

173 – 179 Walker Street, North Sydney

Residential Development

*Existing Infrastructure Assessment
Hydraulic Services*



Prepared for:

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Date

11.09.17

Project Number: 6155

Revision

Revision	Date	Comment	Approved by
000	19.06.17	Client Review	SJ
001	29.06.17	Final	SJ
002	11.09.17	Amended Final	SJ

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Introduction

The Services Infrastructure Assessment Brief for the Hydraulic Services has been prepared at the request of Avenor Pty Limited for the development of the proposed site of 173 - 179 Walker Street, North Sydney.

The proposed development site has frontage to Walker Street to the West and bounded by Commercial/ Residential lots on each other three boundaries.

This report comprises of Harris Page and Associates review of Authority Services located adjacent and within the proposed development and services information received from each Authority.

Scope of Services

Authority Hydraulic Services included within this assessment are as follows:

Service	Authority
Sewer Drainage	Sydney Water Corporation
Potable Cold Water	Sydney Water Corporation
Stormwater	North Sydney Shire Council
Gas (Natural)	Jemena

Project Description and Existing Building

In accordance with concept Architectural plans received (refer Appendix A) the proposed development comprises a multi storey residential tower and generally as follows:

Basement Levels	<ul style="list-style-type: none">- Car Park- Storage- Plant and Back of House areas
Ground Level	<ul style="list-style-type: none">- Entry and Common Areas- Ancillary use areas- Service Area- Vehicle and Building Entry- Landscaped Space- Apartment Dwellings- Retail- Plant- Storage
Level 1	<ul style="list-style-type: none">- Landscaped- Community Space
Low-Mid Rise	<ul style="list-style-type: none">- Apartment Dwellings
High Rise	<ul style="list-style-type: none">- Apartment Dwellings
Penthouse	<ul style="list-style-type: none">- Apartment Dwellings

Existing Site

24 strata lots in 4 residential buildings complete with individual supply / discharge connections of:

- Potable cold water
- Sewer drainage
- Stormwater drainage
- Gas

Authority Infrastructure Services

Sewer Drainage (refer Appendix B)

An Authority existing 225mm sewer main is located towards the rear of the proposed development site reticulating generally parallel with the rear boundary. The Authority sewer main has connections to the adjoining properties/lots to the north and south.

Subject to detail design and formal submission to Sydney Water it is proposed the Authority existing sewer main be relocated to reticulate within the Basement levels of the proposed development and parallel to the rear boundary.

An Authority existing sewer main vent (Refer Appendix C) is located beyond the boundary to the south east corner of the proposed development within a nominated services easement and extends vertically approximately 3 levels (12 metres). As the associated sewer main requires relocation it is most likely Sydney Water shall require modification to the existing vent. The extent of modification would be determined in discussions with Sydney Water and in conjunction with sewer main detail design. Early determination is recommended as this may impact on floor plan layouts should it be a requirement to incorporate within the building envelope.

Potable Water (refer Appendix D)

Two (2) Authority watermains are located adjacent the proposed development in Walker Street.

- 1) A 200mm water main is located adjacent to the proposed development site in Walker Street (High Side).
- 2) A 150mm water main is located adjacent to the proposed development site in Walker Street (Low Side).

It is a requirement of Sydney Water for high density residential developments > 8 storey be connected from 200mm water main, however in our experience and subject to Authority to review of their infrastructure system and application high density residential developments > 8 storey have, been permitted to make connection to a 150mm watermain.

Stormwater Drainage (refer Appendix E)

An Authority existing kerb inlet pit (KIP) complete with 350mm outlet connection is located at Walker Street toward the northern site boundary connecting to a 860 x 1000 culvert drain reticulating parallel and adjacent to northern site boundary and continues beyond Warringah Freeway.

Subject to Authority (North Sydney Council) approval application and detail design, it is proposed for the development to connect to the existing stormwater manhole located adjacent to the north east site boundary.

Concrete swales and landscape contouring located east of the development site would indicate the low area beyond the development site and adjacent to Warringah freeway would also connect to the above mentioned Authority drainage system,

Gas - Natural (refer Appendix F)

An Authority existing 75mm (7 kPa) gas main is located adjacent to the proposed development site in Walker Street. Jemena (Gas Authority) would not provide confirmation of network capacity until provided with a detailed connection application. It is our experience the existing 75mm (7 kPa) gas main would be insufficient for the proposed development and an extension from the existing 100mm (1050 kPa) secondary main located in Berry Street would be required as part of the development works

Hydraulic Services Infrastructure Assessment Summary

From the Authority information received we would assess that there is availability of each of the before mentioned services for connection/ extension to the proposed development.

Formal submission for approval to connect/ extend from each of the services will be required to the relevant Authority as design development and layouts progress. We note applications to Authority may result in their requirement of Asset upgrade and/or extension.

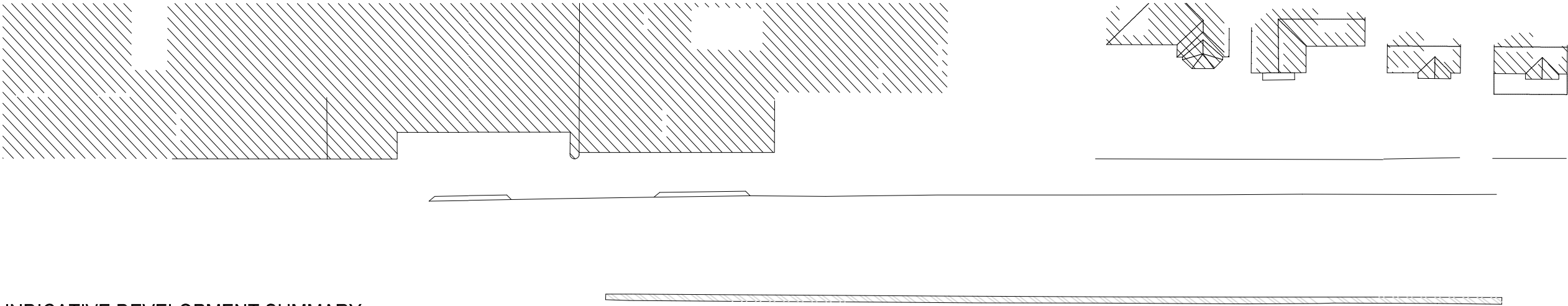
Harris Page and Associates recommends during concept design and at pre DA stage application be made with Sydney Water Corporation for their review of water and sewer mains assets including:

- Water main Pressure and Flow Statement
- Feasibility Statement (Pre Section 73 Notice of Requirements)

Sydney Water will not accept a Notice of Requirement (NOR) or Section 73 application without either a development consent or complying development certificate.

Appendix A

Architectural Concept Plans



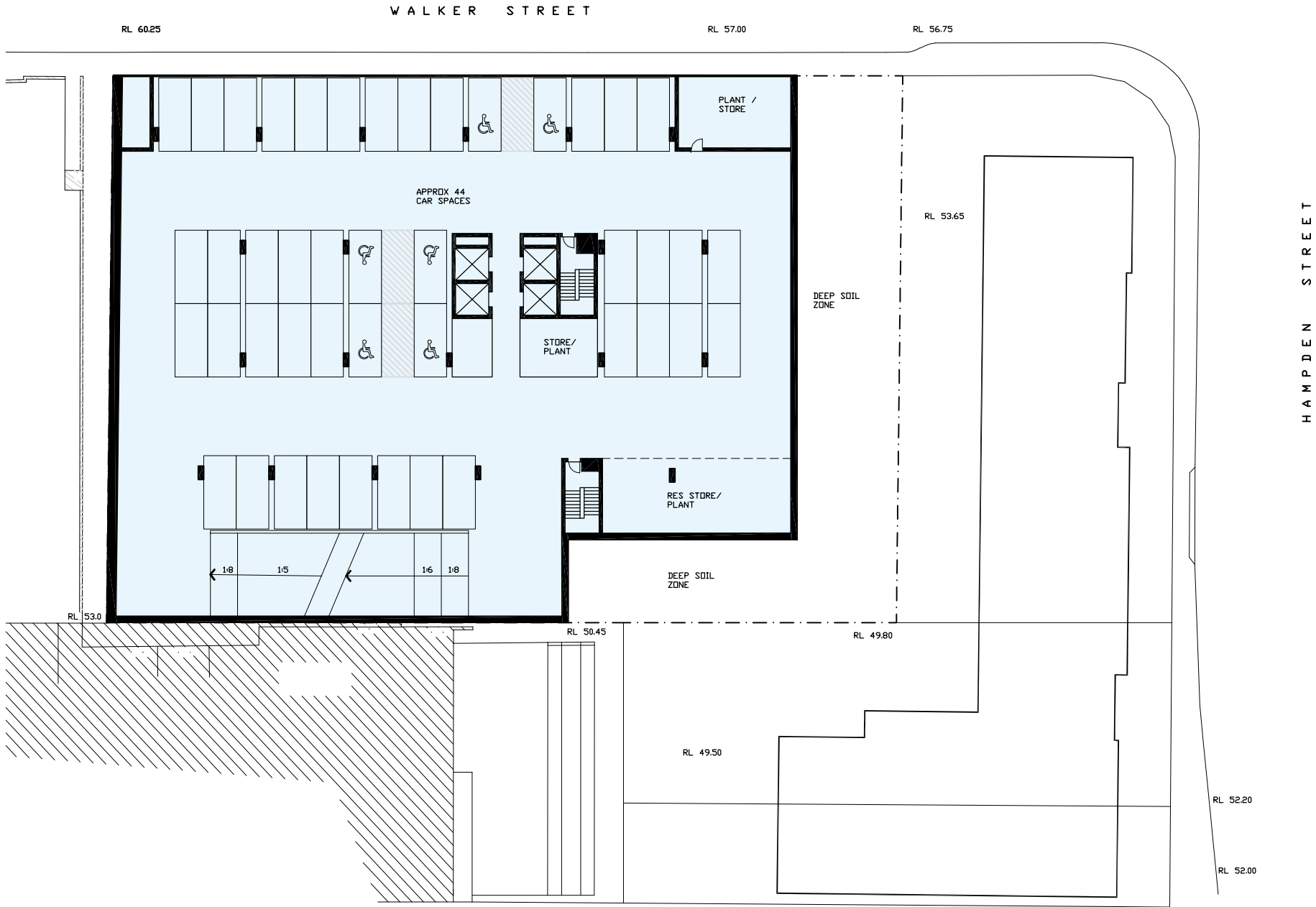
INDICATIVE DEVELOPMENT SUMMARY

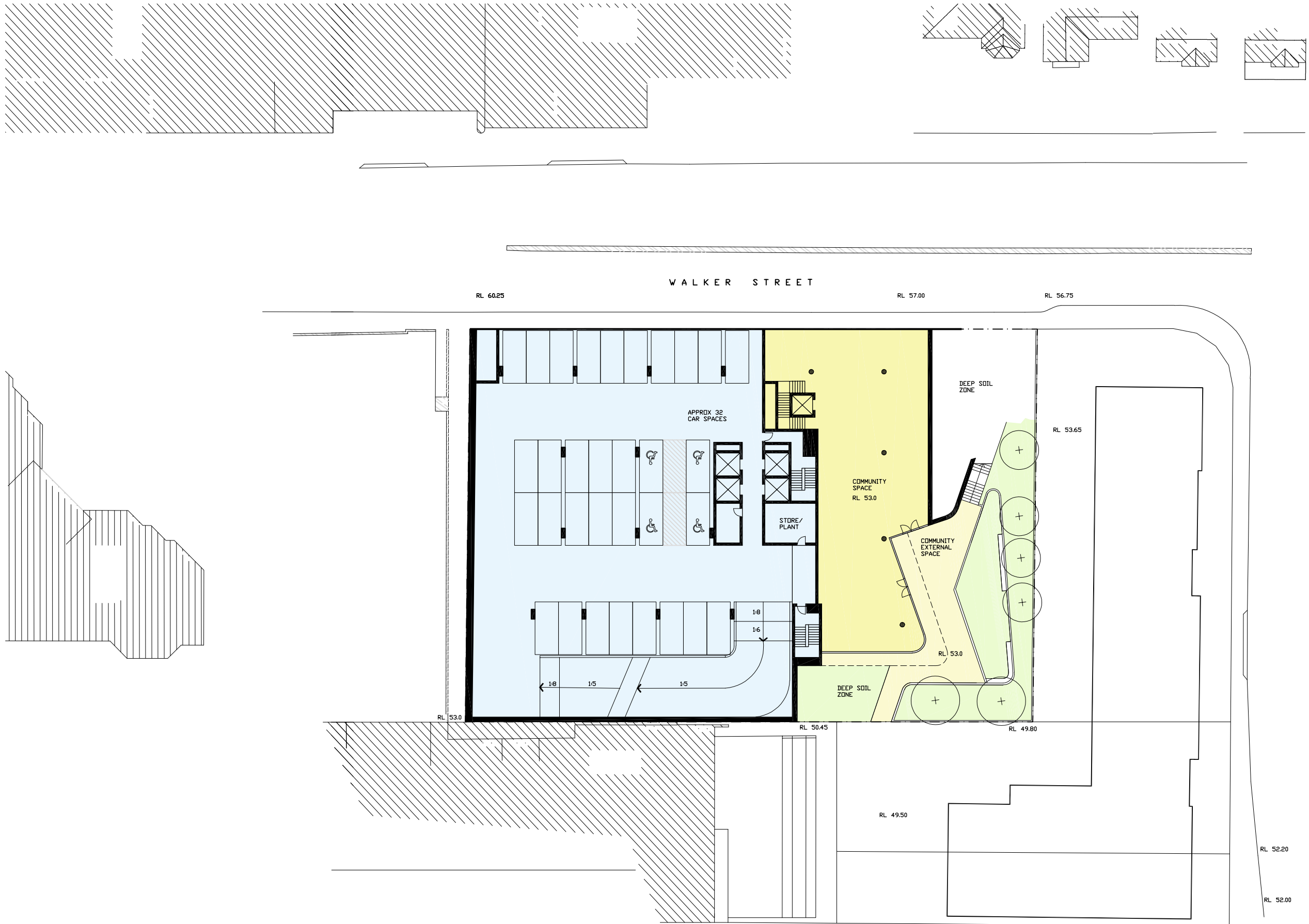
LEVEL	GFA - RESIDENTIAL	BALCONY	RETAIL	COMMUNAL (M²)
BASEMENT 1	-	-	-	390
GROUND	72	-	80	180
MEZZANINE	-	-	-	140
LEVEL 1	-	-	-	805**
LOW-MID RISE (x 31)	(665) (20615)	(95) (2945)	- -	- -
	20415*	2905*		
HI RISE (x12)	(430) 5160	(77) 924	-	-
PENTHOUSE (x2)	(330) 660	(80) 160	-	-
TOTAL	26307*	3989*	80	1515

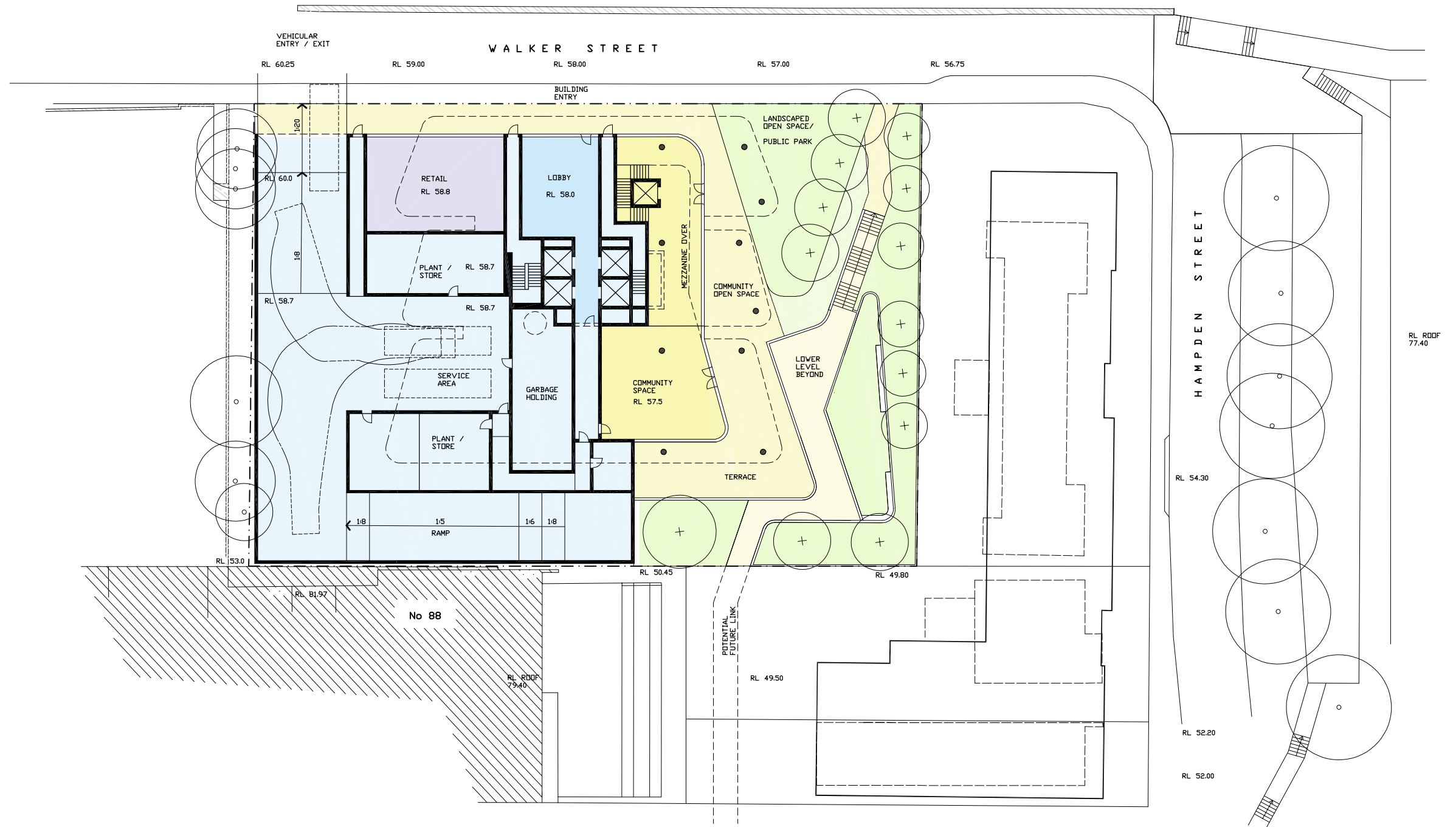
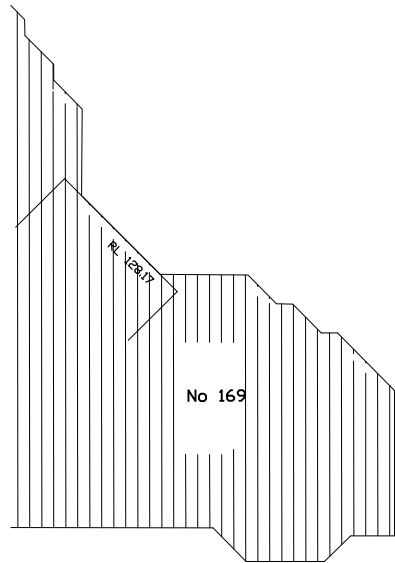
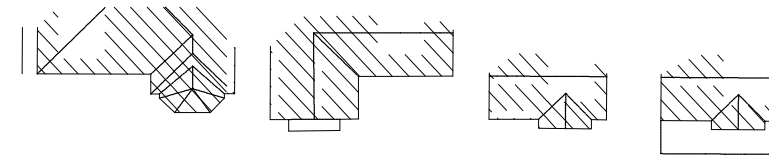
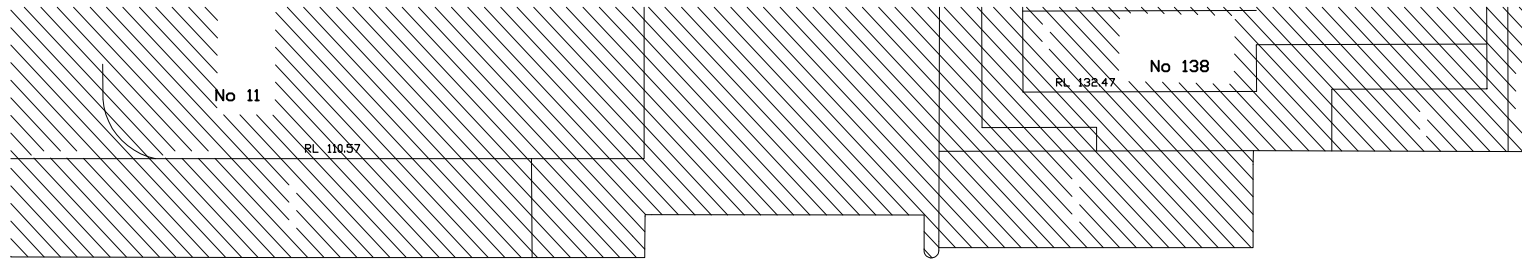
FSR	11.2:1	1.7:1	0.03:1	0.64:1
SITE AREA	2339 M²			
*200SQM REDUCTION TO TOTAL AREA (4 X 1B APTS) FOR PLANT ROOM ALLOWANCE				
** FLEXIBLE SPACE - COMMUNAL - AT LEVEL 1				

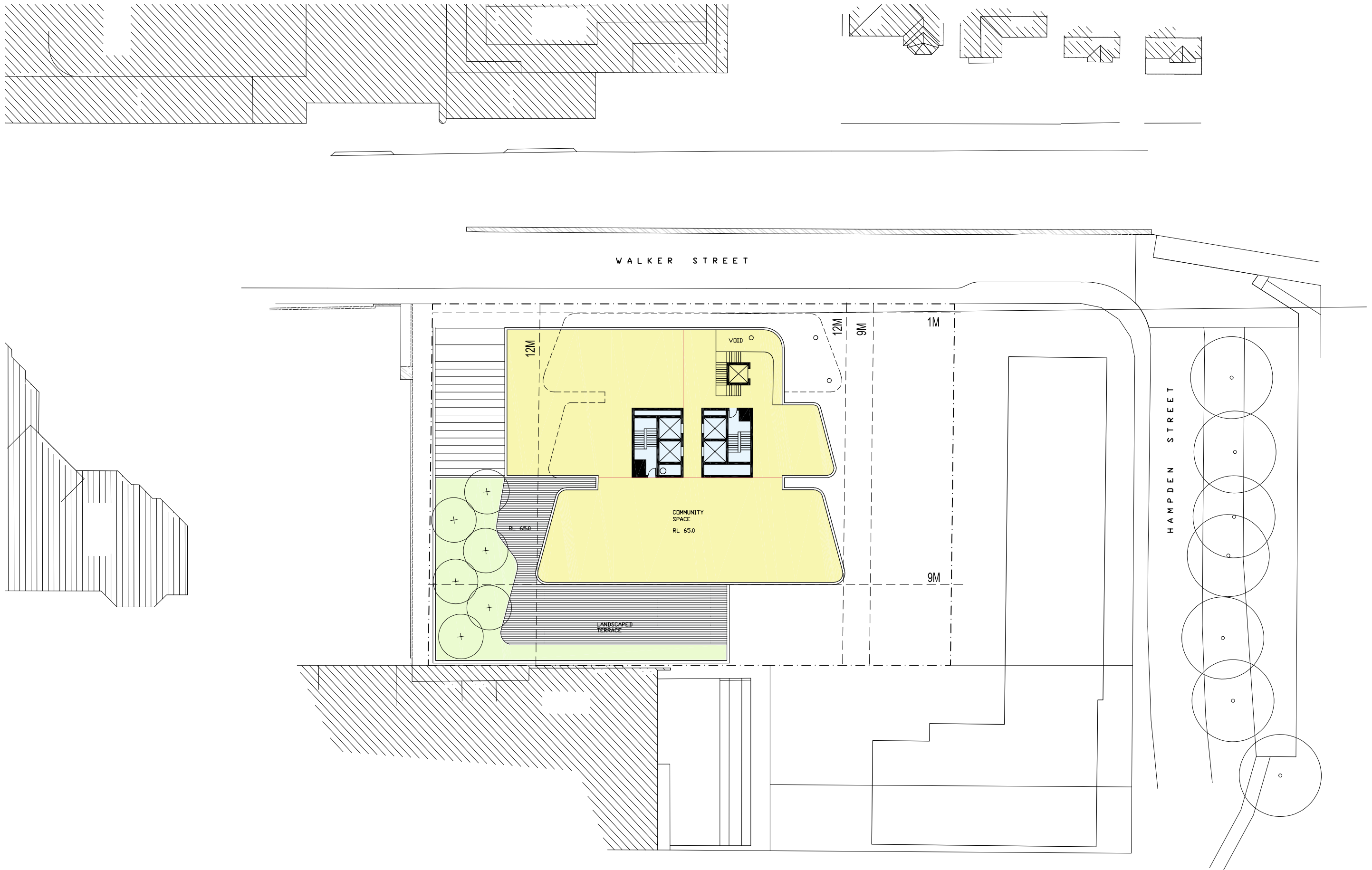
APPROX APARTMENT YIELD

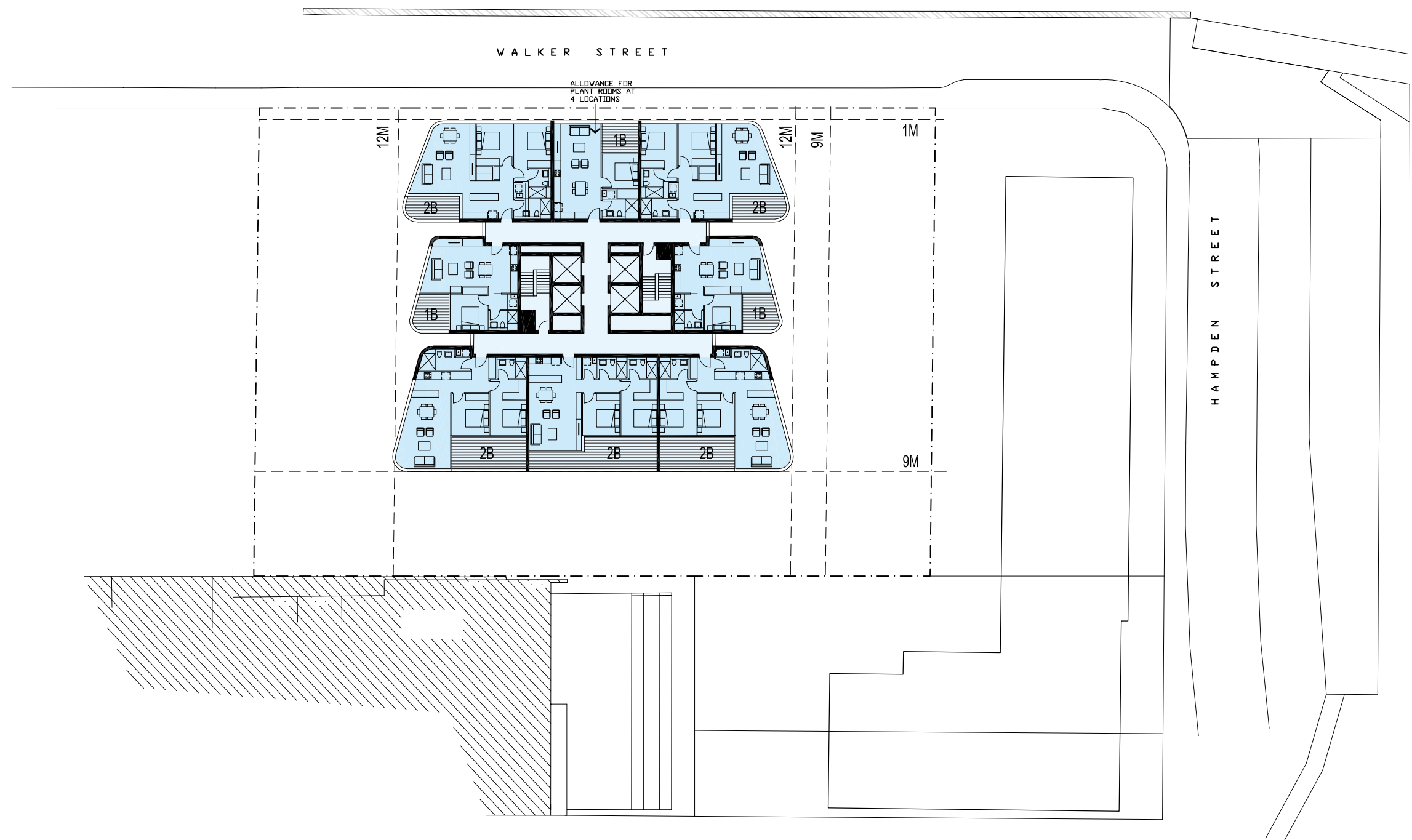
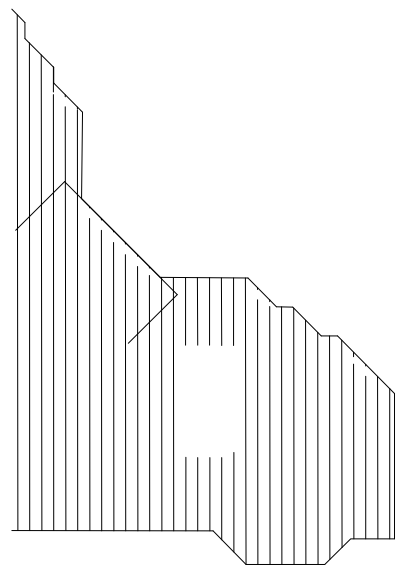
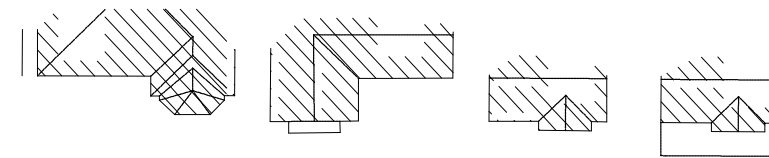
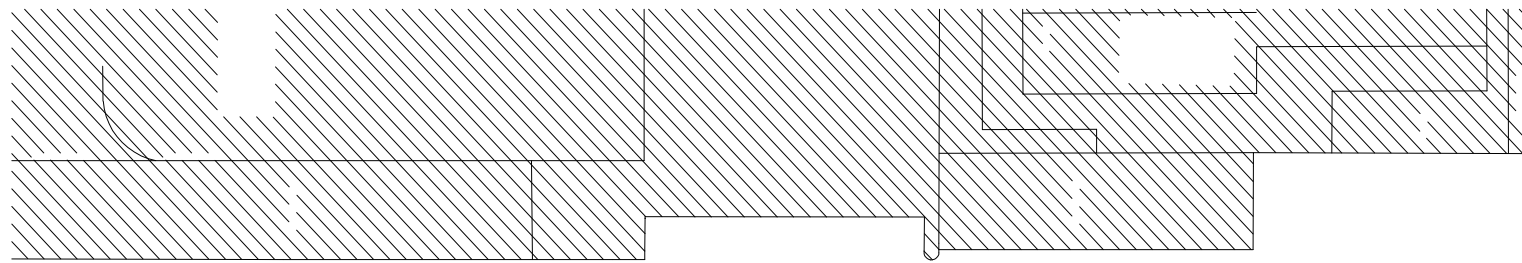
	1B	2B	3B	TOTAL
GROUND	-	-	-	0
LEVEL 1	-	-	-	0
LOW-MID RISE	89	155	-	244
HIGH RISE	-	12	24	36
PENTHOUSE	-	-	4	4
TOTAL	89 31%	167 59%	28 10%	284 100%

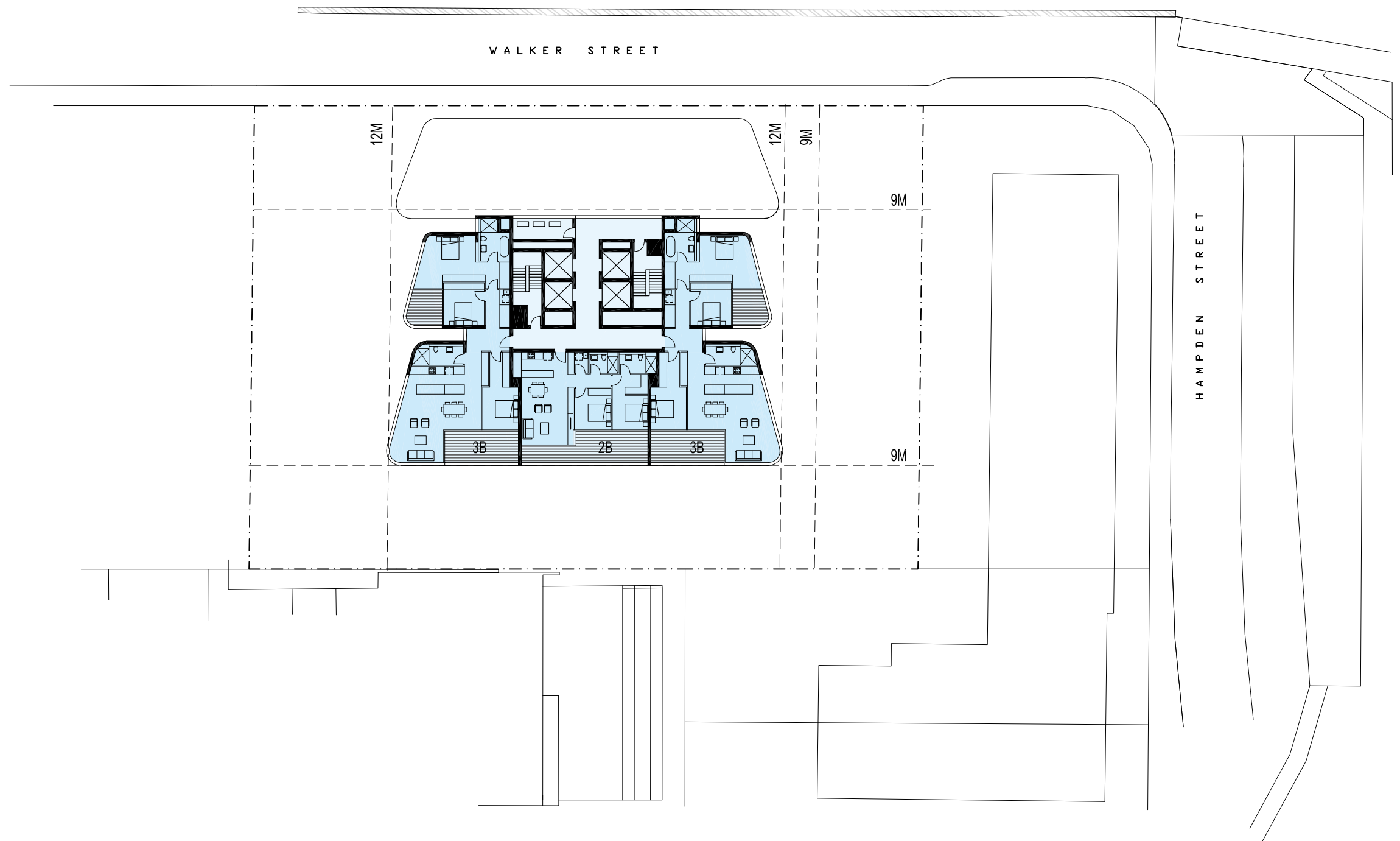
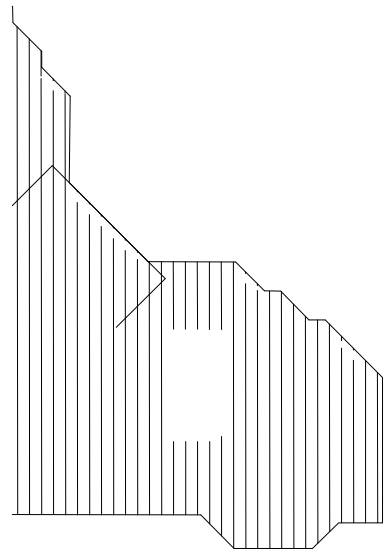
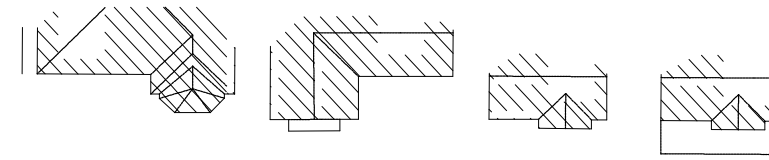
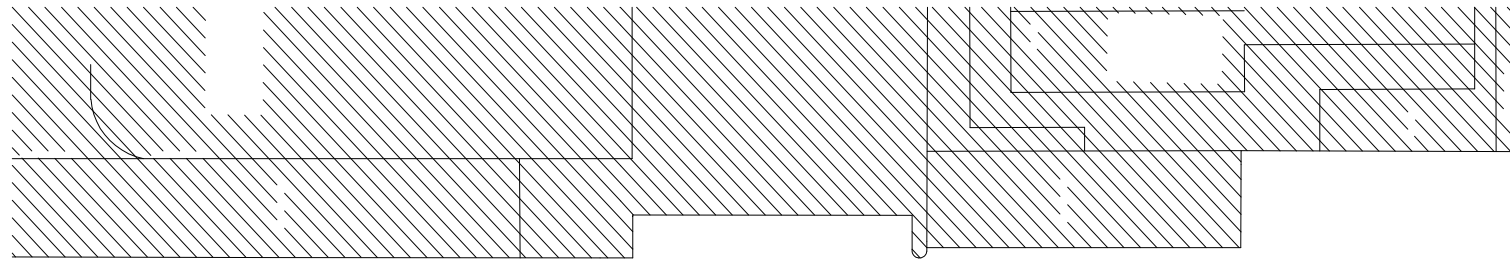


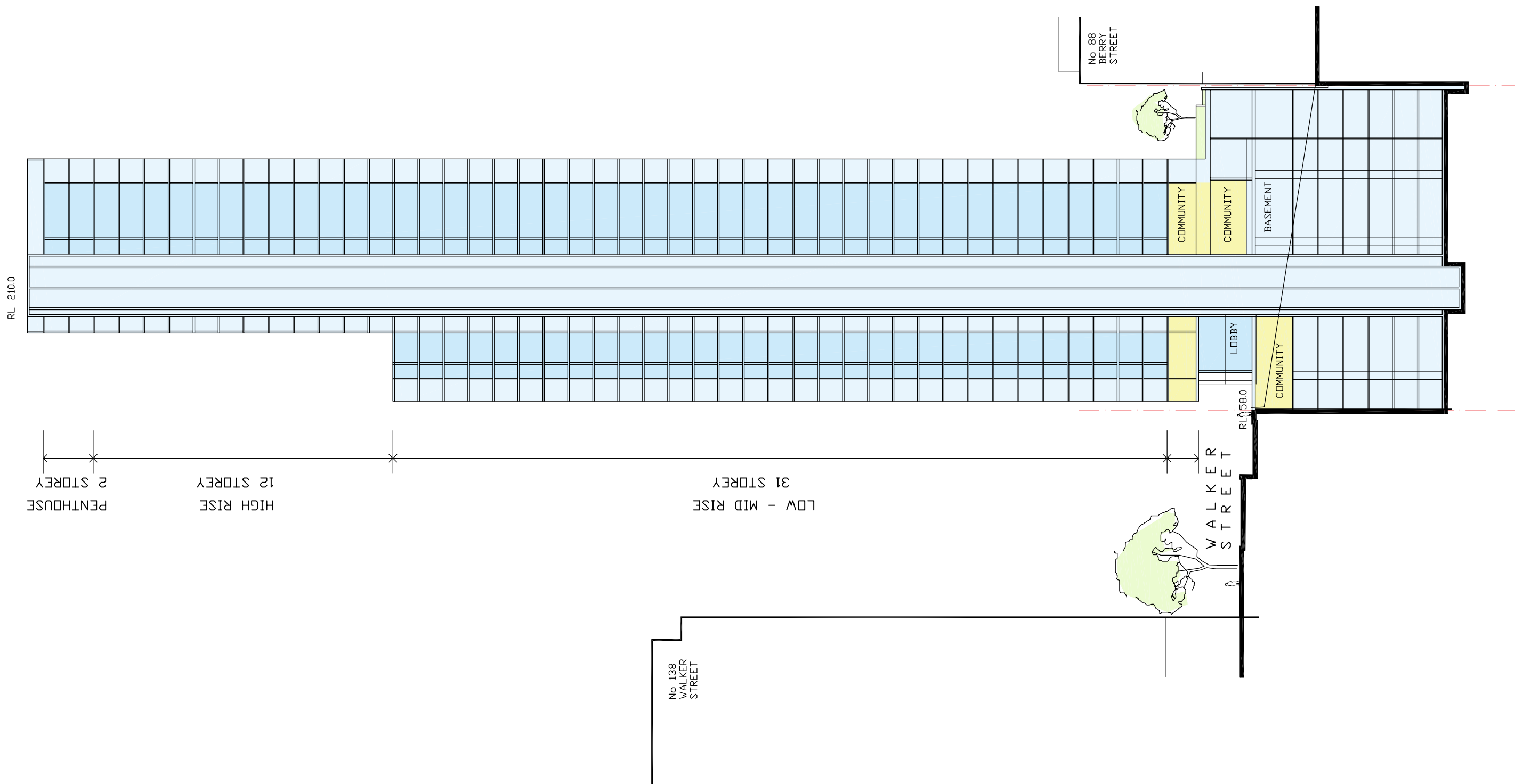












Appendix B






























































Sewer Mains

Asset Owner: Sydney Water Corporation

Guide to reading Sydney Water DBYD Plans



Legend

Sewer		Property Details	
Sewer Main (with flow arrow & size type text)		Boundary Line	
Disused Main		Easement Line	
Rising Main		House Number	
Maintenance Hole (with upstream depth to invert)		Lot Number	
Sub-surface chamber		Proposed Land	
Maintenance Hole with Overflow chamber		Sydney Water Heritage Site (please call 132 092 and ask for the Heritage Unit)	
Ventshaft EDUCT			
Ventshaft INDUCT			
Property Connection Point (with chainage to downstream MH)			
Concrete Encased Section			
Terminal Maintenance Shaft			
Maintenance Shaft			
Rodding Point			
Lamphole			
Vertical			
Pumping Station			
Sewer Rehabilitation			
Pressure Sewer		Water	
Pressure Sewer Main		WaterMain - Potable (with size type text)	
Pump Unit (Alarm, Electrical Cable, Pump Unit)		Disconnected Main - Potable	
Property Valve Boundary Assembly		Proposed Main - Potable	
Stop Valve		Water Main - Recycled	
Reducer / Taper		Special Supply Conditions - Potable	
Flushing Point		Special Supply Conditions - Recycled	
Vacuum Sewer		Restrained Joints - Potable	
Pressure Sewer Main		Restrained Joints - Recycled	
Division Valve		Hydrant	
Vacuum Chamber		Maintenance Hole	
Clean Out Point		Stop Valve	
Stormwater		Stop Valve with By-pass	
Stormwater Pipe		Stop Valve with Tapers	
Stormwater Channel		Closed Stop Valve	
Stormwater Gully		Air Valve	
Stormwater Maintenance Hole		Valve	
		Scour	
		Reducer / Taper	
		Vertical Bends	
		Reservoir	
		Recycled Water is shown as per Potable above. Colour as indicated	
		Private Mains	
		Potable Water Main	
		Recycled Water Main	
		Sewer Main	
		Symbols for Private Mains shown grey	

Pipe Types

ABS	Acrylonitrile Butadiene Styrene	AC	Asbestos Cement
BRICK	Brick	CI	Cast Iron
CICL	Cast Iron Cement Lined	CONC	Concrete
COPPER	Copper	DI	Ductile Iron
DICL	Ductile Iron Cement (mortar) Lined	DIPL	Ductile Iron Polymeric Lined
EW	Earthenware	FIBG	Fibreglass
FL BAR	Forged Locking Bar	GI	Galvanised Iron
GRP	Glass Reinforced Plastics	HDPE	High Density Polyethylene
MS	Mild Steel	MSCL	Mild Steel Cement Lined
PE	Polyethylene	PC	Polymer Concrete
PP	Polypropylene	PVC	Polyvinylchloride
PVC - M	Polyvinylchloride, Modified	PVC - O	Polyvinylchloride, Oriented
PVC - U	Polyvinylchloride, Unplasticised	RC	Reinforced Concrete
RC-PL	Reinforced Concrete Plastics Lined	S	Steel
SCL	Steel Cement (mortar) Lined	SCL IBL	Steel Cement Lined Internal Bitumen Lined
SGW	Salt Glazed Ware	SPL	Steel Polymeric Lined
SS	Stainless Steel	STONE	Stone
VC	Vitrified Clay	WI	Wrought Iron
WS	Woodstave		

Further Information

Please consult the [Dial Before You Dig enquiries](#) page on the Sydney Water website

For general enquiries please call the Customer Contact Centre on **132 092**

In an emergency, or to notify Sydney Water of damage or threats to its structures, call 13 20 90 (24 hours, 7 days)

IMPORTANT INFORMATION - DIAL BEFORE YOU DIG

Attention: You must read the information below

The material provided or made available to you by Sydney Water (including on the Sydney Water website) in relation to your Dial Before You Dig enquiry (**Information**) is provided on each of the following conditions, which you are taken to have accepted by using the Information:

- 1 The Information has been generated by an automated system based on the area highlighted in the "Locality Indication Only" window on your Caller Confirmation. It is your responsibility to ensure that the dig site is properly defined when submitting your Dial Before You Dig enquiry and, if the Information does not match the dig site, to resubmit your enquiry for the correct dig site.
- 2 Neither Sydney Water nor Dial Before You Dig make any representation or give any guarantee, warranty or undertaking (express or implied) as to the currency, accuracy, completeness, effectiveness or reliability of the Information. The Information, including Sydney Water plans and work-as-executed diagrams, amongst other things:
 - (a) may not show all existing structures, including Sydney Water's pipelines, particularly in relation to newer developments and in relation to structures owned by parties who do not participate in the Dial Before You Dig service;
 - (b) may be out of date and not show changes to surface levels, road alignments, fences, buildings and the like;
 - (c) is approximate only and is therefore not suitable for scaling purposes; and
 - (d) does not show locations of property services (often called house service lines) belonging to or servicing individual customers, which are usually connected to Sydney Water's structures.
- 3 You are responsible for, amongst other things:
 - (a) exposing underground structures, including Sydney Water's pipelines, by pot-holing using hand-held tools or vacuum techniques so as to determine the precise location and extent of structures before any mechanical means of excavation are used;
 - (b) the safe and proper excavation of and for underground works and structures, including having regard to the fact that asbestos cement pipelines, which can pose a risk to health, may form part of Sydney Water's water and sewerage reticulation systems;
 - (c) protecting underground structures, including Sydney Water's pipelines, from damage and interference;
 - (d) maintaining minimum clearances between Sydney Water's structures and structures belonging to others;
 - (e) ensuring that backfilling of excavation work in the vicinity of Sydney Water's structures complies with Sydney Water's standards contained on its website or otherwise communicated to you;
 - (f) notifying Sydney Water immediately of any damage caused or threat of damage to Sydney Water's structures;
 - (g) ensuring that plans are approved by Sydney Water (usually signified by stamping) prior to landscaping or building over or in the vicinity of any Sydney Water structure; and
 - (h) ensuring that the Information is used only for the purposes for which Sydney Water and Dial Before You Dig intended.

- 4 You acknowledge that you use the Information at your own risk. In consideration for the provision of the Dial Before You Dig service and the Information by Sydney Water and Dial Before You Dig, to the fullest extent permitted by law:
- (a) all conditions and guarantees concerning the Information (whether as to quality, outcome, fitness, care, skill or otherwise) expressed or implied by statute, common law, equity, trade, custom or usage or otherwise are expressly excluded and to the extent that those statutory guarantees cannot be excluded, the liability of Sydney Water and Dial Before You Dig to you is limited to either of the following as nominated by Sydney Water in its discretion, which you agree is your only remedy:
 - (i) the supplying of the Information again; or
 - (ii) payment of the cost of having the Information supplied again;
 - (b) in no event will Sydney Water or Dial Before You Dig be liable for, and you release Sydney Water and Dial Before You Dig from, any Loss arising from or in connection with the Information, including the use of or inability to use the Information and delay in the provision of the Information:
 - (i) whether arising under statute or in contract, tort or any other legal doctrine, including any negligent act, omission or default (including wilful default) by Sydney Water or Dial Before You Dig; and
 - (ii) regardless of whether Sydney Water or Dial Before You Dig are or ought to have been aware of, or advised of, the possibility of such loss, costs or damages;
 - (c) you will indemnify Sydney Water and Dial Before You Dig against any Loss arising from or in connection with Sydney Water providing incorrect or incomplete information to you in connection with the Dial Before You Dig service; and
 - (d) you assume all risks associated with the use of the Dial Before You Dig and Sydney Water websites, including risk to your computer, software or data being damaged by any virus, and you release and discharge Sydney Water and Dial Before You Dig from all Loss which might arise in respect of your use of the websites.
- 5 **“Sydney Water”** means Sydney Water Corporation and its employees, agents, representatives and contractors. **“Dial Before You Dig”** means Dial Before You Dig Incorporated and its employees, agents, representatives and contractors. References to **“you”** include references to your employees, agents, representatives, contractors and anyone else using the Information. References to **“Loss”** include any loss, cost, expense, claim, liability or damage (including arising in connection with personal injury, death or any damage to or loss of property and economic or consequential loss, lost profits, loss of revenue, loss of management time, opportunity costs or special damages). To the extent of any inconsistency, the conditions in this document will prevail over any other information provided to you by Sydney Water and Dial Before You Dig.

In an emergency, or to notify Sydney Water of damage or threats to its structures, call 13 20 90 (24 hours, 7 days)

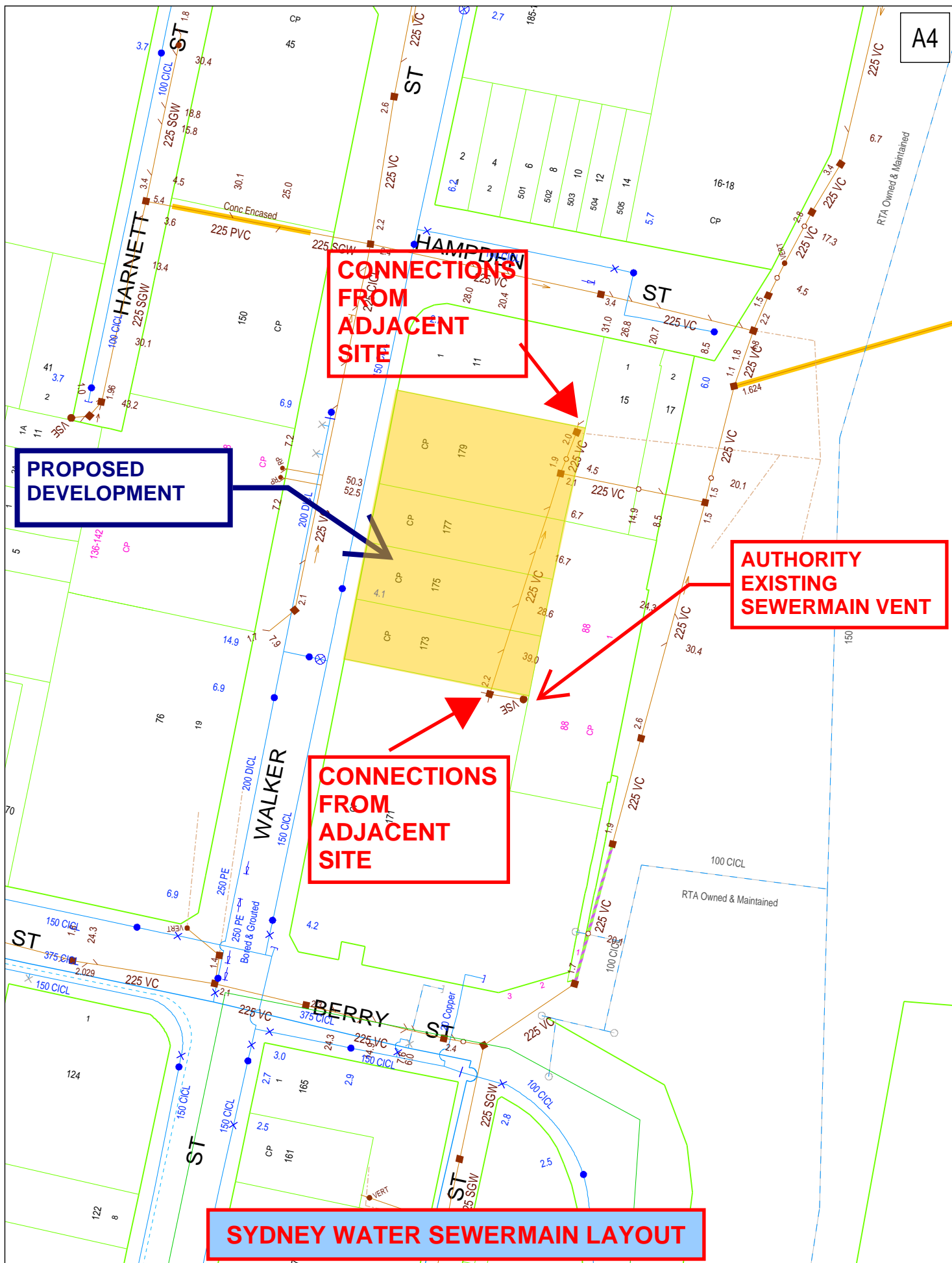
Further information and guidance is available in the Building Development and Plumbing section of Sydney Water's website at www.sydneywater.com.au, where you will find the following documents under 'Dial Before You Dig':

- Avoid Damaging Water and Sewer Pipelines
- Water Main Symbols
- Depths of Mains
- Guidelines for Building Over/Adjacent to Sydney Water Assets
- Clearances Between Underground Services

Or call **13 20 92** for Customer Enquires.

Note: The lodging of enquiries via **www.1100.com.au** will enable you to receive colour plans in PDF format 24 hours a day, 7 days a week via email.

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DBYD Job No: 12466277
DBYD Sequence No: 61906992

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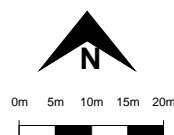
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SYDNEY WATER CORPORATION

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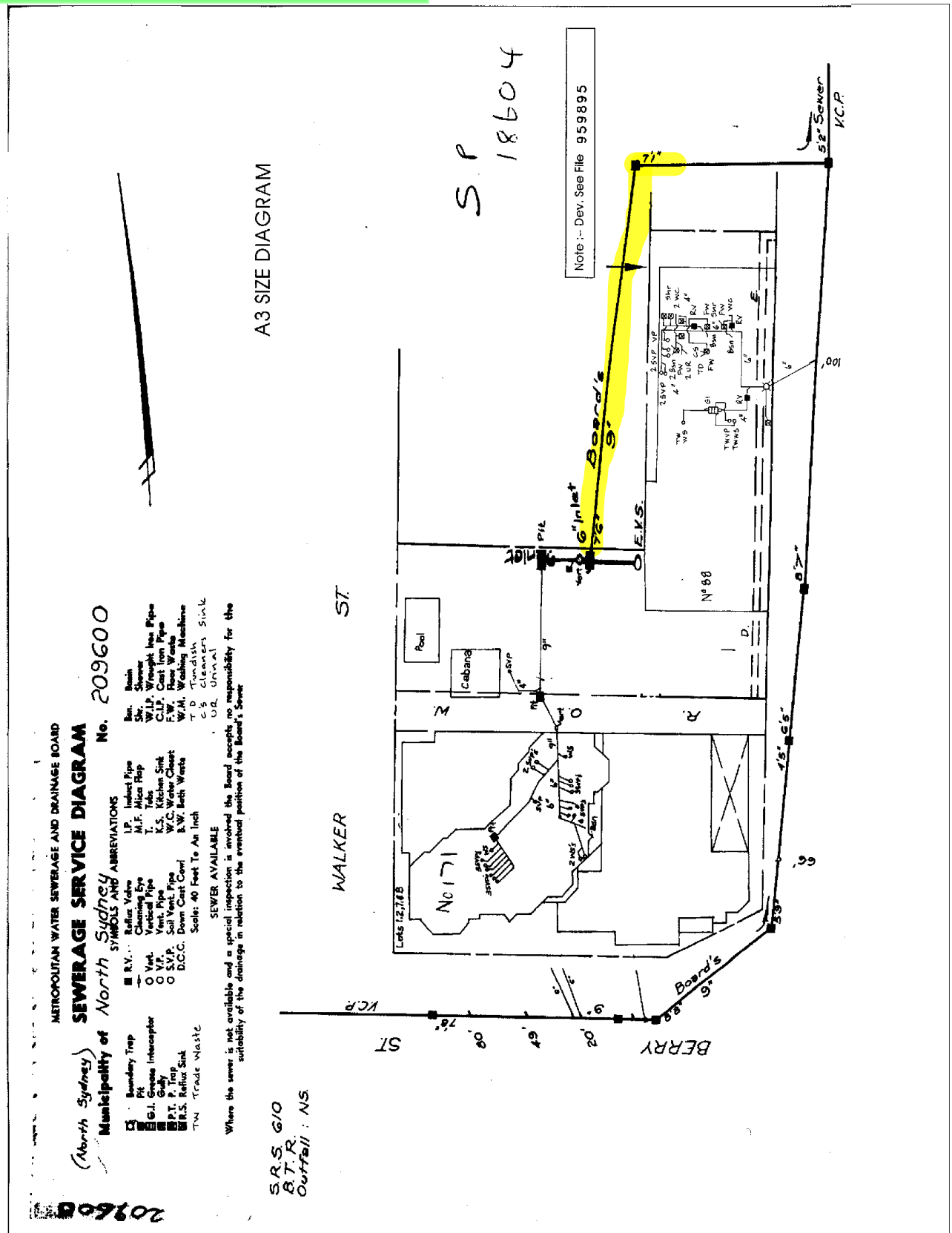
Date of Production: 13/06/2017

Plan 1 of 1



Sewer Service Diagram

Application Number: 260102



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NOTE: This diagram only indicates availability of a sewer and any sewerage service shown as existing in Sydney Water's records. The existence and position of Sydney Water's sewers, stormwater channels, pipes, mains and structures should be ascertained by inspection of maps available at any of Sydney Water's Customer Centres. Position of structures boundaries and sewerage services shown hereon are approximately only.

Sydney Water Corporation ABN 49 776 225 038

1 Smith St Parramatta 2150 | PO Box 399 Parramatta 2124 | DX 14 Sydney | T 13 20 92 | www.sydneywater.com.au

Delivering essential and sustainable water services for the benefit of the community

Sewer Service Diagram

Application Number: 260103

METROPOLITAN WATER SEWERAGE AND DRAINAGE BOARD
DIAGRAM OF SANITARY DRAINAGE
Municipality of North Sydney SEWER AVAILABLE Diagram No. 209596

SYMBOLS AND ABBREVIATIONS

BT Boundary Trap	RV Reflex Valve	I.P. Induct Pipe	Bsn. Basin
PI Pit	CE Cleaning Eye	M.F. Mica Flap	Shr. Shower
GI Grease Interceptor	VERT. Vertical Pipe	T. Tubs	W.I.P. Wrought Iron Pipe
Gully	V.P. Vent. Pipe	K.S. Kitchen Sink	C.I.P. Cast Iron Pipe
P.T. P. Trap	S.V.P. Soil Vent. Pipe	W.C. Water Closet	F.W. Floor Waste
RS Reflex Sink	D.C.C. Down Cast Cowl	B.W. Bath Waste	W.M. Washing Machine

Existing drainage shown by black lines Scale: 40 Feet to an inch
Proposed new drainage shown by full blue lines.

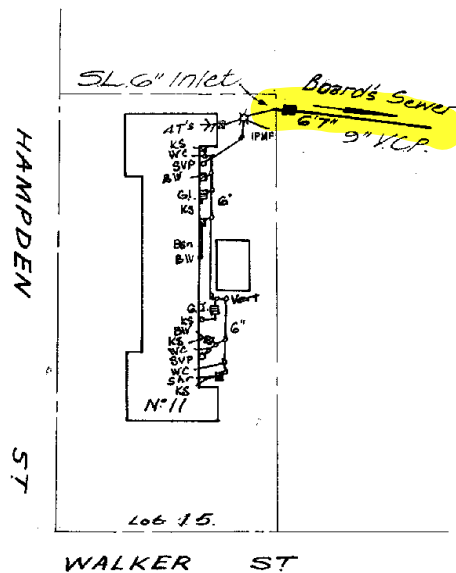
This diagram is the property of the Owner and is to be returned to him on completion of the work.

Subject to application, certificates for drainage and sanitary plumbing will be issued to the owner when the work is completed and passed by the Board's Inspector.

The Board accepts no responsibility for the suitability of the diagram in relation to the eventual position of the Board's sewer. When the sewer is available it will be necessary to apply for a revised diagram.

This work must be carried out in accordance with the Board's By-laws.

110/611230 RE-CONNECTION TO SEWER



SHEET No. 610

1014 082

19

FOR ENGINEER-IN-CHIEF

OFFICE USE ONLY		37 113	
W.C.	Designed by	DATE	Inspector
Bth	Inspector	1/1	First Visit
Shr		Superv'n	
Bsn	Examined by	1/1	Passed
K.S		Checked	
T	Chief Inspector	1/1	DATE
Pig		Drainer	
Dge.Int.	Boundary Trap is not required.	is	COMPENSATION - MH. AC. VS.
Dge.Ext		File	HOV

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NOTE: This diagram only indicates availability of a sewer and any sewerage service shown as existing in Sydney Water's records. The existence and position of Sydney Water's sewers, stormwater channels, pipes, mains and structures should be ascertained by inspection of maps available at any of Sydney Water's Customer Centres. Position of structures boundaries and sewerage services shown hereon are approximately only.

Sydney Water Corporation ABN 49 776 225 038

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Delivering essential and sustainable water services for the benefit of the community

Sewer Service Diagram

Application Number: 258699

DIAGRAM OF SANITARY DRAINAGE

Municipality of **NORTH SYDNEY** SEWER AVAILABLE

Diagram No. **209597**

SYMBOLS AND ABBREVIATIONS				
□ Boundary Trap	■ R.V. Reflux Valve	I.P. Induct Pipe	Bsn. Basin	
■ Pit	— Cleaning Eye	M.F. Mica Flap	Shr. Shower	
■ G.I. Grease Interceptor	oVert Vertical Pipe	T. Tube	W.I.P. Wrought Iron Pipe	
■ Gully	oV.P. Vent. Pipe	K.S. Kitchen Sink	C.I.P. Cast Iron Pipe	
■ P.T. P. Trap	oS.V.P. Soil Vent. Pipe	W.C. Water Closet	F.W. Floor Waste	
■ R.S. Reflux Sink	D.C.C. Down Cast Cowl	B.W. Bath Waste		

Existing drainage shown by black lines. Scale: 40 Feet to an Inch New drainage shown by full blue lines.

This diagram is the property of the Proprietor and is to be returned to him on completion of the work.

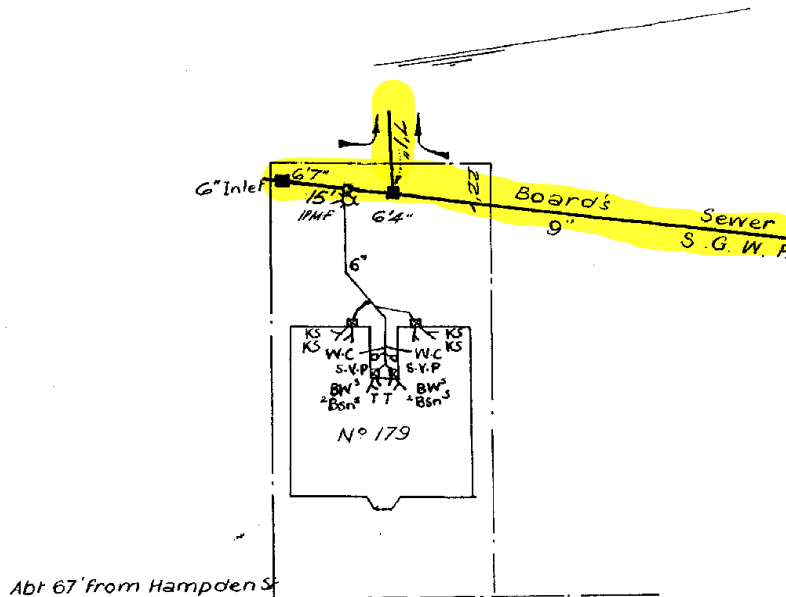
Certificates for drainage and sanitary plumbing may be obtained on application at the office of the Board by the Drainer or Plumber concerned.

The Board accepts no responsibility for the suitability of the diagram in relation to the eventual position of the Board's sewer. When the sewer becomes available it will be necessary to apply for a revised diagram.

This work must be carried out in accordance with the Board's By-laws and Regulations.
(4" dia. pipes may be used in lieu of 6" dia. pipes as shown on this diagram if the property owner so desires, provided that the relative levels of the sewer and house fixtures will permit of the pipes being laid with regulation grades and cover. For further information consult Board's Inspector.)

This work will be tested from

119/611230 RE-CONNECTION TO SEWER



WALKER ST.

SHEET Nº 610

793 610

For Engineer-in-Chief

OFFICE USE ONLY				269 162		
W.C.	Designed by	Date	Inspector	First Visit	Passed	Date
B.W.	Inspector	1/1	This helio must be returned as soon as possible or NOT LATER THAN	1/1	1/1	1/1
Shr.		1/1		1/1	1/1	
Bsn.	Examined by	1/1		Checked with Design and Diagram	1/1	1/1
K.S.	Chief Inspector	1/1	B.T.R.	Chief Inspector	1/1	1/1
T.		1/1		1/1	1/1	
Pig.		1/1		1/1	1/1	
Dge. Int.	DESIGN		SUPERVISION			
Dge. Ext.						

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NOTE: This diagram only indicates availability of a sewer and any sewerage service shown as existing in Sydney Water's records. The existence and position of Sydney Water's sewers, stormwater channels, pipes, mains and structures should be ascertained by inspection of maps available at any of Sydney Water's Customer Centres. Position of structures boundaries and sewerage services shown hereon are approximately only.

Sydney Water Corporation ABN 49 776 225 038

1 Smith St Parramatta 2150 | PO Box 399 Parramatta 2124 | DX 14 Sydney | T 13 20 92 | www.sydneywater.com.au

Delivering essential and sustainable water services for the benefit of the community

Sewer Service Diagram

Application Number: 258701

DIAGRAM OF SANITARY DRAINAGE

Municipality of **North Sydney** SEWER AVAILABLE

Diagram No. **209598**

SYMBOLS AND ABBREVIATIONS			
□ Boundary Trap	■ R.V. Reflux Valve	I.P. Induct Pipe	Bsn. Basin
■ Pit	○ C.E. Cleaning Eye	M.F. Mica Flap	Shr. Shower
■ G.I. Grease Interceptor	○ V.P. Vertical Pipe	T. Tubs	W.I.P. Wrought Iron Pipe
■ Gully	○ V.P. Vent. Pipe	K.S. Kitchen Sink	C.I.P. Cast Iron Pipe
■ P.T. P. Trap	○ S.V.P. Soil Vent. Pipe	W.C. Water Closet	F.W. Floor Waste
■ R.S. Reflux Sink	■ D.C. Down Cast Cowl	B.W. Bath Waste	

Existing drainage shown by black lines. Scale: 40 Feet to an Inch New drainage shown by full blue lines.

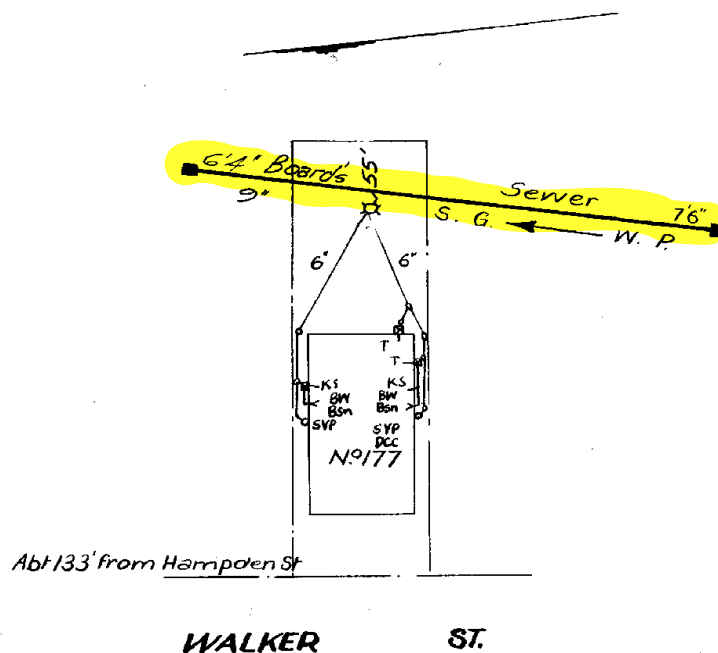
This diagram is the property of the Proprietor and is to be returned to him on completion of the work.

Certificates for drainage and sanitary plumbing may be obtained on application at the office of the Board by the Drainer or Plumber concerned.

~~The Board accepts no responsibility for the suitability of the diagram in relation to the eventual position of the Board's sewer. When the sewer becomes available it will be necessary to apply for a revised diagram.~~

This work must be carried out in accordance with the Board's By-laws and Regulations.
(4" dia. pipes may be used in lieu of 6" dia. pipes as shown on this diagram if the property owner so desires, provided that the relative levels of the sewer and house fixtures will permit of the pipes being laid with regulation grades and cover. For further information consult Board's Inspector)

This work will be tested from



SHEET No **610**

For Engineer-in-Chief

OFFICE USE ONLY				269 163		
WC.	Designed by	Date	Inspector	First Visit	Passed	Date
B.W.		1.1				
Shr.	Inspector		This helio must be returned as soon as possible or NOT LATER THAN B.T.R.	Inspector		1.1
Bsn.	Examined by	1.1		Checked with Design and Diagram		1.1
K.S.	Chief Inspector			Chief Inspector		
T.						
Plg.						
Dge.Int.						
Dge.Ext.	DESIGN			SUPERVISION		

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NOTE: This diagram only indicates availability of a sewer and any sewerage service shown as existing in Sydney Water's records. The existence and position of Sydney Water's sewers, stormwater channels, pipes, mains and structures should be ascertained by inspection of maps available at any of Sydney Water's Customer Centres. Position of structures boundaries and sewerage services shown hereon are approximately only.

Sydney Water Corporation ABN 49 776 225 038

1 Smith St Parramatta 2150 | PO Box 399 Parramatta 2124 | DX 14 Sydney | T 13 20 92 | www.sydneywater.com.au

Delivering essential and sustainable water services for the benefit of the community

Sewer Service Diagram

Application Number: 258702

METROPOLITAN WATER SEWERAGE AND DRAINAGE BOARD DIAGRAM OF SANITARY DRAINAGE

Municipality of **North Sydney** SEWER AVAILABLE

Diagram No. **209599**

SYMBOLS AND ABBREVIATIONS			
□ Boundary Trap	■ R.V. Reflux Valve	I.P. Induct Pipe	Bsn. Basin
■ Pit	○ C.E. Cleaning Eye	M.F. Mica Flap	Shr. Shower
■ G.I. Grease Interceptor	○ V.P. Vertical Pipe	T. Tubs	W.I.P. Wrought Iron Pipe
■ Gully	○ V.P. Vent. Pipe	K.S. Kitchen Sink	C.I.P. Cast Iron Pipe
■ P.T. P. Trap	○ S.V.P. Soil Vent. Pipe	W.C. Water Closet	F.W. Floor Waste
■ R.S. Reflux Sink	D.C. Down Cast Cowl	B.W. Bath Waste	

Existing drainage shown by black lines. Scale: 40 Feet to an Inch New drainage shown by full blue lines.

This diagram is the property of the Proprietor and is to be returned to him on completion of the work.

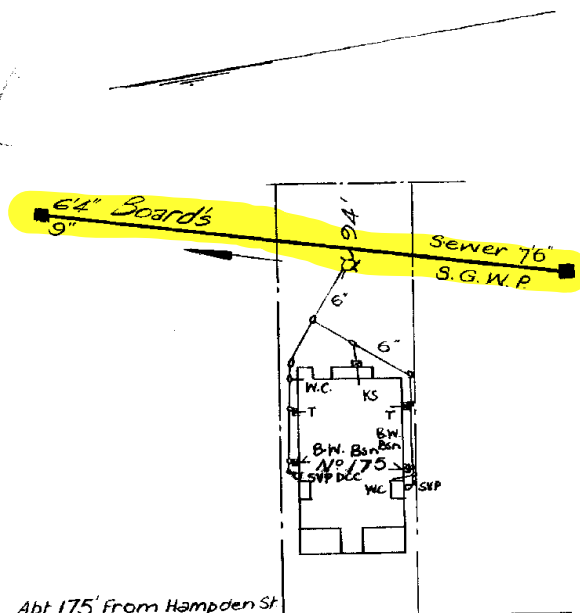
Certificates for drainage and sanitary plumbing may be obtained on application at the office of the Board by the Drainer or Plumber concerned.

~~The Board accepts no responsibility for the suitability of the diagram in relation to the eventual position of the Board's sewer. When the sewer becomes available it will be necessary to apply for a revised diagram.~~

This work must be carried out in accordance with the Board's By-laws and Regulations.

(4" dia. pipes may be used in lieu of 6" dia. pipes as shown on this diagram if the property owner so desires, provided that the relative levels of the sewer and house fixtures will permit of the pipes being laid with regulation grades and cover. For further information consult Board's Inspector.)

This work will be tested from



Abt 175' From Hampden St

WALKER ST.

SHEET No **610**

For Engineer-in-Chief

OFFICE USE ONLY				269 161		
WC.	Designed by	Date	Inspector	First Visit	Passed	Date
B.W.	Inspector	L.I.	This helio must be returned as soon as possible or NOT LATER THAN B.T.R.	Inspector		L.I.
Shr.		Examined by		Checked with Design and Diagram		L.I.
Bsn.	Chief Inspector	L.I.		Chief Inspector		L.I.
K.S.						
T.						
Plg.						
Dge. Int.						
Dge. Ext.						
DESIGN			SUPERVISION			

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NOTE: This diagram only indicates availability of a sewer and any sewerage service shown as existing in Sydney Water's records. The existence and position of Sydney Water's sewers, stormwater channels, pipes, mains and structures should be ascertained by inspection of maps available at any of Sydney Water's Customer Centres. Position of structures boundaries and sewerage services shown hereon are approximately only.

Sydney Water Corporation ABN 49 776 225 038

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Sewer Service Diagram

Application Number: 258703

METROPOLITAN WATER SEWERAGE AND DRAINAGE BOARD

SEWERAGE SERVICE DIAGRAM

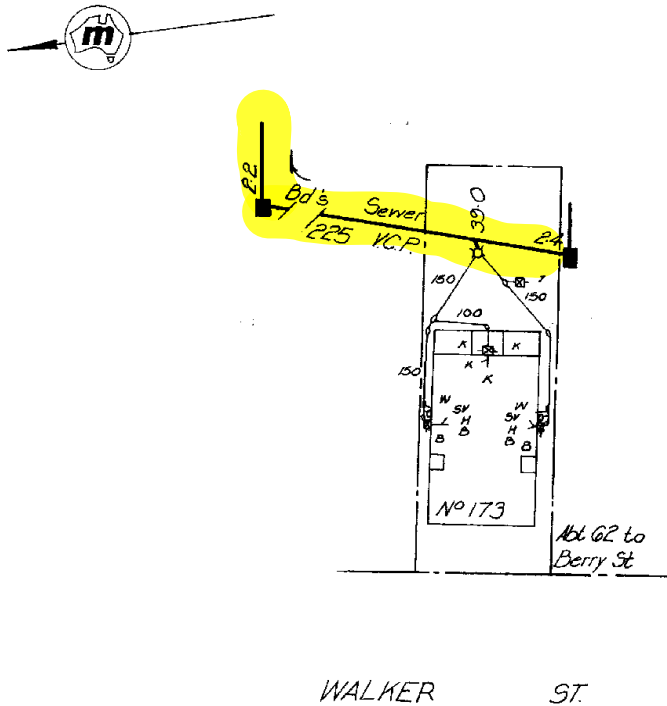
Municipality of *North Sydney*

No. *131528*

<input type="checkbox"/> Boundary Trap	<input type="checkbox"/> R Reflux Valve	<input type="checkbox"/> IP Induct Pipe	<input type="checkbox"/> H Basin
<input type="checkbox"/> Inspection Shaft	<input type="checkbox"/> CE Cleaning Eye	<input type="checkbox"/> MF Mica Flap	<input type="checkbox"/> S Shower
<input type="checkbox"/> Pit	<input type="checkbox"/> V Vertical Pipe	<input type="checkbox"/> T Tubs	<input type="checkbox"/> WIP Wrought Iron Pipe
<input type="checkbox"/> G Grease Interceptor	<input type="checkbox"/> V Vent Pipe	<input type="checkbox"/> K Kitchen Sink	<input type="checkbox"/> CIP Cast Iron Pipe
<input type="checkbox"/> Gully	<input type="checkbox"/> SV Soil Vent Pipe	<input type="checkbox"/> W Water Closet	<input type="checkbox"/> F Floor Waste
<input type="checkbox"/> P P Trap	<input type="checkbox"/> DC Down Cast Cowl	<input type="checkbox"/> B Bath Waste	<input type="checkbox"/> M Washing Machine

SEWER AVAILABLE

Where the sewer is not available and a special inspection is involved the Board accepts no responsibility for the suitability of the drainage in relation to the eventual position of the Board's Sewer.



Scale 1:500

Distances/depths in metres;
pipe diameters in millimetres

RATE No. *610* W.C.s *U.C.s* For House Services Engineer

DRAINAGE			BRANCH OFFICE		PLUMBING	
W.C.	Supervised by	Date	Date	Supervised by	Date	
Bth.	Inspector		Outfall <i>N.S.</i>	Inspector		
Shr.						
Bsn.						
K.S.						
T.	Chief Inspector		Drainer	69-737		
Plg.			Plumber			
Dge. Int.			Boundary Trap is/ required			
Dge. Ext.	Tracing Checked					

Document generated at 13-06-2017 12:43:49 PM

NOTE: This diagram only indicates availability of a sewer and any sewerage service shown as existing in Sydney Water's records. The existence and position of Sydney Water's sewers, stormwater channels, pipes, mains and structures should be ascertained by inspection of maps available at any of Sydney Water's Customer Centres. Position of structures boundaries and sewerage services shown hereon are approximately only.

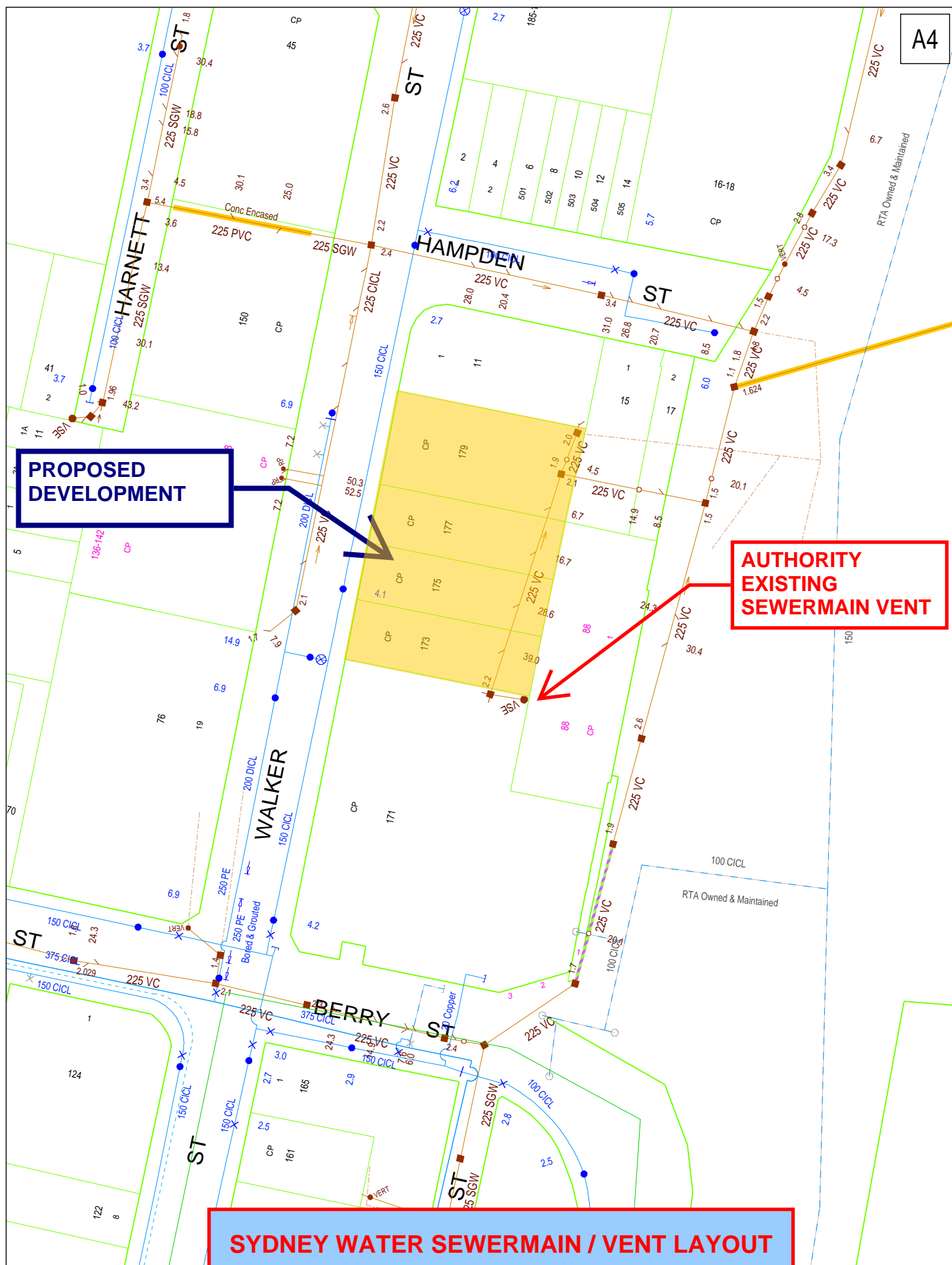
Sydney Water Corporation ABN 49 776 225 038

1 Smith St Parramatta 2150 | PO Box 399 Parramatta 2124 | DX 14 Sydney | T 13 20 92 | www.sydneywater.com.au

Delivering essential and sustainable water services for the benefit of the community

Appendix C

Sewer Main Vent
Asset Owner: Sydney Water Corporation



DBYD Address:
179 Walker Street
North Sydney NSW 2060

DBYD Job No: 12466277

DBYD Sequence No: 61906992

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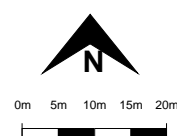
No warranty is given that the information shown is complete or accurate.

SYDNEY WATER CORPORATION

Scale: 1:1000

Date of Production: 13/06/2017

Plan 1 of 1





**SWC
SEWERMAIN
VENT
LOCATED IN
EASEMENT
BEYOND SITE
BOUNDARY**






























































Appendix D

Potable Cold Water Mains
Asset Owner: Sydney Water Corporation

Guide to reading Sydney Water DBYD Plans



Legend

Sewer		Property Details	
Sewer Main (with flow arrow & size type text)		Boundary Line	
Disused Main		Easement Line	
Rising Main		House Number	
Maintenance Hole (with upstream depth to invert)		Lot Number	
Sub-surface chamber		Proposed Land	
Maintenance Hole with Overflow chamber		Sydney Water Heritage Site (please call 132 092 and ask for the Heritage Unit)	
Ventshaft EDUCT			
Ventshaft INDUCT			
Property Connection Point (with chainage to downstream MH)			
Concrete Encased Section			
Terminal Maintenance Shaft			
Maintenance Shaft			
Rodding Point			
Lamphole			
Vertical			
Pumping Station			
Sewer Rehabilitation			
Pressure Sewer		Water	
Pressure Sewer Main		WaterMain - Potable (with size type text)	
Pump Unit (Alarm, Electrical Cable, Pump Unit)		Disconnected Main - Potable	
Property Valve Boundary Assembly		Proposed Main - Potable	
Stop Valve		Water Main - Recycled	
Reducer / Taper		Special Supply Conditions - Potable	
Flushing Point		Special Supply Conditions - Recycled	
Vacuum Sewer		Restrained Joints - Potable	
Pressure Sewer Main		Restrained Joints - Recycled	
Division Valve		Hydrant	
Vacuum Chamber		Maintenance Hole	
Clean Out Point		Stop Valve	
Stormwater		Stop Valve with By-pass	
Stormwater Pipe		Stop Valve with Tapers	
Stormwater Channel		Closed Stop Valve	
Stormwater Gully		Air Valve	
Stormwater Maintenance Hole		Valve	
		Scour	
		Reducer / Taper	
		Vertical Bends	
		Reservoir	
		Recycled Water is shown as per Potable above. Colour as indicated	
		Private Mains	
		Potable Water Main	
		Recycled Water Main	
		Sewer Main	
		Symbols for Private Mains shown grey	

Pipe Types

ABS	Acrylonitrile Butadiene Styrene	AC	Asbestos Cement
BRICK	Brick	CI	Cast Iron
CICL	Cast Iron Cement Lined	CONC	Concrete
COPPER	Copper	DI	Ductile Iron
DICL	Ductile Iron Cement (mortar) Lined	DIPL	Ductile Iron Polymeric Lined
EW	Earthenware	FIBG	Fibreglass
FL BAR	Forged Locking Bar	GI	Galvanised Iron
GRP	Glass Reinforced Plastics	HDPE	High Density Polyethylene
MS	Mild Steel	MSCL	Mild Steel Cement Lined
PE	Polyethylene	PC	Polymer Concrete
PP	Polypropylene	PVC	Polyvinylchloride
PVC - M	Polyvinylchloride, Modified	PVC - O	Polyvinylchloride, Oriented
PVC - U	Polyvinylchloride, Unplasticised	RC	Reinforced Concrete
RC-PL	Reinforced Concrete Plastics Lined	S	Steel
SCL	Steel Cement (mortar) Lined	SCL IBL	Steel Cement Lined Internal Bitumen Lined
SGW	Salt Glazed Ware	SPL	Steel Polymeric Lined
SS	Stainless Steel	STONE	Stone
VC	Vitrified Clay	WI	Wrought Iron
WS	Woodstave		

Further Information

Please consult the [Dial Before You Dig enquiries](#) page on the Sydney Water website

For general enquiries please call the Customer Contact Centre on **132 092**

In an emergency, or to notify Sydney Water of damage or threats to its structures, call 13 20 90 (24 hours, 7 days)

IMPORTANT INFORMATION - DIAL BEFORE YOU DIG

Attention: You must read the information below

The material provided or made available to you by Sydney Water (including on the Sydney Water website) in relation to your Dial Before You Dig enquiry (**Information**) is provided on each of the following conditions, which you are taken to have accepted by using the Information:

- 1 The Information has been generated by an automated system based on the area highlighted in the "Locality Indication Only" window on your Caller Confirmation. It is your responsibility to ensure that the dig site is properly defined when submitting your Dial Before You Dig enquiry and, if the Information does not match the dig site, to resubmit your enquiry for the correct dig site.
- 2 Neither Sydney Water nor Dial Before You Dig make any representation or give any guarantee, warranty or undertaking (express or implied) as to the currency, accuracy, completeness, effectiveness or reliability of the Information. The Information, including Sydney Water plans and work-as-executed diagrams, amongst other things:
 - (a) may not show all existing structures, including Sydney Water's pipelines, particularly in relation to newer developments and in relation to structures owned by parties who do not participate in the Dial Before You Dig service;
 - (b) may be out of date and not show changes to surface levels, road alignments, fences, buildings and the like;
 - (c) is approximate only and is therefore not suitable for scaling purposes; and
 - (d) does not show locations of property services (often called house service lines) belonging to or servicing individual customers, which are usually connected to Sydney Water's structures.
- 3 You are responsible for, amongst other things:
 - (a) exposing underground structures, including Sydney Water's pipelines, by pot-holing using hand-held tools or vacuum techniques so as to determine the precise location and extent of structures before any mechanical means of excavation are used;
 - (b) the safe and proper excavation of and for underground works and structures, including having regard to the fact that asbestos cement pipelines, which can pose a risk to health, may form part of Sydney Water's water and sewerage reticulation systems;
 - (c) protecting underground structures, including Sydney Water's pipelines, from damage and interference;
 - (d) maintaining minimum clearances between Sydney Water's structures and structures belonging to others;
 - (e) ensuring that backfilling of excavation work in the vicinity of Sydney Water's structures complies with Sydney Water's standards contained on its website or otherwise communicated to you;
 - (f) notifying Sydney Water immediately of any damage caused or threat of damage to Sydney Water's structures;
 - (g) ensuring that plans are approved by Sydney Water (usually signified by stamping) prior to landscaping or building over or in the vicinity of any Sydney Water structure; and
 - (h) ensuring that the Information is used only for the purposes for which Sydney Water and Dial Before You Dig intended.

- 4 You acknowledge that you use the Information at your own risk. In consideration for the provision of the Dial Before You Dig service and the Information by Sydney Water and Dial Before You Dig, to the fullest extent permitted by law:
- (a) all conditions and guarantees concerning the Information (whether as to quality, outcome, fitness, care, skill or otherwise) expressed or implied by statute, common law, equity, trade, custom or usage or otherwise are expressly excluded and to the extent that those statutory guarantees cannot be excluded, the liability of Sydney Water and Dial Before You Dig to you is limited to either of the following as nominated by Sydney Water in its discretion, which you agree is your only remedy:
 - (i) the supplying of the Information again; or
 - (ii) payment of the cost of having the Information supplied again;
 - (b) in no event will Sydney Water or Dial Before You Dig be liable for, and you release Sydney Water and Dial Before You Dig from, any Loss arising from or in connection with the Information, including the use of or inability to use the Information and delay in the provision of the Information:
 - (i) whether arising under statute or in contract, tort or any other legal doctrine, including any negligent act, omission or default (including wilful default) by Sydney Water or Dial Before You Dig; and
 - (ii) regardless of whether Sydney Water or Dial Before You Dig are or ought to have been aware of, or advised of, the possibility of such loss, costs or damages;
 - (c) you will indemnify Sydney Water and Dial Before You Dig against any Loss arising from or in connection with Sydney Water providing incorrect or incomplete information to you in connection with the Dial Before You Dig service; and
 - (d) you assume all risks associated with the use of the Dial Before You Dig and Sydney Water websites, including risk to your computer, software or data being damaged by any virus, and you release and discharge Sydney Water and Dial Before You Dig from all Loss which might arise in respect of your use of the websites.
- 5 **“Sydney Water”** means Sydney Water Corporation and its employees, agents, representatives and contractors. **“Dial Before You Dig”** means Dial Before You Dig Incorporated and its employees, agents, representatives and contractors. References to **“you”** include references to your employees, agents, representatives, contractors and anyone else using the Information. References to **“Loss”** include any loss, cost, expense, claim, liability or damage (including arising in connection with personal injury, death or any damage to or loss of property and economic or consequential loss, lost profits, loss of revenue, loss of management time, opportunity costs or special damages). To the extent of any inconsistency, the conditions in this document will prevail over any other information provided to you by Sydney Water and Dial Before You Dig.

In an emergency, or to notify Sydney Water of damage or threats to its structures, call 13 20 90 (24 hours, 7 days)

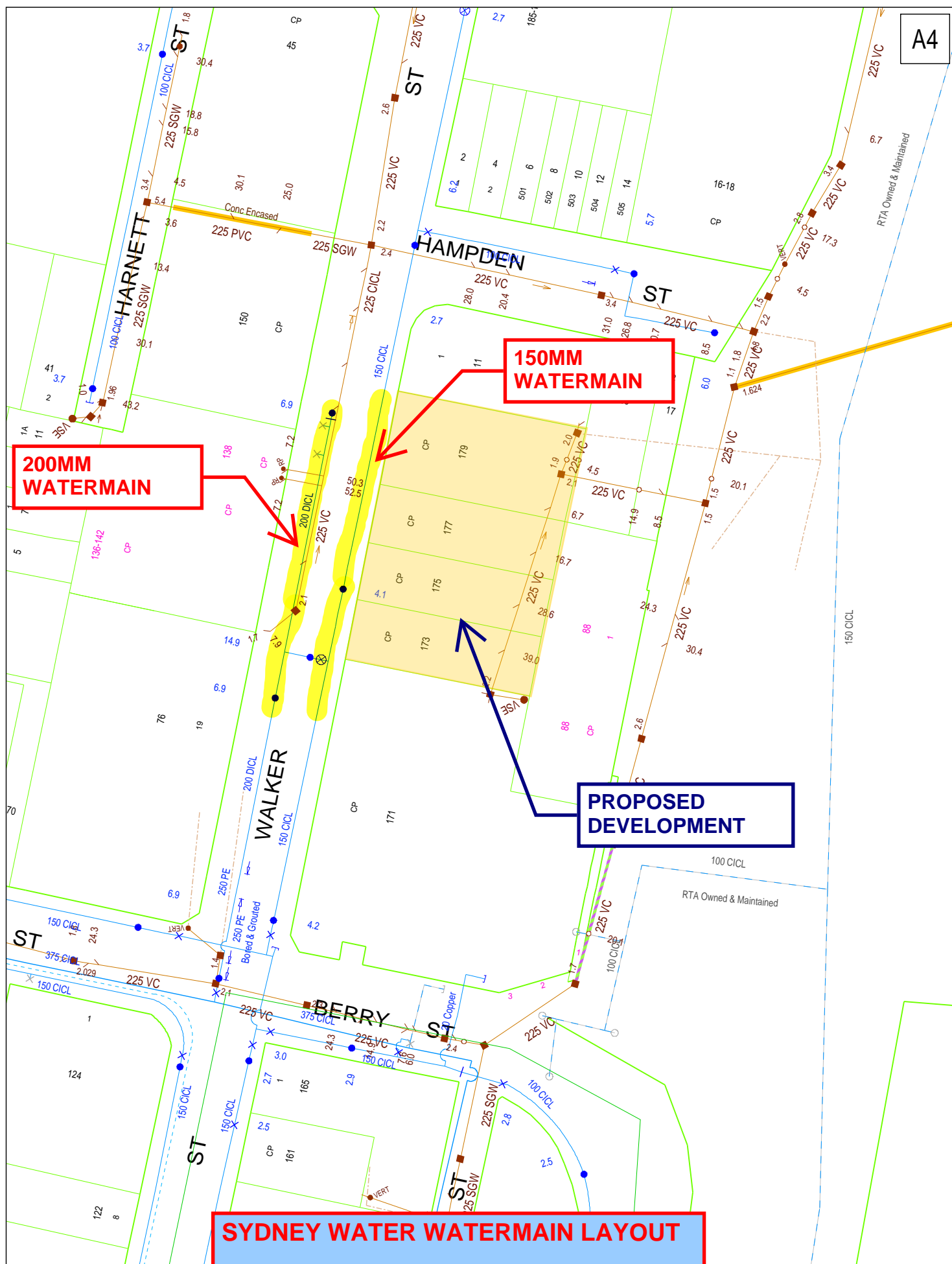
Further information and guidance is available in the Building Development and Plumbing section of Sydney Water's website at www.sydneywater.com.au, where you will find the following documents under 'Dial Before You Dig':

- Avoid Damaging Water and Sewer Pipelines
- Water Main Symbols
- Depths of Mains
- Guidelines for Building Over/Adjacent to Sydney Water Assets
- Clearances Between Underground Services

Or call **13 20 92** for Customer Enquires.

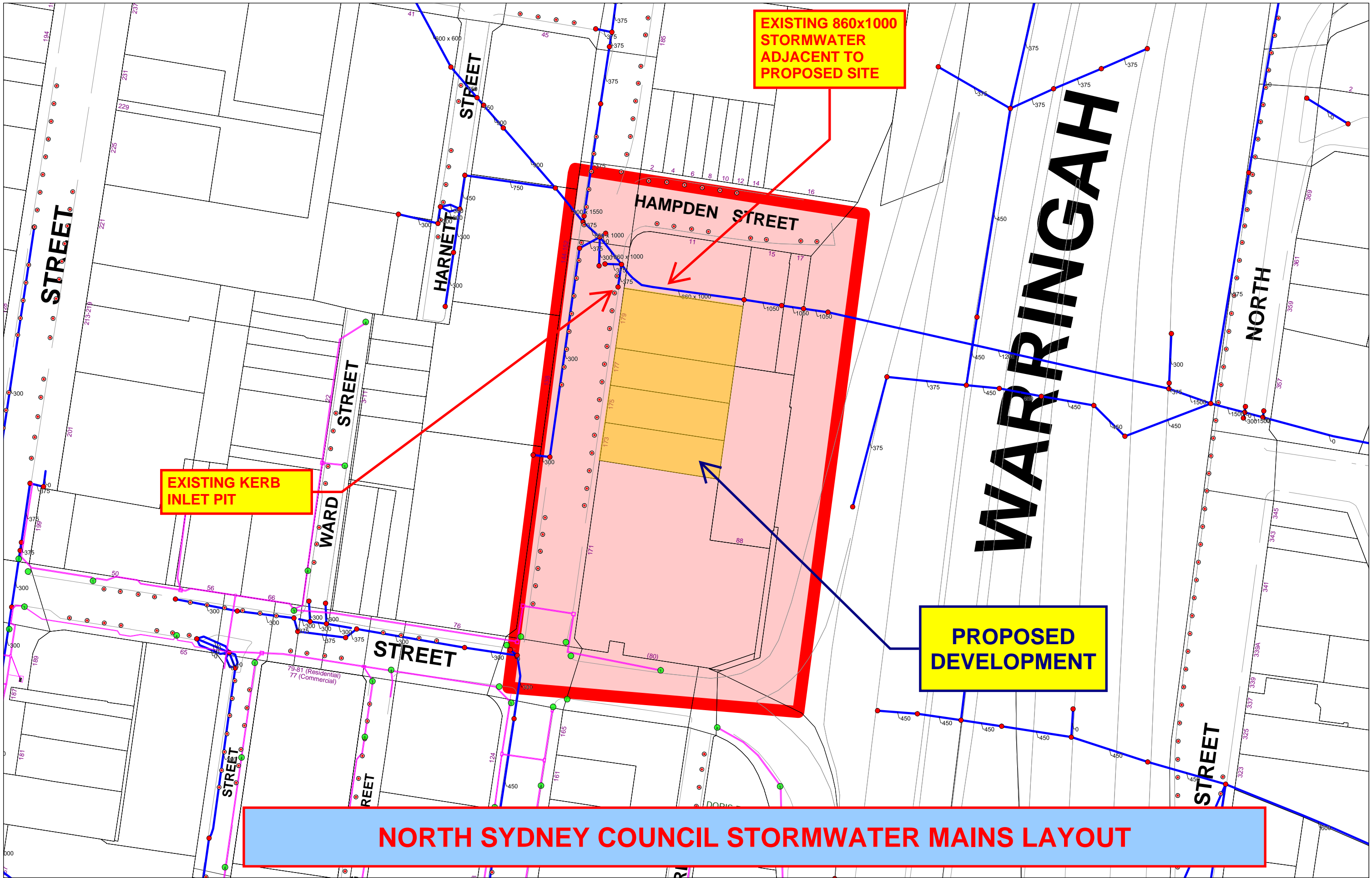
Note: The lodging of enquiries via **www.1100.com.au** will enable you to receive colour plans in PDF format 24 hours a day, 7 days a week via email.

This communication is confidential. If you are not the intended recipient, please destroy all copies immediately. Sydney Water Corporation prohibits unauthorised copying or distribution of this communication.



Appendix E

Stormwater Drainage
Asset Owner: North Sydney Council



North Sydney Council
Copyright © North Sydney Council - No part of this map may be reproduced without permission. Commercial decisions should not be made based on information contained in this map. Locations and measurements shown are indicative only and must be confirmed on-site.
Further details can be obtained by calling (02) 9936 8100 or e-mail dbyd@northsydney.nsw.gov.au.

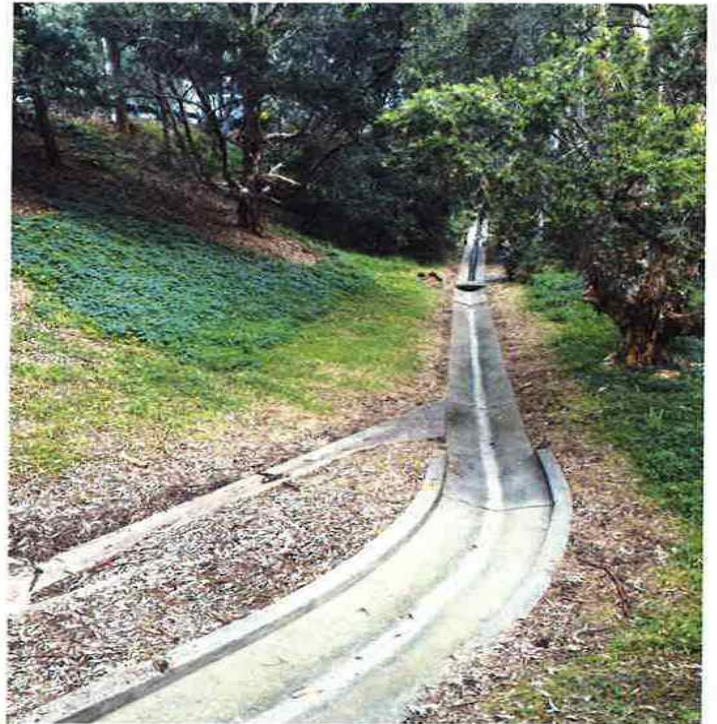
**NORTH SYDNEY COUNCIL STORMWATER DRAINAGE/
UNDERGROUND POWER AND LIGHTPOLE FOOTINGS/
PARKING METER SENSORS**

LEGEND	
Drainage Pipe	Gross Pollutant Trap
Drainage Pit	Litter Basket
Conduit / Cable	Distribution Board
Parking Meter Sensors	NSC Multi-Purpose Pole (Footings / Pole)

Job Number:	12466277
Seq Number:	61906981
Recipient:	mbramble@harrispape.com.au
Date:	13:06:17
Scale At A3: 1:1150	

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The map is not a substitute for a site visit. The Council does not accept any liability for any loss or damage arising from the use of the map.
The map is not a substitute for a site visit. The Council does not accept any liability for any loss or damage arising from the use of the map.

CULVERT AND LANDSCAPING ADJACENT WARRINGAH FREEWAY



Appendix F

Gas (Natural)
Asset Owner: Jemena

Network Protection

High Pressure - Assets Affected

In reply to your enquiry, there are **High Pressure Gas Mains** in the vicinity of your intended work, as generally illustrated on the attached map. There may also be other mains or services at the location, as discussed in the warning below. For an explanation of the map, please see the key below.





























The following excavations guidelines apply:

Excavation Guidelines:

Prior to **any** excavations in this area, you **must** contact the High Pressure Response Coordinator on **1300 665 380**. **(Appointments will be coordinated with availability of a Jemena Representative)** to arrange a survey. For all works in the vicinity of High Pressure Gas Mains you must arrange for a Jemena Representative to attend and supervise all excavations. Charges apply for attendance of any works outside the hours of 7am to 4pm, Monday to Friday ("**Standard Business Hours**") and for any attendance during Standard Business Hours that is longer than 2 hours.

In accordance with clause 34(5) of the Gas Supply (Safety and Network Management) Regulation 2013 (NSW), you should be informed that all excavation, (including pot-holing by hand to confirm the location of pipes) should be performed in accordance with "**Work Near Underground Assets Guideline**" published in 2007 by the Work Cover Authority.

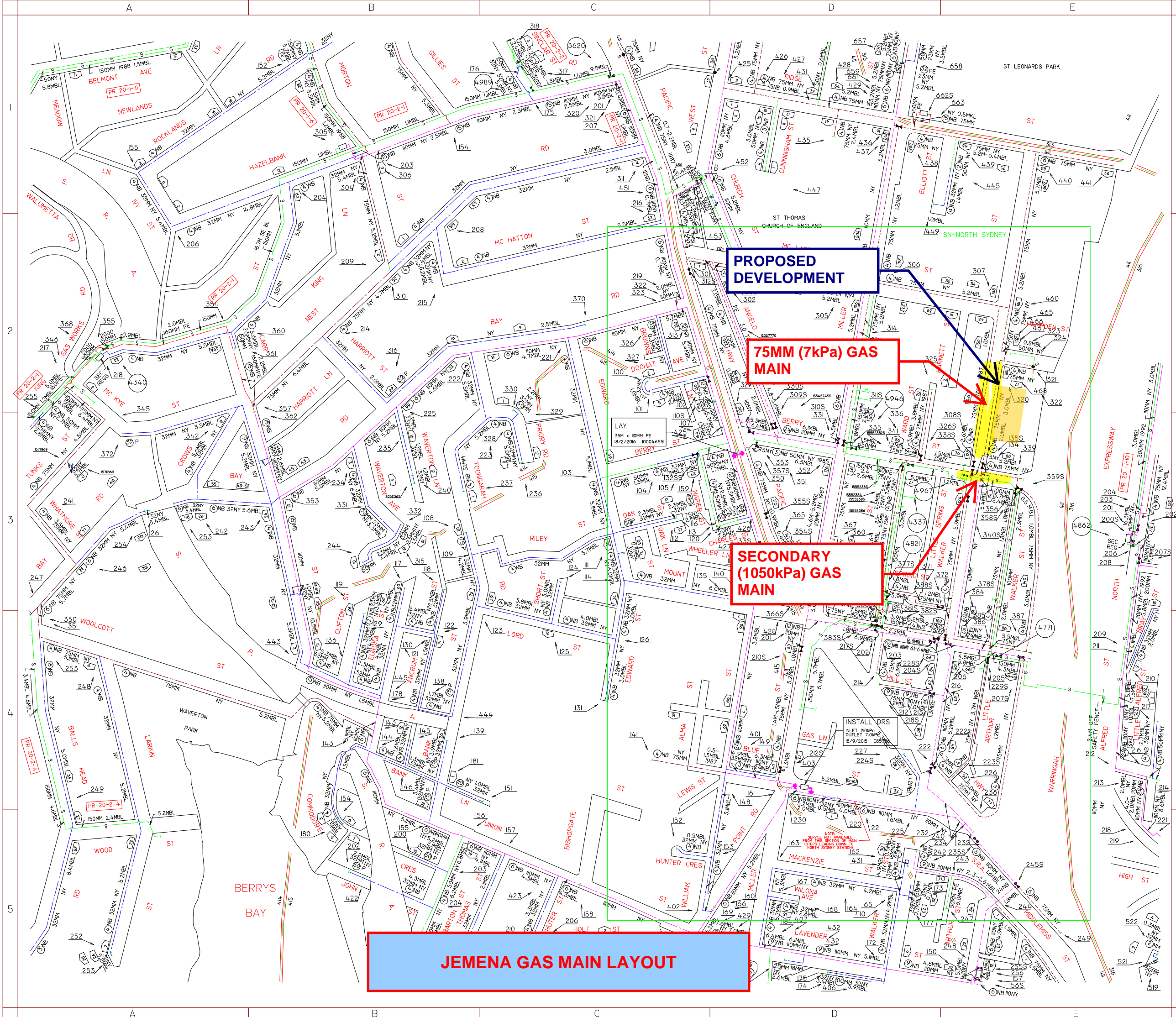
A copy of this Guideline is available at: www.workcover.nsw.gov.au

MAX ALLOWABLE OPERATING PRESSURE			KEY	
	TRUNK PIPELINE	7000 kPa		VALVE
	PRIMARY MAIN	3500 kPa		SYSTEM PRESSURE REGULATOR
	SECONDARY MAIN	1050 kPa		SIPHON
	NETWORK MAIN	400 kPa		NETWORK NODE
	NETWORK MAIN	300 kPa		NETWORK VALVE NODE
	NETWORK MAIN	210 kPa		VALVE NUMBER
	NETWORK MAIN	100 kPa		6 INCH CAST IRON MAIN
	NETWORK MAIN	30 kPa		150MM STEEL MAIN
	NETWORK MAIN	7 kPa		110MM POLYETHYLENE/NYLON MAIN
	NETWORK MAIN	2 kPa		50MM NYLON INSERTED INTO 6NB CAST IRON MAIN
	PROPOSED MAINS			DISTANCE IN METRES OF MAIN FROM BOUNDARY LINE
				YEAR LAID
				HOUSE NUMBER
				PRESSURE MONITORING STATION
				MUNICIPALITY BOUNDARY
				NETWORK BOUNDARY
				STEEL MAIN PROJECT NUMBER

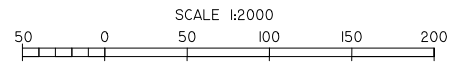
Warning: The enclosed plans show the position of Jemena Gas Networks (NSW) Ltd's underground gas mains and installations in public gazetted roads only. **Individual customers' services and services belonging to other third parties are not included** on these plans. These plans have been prepared solely for the use of Jemena Gas Networks (NSW) Ltd and Jemena Asset Management Pty Ltd (together "**Jemena**") and any reliance placed on these plans by you is entirely at your own risk. The plans may show the position of underground mains and installations relative to fences, buildings etc., as they existed at the time the mains etc were installed. The plans may not have been updated to take account of any subsequent change in the location or style of those features since the time at which the plans were initially prepared. Jemena makes no warranty as to the accuracy or completeness of the enclosed plans and does not assume any duty of care to you nor any responsibility for the accuracy, adequacy, suitability or completeness of the plans or for any error, omission, lack of detail, transmission failure or corruption in the information provided. Jemena does not accept any responsibility for any loss that you or anyone else may suffer in connection with the provision of these plans, however that loss may arise (including whether or not arising from the negligence of Jemena, its employees, agents, officers or contractors). The recipient of these plans must use their own care and diligence in carrying out their works and must carry out further surveys to locate services at their work site. Persons excavating or carrying out other earthworks will be held responsible for any damage caused to Jemena's underground mains and equipment. Jemena advises that you may be required to carry out potholing by hand if required by a Jemena Representative to confirm the location of Jemena's main and installations. This must also be performed by you under the supervision of a Jemena Representative and be carried out in accordance with the Working Near Underground Assets Guideline published in 2007 by Work Cover Authority

In case of Emergency Phone 131 909 (24 hours)

Admin
1300 880 906



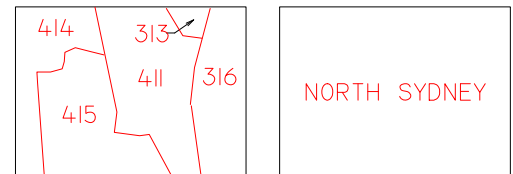
MOSMAN
7A



THIS MAP UPDATED ON 13/01/17
THIS PLAN IS DIAGRAMATIC ONLY. DISTANCES
SCALED FROM THIS PLAN MAY NOT BE ACCURATE.
DATE ALTERED:..... BY:.....

G6D	M04C	M04D
G9B	M07A	M07B
G9D	M07C	M07D

ADJOINING MAPS



NETWORK AREA

MUNICIPALITY AREA

Jemena

KEY

MAX ALLOWABLE OPERATING PRESSURE		
T	TRUNK PIPELINE	7000 kPa
P	PRIMARY MAIN	3500 kPa
S	SECONDARY MAIN	1050 kPa
400	NETWORK MAIN	400 kPa
---	NETWORK MAIN	300 kPa
---	NETWORK MAIN	210 kPa
100	NETWORK MAIN	100 kPa
30	NETWORK MAIN	30 kPa
---	NETWORK MAIN	7 kPa
---	NETWORK MAIN	2 kPa
←---→	PROPOSED MAINS	

PR II-2 3

STEEL MAIN PROJECT NUMBER

PRESSURE MONITORING STATION

VALVE

SYSTEM PRESSURE REGULATOR

SIPHON
NETWORK NODE

NETWORK VALVE NODE

VALVE NUMBER

6 INCH CAST IRON MAIN

150MM STEEL MAIN

110MM POLYETHYLENE/NYLON MAIN
50MM NYLON INSERTED INTO

6NB MAIN CAST IRON MAIN

DISTANCE IN METRES OF MAIN FRO

BOUNDARY LINE

YEAR LAID

MUNICIPALITY BOUNDARY
NETWORK BOUNDARY

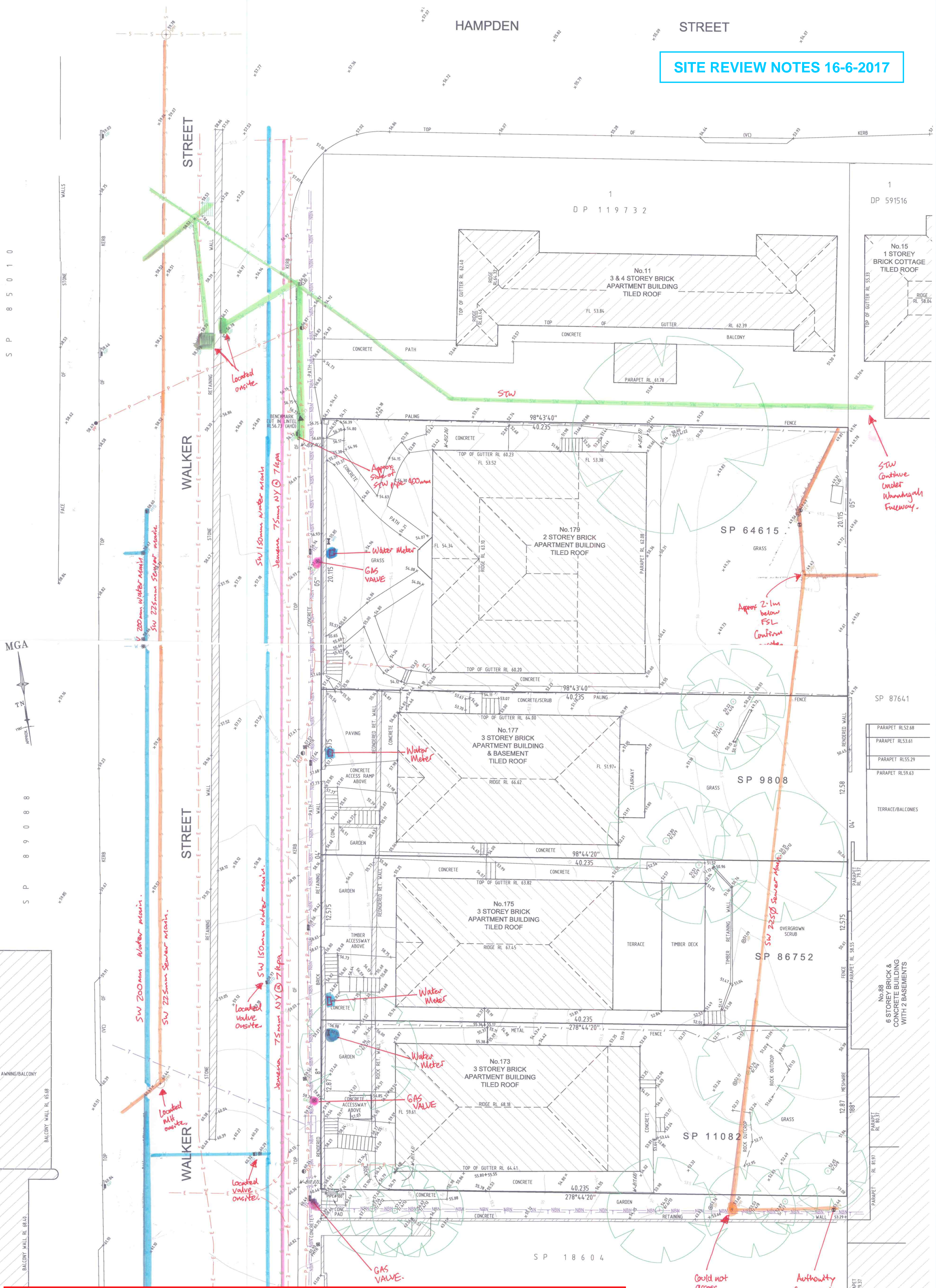
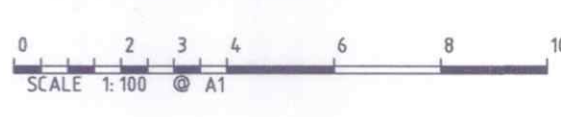
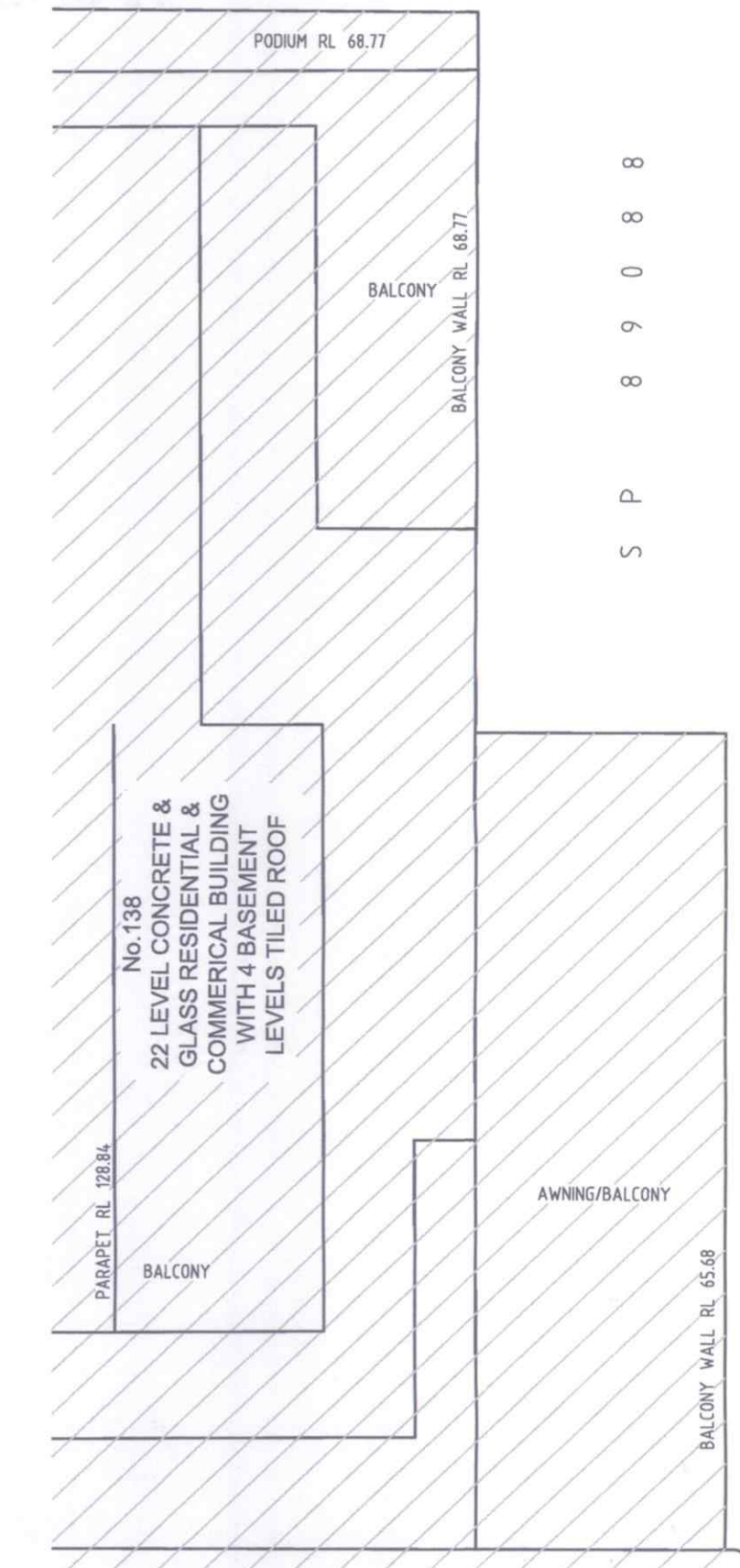
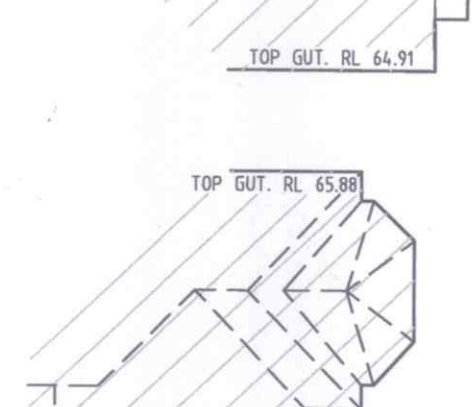
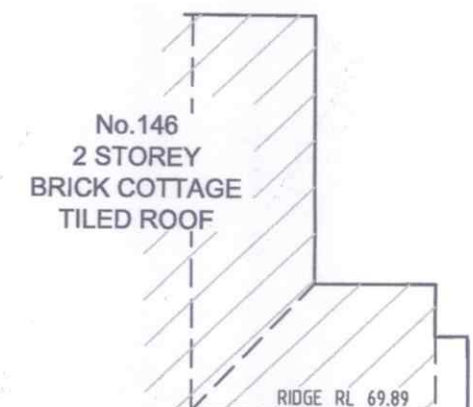
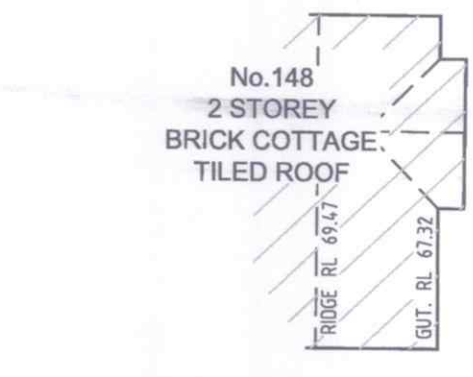
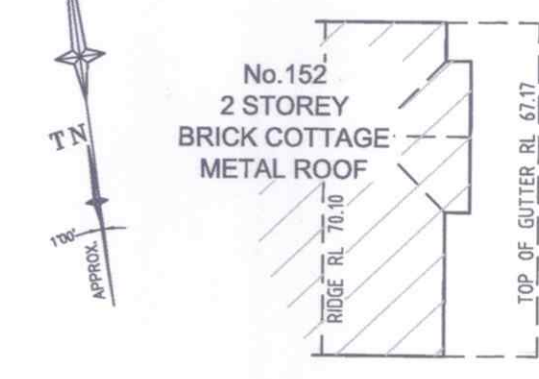
HOUSE NUMBER

MOSMAN 7A

MOSMAN 7A

Appendix G

Survey and Harris Page and Associates Site Notes



SURVEY AND HPA SITE NOTES

SEE SHEET 1 FOR NOTES AND LEGEND

D	00/00/00	-	00
C	00/00/00	-	00
B	00/00/00	-	00
A	00/00/00	-	00

THIS IS THE PLAN REFERRED TO IN MY LETTER DATED:



Client WALKER STREET No100 PTY LTD
Drawing title PLAN OF DETAIL AND LEVELS OVER SP64615, SP9808, SP86752 & SP11082 KNOWN AS No173-179 WALKER

datum AHD
site Area 2339m²
LGA
project number 44659DT
scale 1:100 @A1
date of survey 15/05/17
SHEET