



Stormwater Management Plan  
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: 211058

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### Document Control

Author	Toby Wilson	
Reviewer	Carl Hager	
Approver	Erin Hogan	
RPEQ	21411	
Report Title	Stormwater Management Plan – 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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- Client: Cornerstone Healthcare Properties

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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:

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

The purpose of this report is to address the management of stormwater quantity and quality to ensure that the proposed development complies with all necessary state and local government policies.

## 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.

An Engineering Services Report (Ref: 221058-ESR) 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 Local Government Area.

The combined registered area of the existing allotments contained within this proposal 2,473 m<sup>2</sup>.

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, 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 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.

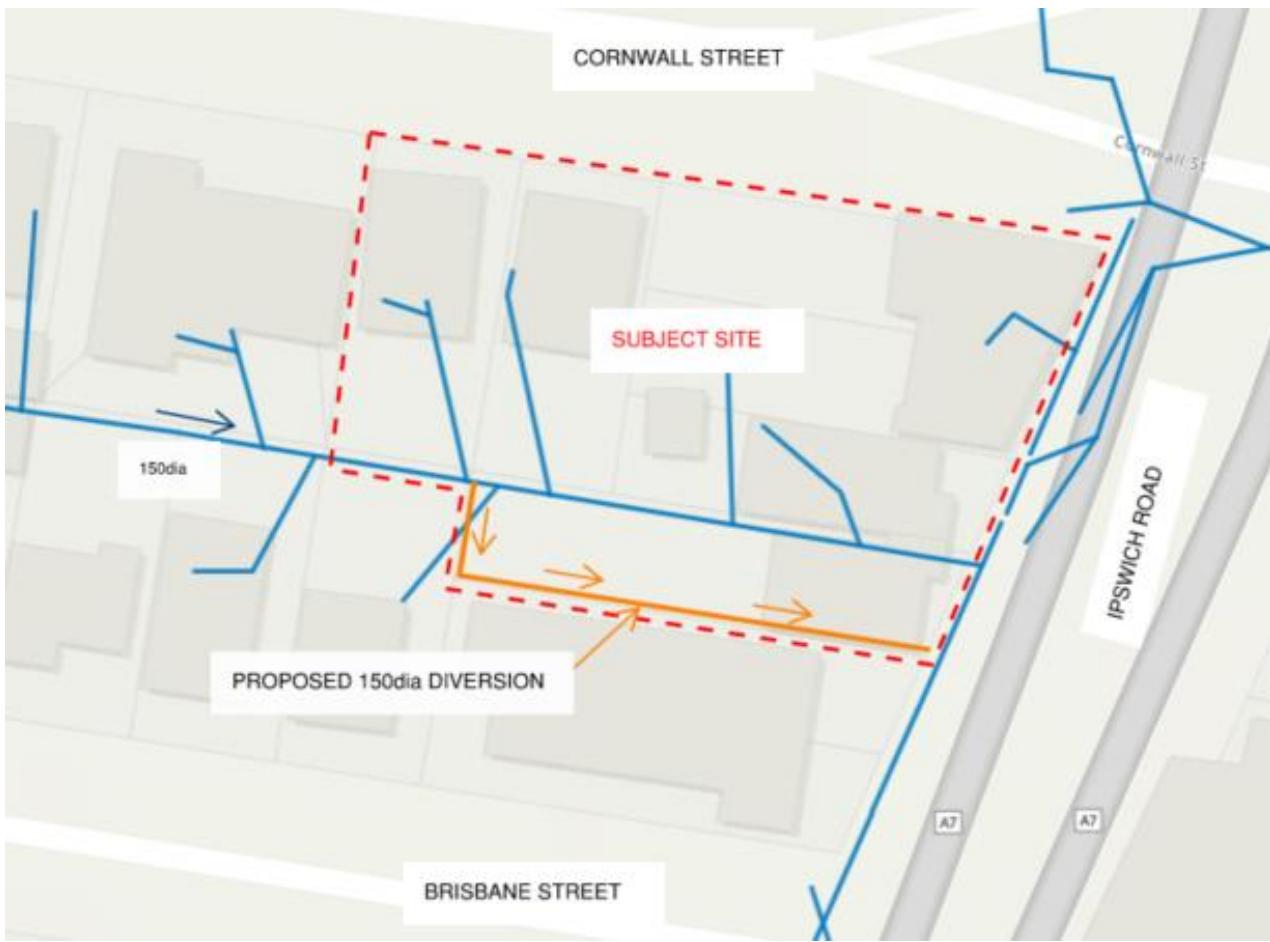


Figure 2.2 – BCC Stormwater Pipe – Existing & Proposed Realignment

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 m<sup>2</sup> to 2,134 m<sup>2</sup>).

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

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 Stormwater Code has been completed and is attached at Appendix D.

## 4. Lawful Point of Discharge

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, which is predominantly using the Ipswich Road drainage system as the preferred lawful point of discharge (LPOD).

This arrangement and with possible alternative connection locations along Ipswich Road (subject to potholing and confirmation of depths, pipe sizes and flow capacity and confirmation of suitability by Hydraulic Services consultant) is outlined on the Stormwater Management Plan included with the Engineering Drawings attached at Appendix C of this report.

QUDM (2017) provides a three–part framework for the identification of a LPOD for a development site. The first assessment item is to consider if the proposed development will alter the site's stormwater discharge characteristics in a manner that may substantially damage a third–party property.

As the proposed development is not considered likely to worsen the flows received by the stormwater infrastructure within Cornwall Street or Ipswich Road, the proposed points of stormwater discharge options are considered to satisfy the requirements set out in QUDM Section 3.9.1 – Lawful Point of Discharge Test.

It is not anticipated that any stormwater will be directed towards any adjacent properties.

# 5. Site Specific Hydrology

## 5.1 Introduction

The proposed development will involve the construction of medical office building including access driveways, car parking and other associated hardstand surfaces. These changes in site layout have the potential to change the coefficient of discharge for the site and thereby may affect the peak stormwater discharge rates of the development site.

This section of the report presents an assessment of the peak stormwater discharge resulting from the site and identifies whether attenuation measures are necessary to ensure “no-worsening” of the peak flows from the site.

## 5.2 Stormwater Detention Exclusion

The development site is highly developed in both the existing and developed scenarios. In the existing case the impervious area has been calculated to be 71% (>60%) and therefore eligible for exemption of a stormwater detention as per BCC City Plan SC6.16/7.5.2e, extract as copied below.

### 7.5.2 Stormwater detention and retention systems – when to provide stormwater detention

3. Stormwater detention requirements may be waived where:
  - a. The development will not cause adverse impacts or actionable nuisance to surrounding properties;
  - b. the site discharges directly into the Brisbane River or Moreton Bay where flooding is controlled by river flooding or storm tide;
  - c. the site discharges directly into the lower catchments of creeks or major drains where it would generally be undesirable to have detention where it may allow peak flows from the site to coincide with the wider catchment flood peak;
  - d. the proposal is for residential development where stormwater is disposed to Council's kerb and channel or piped stormwater system and major flows from the site would drain to Council's road reserve;
  - e. for infill development only, the development site has an existing actual impervious fraction greater than 60%;
  - f. the applicant can demonstrate to Council's satisfaction that, if the total catchment containing the site were developed to its full potential while maintaining the existing infrastructure, stormwater detention on the subject site would not be of benefit in reducing adverse flooding impacts on downstream roads, properties and open watercourses, which may be the case at the lower end of major catchments;
  - g. the downstream drainage system has been upgraded, or is proposed to be upgraded by the development to cater for fully developed peak flows from the catchment to the Council's standard of service.
  - h. the development site is located entirely within the 1% AEP floodplain (waterway/creek or river flooding sources).

Figure 5.2 – Extract BCC City Plan SC.6 Section 7.5.2

## 6. Stormwater Quality

### 6.1 Introduction

This section of the report aims to identify the requirements for stormwater quality management resulting from the proposed development and identify suitable stormwater treatment devices (if required) to comply with relevant requirements of Council and/or the State Planning Policy.

### 6.2 State Planning Policy Assessment

An assessment has been undertaken to determine whether the development proposal necessitates compliance with the State Planning Policy (SPP) objectives. The following trigger questions are used to determine whether SPP compliance is required.

Trigger Question	Development Response
Material Change of Use for Urban Purposes with a land area greater than 2,500m <sup>2</sup> and:	No
a) Will result in an impervious area greater than 25% of the net developable area; or	N/A
b) Will result in 6 or more dwellings.	N/A
Reconfiguration of Lot for Urban Purposes that involves a land area greater than 2,500m <sup>2</sup> , and will result in 6 or more lots	No

Table 6.2 – SPP Trigger Questions

As the above trigger questions are not applicable to this development, the site is not required to achieve the design objectives of the State Planning Policy and therefore stormwater treatment measures are not required.

# 7. Erosion & Sediment Control Plan

## 7.1 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.

## 7.2 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.

## 7.3 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.

## 7.4 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.

## 8. 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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This report has provided stormwater details and calculations for the development site that show that stormwater quantity management is not required as per Council policy and stormwater quality measures are not required as per SPP.

Suitable existing stormwater connection locations are available at Cornwall Road and Ipswich Road, subject to potholing and confirmation by Hydraulic Services Consultant.

## 9. 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

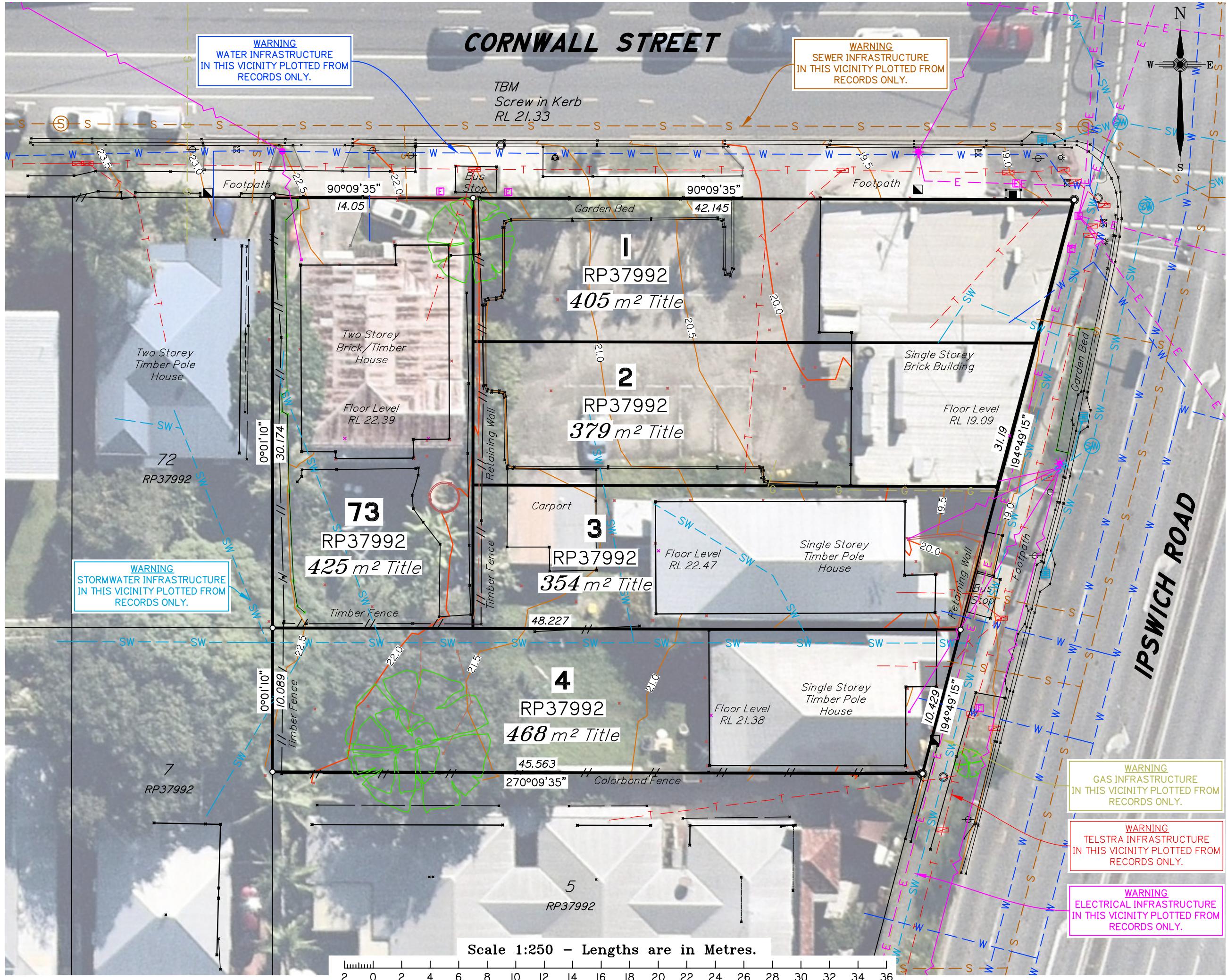
- ◎ SURVEY BENCH MARK
- COMMUNICATIONS PIT
- COMMUNICATIONS PILLAR
- LIGHT ON POWER POLE
- ★ LIGHT POLE
- ELECTRICAL PILLAR
- ELECTRICAL PIT
- ☒ GAS VALVE
- SEWER MANHOLE
- SW STORMWATER M/H
- GULLY TRAP
- STOP VALVE
- WATER METER
- TRAFFIC LIGHT CONTROL BOX
- STREET SIGN
- TREE
- W — DBYD WATER MAIN
- 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



SUNSHINE COAST  
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 <sup>2</sup> APPROX.
NEW BOUNDARY LINE	2137m <sup>2</sup> 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 <sup>2</sup>

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 <sup>2</sup>

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 <sup>2</sup>



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BRISBANE  
T 61 7 3846 7422  
COTTEEPARKER ARCHITECTS PTY LTD  
ABN 77 010 924 106  
COTTEEPARKER.COM.AU

SCALE 1: 250 @ A1  
SCALE 1: 500 @ A3  
(PROJECT NORTH)

A	DEVELOPMENT APPLICATION DRAFT	9/02/2023	JH	DW	JH
ISSUE PURPOSE	DATE	D	C	A	

BIMcloud: CPACLDBIMM01 - BIMcloud/220/6883 Cornwall St Woolloongabba Master: 9/02/2023: 3:28 PM

DEVELOPMENT APPLICATION

ANNERLEY HEALTH HUB

101 CORNWALL STREET, WOOLLOONGABBA

CLIENT - CORNERSTONE DEVELOPMENTS MANAGEMENT PTY LTD

DRAWING TITLE

SITE PLAN

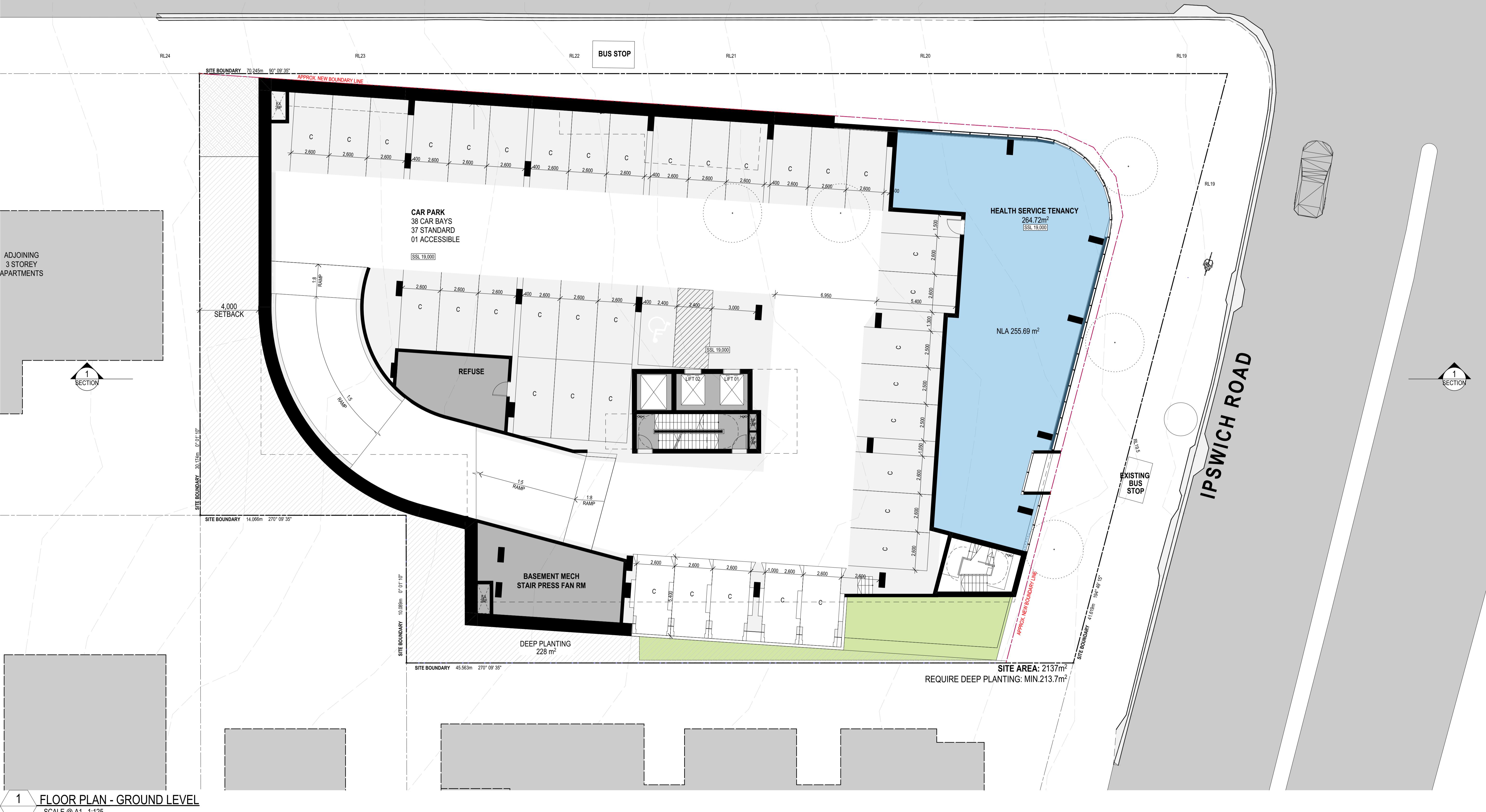
JOB NO  
6883

DRAWING NO  
SB1004

ISSUE  
A



# CORNWALL STREET



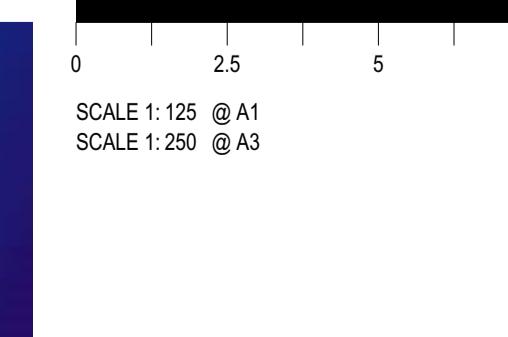
**COTTEEPARKER**

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## **Appendix C – Engineering Drawings**

## LEGEND

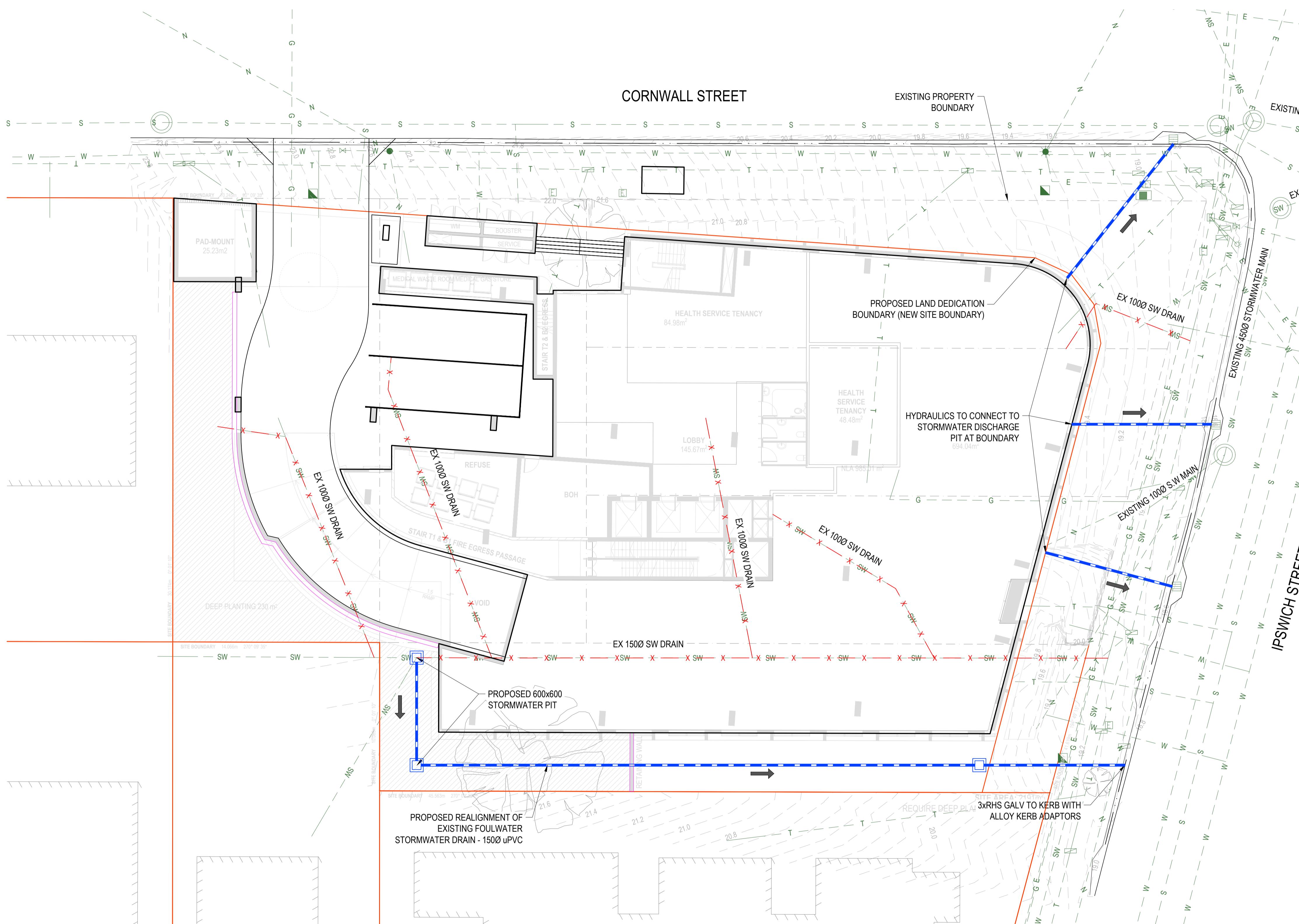
PROPERTY BOUNDARY
EXISTING MINOR & MAJOR CONTOUR (0.100m)
EXISTING BUILDING
EXISTING STORMWATER
EXISTING ROOFWATER
EXISTING WATER
EXISTING SEWER
EXISTING SEWER RISING MAIN
EXISTING GAS
EXISTING ELECTRICAL
EXISTING ELECTRICAL OVERHEAD
EXISTING TELECOMMUNICATIONS
EXISTING OPTIC FIBRE
EXISTING FIRE
PROPOSED 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.



NORTH  
SCALE 1:150 @A1  
0 3 6 9m

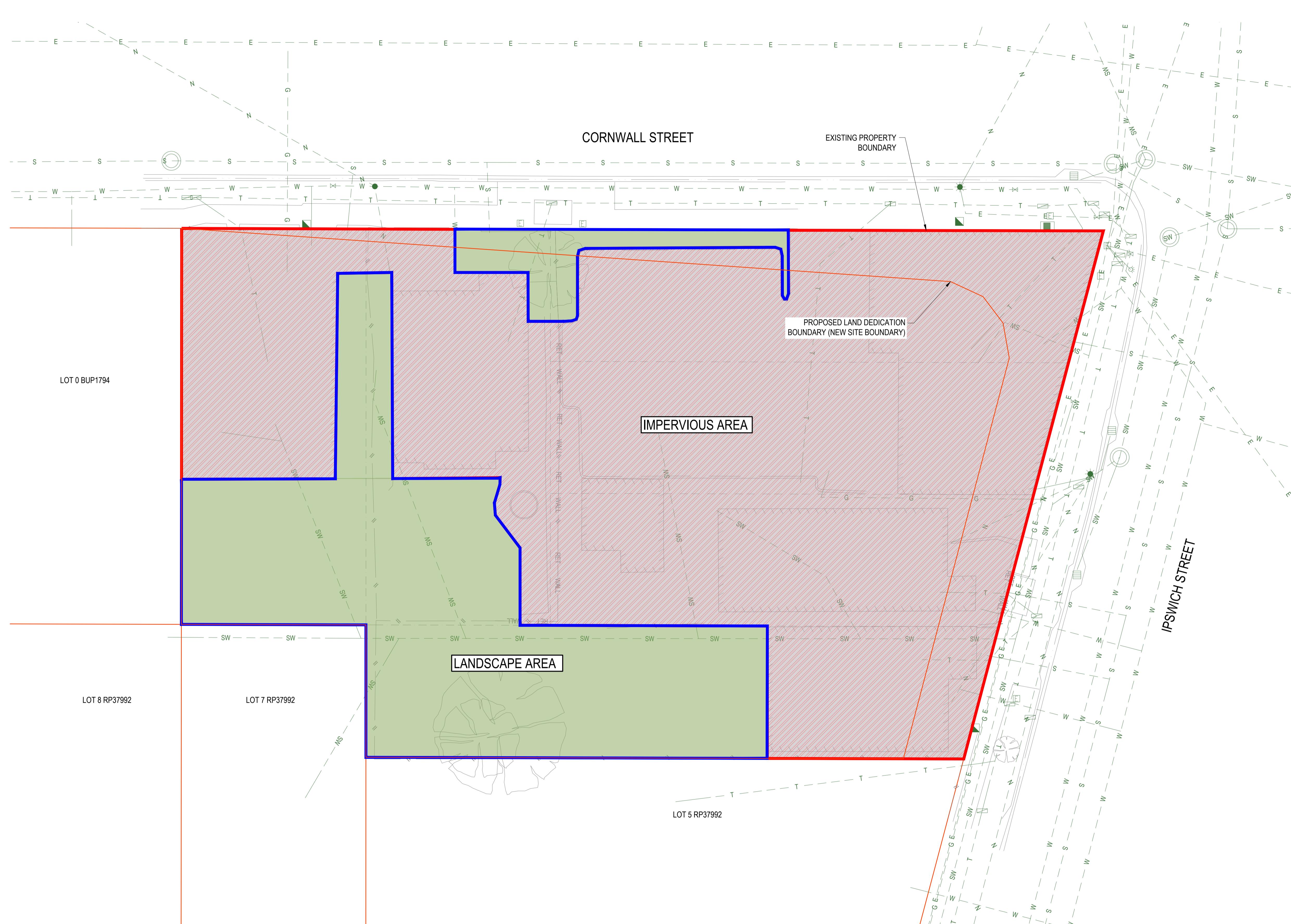
RPEQ NAME:  
RPEQ No:  
DATE:  
SIGN:

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

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Project Name  
**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  
**STORMWATER MANAGEMENT PLAN**  
Drawing No. CDA031  
Project No. 221058  
PRELIMINARY  
Revision P2



#### LEGEND

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

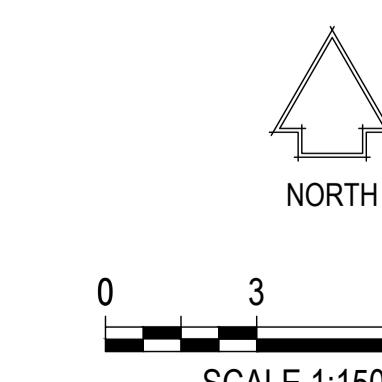
#### CATCHMENT TABLE

CATCHMENT ID	AREA (m <sup>2</sup> )
SITE AREA	2473
IMPERVIOUS AREA	1749
% IMPERVIOUS*	71

\*IMPERVIOUS PERCENTAGE USING EXISTING SITE BOUNDARY

#### WARNING

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RREQ NAME:  
RREQ No:  
DATE:  
SIGN:

P1 13.01.23 FOR REVIEW  
Rev Date Description By Chk  
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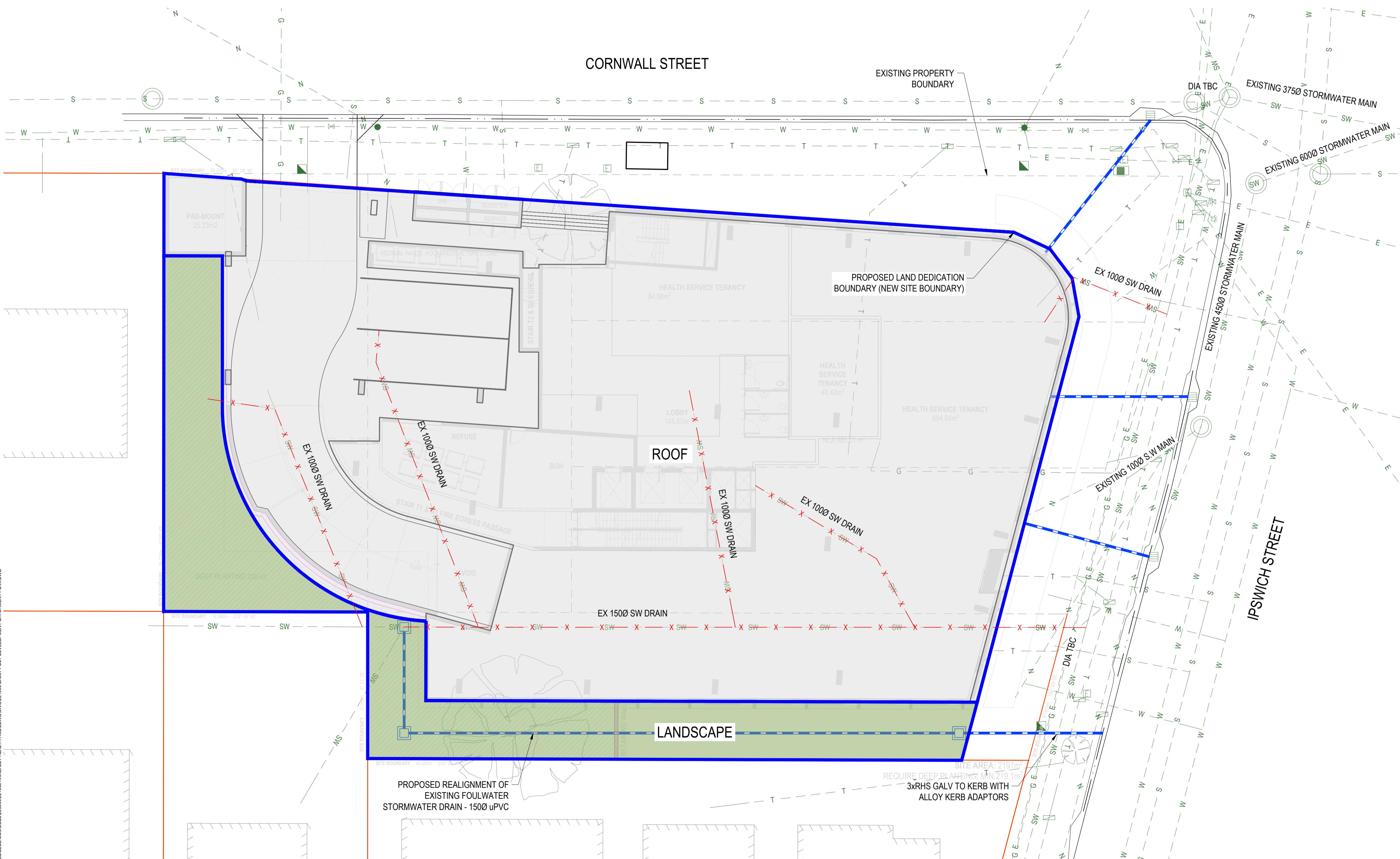
Project Name  
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ANNERLEY, QLD, 4103  
Client  
CORNERSTONE HEALTHCARE PROPERTIES  
Designed AM Drawn AM Checked CH Scale @ A1 1:150

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 <sup>2</sup> )	IMPERVIOUS AREA (%)
ROOF	1806	100
ROAD	0	100
LANDSCAPE	328	0
TOTAL (m <sup>2</sup> )	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

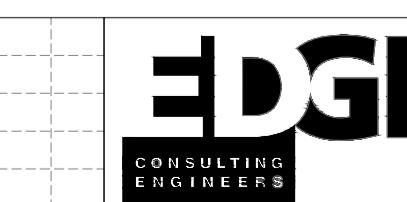
- PIPE DIA NOTED AS TBC TO BE CONFIRMED BY SURVEY AS SUITABLE FOR CONNECTION POINT.
- DETAILS FROM B.C.C RECORDS NOTE PIPE TYPE AS FOUL WATER (ASSUMED STORMWATER DRAIN).
- IPSWICH ROAD DRAINAGE SYSTEM CONSIDERED TO BE THE LPD.



SCALE 1:150 @A1  
0 3 6 9m

RREQ NAME:  
RREQ No:  
DATE:  
SIGN:

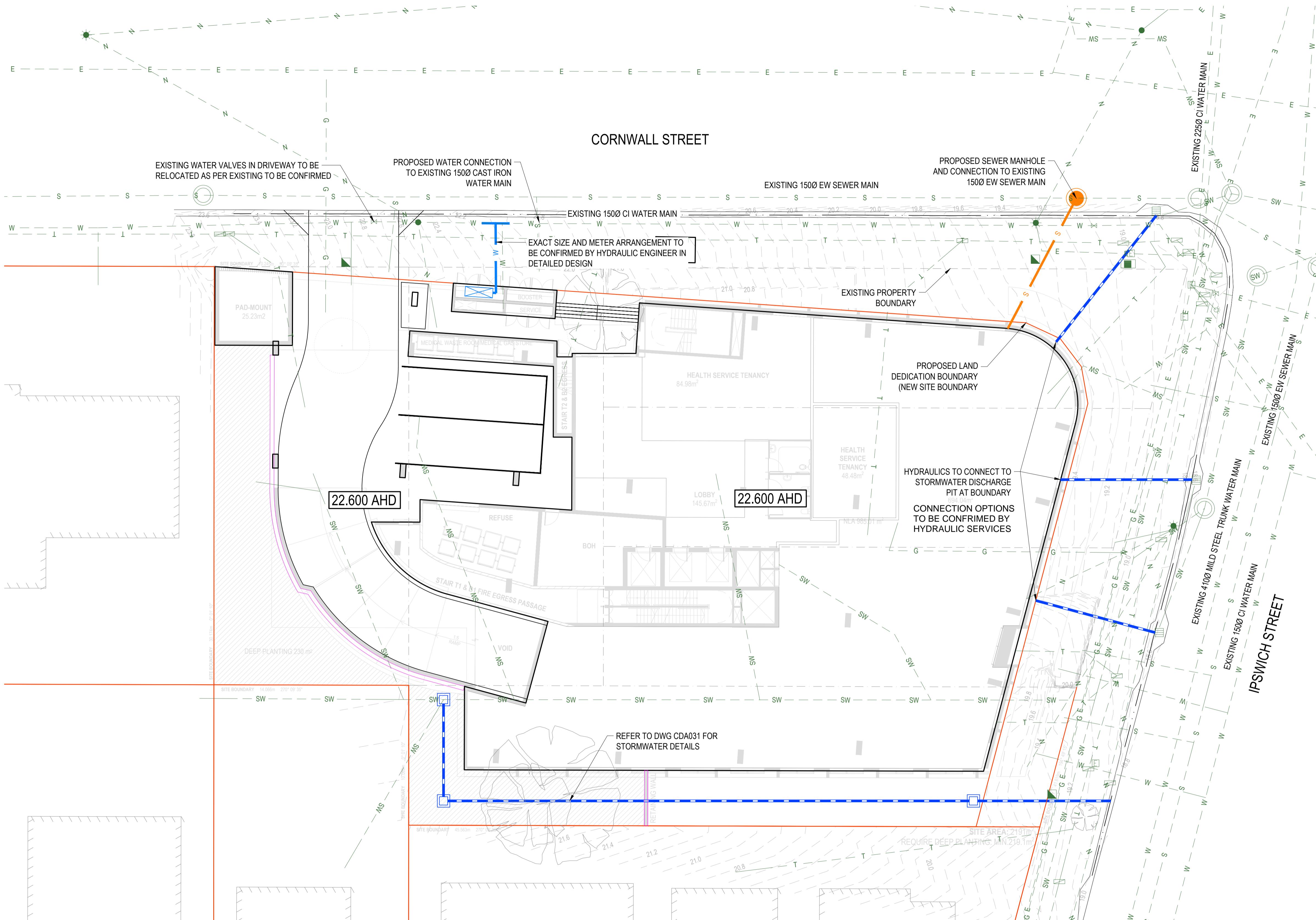
P2 15.03.23 FOR APPROVAL  
P1 13.01.23 FOR REVIEW  
Rev Date Description  
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Project Name  
**ANNERLEY HEALTH HUB**  
97-99 CORNWALL ST & 275-281 IPSWICH RD  
ANNERLEY, QLD, 4103  
Client  
CORNERSTONE HEALTHCARE PROPERTIES  
Designed AM Drawn AM Checked CH Scale @ A1 1:150

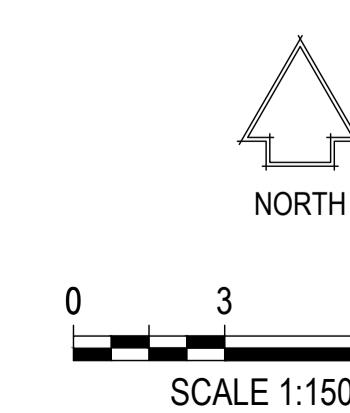
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**POST DEVELOPMENT CATCHMENT PLAN**  
Project No. 221058  
Drawing No. CDA061  
PRELIMINARY  
Revision P2



FILENAME: 1A6\_EHHS\_CDA071\_202303211548\_ANNERLEY\_HEALTH\_HUB\_SVC\_CONN\_Plan.dwg

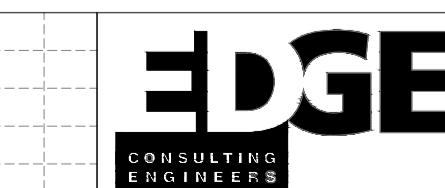
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RPEQ No:	
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Project Name  
**ANNERLEY HEALTH HUB**  
97-99 CORNWALL ST & 275-281 IPSWICH RD  
ANNERLEY, QLD, 4103  
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**CORNERSTONE HEALTHCARE PROPERTIES**  
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Drawing No. CDA071

Drawing Title  
**SERVICE CONNECTION PLAN**  
Project No. 221058  
Drawing No. CDA071  
PRELIMINARY  
Revision P2

## **Appendix D – BCC STORMWATER CODE**

## 9.4.9 Stormwater code

### 9.4.9.1 Application

1. This code applies to assessing a material change of use, reconfiguring a lot or operational 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 infrastructure design and construction works, guidance is provided in the Infrastructure design planning scheme policy.

### 9.4.9.2 Purpose

1. The purpose of the Stormwater code is to assess the suitability of the stormwater aspects of development.
2. The purpose of the code will be achieved through the following overall outcomes:
  - a. Development achieves acceptable levels of stormwater run-off quality and quantity by applying water sensitive urban design principles as part of an integrated stormwater management framework.
  - b. Development protects public health and safety and protects against damage or nuisance caused by stormwater flows.
  - c. Development has a stormwater management system which maintains, recreates or minimises impact to natural catchment hydrological processes.
  - d. Development ensures that the environmental values of the city's waterways are protected or enhanced.
  - e. Development minimises run-off, including peak flows.
  - f. Development maintains or enhances the efficiency and integrity of the stormwater infrastructure network.
  - g. Development minimises the whole of life cycle cost of stormwater infrastructure.

### 9.4.9.3 Performance outcomes and acceptable outcomes

Table 9.4.9.3.A—Performance outcomes and acceptable outcomes

Performance outcomes	Acceptable outcomes	Comments
<b>Section A—If for a material change of use, reconfiguring a lot, operational work or building work</b> <small>Note—Compliance with the performance outcomes and acceptable outcomes in this section should be demonstrated by the submission of a site-based stormwater management plan for high risk development only.</small>		
PO1	AO1	

<p>Development provides a stormwater management system which achieves the integrated management of stormwater to:</p> <ul style="list-style-type: none"> <li>a. minimise flooding;</li> <li>b. protect environmental values of receiving waters;</li> <li>c. maximise the use of water sensitive urban design;</li> <li>d. minimise safety risk to all persons;</li> <li>e. maximise the use of natural waterway corridors and natural channel design principles.</li> </ul> <p>Editor's note—The stormwater management system to be developed to address PO1 is not intended to require management of stormwater quality.</p>	<p>Development provides a stormwater management system designed in compliance with the Infrastructure design planning scheme policy.</p>	<p>Complies.</p>
<p><b>PO2</b>          Development ensures that the stormwater management system and site work does not adversely impact flooding or drainage characteristics of premises which are up slope, down slope or adjacent to the site.</p>	<p><b>AO2.1</b>          Development does not result in an increase in flood level or flood hazard on up slope, down slope or adjacent premises.</p>	<p>C          Compiles.</p>
	<p><b>AO2.2</b>          Development provides a stormwater management system which is designed in compliance with the standards in the Infrastructure design planning scheme policy.</p>	
<p><b>PO3</b>          Development ensures that the stormwater management system does not direct stormwater run-off through existing or proposed lots and property where it is likely to adversely affect the safety of, or cause nuisance to properties.</p>	<p><b>AO3.1</b>          Development ensures that the location of the stormwater drainage system is contained within a road reserve, drainage reserve, public pathway, park or waterway corridor.</p>	<p>Complies.</p>
	<p><b>AO3.2</b>          Development provides a stormwater management system which is designed in compliance with the standards in the</p>	

	<p>Infrastructure design planning scheme policy.</p> <p><b>AO3.3</b>                      Development obtains a lawful point of discharge in compliance with the standards in the Infrastructure design planning scheme policy.</p> <p><b>AO3.4</b>                      Where on private land, all underground stormwater infrastructure is secured by a drainage easement.</p>	
<b>PO4</b> Development provides a stormwater management system which has sufficient capacity to safely convey run-off taking into account increased run-off from impervious surfaces and flooding in local catchments.	<p><b>AO4.1</b>                      Development provides a stormwater conveyance system which is designed to safely convey flows in compliance with the standards in the Infrastructure design planning scheme policy.</p> <p><b>AO4.2</b>                      Development provides sufficient area to convey run-off which will comply with the standards in the Infrastructure design planning scheme policy.</p>	Complies.
<b>PO5</b> Development designs stormwater channels, creek modification works, bridges, culverts and major drains to protect and enhance the value of the waterway corridor or drainage path for fauna movement.	<b>AO5</b> Development ensures the design of stormwater channels, creek modifications or other infrastructure, permits terrestrial and aquatic fauna movement.	N/A
<b>PO6</b> Development ensures that location and design of stormwater detention and water quality treatment:	<b>AO6.1</b> Development locates stormwater detention and water quality treatment: a. outside of a waterway corridor;	N/A

	<ul style="list-style-type: none"> <li>a. minimises risk to people and property;</li> <li>b. provides for safe access and maintenance;</li> <li>c. minimises ecological impacts to creeks and waterways.</li> </ul>	<ul style="list-style-type: none"> <li>b. offline to any catchment not contained within the development.</li> </ul> <p><b>AO6.2</b>          Development providing for stormwater detention and water quality treatment devices are designed in compliance with the standards in the Infrastructure design planning scheme policy.</p>	
<p><b>PO7</b>          Development is designed, including any car parking areas and channel works to:</p> <ul style="list-style-type: none"> <li>a. reduce property damage;</li> <li>b. provide safe access to the site during the defined flood event.</li> </ul>	<p><b>AO7.1</b>          Development (including any ancillary structures and car parking areas) is located above minimum flood immunity levels in Table 9.4.9.3.B, Table 9.4.9.3.C, Table 9.4.9.3.D, Table 9.4.9.3.E and Table 9.4.9.3.F.</p> <p>Note—Compliance with this acceptable outcome can be demonstrated by the submission of a hydraulic and hydrology report identifying flood levels and development design levels (as part of a site-based stormwater management plan).</p>	N/A	
<p><b>PO8</b>          Development designs stormwater channels, creek modification works and the drainage network to protect and enhance the environmental values of the waterway corridor or drainage path.</p>	<p><b>AO8.1</b>          Development ensures natural waterway corridors and drainage paths are retained.</p>	N/A	
	<p><b>AO8.2</b>          Development provides the required hydraulic conveyance of the drainage channel and floodway, while maximising its</p>		

	<p>potential to maximise environmental benefits and minimise scour. Editor's note—Guidance on natural channel design principles can be found in the Council's publication Natural channel design guidelines.</p> <p><b>AO8.3</b> Development provides stormwater outlets into waterways, creeks, wetlands and overland flow paths with energy dissipation to minimise scour in compliance with the standards in the Infrastructure design planning scheme policy.</p> <p><b>AO8.4</b> Development ensures that the design of modifications to the existing design of new stormwater channels, creeks and major drains is in compliance with the standards in the Infrastructure design planning scheme policy.</p>	
<b>PO9</b> Development is designed to manage run-off and peak flows by minimising large areas of impervious material and maximising opportunities for capture and re-use.	<b>AO9</b> No acceptable outcome is prescribed.	N/A.
<b>PO10</b> Development ensures that there is sufficient site area to accommodate an effective stormwater management system. Note—Compliance with the performance outcome should be demonstrated by the submission of a site-based stormwater management plan for high-risk development only.	<b>AO10</b> No acceptable outcome is prescribed.	N/A.
<b>PO11</b>	<b>AO11.1</b> Development with up-slope external catchment areas provides a drainage	The existing Council 'Foulwater' stormwater drainage from upstream properties is being
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<p>Development provides for the orderly development of stormwater infrastructure within a catchment, having regard to the:</p> <ul style="list-style-type: none"> <li>a. existing capacity of stormwater infrastructure within and external to the site, and any planned stormwater infrastructure upgrades;</li> <li>b. safe management of stormwater discharge from existing and future up-slope development;</li> <li>c. implication for adjacent and down-slope development.</li> </ul>	<p>connection sized for ultimate catchment conditions that is directed to a lawful point of discharge.</p> <p><b>AO11.2</b>          Development ensures that existing stormwater infrastructure that is undersized is upgraded in compliance with the Infrastructure design planning scheme policy.</p>	<p>retained and realigned through the development site.</p>
<p><b>PO12</b>          Development provides stormwater infrastructure which:</p> <ul style="list-style-type: none"> <li>a. remains fit for purpose for the life of the development and maintains full functionality in the design flood event;</li> <li>b. can be safely accessed and maintained cost effectively;</li> <li>c. ensures no structural damage to existing stormwater infrastructure.</li> </ul>	<p><b>AO12.1</b>          The stormwater management system is designed in compliance with the Infrastructure design planning scheme policy.</p> <p><b>AO12.2</b>          Development provides a clear area with a minimum of 2m radius from the centre of an existing manhole cover and with a minimum height clearance of 2.5m.</p>	<p>Complies.</p>
<p><b>PO13</b>          Development ensures that all reasonable and practicable measures are taken to manage the impacts of erosion, turbidity and sedimentation, both within and external to the development site from construction activities, including vegetation clearing, earthworks, civil construction, installation of services, rehabilitation, revegetation and landscaping to protect:</p> <ul style="list-style-type: none"> <li>a. the environmental values and water quality objectives of waters;</li> <li>b. waterway hydrology;</li> </ul>	<p><b>AO13</b>          No acceptable outcome is prescribed.</p>	<p>Complies.</p>

<p>c. the maintenance and serviceability of stormwater infrastructure.          Note—The Infrastructure design planning scheme policy outlines the appropriate measures to be taken into account to achieve the performance outcome.</p>		
<p><b>PO14</b>          Development ensures that:</p> <ul style="list-style-type: none"> <li>a. unnecessary disturbance to soil, waterways or drainage channels is avoided;</li> <li>b. all soil surfaces remain effectively stabilised against erosion in the short and long term.</li> </ul>	<p><b>AO14</b>          No acceptable outcome is prescribed.</p>	Complies.
<p><b>PO15</b>          Development does not increase:</p> <ul style="list-style-type: none"> <li>a. the concentration of total suspended solids or other contaminants in stormwater flows during site construction;</li> <li>b. run-off which causes erosion either on site or off site.</li> </ul>	<p><b>AO15</b>          No acceptable outcome is prescribed.</p>	Complies.
<p><b>Section B—Additional performance outcomes and acceptable outcomes which apply to high-risk development, being one or more of the following:</b></p> <ul style="list-style-type: none"> <li>a. a material change of use for an urban purpose which involves greater than 2,500m<sup>2</sup> of land that:           <ul style="list-style-type: none"> <li>i. will result in an impervious area greater than 25% of the net developable area; or</li> <li>ii. will result in 6 or more dwellings.</li> </ul> </li> <li>b. reconfiguring a lot for an urban purpose that involves greater than 2,500m<sup>2</sup> of land and will result in 6 or more lots;</li> <li>c. operational work for an urban purpose which involves disturbing greater than 2,500m<sup>2</sup> of land.</li> </ul>		
<p><b>PO16</b>          Development ensures that the entry and transport of contaminants into stormwater is</p>	<p><b>AO16</b>          Development provides a stormwater management system which is designed in</p>	N/A
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<p>avoided or minimised to protect receiving water environmental values.</p> <p>Note—Prescribed water contaminants are defined in the <i>Environmental Protection Act 1994</i>.</p> <p>Note—Compliance with the performance outcome should be demonstrated by the submission of a site-based stormwater management plan for high-risk development only.</p>	<p>compliance with the standards in the Infrastructure design planning scheme policy.</p>	
<p><b>PO17</b>          Development ensures that:</p> <ul style="list-style-type: none"> <li>a. the discharge of wastewater to a waterway or external to the site is avoided; or</li> <li>b. if the discharge cannot practicably be avoided, the development minimises wastewater discharge through re-use, recycling, recovery and treatment.</li> </ul> <p>Note—The preparation of a wastewater management plan can assist in demonstrating achievement of this performance outcome.</p> <p>Editor's note—This code does not deal with sewerage which is the subject of the Wastewater code.</p>	<p><b>AO17</b>          No acceptable outcome is prescribed.</p>	N/A
<b>Section C—Additional performance outcomes and acceptable outcomes for assessable development for a material change of use or reconfiguring a lot</b>		
<p><b>PO18</b>          Development protects stormwater infrastructure to ensure the following are not compromised:</p> <ul style="list-style-type: none"> <li>a. the long term infrastructure for the stormwater network in the Long term infrastructure plans;</li> <li>b. the existing and planned infrastructure for the stormwater network in the Local government infrastructure plan;</li> <li>c. the provision of long term, existing and planned infrastructure for the stormwater network which:</li> </ul>	<p><b>AO18</b>          Development protects stormwater infrastructure in compliance with the following:</p> <ul style="list-style-type: none"> <li>a. for long term infrastructure for the stormwater network, the Long term infrastructure plans;</li> <li>b. for existing and planned infrastructure for the stormwater network, the Local government infrastructure plan;</li> <li>c. the standards for stormwater drainage in the Infrastructure design planning scheme policy.</li> </ul>	N/A

<ul style="list-style-type: none"><li>i. is required to service the development or an existing and future urban development in the planning scheme area; or</li><li>ii. is in the interests of rational development or the efficient and orderly planning of the general area in which the site is situated.</li></ul> <p>Editor's note—A condition which requires a proposed development to keep permanent improvements and structures associated with the approved development clear of the area of long term infrastructure, may be imposed.</p>		
<p><b>PO19</b> Development provides for the payment of extra trunk infrastructure costs for the following:</p> <ul style="list-style-type: none"><li>a. for development completely or partly outside the priority infrastructure area in the Local government infrastructure plan;</li><li>b. for development completely inside the priority infrastructure area in the Local government infrastructure plan involving:<ul style="list-style-type: none"><li>i. trunk infrastructure that is to be provided earlier than planned in the Local government infrastructure plan;</li><li>ii. long term infrastructure for the stormwater network which is made necessary by development that is not assumed future urban development;</li><li>iii. other infrastructure for the stormwater network associated</li></ul></li></ul>	<p><b>AO19</b> No acceptable outcome is prescribed.</p>	N/A

<p>with development that is not assumed future urban development which is made necessary by the development.</p> <p>Editor's note—The payment of extra trunk infrastructure costs for development completely inside the priority infrastructure area in the Local government infrastructure plan is to be worked out in accordance with the Charges Resolution.</p> <p>Editor's note—See section 130 Imposing Development conditions (Conditions for extra trunk infrastructure costs) of the <i>Planning Act 2016</i>.</p>		
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**Table 9.4.9.3.B—Categories of flood planning levels**

Flooding type <sup>(1)</sup>	Minimum design floor or pavement levels (m AHD) <sup>(2)</sup> (refer to Table 9.4.9.3.C for assignment of these categories)				
	Category A	Category B	Category C	Category D	Category E
Waterway <sup>(A)</sup> or open channel	1% AEP flood level + 500mm	1% AEP flood level + 300mm	1% AEP flood level	1% AEP flood level	5% AEP flood level
Overland flow flooding <sup>(B)</sup>	2% AEP flood level +500mm	2% AEP flood level +300mm	2% AEP flood level	2% AEP flood level	5% AEP flood level

Notes—

<sup>(1)</sup> Where the site is subject to more than one type of flooding that is overland flow flooding, creek or waterway flooding or river flooding, the minimum flood immunity level is the highest level determined from these sources.

<sup>(2)</sup> Where flood levels are not available from Council's Floodwise Property Report such as overland flow flooding, the applicant will need to engage a suitably qualified Registered Professional Engineer Queensland with expertise in undertaking flood studies to estimate the relevant flood level.

Note <sup>(A)</sup> A waterway, including any indicated on the planning scheme maps, is defined as any element of a river, creek, stream, gully or drainage channel, including the bed and banks, typically with a catchment area greater than 30ha.

Note <sup>(B)</sup> Overland flow flooding usually occurs when the capacity of the underground piped drainage system is exceeded and/or when the overland flow path is blocked. Localised overland flow paths generally traverse along roadways, and in the older established areas, through private properties within existing low points and gullies. A localised overland flow path is not characterised by well-defined bed and banks and the contributing catchment is generally less than 30ha.

Note—A flood event with an AEP of 1% is the equivalent of a 100 year ARI flood event.

Note—A flood event with an AEP of 2% is the equivalent of a 50 year ARI flood event.

Note—A flood event with an AEP of 5% is the equivalent of a 20 year ARI flood event.

Note—The flood immunity level in some older inner-city areas is often controlled by local ponding.

**Table 9.4.9.3.C—Flood planning level categories for development types**

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BCA building classification <sup>(1)</sup>	Development types and design levels, assigned design floor or pavement levels	Category Refer to Table 8.2.11.3.L
Class 1–4	Habitable room	Category A
	Non-habitable room including patio and courtyard	Category B
	Non-habitable part of a Class 2 or Class 3 building excluding the essential services <sup>(2)</sup> control room	Category B
	Parking located in the building undercroft of a multiple dwelling	Category C
	Carport <sup>(4)</sup> , unroofed car park; vehicular manoeuvring area	Category D
	Essential electrical services <sup>(2)</sup> of a Class 2 or Class 3 building only	Category A <sup>(6)</sup>
	Basement parking entry <sup>(3)</sup>	Category C + 300mm
Class 5, Class 6, or Class 8	Building floor level	Category C
	Garage or car park located in the building undercroft <sup>(3)</sup>	Category C
	Carport <sup>(4)</sup> or unroofed car park	Category D
	Vehicular access and manoeuvring areas	Category D
	Basement parking entry <sup>(3)</sup>	Category C
	Essential electrical services <sup>(2)</sup>	Class 8 – Category C <sup>(6)</sup> Class 5 & 6 – Category A <sup>(6)</sup>
Class 7a	Refer to the relevant building class specified in this table	
Class 7b	Building floor level	Category C
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	Vehicular access and manoeuvring area	Category D
	Essential electrical services <sup>(2)</sup>	Category C
Class 9	Building floor level	Category A
	Building floor level for habitable rooms in Class 9a or 9c where for a residential care facility	0.2% AEP flood
	Garage or car park located in the building undercroft <sup>(3)</sup>	Category C
	Carport <sup>(4)</sup> or unroofed car park	Category D
	Vehicular access and manoeuvring areas	Category D
	Essential electrical services <sup>(2)</sup>	Category A
Class 10a	Car parking facility	Refer to the relevant building class specified in this table
	Shed <sup>(5)</sup> or the like	Category D
Class 10b	Swimming pool	Category E
	Associated mechanical and electrical pool equipment	Category C
	Other structures	Flood immunity standard does not apply

Notes—

<sup>(1)</sup> Refer to the Building Code of Australia for definitions of building classifications.

<sup>(2)</sup> Essential services include any room used for fire control panel, telephone PABX, sensitive substation equipment including transformers, low voltage switch gear, high-voltage switch gear, battery chargers, protection control and communication equipment, low voltage cables, high-voltage cables and lift controls.

<sup>(3)</sup> Basement car parks must be suitably waterproofed and all air vents, air-conditioning ducts, pedestrian access and entry and exit ramps at the car park entrance have flood immunity in accordance with this table.

<sup>(4)</sup> A shelter for a motor vehicle, which has a roof and one or more open sides, and which can be built against the side of a building.

<sup>(5)</sup> A slight or rough structure built for shelter and storage; or a large strongly built structure, often open at the sides or end.

<sup>(6)</sup> Where essential services are proposed in a basement below the specified flood planning level, the flood immunity of all air vents, air-conditioning ducts, pedestrian access, lift shafts and entry/exit ramps at the basement entrance and any other openings into that basement must conform to Category A for Residential development, and the relevant basement entry level of all other uses. This will require a waterproof basement design to prevent floodwaters entering the basement to ensure flood immunity.

Note—A flood event with an AEP of 2% is the equivalent of a 50 year ARI flood event.

Note—A flood event with an AEP of 0.2% is the equivalent of a 500 year ARI flood event.

Note—Where a building has a combination of uses that includes a component of class 2, 3 or 9, the essential services for that building shall comply with the requirements of the building class with the greatest flood immunity requirement.

Note—Use classes for residential development also include basement storage.

**Table 9.4.9.3.D—Flood planning levels for a new road**

<b>Flooding type<sup>(1)</sup></b>	<b>Minimum design levels at the crown of the road (m AHD)<sup>(2)</sup></b>	
	<b>Residential development</b>	<b>Industrial or commercial development</b>
Waterway <sup>(A)</sup> or open channel	1% AEP flood level	2% AEP flood level
Overland flow flooding <sup>(B)</sup>	2% AEP flood level	2% AEP flood level

Notes—

<sup>(1)</sup> Where the site is subject to more than 1 type of flooding, the minimum flood planning level is the highest level determined from these sources. It should be noted that the flooding planning level in some older areas is often controlled by local ponding.

<sup>(2)</sup> Where flood levels are not available from Council's Floodwise Property Report, such as overland flow flooding, the applicant will need to engage a suitably qualified Registered Professional Engineer Queensland with expertise in undertaking flood studies to estimate the relevant flood level.

Note <sup>(A)</sup> A waterway including any indicated on the planning scheme maps is defined as any element of a river, creek, stream, gully or drainage channel, including the bed and banks typically with a catchment area greater than 30ha.

Note <sup>(B)</sup> Overland flow flooding usually occurs when the capacity of the underground piped drainage system is exceeded and/or when the overland flow path is blocked. Localised overland flow paths generally traverse along roadways, and in the older established areas, through private properties within existing low points and gullies. A localised overland flow path is not characterised by well-defined bed and banks and the contributing catchment is generally less than 30ha.

Note—A flood event with an AEP of 1% is the equivalent of a 100 year ARI flood event.

Note—A flood event with an AEP of 2% is the equivalent of a 50 year ARI flood event.

Note—A flood event with an AEP of 5% is the equivalent of a 20 year ARI flood event.

**Table 9.4.9.3.E—Flood planning levels for essential community infrastructure**

<b>Type of essential community infrastructure</b>	<b>Minimum design levels</b>
Emergency services	0.2% AEP flood
Emergency services, where for an emergency shelter	0.5% AEP flood
Emergency services, where for police facilities	0.5% AEP flood
Hospital and health care service, where associated with a hospital	0.2% AEP flood
Community facility where involving storage of valuable records or items of historic or cultural significance (e.g. galleries and libraries)	0.5% AEP flood

State-controlled roads Major or minor electricity infrastructure not otherwise listed in this table Utility installation where for rail transport services Air service Telecommunications facility	No specific recommended level but development proponents should ensure that the infrastructure is optimally located and designed to achieve suitable levels of service, having regard to the processes and policies of the administering government agency.
Power stations (as defined in the <i>Electricity Act 1994</i> ) or renewable energy facility.	0.2% AEP flood
Major electricity infrastructure where a major switch yard	0.2% AEP flood
Substations	0.5% AEP flood
Utility installation where for a sewage treatment plant	DFE
Utility installation where for a water treatment plant	0.5% AEP flood

Note—A flood event with an AEP of 0.2% is the equivalent of a 500 year ARI flood event.

Note—A flood event with an AEP of 0.5% is the equivalent of a 200 year ARI flood event.

**Table 9.4.9.3.F—Flood planning levels for reconfiguring a lot**

Flooding type <sup>(1)</sup>	Minimum lot levels (m AHD) <sup>(2)</sup>	
	Residential	Other than residential
Waterway <sup>(A)</sup> or open channel	1% AEP flood level + 300mm	1% AEP flood level
Overland flow flooding <sup>(B)</sup>	1% AEP flood level + 300mm	2% AEP flood level

Notes—

<sup>(1)</sup> Where the site is subject to more than one type of flooding, the minimum flood immunity level is the highest level determined from these sources.

<sup>(2)</sup> Where flood levels are not available from Council's Floodwise Property Report such as overland flow flooding, the applicant will need to engage a suitably qualified Registered Professional Engineer Queensland with expertise in undertaking flood studies to estimate the relevant flood level.

Note <sup>(A)</sup> A waterway including any indicated on the planning scheme maps is defined as any element of a river, creek, stream, gully or drainage channel, including the bed and banks typically with a catchment area greater than 30ha.

Note <sup>(B)</sup> Overland flow flooding usually occurs when the capacity of the underground piped drainage system is exceeded or when the overland flow path is blocked. Localised overland flow paths generally traverse along roadways, and in the older established areas, through private properties within existing low points and gullies. A localised overland flow path is not characterised by well-defined bed and banks and the contributing catchment is generally less than 30ha.

Note—A flood event with an AEP of 1% is the equivalent of a 100 year ARI flood event.

Note—A flood event with an AEP of 2% is the equivalent of a 50 year ARI flood event.