.1 Site Locality

The proposed development is situated at the corner of Cornwall Street and Ipswich Road at 97-99 Cornwall Street & 275-281 Ipswich Road, Annerley QLD 4103 over six (6) existing lots described as Lots 72-73 RP37992 & Lots 1-4 RP 379924. The property is located within the Brisbane City Council (BCC) Local Government Area.

The combined registered area of the existing allotments contained within this proposal 2,473 m².

A general locality plan of the subject site is presented in Figure 2.1 below:



Figure 2.1 – Site Locality

2.2 Land Usage

No 97 & 99 Cornwall Street (Lots 72 & 73) and 279–281 Ipswich Road (Lots 3 & 4) are currently occupied by existing residential dwellings, whilst No 275 & 277 Ipswich Road (Lots 1 & 2) are currently operating as commercial premises (restaurant) and includes on-site parking accessed from Cornwall Street.

The existing developments contain impervious land uses, including roof, car parking, driveway and other hardstand areas. The existing impervious areas have been estimated from the survey to cover approximately 71% of the existing total site area, as displayed on the Pre-Development Catchment Plan included with the Engineering Drawings attached at Appendix C of this report.

The existing residential dwellings and commercial premises are currently assessable via existing VZO's on Cornwall Street and Ipswich Road.

2.3 Topography and Drainage

The detailed survey obtained for the project site indicates that the site surface generally grades in an easterly direction towards Ipswich Road and existing stormwater drainage infrastructure in both Ipswich Road and Cornwall Street. A copy of the detailed survey by DSQ Land Surveyors has been attached to Appendix A of this report.

It is noted from Brisbane City Council (BCC) records that an existing ø150 'foulwater' (assumed stormwater pipe) picking up properties west (upstream) from the subject site runs from west to east and through existing Lot 4 RP37992 (No 281 Ipswich Road) and connects to the existing stormwater infrastructure in Ipswich Road.

This existing 'foulwater' pipe is proposed to be realigned and discharge to the Ipswich Road kerb and channel via 3No 125x75 hot dip galvanised RHS (number and sizes to be confirmed at detailed design) as shown conceptually in Figure 2.2 below and detailed on the Stormwater Management Plan layout included with the Engineering Drawings attached at Appendix C of this report.

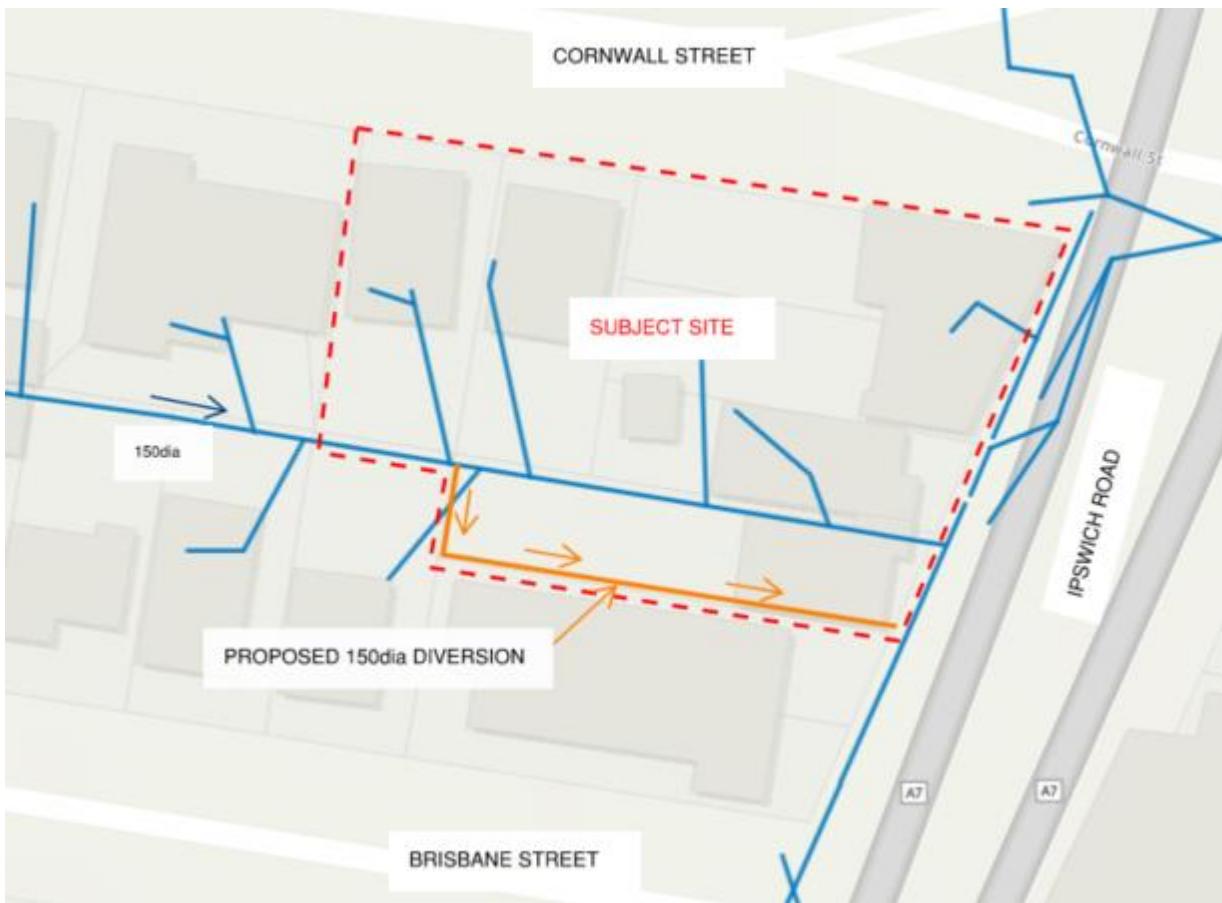


Figure 2.2 – BCC Stormwater Pipe – Existing & Proposed Realignment

Approximate levels on the site vary from RL 23.8m (AHD) to 18.8m (AHD) along the northern boundary. The average grade of the site has been calculated to be approximately 7% to the east (Ipswich Road street frontage).

2.4 Upstream Catchment

The site survey indicates that the development site will not be impacted by an upstream external catchment and no allowance for upstream catchment flows have been considered in this report.

As shown above in Figure 2.2 above and detailed on the Stormwater Management Plan layout included with the Engineering Drawings attached at Appendix C of this report, the existing BCC Ø150 stormwater pipe (referenced by BCC as ‘foulwater’ and assumed to be mainly collecting property roofwater) is to be retained and diverted around the development site.

3. Proposed Development

3.1 Development Description

The proposed development consists of:

- The demolition of the existing structures.
- Bulk earthworks, with controlled excavation works.
- The construction of a five (5) storey medical practice building.
- The construction of four (4) basement levels, three for car parking and one for oncology.
- The construction of associated driveways, off-street carparking areas and other hardstand surfaces associated with the proposed development including refuse collection.

The impervious areas of the proposed development have been measured to cover approximately 85% of the development site area (noted the BCC requirement for land dedication for future road widening reduces the site area from current 2,473 m² to 2,134 m²).

Additional works on site shall include the construction of water reticulation, sewer reticulation, electrical and telecommunications services and stormwater drainage reticulation.

Stormwater management measures (quantity and quality) will not be required for this development (refer to Stormwater Management Plan Ref: 221058-SMP).

External works for the development will consist of verge works within Cornwall Street to facilitate the construction of the vehicle crossover and service connections. However, it is also assumed certain 'interim' works such as landscaping, hardscape, trees and pathways may be included within the area to be dedicated to Council between the current boundary and the proposed development boundary, as referenced in the BCC pre-lodgement minutes.

Council's Infrastructure Design Code has been completed and is attached at Appendix E.

4. Earthworks

The earthworks associated with the proposed development will predominantly involve the construction of the four (4) basement levels and associated footings, the shared access driveway, internal off-street parking and general lot shaping.

Council's Filling and Excavation Code has been completed and is attached at Appendix F.

5. Erosion and Sediment Control

5.1 Introduction

During construction it shall be the responsibility of the Principal Contractor to ensure that the development complies with the relevant erosion and sediment control objectives, as outlined in the State Planning Policy and the Brisbane City Council City Plan.

This section of the report provides suggested inclusions in an erosion and sediment control plan for the proposed development site. This plan includes recommendations for monitoring & reporting responsibilities and the construction of site-specific sedimentation and erosion control measures.

Detailed drawings specifying the proposed erosion and sediment control measures are to be provided at the Operational Works stage of the development.

Council's Erosion and Hazard form has been completed and is attached at Appendix G.

The risk hazard rating has been determined to be 'medium' risk.

5.2 General Erosion and Sediment Control Measures

It shall be the responsibility of the Principal Contractor to ensure the following erosion and sediment control measures are implemented on site:

- Clean stormwater runoff from upstream allotments is to be directed away from the development site using earth bunds or cut-off drains, as deemed appropriate by a suitable supervisor;
- The prevention of sediment runoff towards other allotments via the effective implementation of silt fences, sediment basins or other mitigation devices as deemed appropriate by a suitable supervisor;
- Sediment runoff shall also be prevented from entering the Council stormwater drainage system via the implementation of control measures such as gully pit sediment barriers;
- Erosion shakedown points shall be established at all vehicular access points, with shakedown areas regularly swept clean and sediment removed; and
- Erosion and sediment control measures are not to be removed from the development site until the site is completely rehabilitated and the surface is capable of resisting erosion.

5.3 Spoil and Stockpile Management Measures

It shall be the responsibility of the Principal Contractor to ensure the following spoil and stockpile management measures are implemented on site:

- Where the stockpiling of spoil and excess earthworks is necessary on the development site, stockpiles shall be established as far away as possible from stormwater inlets and pipelines to reduce the likelihood of sediment runoff; and
- Stockpiles are to be established within a designated zone of fill material and should be surrounded with appropriate erosion and sediment control measures.

5.4 Training Requirements

It shall be the responsibility of the Principal Contractor to ensure the following training protocols are implemented on the development site:

- Site induction courses shall include details of an environmental management reporting system, through which personnel will be able to report perceived erosion and sediment control issues on site.

6. Flooding

The subject site is located outside the Brisbane River flood prone area, as shown in Figure 6.1 below and a detailed Flood Impact Assessment (FIA) or flood code response is not required for this development.



Figure 6.1: Flooding Inundation Map – BCC

7. Water and Sewer Connection

7.1 Sewer Connection

The development site is currently serviced via multiple ø100 sewer property connections as shown in Figure 7.1 below. These connections will be made redundant (removed/sealed) and a new DN150 sewer connection to be provided to the existing ø150 EW sewer gravity main for the proposed development.

Location of the proposed sewer property connection arrangement is detailed in the Service Connection Plan included with the Engineering Drawings attached at Appendix C of this report.

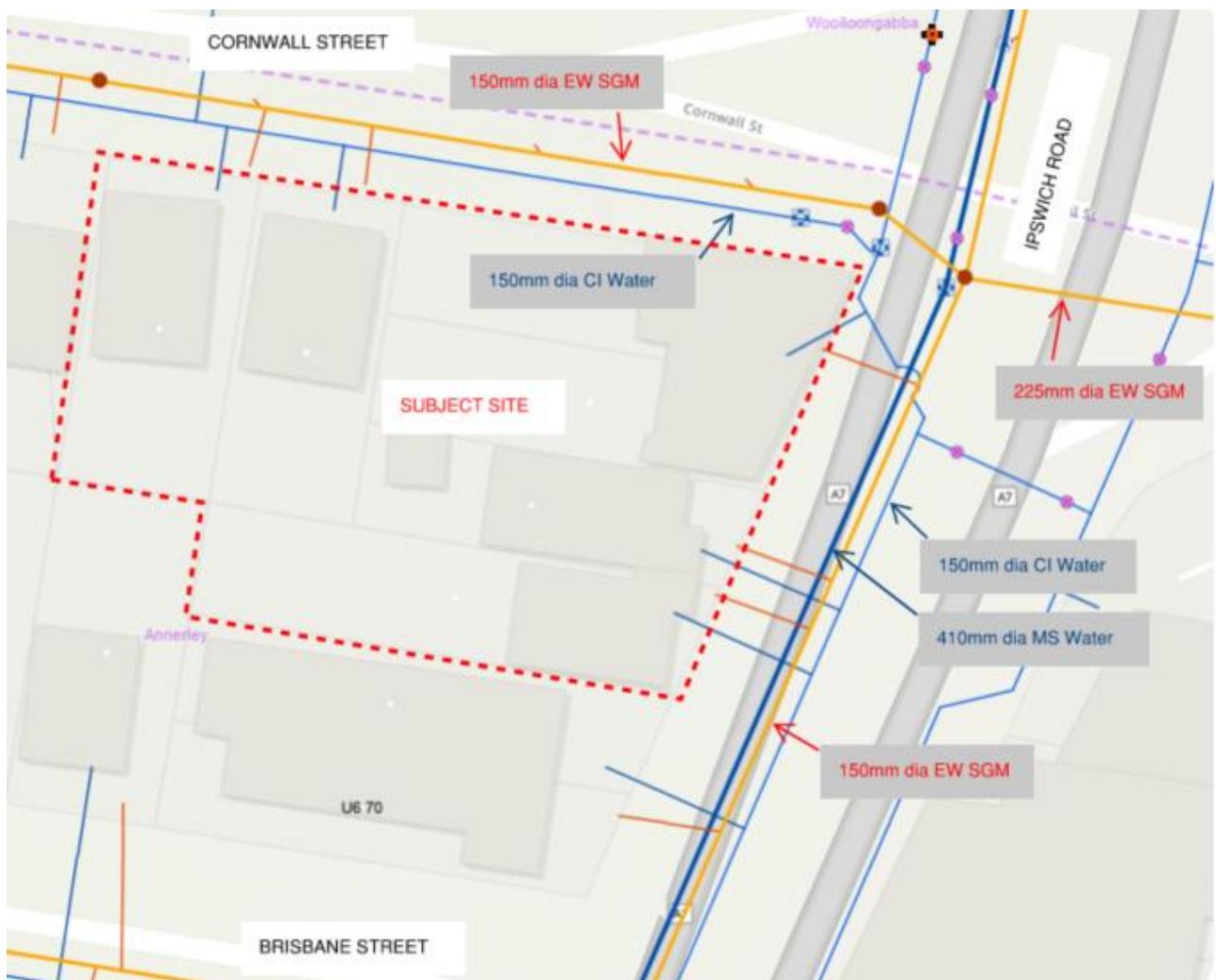


Figure 7.1: Existing Sewer & Water Services (extract from Urban Utilities Data Mapping)

7.2 Water Connection

The development site is currently serviced via multiple ø20 potable water services as shown in Figure 7.1 above.

These connections will be made redundant (removed/sealed including removal of water meters) and a new DN150 combined fire and potable meter assembly and connection is recommended to the existing ø150 CI water main in Cornwall Street (size of water connection to be confirmed by Hydraulic Services).

Dial before you Dig information for all services is attached at Appendix D of this report.

8. Stormwater Drainage

In the existing case, flows generated from the developed site discharge towards both Cornwall Street and Ipswich Road existing stormwater drainage systems via sheet flow and kerb adaptors.

In the developed case, it is proposed that the site connect into Council's existing stormwater Infrastructure gully pit located at the corner of Cornwall Street and Ipswich Road. However, other alternative stormwater connection locations are possibly available in Ipswich Road, subject to potholing and confirmation of depths, pipe sizes and flow capacity.

This arrangement with connection options is outlined on the Stormwater Management Plan included with the Engineering Drawings attached at Appendix C of this report.

A separate report by EDGE Consulting Engineers (ref:221058-SMP) describes that no water quality measures, or detention of flows generated from the site are required.

9. Conclusion

This report has been prepared to support the lodgement of a Development Application for the construction of a new Medical Office Building ‘Annerley Health Hub’ over five (5) levels, including four (4) level basement car parking and waste management area, with the development to comprise a mix and diversity of health and medical uses, including integrated General Practice, Diagnostic Imaging, Pharmacy, Pathology, Radiology, Same Day or Short Stay Surgery, Oncology, Specialist Suites, Health Care Administration and a Café. The development is proposed to take place over the following parcel of land:

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Council:	Brisbane City Council
Registered Site Area:	2,473 m ² (existing site area total all lots)
Post Developed Site Area:	2,134 m ² (reduced site developable area due to road dedication)

There are no constraints on the execution of earthworks, sediment and erosion control, provision of vehicular access or the drainage of stormwater from the site.

A summary of the proposed water and sewer connection strategy has been presented for consideration by Urban Utilities.

This report demonstrates that the proposed development can be suitably serviced with all engineering services described and supports the type and scale and development that is proposed.

10. Appendices

Appendix A – Detailed Survey Plan

CHP FUND

Contour & Detail Survey
99 Cornwall Street &
277 - 281 Ipswich Road
Annerley

GENERAL NOTES:

- VISIBLE SERVICES ONLY HAVE BEEN LOCATED PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON THE SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR POSSIBLE LOCATION OF FURTHER UNDERGROUND SERVICES AND DETAILED LOCATION OF ALL SERVICES.
- BOUNDARIES HAVE NOT BEEN SURVEYED OR REINSTATED.
- BOUNDARIES SHOWN ARE COMPILED FROM SURVEY PLANS.
- CONTOUR INTERVAL SHOWN IS 0.5 METRE.

LEGEND

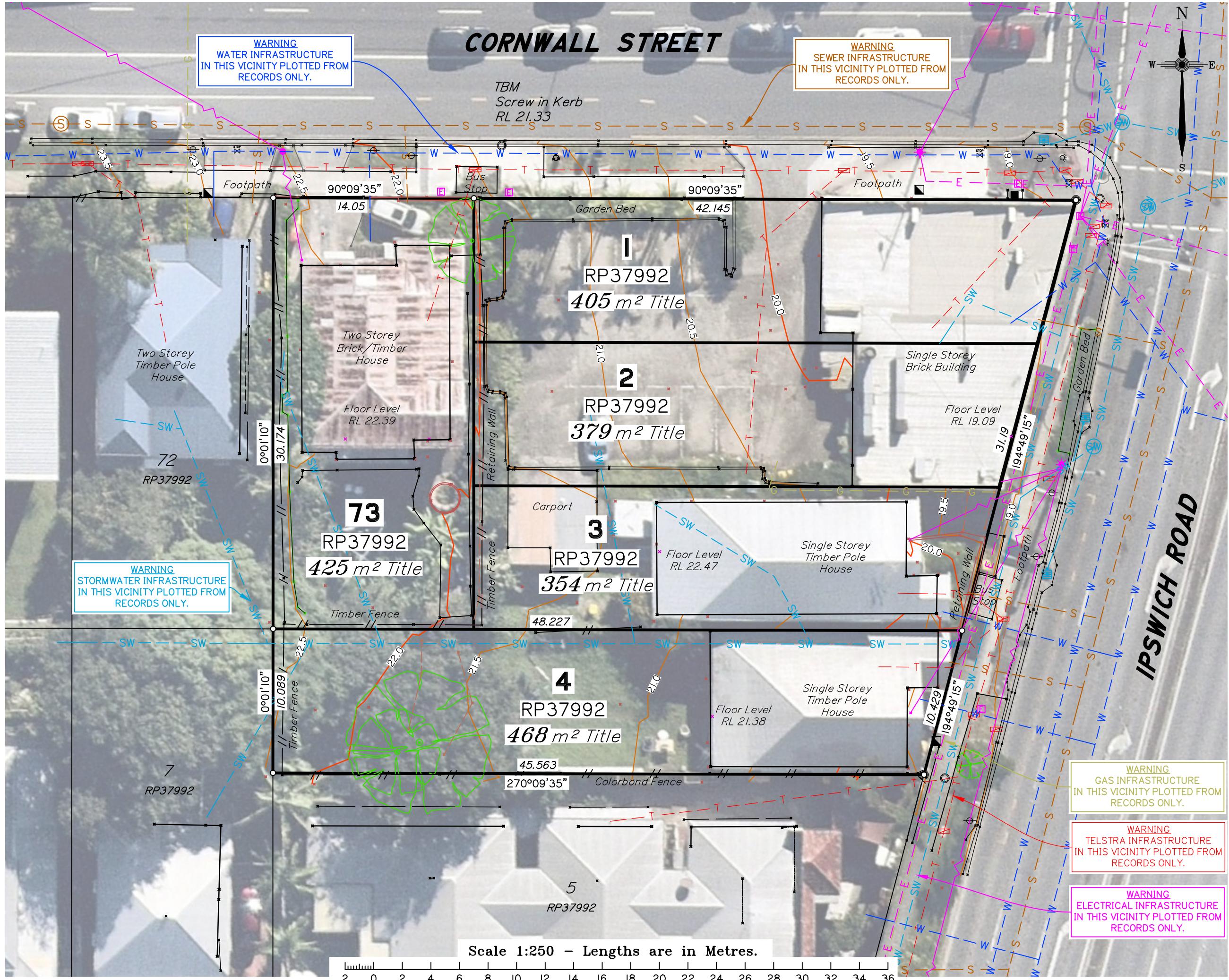
- ◎ SURVEY BENCH MARK
- COMMUNICATIONS PIT
- COMMUNICATIONS PILLAR
- LIGHT ON POWER POLE
- ★ LIGHT POLE
- ELECTRICAL PILLAR
- ELECTRICAL PIT
- ☒ GAS VALVE
- SEWER MANHOLE
- SW STORMWATER M/H
- GULLY TRAP
- STOP VALVE
- WATER METER
- TRAFFIC LIGHT CONTROL BOX
- STREET SIGN
- TREE
- W — DBYD WATER MAIN
- E — DBYD ELECTRICITY
- S — DBYD SEWER MAIN
- SW — DBYD STORMWATER
- T — DBYD COMM'S
- G — DBYD GAS MAIN

Revisions	Surveyed	Drawn	Checked	Passed	Date
A ORIGINAL PLAN	KDK	KDK	IS	AJP	29.06.22



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PO Box 1073, Buddina QLD 4575 Ph: (07) 5437 8555
mail@dsqsurvey.com ABN: 91 615 043 251
www.dsqsurvey.com ACN: 615 043 251
WESTERN DOWNS

Signed _____	Cadastral Surveyor/Director		
Date _____			
Horiz. Datum	CADASTRAL	Vert. Datum	AHD
Origin	IS290717	Origin	PSM 7652
Locality:	ANNERLEY	RL	23.176
Local Government:	BRISBANE CITY COUNCIL		
SHEET	1 OF 1	Scale	A3 1:250
FILE	14486-DTM-01.dwg	Date	29/06/22
DRAWING NUMBER		REV.	
14486-DTM-01 A			



Appendix B – Architectural Drawings

SITE AREA	
ORIGINAL BOUNDARY LINE	2475m ² APPROX.
NEW BOUNDARY LINE	2137m ² APPROX.

CAR PARKING	
GROUND LEVEL	38
BASEMENT 01	52
BASEMENT 02	52
BASEMENT 03	55
	197

GFA AREAS	
BASEMENT 04	746.08
GROUND LEVEL	269.29
LEVEL 01	988.40
LEVEL 02	1,586.34
LEVEL 03	1,586.34
LEVEL 04	1,586.34
LEVEL 05	999.14
	7,761.93 m ²

NLA AREAS	
BASEMENT 04	636.30
GROUND LEVEL	255.69
LEVEL 01	985.01
LEVEL 02	1,565.86
LEVEL 03	1,566.42
LEVEL 04	1,566.42
LEVEL 05	984.79
	7,560.49 m ²

GROSS BUILDING AREA	
BASEMENT 04	801.85
BASEMENT 03	1,885.96
BASEMENT 02	1,885.96
BASEMENT 01	1,885.96
GROUND LEVEL	1,805.83
LEVEL 01	1,804.83
LEVEL 02	1,698.21
LEVEL 03	1,698.21
LEVEL 04	1,698.21
LEVEL 05	1,637.61
	16,802.63 m ²



COTTEEPARKER 

BRISBANE

T 61 7 3846 7422

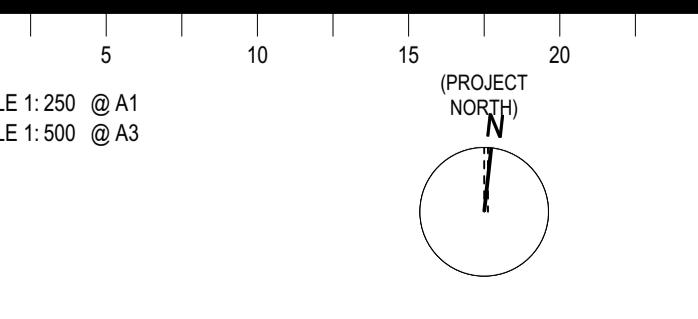
COTTEEPARKER ARCHITECTS PTY LTD

ABN 77 010 924 106

COTTEEPARKER.COM.AU



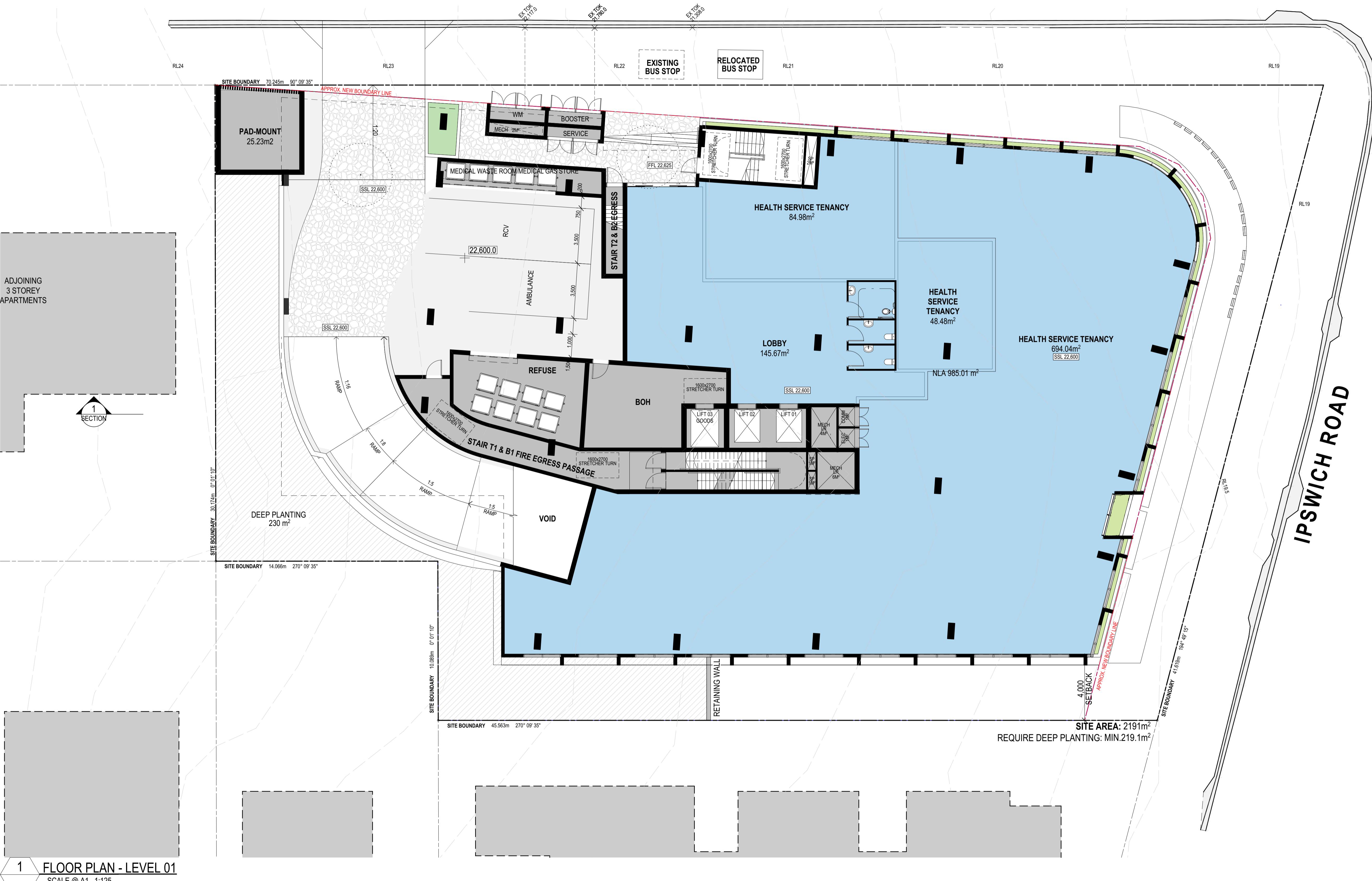
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A DEVELOPMENT APPLICATION DRAFT 9/02/2023 JH DW JH
ISSUE PURPOSE DATE D C A
DEVELOPMENT APPLICATION
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ANNERLEY HEALTH HUB
101 CORNWALL STREET, WOOLLOONGABBA
CLIENT - CORNERSTONE DEVELOPMENTS MANAGEMENT PTY LTD
DRAWING TITLE SITE PLAN
JOB NO 6883
DRAWING NO SB1004
ISSUE A

CORNWALL STREET



1 FLOOR PLAN - LEVEL 01

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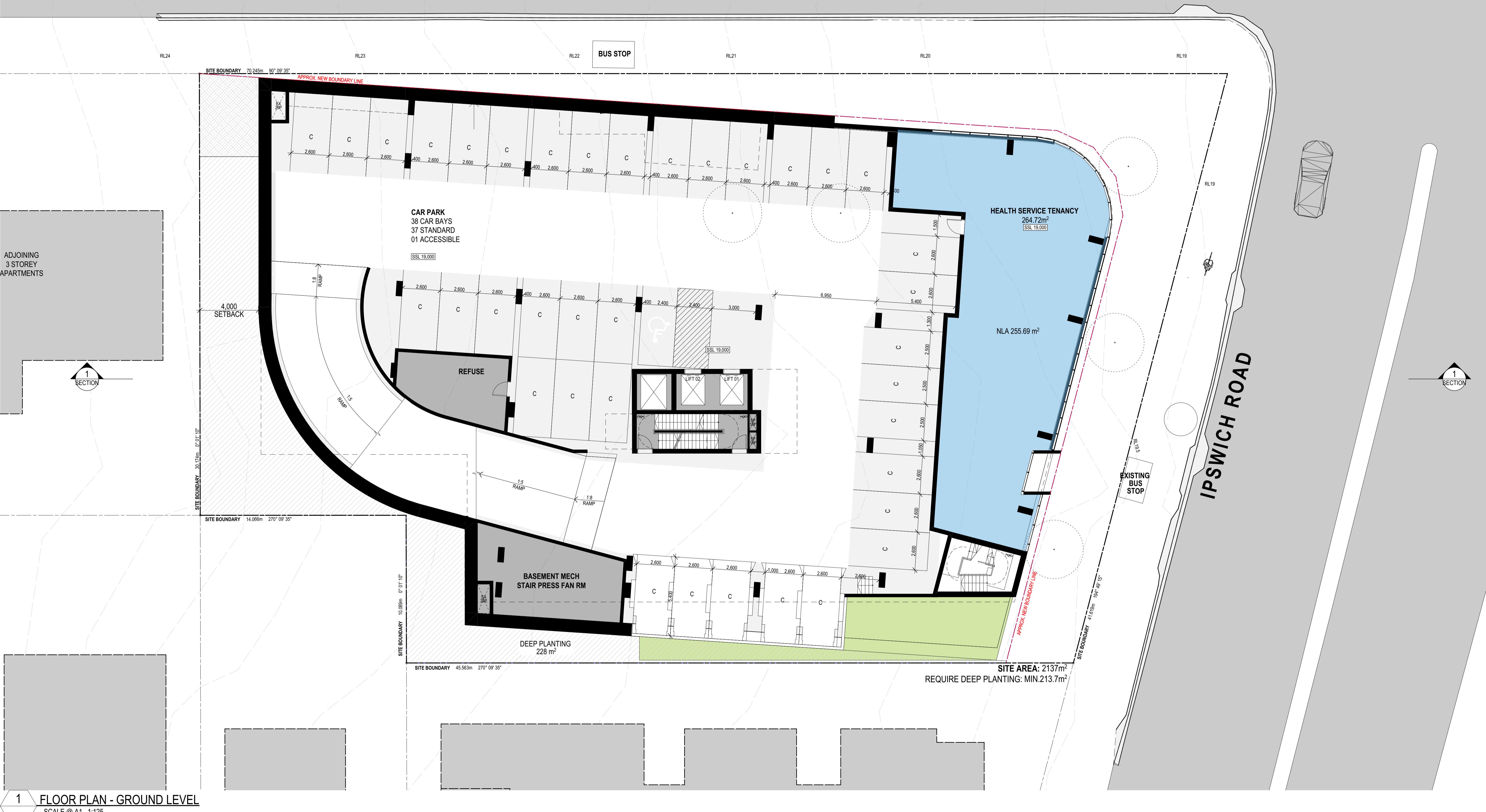
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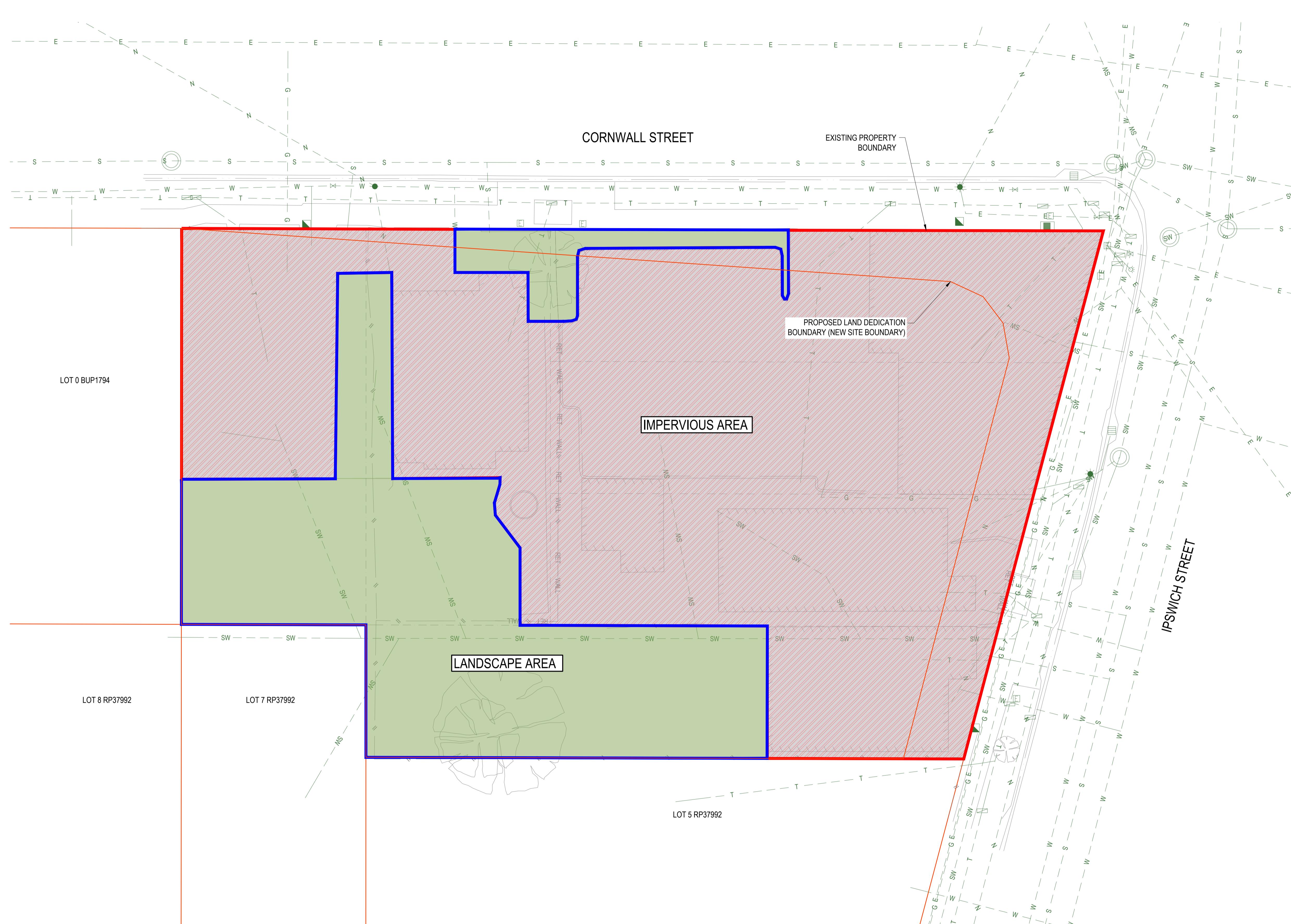
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CORNWALL STREET



Appendix C – Engineering Drawings



LEGEND

	PROPERTY BOUNDARY
	EXISTING MINOR & MAJOR CONTOUR (0.100m)
	EXISTING STORMWATER
	PROPOSED MINOR & MAJOR CONTOUR (0.100m)
	EXISTING CATCHMENT
	EXISTING LANDSCAPE CATCHMENT
	IMPERVIOUS AREA

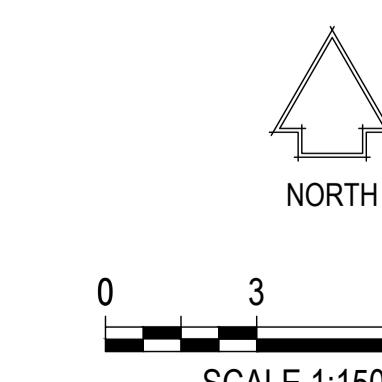
CATCHMENT TABLE

CATCHMENT ID	AREA (m ²)
SITE AREA	2473
IMPERVIOUS AREA	1749
% IMPERVIOUS*	71

*IMPERVIOUS PERCENTAGE USING EXISTING SITE BOUNDARY

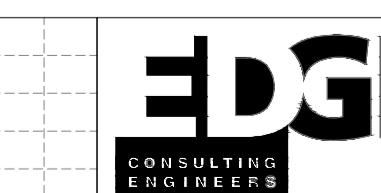
WARNING

THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL EXISTING SERVICES ON AND EXTERIOR TO THE SITE INCLUDING WATER MAINS, SEWER MAINS, GAS MAINS, TELECOMMUNICATIONS CABLES, ELECTRICAL CABLES, AND STORMWATER PIPES. ANY DAMAGE TO EXISTING SERVICES SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.



RREQ NAME:
RREQ No:
DATE:
SIGN:

P1 13.01.23 FOR REVIEW
Rev Date Description By Chk



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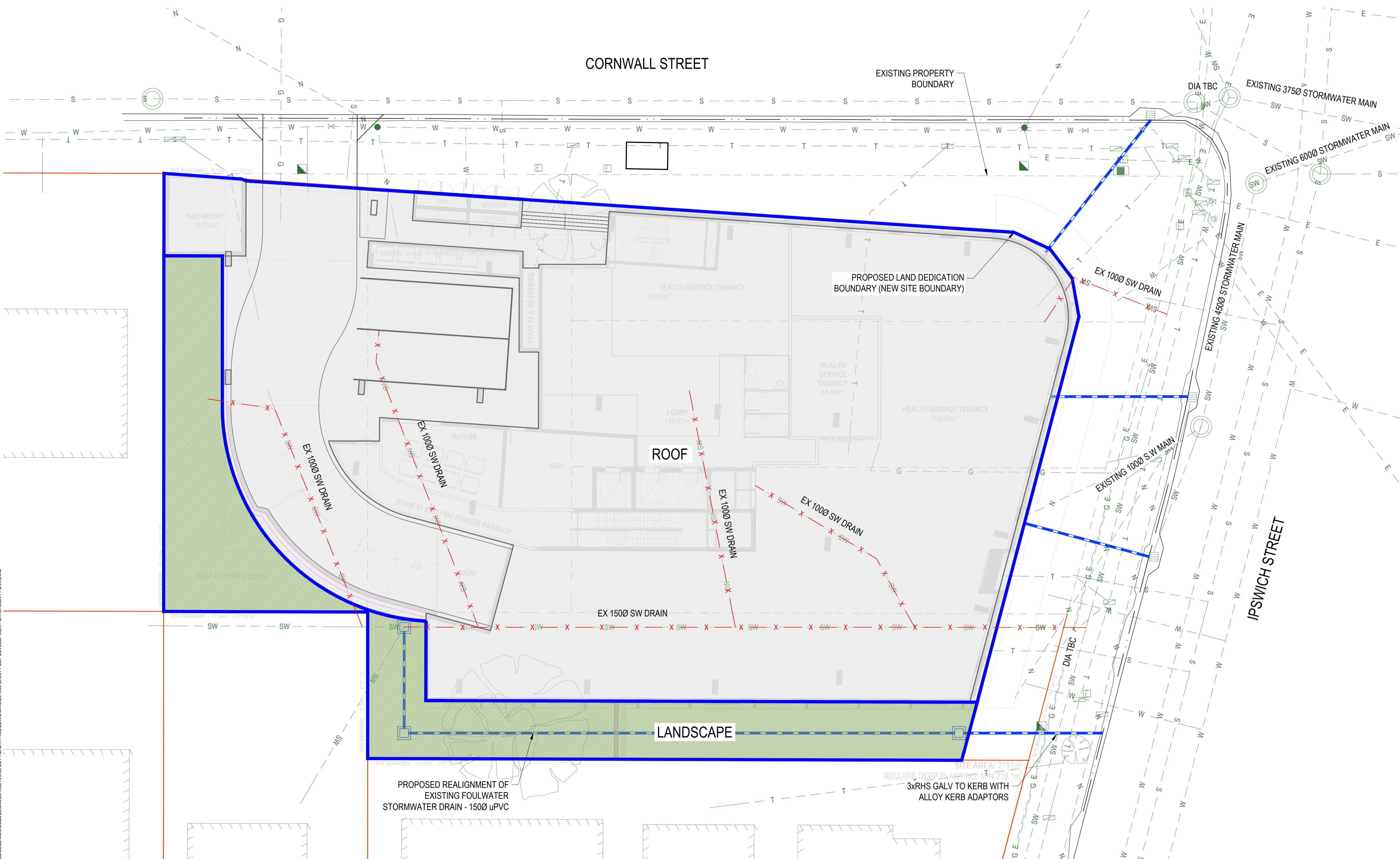
Project Name
ANNERLEY HEALTH HUB
97-99 CORNWALL ST & 275-281 IPSWICH RD
ANNERLEY, QLD, 4103
Client
CORNERSTONE HEALTHCARE PROPERTIES
Designed AM Drawn AM Checked CH Scale @ A1 1:150

Drawing Title
PRE DEVELOPMENT CATCHMENT PLAN
Drawing No. 221058
Revision P1
PRELIMINARY

LEGEND

	PROPERTY BOUNDARY
	EXISTING MINOR & MAJOR CONTOUR (0.100m)
	EXISTING STORMWATER
	PROPOSED MINOR & MAJOR CONTOUR (0.100m)
	SERVICE TO BE REMOVED
	PROPOSED STORMWATER CONNECTION LOCATION OPTIONS
	PROPOSED CATCHMENT
	PROPOSED CATCHMENT
	PROPOSED ROOF CATCHMENT
	PROPOSED ROAD CATCHMENT
	PROPOSED LANDSCAPE CATCHMENT

CORNWALL STREET



CATCHMENT TABLE

CATCHMENT ID	AREA (m ²)	IMPERVIOUS AREA (%)
ROOF	1806	100
ROAD	0	100
LANDSCAPE	328	0
TOTAL (m ²)	2134	85*

* IMPERVIOUS PERCENTAGE BASED ON NEW SITE BOUNDARY

WARNING

THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL EXISTING SERVICES ON AND EXTERIOR TO THE SITE INCLUDING WATER MAINS, SEWER MAINS, GAS MAINS, TELECOMMUNICATIONS CABLES, ELECTRICAL CABLES, AND STORMWATER PIPES. ANY DAMAGE TO EXISTING SERVICES SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.

NOTES

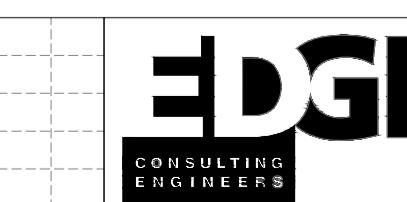
- PIPE DIA NOTED AS TBC TO BE CONFIRMED BY SURVEY AS SUITABLE FOR CONNECTION POINT.
- DETAILS FROM B.C.C RECORDS NOTE PIPE TYPE AS FOUL WATER (ASSUMED STORMWATER DRAIN).
- IPSWICH ROAD DRAINAGE SYSTEM CONSIDERED TO BE THE LPD.



SCALE 1:150 @A1
0 3 6 9m

RREQ NAME:
RREQ No:
DATE:
SIGN:

P2 15.03.23 FOR APPROVAL
P1 13.01.23 FOR REVIEW
Rev Date Description
By Chk



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Project Name
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97-99 CORNWALL ST & 275-281 IPSWICH RD
ANNERLEY, QLD, 4103
Client
CORNERSTONE HEALTHCARE PROPERTIES
Designed AM Drawn AM Checked CH Scale @ A1 1:150

Drawing Title
POST DEVELOPMENT CATCHMENT PLAN
Project No. 221058
Drawing No. CDA061
PRELIMINARY
Revision P2

LEGEND

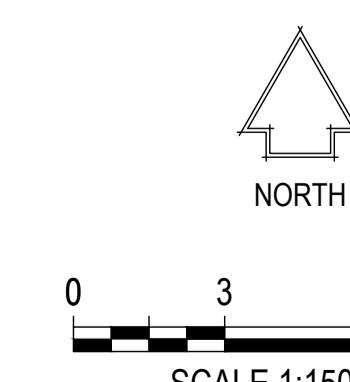
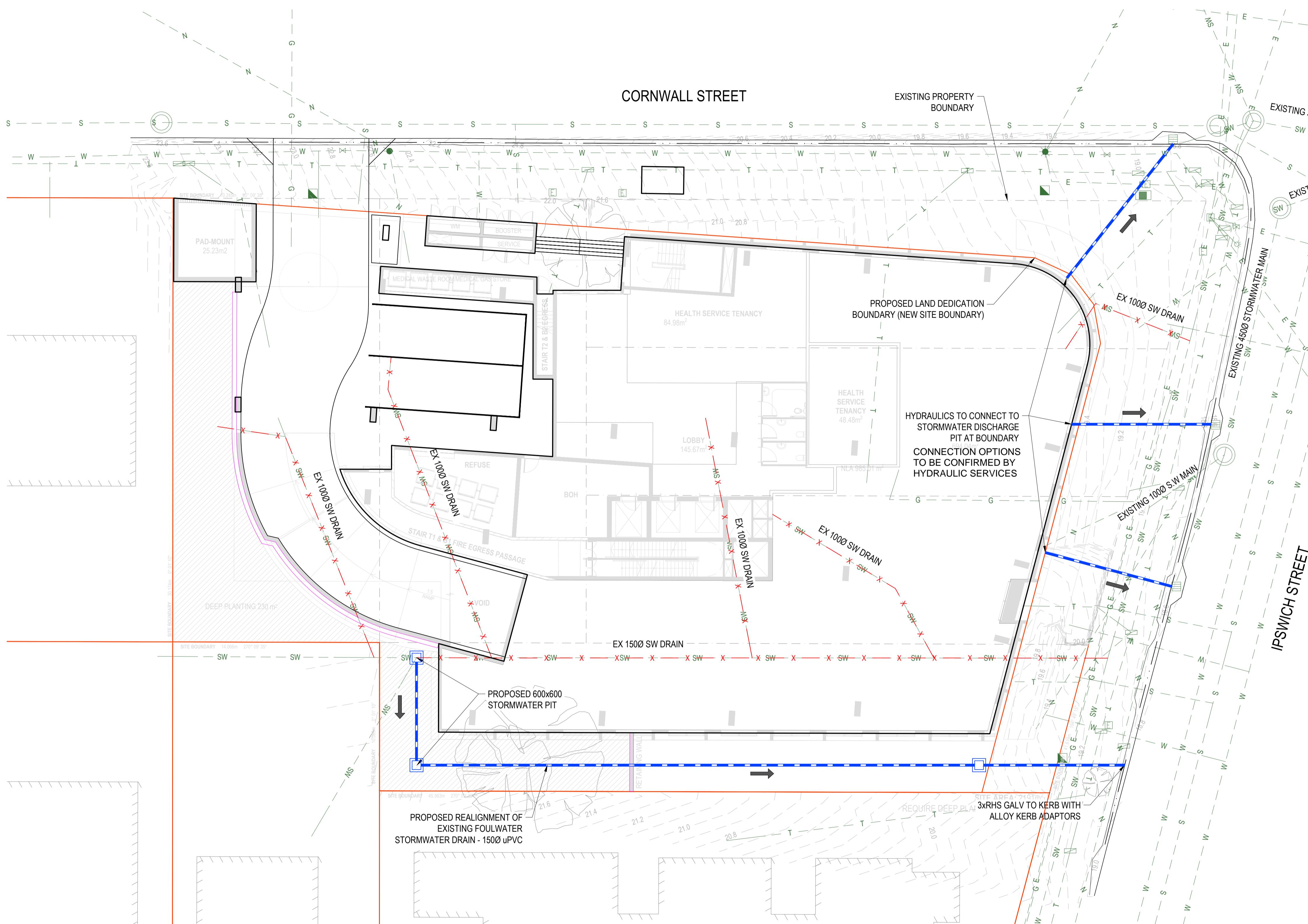
PROPERTY BOUNDARY
EXISTING MINOR & MAJOR CONTOUR (0.100m)
EXISTING BUILDING
EXISTING STORMWATER
EXISTING ROOFWATER
EXISTING WATER
EXISTING SEWER
EXISTING SEWER RISING MAIN
EXISTING GAS
EXISTING ELECTRICAL
EXISTING ELECTRICAL OVERHEAD
EXISTING TELECOMMUNICATIONS
EXISTING OPTIC FIBRE
EXISTING FIRE
PROPOSED MINOR & MAJOR CONTOUR (0.100m)
PROPOSED BUILDING
PROPOSED BATTER TOP
PROPOSED BATTER TOE
PROPOSED TYPE E BARRIER
KERB AND CHANNEL REFER STD DWG
PROPOSED CONCRETE
PROPOSED RETAINING WALL
PROPOSED STORMWATER
SERVICE TO BE REMOVED

NOTES

1. CONTRACTOR TO READ DRAWING IN CONJUNCTION WITH ARCHITECT'S, LANDSCAPE, STRUCTURAL AND HYDRAULIC ENGINEER'S PLANS.
2. CONTRACTOR TO CONFIRM LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORKS AND NOTIFY ENGINEER IF ANY DISCREPANCY OR POTENTIAL CLASH IS NOTED.
3. ALL EXISTING SERVICE PITS AND LIDS WITHIN EXTENT OF WORKS TO BE MODIFIED TO SUIT NEW FINISHED SURFACE LEVELS.

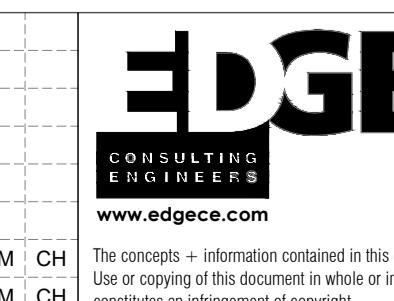
WARNING

THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL EXISTING SERVICES ON AND EXTERIOR TO THE SITE INCLUDING WATER MAINS, SEWER MAINS, GAS MAINS, TELECOMMUNICATIONS CABLES, ELECTRICAL CABLES, AND STORMWATER PIPES. ANY DAMAGE TO EXISTING SERVICES SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.



RREQ NAME:
RREQ No:
DATE:
SIGN:

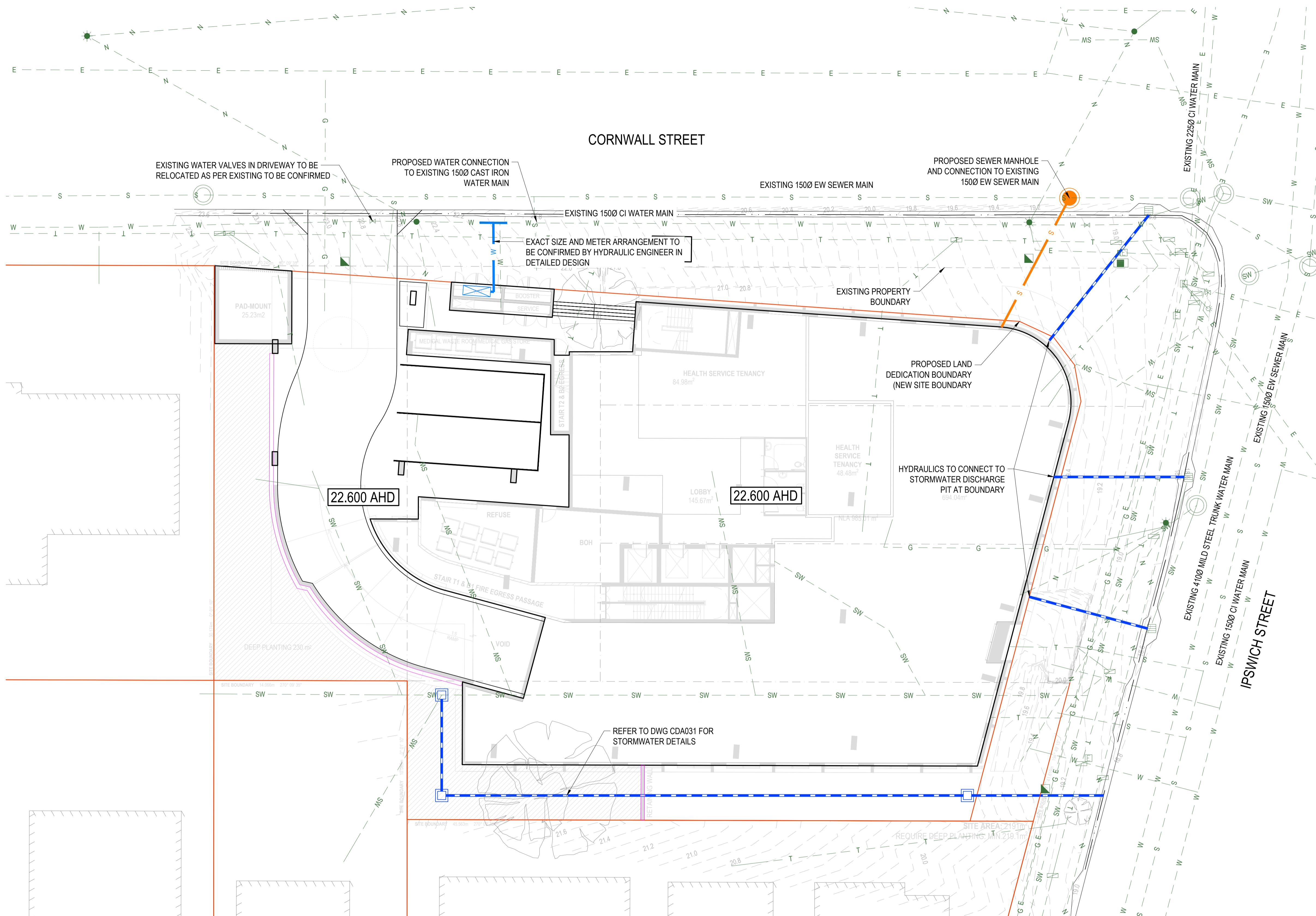
P2 15.03.23 FOR APPROVAL
P1 13.01.23 FOR REVIEW
Rev Date Description
By Chk



Brisbane, Australia
1st Floor, 28 Balclava Street,
Woolloongabba,
Queensland, 4102,
Australia
T: +61 7 3392 3671
E: brisbane@edgece.com
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DO NOT SCALE DRAWINGS. IF IN DOUBT, ASK!

Project Name
ANNERLEY HEALTH HUB
97-99 CORNWALL ST & 275-281 IPSWICH RD
ANNERLEY, QLD, 4103
Client
CORNERSTONE HEALTHCARE PROPERTIES
Designed Drawn Checked Scale @ A1
AM AM CH 1:150

Drawing Title
STORMWATER MANAGEMENT PLAN
Drawing No.
221058
PRELIMINARY
Revision
P2



LEGEND

- | | |
|-----|---|
| | PROPERTY BOUNDARY |
| | EXISTING BUILDING |
| | EXISTING WATER |
| | PROPOSED WATER |
| | EXISTING SEWER |
| | PROPOSED SEWER |
| | EXISTING STORMWATER |
| | PROPOSED STORMWATER/CONNECTION LOCATION OPTIONS |
| | EXISTING GAS |
| | EXISTING ELECTRICAL |
| | EXISTING ELECTRICAL OVERHEAD |
| | EXISTING TELECOMMUNICATIONS |
| | PROPOSED BUILDING |
| BKC | PROPOSED TYPE E BARRIER
KERB AND CHANNEL. REFER
STD DWG |
| | PROPOSED CONCRETE |
| | PROPOSED RETAINING WALL |

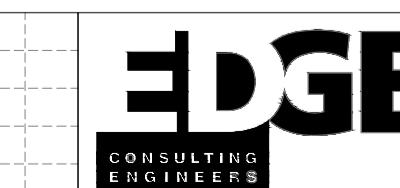
WARNING

THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL EXISTING SERVICES ON AND EXTERIOR TO THE SITE INCLUDING WATER MAINS, SEWER MAINS, GAS MAINS, TELECOMMUNICATIONS CABLES, ELECTRICAL CABLES, AND STORMWATER PIPES. ANY DAMAGE TO EXISTING SERVICES SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.

NOTE

1. ALL REDUNDANT WATER AND SEWER SERVICES TO BE SEALED AND REMOVED.
 2. ALL REDUNDANT ROOFWATER OUTLETS AND CROSSOVERS TO BE REMOVED AND FOOTPATHS AND KERB AND CHANNEL REINSTATED.

RPEQ NAME:
RPEQ No:
DATE:
SIGN:



Brisbane . Australia
1st Floor, 28 Balaclava Street.
Woolloongabba,
Queensland, 4102,
Australia

Project Name	ANNERLEY HEALTH HUB 97-99 CORNWALL ST & 275-281 IPSWICH RD ANNERLEY, QLD, 4103		
Client	CORNERSTONE HEALTHCARE PROPERTIES		
Designed	Drawn	Checked	Scale @ A1

Drawing Title
SERVICE CONNECTION PLAN

Appendix D – DBYD



- Legend**
- Pit
 - Fibre / Conduit
 - - - Fibre / Telstra Conduit

It is critical that no works commence within the area until you have received and appraised the applicable Telstra Duct Plans



© State of Queensland (Department of Natural Resources, Mines and Energy) 2020



Scale: 1:1000
Expires: 31 Aug 2022

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The Essential First Step.



Legend | Scale: 1:1500

- Enquiry Area
- AARNet Fibre Optic Assets
- AARNet Power Assets
- Cadastre

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Sequence Number: 214366995

Date Generated: 03 Aug 2022



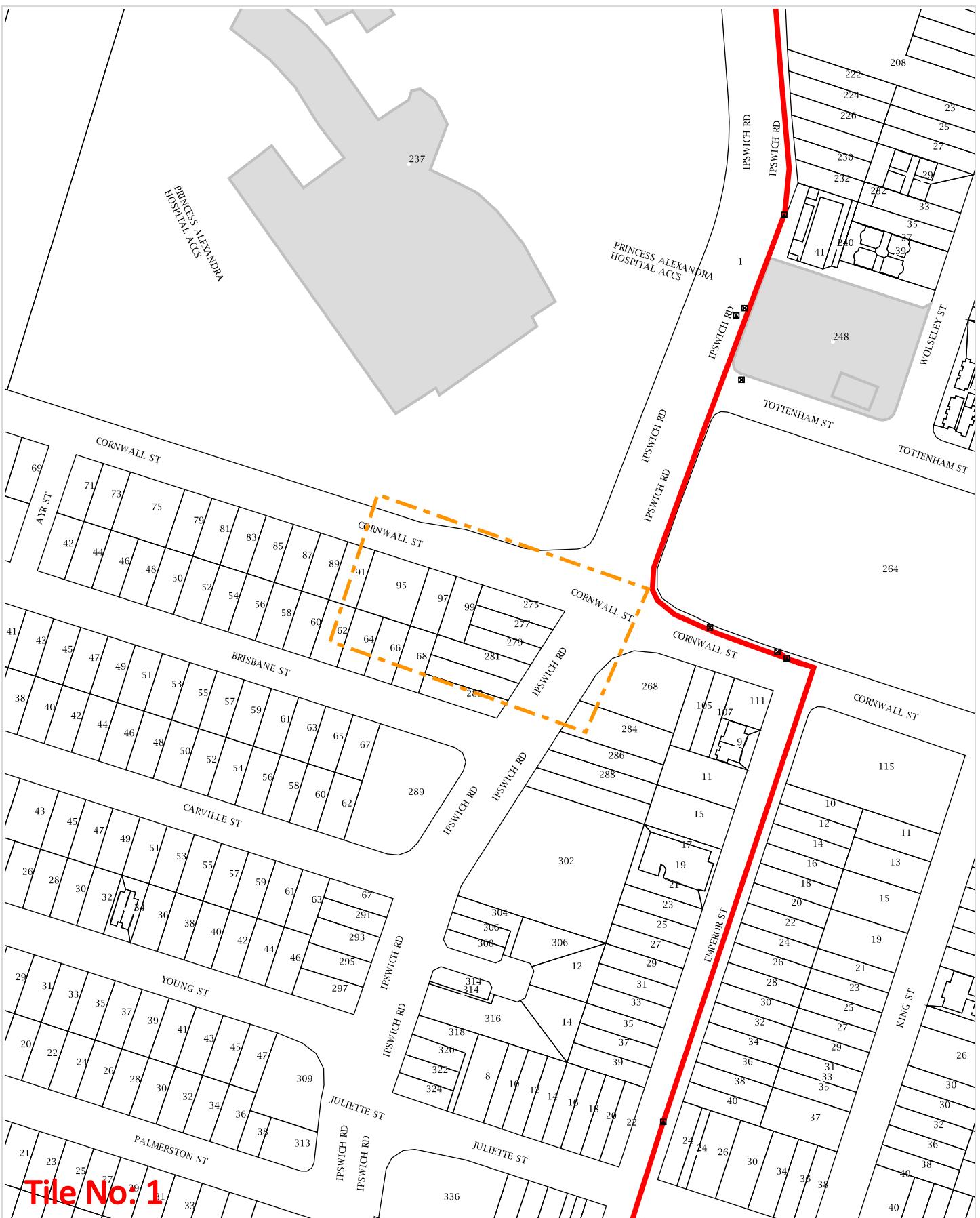
For all Optus DBYD plan enquiries –

Email: Fibre.Locations@optus.net.au

For urgent onsite assistance contact 1800 505 777

Optus Limited ACN 052 833 208





WARNING: This document is confidential and may also be privileged. Confidentiality nor privilege is not waived or destroyed by virtue of it being transmitted to an incorrect addressee. Unauthorised use of the contents is therefore strictly prohibited. Any information contained in this document that has been extracted from our records is believed to be accurate, but no responsibility is assumed for any error or omission. Optus Plans and information supplied are valid for 30 days from the date of issue. If this timeline has elapsed, please raise a new enquiry.

Sequence Number: 214366995

Date Generated: 03 Aug 2022



For all Optus DBYD plan enquiries –

Email: Fibre.Locations@optus.net.au

For urgent onsite assistance contact 1800 505 777

Optus Limited ACN 052 833 208





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 40mm PVC conduit (P40) 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

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: 214366996

Date: 03/08/2022

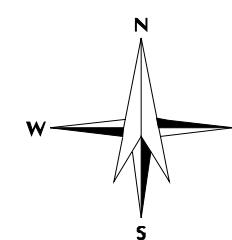
Scale: 1:1025

Scale. 1.102

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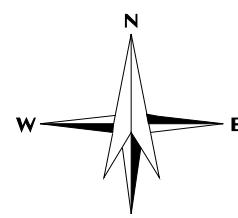
This output provides details of the ENERGEX electrical network. As variations map exist no responsibility is incurred by ENERGEX for the accuracy or completeness of the information provided. Exact positions of cables and electrical connectivity should be confirmed on site.

Sequence: 214366996
Date: 03/08/2022

Scale: 1:500
Tile No: 1

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

AS488 Category "D" Plan



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PRINCESS ALEXANDRA HOSPITAL ACCS

P55086-D

P55087-D

CORNWALL ST

P55088-D

P55089-D

P57285-C

75 75
75 75

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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.

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: 214366996

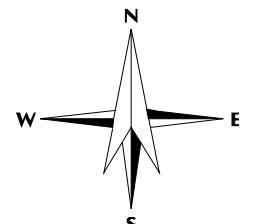
Date: 03/08/2022

Scale: 1:500

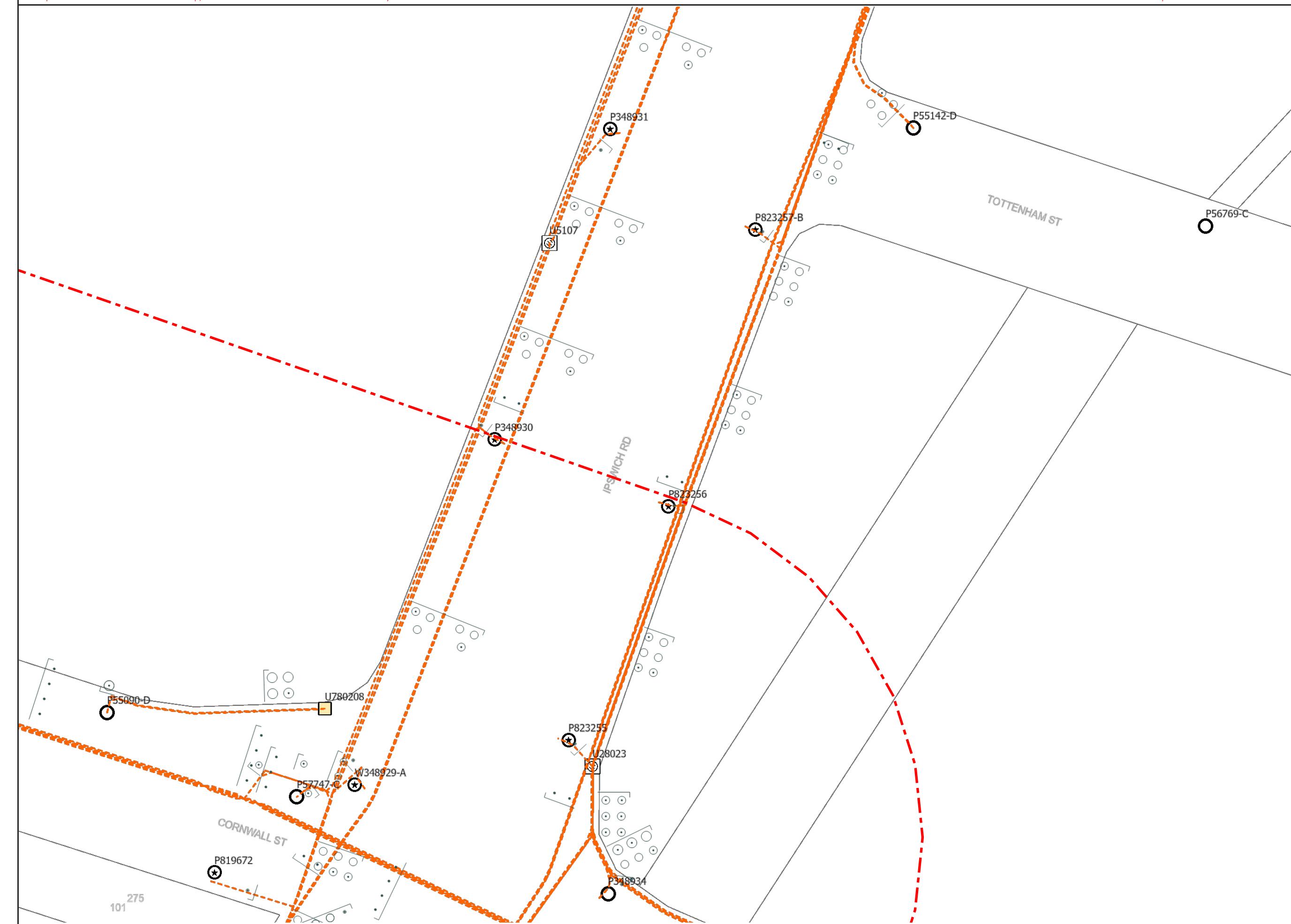
Tile No: 2

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

AS488 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.

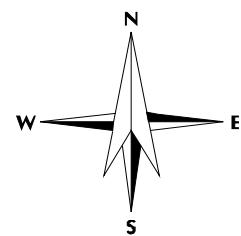
For Emergency Situations
please call 13 19 62

**DBYD**

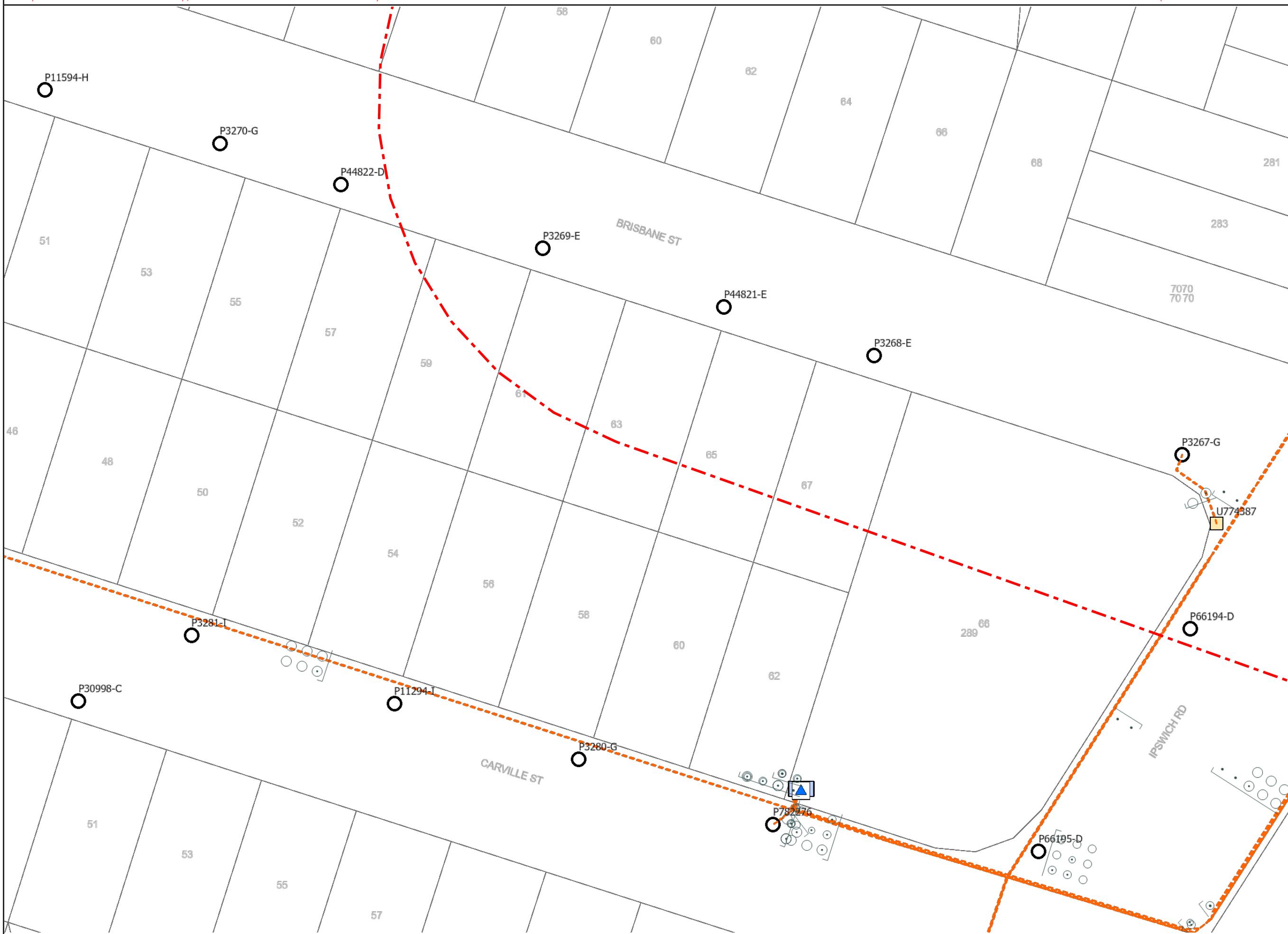
Sequence: 214366996
Date: 03/08/2022
Scale: 1:500
Tile No: 3

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

AS488 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.

For Emergency Situations
please call 13 19 62



DBYD

Sequence: 214366996

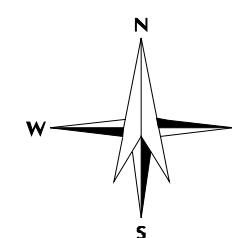
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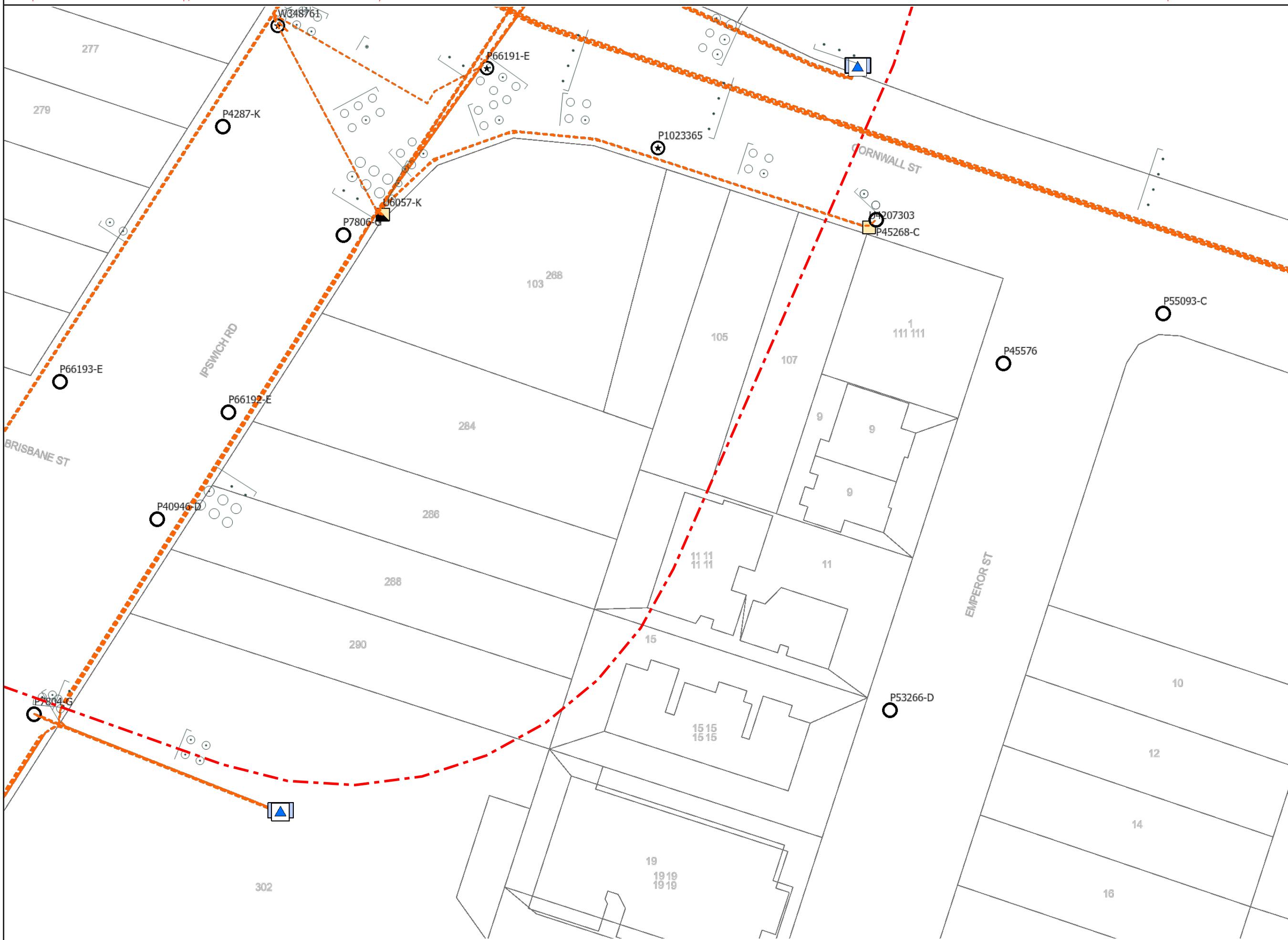
For a full list of Map Symbols, please refer to the supplied DBYD Symbology Legend page

AS488 Category "D" Plan



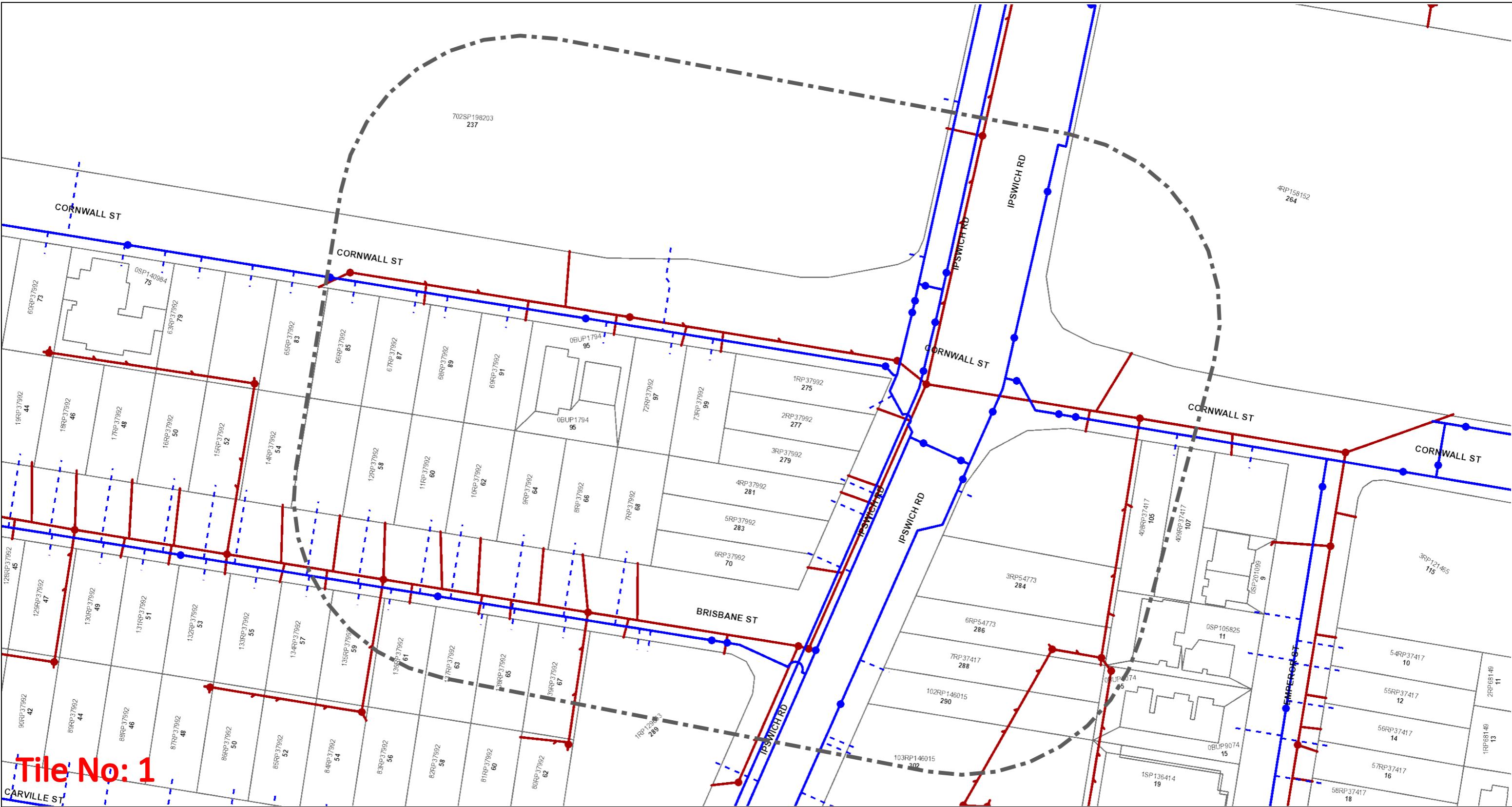
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All underground cables shall be treated as being energised. Where a cable is located that is not represented on the ENERGEX DBYD map, then ENERGEX shall be contacted immediately.



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.

Urban Utilities - Water, Recycled Water and Sewer Infrastructure



Dial Before You Dig - Urban Utilities Water, Recycled Water and Sewer Infrastructure

DBYD Reference No: 214366999

Date DBYD Ref Received: 03/08/2022

Date DBYD Job to Commence: 03/08/2022

Date DBYD Map Produced: 03/08/2022

This Map is valid for 30 days



Produced By: Urban Utilities

Sewer

- Infrastructure
- ◆ Major Infrastructure
- Network Pipelines
- Network Structures

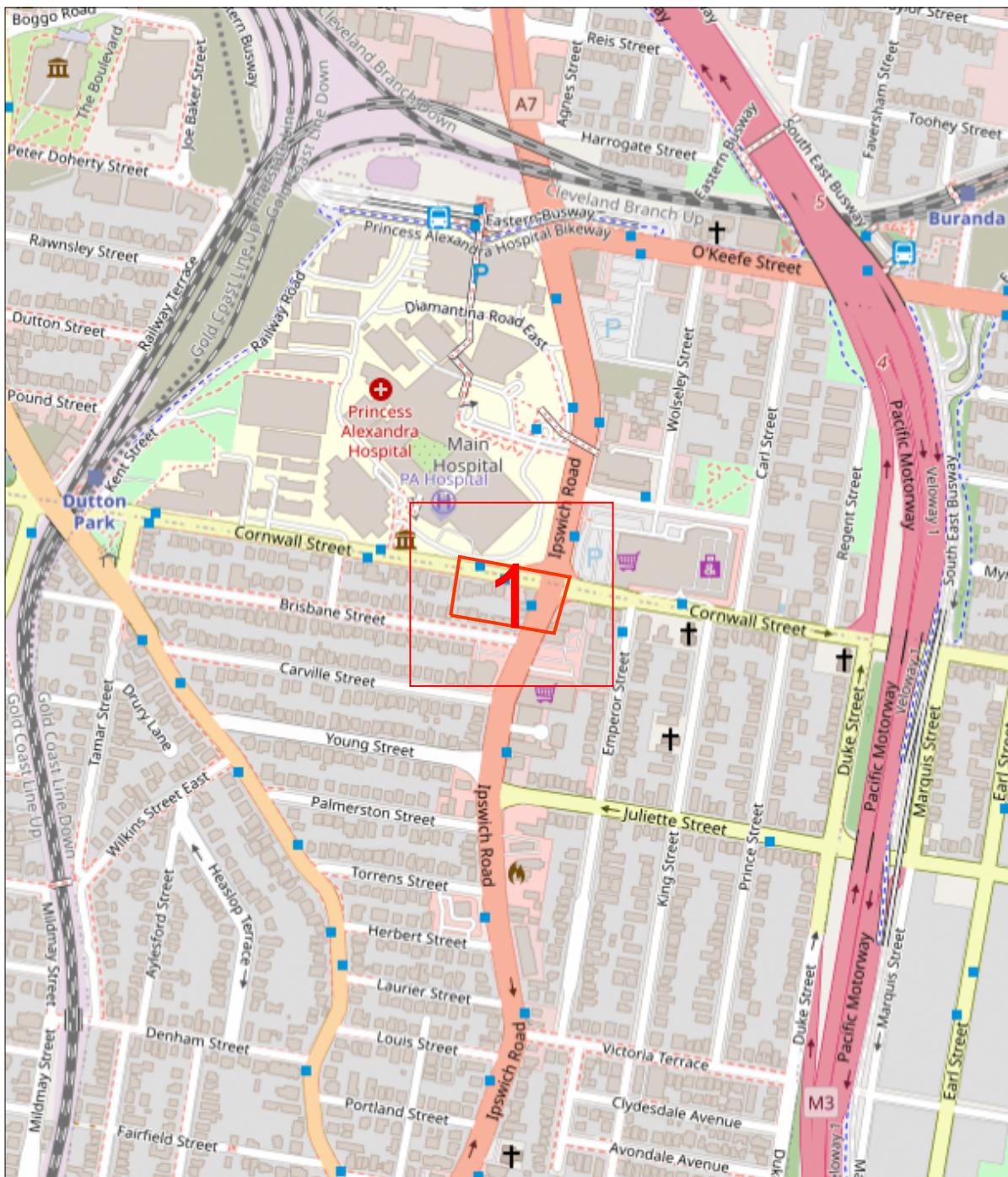
Water

- Infrastructure
- ◆ Major Infrastructure
- Network Pipelines
- Network Structures
- - - Water Service (Indicative only)

N
Map Scale
1:1000

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Site Address	99 Cornwall Street Annerley 4103	Sequence No	214367000
Name	Long Nguyen		
Email	lnguyen@edgece.com		



Scale 1: 6000

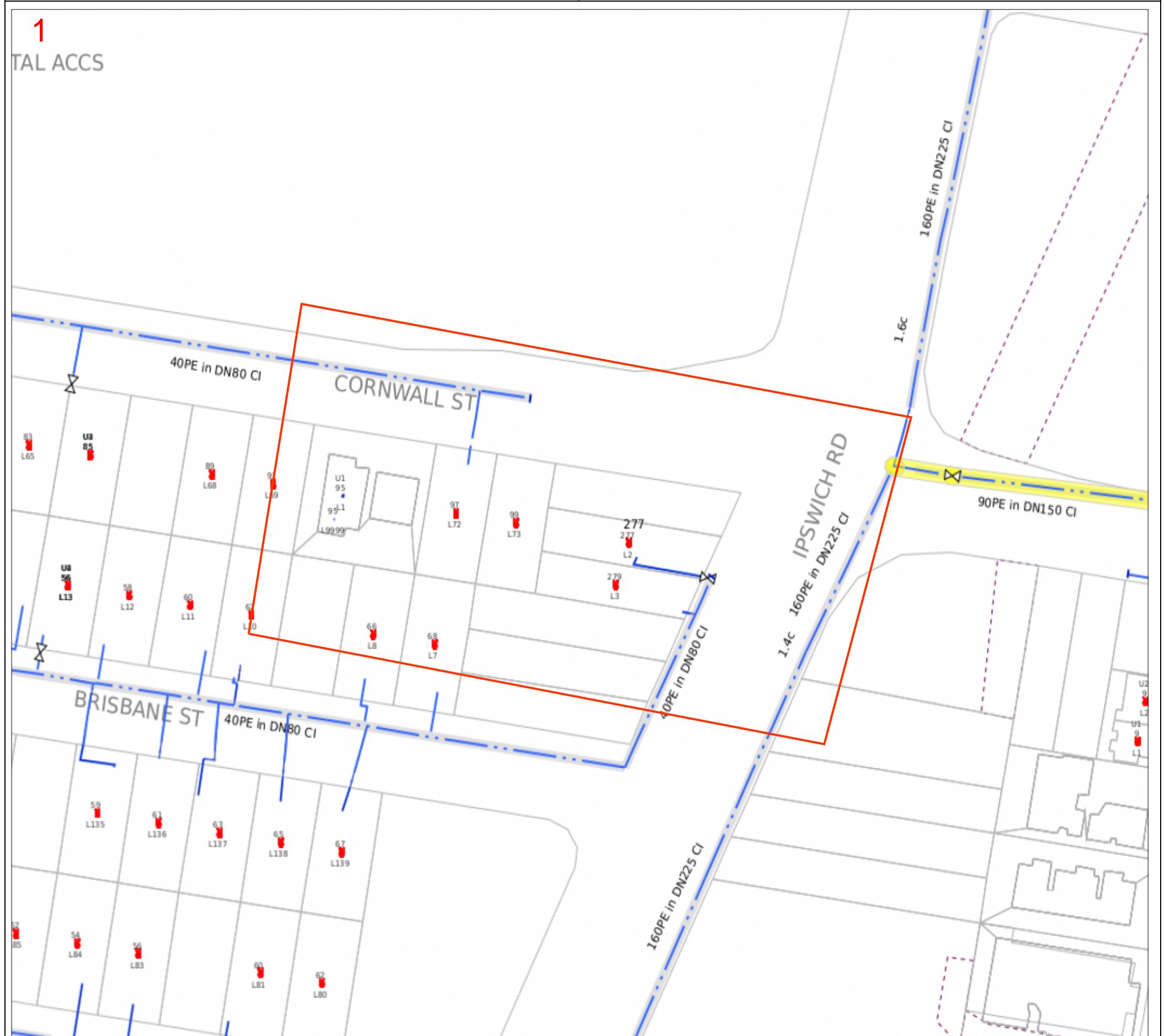


Enquiry Area

Map Key Area

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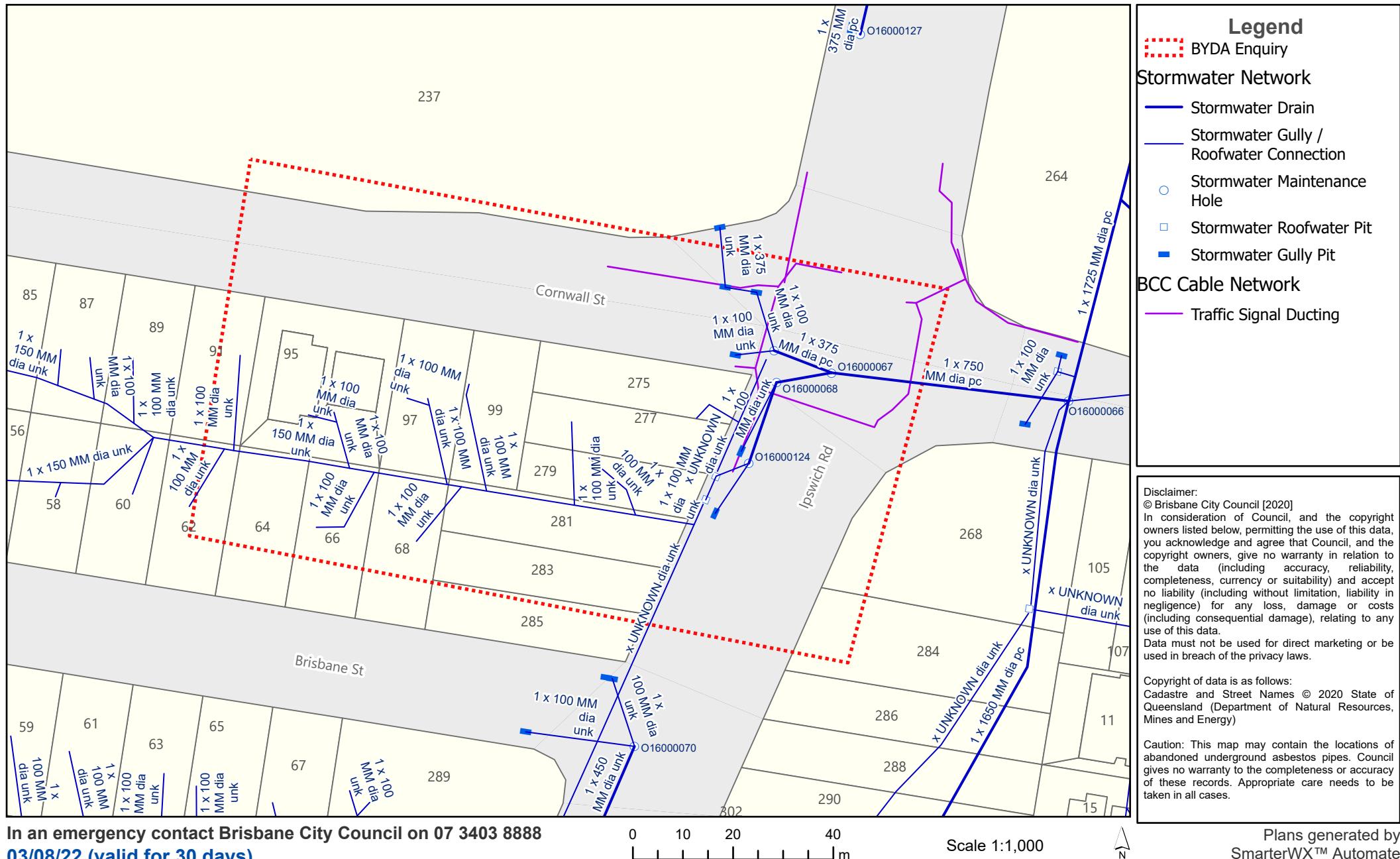
Site Address	99 Cornwall Street Annerley 4103	Sequence No	214367000
Before you commence any works you are required to complete the attached 'Work In The Vicinity Of Critical Gas Assets' request form and forward this to APA as soon as practicable.			



PIPE AND BOUNDARIES		PIPE CODE / MATERIALS		OBJECTS or TERMS		Map Key		
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	○ R			
PRIORITY MAIN (BEHIND PIPE)	■■■■■	P2,P4,P8	High Density PE	CP TEST POINT/ ANODE	■ T / ■ A			
PROPOSED (COLOUR BY PRESSURE)	---	ST or S#	Steel	SYPHON	○ S			
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	■ or ■			
CASING / SPLIT (BEHIND PIPE)	/	Pipe diameter in millimetres is shown before pipe code e.g. 40P6 = 40mm nominal diameter		DEPTH OF COVER	C			
UNKNOWN	—							
EASEMENT/ JURISDICTION	- - - - -							
EXAMPLES	40P6 in 80C2 63S8	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						
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: DBYDNetworks@apa.com.au • Template: QLD Critical Jan 2022 Page 5 of 8 • 03/08/2022								



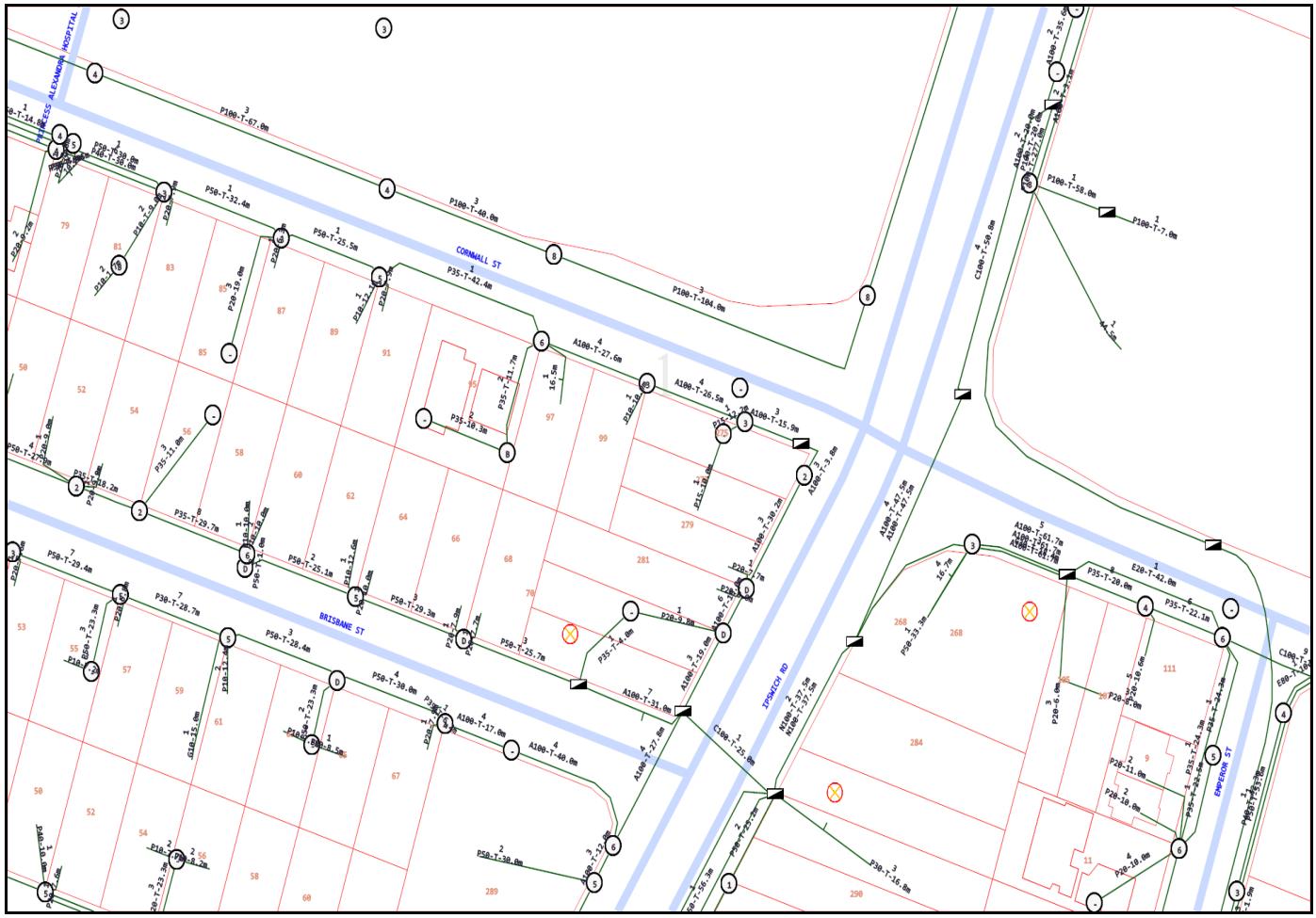
Job # 32452450
Seq # 214366993
Provider: Brisbane City Council
Telephone: 07 3403 8888





DBYD SYMOLOGY LEGEND

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



Emergency Contacts

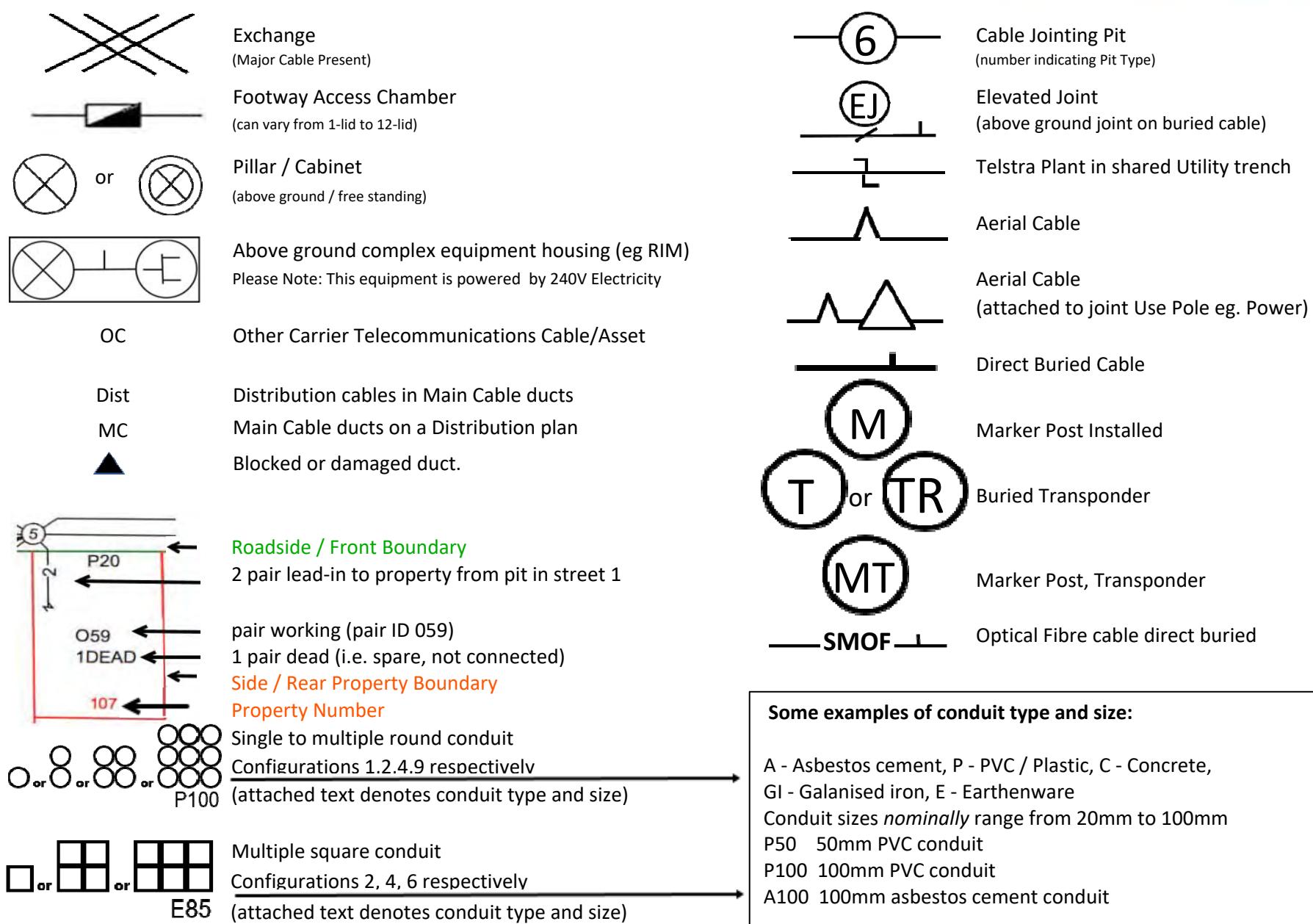
You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.

LEGEND

IT'S HOW
WE CONNECT



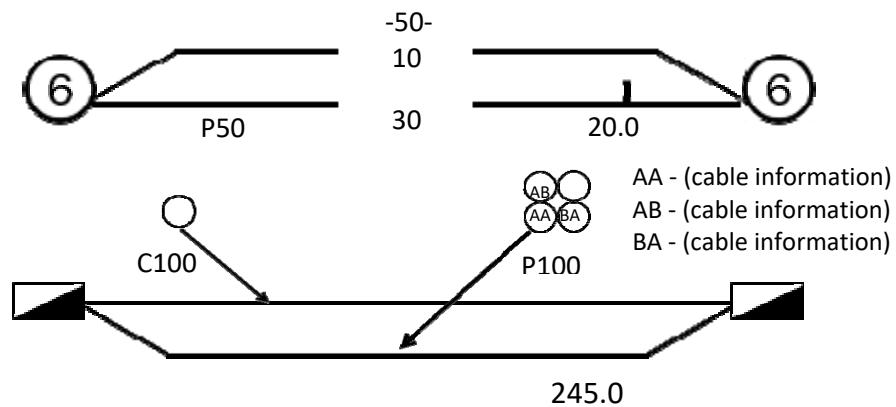
For more info contact a Certified Locating Organisation or Telstra Plan Services 1800 653 935



Some examples of conduit type and size:

A - Asbestos cement, P - PVC / Plastic, C - Concrete,
GI - Galanised iron, E - Earthenware
Conduit sizes *nominally* range from 20mm to 100mm
P50 50mm PVC conduit
P100 100mm PVC conduit
A100 100mm asbestos cement conduit

Some Examples of how to read Telstra Plans

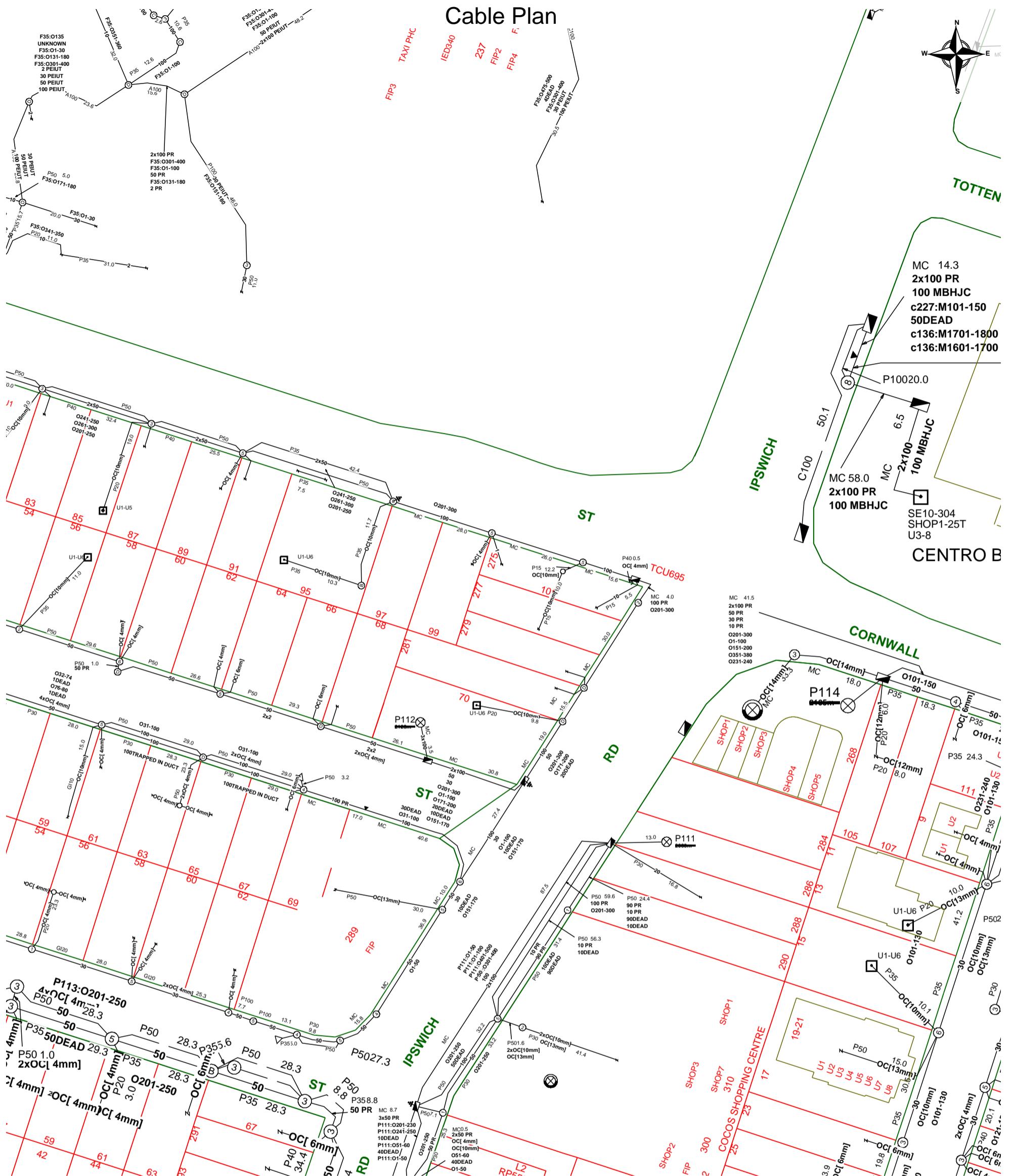


One 50mm PVC conduit (P50) containing a 50-pair and a 10-pair cable between two 6-pits. approximately 20.0m apart, with a direct buried 30-pair cable along the same route

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.

Cable Plan



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

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

Generated On 03/08/2022 09:02:27

Sequence Number: 214366998

CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

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.

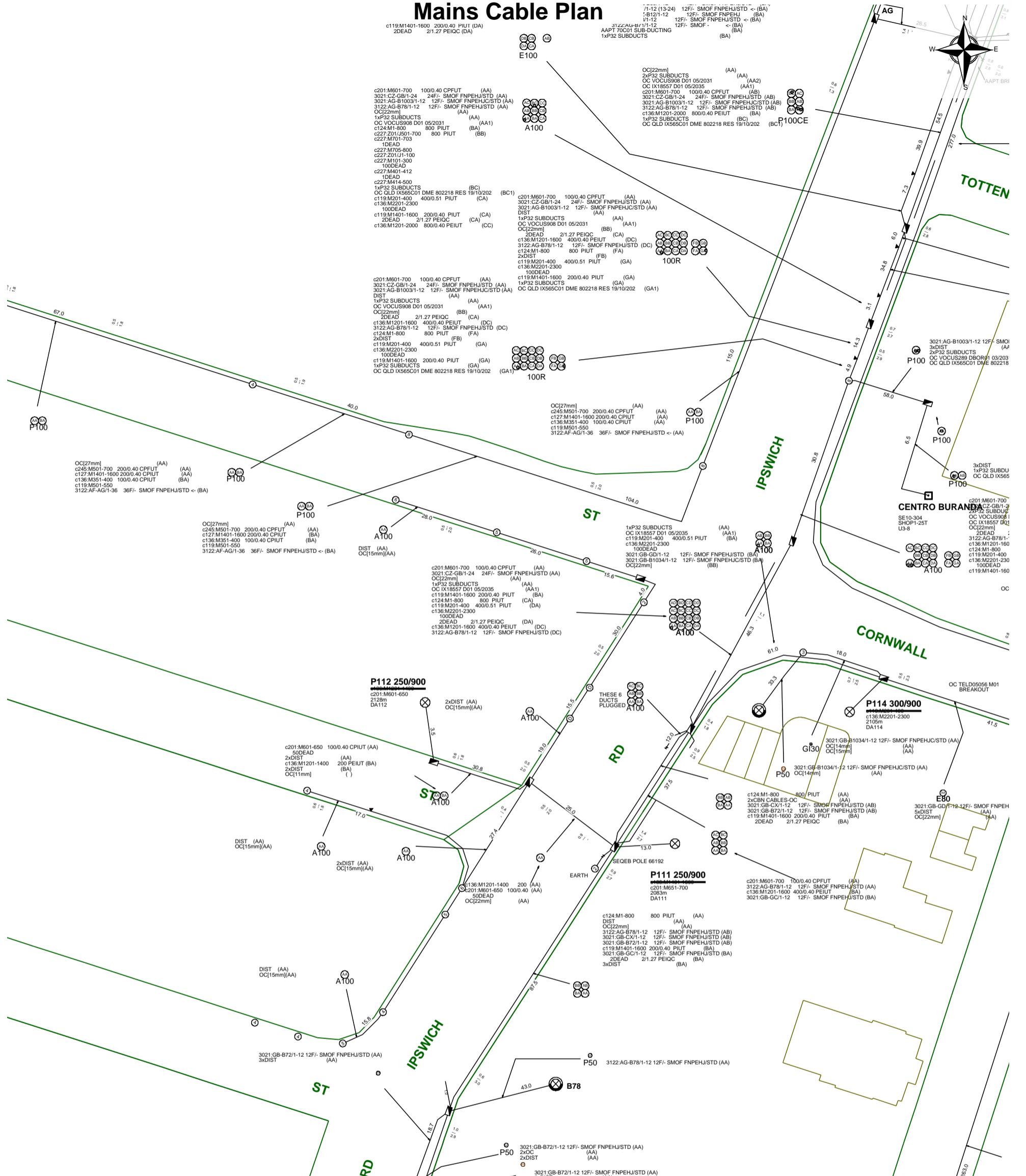
Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work.

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.

Mains Cable Plan

c119:M1401-1600 200/0.40 PIUT (DA)
2DEAD 2/127 PEIQC (DA)



Report Damage: <https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment>
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CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

WARNING

Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information

Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification. As such Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D.

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.

Refer to AS 3488 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.

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.

Appendix E – BCC INFRASTRUCTURE DESIGN CODE

9.4.4

Infrastructure design code

9.4.4.1

Application

1. This code applies to assessing a material change of use, reconfiguring a lot or building work if:
 - a. assessable development where this code is identified as a prescribed secondary code in the assessment benchmarks column of a table of assessment for a material change of use (section 5.5), reconfiguring a lot (section 5.6), operational work (section 5.8), or an overlay (section 5.10); or
 - b. impact assessable development, to the extent relevant.
2. When using this code, reference should be made to section 1.5 and section 5.3.3.

Note—The following purpose, overall outcomes, performance outcomes and acceptable outcomes comprise the assessment benchmarks of this code.

Note—Where this code includes performance outcomes or acceptable outcomes that relate to:

- ecological assessment, koala habitat or development design, guidance is provided in the Biodiversity areas planning scheme policy;
- infrastructure design and construction works, guidance is provided in the Infrastructure design planning scheme policy;
- noise and dust impacts during construction and/or demolition, guidance is provided in the Management plans planning scheme policy;
- noise impact assessment, guidance is provided in the Noise impact assessment planning scheme policy;
- refuse and recycling, guidance is provided in the Refuse planning scheme policy;
- parking or servicing management during construction, guidance is provided in the Transport, access, parking and servicing planning scheme policy.

9.4.4.2

Purpose

1. The purpose of the Infrastructure design code is to assess the suitability of infrastructure for development.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Development is provided with a safe, connected and efficient transport network for all modes that has a minimal whole-of-life cost.
 - b. Development provides for public utilities and services to the standards acceptable to the Council and the reasonable expectations of service providers.
 - c. Development involving infrastructure which is intended to become a Council asset is safe, aesthetically pleasing, functional, fit for purpose, durable, minimises environmental impacts and has minimal whole-of-life cost.
 - d. Development provides for a public space to be safe and inviting, allowing high levels of pedestrian activity.
 - e. Development ensures that the community and environment are not unreasonably disrupted or impacted by construction or demolition for the development.
 - f. Development involving infrastructure is designed with consideration of, and to integrate with, other related and interfacing infrastructure components.
 - g. Development accessed by common private title is provided with appropriate fire hydrant infrastructure and has unimpeded access for refuse vehicles and for emergency service vehicles to protect people, property and the environment.
 - h. Development ensures major electricity infrastructure and bulk water supply infrastructure identified on the State Planning Policy Interactive Mapping System is not compromised.
 - i. Development for major electricity infrastructure and bulk water supply infrastructure identified on the State Planning Policy Interactive Mapping System avoids or otherwise minimises adverse impacts on surrounding land uses.

9.4.4.3

Performance outcomes and acceptable outcomes

Table 9.4.4.3.A—Performance outcomes and acceptable outcomes

Performance outcomes	Acceptable outcomes	Comments
PO1 Development provides roads, pavement, edging and landscaping which: <ul style="list-style-type: none"> a. are designed and constructed in accordance with the road hierarchy; b. provide for safe travel for pedestrians, cyclists and vehicles; c. provide access to properties for all modes; d. provide utilities; e. provide high levels of aesthetics and amenity, improved liveability and future growth; f. provide for the amelioration of noise and other pollution; g. provide a high-quality streetscape; h. provide a low-maintenance asset with a minimal whole-of-life cost. <p>Note—This can be demonstrated in an engineering report prepared and certified by a Registered Professional Engineer Queensland in accordance with the Infrastructure design planning scheme policy.</p>	AO1 Development provides roads and associated pavement, edging and landscaping which are designed and constructed in compliance with the road corridor design standards in the Infrastructure design planning scheme policy.	N/A
PO2 Development provides road pavement surfaces which: <ul style="list-style-type: none"> a. are well designed and constructed; b. durable enough to carry the wheel loads of the intended types and numbers of travelling and parked vehicles; c. ensures the safe passage of vehicles, pedestrians and cyclists, the discharge of stormwater run-off and the preservation of all-weather access; 	AO2 Development provides road pavement surfaces which are designed and constructed in compliance with the road corridor design standards in the Infrastructure design planning scheme policy.	N/A

d. allows for reasonable travel comfort.		
PO3 Development provides a pavement edge which is designed and constructed to: a. control vehicle movements by delineating the carriageway for all users; b. provide for people with disabilities by allowing safe passage of wheelchairs and other mobility aids.	AO3 Development provides pavement edges which are designed and constructed in compliance with the road corridor design standards in the Infrastructure design planning scheme policy.	N/A
PO4 Development provides verges which are designed and constructed to: a. provide safe access for pedestrians clear of obstructions and access areas for vehicles onto properties; b. provide a sufficient area for public utility services; c. be maintainable by the Council.	AO4 Development provides verges which are designed and constructed in compliance with the road corridor design and streetscape locality advice standards in the Infrastructure design planning scheme policy.	Complies. This will be further assessed as part of detailed design (noted that the development is required to dedicate land along both road frontages for future road widening by Council)
PO5 Development provides a lane or laneway identified on the Streetscape hierarchy overlay map or in a neighbourhood plan which: a. allows equitable access for all modes; b. is safe and secure; c. has 24-hour access; d. is a low-speed shared zone environment; e. has a high-quality streetscape.	AO5 Development provides a lane or laneway identified on the Streetscape hierarchy overlay map or in a neighbourhood plan which is embellished in compliance with the streetscape locality advice standards in the Infrastructure design planning scheme policy.	N/A
PO6 Development of an existing premises provides at the frontage to the site, if not already provided, the following infrastructure to an appropriate urban standard: a. an effective, high-quality paved roadway; b. an effective, high-quality roadway kerb and channel;	AO6 Development of an existing premises provides at the frontage of the site, if not already existing, the following infrastructure to the standard that would have applied if the development involved new premises as stated in the road corridor design standards in the Infrastructure design planning scheme policy:	Complies. This will be further assessed as part of detailed design (noted that the development is required to dedicate land along both road frontages for future road widening by Council)

<ul style="list-style-type: none"> c. safe, high-quality vehicle crossings over channels and verges; d. safe, accessible, high-quality verges compatible and integrated with the surrounding environment; e. safe vehicle access to the site that enables ingress and egress in a forward gear; f. provision of and required alterations to public utilities; g. effective drainage; h. appropriate conduits to facilitate the provision of required street-lighting systems and traffic signals. 	<ul style="list-style-type: none"> a. concrete kerb and channel; b. forming and grading to verges; c. crossings over channels and verges; d. a constructed bikeway; e. a constructed verge or reconstruction of any damaged verge; f. construction of the carriageway; g. payment of costs for required alterations to public utility mains, services or installations; h. construction of and required alterations to public utility mains, services or installations; i. drainage works; j. installation of electrical conduits. 	
<p>PO7 Development provides both cycle and walking routes which:</p> <ul style="list-style-type: none"> a. are located, designed and constructed to their network classification (where applicable); b. provide safe and attractive travel routes for pedestrians and cyclists for commuter and recreational purposes; c. provide safe and comfortable access to properties for pedestrians and cyclists; d. incorporate water sensitive urban design into stormwater drainage; e. provide for utilities; f. provide for a high level of aesthetics and amenity, improved liveability and future growth; g. are a low-maintenance asset with a minimal whole-of-life cost; h. minimise the clearing of significant native vegetation. <p>Note—This can be demonstrated in an engineering report prepared and certified by a Registered Professional Engineer Queensland in accordance with the Infrastructure design planning scheme policy.</p>	<p>AO7 Development provides cycle and walking routes which are located, designed and constructed in compliance with the road corridor design and off-road pathway design standards in the Infrastructure design planning scheme policy.</p>	N/A

<p>PO8</p> <p>Development provides refuse and recycling collection, separation and storage facilities that are located and managed so that adverse impacts on building occupants, neighbouring properties and the public realm are minimised.</p>	<p>AO8.1</p> <p>Development provides refuse and recycling collection and storage facilities in accordance with the Refuse planning scheme policy.</p> <p>AO8.2</p> <p>Development ensures that refuse and recycling collection and storage location and design do not have any adverse impact including odour, noise or visual impacts on the amenity of land uses within or adjoining the development. Note—Refer to the Refuse planning scheme policy for further guidance.</p>	<p>Complies. This will be further assessed as part of detailed design.</p>
<p>PO9</p> <p>Development ensures that:</p> <ul style="list-style-type: none"> a. land used for an urban purpose is serviced adequately with regard to water supply and waste disposal; b. the water supply meets the stated standard of service for the intended use and fire-fighting purposes. 	<p>AO9.1</p> <p>Development ensures that the reticulated water and sewerage distribution system for all services is in place before the first use is commenced.</p> <p>AO9.2</p> <p>Development provides the lot with reticulated water supply and sewerage to a standard acceptable to the distributor–retailer.</p>	<p>Compiles. Services are available to service the site. An Engineering Services Report (ESR) is to be submitted with the Development Application. Services locations have been provided by Urban Utilities (UU) that show existing watermains and gravity sewer mains adjoining the site.</p>
<p>PO10</p> <p>Development provides public utilities and street lighting which are the best current or alternative technology and facilitate accessibility, easy maintenance, minimal whole-of-life costs, and minimal adverse environmental impacts.</p>	<p>AO10.1</p> <p>Development provides public utilities and street lighting which are located and aligned to:</p> <ul style="list-style-type: none"> a. avoid significant native vegetation and areas identified within the Biodiversity areas overlay map; b. minimise earthworks; c. avoid crossing waterways, waterway corridors and wetlands or if a crossing is unavoidable, tunnel-boring techniques are used to minimise disturbance, and a disturbed area is reinstated and restored on completion of the work. <p>Note—Guidance on the restoration of habitat is included in the Biodiversity areas planning scheme policy.</p> <p>AO10.2</p>	<p>Complies. This will be further assessed as part of detailed design.</p>

	<p>Development provides compatible public utility services and street-lighting services which are co-located in common trenching for underground services.</p> <p>AO10.3 Development provides public utilities and street lighting which are designed and constructed in compliance with the public utilities standards in the Infrastructure design planning scheme policy.</p>	
PO11 Development ensures that land used for urban purposes is serviced adequately with telecommunications and energy supply.	<p>AO11 Development provides land with the following services to the standards of the approved supplier:</p> <ul style="list-style-type: none"> a. electricity; b. telecommunications services; c. gas service where practicable. 	Complies. This will be further assessed as part of detailed design.
PO12 Development ensures that major public projects promote the provision of affordable, high-bandwidth telecommunications services throughout the city.	<p>AO12 Development provides conduits which are provided in all major Council and government works projects to enable the future provision of fibre optic cabling, if:</p> <ul style="list-style-type: none"> a. the additional expense is unlikely to be prohibitive; or b. further major work is unlikely or disruption would be a major concern, such as where there is a limited capacity road; or c. there is a clear gap in the telecommunications network; or d. there is a clear gap in the bandwidth available to the area. <p>Editor's note—An accurate, digital 'as built' three-dimensional location plan is to be supplied for all infrastructure provided in a road.</p>	N/A
PO13 Development provides public art identified in a neighbourhood plan or park concept plan which:	<p>AO13 Development provides public art identified in a neighbourhood plan or park concept plan which is sited</p>	N/A

<ul style="list-style-type: none"> a. is provided commensurate with the status and scale of the proposed development; b. is sited and designed: <ul style="list-style-type: none"> i. as an integrated part of the project design; ii. as conceptually relevant to the context of the location; iii. to reflect and respond to the cultural values of the community; iv. to promote local character in a planned and informed manner. 	<p>and designed in compliance with the public art standards in the Infrastructure design planning scheme policy.</p>	
PO14 Development provides signage of buildings and spaces which promote legibility to help users find their way.	AO14 Development provides public signage: <ul style="list-style-type: none"> a. at public transport interchanges and stops, key destinations, public spaces, pedestrian linkages and at entries to centre developments; b. which details the location of the key destinations, public spaces and pedestrian linkages in the vicinity, the services available within the development and where they are located. <small>Editor's note—Signage is to be in accordance with Local Law Number 1 (Control of Advertisements Local Law).</small>	N/A
PO15 Development that provides community facilities which form part of the development is functional, safe, low maintenance, and fit for purpose.	AO15 Development that provides community facilities which form part of the development is designed in compliance with the community facilities standards in the Infrastructure design planning scheme policy.	N/A
PO16 Development provides public toilets which: <ul style="list-style-type: none"> a. are required as part of a community facility or park; b. are located, designed and constructed to be: <ul style="list-style-type: none"> i. safe; ii. durable; iii. resistant to vandalism; 	AO16 Development that provides public toilets is designed and constructed in compliance with the public toilets standards in the Infrastructure design planning scheme policy.	N/A

<ul style="list-style-type: none"> iv. able to service expected demand; v. fit for purpose. 		
<p>PO17 Development provides bridges, tunnels, elevated structures and water access structures that are designed and constructed using proven methods, materials and technology to provide for:</p> <ul style="list-style-type: none"> a. safe movement of intended users; b. an attractive appearance appropriate to the general surroundings and any adjacent structures; c. functionality and easy maintenance; d. minimal whole-of-life cost; e. longevity; f. current and future services. <p>Note—All bridges and elevated and associated elements must be designed and certified by a Registered Professional Engineer Queensland in accordance with the Infrastructure design planning scheme policy.</p>	<p>AO17 Development that provides bridges, tunnels, elevated structures and water access structures is designed and constructed in compliance with the standards in the Infrastructure design planning scheme policy.</p>	N/A
<p>PO18 Development provides culverts which are designed and constructed using proven methods, materials and technology to provide for:</p> <ul style="list-style-type: none"> a. safety; b. an attractive appearance appropriate to the general surroundings; c. functionality and easy maintenance; d. minimal whole-of-life cost; e. longevity; f. future widening; g. current and future services; h. minimal adverse impacts, such as increase in water levels or flow velocities, and significant change of flood patterns. 	<p>AO18 Development that provides culverts is designed and constructed in compliance with the structures standards in the Infrastructure design planning scheme policy.</p>	N/A

Note—All culverts and associated elements are to be designed and certified by a Registered Professional Engineer Queensland in accordance with the applicable design standards.		
PO19 Development provides batters, retaining walls, and seawalls and river walls which are designed and constructed using proven methods, materials and technology to provide for: <ul style="list-style-type: none">a. safety;b. an attractive appearance appropriate to the surrounding area;c. easy maintenance;d. minimal whole-of-life cost;e. longevity;f. minimal water seepage. <p>Note—All retaining walls and associated elements are to be designed and certified by a Registered Professional Engineer Queensland in accordance with the applicable design standards.</p>	AO19 Development that provides batters, retaining walls, seawalls and river walls is designed and constructed in compliance with the structures standards in the Infrastructure design planning scheme policy.	N/A
If for development with a gross floor area greater than 1,000m²		
PO20 Development ensures that construction is managed so that use of public spaces and movement on pedestrian, cyclist and other traffic routes is not unreasonably disrupted and existing landscaping is adequately protected from short- and long-term impacts. Note—The preparation of a construction management plan can assist in demonstrating achievement of this performance outcome. Note—The Transport, access, parking and servicing planning scheme policy provides advice on the management of vehicle parking and deliveries during construction.	AO20 Development ensures that during construction: <ul style="list-style-type: none">a. the ongoing use of adjoining and surrounding parks and public spaces, such as malls and outdoor dining, is not compromised;b. adjoining and surrounding landscaping is protected from damage;c. safe, legible, efficient and sufficient pedestrian, cyclist and vehicular accessibility and connectivity to the wider network are maintained.	Will comply. This will be assessed as part of detailed design.
PO21 Development ensures that construction and demolition activities are guided by measures that prevent or minimise adverse impacts including sleep disturbance at	AO21.1 Development ensures that demolition and construction: <ul style="list-style-type: none">a. only occur between 6:30am and 6:30pm Monday to Saturday, excluding public holidays;	Will comply. This will be assessed as part of detailed design.

<p>a sensitive use, due to noise and dust, including dust from construction vehicles entering and leaving the site.</p> <p>Note—A noise and dust impact management plan prepared in accordance with the Management plans planning scheme policy can assist in demonstrating achievement of this performance outcome.</p>	<p>b. do not occur over periods greater than 6 months.</p> <p>AO21.2</p> <p>Development including construction and demolition does not release dust emissions beyond the boundary of the site.</p>	
	<p>AO21.3</p> <p>Development construction and demolition does not involve asbestos-containing materials.</p>	
<p>PO22</p> <p>Development ensures that:</p> <ul style="list-style-type: none"> a. construction and demolition do not result in damage to surrounding property as a result of vibration; b. vibration levels achieve the vibration criteria in Table 9.4.4.3.B, Table 9.4.4.3.C, Table 9.4.4.3.D and Table 9.4.4.3.E. <p>Note—A vibration impact assessment report prepared in accordance with the Noise impact assessment planning scheme policy can assist in demonstrating achievement of this performance outcome.</p>	<p>AO22</p> <p>Development ensures that the nature and scale of construction and demolition do not generate noticeable levels of vibration.</p>	<p>Will comply. This will be assessed as part of detailed design.</p>
	<p>If for a material change of use or reconfiguring a lot in an urban area (as defined in the Regulation) involving premises that is, or will be, accessed by common private title, where involving buildings, either attached or detached, that are not covered by other legislation mandating fire hydrants</p>	
<p>PO23</p> <p>Development ensures that fire hydrants are:</p> <ul style="list-style-type: none"> a. installed and located to enable fire services to access water safely, effectively and efficiently; b. suitably identified so that fire services can locate them at all hours. 	<p>AO23.1</p> <p>Above or below ground fire hydrants are provided on residential, commercial and industrial streets and private roads, at not more than 90m intervals, and at each street intersection.</p> <p>Note—On residential streets, above ground fire hydrants may be single outlet. On commercial and industrial streets above ground fire hydrants should have dual valved outlets.</p> <p>AO23.2</p> <p>Fire hydrants are identified by:</p>	<p>Will comply. This will be assessed as part of detailed design by Hydraulic Services Consultant.</p>

	a. raised reflectorised pavement markers (RRPM) on sealed roads; b. marker posts at the fence line where on an unsealed road, as road (HR) or path (HP) hydrants.	
PO24 Development ensures road widths and construction within the development, are adequate for refuse vehicles and for fire emergency vehicles to gain access to a safe working area close to buildings and near water supplies whether or not on-street parking spaces are occupied.	AO24 Internal private roads have a minimum roadway clearance between obstructions of 3.5m wide and 4.8m high in addition to any width required for on-street parking.	Will comply. This will be assessed as part of detailed design.
Development for major electricity infrastructure and bulk water supply infrastructure identified on the State Planning Policy Interactive Mapping System where not in the Utility services zone precinct of the Special purpose zone		
PO25 Development avoids or otherwise minimises adverse impacts on surrounding land uses through the use of buffers and setbacks and the appropriate design and location of plant and operational areas within the site.	AO25 No acceptable outcome is prescribed.	N/A
Development potentially impacting on major electricity infrastructure and bulk water supply infrastructure identified on the State Planning Policy Interactive Mapping System where the infrastructure is not in the Utility services zone precinct of the Special purpose zone		
PO26 Development is sited and designed to: a. avoid safety risks to people or property; b. minimise noise and visual impacts to people and property; c. ensure the physical integrity and operation, maintenance and expansion of the infrastructure is not compromised.	AO26 No acceptable outcome is prescribed.	N/A

Table 9.4.4.3.B—Recommended intermittent vibration levels for cosmetic damage

Type of building	Peak particle velocity (mm/s)		
Reinforced or framed structures; industrial and heavy commercial buildings	50mm/s at 4Hz and above		
Unreinforced or light-framed structures; residential or light commercial type buildings	Below 4Hz	4Hz to 15Hz	15Hz and above
	0.6mm/s	15mm/s at 4Hz increasing to 20mm/s at 15Hz	20mm/s at 15Hz increasing to 50mm/s at 40Hz and above

Table 9.4.4.3.C—Recommended blasting vibration levels for human comfort

Type of building	Type of blasting operations	Peak component particle velocity (mm/s)
Residences, educational establishments and places of worship	Operation blasting longer than 12 months or more than 20 blasts	5mm/s for 95% blasts per year 10mm/s maximum unless agreement is reached with the occupier that a higher limit may apply
Residences, educational establishments and places of worship	Operation blasting longer than 12 months or more than 20 blasts	10mm/s maximum unless agreement is reached with the occupier that a higher limit may apply
Industry or commercial premises	All blasting	25mm/s maximum unless agreement is reached with the occupier that a higher limit may apply. For sites containing

		equipment sensitive to vibration, the vibration should be kept below manufacturer's specifications or levels that do not adversely affect the equipment operation.
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Table 9.4.4.3.D—Recommended levels for continuous and impulsive vibration acceleration (m/s^2) 1–80Hz for human comfort

Location	Assessment period ⁽¹⁾	Preferred values ⁽³⁾		Maximum values ⁽³⁾	
Continuous vibration		z-axis	x and y axes	z-axis	x and y axes
Critical areas ⁽²⁾	Day or night	0.005 m/s^2	0.0036 m/s^2	0.01 m/s^2	0.0072 m/s^2
Residences	Day	0.01 m/s^2	0.0071 m/s^2	0.02 m/s^2	0.014 m/s^2
-	Night	0.007 m/s^2	0.005 m/s^2	0.014 m/s^2	0.01 m/s^2
Offices, educational establishments and places of worship	Day or night	0.02 m/s^2	0.014 m/s^2	0.04 m/s^2	0.028 m/s^2
Workshops	Day or night	0.04 m/s^2	0.029 m/s^2	0.08 m/s^2	0.058 m/s^2
Impulsive vibration					
Critical areas	Day or night	0.005 m/s^2	0.0036 m/s^2	0.01 m/s^2	0.0072 m/s^2
Residences	Day	0.3 m/s^2	0.21 m/s^2	0.6 m/s^2	0.42 m/s^2
-	Night	0.1 m/s^2	0.071 m/s^2	0.2 m/s^2	0.14 m/s^2
Offices, educational establishments and places of worship	Day or night	0.64 m/s^2	0.46 m/s^2	1.28 m/s^2	0.92 m/s^2
Workshops	Day or night	0.64 m/s^2	0.46 m/s^2	1.28 m/s^2	0.92 m/s^2

Note—

(1) Day is 7am to 10pm and night is 10pm to 7am.

(2) Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring.

(3) Situations exist where vibration above the preferred values can be acceptable, particularly for temporary or short-term events. Further guidance is given in the Noise impact assessment planning scheme policy.

Table 9.4.4.3.E—Recommended vibration dose values for intermittent vibration ($\text{m/s}^{1.75}$) for human comfort

Location	Daytime ⁽¹⁾		Night time ⁽¹⁾	
	Preferred value	Maximum value	Preferred value ⁽³⁾	Maximum value ⁽³⁾
Critical areas ⁽²⁾	0.1 $\text{m/s}^{1.75}$	0.2 $\text{m/s}^{1.75}$	0.1 $\text{m/s}^{1.75}$	0.2 $\text{m/s}^{1.75}$
Residences	0.2 $\text{m/s}^{1.75}$	0.4 $\text{m/s}^{1.75}$	0.13 $\text{m/s}^{1.75}$	0.26 $\text{m/s}^{1.75}$
Offices, educational establishments and places of worship	0.4 $\text{m/s}^{1.75}$	0.8 $\text{m/s}^{1.75}$	0.4 $\text{m/s}^{1.75}$	0.8 $\text{m/s}^{1.75}$
Workshops	0.8 $\text{m/s}^{1.75}$	1.6 $\text{m/s}^{1.75}$	0.8 $\text{m/s}^{1.75}$	1.6 $\text{m/s}^{1.75}$

Note—

(1) Day is 7am to 10pm and night is 10pm to 7am.

(2) Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring.

(3) Situations exist where vibration above the preferred values can be acceptable, particularly for temporary or short-term events. Further guidance is given in the Noise impact assessment planning scheme policy.

Appendix F – BCC FILLING AND EXCAVATION CODE

9.4.3

Filling and excavation code

9.4.3.1

Application

1. This code applies to assessing:
 - a. accepted development subject to compliance with identified requirements, where acceptable outcomes of this code are identified requirements in a table of assessment for an overlay (section 5.10); or
 - b. operational work for filling or excavation which is assessable development if this code is an applicable code identified in the assessment benchmarks column of a table of assessment for operational work (section 5.8) or an overlay (section 5.10); or
 - c. a material change of use or reconfiguring a lot if:
 - i. assessable development where this code is identified as a prescribed secondary code in the assessment benchmarks column of a table of assessment for material change of use (section 5.5) or reconfiguring a lot (section 5.6); or
 - ii. impact assessable development, to the extent relevant.

Note—The following purpose, overall outcomes, performance outcomes and acceptable outcomes comprise the assessment benchmarks of this code.

Note—This code does not apply to building work as defined in the Act.

Note—A development application involving a rock anchor within an adjoining site is submitted with proof of consent from an adjoining land and building owner.

Editor's note—Guidance on managing the spread of invasive species in filling or excavation activities is provided in Minimising Pest Spread Advisory Guidelines prepared for the Petroleum industry.

Editor's note—Where filling or excavation is conducted on land previously occupied by a notifiable activity or on land listed on the Environmental Management Register or the Contaminated Land Register, the relevant Queensland Government department should be contacted for advice and guidelines.

2. When using this code, reference should be made to section 1.5 and section 5.3.3.

Note—Where this code includes performance outcomes or acceptable outcomes that relate to:

- air quality assessment, guidance is provided in the Air quality planning scheme policy;
- ecological assessment, koala habitat or development design, guidance is provided in the Biodiversity areas planning scheme policy;
- retaining wall construction, guidance is provided in the Infrastructure design planning scheme policy;
- landscape design, guidance is provided in the Landscape design guidelines for water conservation planning scheme policy;
- noise and dust impacts during construction and/or demolition, guidance is provided in the Management plans planning scheme policy;
- noise impact assessment, guidance is provided in the Noise impact assessment planning scheme policy;
- the selection of planting species, guidance is provided in the Planting species planning scheme policy;
- significant vegetation, guidance is provided in the Vegetation planning scheme policy.

Editor's note—For a proposal to be accepted development, subject to compliance with identified requirements, it must meet all the identified acceptable outcomes of this code and any other applicable code. Where it does not meet all identified acceptable outcomes, the proposal becomes assessable development and a development application is required. Where a development application is triggered, only the specific acceptable outcome that the proposal fails to meet needs to be assessed against the corresponding acceptable outcome or performance outcome and relevant overall outcomes. Other identified acceptable outcomes that are met are not assessed as part of the development application.

9.4.3.2

Purpose

1. The purpose of the Filling and excavation code is to assess the suitability of development for filling or excavation.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. filling or excavation does not adversely affect the visual character and amenity of the site or the surrounding area and provides access for maintenance to any structure as a result of filling or excavation.
 - b. filling or excavation does not adversely impact significant vegetation, water quality or drainage of upstream, downstream and adjoining land.
 - c. filling or excavation effectively manages the impacts associated with the activity.
 - d. filling or excavation and any retaining structure is designed and constructed to be fit for purpose and to protect services and utilities.

9.4.3.3 Performance outcomes and acceptable outcomes

Table 9.4.3.3.A—Performance outcomes and acceptable outcomes

Performance outcomes	Acceptable outcomes	Comments
PO1 Development for filling or excavation minimises visual impacts from retaining walls and earthworks.	AO1 Development ensures that the total height of any cut and fill, whether or not retained, does not exceed: <ol style="list-style-type: none"> a. 2.5m in a zone in the Industry zones category; b. 1m in all other zones, or if adjoining a sensitive zone. 	Will comply. This will be further assessed as part of detailed design.
PO2 Development of a retaining wall proposed as a result of filling or excavation: <ol style="list-style-type: none"> a. is designed and constructed to be fit for purpose; b. does not impact adversely on significant vegetation; c. is capable of easy maintenance. Editor's note—A retaining wall also needs to comply with the Building Regulation and embankment gradients will need to comply with the Building Regulation. Note—Guidance on the protection of native vegetation is included in the Biodiversity areas planning scheme policy.	AO2.1 Development of a retaining structure, including footings, surface drainage and subsoil drainage: <ol style="list-style-type: none"> a. is wholly contained within the site; b. if the total height to be retained is greater than 1m, then: <ol style="list-style-type: none"> i. the retaining wall at the property boundary is no greater than 1m above the ground level; ii. all further terracing from the 1m high boundary retaining wall is 1 vertical unit:1 horizontal unit; iii. the distance between each successive retaining wall (back of lower wall to face of 	Will comply. This will be further assessed as part of detailed design.

	<p>higher wall) is no less than 1m horizontally to incorporate planting areas.</p> <p>AO2.2 Development of a retaining wall over 1m in height protects significant vegetation on the site and on adjoining land and is designed and constructed in accordance with the structures standards in the Infrastructure design planning scheme policy and certified by a Registered Professional Engineer Queensland.</p> <p>AO2.3 Development provides a retaining wall finish that presents to adjoining land that is maintenance free if the setback is less than 750mm from the boundary.</p> <p>AO2.4 Development for filling only uses clean fill that does not include any construction rubble, debris, weed seed or viable parts of plant species listed as an undesirable plant species in the Planting species planning scheme policy.</p>	
PO3 Development ensures that a rock anchor is designed and constructed to be fit for purpose.	AO3 Development ensures that a rock anchor: a. is constructed in accordance with the standards in the Infrastructure design planning scheme policy; b. where it extends beyond the property boundary, is supported by a letter of consent from the adjoining land and building owners.	Will comply. If required, this will be assessed as part of detailed design.
PO4 Development protects all services and public utilities.	AO4 Development protects services and public utilities and ensures that any alteration or relocation of services or	Will comply. If required, this will be assessed as part of detailed design.

	public utilities meets the standard design specifications of the responsible service authorities.	
PO5 Development provides surface and sub-surface drainage to prevent water seepage, concentration of run-off or ponding of stormwater on adjacent land.	AO5 Development ensures all flows and subsoil drainage are directed to a lawful point of discharge of a surface water diversion drain, including to the top or toe of a retaining wall in accordance with the stormwater drainage section of the Infrastructure design planning scheme policy.	Will comply. This will be assessed as part of detailed design.
PO6 Development ensures that the design and construction of all open drainage works is undertaken in accordance with natural channel design principles, being the development of a stormwater conveyance system for major flows, by using a vegetated open channel or drain that approximates the features and functions of a natural waterway to enhance or improve riparian values of those stormwater conveyance systems. Editor's note—Guidance on natural channel design principles can be found in the Council's publication Natural channel design guidelines.	AO6 Filling or excavation does not involve the construction of open drainage.	N/A
PO7 Development for filling or excavation: a. does not degrade water quality or adversely affect environmental values in receiving waters; b. ensures site sediment and erosion control standards are best practice.	AO7.1 Development for filling or excavation provides water quality treatment that complies with the stormwater drainage section of the Infrastructure design planning scheme policy. AO7.2 Development provides erosion and sediment control standards that are in accordance with the stormwater drainage section of the Infrastructure design planning scheme policy.	Complies. Refer to Stormwater Management Plan.

<p>PO8</p> <p>Development for filling or excavation is conducted such that adverse impacts at a sensitive use due to noise and dust are prevented or minimised.</p> <p>Note—A noise and dust impact management plan prepared in accordance with the Management plans planning scheme policy can assist in demonstrating achievement of this performance outcome.</p>	<p>AO8.1</p> <p>Development ensures that no dust emissions extend beyond the boundary of the site, including dust from construction vehicles entering and leaving the site.</p> <p>AO8.2</p> <p>Development for filling or excavation activity only occurs between the hours of 6:30am and 6:30pm Monday to Saturday, excluding public holidays.</p>	<p>Will comply. This will be assessed as part of detailed design.</p>
<p>PO9</p> <p>Development ensures that vibration generated by the filling or excavation operation does not exceed the vibration criteria in Table 9.4.3.3.B, Table 9.4.3.3.C, Table 9.4.3.3.D and Table 9.4.3.3.E.</p> <p>Note—A noise management report prepared in accordance with the Noise impact assessment planning scheme policy can assist in demonstrating achievement of this performance outcome.</p>	<p>AO9</p> <p>Development involving filling or excavation does not cause a ground-borne vibration beyond the boundary of the site.</p>	<p>Will comply. This will be assessed as part of detailed design.</p>
<p>PO10</p> <p>Development ensures that heavy trucks hauling material to and from the site do not affect the amenity of established areas and limits environmental nuisance impact on adjacent land.</p>	<p>AO10</p> <p>Development ensures that heavy trucks hauling material to and from the site:</p> <ul style="list-style-type: none"> a. occur for a maximum of 3 weeks; b. use a major road to access the site; c. only use a minor road for the shortest-most-direct route that has the least amount of environmental nuisance if there is no major road alternative. 	<p>Will comply. This will be assessed as part of detailed design.</p>
<p>PO11</p> <p>Development for filling or excavation protects the environment and community health and wellbeing from exposure to contaminated land and contaminated material.</p>	<p>AO11</p> <p>Development does not involve:</p> <ul style="list-style-type: none"> a. excavation on land previously occupied by a notifiable activity or on land listed on the Environmental Management Register or the Contaminated Land Register; b. filling with material containing a contaminant. 	<p>Will comply. This will be assessed as part of detailed design.</p>

PO12 Development provides for: a. landscaping for water conservation purposes; b. water sensitive urban design measures which are employed within the landscape design to maximise stormwater use and to reduce any adverse impacts on the landscape; c. stormwater harvesting to be maximised and any adverse impacts of stormwater minimised.	AO12.1 Development provides landscaping which is designed using the standards in the Landscape design guidelines for water conservation planning scheme policy. AO12.2 Development ensures that the design and requirements for irrigation are in compliance with the standards in the Landscape design guidelines for water conservation planning scheme policy. AO12.3 Development provides areas of pavement, turf and mulched garden beds which are drained. Note—This may be achieved through the provision and/or treatment of swales, spoon drains, field gullies, sub-surface drainage and stormwater connections.	Will comply. This will be assessed as part of detailed design.
PO13 Development ensures cutting and filling for the development of canals or artificial waterways avoids adverse impacts on coastal resources and processes.	AO13 Development does not involve the creation of canals or artificial waterways.	N/A

Table 9.4.3.3.B— Recommended intermittent vibration levels for cosmetic damage

Type of building	Peak particle velocity (mm/s)		
Reinforced or framed structures; industrial and heavy commercial buildings	50mm/s at 4Hz and above		
Unreinforced or light-framed structures; residential or light-commercial type buildings	Below 4Hz	4Hz to 15Hz	15Hz and above
	0.6mm/s	15mm/s at 4Hz increasing to 20mm/s at 15Hz	20mm/s at 15Hz increasing to

			50mm/s at 40Hz and above
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Table 9.4.3.3.C— Recommended blasting vibration levels for human comfort

Type of building	Type of blasting operations	Peak component particle velocity (mm/s)
Residences, educational establishments and places of worship	Operation blasting longer than 12 months or more than 20 blasts	5mm/s for 95% blasts per year 10mm/s maximum unless agreement is reached with the occupier that a higher limit may apply
Residences, educational establishments and places of worship	Operations lasting for less than 12 months or less than 20 blasts	10mm/s maximum unless agreement is reached with the occupier that a higher limit may apply
Industry or commercial premises	All blasting	25 mm/s maximum unless agreement is reached with the occupier that a higher limit may apply. For sites containing equipment sensitive to vibration, the vibration should be kept below manufacturer's specifications or levels that do not adversely affect the equipment operation.

Table 9.4.3.3.D— Recommended levels for continuous and impulsive vibration acceleration (m/s^2) 1–80Hz for human comfort

Location	Assessment period ⁽¹⁾	Preferred values ⁽³⁾		Maximum values ⁽³⁾	
Continuous vibration		z-axis	x and y axes	z-axis	x and y axes
Critical areas ⁽²⁾	Day or night	0.005 m/s^2	0.0036 m/s^2	0.01 m/s^2	0.0072 m/s^2
Residences	Day	0.01 m/s^2	0.0071 m/s^2	0.02 m/s^2	0.014 m/s^2
-	Night	0.007 m/s^2	0.005 m/s^2	0.014 m/s^2	0.01 m/s^2

Offices, educational establishments and places of worship	Day or night	0.02 m/s ²	0.014 m/s ²	0.04 m/s ²	0.028 m/s ²
Workshops	Day or night	0.04 m/s ²	0.029 m/s ²	0.08 m/s ²	0.058 m/s ²
Impulsive vibration					
Critical areas	Day or night	0.005 m/s ²	0.0036 m/s ²	0.01 m/s ²	0.0072 m/s ²
Residences	Day	0.3 m/s ²	0.21 m/s ²	0.6 m/s ²	0.42 m/s ²
-	Night	0.1 m/s ²	0.071 m/s ²	0.2 m/s ²	0.14 m/s ²
Offices, educational establishments and places of worship	Day or night	0.64 m/s ²	0.46 m/s ²	1.28 m/s ²	0.92 m/s ²
Workshops	Day or night	0.64 m/s ²	0.46 m/s ²	1.28 m/s ²	0.92 m/s ²

Note—

(1) Day is 7am to 10pm and night is 10pm to 7am.

(2) Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring.

(3) Situations exist where vibration above the preferred values can be acceptable, particularly for temporary or short-term events. Further guidance is given in the Noise impact assessment planning scheme policy.

Table 9.4.3.3.E— Recommended vibration dose values for intermittent vibration (m/s^{1.75}) for human comfort

Location	Daytime ⁽¹⁾		Night time ⁽¹⁾	
	Preferred value	Maximum value	Preferred value ⁽³⁾	Maximum value ⁽³⁾
Critical areas ⁽²⁾	0.1 m/s ^{1.75}	0.2 m/s ^{1.75}	0.1 m/s ^{1.75}	0.2 m/s ^{1.75}
Residences	0.2 m/s ^{1.75}	0.4 m/s ^{1.75}	0.13 m/s ^{1.75}	0.26 m/s ^{1.75}
Offices, educational establishments and places of worship	0.4 m/s ^{1.75}	0.8 m/s ^{1.75}	0.4 m/s ^{1.75}	0.8 m/s ^{1.75}

Workshops	0.8 m/s ^{1.75}	1.6 m/s ^{1.75}	0.8 m/s ^{1.75}	1.6 m/s ^{1.75}
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Note—

(1) Day is 7am to 10pm and night is 10pm to 7am.

(2) Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring.

(3) Situations exist where vibration above the preferred values can be acceptable, particularly for temporary or short-term events. Further guidance is given in the Noise impact assessment planning scheme policy.

Appendix G – BCC EROSION AND HAZARD ASSESSMENT FORM



Erosion Hazard Assessment - June 2014

Brisbane City Council (BCC), *Erosion Hazard Assessment* form must be read in conjunction with the *Erosion Hazard Assessment- Supporting Technical Notes* (June 2014 or later version) for explanatory terms and Certification information.

What is an Erosion Hazard Assessment?

Soil erosion and sediment from urban development, particularly during construction activities, is a significant source of sediment pollution in Brisbane's waterways. The Erosion Hazard Assessment determines whether the risk of soil erosion and sediment pollution to the environment is 'low', 'medium' or 'high'.

When is the EHA required?

An *Erosion Hazard Assessment* form must be completed and lodged with BCC for any Development Application (ie MCU or ROL) that will result in soil disturbance OR Operational Works or Compliance Assessment Application for 'Filling' or Excavation.

Failure to submit this form during lodgement of an application may result in assessment delays or refusal of the application.

Privacy Statement

The personal information collected on this form will be used by Brisbane City Council for the purposes of fulfilling your request and undertaking associated Council functions and services. Your personal information will not be disclosed to any third party without your consent, unless this is required or permitted by law.

Assessment Details

1 Please turn over and complete the erosion hazard assessment.

2 Based on the erosion hazard assessment overleaf, is the site:

- A 'low' risk site

Best practice erosion and sediment control (ESC) must be implemented but no erosion and sediment control plans need to be submitted with the development application. Factsheets outlining best practice ESC can be found at <http://www.waterbydesign.com.au/factsheets>

- A 'medium' risk site

If the development is approved, the applicant will need to engage a Registered Professional Engineer (RPEQ) or Certified Professional in Erosion and Sediment Control (CPESC) to prepare an ESC Program and Plan and supporting documentation — in accordance with the requirements of the Infrastructure Design Planning Scheme Policy.

- A 'high' risk site

If the development is approved, the applicant will need to engage a RPEQ and CPESC to prepare an ESC Program and Plan and supporting documentation — in accordance with the requirements of the Infrastructure Design Planning Scheme Policy. The plans and program will need to be certified by a CPESC.

3 Site Information and Certification

Application number (if known)

Site address

97-99 Cornwall Street & 275-281
Ipswich Road, Annerley QLD

Postcode 4103

I certify that:

- I have made all relevant enquiries and am satisfied no matters of significance have been withheld from the assessment manager.
- I am a person with suitable qualifications and/or experience in erosion and sediment control.
- The Erosion Hazard Assessment was completed in accordance with the Erosion Hazard Assessment Supporting Technical Notes and the BCC Infrastructure Design Planning Scheme Policy.
- The Erosion Hazard Assessment accurately reflects the site's overall risk of soil erosion and sediment pollution to the environment.
- I acknowledge and accept that the BCC, as assessment manager, relies, in good faith, on this certification as part of its development assessment process and the provision of false or misleading information to the BCC constitutes an offence for which BCC may take punitive steps/ action against me/ enforcement action against me.

Certified by Print name

Carl Hager

Certifier's signature

Date

16.01.2023

Assessment Table

Table 1: Low Risk Test

		Yes	No
1.1	is the area of land disturbance > 1000 m ²	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2	does any land disturbance occur in a BCC mapped waterway corridor	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.3	is there any slope on site (longer than three metres in length) before, during or after construction that is steeper than 5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.4	does any land disturbance occur below 5 m AHD	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.5	does development involve endorsement of a staging plan	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.6	is there an upstream catchment passing through the site > 1 hectare	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Have you answered 'yes' to any of the questions in Table 1?

Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>

If 'No' then site is **low risk** with respect to erosion and sediment control

If 'Yes' then proceed to Table 2

Table 2: Medium Risk Test

		Yes	No
2.1	is the area of land disturbance > 1 hectare	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If 'No' then site is **medium risk** with respect to erosion and sediment control

If 'Yes' then proceed to Table 3

Table 3: High Risk Test

3.1	is there an upstream catchment passing through the site > 1 hectare	<input type="checkbox"/>	<input type="checkbox"/>
3.2	does any land disturbance occurs in a BCC mapped waterway corridor	<input type="checkbox"/>	<input type="checkbox"/>
3.3	is there any slope on site (longer than three metres in length) before, during or after construction that is steeper than 15%	<input type="checkbox"/>	<input type="checkbox"/>

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

If 'No' then site is **medium risk** with respect to erosion and sediment control

If 'Yes' then site is **high risk** with respect to erosion and sediment control