

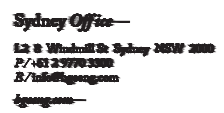

SHEPHERDS BAY, MEADOWBANK CIVIL WORKS

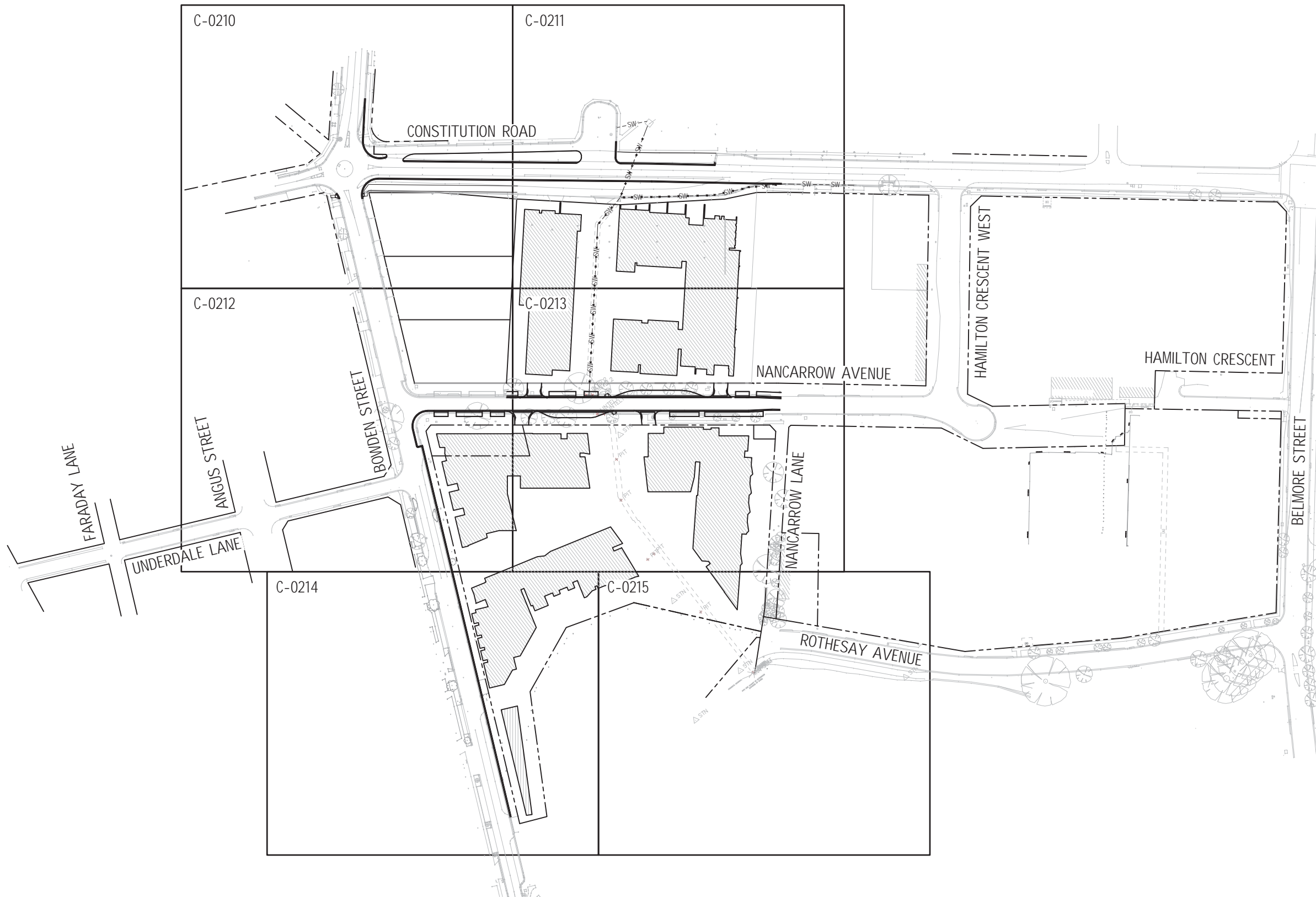


LOCALITY PLAN
DRAWING INDEX

DRG No.	DESCRIPTION	DRG No.	DESCRIPTION
C-0200	COVER SHEET	C-0260	STORMWATER LONGITUDINAL SECTIONS - SHEET 1
C-0201	NOTES SHEET	C-0261	STORMWATER LONGITUDINAL SECTIONS - SHEET 2
C-0202	KEY PLAN	C-0262	STORMWATER LONGITUDINAL SECTIONS - SHEET 3
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C-0211	SITWORKS PLAN - SHEET 2	C-0264	STORMWATER PIT SCHEDULE
C-0212	SITWORKS PLAN - SHEET 3	C-0265	CATCHMENT PLAN
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C-0214	SITWORKS PLAN - SHEET 5	C-0271	SIGNAGE AND LINEMARKING PLAN - SHEET 2
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C-0230	TYPICAL ROAD SECTIONS	C-0273	SIGNAGE AND LINEMARKING PLAN - SHEET 4
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C-0245	CONSTITUTION ROAD CROSS SECTIONS - SHEET 1	C-0281	DETAILS SHEET 2
C-0246	CONSTITUTION ROAD CROSS SECTIONS - SHEET 2	C-0282	DETAILS SHEET 3
C-0247	CONSTITUTION ROAD CROSS SECTIONS - SHEET 3	C-0290	TURNING PATH PLAN - SHEET 1
C-0250	INTERSECTION PLAN CONSTITUTION ROAD/BOWDEN STREET	C-0291	TURNING PATH PLAN - SHEET 2

REV	DATE	DESCRIPTION	RVD
A	23/12/14	ISSUED FOR INFORMATION	

REVISIONS			
CLIENT			
HOLDMARK			
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113			
 			
PROJECT			
SHEPHERDS BAY MEADOWBANK			
STATUS			
PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION			
DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		
DATUM	GRID	SCALE	
AHD		NTS	AT A1 SIZE
TITLE			
COVER SHEET AND DRAWING INDEX			
PROJECT No.	DRAWING No.	REV	
S10076	C-0200	A	



REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	
REVISIONS			
CLIENT			
HOLDMARK			
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113			
Sydney Office			
42 B Windsor St Sydney NSW 2000			
P/+61 2 9770 3888			
E/hold@bgand.com			
PROJECT			
SHEPHERDS BAY MEADOWBANK			
STATUS			
PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION			
DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		
DATUM	CRD	SCALE	AT A1 SIZE
AHD	MGA	1:1000	
TITLE			
KEY PLAN			
PROJECT No.	DRAWING No.	REV	
S10076	C-0202	A	



LEGEND

- LIMIT OF WORKS
- EXISTING ROAD BOUNDARY
- PROPOSED ROAD BOUNDARY
- K&G PROPOSED KERB AND GUTTER
- MK PROPOSED MOUNTABLE KERB
- KO PROPOSED KERB ONLY
- DD PROPOSED DISH DRAIN
- PROPOSED STORMWATER PIT AND LINE
- SW--X--SW-- EXISTING STORMWATER TO BE REMOVED
- OVERLAND FLOW PATH
- SSD--SSD--SSD-- SUBSOIL DRAIN WITH FLUSHING POINT
- NEW ROAD PAVEMENT CONSTRUCTION TO GEOTECH ENGINEERS SPECIFICATION
- CONCRETE ISLAND INFILL
- FOOTPATH TO LANDSCAPE ARCHITECTS SPECIFICATION
- MILL AND RESHEET 30mm AC10
- BIO-RETENTION AREA
- NEW ROAD PAVEMENT CONSTRUCTION TO GEOTECH ENGINEERS SPECIFICATION WITH SURFACE FINISH TO LANDSCAPE ARCHITECTS SPECIFICATION

- NOTE:**
1. FOR SURFACE LEVELS AND FINISHES REFER TO LANDSCAPE ARCHITECTS PLANS.
 2. THE ORIGINAL OF THIS DRAWING WAS PRODUCED USING COLOUR SEPARATION FOR GREATER CLARITY. WORKING WITH BLACK AND WHITE COPY MAY CAUSE ERRORS
 3. WSUD ELEMENTS AS PER CARDNO WSUD MASTER PLAN DRAWING 600283-SK001

WARNING
BEWARE OF UNDERGROUND SERVICES

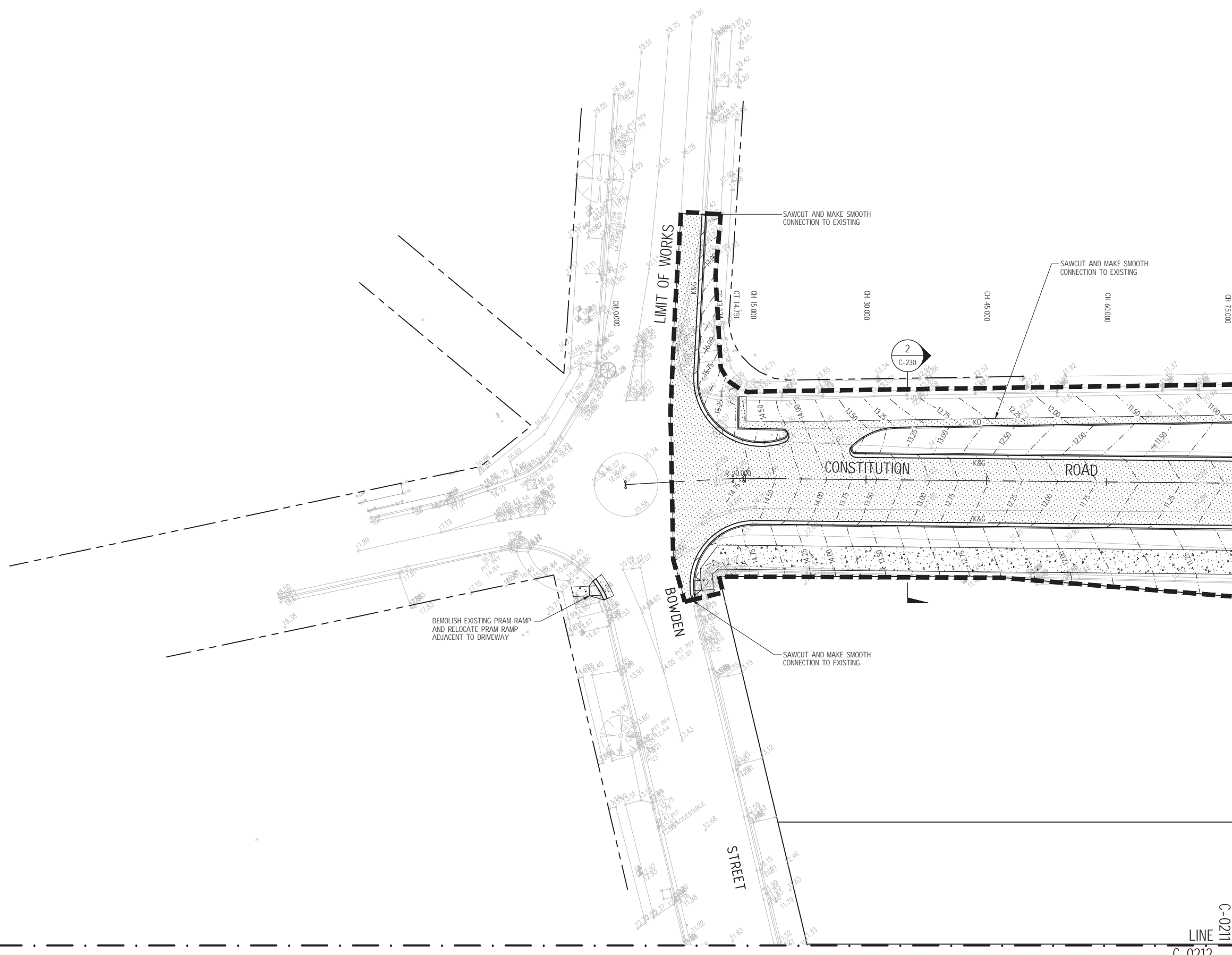
The location of underground cables are approximate only and their exact position should be checked on site. No guarantee is given that all existing cables and services are shown. Locate all underground cables and services before commencement of work. Refer to Worksafe Regulation 3.21.

DIAL1100
BEFORE YOU DIG

	A	23.12.14	ISSUED FOR INFORMATION	
REV	DATE	DESCRIPTION		RVD
REVISIONS				
CLIENT				
HOLDMARK				
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113				
PROJECT				
SHEPHERDS BAY MEADOWBANK				
STATUS				
PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION				
DRAWN	DESIGNED	CHECKED	APPROVED	
TB	NK			
DATUM	CRD	SCALE		
AHD	MGA	1:250		AT A1 SIZE
TITLE				
SITWORKS PLAN SHEET 1				
PROJECT No.	DRAWING No.	REV		
S10076	C-0210	A		

MATCH JOINS

MATCH JOINS



MATCH JOINS

MATCH JOINS

MATCH
JOINS



LEGEND

- LIMIT OF WORKS
- - - EXISTING ROAD BOUNDARY
- PROPOSED ROAD BOUNDARY
- ==== K&G
- ==== PROPOSED KERB AND GUTTER
- MK
- PROPOSED MOUNTABLE KERB
- KO
- PROPOSED KERB ONLY
- ==== DD
- ==== PROPOSED DISH DRAIN
- PROPOSED STORMWATER PIT AND LINE
- SW - - - SW - - -
- EXISTING STORMWATER LINE
- SW - X - SW ---
- EXISTING STORMWATER TO BE REMOVED
- OVERLAND FLOW PATH
- SSO - SSO - SSO ---
- SUBSOIL DRAIN WITH FLUSHING POINT
- [Hatched Box]
- NEW ROAD PAVEMENT CONSTRUCTION TO GEOTECH ENGINEERS SPECIFICATION
- [Dotted Box]
- CONCRETE ISLAND INFILL
- [Patterned Box]
- FOOTPATH TO LANDSCAPE ARCHITECTS SPECIFICATION
- [Stippled Box]
- MILL AND RESHEET 30mm AC10
- [Cross-hatched Box]
- BIO-RETENTION AREA
- [Diagonal Hatched Box]
- NEW ROAD PAVEMENT CONSTRUCTION TO GEOTECH ENGINEERS SPECIFICATION WITH SURFACE FINISH TO LANDSCAPE ARCHITECTS SPECIFICATION

NOTE:

1. FOR SURFACE LEVELS AND FINISHES REFER TO LANDSCAPE ARCHITECTS PLANS.
2. THE ORIGINAL OF THIS DRAWING WAS PRODUCED USING COLOUR SEPARATION FOR GREATER CLARITY. WORKING WITH BLACK AND WHITE COPY MAY CAUSE ERRORS
3. WSUD ELEMENTS AS PER CARDNO WSUD MASTER PLAN DRAWING 600263-SK001

WARNING
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DIAL1100
BEFORE YOU DIG

A	23.12.16	ISSUED FOR INFORMATION	RV0
REV	DATE	DESCRIPTION	RV0
REVISIONS			

CLIENT
HOLDMARK
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113

Sydney Office
12 B Wentworth St Sydney NSW 2000
P: +61 2 9799 3300
E: info@bge.com.au
www.bge.com.au

BG & E

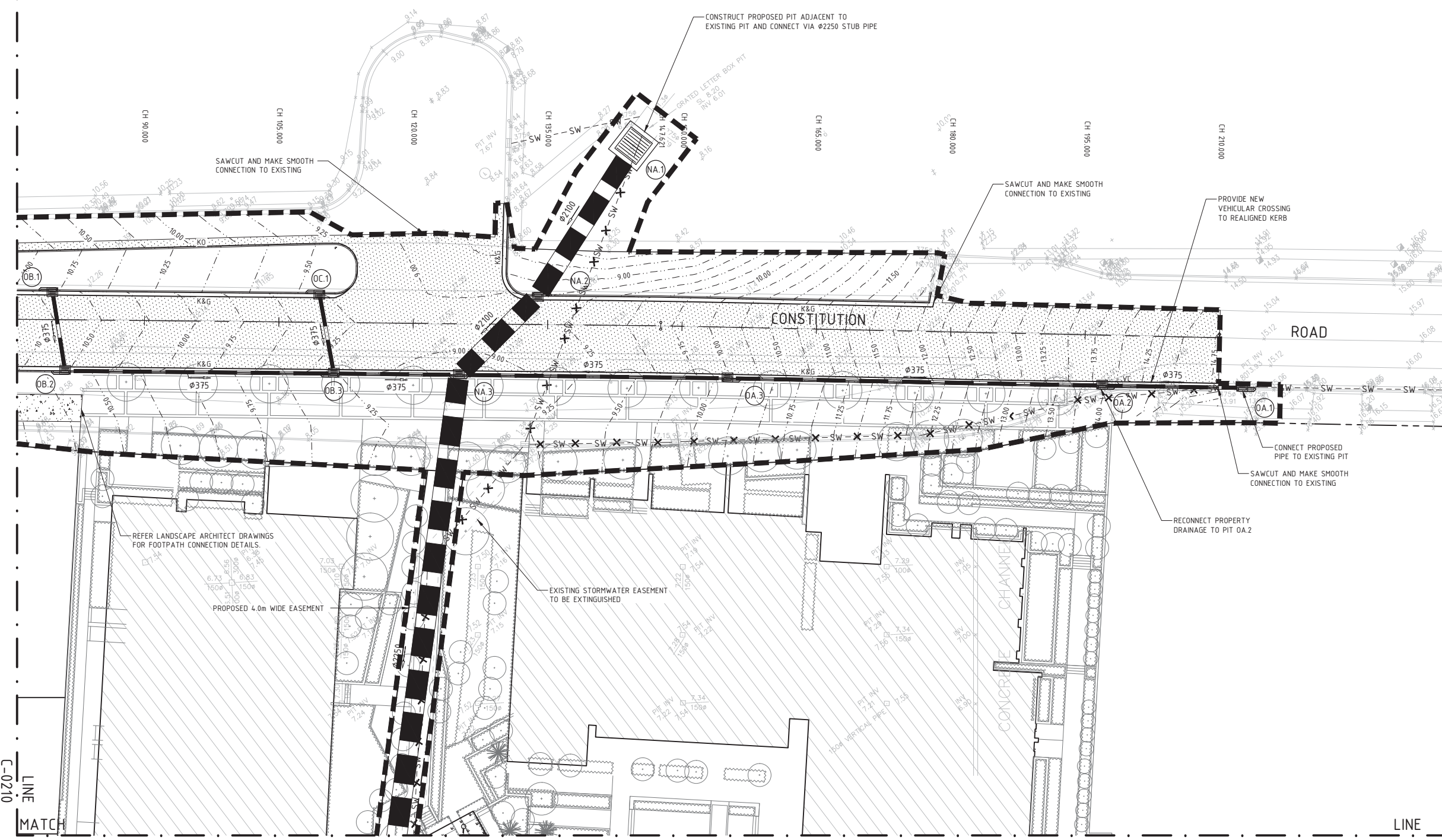
PROJECT
SHEPHERDS BAY MEADOWBANK

STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		
DATUM	GRID	SCALE	
AHD	MGA	1:250	AT A1 SIZE

TITLE
SITWORKS PLAN SHEET 2

PROJECT No.	DRAWING No.	REV
S10076	C-0211	A



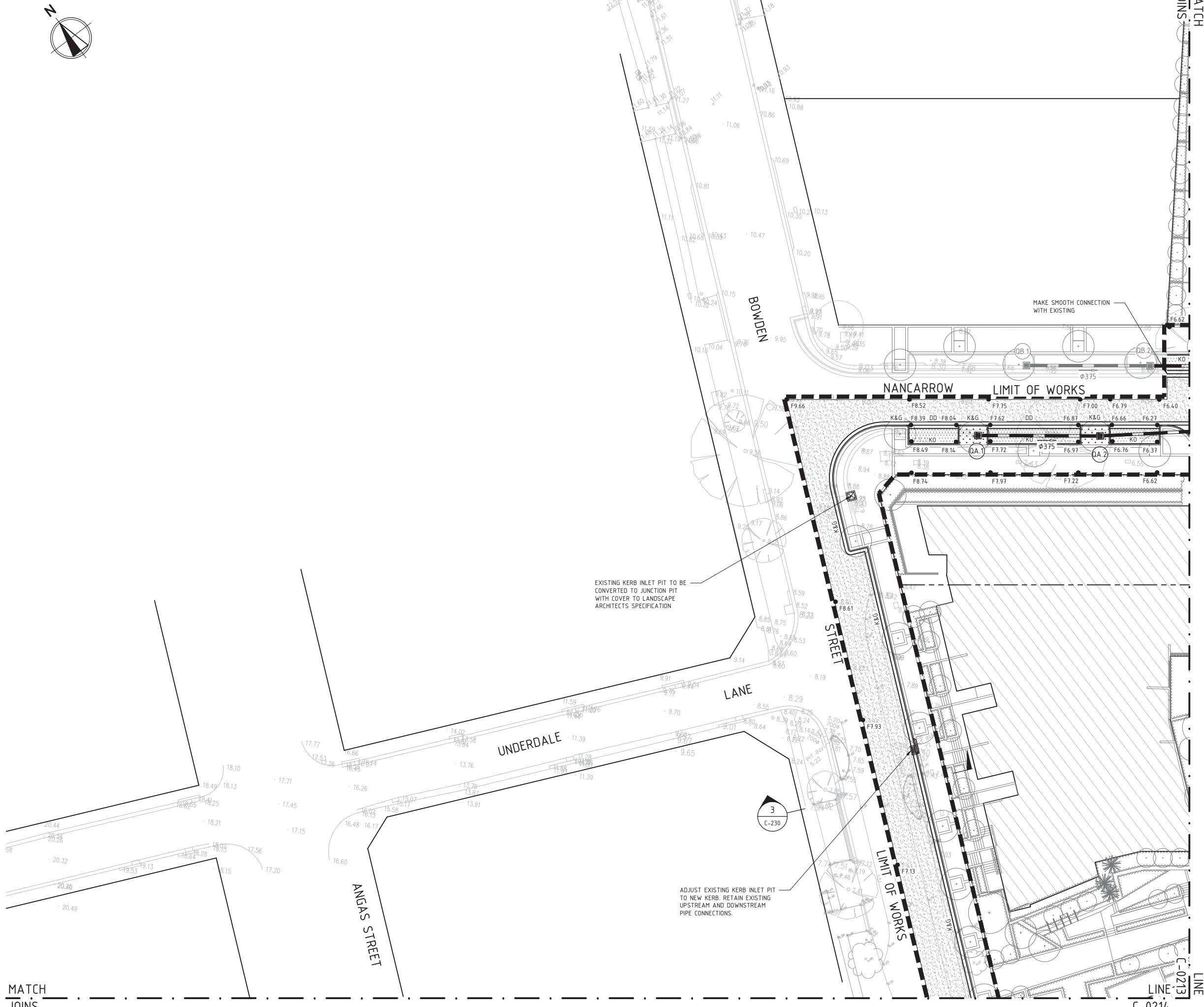
C-0210
LINE
MATCH
JOINS

LINE
C-0213

MATCH JOINS



LINE C-0210 MATCH JOINS



LEGEND

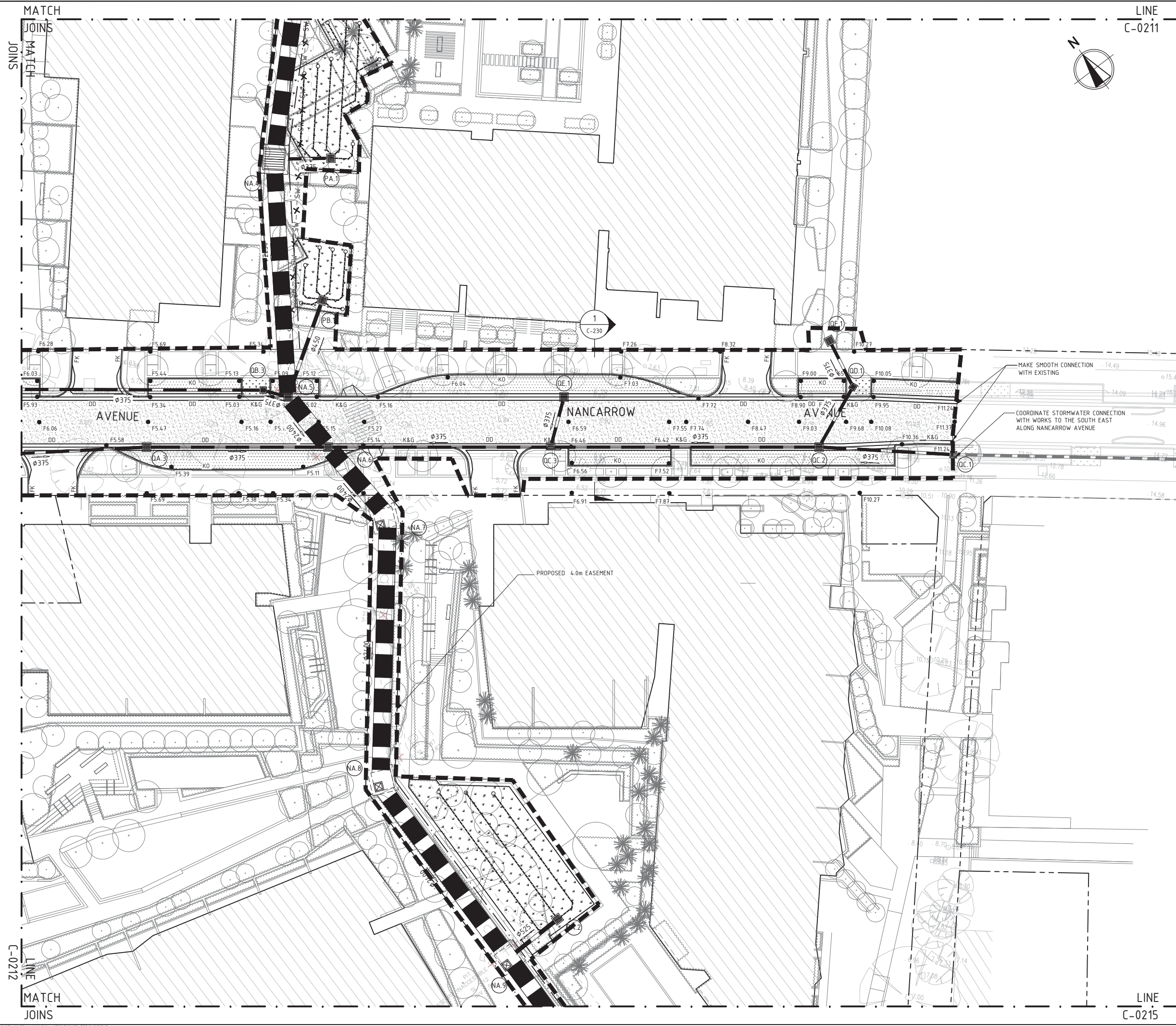
- LIMIT OF WORKS
- EXISTING ROAD BOUNDARY
- PROPOSED ROAD BOUNDARY
- K&G
- MK
- KO
- DD
- PROPOSED STORMWATER PIT AND LINE
- EXISTING STORMWATER LINE
- EXISTING STORMWATER TO BE REMOVED
- OVERLAND FLOW PATH
- SUBSOIL DRAIN WITH FLUSHING POINT
- NEW ROAD PAVEMENT CONSTRUCTION TO GEOTECH ENGINEERS SPECIFICATION
- CONCRETE ISLAND INFILL
- FOOTPATH TO LANDSCAPE ARCHITECTS SPECIFICATION
- MILL AND RESHET 30mm AC10
- BIO-RETENTION AREA
- LIMIT OF WORKS

- NOTE:**
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 - WSUD ELEMENTS AS PER CARNO WSUD MASTER PLAN DRAWING -

WARNING
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DIAL1100
BEFORE YOU DIG

REV	DATE	DESCRIPTION	RVG
A	23.12.14	ISSUED FOR INFORMATION	
REVISIONS			
CLIENT			
HOLDMARK			
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113			
PROJECT			
SHEPHERDS BAY MEADOWBANK			
STATUS			
PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION			
DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		
DATUM	GRID	SCALE	AT A1 SIZE
AHD	MGA	1:250	
TITLE			
SITWORKS PLAN SHEET 3			
PROJECT No.	DRAWING No.	REV	
S10076	C-0212	A	



LINE
C-0211



LEGEND

- LIMIT OF WORKS
- EXISTING ROAD BOUNDARY
- PROPOSED ROAD BOUNDARY
- PROPOSED KERB AND GUTTER
- PROPOSED MOUNTABLE KERB
- PROPOSED KERB ONLY
- PROPOSED DISH DRAIN
- PROPOSED STORMWATER PIT AND LINE
- EXISTING STORMWATER LINE
- EXISTING STORMWATER TO BE REMOVED
- OVERLAND FLOW PATH
- SUBSOIL DRAIN WITH FLUSHING POINT
- NEW ROAD PAVEMENT CONSTRUCTION TO GEOTECH ENGINEERS SPECIFICATION
- CONCRETE ISLAND INFILL
- FOOTPATH TO LANDSCAPE ARCHITECTS SPECIFICATION
- MILL AND RESHET 30mm AC10
- BIO-RETENTION AREA

- NOTE:**
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 2. THE ORIGINAL OF THIS DRAWING WAS PRODUCED USING COLOUR SEPARATION FOR GREATER CLARITY. WORKING WITH BLACK AND WHITE COPY MAY CAUSE ERRORS
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DIAL1100
BEFORE YOU DIG

A	23.12.16	ISSUED FOR INFORMATION	
REV	DATE	DESCRIPTION	RVD
REVISIONS			
CLIENT			
HOLDMARK			
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113			
PROJECT			
SHEPHERDS BAY MEADOWBANK			
STATUS			
PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION			
DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		
DATUM	GRID	SCALE	
AHD	MGA	1:250	AT A1 SIZE
TITLE			
SITWORKS PLAN SHEET 4			
PROJECT No.	DRAWING No.	REV	
S10076	C-0213	A	

LINE
C-0215

MATCH JOINS

LINE C-0212

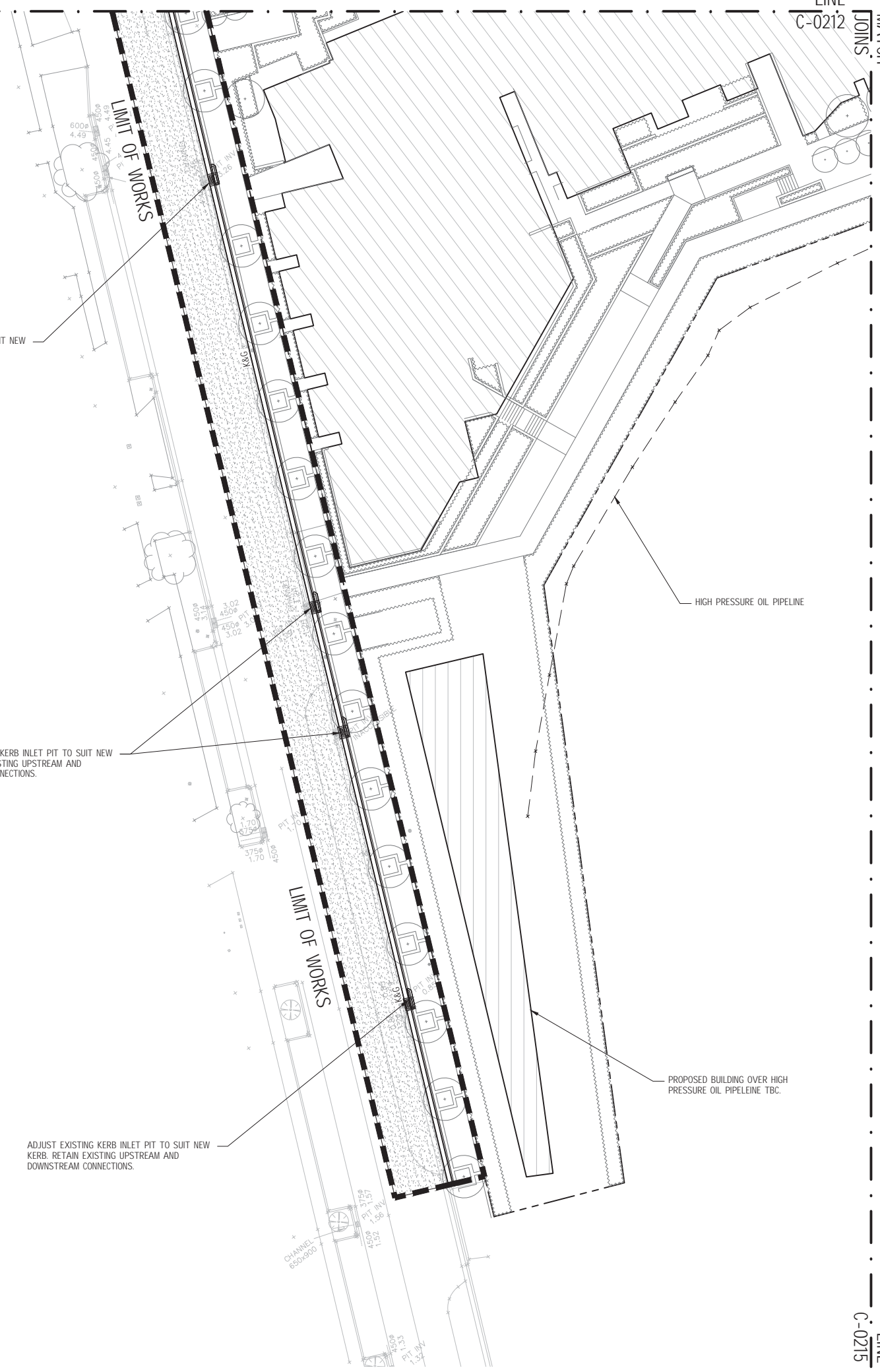
MATCH JOINS



ADJUST EXISTING KERB INLET PIT TO SUIT NEW KERB. RETAIN EXISTING UPSTREAM AND DOWNSTREAM CONNECTIONS.

ADJUST EXISTING KERB INLET PIT TO SUIT NEW KERB. RETAIN EXISTING UPSTREAM AND DOWNSTREAM CONNECTIONS.

ADJUST EXISTING KERB INLET PIT TO SUIT NEW KERB. RETAIN EXISTING UPSTREAM AND DOWNSTREAM CONNECTIONS.



LEGEND

- LIMIT OF WORKS
- EXISTING ROAD BOUNDARY
- PROPOSED ROAD BOUNDARY
- K&G PROPOSED KERB AND GUTTER
- MK PROPOSED MOUNTABLE KERB
- KO PROPOSED KERB ONLY
- DD PROPOSED DISH DRAIN
- PROPOSED STORMWATER PIT AND LINE
- SW-- EXISTING STORMWATER LINE
- SW--X--SW-- EXISTING STORMWATER TO BE REMOVED
- OVERLAND FLOW PATH
- SSSD SSSD SSSD SUBSOIL DRAIN WITH FLUSHING POINT
- NEW ROAD PAVEMENT CONSTRUCTION TO GEOTECH ENGINEERS SPECIFICATION
- CONCRETE ISLAND INFILL
- FOOTPATH TO LANDSCAPE ARCHITECTS SPECIFICATION
- MILL AND RESHEET 30mm AC10
- BIO-RETENTION AREA

- NOTE:
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 - WSUD ELEMENTS AS PER CARDNO WSUD MASTER PLAN DRAWING -

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DIAL 1100
 BEFORE YOU DIG

REV	DATE	DESCRIPTION	RVD
A	23/12/14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT
HOLDMARK
 2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113

Sydney Office
 6-8 Whitehall St Sydney NSW 2000
 P: +61 2 9770 3300
 E: info@bg&e.com
 www.bg&e.com

BG & E

PROJECT
SHEPHERDS BAY MEADOWBANK

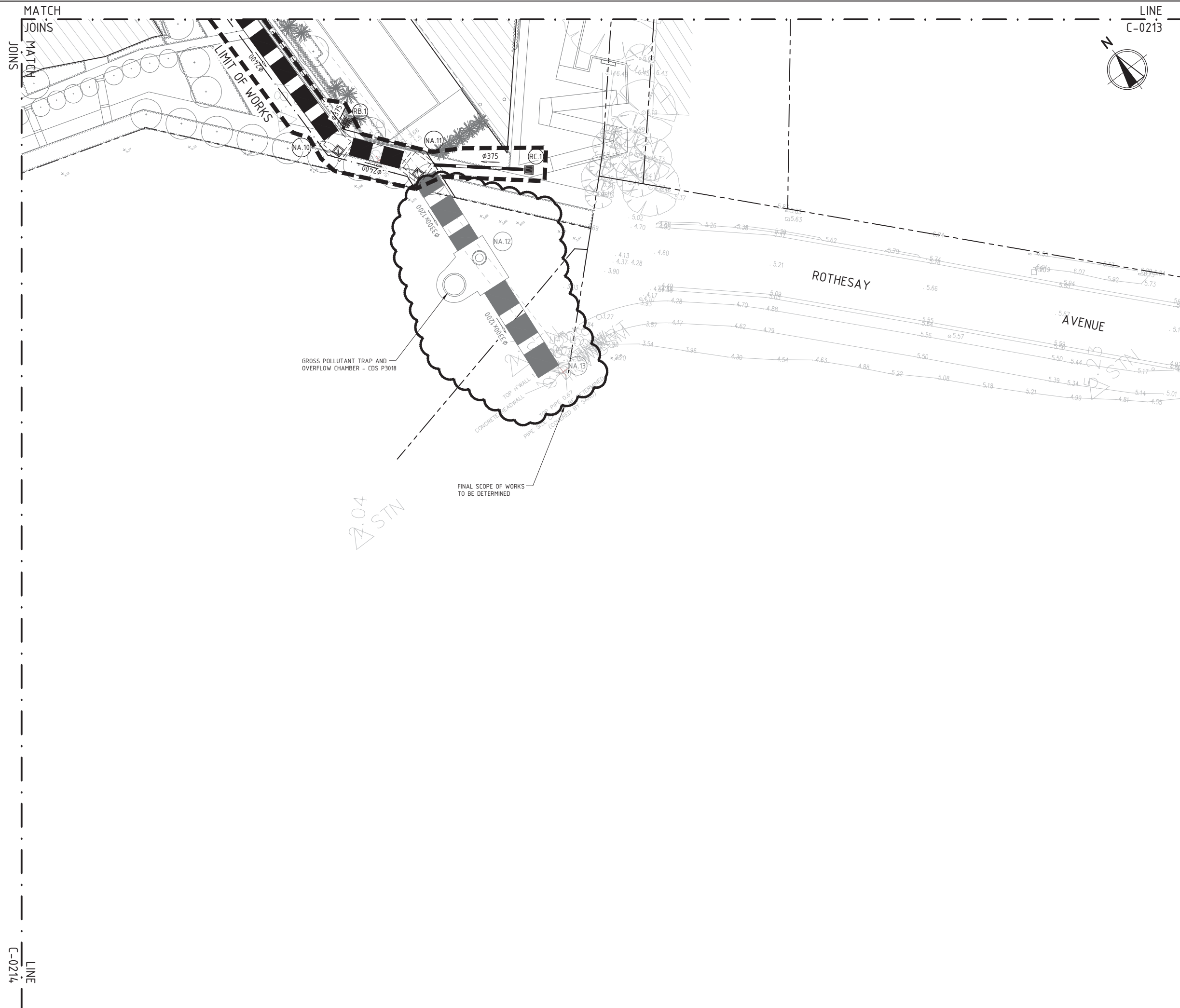
STATUS
PRELIMINARY ONLY
 NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM: AHD, GRID: MGA, SCALE: 1:250, AT: A1 SIZE

TITLE
SITWORKS PLAN SHEET 5

PROJECT No.	DRAWING No.	REV
S10076	C-0214	A



LINE C-0213



LEGEND

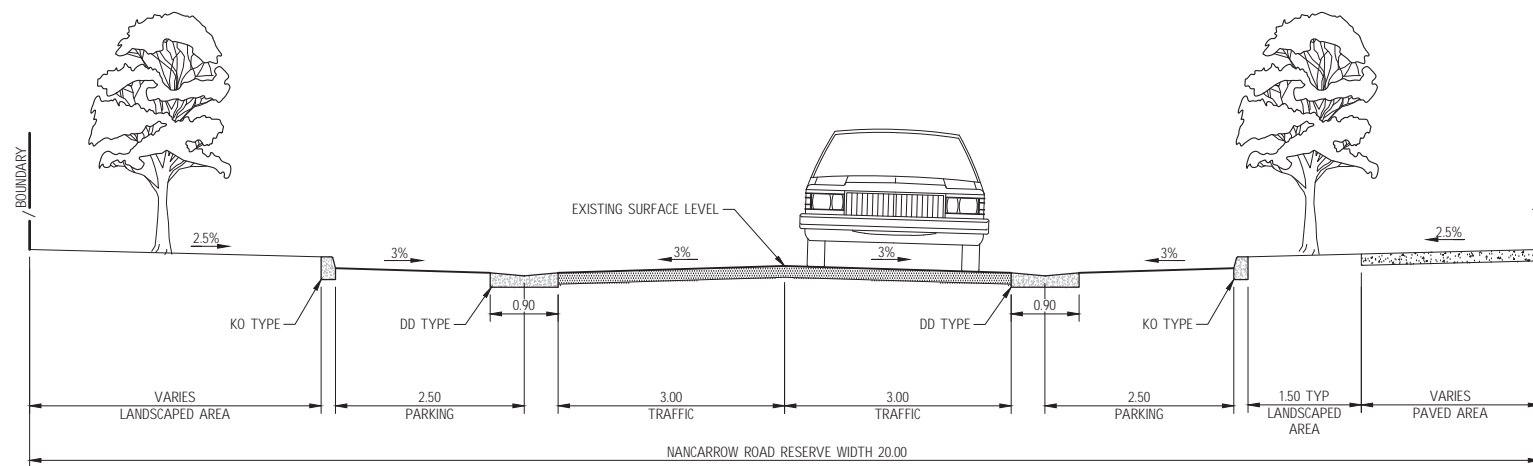
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- EXISTING ROAD BOUNDARY
- PROPOSED ROAD BOUNDARY
- K&G PROPOSED KERB AND GUTTER
- MK PROPOSED MOUNTABLE KERB
- KO PROPOSED KERB ONLY
- DD PROPOSED DISH DRAIN
- PROPOSED STORMWATER PIT AND LINE
- SW SW EXISTING STORMWATER LINE
- SW X SW EXISTING STORMWATER TO BE REMOVED
- OVERLAND FLOW PATH
- SSD SSD SUBSOIL DRAIN WITH FLUSHING POINT
- NEW ROAD PAVEMENT CONSTRUCTION TO GEOTECH ENGINEERS SPECIFICATION
- CONCRETE ISLAND INFILL
- FOOTPATH TO LANDSCAPE ARCHITECTS SPECIFICATION
- MILL AND RESHET 30mm AC10
- BIO-RETENTION AREA

- NOTE:
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 - WSUD ELEMENTS AS PER CARDNO WSUD MASTER PLAN DRAWING -

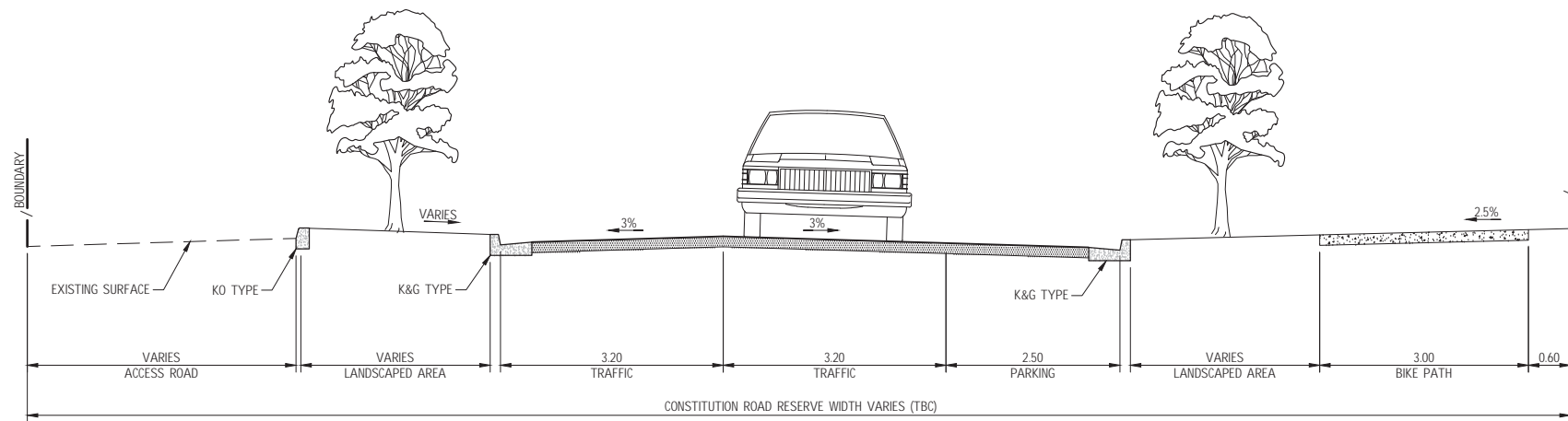
WARNING
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DIAL 1100
BEFORE YOU DIG

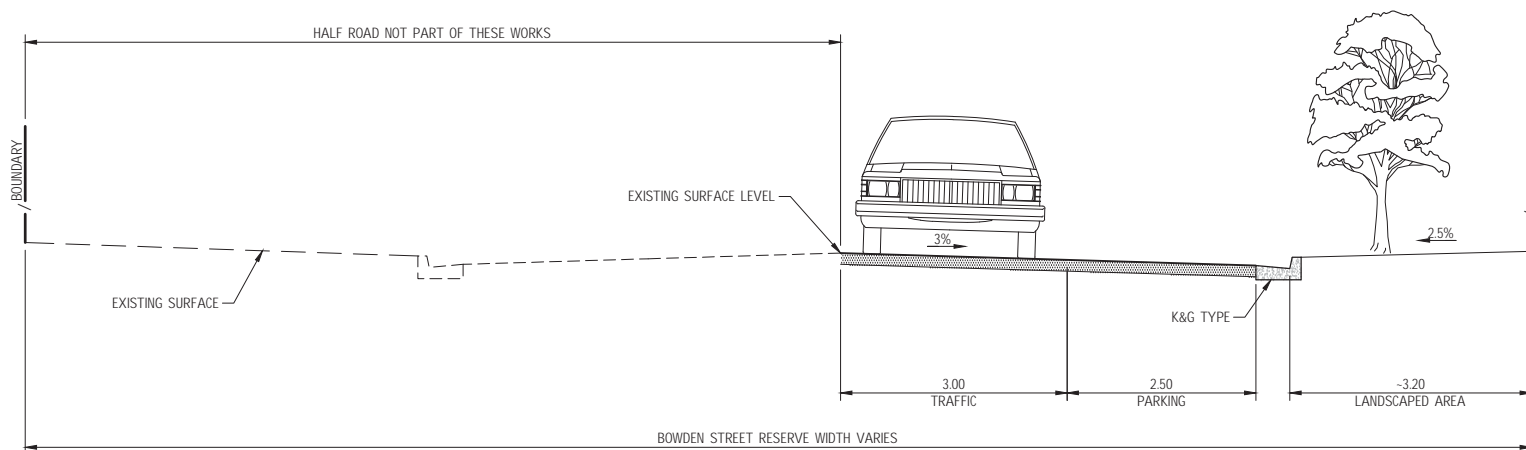
REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	
REVISIONS			
CLIENT			
HOLDMARK			
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113			
Sydney Office 6-8 Whitehall St Sydney NSW 2000 P: +61 2 9770 3300 E: info@bgandj.com www.bgandj.com			
BG & E			
PROJECT			
SHEPHERDS BAY MEADOWBANK			
STATUS			
PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION			
DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		
DATUM	GRID	SCALE	AT A1 SIZE
AHD	MGA	1:250	
TITLE			
SITWORKS PLAN SHEET 6			
PROJECT No.	DRAWING No.	REV	
S10076	C-0215	A	



SECTION 1
SCALE 1:50
C-0213
C-0212



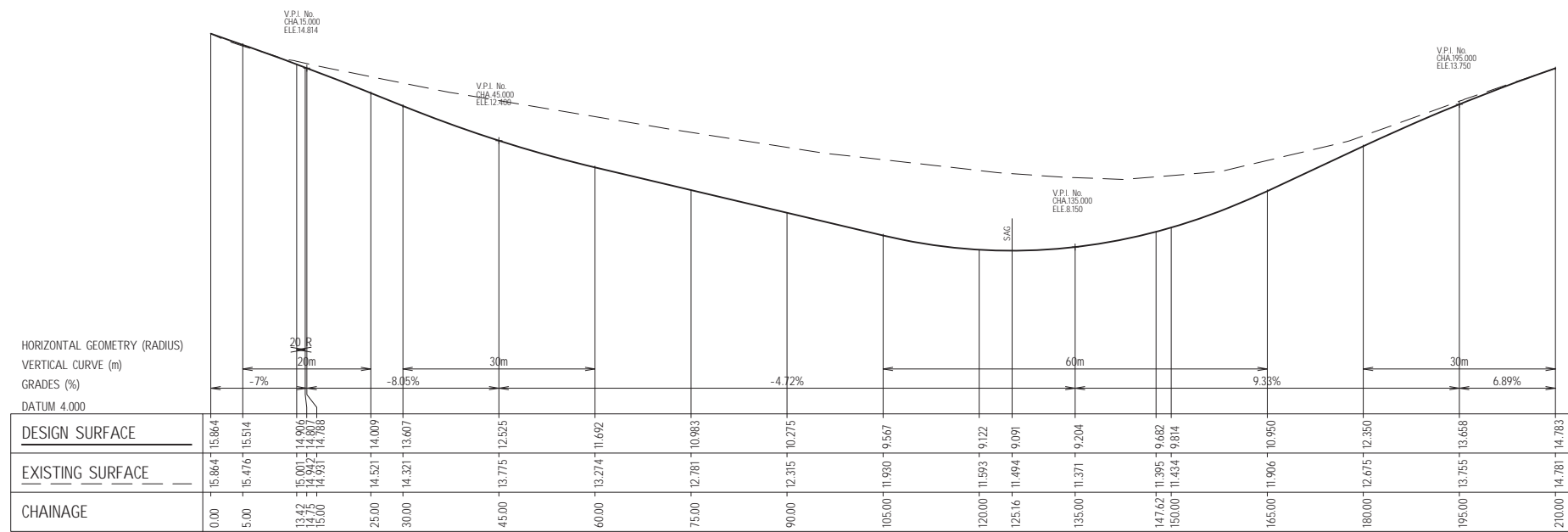
SECTION 2
SCALE 1:50
C-0210



SECTION 3
SCALE 1:50
C-0212

REV	DATE	DESCRIPTION	RVD
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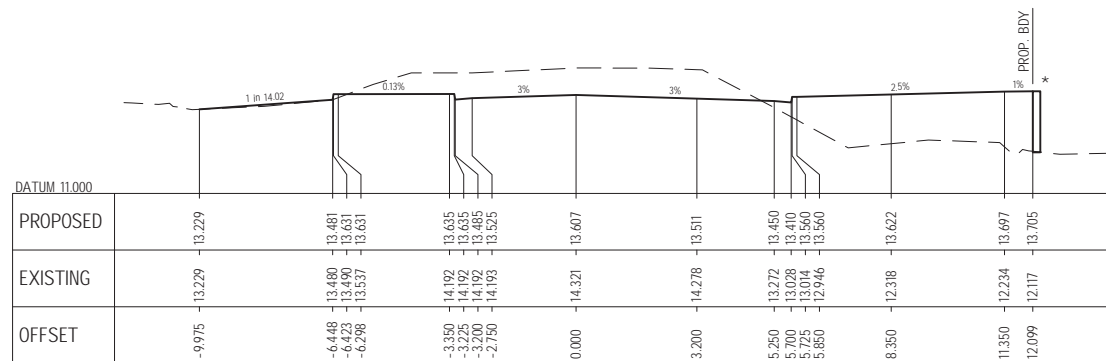
REVISIONS	
CLIENT	HOLDMARK
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113	
PROJECT	SHEPHERDS BAY MEADOWBANK
STATUS	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION
DRAWN	TB NK
CHECKED	
APPROVED	
DATUM	AHD
GRID	
SCALE	1:50
AT	A1 SIZE
TITLE	TYPICAL ROAD SECTIONS
PROJECT No.	S14053
DRAWING No.	C-0230
REV	A



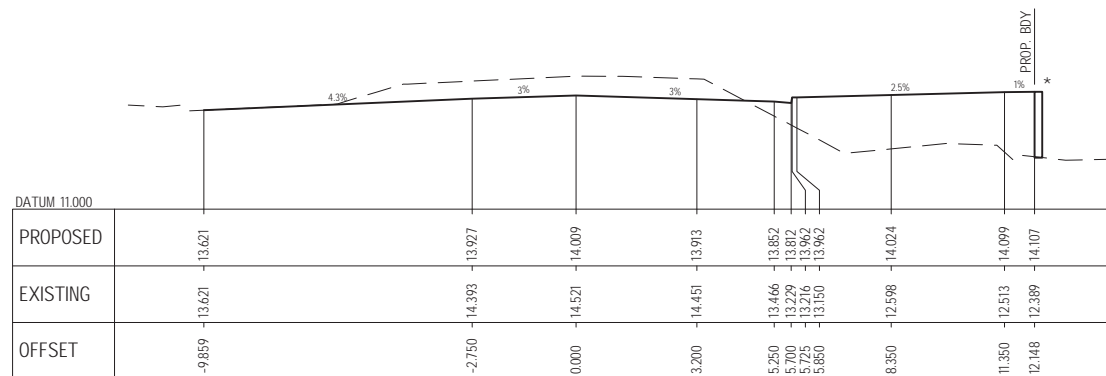
PROFILE - CONSTITUTION ROAD (MC10)
SCALE 1:500H, 1:100V

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

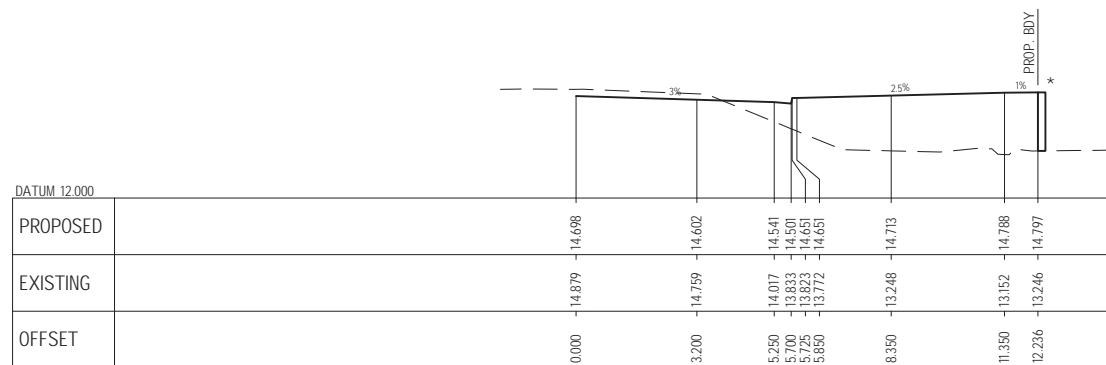
REVISIONS			
CLIENT			
HOLDMARK			
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113			
 			
PROJECT			
SHEPHERDS BAY MEADOWBANK			
STATUS			
PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION			
DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		
DATUM	GRID	SCALE	AT
AHD		1:250H, 1:50V	A1
TITLE			
CONSTITUTION ROAD LONGITUDINAL SECTIONS			
PROJECT No.	DRAWING No.	REV	
S14053	C-0240	A	



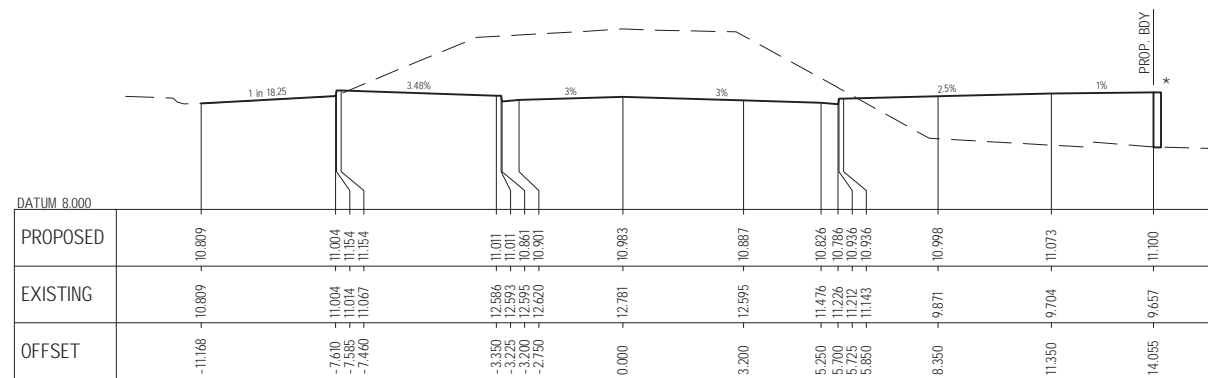
CHAINAGE 30



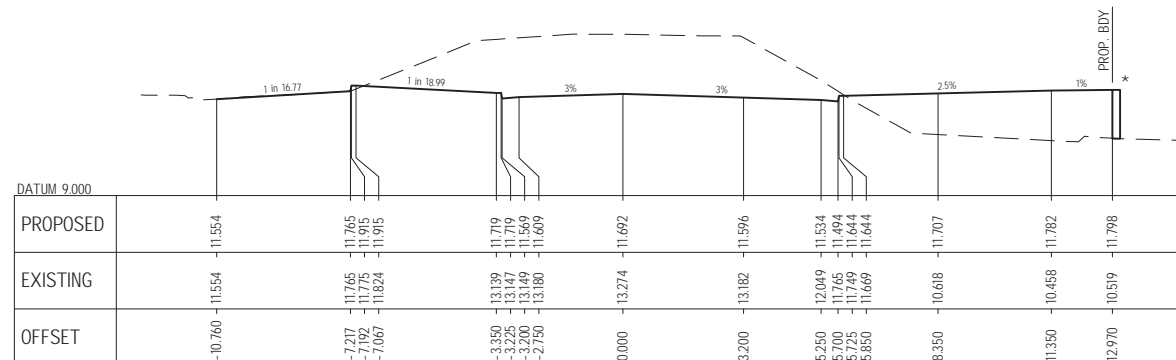
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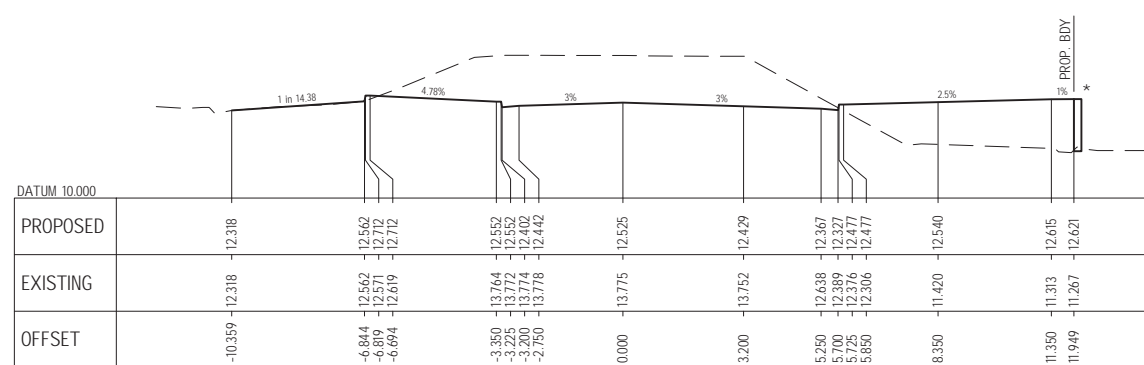
CHAINAGE 16.19



CHAINAGE 75



CHAINAGE 60



CHAINAGE 45

NOTE
* - RETAINING WALL BY OTHERS

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT
HOLDMARK
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113

Sydney Office
6-8 WINDMILL ST SYDNEY NSW 2000
P: +61 2 9770 3300
E: info@bgandae.com
www.bgandae.com

BG & AE

PROJECT
SHEPHERDS BAY MEADOWBANK

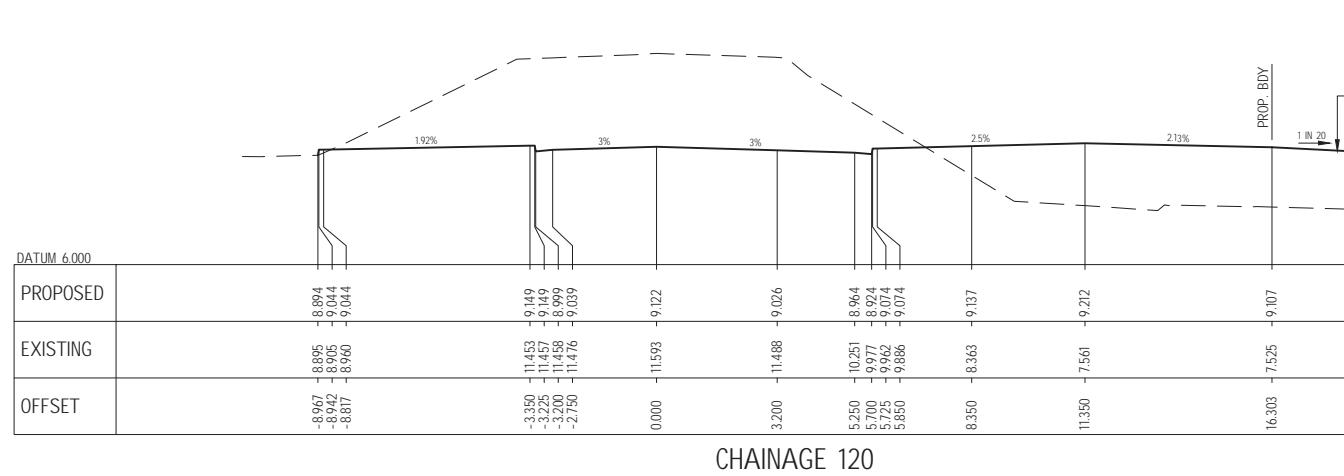
STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

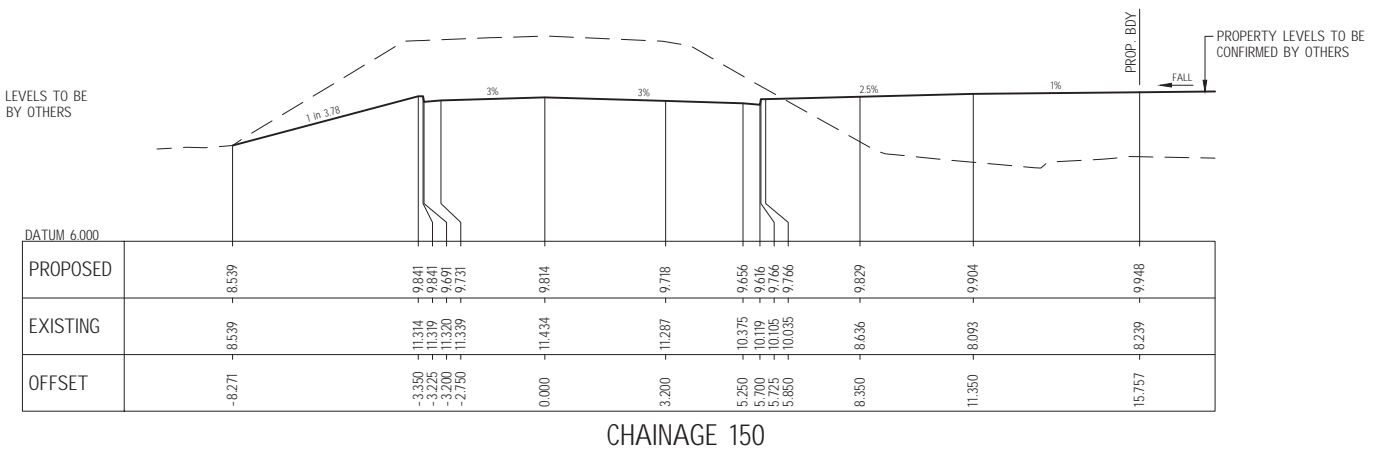
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TITLE
CONSTITUTION ROAD CROSS SECTIONS SHEET 1

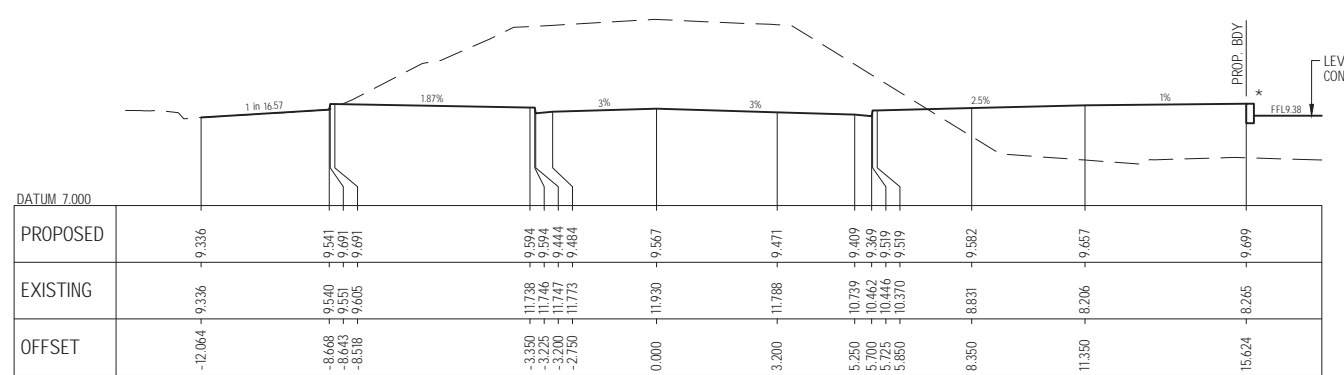
PROJECT No.	DRAWING No.	REV
S14053	C-0245	A



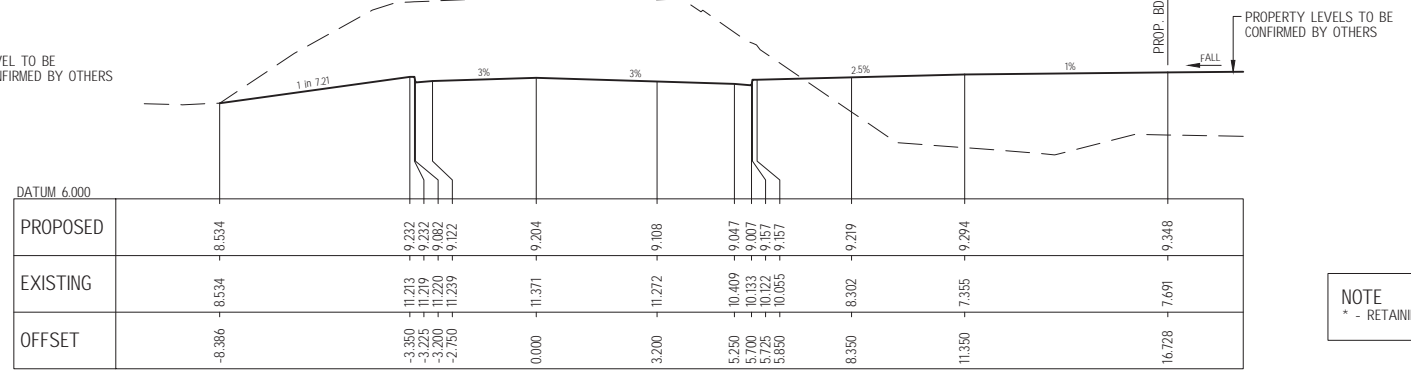
CHAINAGE 120



CHAINAGE 150

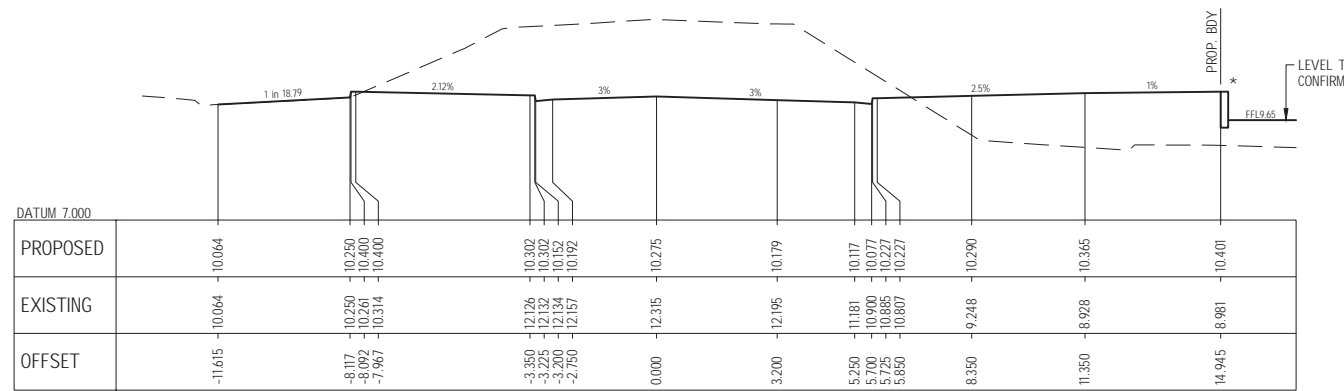


CHAINAGE 105

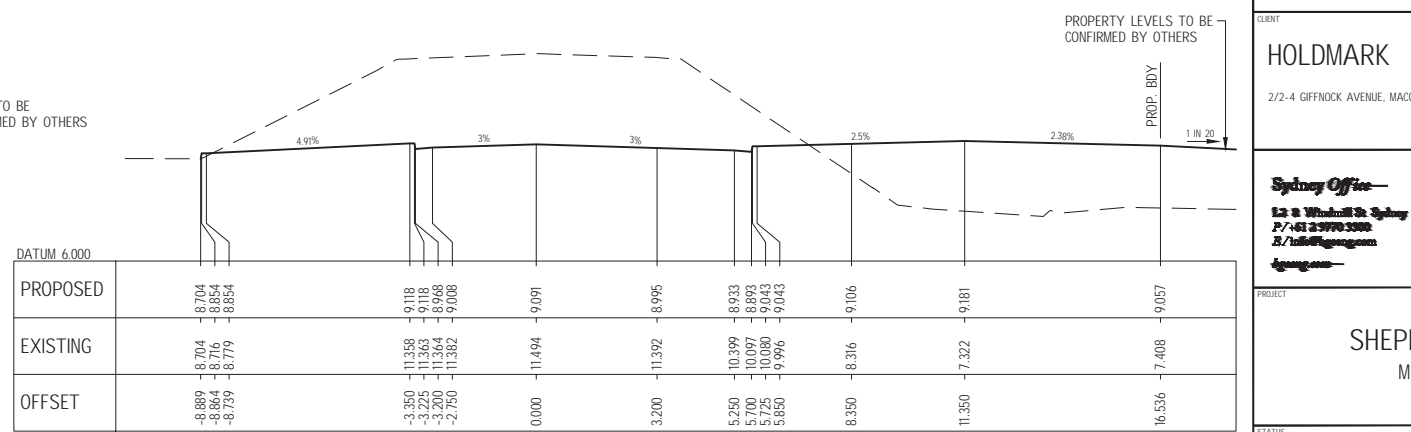


CHAINAGE 135

NOTE
* - RETAINING WALL BY OTHERS



CHAINAGE 90



CHAINAGE 125.158

REVISIONS			
REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

CLIENT
HOLDMARK
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113

Sydney Office
12 B Wentworth St Sydney NSW 2000
P/+61 2 9770 3300
E/hold@biggame.com
biggame.com

BG & E

PROJECT
SHEPHERDS BAY MEADOWBANK

STATUS
PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

DESIGNED	CHECKED	APPROVED
TB	NK	

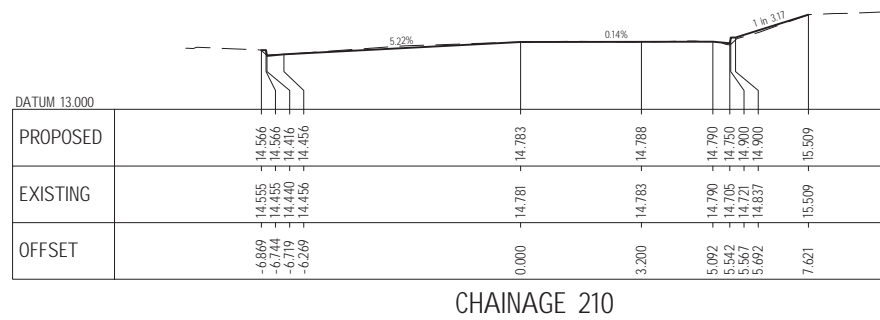
DATUM
AHD

SCALE
1:100

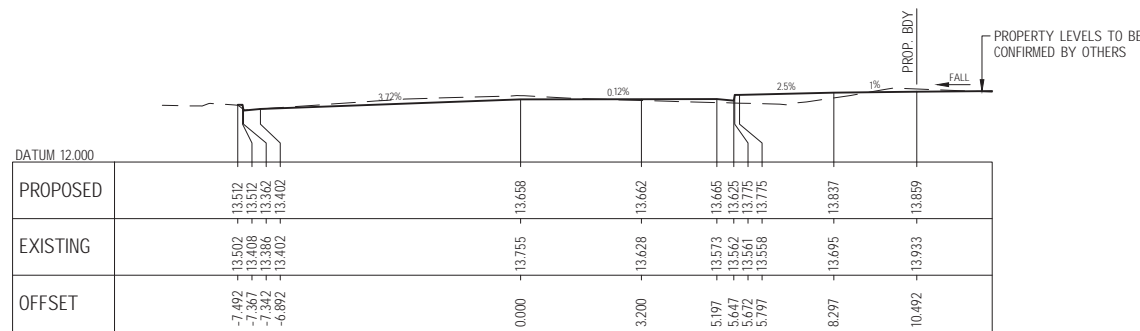
AT A1 SIZE

TITLE
CONSTITUTION ROAD CROSS SECTIONS SHEET 2

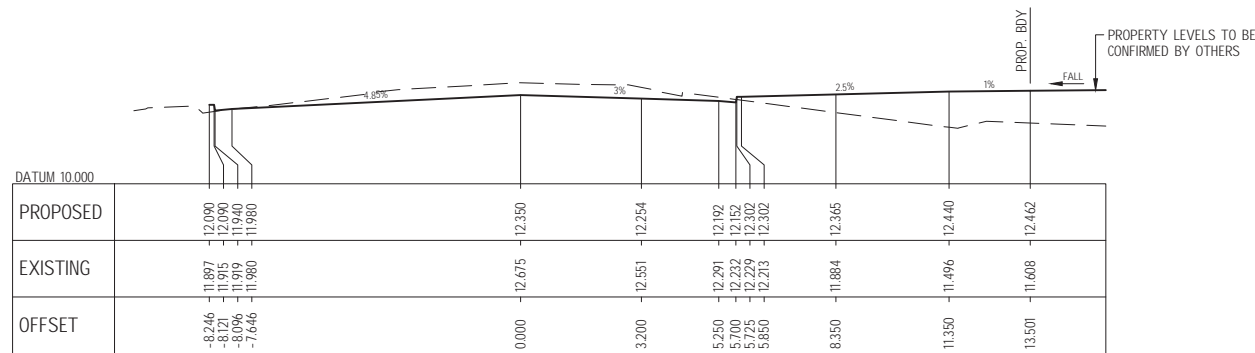
PROJECT No.	DRAWING No.	REV
S14053	C-0246	A



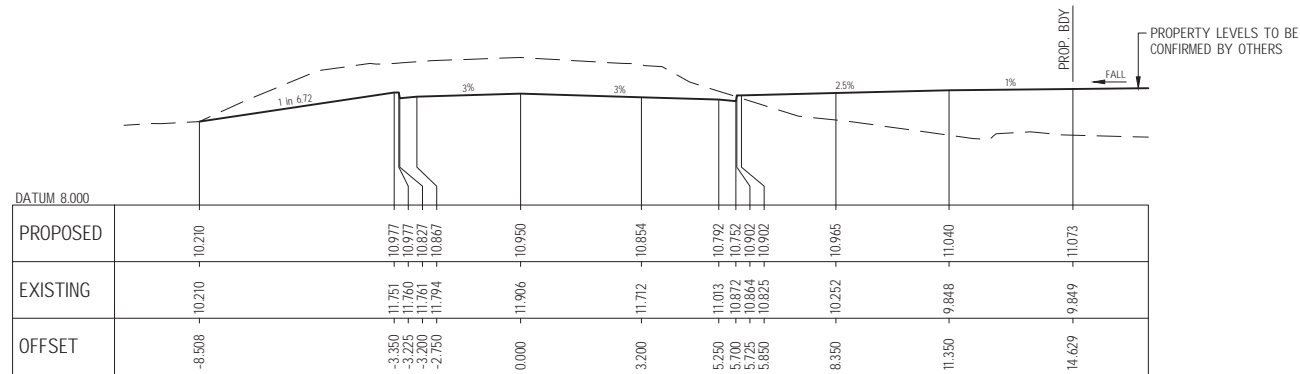
CHAINAGE 210



CHAINAGE 195



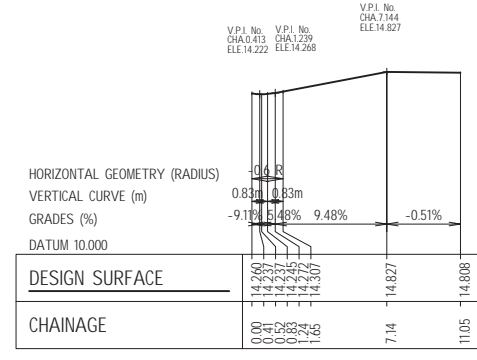
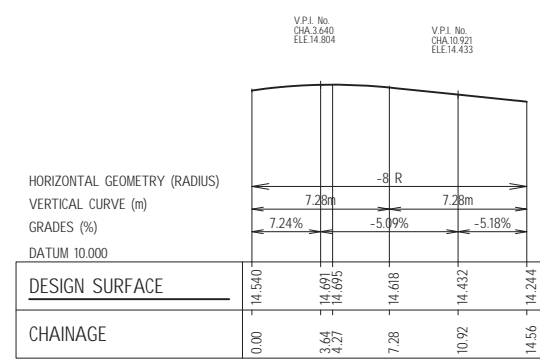
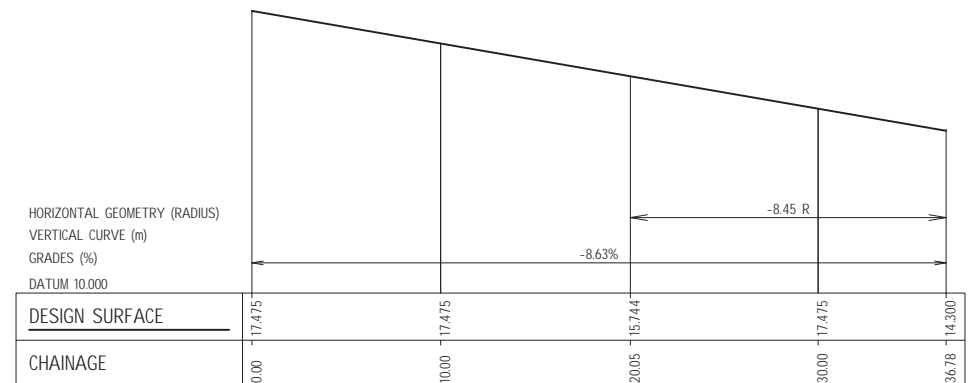
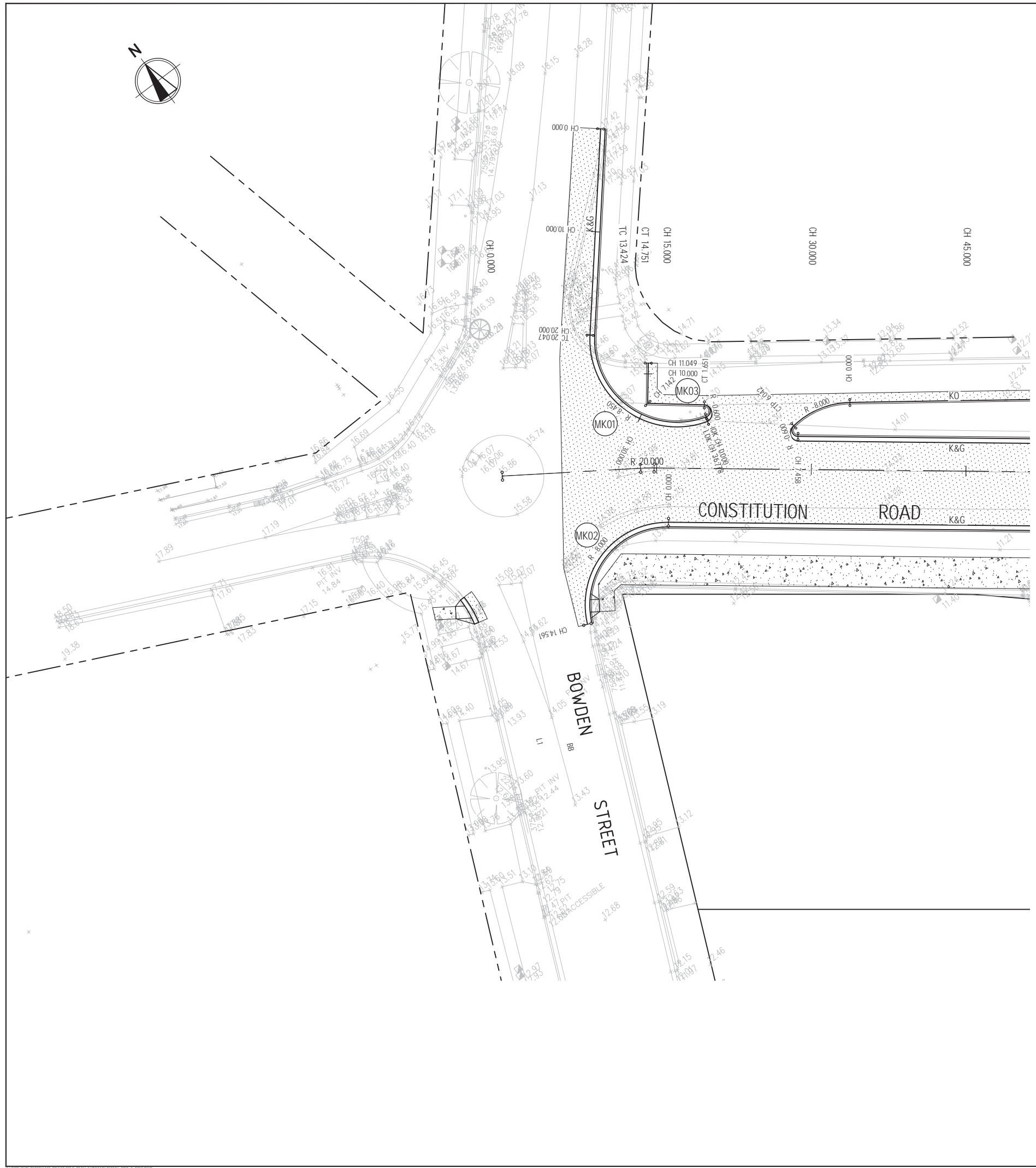
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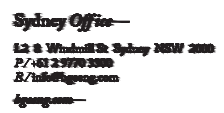



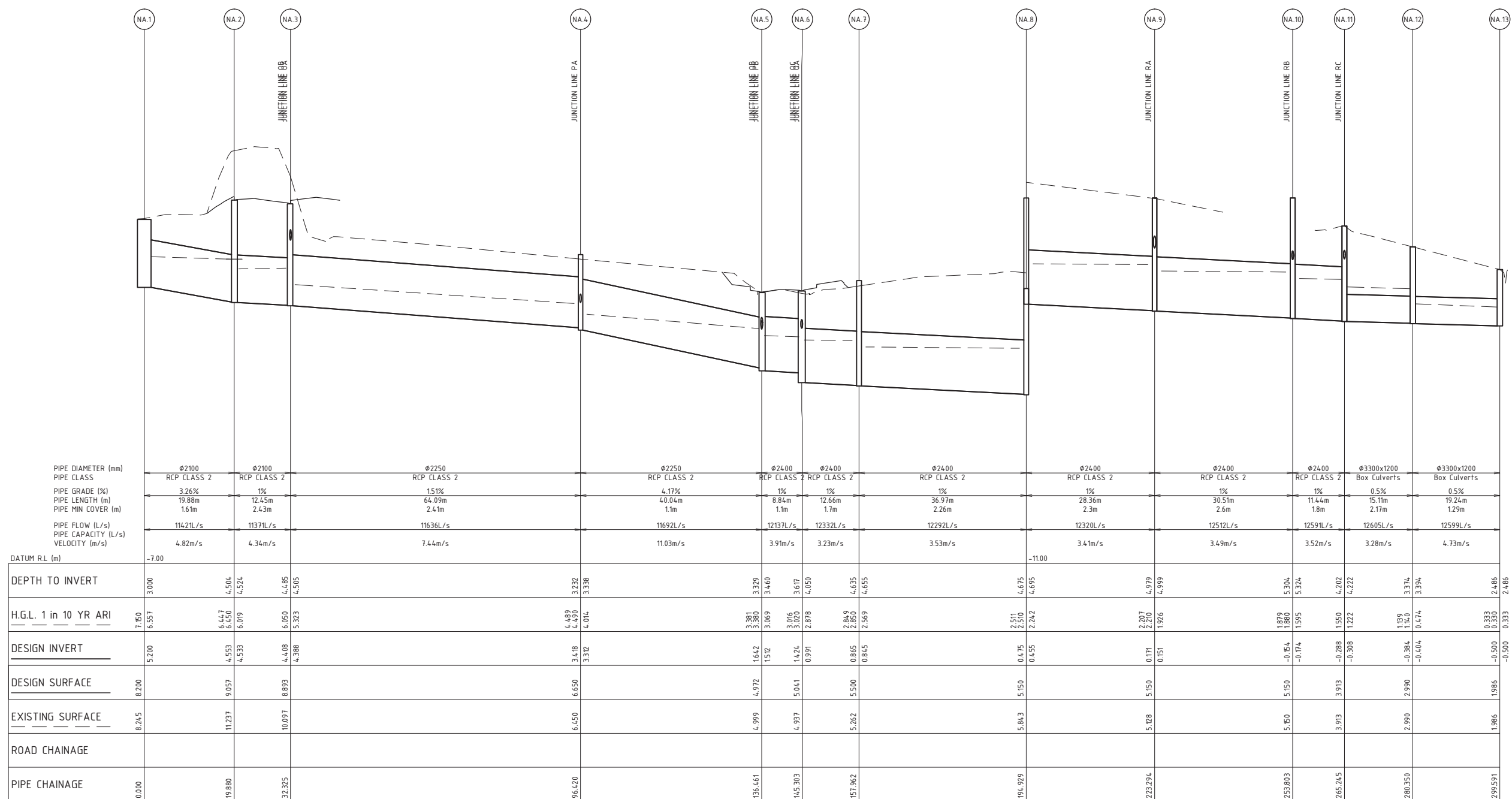
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REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS	
CLIENT	HOLDMARK
PROJECT	2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113
SYDNEY OFFICE	
PROJECT	SHEPHERDS BAY MEADOWBANK
STATUS	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION
DRAWN	TB
DESIGNED	NK
CHECKED	
APPROVED	
DATUM	AHD
GRID	
SCALE	1:100
AT	A1
TITLE	CONSTITUTION ROAD CROSS SECTIONS SHEET 3
PROJECT No.	S14053
DRAWING No.	C-0247
REV	A



A		23.12.14	ISSUED FOR INFORMATION	
REV	DATE	DESCRIPTION		RVD
REVISIONS				
CLIENT				
HOLDMARK				
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113				
 				
PROJECT				
SHEPHERDS BAY MEADOWBANK				
STATUS				
PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION				
DRAWN	DESIGNED	CHECKED	APPROVED	
TB	NK			
DATUM	CRD	SCALE	AT A1 SIZE	
AHD	MGA	1:500		
TITLE				
INTERSECTION PLAN CONSTITUTION ROAD/ BOWDEN STREET				
PROJECT No.	DRAWING No.	REV		
S14053	C-0250	A		



DATUM R.L. (m)	DEPTH TO INVERT	H.G.L. 1 in 10 YR ARI	DESIGN INVERT	DESIGN SURFACE	EXISTING SURFACE	ROAD CHAINAGE	PIPE CHAINAGE
-7.00	3.000	7.50	5.200	8.200	8.245	0.000	
		6.557				19.880	
		4.504				32.325	
		4.524					
		4.488				96.420	
		4.490					
		4.014					
		3.322					
		3.338					
		3.381				136.461	
		3.380					
		3.069				145.303	
		3.016					
		3.020					
		2.878				157.982	
		2.865					
		4.635					
		4.655					
		4.675				194.929	
		4.695					
		4.979				223.294	
		4.999					
		5.304				253.803	
		5.324					
		4.202				265.245	
		4.222					
		3.374				280.350	
		3.394					
		0.333				299.591	
		0.330					
		2.486					
		2.486					

LINE NA

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS

CLIENT: HOLDMARK
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113

SYDNEY OFFICE
12-14 WINDMILL ST SYDNEY NSW 2000
P: +61 2 9799 3300
E: info@bge.com.au
www.bge.com.au

BG & E

PROJECT: SHEPHERDS BAY MEADOWBANK

STATUS: PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

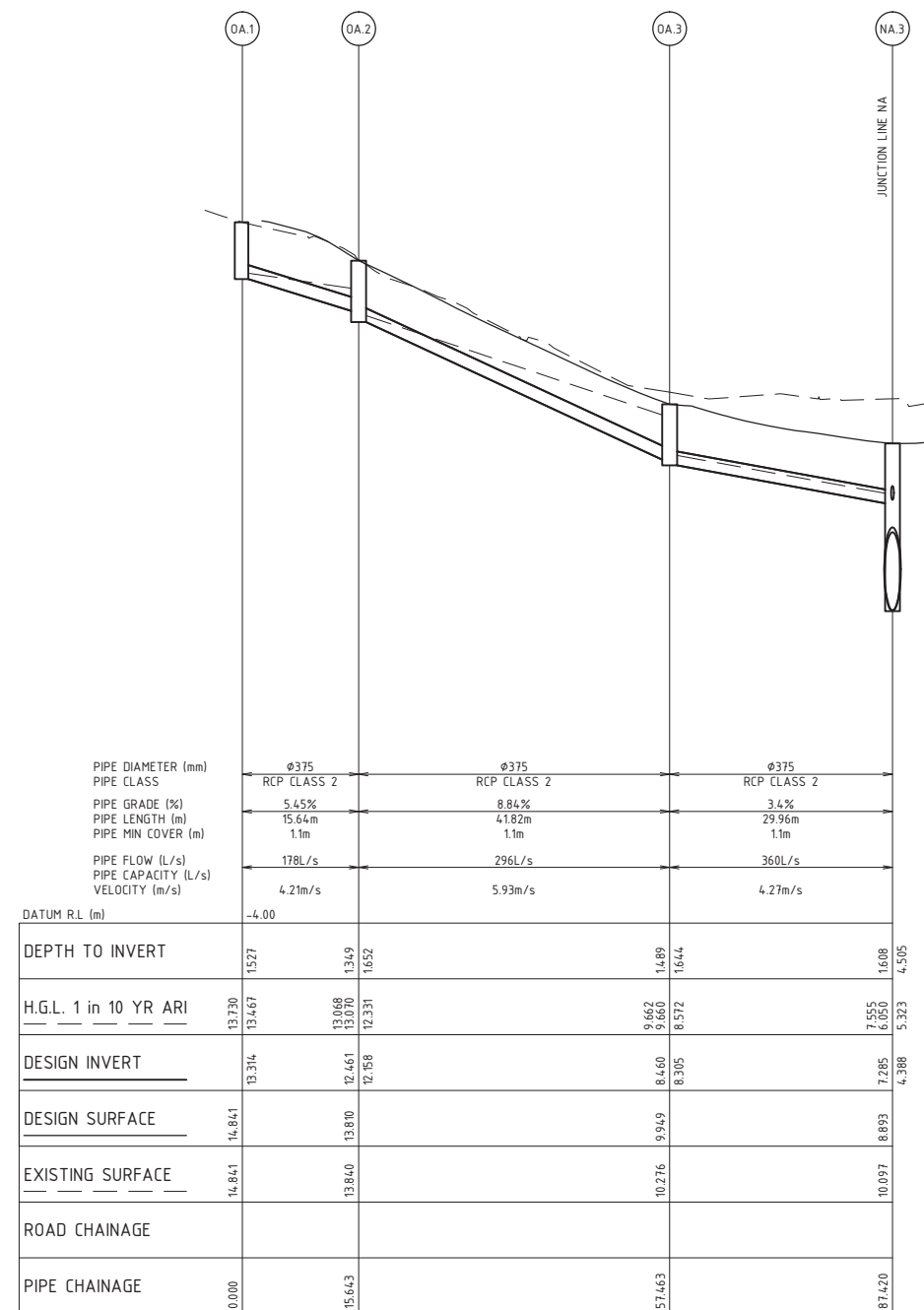
DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		

DATUM	GRID	SCALE	AT	A1 SIZE
AHD	MGA	1:100H, 1:20V		

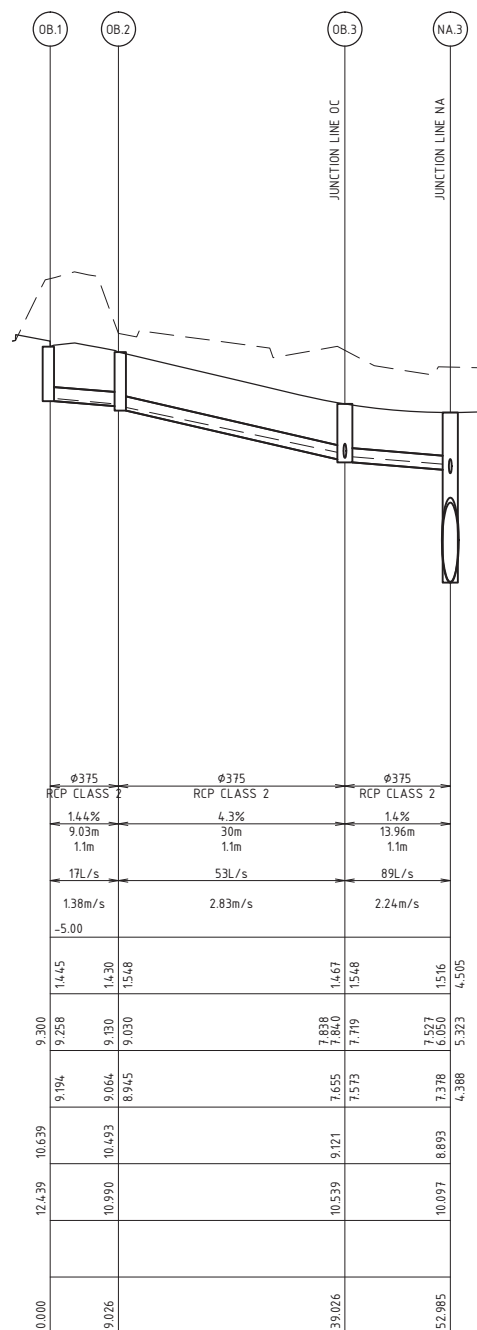
TITLE: STORMWATER LONGITUDINAL SECTIONS SHEET 1

PROJECT No.	DRAWING No.	REV
S10076	C-0260	A

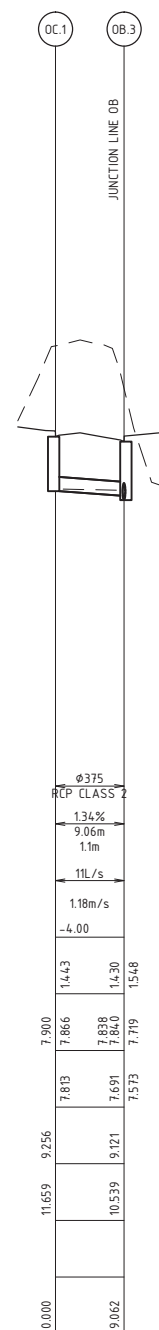
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23/12/2014 10:41:17 AM



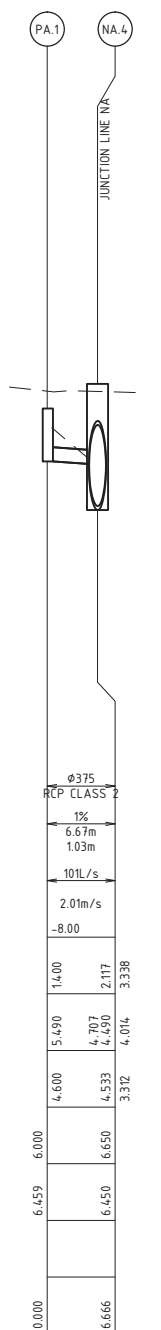
LINE OA



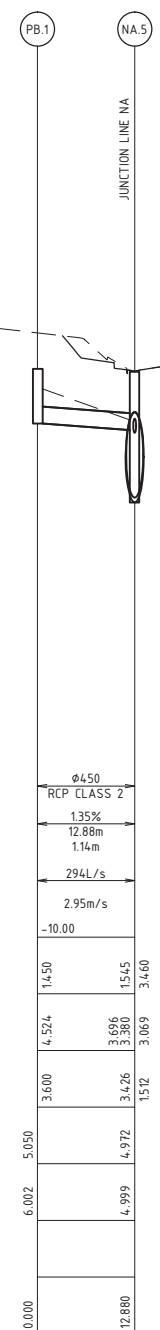
LINE OB



LINE OC



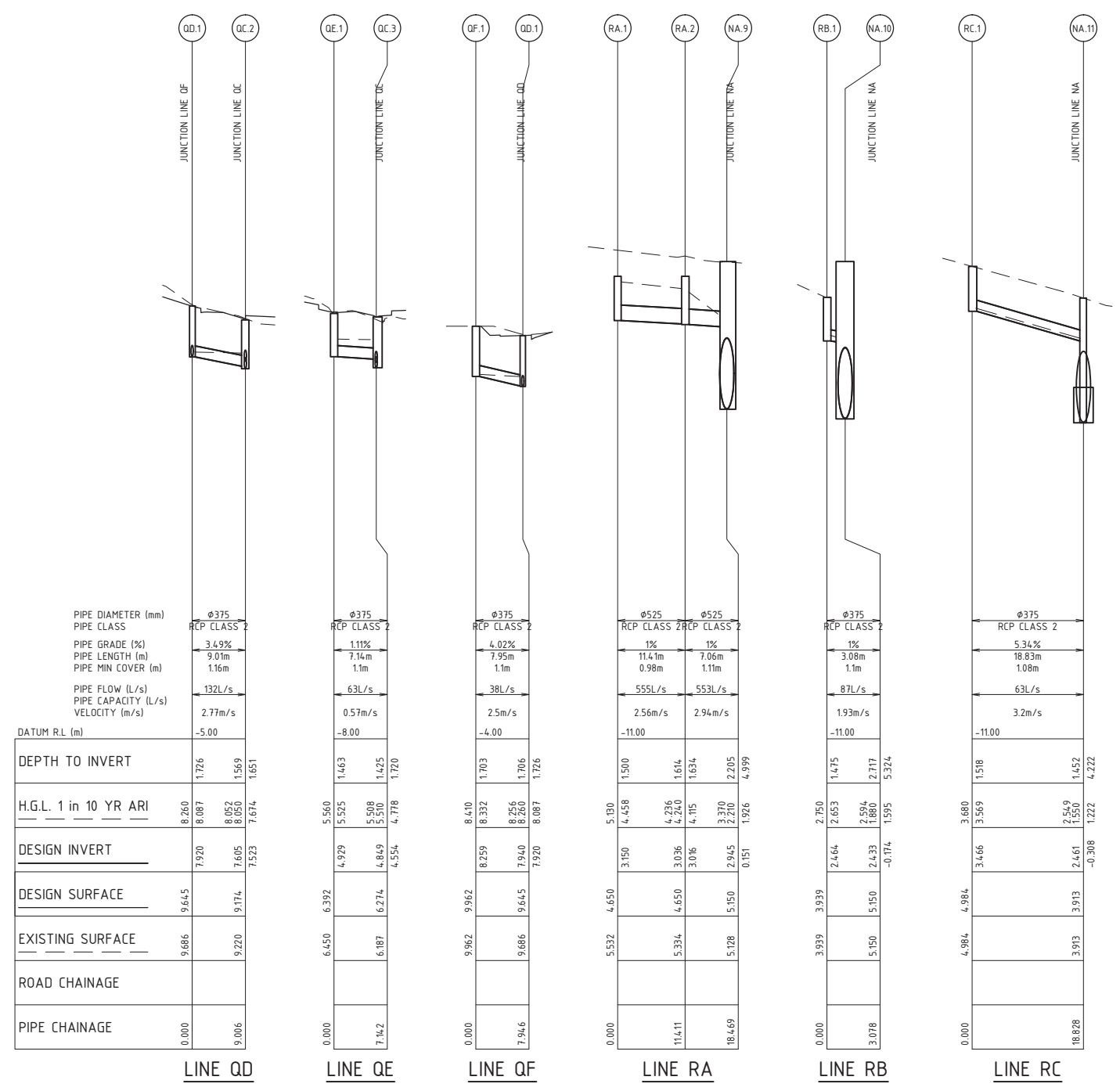
LINE PA



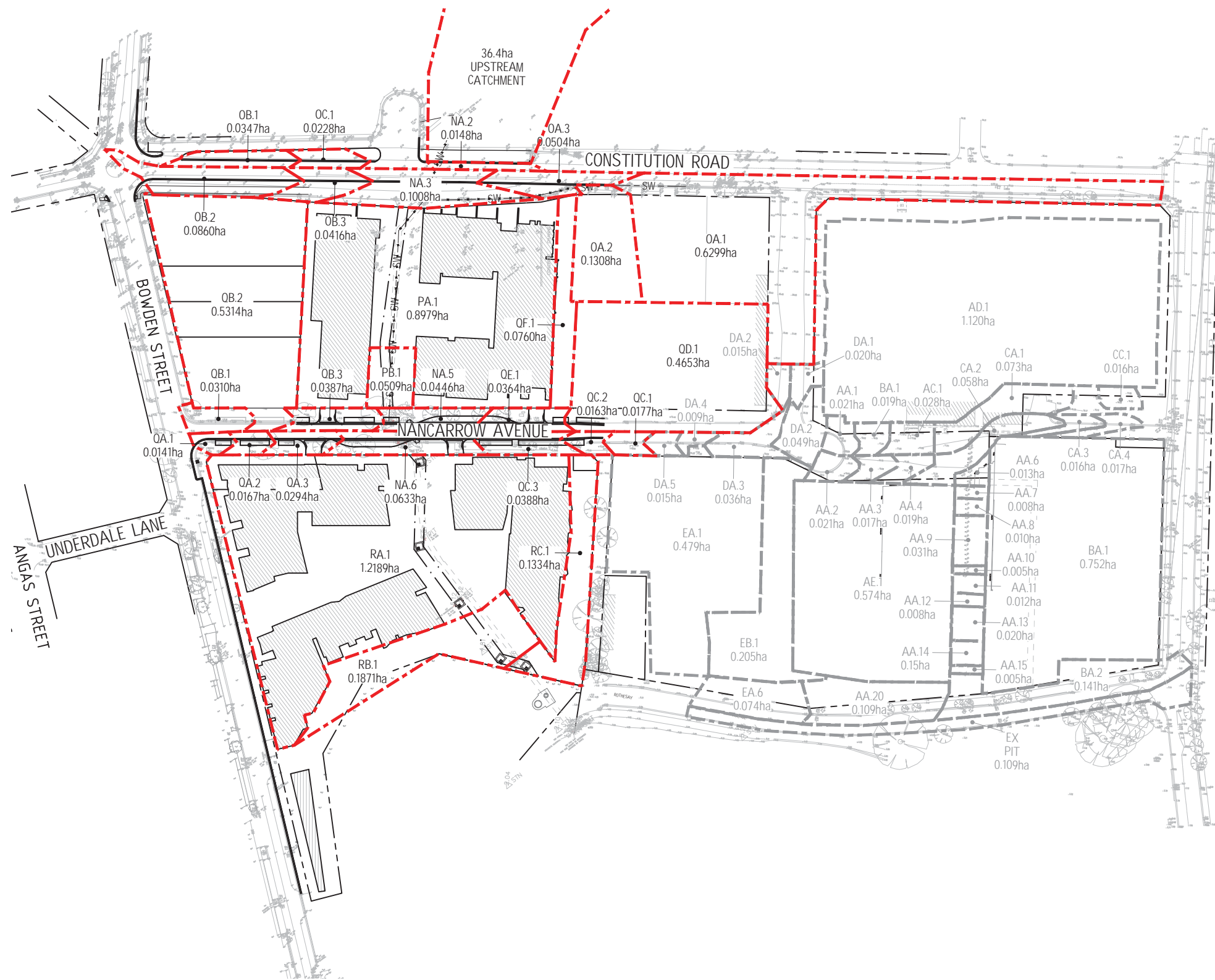
LINE PB

REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	

REVISIONS	
CLIENT	HOLDMARK
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113	
DESIGNED BY	BG & E
CHECKED BY	BG & E
APPROVED BY	BG & E
PROJECT	SHEPHERDS BAY MEADOWBANK
STATUS	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION
DRAWN	TB
DESIGNED	NK
CHECKED	
APPROVED	
DATUM	AHD
GRID	MGA
SCALE	1:100H, 1:20V
AT	A1
TITLE	STORMWATER LONGITUDINAL SECTIONS SHEET 2
PROJECT No.	S10076
DRAWING No.	C-0261
REV	A



REV	DATE	ISSUED FOR INFORMATION	DESCRIPTION	RVD
REVISIONS				
CLIENT				
HOLDMARK				
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113				
PROJECT				
SHEPHERDS BAY MEADOWBANK				
STATUS				
PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION				
DRAWN	DESIGNED	CHECKED	APPROVED	
TB	NK			
DATUM	GRID	SCALE	AT A1 SIZE	
AHD	MGA	1:100H, 1:20V		
TITLE				
STORMWATER LONGITUDINAL SECTIONS SHEET 4				
PROJECT No.	DRAWING No.	REV		
S10076	C-0263	A		



REV	DATE	DESCRIPTION	RVD
A	23.12.14	ISSUED FOR INFORMATION	
REVISIONS			
CLIENT			
HOLDMARK			
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113			
PROJECT			
SHEPHERDS BAY MEADOWBANK			
STATUS			
PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION			
DRAWN	DESIGNED	CHECKED	APPROVED
TB	NK		
DATUM	CRD	SCALE	
AHD	MGA		AT A1 SIZE
TITLE			
CATCHMENT PLAN			
PROJECT No.	DRAWING No.	REV	
S10076	C-0265	A	

Sydney Office
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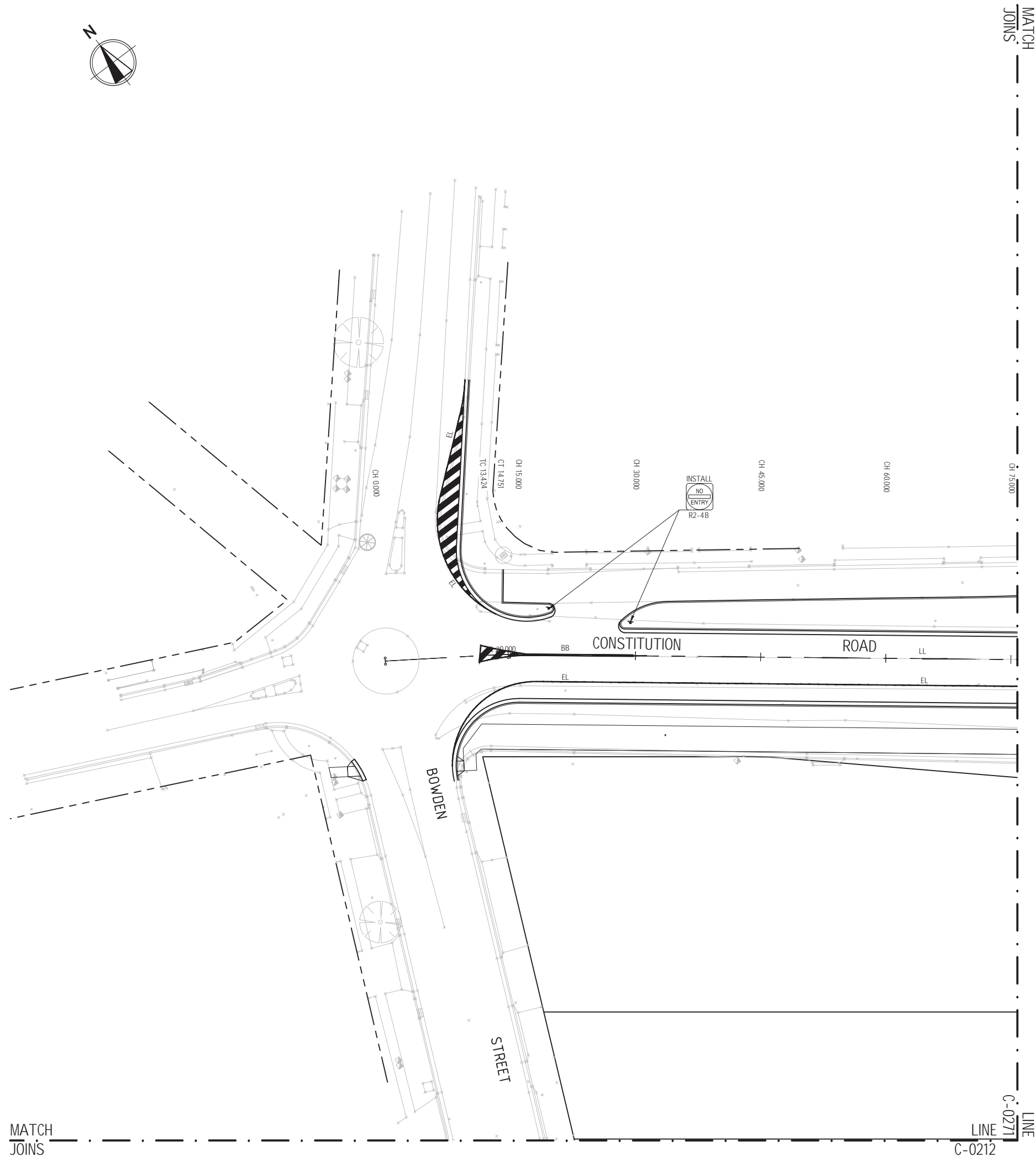
PIT / NODE DETAILS	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Version 8			Constraint
				Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	
NA.1	7.7900	9.0300	11.4550	0.6000	0.4100	0.0000	Inlet Capacity
NA.2	6.8600		0.0090		2.2000	0.0000	None
NA.3	6.2700	9.0400	0.0920	5.3000	2.6200	0.0000	Inlet Capacity
NA.4	4.7800		0.0000		1.8700	0.0000	None
NA.5	4.2800	5.0700	0.2400	1.7000	0.6900	0.1420	Inlet Capacity
NA.6	3.9100	5.1800	0.1710	2.1000	1.1300	0.0000	Inlet Capacity
NA.7	3.6800		0.0000		1.8200	0.0000	None
NA.8	3.2500		0.0000		1.9000	0.0000	None
NA.9	2.8500		0.0000		2.3000	0.0000	None
NA.10	2.4200		0.0000		1.1800	0.0000	None
NA.11	2.0100		0.0000		1.9000	0.0000	None
NA.12	1.3700		0.0000		1.6200		None
NA.13	0.4700		0.0000				
OA.1	13.8700		0.3680		0.9700	0.1800	Inlet Capacity
OA.2	12.8100		0.2560		1.0000	0.0960	Inlet Capacity
OA.3	8.9200		0.1230		1.0300	0.0400	Inlet Capacity
OB.1	9.3100		0.0200		1.3300	0.0000	None
OB.2	9.1400		0.0500		1.3500	0.0100	Inlet Capacity
OB.3	7.7900		0.0330		1.3300	0.0000	None
OC.1	7.9100		0.0130		1.3500	0.0000	None
QA.1	6.3300	7.9300	0.0080	0.1000	1.5800	0.0000	Inlet Capacity
QA.2	5.3400	6.9000	0.0100	0.1000	1.5500	0.0000	Inlet Capacity
QA.3	3.9400		0.0170		1.4000	0.0040	Inlet Capacity
QB.1	5.9500	7.5000	0.0180	0.2000	1.5200	0.0000	Inlet Capacity
QB.2	4.8800	6.4800	0.3080	0.9000	1.4900	0.2130	Inlet Capacity
QB.3	4.7000	5.2700	0.2350	0.9000	0.4800	0.1370	Inlet Capacity
QE.1	5.8000		0.1630		0.5900	0.0830	Inlet Capacity
QC.3	5.7200		0.0260		0.5500	0.0000	None
RA.1	4.8000	5.1800	0.6780	21.5000	0.1000	0.0000	Inlet Capacity
RB.1	2.7800	4.0200	0.1030	0.4000	1.1600	0.0000	Inlet Capacity
RC.1	3.8000		0.0740		1.1800	0.0000	None
QF.1	8.4400		0.0440		1.5000	0.0000	None
QD.1	8.4100	9.8500	0.2370	0.9000	1.3500	0.1420	Inlet Capacity
QC.2	8.1400		0.0190		1.0400	0.0040	Inlet Capacity

SUB-CATCHMENT DETAILS							
Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
C NA.2	0.0090	0.0080	0.0010	5.0000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C NA.3	0.0580	0.0540	0.0040	5.2400	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C NA.5	0.0250	0.0230	0.0020	5.2900	10.0000	0.0000	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
C NA.6	0.0360	0.0340	0.0030	5.2300	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C OA.1	0.3680	0.3430	0.0260	5.0000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C OA.2	0.0760	0.0710	0.0050	5.0900	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C OA.3	0.0290	0.0270	0.0020	5.2100	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C OB.1	0.0200	0.0190	0.0010	5.0000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C OB.2	0.0500	0.0470	0.0030	5.0000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C OB.3	0.0240	0.0220	0.0020	5.2100	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C OC.1	0.0130	0.0120	0.0010	5.2100	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QA.1	0.0080	0.0080	0.0010	5.0000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QA.2	0.0100	0.0090	0.0010	5.1000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QA.3	0.0170	0.0160	0.0010	5.1900	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QB.1	0.0180	0.0170	0.0010	5.0000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QB.2	0.3080	0.2860	0.0220	5.1000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QB.3	0.0220	0.0200	0.0020	5.3300	10.0000	0.0000	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
C QE.1	0.0210	0.0190	0.0010	5.2000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QC.3	0.0220	0.0210	0.0020	5.2000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C RA.1	0.6780	0.5420	0.1360	5.0000	10.0000	0.0000	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
C RB.1	0.1030	0.0820	0.0210	5.3500	10.0000	0.0000	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
C RC.1	0.0740	0.0590	0.0150	5.0000	10.0000	0.0000	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
C RF.1	0.0440	0.0410	0.0030	5.0000	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C QD.1	0.2370	0.2160	0.0210	10.0000	10.0000	0.0000	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
C QC.2	0.0090	0.0090	0.0010	5.0900	10.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
C PA.1	0.4480	0.3480	0.1000	10.0000	10.0000	0.0000	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
C PB.1	0.0290	0.0080	0.0210	5.0000	5.0000	0.0000	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1

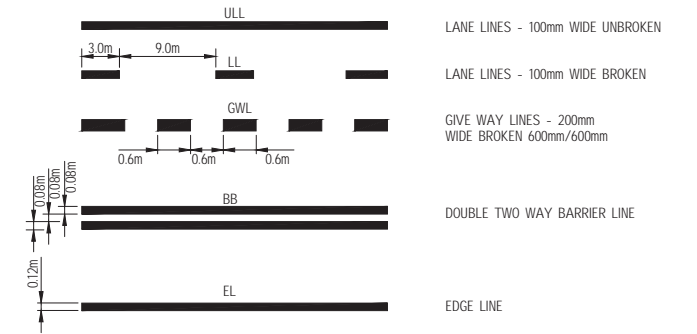
PIPE DETAILS					
Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
P NA.1	13.9080	4.4700	6.9690	6.8600	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.2	13.9140	4.2800	6.5950	6.2740	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.3	14.2580	7.6900	5.4530	4.7760	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.4	14.3430	7.1900	4.3890	4.2830	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.5	14.8650	3.2900	3.9530	3.9060	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.6	15.1660	3.3500	3.7340	3.6790	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.7	15.1780	3.3600	3.5730	3.2530	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.8	15.1740	3.3500	3.1800	2.8460	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.9	15.5160	3.4300	2.7930	2.4200	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.10	15.5800	3.5500	2.0590	2.0100	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.11	15.6020	4.0600	1.5040	1.3740	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P NA.12	15.5920	5.0400	0.6070	0.4670	AR&R 100 year, 2 hours storm, average 53.0 mm/h, Zone 1
P OA.1	0.2050	3.9500	13.5450	12.8120	AR&R 100 year, 15 minutes storm, average 154 mm/h, Zone 1
P OA.2	0.3320	6.1100	12.3430	8.9180	AR&R 100 year, 15 minutes storm, average 154 mm/h, Zone 1
P OA.3	0.4030	4.3000	8.7820	7.6180	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P OB.1	0.0200	1.4300	9.2630	9.1440	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P OB.2	0.0610	2.9400	9.0360	7.7950	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P OB.3	0.1040	2.2800	7.7350	7.5400	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1

PIPE DETAILS					
Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
P OC.1	0.0130	1.2300	7.8700	7.7950	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P QA.1	0.0080	1.8100	6.2960	5.3360	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P QA.2	0.0180	2.1800	5.2810	3.9370	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P QA.3	0.0310	0.3900	3.9350	3.9060	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P QB.1	0.0180	2.3500	5.8910	4.8850	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P QB.2	0.1130	3.4500	4.7160	4.6960	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P QB.3	0.2080	1.8800	4.4080	4.2830	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P QE.1	0.0780	0.7000	5.7480	5.7230	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P QC.3	0.3320	4.4000	4.7970	3.9060	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P RA.1	0.6570	3.0900	4.2850	3.5640	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P RB.1	0.1020	2.0100	2.6530	2.6090	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P RC.1	0.1600	7.3200	3.5610	2.0100	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P QF.1	0.0440	0.6900	8.4070	8.4050	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P QD.1	0.1390	3.9400	8.2140	8.1360	AR&R 100 year, 1.5 hours storm, average 62.0 mm/h, Zone 1
P QC.2	0.2330	5.2500	7.6810	5.7230	AR&R 100 year, 15 minutes storm, average 154 mm/h, Zone 1
P PA.1	0.1300	1.6300	5.4890	4.7760	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1
P PB.1	0.3390	2.1300	5.1080	4.2830	AR&R 100 year, 25 minutes storm, average 122 mm/h, Zone 1

A		23.12.14	ISSUED FOR INFORMATION	
REV	DATE	DESCRIPTION		RVD
REVISIONS				
CLIENT				
HOLDMARK				
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113				
				
PROJECT				
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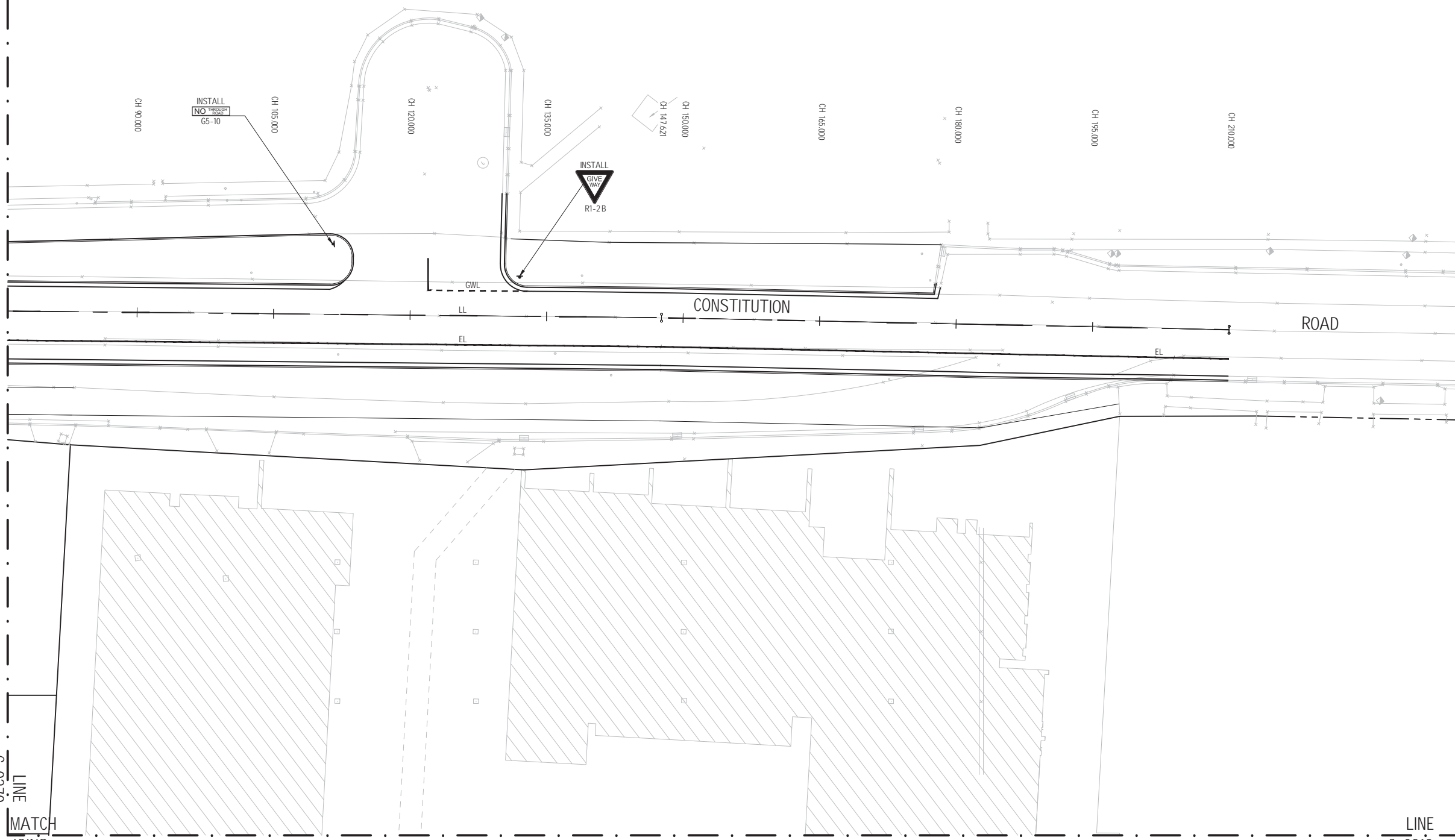
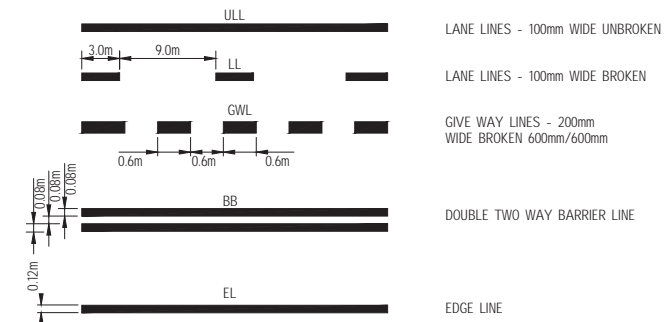


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2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113			
Sydney Office			
12 B Whitehall Sydney NSW 2000			
P/+61 2 9770 2000			
E/hold@bgand.com			
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PROJECT No.	DRAWING No.	REV	
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MATCH
JOINS



LEGEND



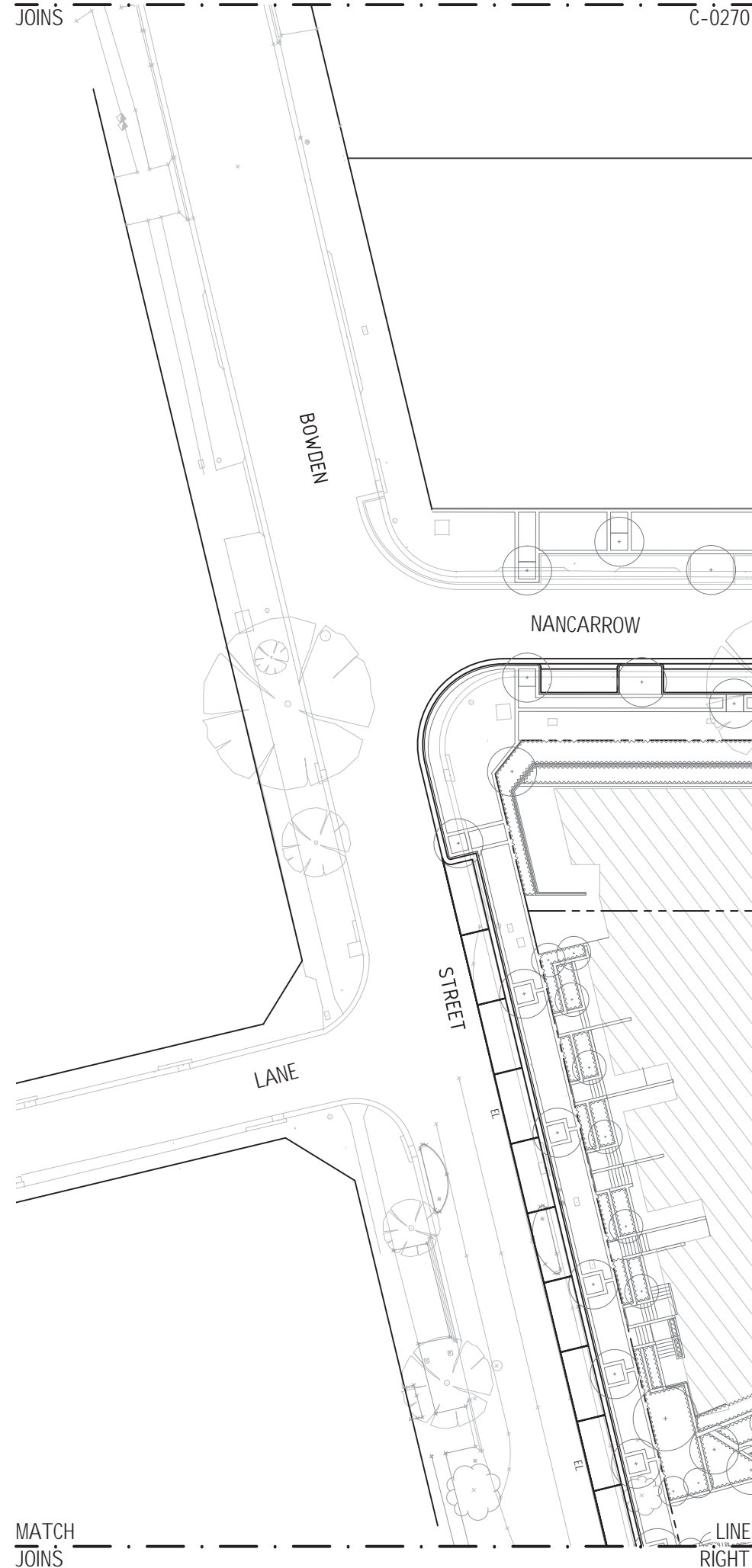
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LINE
MATCH
JOINS

LINE
C-0213

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CLIENT			
HOLDMARK			
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113			
Sydney Office 12 B Wentworth St Sydney NSW 2000 P: +61 2 9570 3300 E: info@bgandc.com www.bgandc.com			
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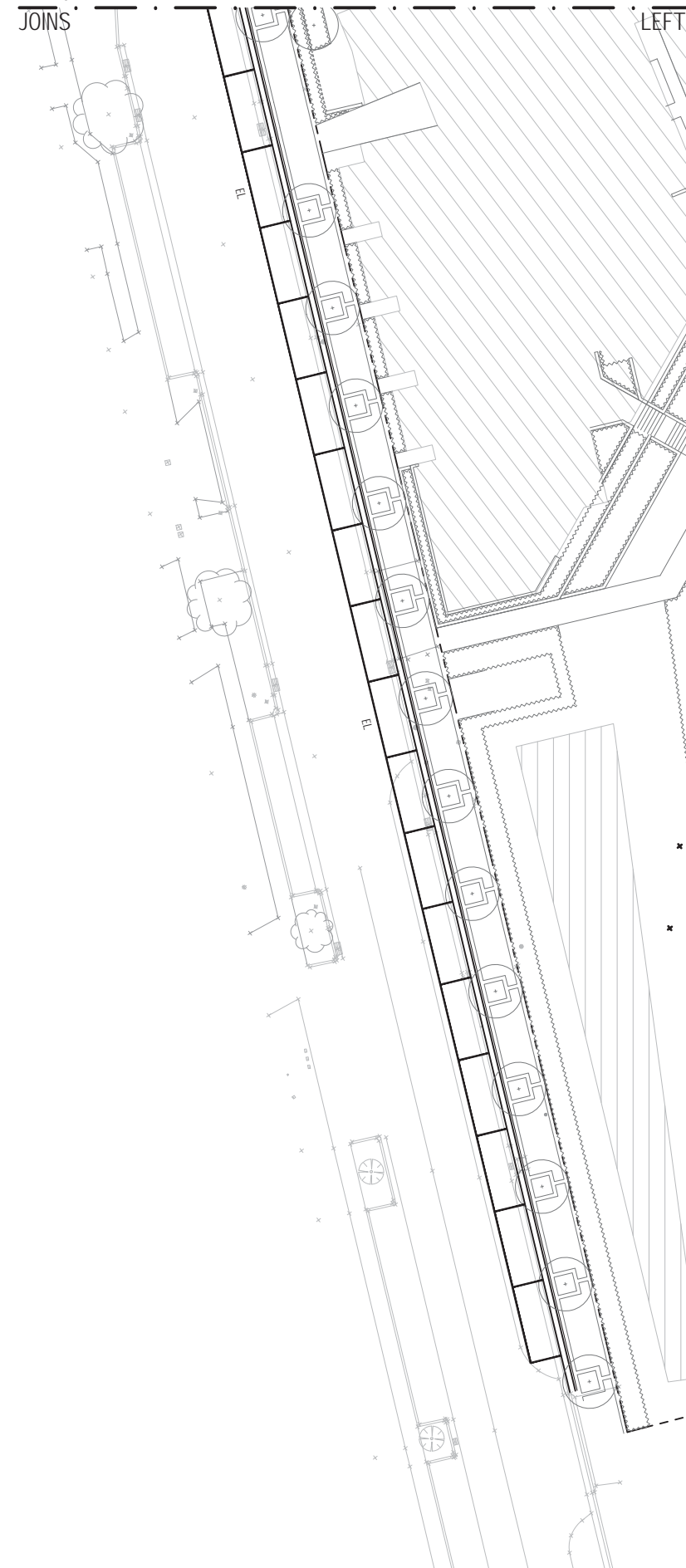


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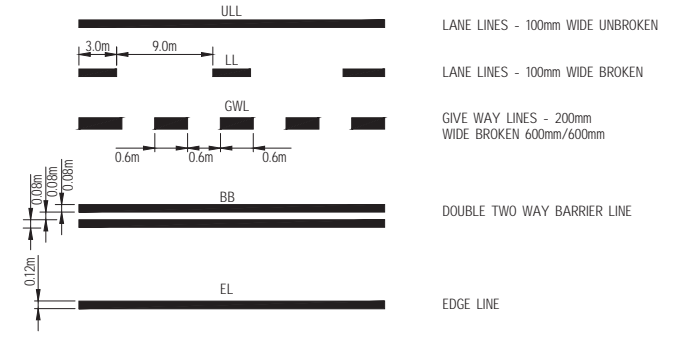


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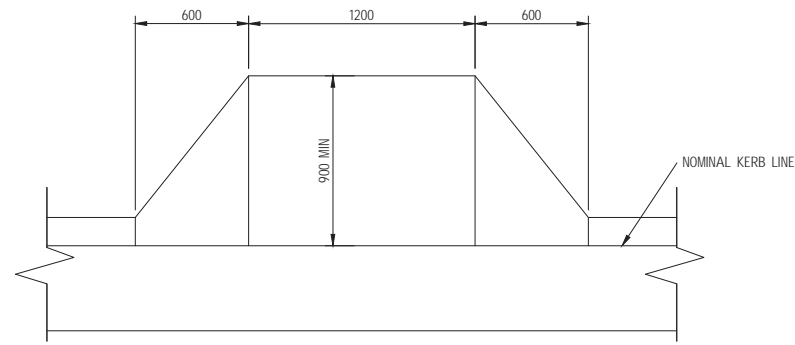
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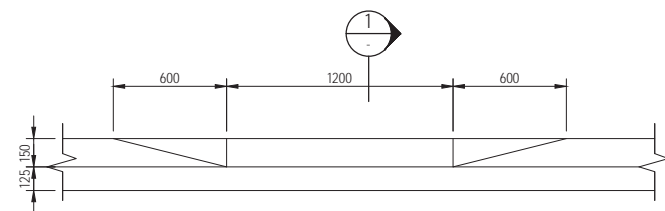
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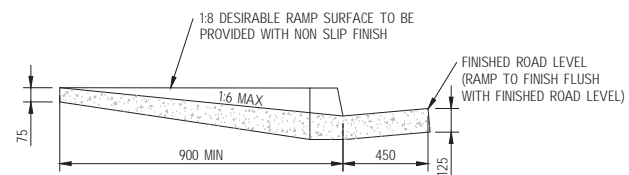
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CLIENT			
HOLDMARK			
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113			
Sydney Office 6-8 Wentworth St Sydney NSW 2000 P/+61 2 9770 3300 E/hold@sydney.com sydney.com			
PROJECT			
SHEPHERDS BAY MEADOWBANK			
STATUS			
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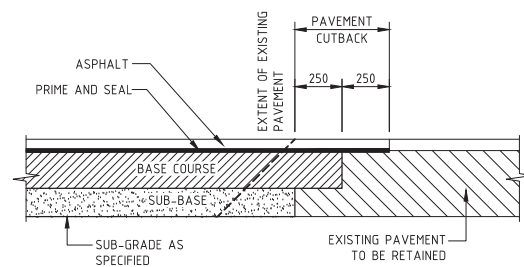
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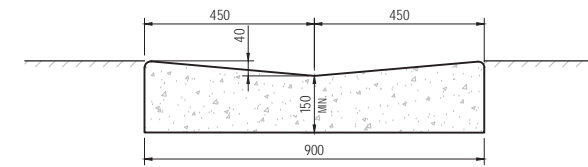
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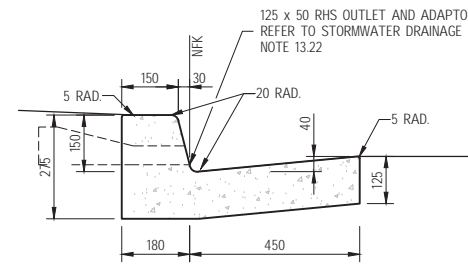
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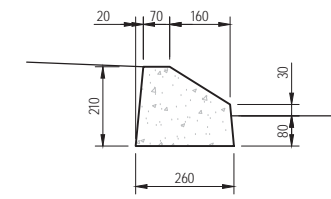
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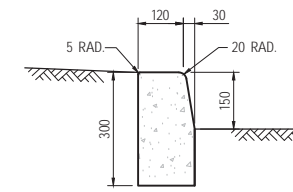
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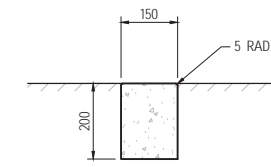
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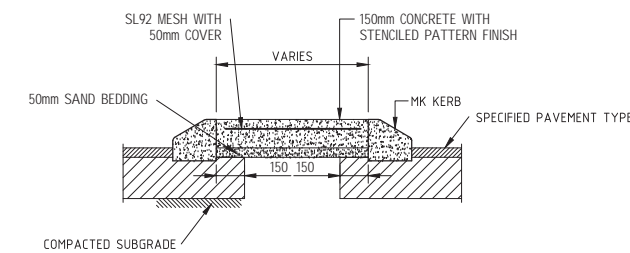
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KERB ONLY (KO)
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EDGE STRIP (ES)
SCALE 1:10



SECTION THROUGH MOUNTABLE ISLAND
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REVISIONS			
CLIENT			
HOLDMARK			
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113			

Sydney Office
 1-2 St Vincent St Sydney NSW 2000
 P/+61 2 9770 3300
 E/101@bgandae.com
 www.bgandae.com

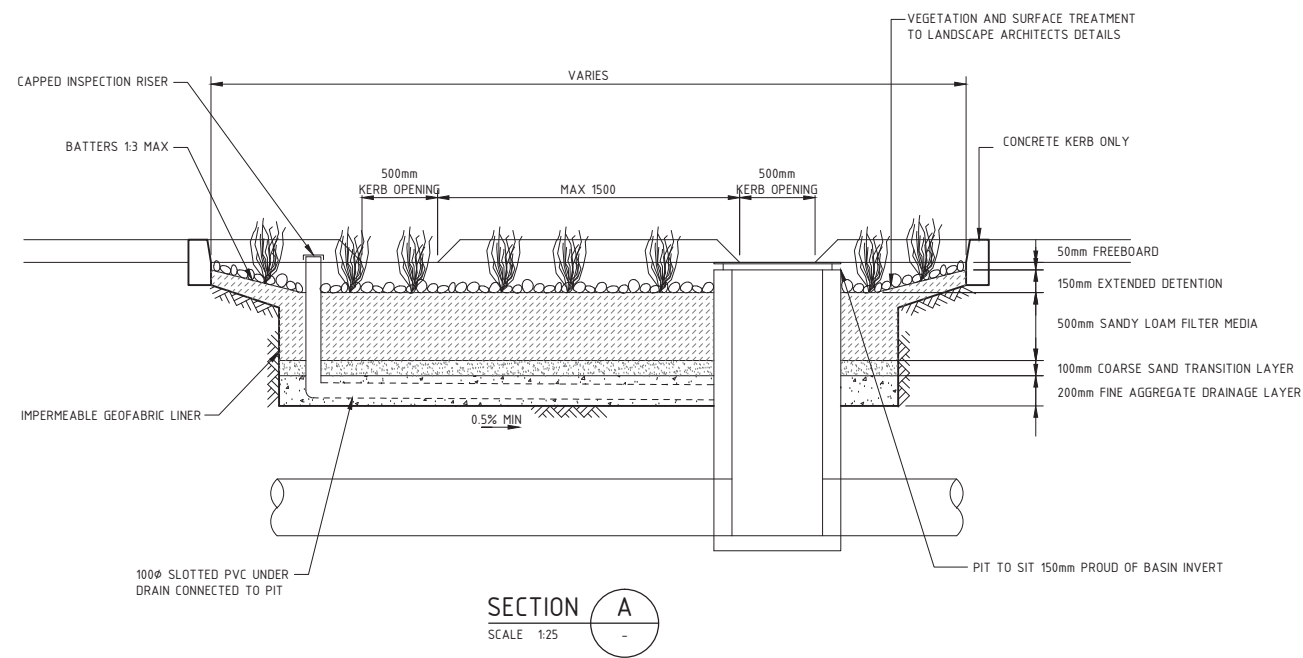
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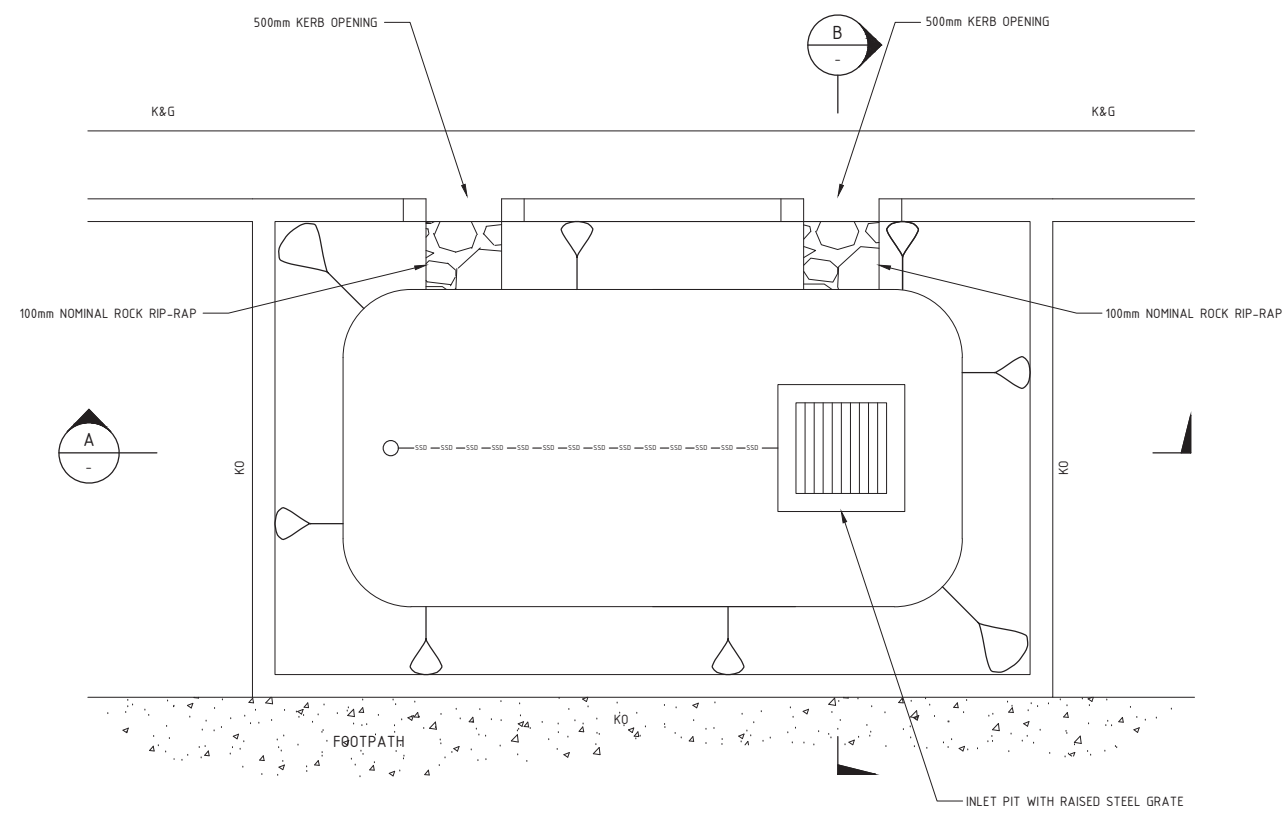
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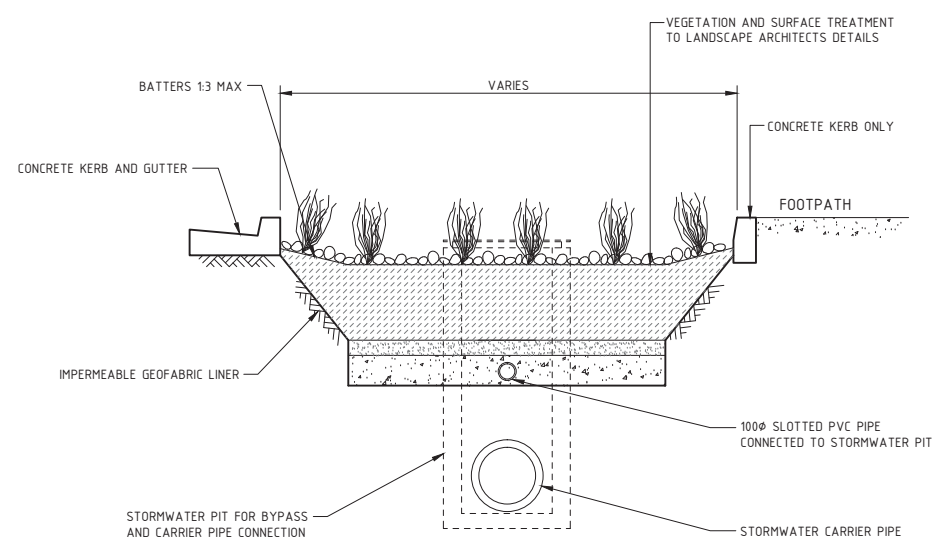
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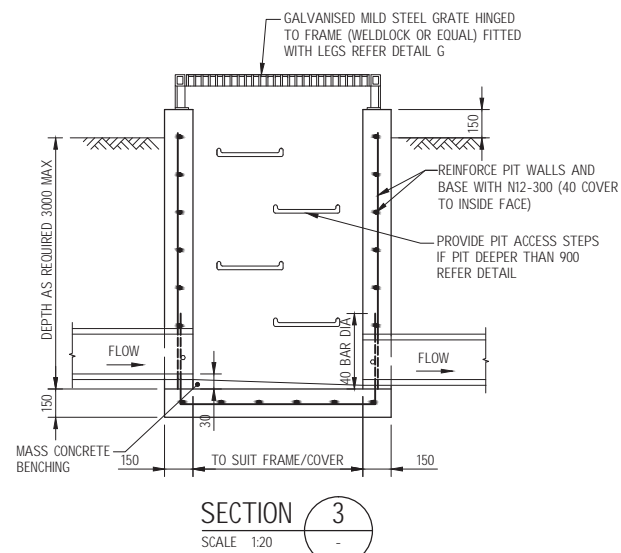
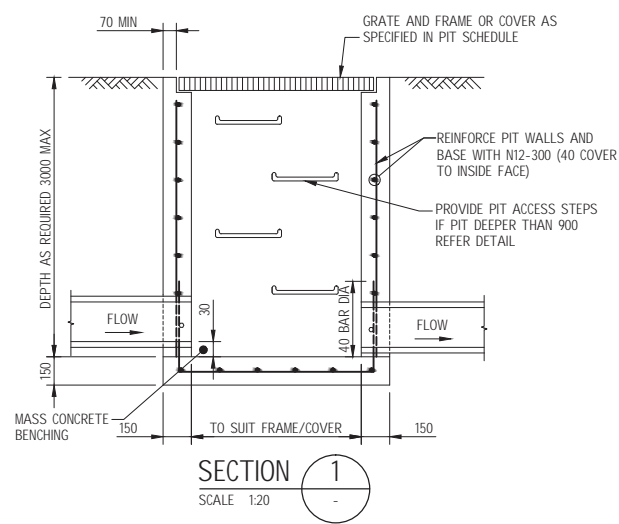
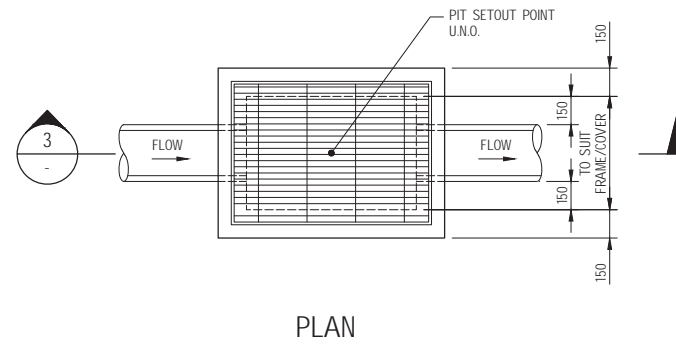
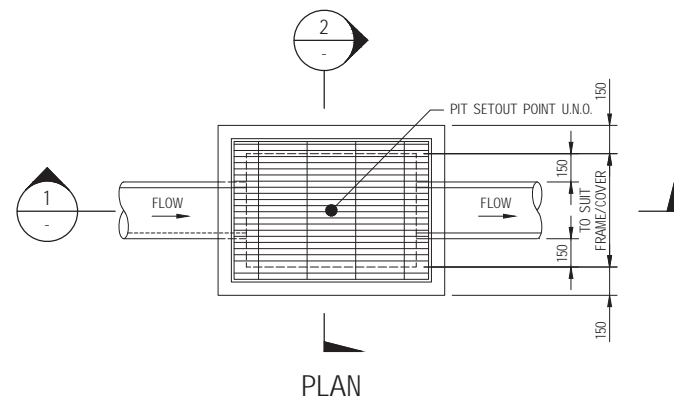
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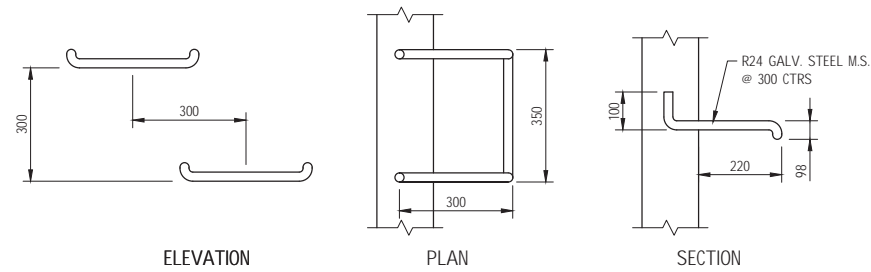
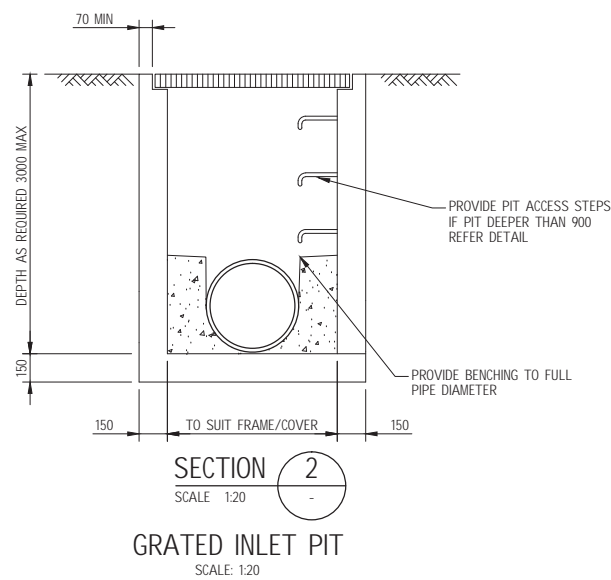
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REVISIONS			
CLIENT	HOLDMARK		
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113			
SYDNEY OFFICE			
12 B WHARF ST SYDNEY NSW 2000 P: +61 2 9770 3300 E: info@bgandegroup.com www.bgandegroup.com			
PROJECT	SHEPHERDS BAY MEADOWBANK		
STATUS	PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION		
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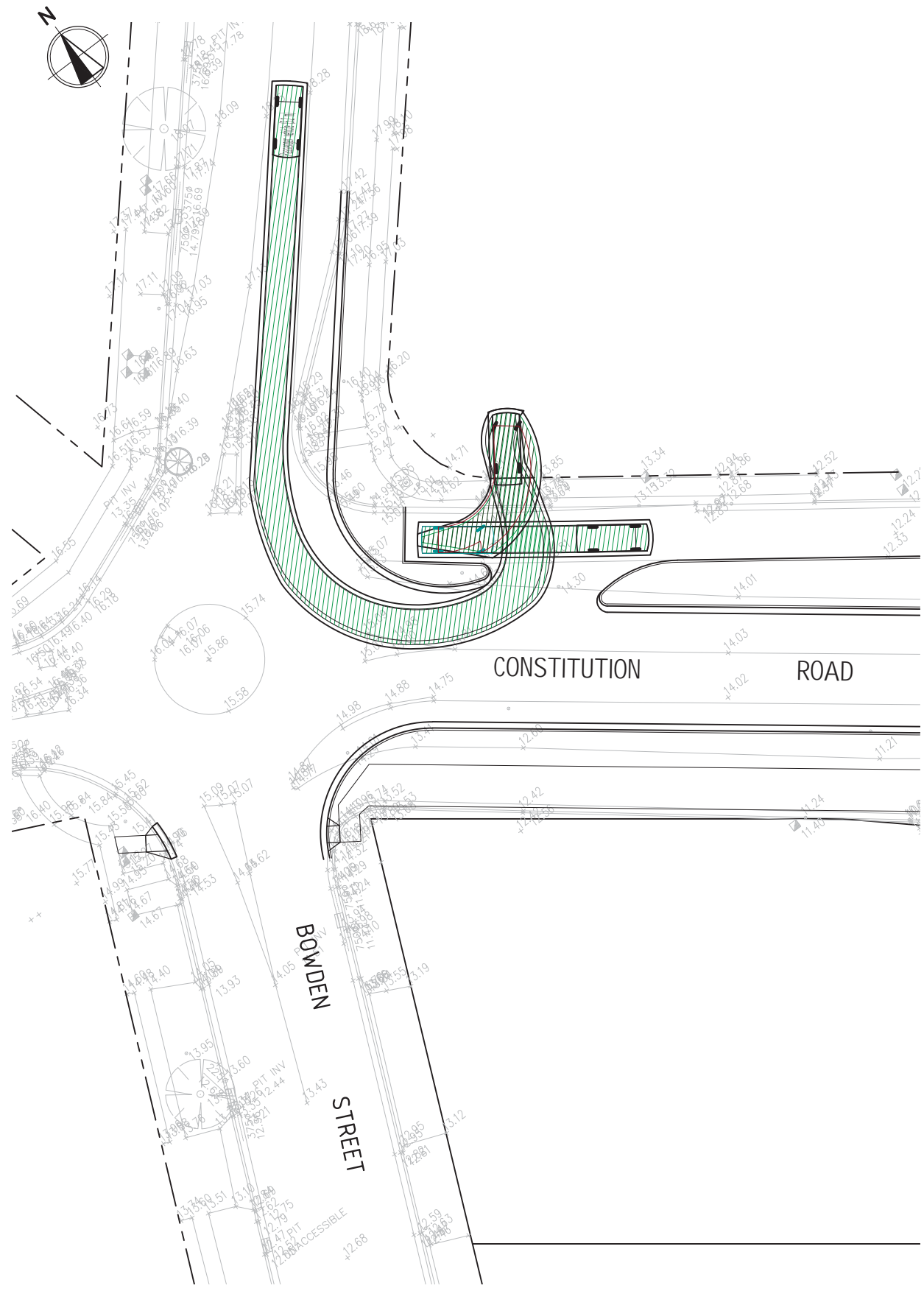


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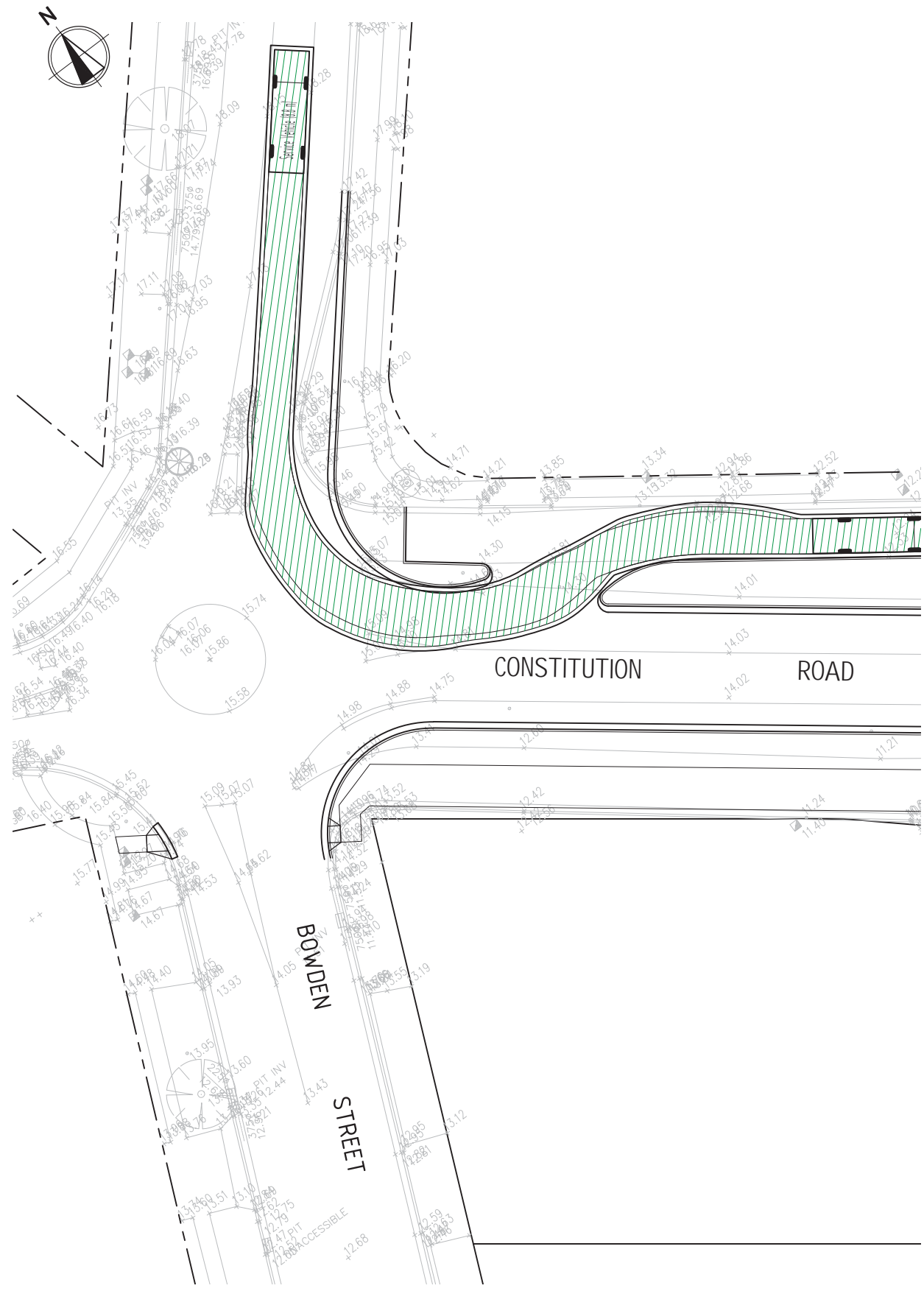


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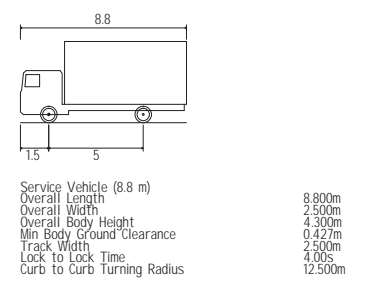
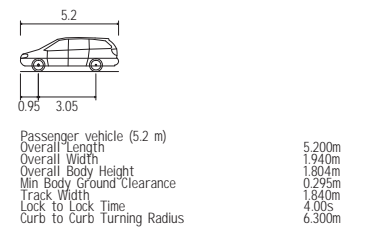


PLAN - PASSENGER VEHICLE (5.2m)
SCALE 1:200



PLAN - SERVICE VEHICLE (8.8m)
SCALE 1:200

LEGEND

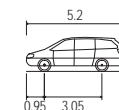


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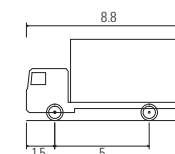
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2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113			
 12 St Vincent St Sydney NSW 2000 P/+61 2 9790 3300 E/hold@hgm.com hgm.com			
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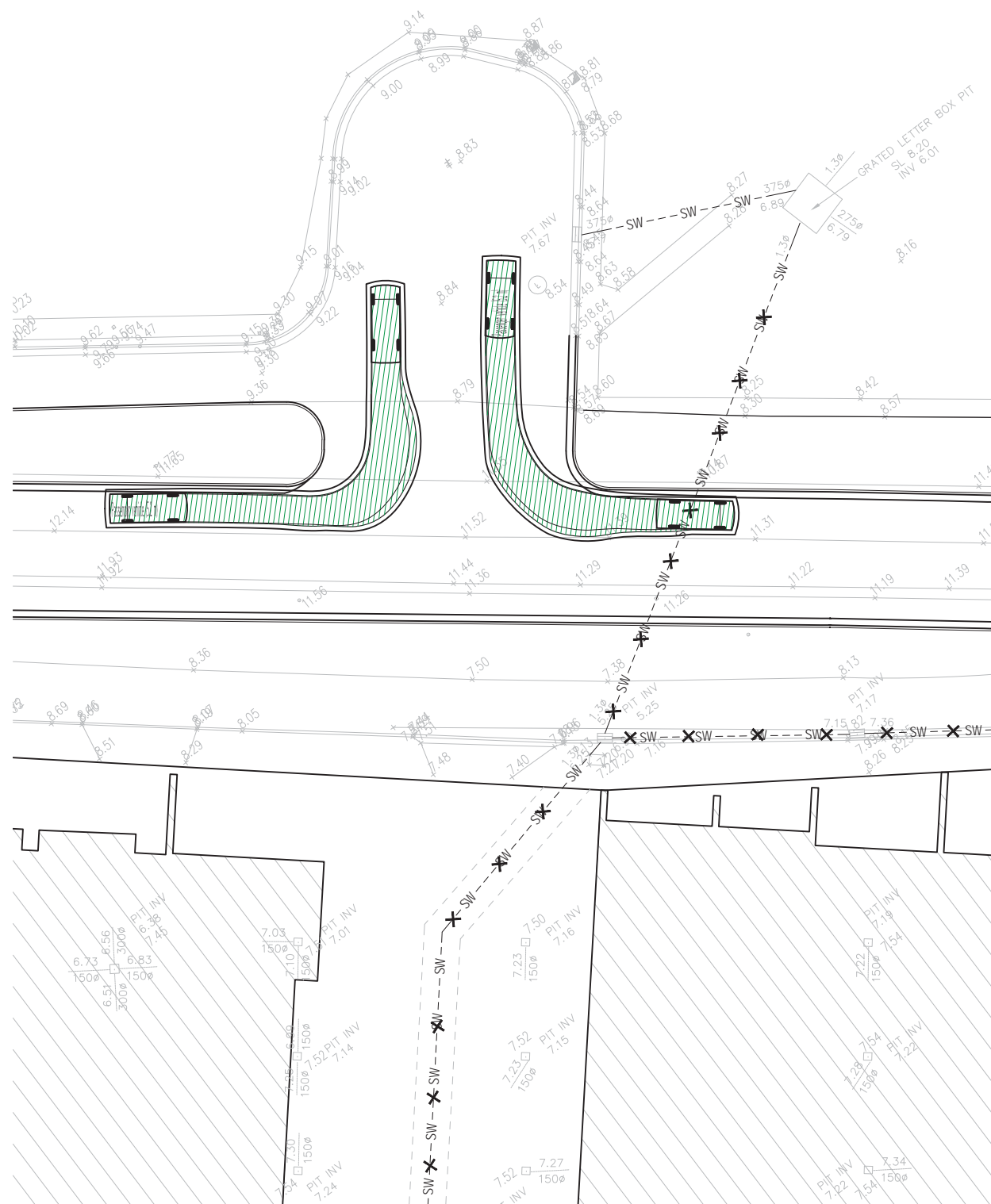
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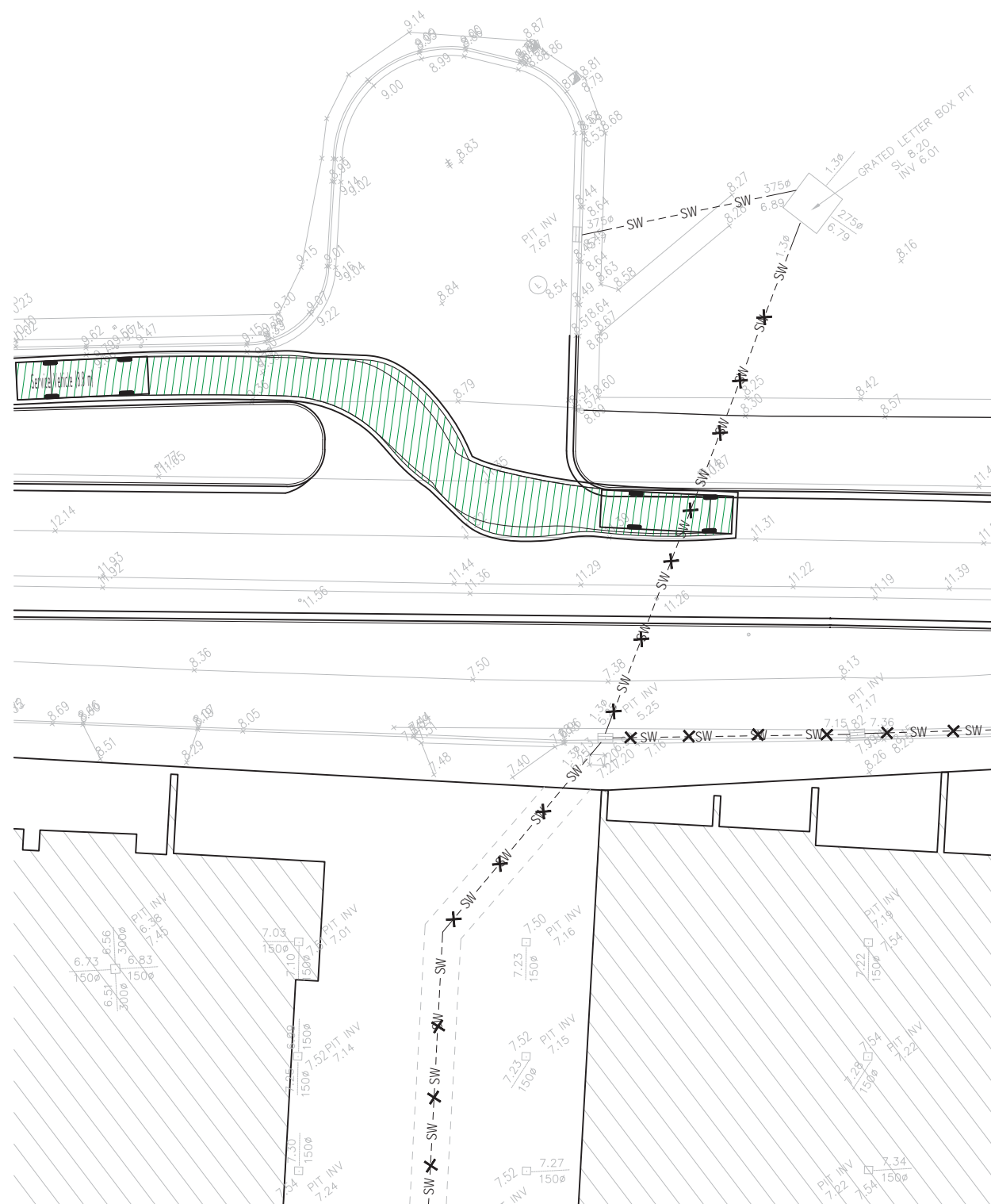
Passenger vehicle (5.2 m)
 Overall Length 5.200m
 Overall Width 1.940m
 Overall Body Height 1.804m
 Min Body Ground Clearance 0.295m
 Track Width 1.840m
 Lock to Lock Time 4.00s
 Curb to Curb Turning Radius 6.300m



Service Vehicle (8.8 m)
 Overall Length 8.800m
 Overall Width 2.500m
 Overall Body Height 4.300m
 Overall Min Body Ground Clearance 0.427m
 Track Width 2.500m
 Lock to Lock Time 4.00s
 Curb to Curb Turning Radius 12.500m



PLAN - PASSENGER VEHICLE (5.2m)
 SCALE 1:200



PLAN - SERVICE VEHICLE (8.8m)
 SCALE 1:200

REV	DATE	DESCRIPTION	RVD
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REVISIONS			
CLIENT			
HOLDMARK			
2/2-4 GIFFNOCK AVENUE, MACQUARIE PARK NSW 2113			
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S10076	C-0291	A	



MEADOWBANK, SHEPHERDS BAY Stages 8-9

detailed landscape + public domain plan

Development Assessment Submission
Project Ref: HOL07

16 January 2015
Issue [C]

DOCUMENT REGISTER

Document Name	For	Date	Issue
Meadowbank Stages 8-9 Detailed Landscape + Public Domain Plan	Development Assessment Submission	17.12.2014	A
Meadowbank Stages 8-9 Detailed Landscape + Public Domain Plan	Development Assessment Submission	18.12.2014	B
Meadowbank Stages 8-9 Detailed Landscape + Public Domain Plan	Development Assessment Submission	16.01.2015	C

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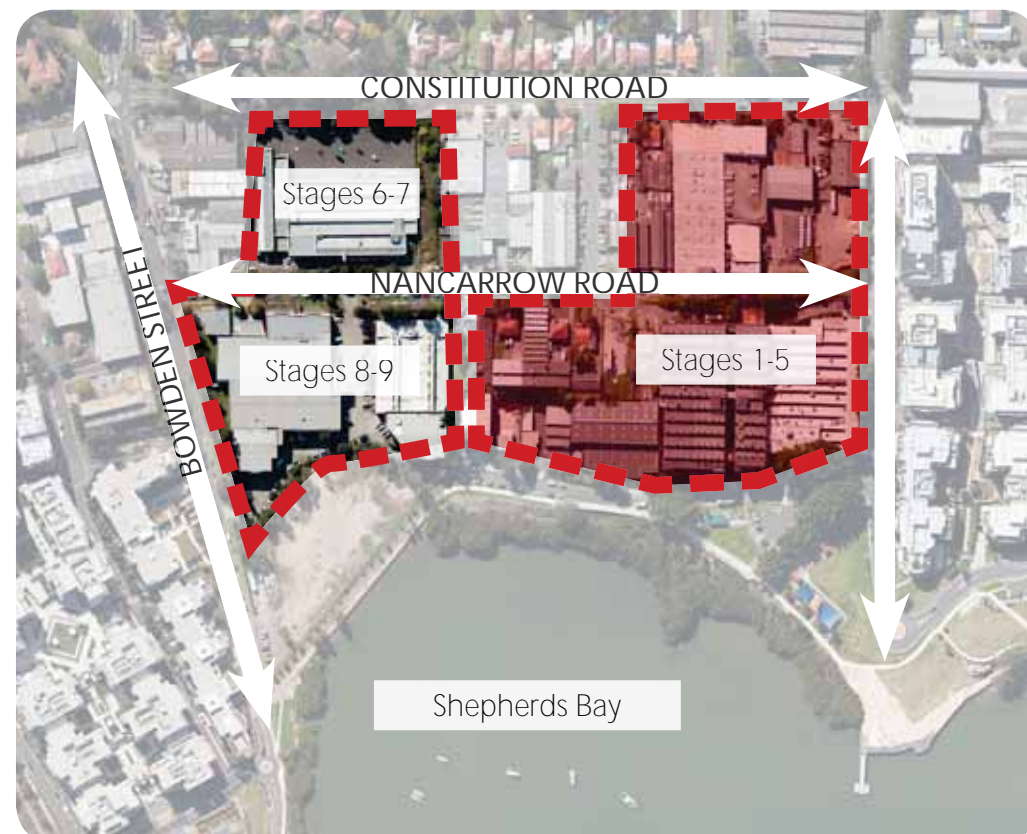
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INTRODUCTION

“The project represents an opportunity to bring about positive change in current residential design trends by celebrating and bringing to life both the natural landscape and rich cultural history of the site in the landscape of the new development”



Wider Context Plan NTS



Meadowbank, Shepherds Bay
Site and Stage Context Plan NTS

This document outlines the proposed Landscape Design Concept (DA) that fulfills the conditions and guidelines set in the Major Project Concept Plan Application for the Shepherds Bay residential development.

The project represents an opportunity to bring about positive change in current residential design trends by celebrating and bringing to life both the natural landscape and rich cultural history of the site in the landscape of the new development. It will also ensure that the Shepherds Bay site Landscape Design meets both the Proponents vision for the site and Council's planning objectives, long term objectives and area specific Public Domain Manual,

The landscape design provides solutions that reflect the image and character of the Shepherds Bay Site as a fully integrated residential / parkland environment reflecting both the history and culture of the site.

Water usage, recycling and movement are a key part of this history and will be reflected throughout the landscape design. The landscape design will draw upon a rich and varied site history:- the aim to enhance and create a culturally significant landscape setting that transcends past and present. In this way the landscape will serve to educate visitors and residents whilst enhancing the sense of place and creating a unique identity for Shepherds Bay.

The enjoyable and safe interaction between visitor, resident and the Water Sensitive Urban Design initiatives used through out the development will be a key area of focus in the landscape. The retention of significant existing vegetation where possible will be combined with an innovative site wide planting strategy. Structured planting using a combined native and exotic plant palette is proposed.

The creation of view corridors to the river precinct is seen as an integral component to the landscape and urban design philosophy. There will be an increase in biodiversity through street trees, integrated WSUD and planting to both public and private areas

The landscape design philosophy recognises, the current trends in the new home owners demographic. It is accepted that there will be a strong trend of responding to an increased community expectation of a range of active and passive recreational uses. Pedestrian and cycle movement will also be addressed to the wider landscape and surrounding communities including legible connections and cycle locking facilities. This will be in accordance with the control documents and approvals to date.

A vibrant central 3000m² contiguous open space plaza at the core of the development on the waterfront will be for passive & active recreation multi-use and adaptable for residents and public use. It is intended that this space become a place of celebration for community events, meeting people and taking advantage of the river views. A cafe integrated into the built form at this location will ensure activation so the development reaches capacity.

A Holistic approach to the landscape design combined with the careful interaction of landscape & architectural elements across the site will result in a 'big picture' design creating and reinforcing the local identity, character and sense of place.

A sensitive and appropriate standard of landscape design is to be applied to the Shepherds Bay development so that the practical, aesthetic and social needs of the residents and community are realised. Detailed design of all public domain areas are to be based on the CPTED principles for safety and security. The concept plan designs are indicative and intended as a guide to future detailed designs.

DEVELOPMENT CONTROL CONDITIONS

LANDSCAPE / PUBLIC DOMAIN RELATED

The following development control conditions have been applied to the landscape design.

1(c). Provide a public domain plan which illustrates the proposed public domain treatment including streets and setback areas, landscaping, lighting and public and communal open spaces and which is in accordance with Ryde City Council's Public Domain Technical Manual

B1(e). Provide an integrated water sensitive urban design (WSUD) strategy for the entire site.

B1(f). Include a pedestrian and cycleways plan that demonstrates that the proposed routes are both viable and integrated with Council's plans for the surrounding area.

11. Landscaping: Future DAs shall include detailed landscape plans for public and private open space areas, street setbacks areas and for the landscape treatment of all adjoining public domain areas and road reserves in accordance with the approved Public Domain Plan.

12. Public Domain: Future DAs shall provide the detailed design for the upgrade of all road reserves adjacent to the development to the centre line of the carriageway, including landscaping, street trees, accessible pedestrian pathways, street lighting, cycle ways on Constitution Road and Nancarrow Avenue, and any other necessary infrastructure in accordance with the approved Public Domain Plan. Where the detailed design necessitates an increase in the width of the road reserve, building setbacks are to be increased to retain the approved setback to the road reserve alignment. The road reserve works are to be completed by the proponent prior to occupation of each stage.

15. Open Space/Public Access: Future DAs shall include detailed landscape plans for the embellishment of publicly accessible open space areas. These areas shall include high quality landscaping and paved areas and a variety of recreation facilities which may include BBQs, seating, water features, grassed areas, paths, shade trees, bicycle racks and exercise equipment/games.

16. Open Space/Public Access: Future DAs shall include detailed landscape plans which demonstrate accessible paths of travel for all persons for at least two of the north-south routes between Constitution Road and the Foreshore with one of the routes including the Lower Riparian linear park and a second path either along the Central Spine or the public pathway associated with Stage One.

Landscape plans will also include the detailed design of at least 1 north-south cycle path linking Constitution Road through the site to the existing foreshore cycleway.

17. Open Space/Public Access: Future DAs shall clearly set an appropriate legal mechanism for creating rights of public access to all publicly accessible areas of open space, drainage reserves and through site links, with the relevant instrument/s to be executed prior to the issue of the occupation certificate.

9.8. New Lower Riparian Foreshore Link Publicly Accessible Open Space (Development Stages 8 & 9): This new publicly accessible open space will be delivered as part of Indicative Development Stages 8 & 9 7 and 9 as illustrated in the landscape plan report in annexure 10 of this PPR. This publicly accessible open space follows the natural overland flow path and terminates at the foreshore reserve. This publicly accessible open space provides more water features and soft plantings interspersed with a sequence of passive recreation lawns with specimen tree planting for shade.

The orange orchard reflects the past uses of this site and creates a desirable area to sit and relax away from the more urban landscapes to the east.

Landscape Design Principles:

- Heritage interpretation of past land use
- Natural creek like water features and plantings
- Low maintenance softscape & hardscape elements
- Temporary stormwater detention ponds and ephemeral creek beds

9.9. New Pedestrian Spine 1 (South) Publicly Accessible Open Space (Development Stage 8)

This new publicly accessible open space will be delivered as part of Indicative Development Stage 8 The pedestrian

link south continues the formal character of the northern portion of this publicly accessible open space, becoming more informal closer to the foreshore reserve, with swathes of low and mid height native shrub and low maintenance hybrid grass planting. Tree planting is orchard style and is recommended in the lower portion of this publicly accessible open space, reflecting the previous orchards on the Concept Plan site while retaining clear sightlines from top to bottom.

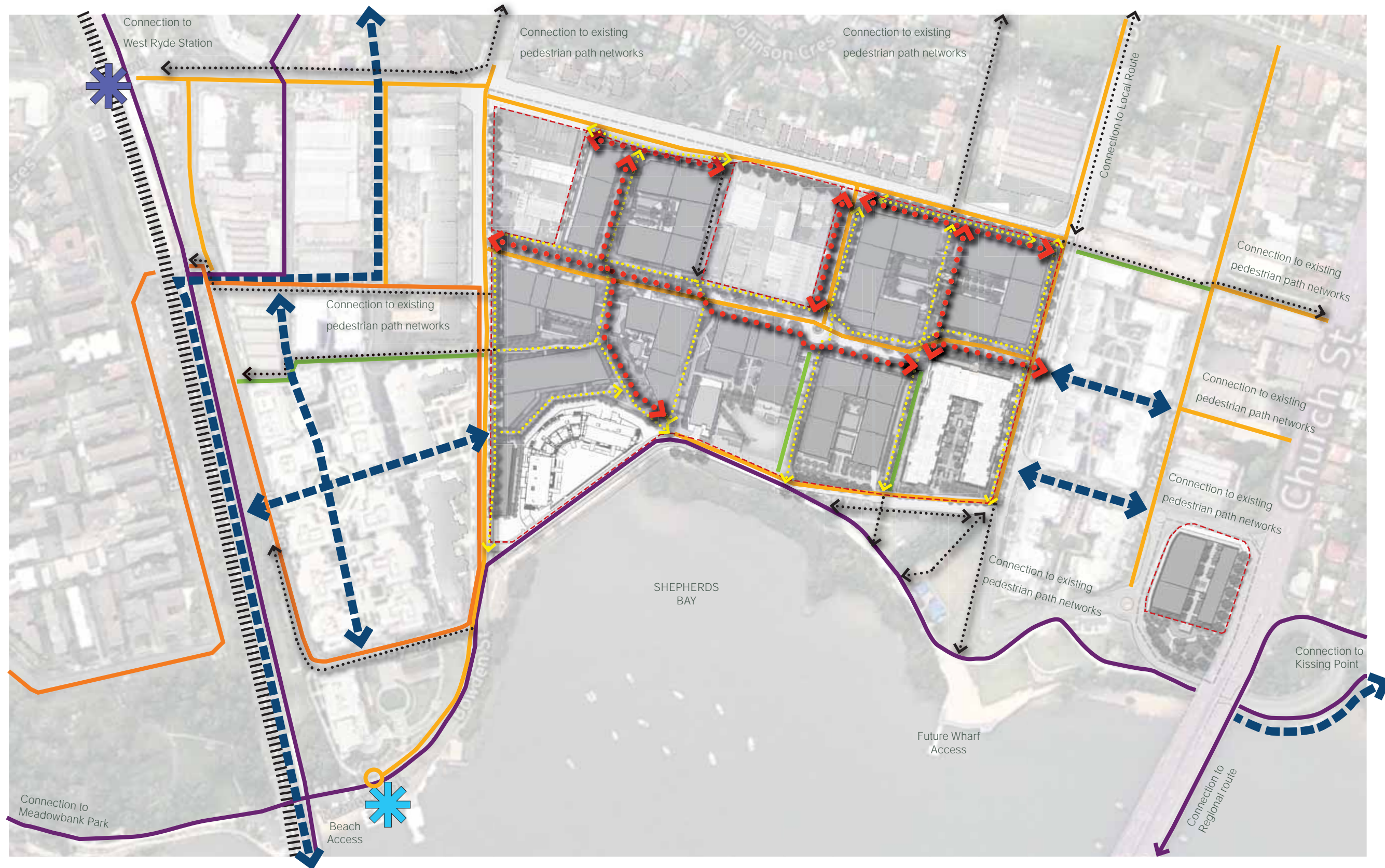
Landscape Design Principles:

- Performs as formal linear open space in addition to its role as a pedestrian link
- Low maintenance, high quality hard cape surface treatments
- Formal modern alignment with informal garden bed design
- Incorporates heritage orchard tree planting
- Clear sight lines through the park to maximise pedestrian safety
- Formal water features

13. Tree Management

Tree protection measures will be implemented for trees to be retained as recommended in the Arborist Report at Annexure 23 to the submitted EA.

PEDESTRIAN + CYCLEWAY PLAN (DEVELOPMENT- WIDE)



Reference: Development Control Plan 2011

STREET TREE STRATEGY (DEVELOPMENT-WIDE)

LEGEND:

- Corymbia maculata* (Spotted Gum)
- Angophora costata* (Sydney Red Gum)
- Cupaniopsis anacardioides* (Tuckeroo)
- Magnolia grandiflora* ('Little Gem')
- Fraxinus griffithii* (Evergreen Ash)
Fraxinus oxycarpa 'Raywoodi' (Claret Ash)
- Syncarpia glomulifera* (Turpentine)
- Melaleuca* sp. (Paperbacks)
- Angophora floribunda* (Rough-barked apple)

The plan shows the intended tree species to be used in the development. Existing street trees will be assessed on an individual basis to retain if possible. The suitability of the species listed below will also be considered at the detailed design stage and discussed with Council.



Note: All existing street trees will be assessed in light of this plan and retained if appropriate.
Ref - Ryde Public Domain Technical Manual - 5.2



LANDSCAPE DESIGN INTENT STATEMENT

journey beginning

The Central Spine is considered the beginning of the escarpment character, the journey begins at the higher end of the two sites along Constitution Road, and continues through a gradual build up in height around the main path, designed in a more softer medium and delivered through landscaped berms and terraces. An elevated walkway branches from the side of the path leading up to a higher level private communal courtyard, whilst incorporating a new story, the tree-top walk.

These elements are the beginning of a strong landscape character as well as aiding to respond to the sites level changes. They are also instrumental in the movement of water through the site, ensuring adequate depths and overland flow paths are maintained using a mixture of retaining walls, gradual falls and landscape berming, combined with water sensitive urban design features such as bio-retention basins and dry creek beds (designed to channel water in rain periods).

nexus plazas / heritage responses

Where both stages of the development meet at Nancarrow Road, open plaza spaces have been proposed to ensure fluid movement is encouraged and easy. These central plazas are anticipated to house heritage elements significant to the site, such as an 'orange orchard' within stages 8-9 and the reuse of 1950s style fencing from the old Automatic Totalisators Factory situated on 37 Nancarrow Road on Stage 6-7 side. (See images left)

'factory fencing'

The fencing available for reuse is approximately 47m in 12 sections and is anticipated to either be further explored as part of a public art strategy or to appear as a landscape feature within the podium open space area between building 9A-9B.

'orange orchard'

The Orange Orchard is a reflective and soft landscape with bosque of Orange trees within a decomposed granite surface. Seating has been located under the orange trees and the trees themselves extend beyond the limits of the plaza, drawing the outside in and creating a 'leak' of history into the new development.

escarpment

Moving south from Nancarrow Road plazas, the landscape becomes more severe and levels adjacent the path start to rise higher through gabion and sandstone faced walls. Materials become more 'raw' and reflective of both the landscape journey and the existing / past industrial character, whilst still being modern and architectural in form.

rawness and architectural form

sandstone gabion walls being to move in closer to the path providing elevated rest areas and viewing spaces. Corten panels and steel i-beams integrated with both the gabion walls and into handrails on the upper level, provide a unique design element that adds to the character and style of both the architectural and landscape design.

the path continues to crossroad, where the user can travel west up towards Bowden Street over podium or south towards Rothesay Street.
podium building 9A-9B

the podium landscape is designed in the same nature as the escarpment, with a mixture of raw elements and tidier lines, still with a layering of levels and landscape to provide visual interest and zones for passive recreation.

the podium has also been designed to safely carry overland flow from bowden street through the site and into the bioretention basins/

bbq area (public open space)

continuing to rothesay street, south along the cycle way, a WSUD bioretention basin is incorporated into a flexible public open space area. This area provides an undefined area for casual get-togethers or functions as well as a bbq area and seating.

It is surrounded by terraced planters to compensate dramatic level change, but is still lush with planting, providing ample greenery, shade and amenity. The bio-retention basin is accessible down a set of seating steps and contains a boardwalk feature around and over it, making it visually accessible during rain periods and accessible during dry periods.

residents pool

the pool area is simple in design with clean lines and architectural form + materials, whilst still ensuring a relaxing, casual zone with a high-quality 'sub-tropical' feel to it through the choice of plantings (lush hardy flowering species such as bird of paradise and gymea lily). Planting to be arranged in formal rows of minimal species. The pool is anticipated to reflect the architectural character through reconstituted stone, composite timber decking, ornate pool tiles as examples.

LANDSCAPE DESIGN DRIVERS

Performs as formal linear open space in addition to its role as a pedestrian link

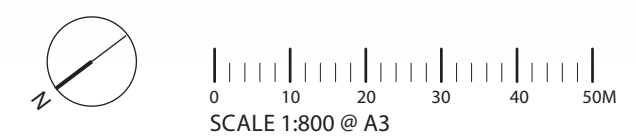
- Incorporates formal avenue tree planting as a way of screening the adjoining existing building
- Includes clear sight lines through the open space to maximise pedestrian safety
- Includes large reflection pond/water body
- The provision of an easy, safe and enjoyable pedestrian connection with peaceful places to stop and relax
- Optimise ecological functionality through planting of endemic species
- Incorporate overland flow paths into water features within the publicly accessible open space
- Combined active and passive recreation spaces
- Provision of contemplative lawns with shade

STAGES 6-7 + 8-9 COMBINED MASTERPLAN

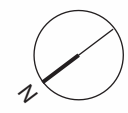
STAGES 6-7 + 8-9 MASTERPLAN



- PLAN KEY**
- 1. The Escarpment: Central Spine
 - 2. Private Common Areas
 - 3. Public Open Space Recreation Area
 - 4. Dry Creek Bed - WSUD
 - 5. Bio-Retention Basins - WSUD
 - 6. Secondary Site Links
 - 7. Building Foyer Entrances
 - 8. Basement Carpark Vehicular Entries
 - 9. Cycle Way Linkages
 - 10. Nancarrow Road Crossing
 - 11. Substation Locations
 - 12. 'Tree-top' Walk (Access to Private)
 - 13. Orange Orchard (Heritage Reflection)
 - 14. Integration of Heritage Fences



STAGE 8-9 MASTERPLAN



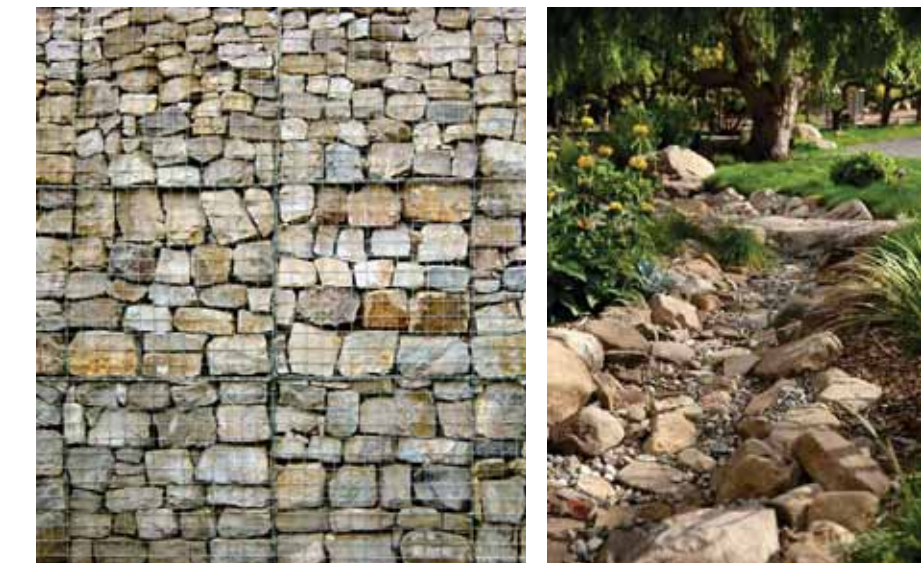
THE ESCARPMENT / CENTRAL SPINE



- bioretention pods as per ryde public domain technical manual
- linkage across nancarrow avenue
- loading bay
- 'Orange Orchard Plaza' Orange orchard reflecting past usage of site with heritage information plaque
- angled sandstone gabion walls with integrated steel I-beam sections and corten panels
- Garbage buggy access route from building 8 to 9A
- large turfed public open space areas
- formal water feature
- terraced planters up to podium level
- 1:20 access paths to podium level
- landscape berms down to path

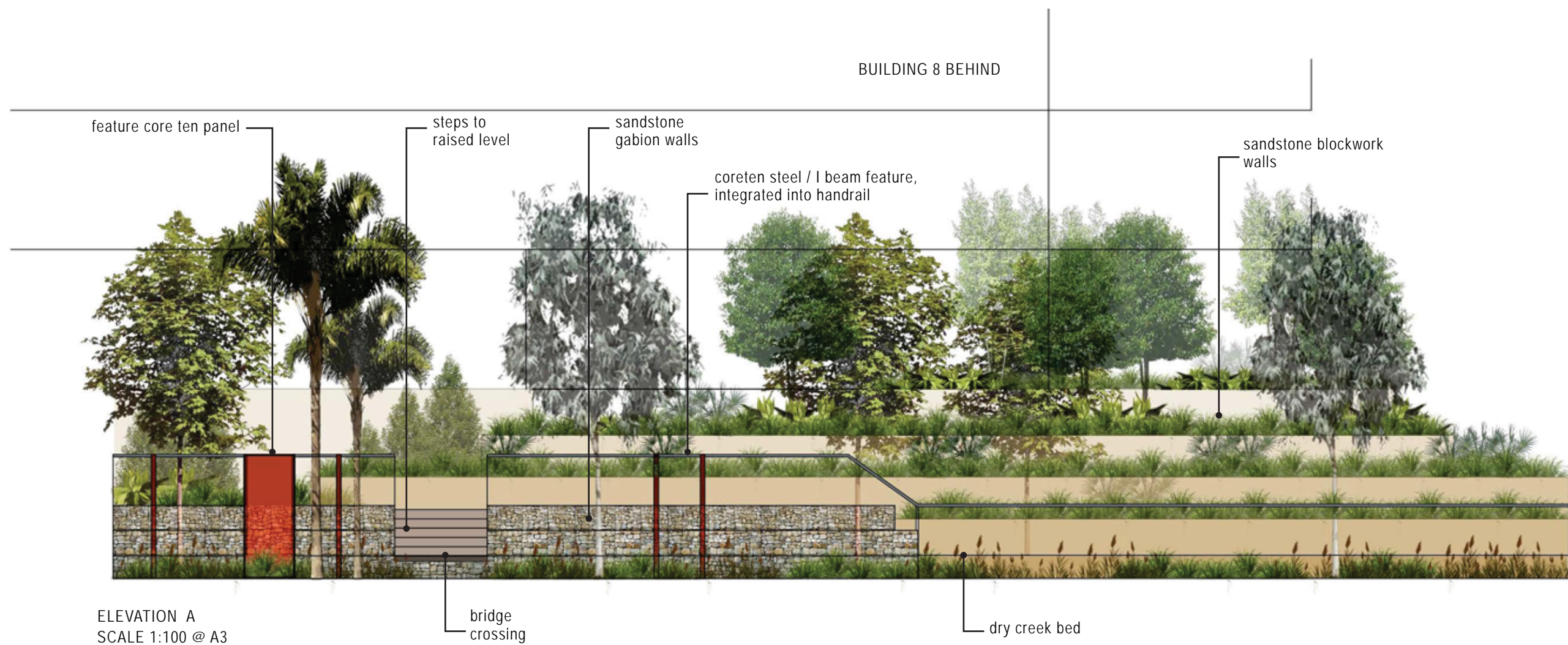
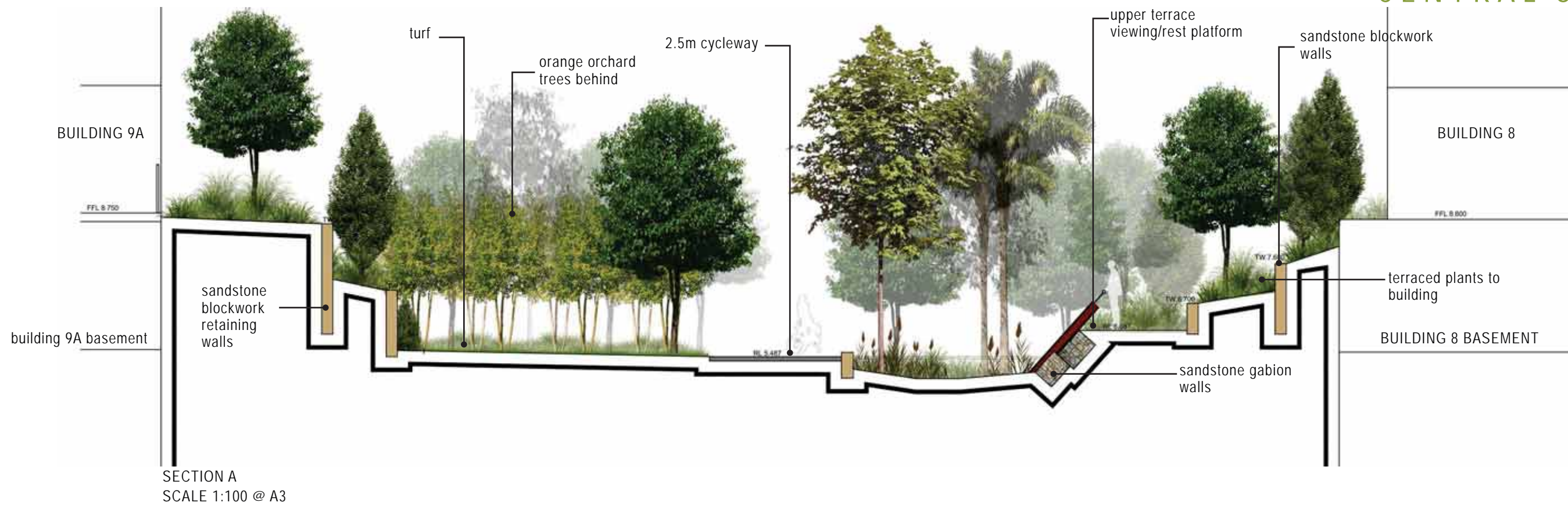


- street trees at typ 8m centres as per ryde public domain technical manual
- carpark entrance to building 8 carpark
- Garbage buggy access route from building 8 to 9A
- small retaining wall to creek bed level to compensate for level change
- linear dry creek bed (WSUD) flowing to bioretention area within public open space area planted with swathes of native grasses
- bridge over dry creek bed to elevated landscape zone
- angled sandstone gabion walls with integrated steel I-beam sections and corten panels, handrail integrated into I-Beam feature
- sandstone blockwork walls
- upper level terraces
- planted terraces up to upper level
- handrail
- timber boardwalk and bridge over dry creek bed to public bbq area
- seating steps to lower turf level
- bio-retention basin RL 4.650
- elevated timber platform
- access path to building 9B



LANDSCAPE PLAN | THE ESCARPMENT: PRIMARY SITE LINK
Scale 1:350 @ A3

THE ESCARPMENT / CENTRAL SPINE



PUBLIC OPEN SPACE/PRIVATE OPEN SPACE BUILDING 8



2.5m wide cycleway through 'the escarpment' linking with stage 6-7

public bbq area / public plaza area (flexible open space)

terraced planters to building level (screening basement)

2.5m wide cycleway

bridge access over bioretention area

bioretention area @ RL4.650 / flexible open space

terraced planters to building level (screening basement)

1200 high semi-transparent pool fence with planting behind

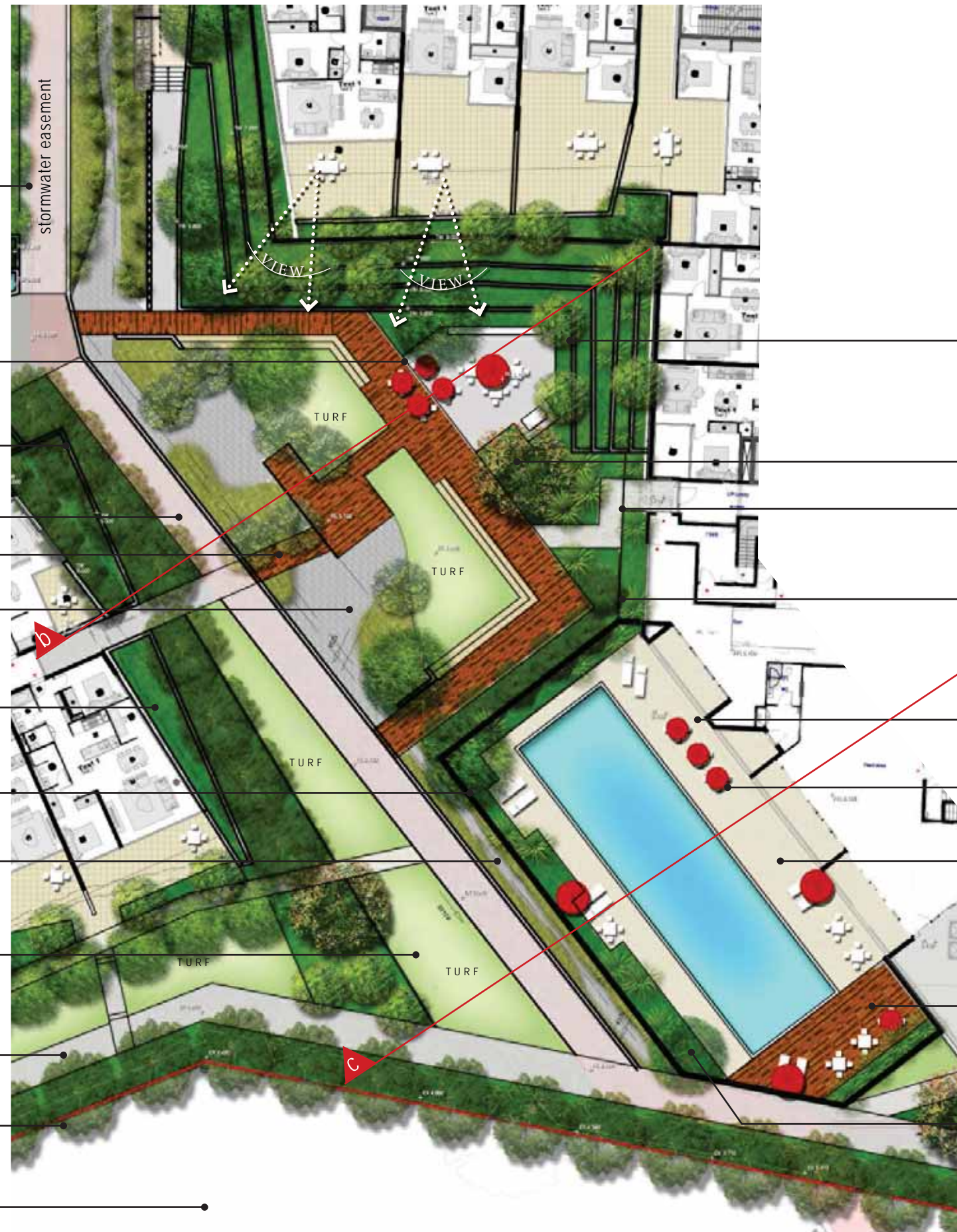
dry-creek bed/grade barrier between public/private

turf areas along edge of paths

fully accessible pedestrian link to building 9B

2.5m wide planting to boundary, low planting with trees to maintain views

perimeter landscaping to tie in with flat landscape on adjacent boundary



bespoke seating bench to public plaza area

feature specimen tree

Building 8 Entrance

transparent fence between public and private, maintaining views for casual surveillance

planting to edge of building

pavers to pool surrounds

gated and fenced access from gymnasium area to pool area

feature timber decking area to edge of pool

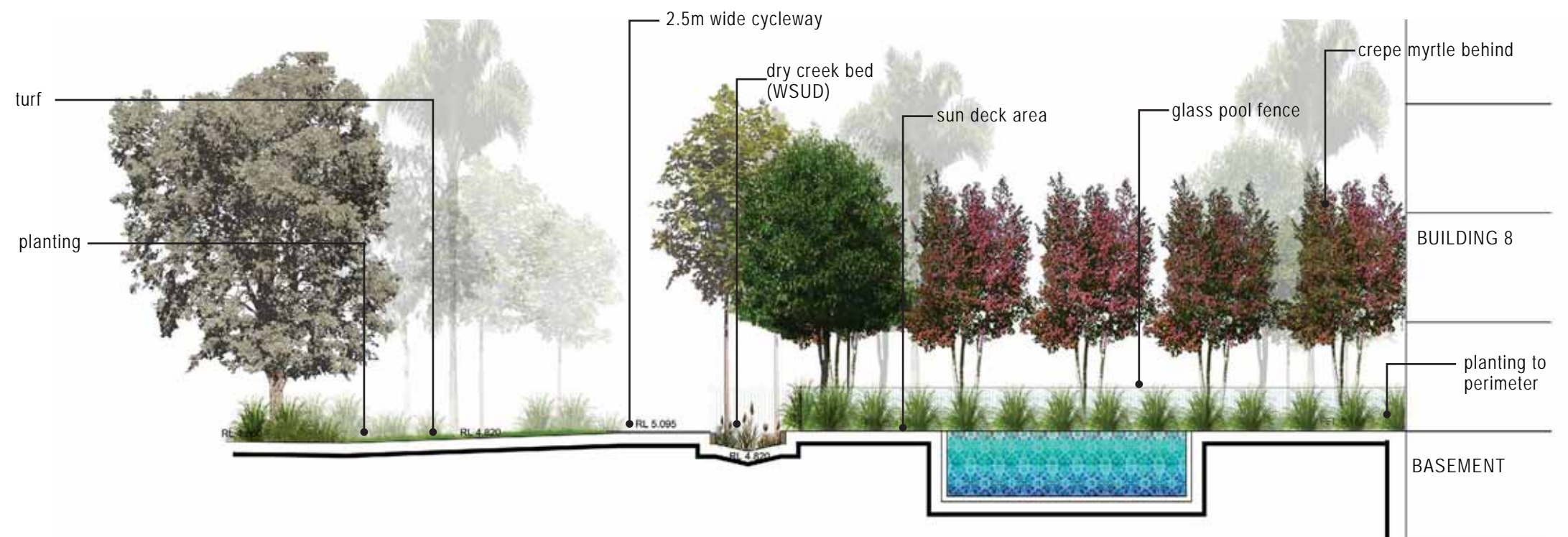
shade trees and landscaping around pool area periphery

LANDSCAPE PLAN | THE ESCARPMENT: PRIMARY SITE LINK
Scale 1:350 @ A3

PUBLIC OPEN SPACE/PRIVATE OPEN SPACE BUILDING 8

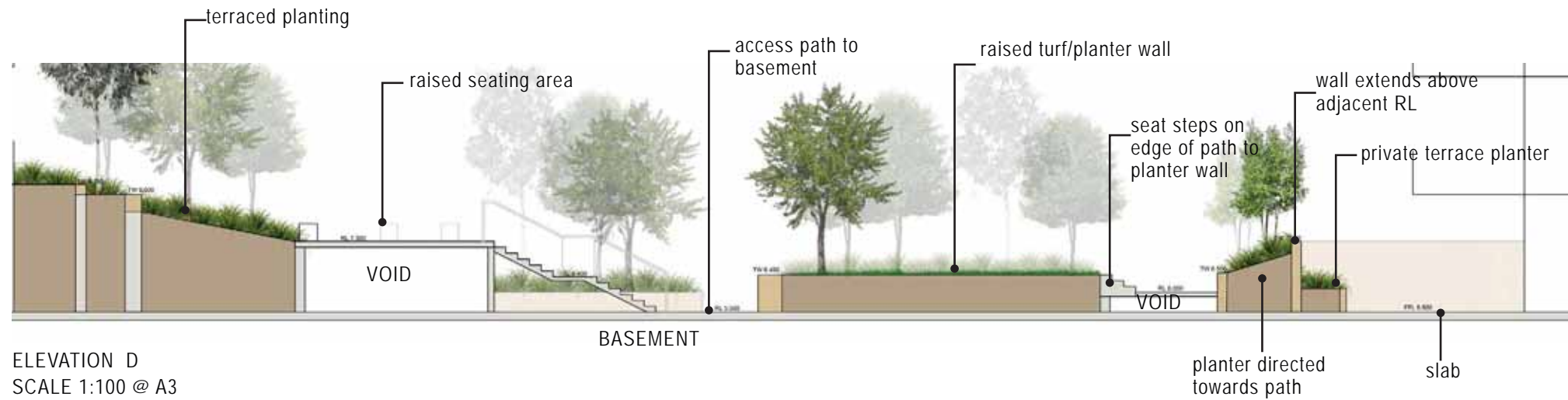


SECTION B
SCALE 1:100 @A3



SECTION C
SCALE 1:100 @ A3

WEST PODIUM LINK BUILDINGS 9A-9B

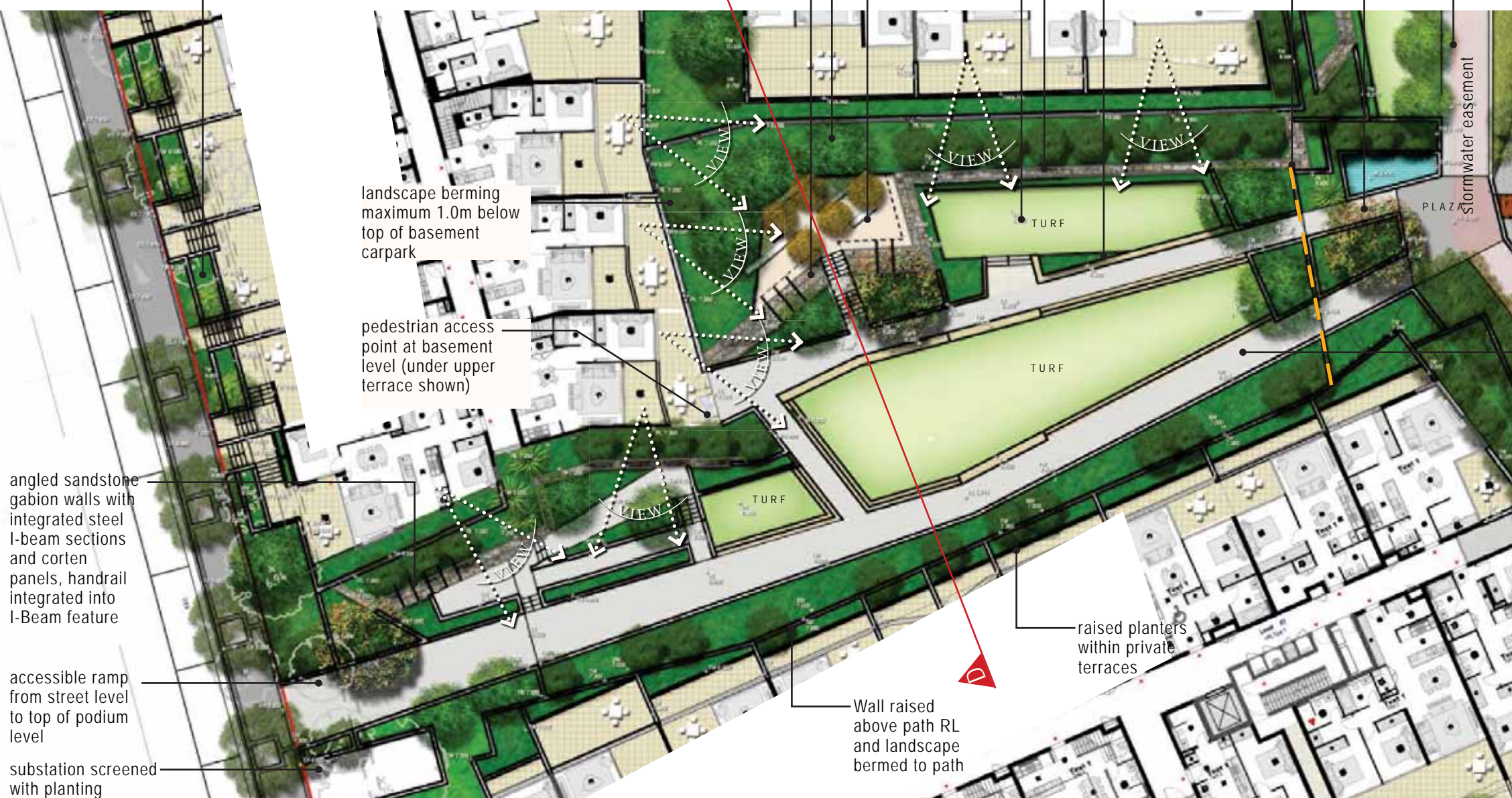


decomposed granite seating 'lookout' at higher level, overlooking public open space area

planters terraced to upper level basement wall

angled sandstone gabion walls with integrated steel I-beam sections and corten panels, handrail integrated into I-Beam feature

terraced planters to street level



angled sandstone gabion walls with integrated steel I-beam sections and corten panels, handrail integrated into I-Beam feature

accessible ramp from street level to top of podium level

substation screened with planting

potential to integrate heritage fences

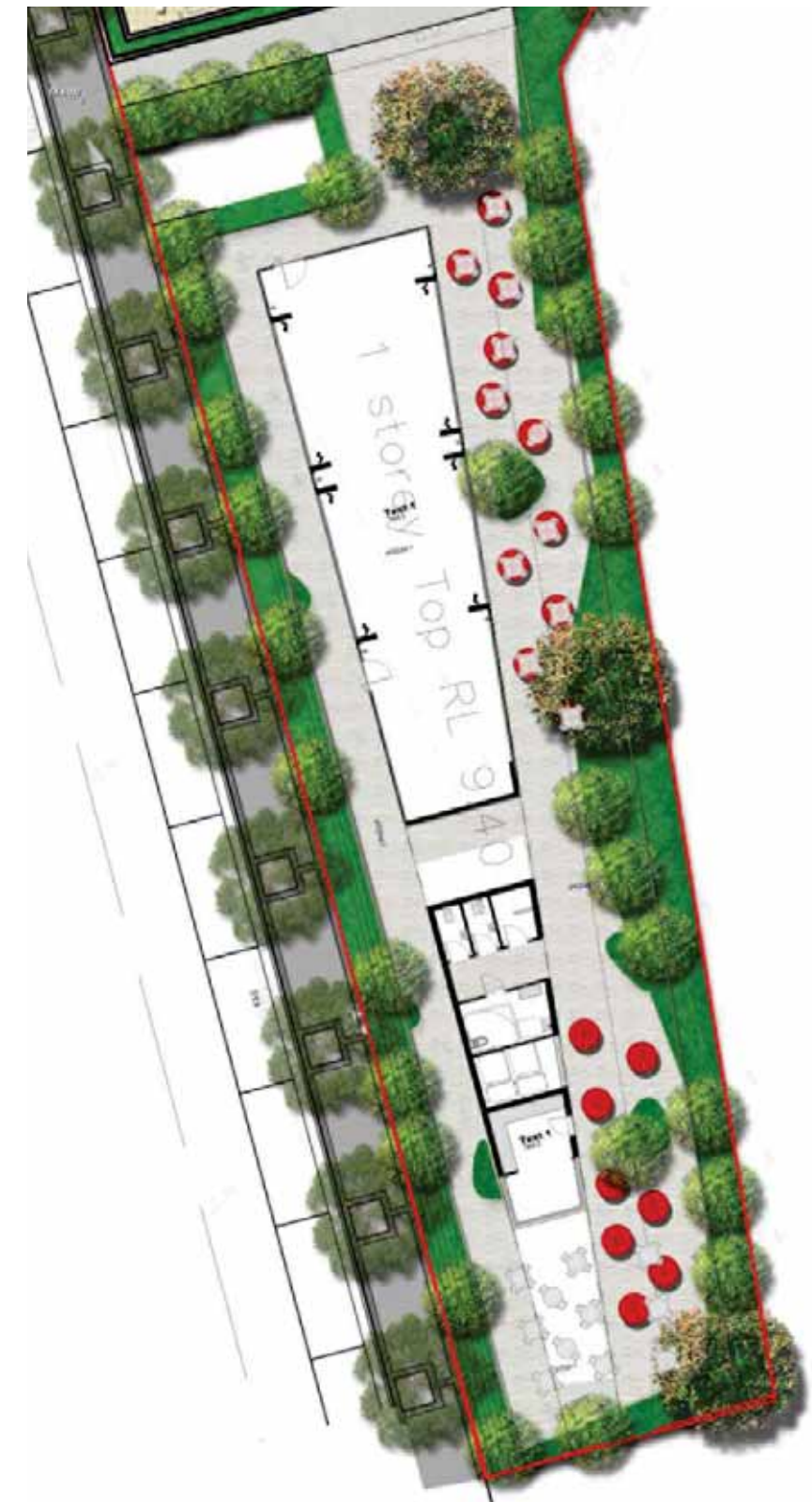
BUILDING 9B FOYER + CAFE



16 joins right



joins left



EAST SITE LINK BUILDING 8 / STAGE 3 + ADJACENT PROPERTY



NANCARROW ROAD FRONTAGE

Streetscape Design Philosophy

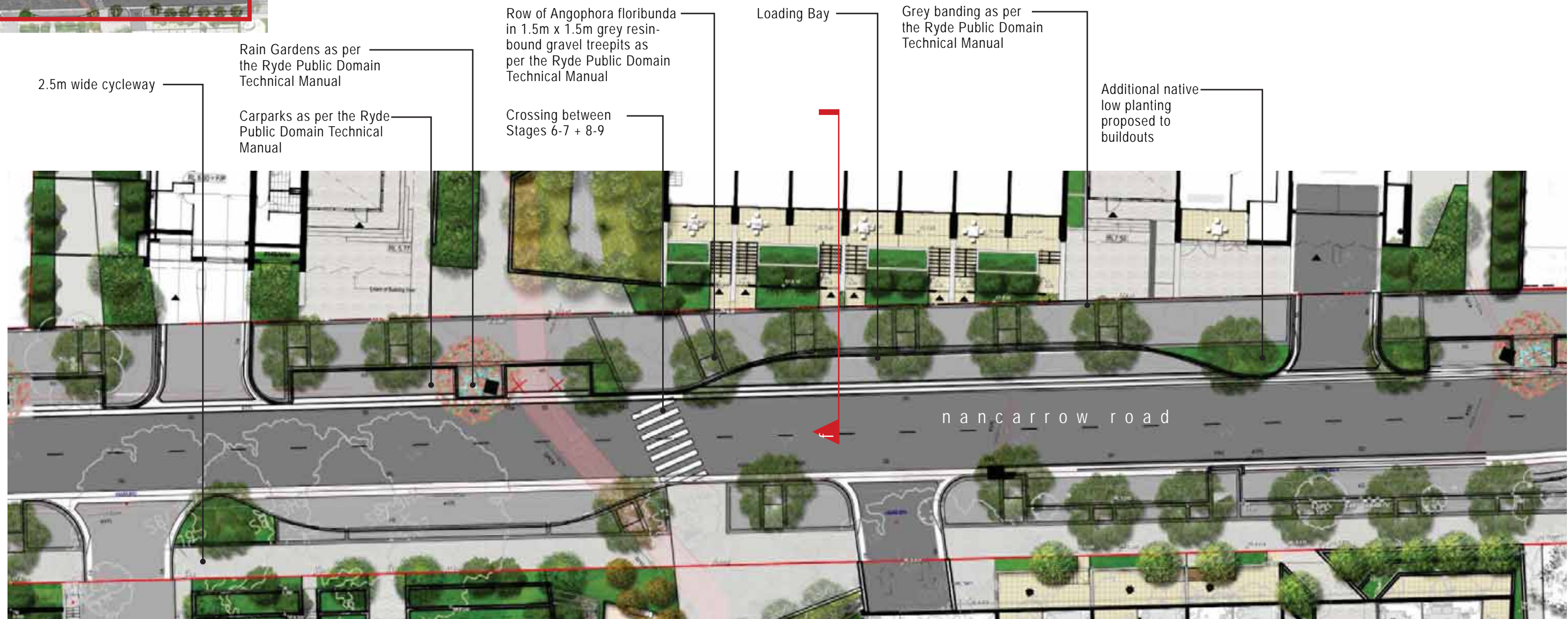
Street trees throughout the site will be reflective of the Meadowbank street tree master plan. The street tree design to the site is intended to enhance strong legible links, providing biodiversity and aesthetic consistency across the site, both in streetscapes and site through links.

The planting will reference the DCP, Council Public Domain Technical Manual and Council guidelines.

Refer to WSUD document for detail on rain gardens. The design of raingardens will be to Ryde city council specifications and in line with Ryde city council maintenance plan.



SECTION F
SCALE 1:50 @ A3



2.5m wide cycleway

Rain Gardens as per the Ryde Public Domain Technical Manual

Carparks as per the Ryde Public Domain Technical Manual

Row of Angophora floribunda in 1.5m x 1.5m grey resin-bound gravel tree pits as per the Ryde Public Domain Technical Manual

Crossing between Stages 6-7 + 8-9

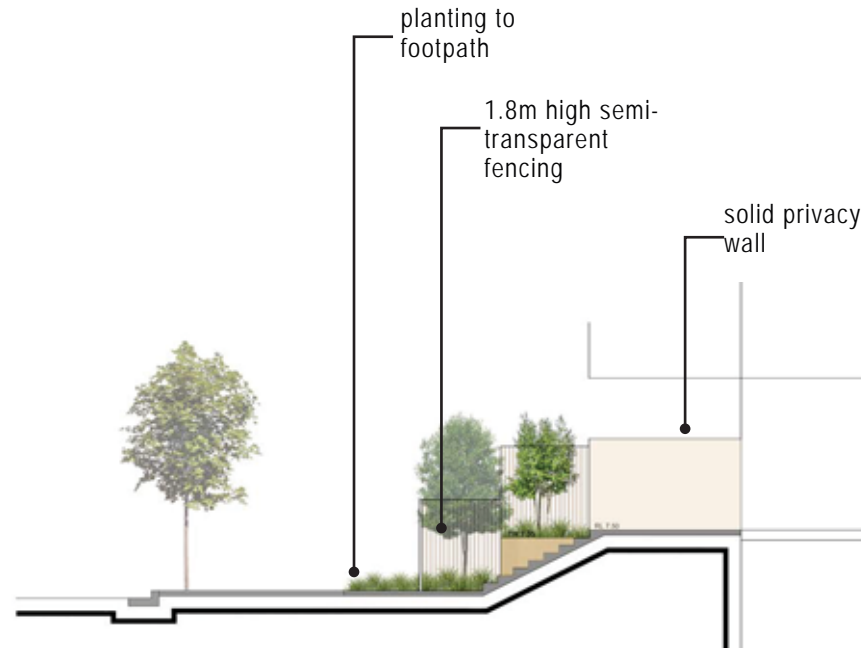
Loading Bay

Grey banding as per the Ryde Public Domain Technical Manual

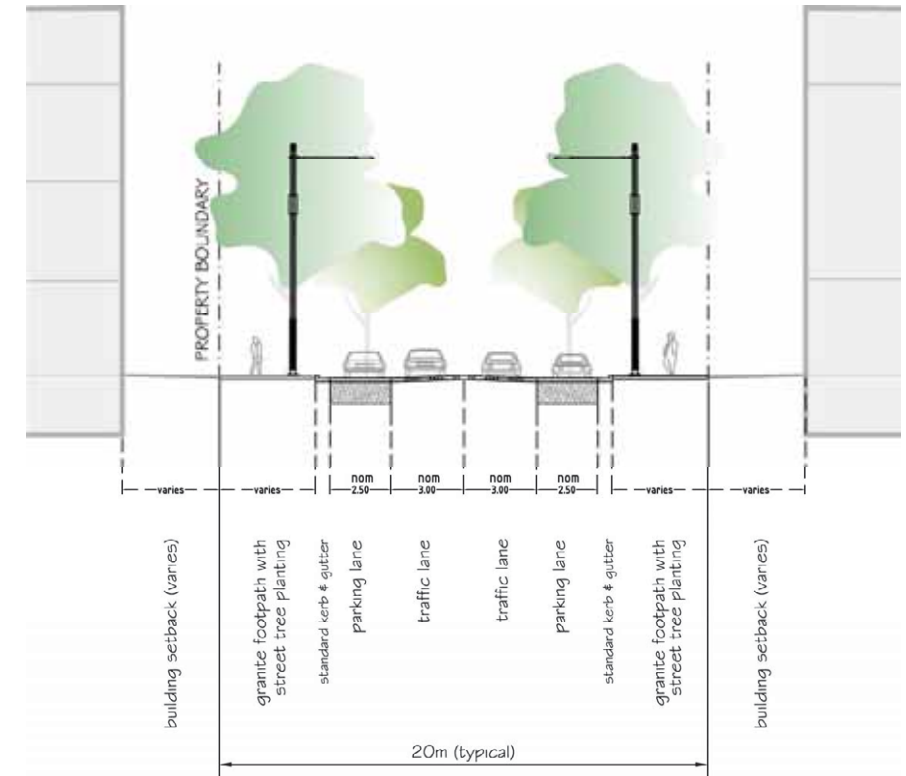
Additional native low planting proposed to buildouts

nancarrow road

STAGE 8-9 STREETSAPES: BOWDEN STREET TYPICAL



Section E
 Typical Private/Streetscape Interface
 Scale 1:100 @ A3



Shepherds Bay - Typical Street Section (All Other Streets) - Bowden Street
 Ryde City Council Guidelines
 Ref - Ryde Public Domain Technical Manual - 5.2



STAGE 6-7 TREE / SOFTSCAPE STRATEGY

 <p>GENERAL TREE MIX (Native + Exotic) (Public Open Space + Residential)</p> <p>Cupaniopsis anacardioides - Tuckeroo Elaeocarpus reticulatus - Blueberry Ash Ficus macrophylla - Moreton Bay Fig Fraxinus griffithii - Evergreen Ash Fraxinus oxycarpa - 'Raywood' Claret Ash Lagerstroemia indica - Crepe Myrtle Lagerstroemia speciosa - Giant Crepe Myrtle Lagerstroemia indica fauriei - Crepe Myrtle Acoma Lophostemon confertus - Brush Box Pistacia chinensis - Chinese Pistache Plantus x Hybrida - Chinese Tallwood Pyrus calleryana 'Chanticleer' - Manchurian Pear Sapium serbiferum - Chinese Tallowood Ulmus parvifolia - Chinese Elm Waterhousia floribunda - Weeping Lily Pily</p>	 <p>PALMS (Public Open Space + Residential)</p> <p>Archontophoenix Cunninghamiana - Bangalow Palm Archontophoenix alexandrae - Alexandra Palm Livistona australis - Cabbage Tree Palm Phoenix canariensis - Canary Palm</p>	<p>NATIVE TREES (Public Open Space + WSUD)</p> <p>Angophora costata - Sydney Red Gum Angophora floribunda - Rough-Barked apple Cupaniopsis anacardioides - Tuckeroo Corymbia Maculata - Spotted Gum Elaeocarpus reticulatus - Blueberry Ash Ficus macrophylla - Moreton Bay Fig Lophostemon confertus - Brush Box Melaleuca species - Paperbarks Syncarpia glomulifera - Turpentine Tristaniopsis laurina - Water Gum Waterhousia floribunda - Weeping Lily Pily</p>	 <p>FEATURE TREES (Public Open Space)</p> <p>Ficus macrophylla = Moreton Bay Fig Magnolia grandiflora 'Little Gem' - Magnolia</p> <p>STREET TREES (Locations as indicated on plans)</p> <p>Angophora costata - Sydney Red Gum Magnolia grandiflora - 'Little Gem' Fraxinus griffithii - Evergreen Ash Fraxinus oxycarpa - 'Raywood' Claret Ash Syncarpia glomulifera - Turpentine Angophora floribunda - Rough-Barked apple</p> <p>HERITAGE TREES</p> <p>Citrus x sinensis - Orange Tree</p>	 <p>TURF</p> <p>GENERAL PLANTING MIX Exotic + Native (see indicate planting schedule)</p> <p>WSUD PLANTING MIX Native Species Only (see indicative planting schedule)</p> <p>RETAINED TREES See arborist report</p>
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STAGE 6-7 PLANTING STRATEGY

The Planting palette to be used throughout the site has been selected for it's suitability to fulfill the following criteria:

- Enhance the local character of Meadowbank
- Create a new defined precinct
- Remain in line with the City of Ryde's environmental policies
- Soften and visually reduce bulk/scale of built forms
- Provide buffering/screening to residential areas
- Contribute to habitats of the local fauna
- Minimise potable water use in the landscape

A wide selection of trees, both native and exotic, have been selected for the sites streetscapes and landscaped areas. Where possible local natives will be used to remain consistent with the vegetation communities found within the City of Ryde. Specific areas will see exotic species used for accent planting and foliage interest

Shrubs have been chosen not only for their aesthetic attributes but also functionality in terms of providing buffering and screening to residential precincts. Lush foliage and dense growing habits have been favoured.

Grasses and groundcovers have been selected from a predominantly native palette and will be aimed at softening edges and large areas of hardscape.



STAGE 6-7 INDICATIVE PLANTING SCHEDULE

Streetscape Trees

Botanical Name	Common Name	Height + Spread (h x w)	Container Size	plants per m2
Angophora costata	Sydney Red Gum	20.0m x 8.0m	75L	As Shown
Magnolia grandiflora	'Little Gem'	4.0m x 3.0m	75L	As Shown
Fraxinus griffithii	Evergreen Ash	6.0m x 4.0m	75L	As Shown
Fraxinus oxycarpa	'Raywood' Claret Ash	12.0m x 12.0m	75L	As Shown
Syncarpia glomulifera	Turpentine	20.0m x 8.0m	75L	As Shown
Angophora floribunda	Rough-Barked apple	20.0m x 8.0m	75L	As Shown

General Planting

Botanical Name	Common Name	Height + Spread (h x w)	Container Size	plants per m2
TREES				
EVERGREEN				
Angophora costata	Smooth Barked Apple	20.0m x 8.0m	75L	As Shown
Corymbia maculata	Spotted Gum	30.0m x 15.0m	75L	As Shown
Cupaniopsis anacardioides	Tuckeroo	8.0m x 8.0m	75L	As Shown
Elaeocarpus reticulatus	Blueberry Ash	10.0 x 7.0m	75L	As Shown
Ficus macrophylla	Moreton Bay Fig	30.0m x 20.0m	75L	As Shown
Fraxinus ornus	Meczek	20.0m x 10.0m	75L	As Shown
Lophostemon confertus	Brush Box	10.0m x 12.0m	75L	As Shown
Tristania laurina 'Luscious'	Water Gum	12.0m x 8.0m	75L	As Shown
Waterhousia floribunda	Weeping Lily Pilly	12.0m x 8.0m	75L	As Shown
PALMS				
Archontophoenix cunninghamiana	Bangalow Palm	25.0m x 3.0m	200L	As Shown
Archontophoenix alexandrae	Alexandra Palm	30.0m x 2.0m	200L	As Shown
Livistona australis	Cabbage Tree Palm	25.0m x 3.0m	400L	As Shown
Phoenix canariensis	Canary Palm	18.0m x 8.0m	400L	As Shown
DECIDUOUS				
Acer platanoides	Designer Maple 'Globosum'		200L	As Shown
Acer palmatrum	Osakazuki		200L	As Shown
Lagerstroemia indica 'Lipan'	Crepe Myrtle	4.0m x 3.0m	200L	As Shown
Lagerstroemia speciosa	Giant Crepe Myrtle	3.0m x 3.0m	200L	As Shown
Lagerstroemia indica fauriei	Acoma	8.0m x 6.0m	400L	As Shown
Pistacia chinensis	Chinese Pistache	10.0m x 4.0m	75L	As Shown
Plantax Hybrida	Plane Tree	20.0m x 9.0m	75L	As Shown
Pyrus calleryana 'Chanticleer'	Manchurian Pear	11.0m x 6.0m	75L	As Shown
Sapium sebiferum	Chinese Tallowood	8.0m x 4.0m	75L	As Shown
Ulmus parvifolia	Chinese Elm	14.0m x 10.0m	75L	As Shown
FEATURE TREES				
Citrus x sinensis	Orange	9.0m x 6.0m	400L	As Shown
Ficus macrophylla	Moreton Bay Fig	35.0 x 25.0m	400L	As Shown
Magnolia grandiflora 'Little Gem'	Magnolia	4.0m x 3.0m	400L	As Shown
SHRUBS + ACCENT				
Acacia parramattensis	Sydney Green Wattle	4.0m x 3.0m	25L	As Shown
Acacia falcata	Sickle-shaped Acacia	4.0m x 1.5m	25L	As Shown
Banksia serrata	Dwarf Bottlebrush	2.0m x 2.0m	5L	4/m2
Cordyline australis	Sunrise	3.0m x 1.0m	25L	As Shown
Cordyline sp.	Cordyline	3.0m x 1.0m	25L	As Shown
Dodonaea triquetra	Hop Bush	3.0m x 2.0m	300mm	4/m2
Dodonaea viscosa 'Purpurea'	Hop Bush	3.0m x 1.5m	300mm	4/m2
Doryanthes excelsa	Gynea Lily	1.5m x 1.5m	25L	1/m2
Gardenia augusta 'Florida'	Gardenia	1.2m x 1.0m	25L	4/m2
Kunzea ambigua	Tick Bush	5.0m x 5.0m	300mm	As Shown
Murraya paniculata	Orange Jessamine	3.0m x 3.0m	25L	As Shown
Philodendron 'Xanadu'	Xanadu	1.5m x 1.5m	200mm	5/m2
Strelitzia reginae	Bird of Paradise	1.5m x 1.0m	300mm	3/m2
Syzygium sp.	Lilly Pilly	Varies	25L	2/m2
Viburnum odoratissimum	Sweet viburnum	4.0m x 4.0m	25L	1/m2
Westringia fruticosa 'Zena'	Costal Rosemary	1.0m x 1.3m	300mm	4/m2

Botanical Name	Common Name	Height + Spread (h x w)	Container Size	plants per m2
GROUNDCOVERS / GRASSES				
Altenanthera dentata	Blood Leaf Irisene	40mm x 90mm	200mm	5/m2
Dichondra repens	Kidney Weed	150mm x 500mm	200mm	3/m2
Dianella 'Breeze'	Paroo Lily	300mm x 300mm	200mm	4/m2
Dianella 'Little Jess'	Paroo Lily	400mm x 600mm	140mm	4/m2
Dianella 'Silver Streak'	Paroo Lily	500mm x 400mm	140mm	4/m2
Gazania hybrida	Gazania Double Gold	300mm x 300mm	200mm	5/m2
Hardenbergia 'Purple Spray'	Native Violet	1.5m x 2.0m	200mm	2/m2
Hibbertia scandens	Snake Vine	3.0m x 3.0m	200mm	2/m2
Isolepis nodosa	Club Rush	500mm x 300mm	140mm	4/m2
Juncus usitatus	Common Rush	500mm x 300mm	140mm	4/m2
Liriope 'El Marco'	Turf Lily	150mm x 400mm	140mm	4/m2
Lomandra hystrix	Mat Rush	0.6m x 1.0m	140mm	4/m2
Lomandra longifolia 'Tanika'	Mat Rush	600mm x 650mm	200mm	4/m2
Poa labillardieri 'Eskdale'	Tussock Grass	800mm x 400mm	200mm	4/m2
Scaevola aemula	Fairy Fan-flower	0.2m x 1.5m	200mm	4/m2
Trachelospermum jasminoides	Star Jasmine	0.4m x 1.5m	200mm	4/m2

WSUD (Dry Creek Bed + Bio-retention)

Botanical Name	Common Name	Height + Spread (h x w)	Container Size	plants per m2
TREES / PALMS				
Ficus macrophylla	Moreton Bay Fig	30.0m x 20.0m	75L	As Shown
Corymbia maculata	Spotted Gum	30.0m x 15.0m	75L	As Shown
Lophostemon confertus	Brush Box	10.0m x 12.0m	75L	As Shown
Tristania laurina 'Luscious'	Water Gum	12.0m x 8.0m	75L	As Shown
Livistona australis	Cabbage Tree Palm	25.0m x 3.0m	400L	As Shown
Waterhousia floribunda	Weeping Lily Pilly	12.0m x 8.0m	75L	As Shown
GROUNDCOVERS / GRASSES				
Dianella 'Breeze'	Paroo Lily	300mm x 300mm	200mm	4/m2
Dianella 'Little Jess'	Paroo Lily	400mm x 600mm	140mm	4/m2
Dianella 'Silver Streak'	Paroo Lily	500mm x 400mm	140mm	4/m2
Isolepis nodosa	Club Rush	500mm x 300mm	140mm	4/m2
Juncus usitatus	Common Rush	500mm x 300mm	140mm	4/m2
Liriope 'El Marco'	Turf Lily	150mm x 400mm	140mm	4/m2
Lomandra hystrix	Mat Rush	0.6m x 1.0m	140mm	4/m2
Lomandra longifolia 'Tanika'	Mat Rush	600mm x 650mm	200mm	4/m2

Note: The term 'as shown' denotes need to place individual plant species for desired landscape outcomes

STAGE 8-9 STREETSCAPE STRATEGY

NOTE: STREETSCAPES WILL BE DESIGNED EXACTLY IN ACCORDANCE WITH THE RYDE CITY COUNCIL PUBLIC DOMAIN MANUAL

Design Intent

The Shepherds Bay Streetscape Character and Tree Species will reflect the character of the site whilst accommodating for the requirements of Council. The functional needs of pedestrians, cyclists and vehicular movements will also be paramount in the design of vehicular carriage ways.

The streetscape character will generally reinforce and enhance the road hierarchy to create subtle but distinctive streetscape precincts. The formal planting of mid to large size trees on Primary Local Roads (Dependant on Council approval) and the introduction of smaller native species on Secondary Local Roads will occur. A combination of both native and hybrid indigenous trees must dominate the selection of street trees to the internal roads.

Streets are to be designed to provide an appropriate level of on street parking with priority given to pedestrians and cyclists to provide a pleasant environment to promote walking and social activity.

Some key points are listed below;

Aspect and Views

- Strong visual associations with existing vegetation communities both native and cultural.
- Use of Landmark species to clearly identify entry points into the development.
- Strong emphasis to avenue planting with spacings of trees to enable canopies to touch when trees are mature.

Accessibility

- Continuity of streetscape character and connectivity to local and recreational paths linking the entire site.

Materials:

- Pathways will predominantly be robust contemporary materials such as exposed aggregate concrete. All driveway cross overs are to be of the same material in order to ensure visual continuity.

Plantings:

- Maximise landscaping in all streets while tailoring species selection to that of the local and site context.
- Preservation of plantings of culturally significant species to enhance the historic 'sense of place'
- Canopy trees to provide shade and visual amenity.
- Low shrub and groundcover planting using a mix of low maintenance plant species

Safety:

- All street trees will be carefully selected so that the pedestrian sight lines are well maintained.
- Street lighting and feature lighting will also be carefully designed to meet the safety criteria for pedestrian/cycle and car links.

Indicative Materials + Elements

BOWDEN STREET

- Carriageway Thresholds
100 x 100 x 60mm Australian Porphyry Stone
- Tree Pits
1500mm x 1500mm resin bound gravel (grey colour)
- Banding
300 x 300 x 60mm Grey Granite Banding
- Paving
600 x 300 x 60mm Grey Granite Paving and
300 x 300 x 60mm Grey Granite Paving
- Lighting
Smart Poles at 9.6m spacings (between trees)
- Trees
8m Spacings
- Tree Species
Fraxinus griffithii (evergreen ash)
Fraxinus griffithii oxycarpa (Raywoodi) Claret Ash

NANCARROW ROAD

- Carriageway Thresholds
100 x 100 x 60mm Australian Porphyry Stone
- Tree Pits
1500mm x 1500mm resin bound gravel (grey colour)
- Banding
300 x 300 x 60mm Grey Granite Banding
- Paving
600 x 300 x 60mm Grey Granite Paving and
300 x 300 x 60mm Grey Granite Paving
- Lighting
Smart Poles at 9.6m spacings (between trees)
- Rain Gardens
To council specifications
- Trees
8m Spacings
- Tree Species
Northern Verge (6-7 Frontage) Angophora floribunda (Rough-barked Apple)
Southern Verge (8-9 Frontage) Magnolia grandiflora ('Little Gem')

Indicative Tree Palette + Planting Character



Nancarrow Road
Northern Verge (6-7 Frontage)
Angophora floribunda (Rough-barked Apple)

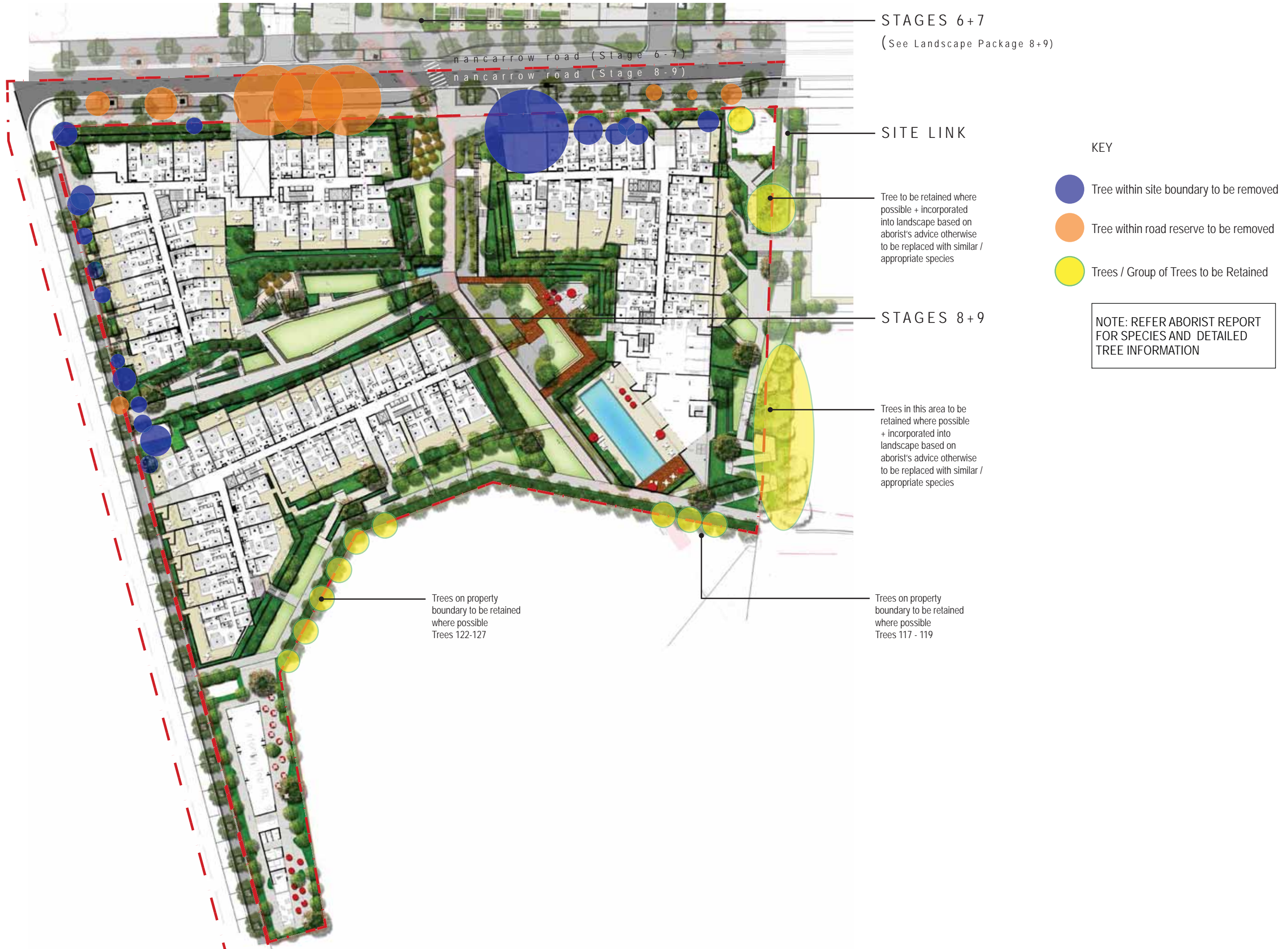


Nancarrow Road
Southern Verge (8-9 Frontage)
Magnolia grandiflora ('Little Gem')



Indicative character where additional planting is proposed

STAGE 8-9 TREE RETENTION / REMOVAL STRATEGY



STAGE 8-9 LANDSCAPE MATERIALITY

Indicative Materials Palette: Streetscape

Selected images from Ryde Public Domain Technical Manual + Place Design Group



Indicative Materials Palette: Site



STAGE 8-9 MATERIALS STRATEGY

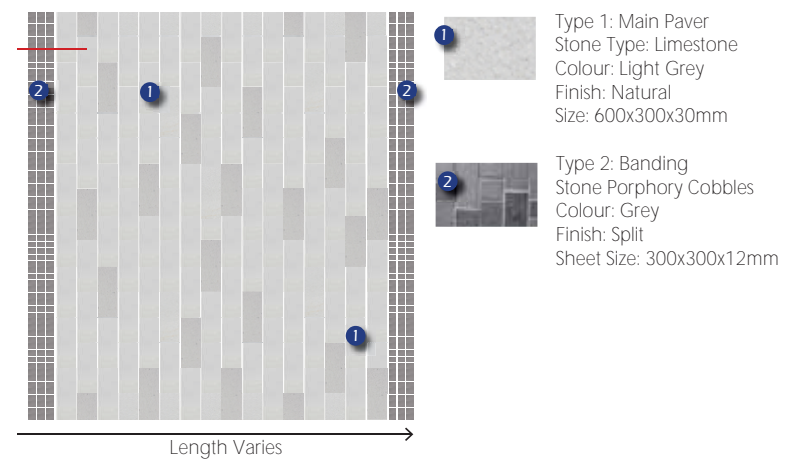


Indicative Pavement Schedule

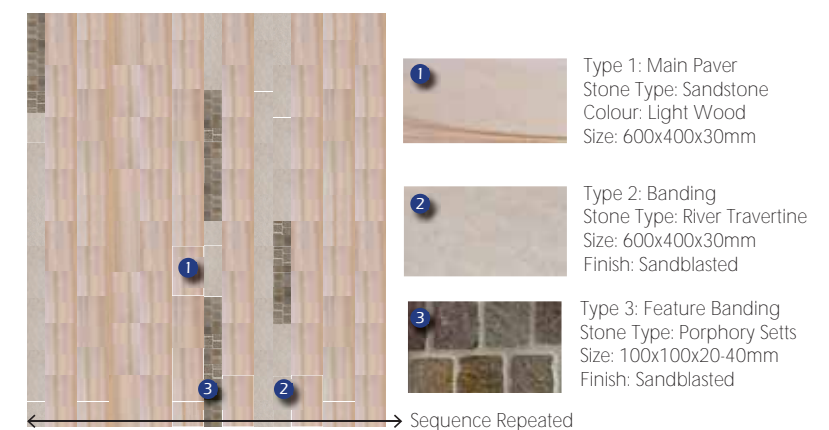
- P1 - Standard concrete to shared 2.5m wide cycleway (as per Ryde Public Domain Plan) + general pedestrian paths
- P2 - Precast high quality concrete/limestone pavers with sandstone porphyry banding and header course
- P3 - Decomposed Granite (not used in this stage)
- P4 - Mixed colour sandstone paving to private courtyards 600x300x60mm
- P5 - Limestone (High Quality) Pool Area (not used in this stage)
- P6 - Reconstituted timber deck
- P7 - Streetscape: Grey granite / limestone pavers 600x300x60 + 300x300x60mm (Ryde PDTM)
- P8 - Streetscape: Australian porphyry stone on threshold 100x100x60mm (Ryde PDTM)
- P9 - Resin bound gravel to base of trees (as per Ryde Public Domain Plan)

Indicative Walling Schedule

- W1 - Sandstone clad walls (height varies) generally used for retaining walls + planters
- W2 - Insitu/ Precast white concrete wall (generally used as seating steps to turf planters)
- W3 - Sandstone Gabion Walls (not used in this stage)




Example of P2 pavement treatment: Precast high quality concrete/limestone




Example of P4 pavement treatment: Mixed colour sandstone paving to private


STAGE 8-9 LIGHTING STRATEGY



- 
Pedestrian & Vehicular Lighting
Street lighting
 Mounted on 9.6m multifunction poles to Council approval. Finish on poles to match existing poles in Belmore Street. Poles to be provided with 1.5m banner arm, Rexel Optispan Aeroscreen luminaires complete with low loss ballasts and PE cells, and metal halide lamps.







- 
Pedestrian/park lighting
 For areas such as shared bikeway/pedestrian pathways and plazas. Mounted on 4.8 m Smartpoles™ or approved equivalent. BEGA-8081 luminaires and metal halide lamps.

- 
Solar lighting for parks (* Courtyards)
 Supplier: Solar G
 Pole: galvanised utility pole
 Light fittings: "Streetwalker" on 1metre outreach arm
 Lamps: 2x 14W fluorescent (T5 fluorescent technology, 96 lumens per watt).
 Note: Due to the lack of sunlight in some areas we will propose a different fitting/light pole

- 
Feature columnar Lighting
 Supplier: Bega
 Light structure: 2.5 high aluminium linear element with white acrylic diffuser. IP65
 Lamps: 151.2W LED

NOTE: Diagram is a strategy only, and is dependant on future detail design for specific information on products and locations

STAGE 8-9 FURNITURE STRATEGY

-  **Bins (Bin 1)**
Council's standard double bin.
-  **Bollards (Bollard 4)**
1300mm high x 150mm dia
1.6mm thick 316 stainless steel
Core drilled to depth of 400mm.
Colorfen Constructions
Ph (02) 9545 4284
-  **Seating**
Bespoke seating elements (concrete benches)
-  Urban Seat 11 (aluminium)
Botton and Gardiner urban furniture
ph (02) 9667 8100
-  **Bicycle Racks**
Environ Bike Racks ENV09
Urban Art Projects
-  **Heritage Fencing**
(Resued from site)

Ref: City of Ryde Public Domain R+Technical Manual - 5.2

NOTE: Diagram is a strategy only, and is dependant on future detail design for specific information on products and locations



STAGE 8-9 ROOFTOP GARDEN STRATEGY



BENEFITS OF RELOCATABLE ROOFTOP PLANTERS

- containers are movable
- no set down
- suitable weight bearing structure not needed



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SHEPHERDS BAY - BUILDINGS 8 & 9
 Corner Bowden St & Macquarie Ave, Macquarie NSW 2114
 DA-113_080

GA Plan (Building 9) - Level 08 Roof Plan

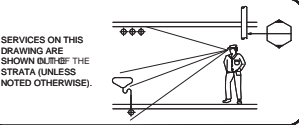
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appendices

APPENDIX A performance specifications

APPENDIX B
detailed landscape grading plan (preliminary)



HARRIS PAGE & ASSOCIATES

SHEPHERDS BAY

STAGES 8 & 9

STORMWATER CONCEPT DESIGN

STORMWATER SERVICES LEGEND

GENERAL NOTES

- DRAWINGS ARE DIAGRAMMATIC ONLY AND HAVE BEEN PREPARED FOR THE PURPOSE OF INDICATING THE DESIGN INTENT AND SCOPE OF WORKS OF THE HYDRAULIC SERVICES.
- IT IS THE RESPONSIBILITY OF THE BUILDER AND/OR PLUMBING SUBCONTRACTOR TO INVESTIGATE AND COORDINATE BEFORE AND DURING THE CONSTRUCTION PHASE ALL EXISTING SERVICES WHICH WILL EFFECT THE INSTALLATION OF THESE SERVICES.
- HYDRAULIC DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE HYDRAULIC SERVICES SPECIFICATION AND WITH RELEVANT ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.
- ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT CODES AND AUSTRALIAN STANDARDS.
- POSITION AND LEVELS OF AUTHORITIES MAINS AND/OR EXISTING SERVICES ARE INDICATIVE ONLY AND ARE TO BE CHECKED PRIOR TO COMMENCING ANY WORK.
- DO NOT SCALE FROM THIS DRAWING, REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSION SETOUT.

ABBREVIATIONS

A/B	ABOVE	MM	MILLIMETERS
@	AT	N.T.S	NOT TO SCALE
BDO	BALCONY DRAINAGE OUTLET	O/F	OVER FLOW
CIS	CAST IN SLAB	%	PERCENTAGE
CO	CLEAROUT	PDO	PLANTER DRAIN OUTLET
CONT	CONTINUATION	RL	REDUCED LEVEL
D	DEPTH	RWR	RAINWATER RE-USE
DIA	DIAMETER	RWO	RAINWATER OUTLET
DP	DOWNPIPE	RV	REFLUX VALVE
e	EXISTING	SRM	SEWER RISING MAIN
HL	HIGH LEVEL	SS	SUB SOIL DRAINAGE
IL	INVERT LEVEL	S/STEEL	STAINLESS STEEL
KIP	KERB INLET PIT	SSRM SUB	SOIL RISING MAIN
L	LITRE	STW	STORMWATER
L/L	LOW LEVEL	SV	STOP VALVE
L/s	LITRES PER SECOND	SWP	STORMWATER PIT
m	METRES	SWRM	STORMWATER RISING MAIN
MAX	MAXIMUM	US	UNDERSIDE
MIN	MINIMUM	UV	ULTRA-VIOLET

DRAWING SCHEDULE

DWG No.	Scale	Drawing Title
SW-00	NTS	STORMWATER SERVICES COVER SHEET AND LEGEND
SW-01	1:500	STORMWATER SERVICES SEDIMENT & EROSION CONTROL PLAN
SW-02	1:250	STORMWATER SERVICES BASEMENT LEVEL 5
SW-03	1:250	STORMWATER SERVICES BASEMENT LEVEL 4
SW-04	1:250	STORMWATER SERVICES BASEMENT LEVEL 3
SW-05	1:250	STORMWATER SERVICES BASEMENT LEVEL 2
SW-06	1:250	STORMWATER SERVICES BASEMENT LEVEL 1

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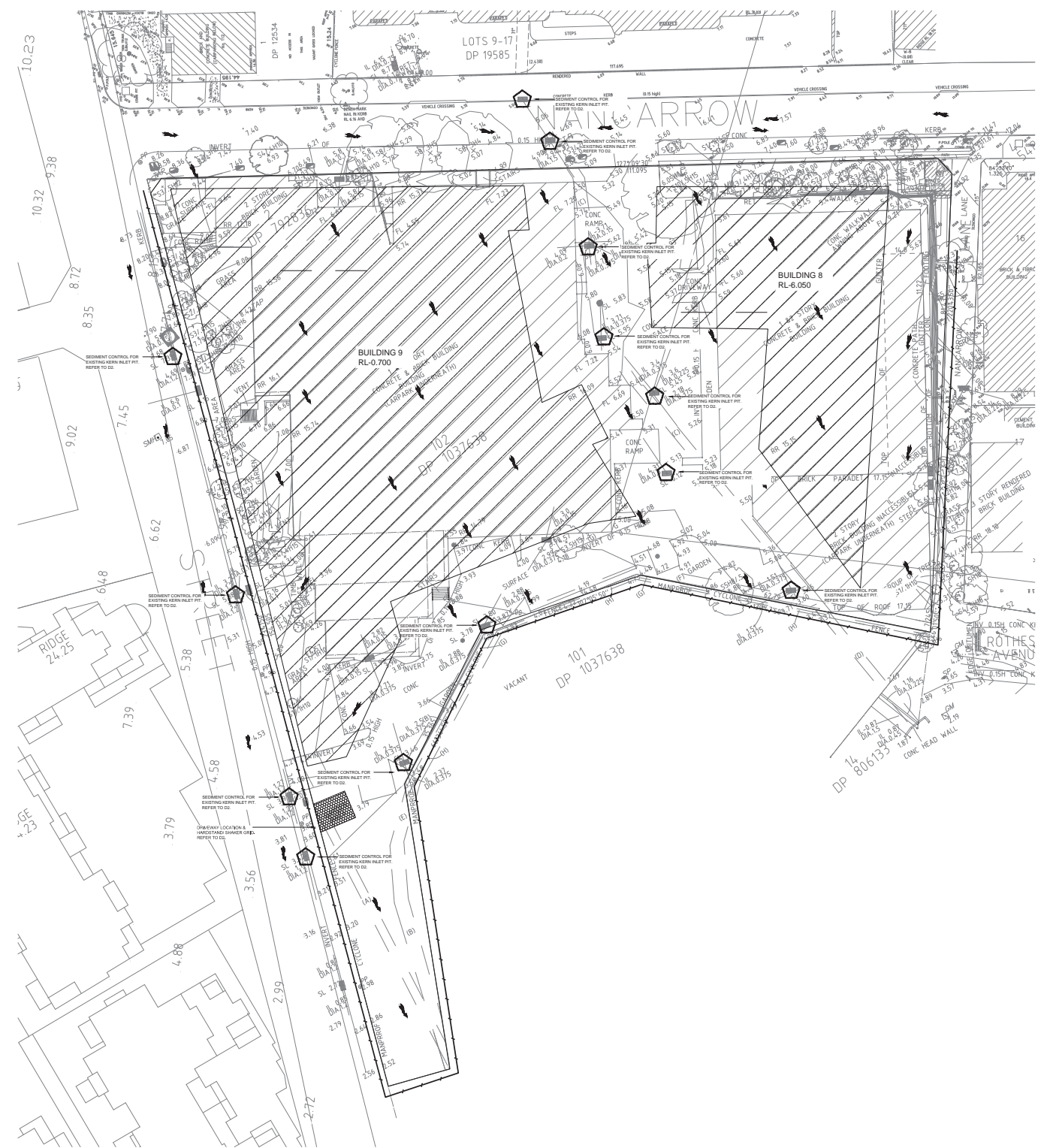
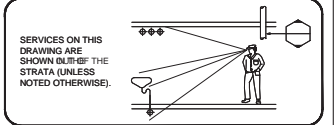
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PROJECT
SHEPHERDS BAY
STAGE 8 & 9

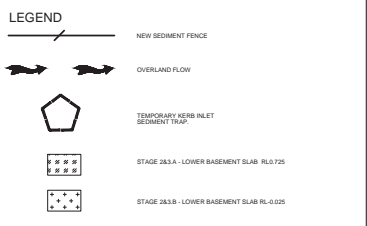
DRAWING TITLE
STORMWATER SERVICES
COVER SHEET, LEGEND
& NOTES

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- EROSION & SEDIMENT CONTROL**
1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL AND ENGINEERING PLANS AND ANY OTHER PLANS OR WRITTEN INSTRUCTIONS THAT MAY BE ISSUED.
 2. THE CONTRACTOR SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED AS SHOWN ON THIS DRAWING.
 3. PROTECT ALL NEW FITS FROM SEDIMENT INFILTRATION PROGRESSIVELY, AS THEY ARE CONSTRUCTED.
 4. ALL DOWNSTREAM STORMWATER FITS ARE TO BE PROTECTED FROM SEDIMENT INFILTRATION DURING CONSTRUCTION.
 5. ALL SUB-CONTRACTORS ON SITE SHALL BE MADE AWARE OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO WATER COURSES AND WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE SHALL BE KEPT AS LOW AS POSSIBLE. TO ACHIEVE, WORKS SHOULD BE CARRIED OUT AS FOLLOWS:
 6. 1) INSTALL ANY NECESSARY SECURITY/BOUNDARY FENCES FOR THE SITE 2) CONSTRUCT "SOFT" FENCING AS DETAILED ALONG DOWNSLOPE BOUNDARY
 7. DURING WINDY WEATHER, LARGE UNPROTECTED AREAS SHALL BE KEPT MOST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
 8. FINAL SITE LANDSCAPING SHALL BE UNDERTAKEN AS SOON AS POSSIBLE, AND WITHIN TWENTY WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.
 9. SAND USED IN THE CONCRETE CURING PROCESS SHALL BE REMOVED ASAP, AND WITHIN TEN WORKING DAYS FROM PLACEMENT.
 10. WATER SHALL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT-FREE. IN THE CATCHMENT AREA HAS BEEN LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.
 11. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES SHALL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.
 12. THE CONTRACTOR SHALL PROVIDE ACCEPTABLE RECEIPTS FOR CONCRETE & MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER AS REQUIRED.
 13. RECEPTORS FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER ARE TO BE EMPTIED AS NECESSARY. DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT.
 14. EVERY WEEK, FOR THE DURATION OF WORKS, THE CONTRACTOR SHALL INSPECT THE SITE FOR THE FOLLOWING ITEMS. ENSURE DRAINS OPERATE EFFECTIVELY. REMOVE SPILLED SAND (OR OTHER MATERIALS) FROM HAZARD AREAS. INCLUDE LANDSCAPING MATERIALS FROM AREAS OF CONCENTRATED OR HIGH-VELOCITY FLOWS SUCH AS WATERCOURSES, OVERLAND FLOW PATHS, GUTTERS, PAVED AREAS, DRIVEWAYS AND ROADS.
 15. CONSTRUCT ADDITIONAL EROSION AND/OR SEDIMENT WORKS IS NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS, & MAKE ONGOING CHANGES TO THE PLAN.
 16. MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES IN A FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE REHABILITATED.
 17. REMOVE TEMPORARY SOIL CONSERVATION STRUCTURES AS A LAST ACTIVITY IN THE REHABILITATION PROGRAMME.
 18. THE CONTRACTOR SHALL KEEP A LOG BOOK, MAKING ENTRIES AT LEAST WEEKLY, AND AFTER RAINFALL AND/OR SITE CLOSURE. RECORDS:
 - 1) THE VOLUME OF ANY RAINFALL EVENTS (CHECK WEATHER BUREAU)
 - 2) THE CONDITION OF ANY SOIL AND WATER MANAGEMENT WORKS
 - 3) REMEDIAL WORKS



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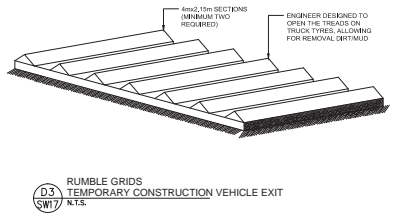
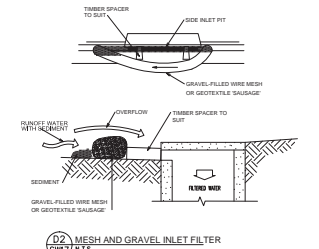
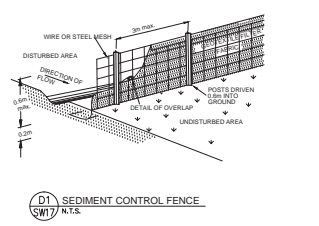
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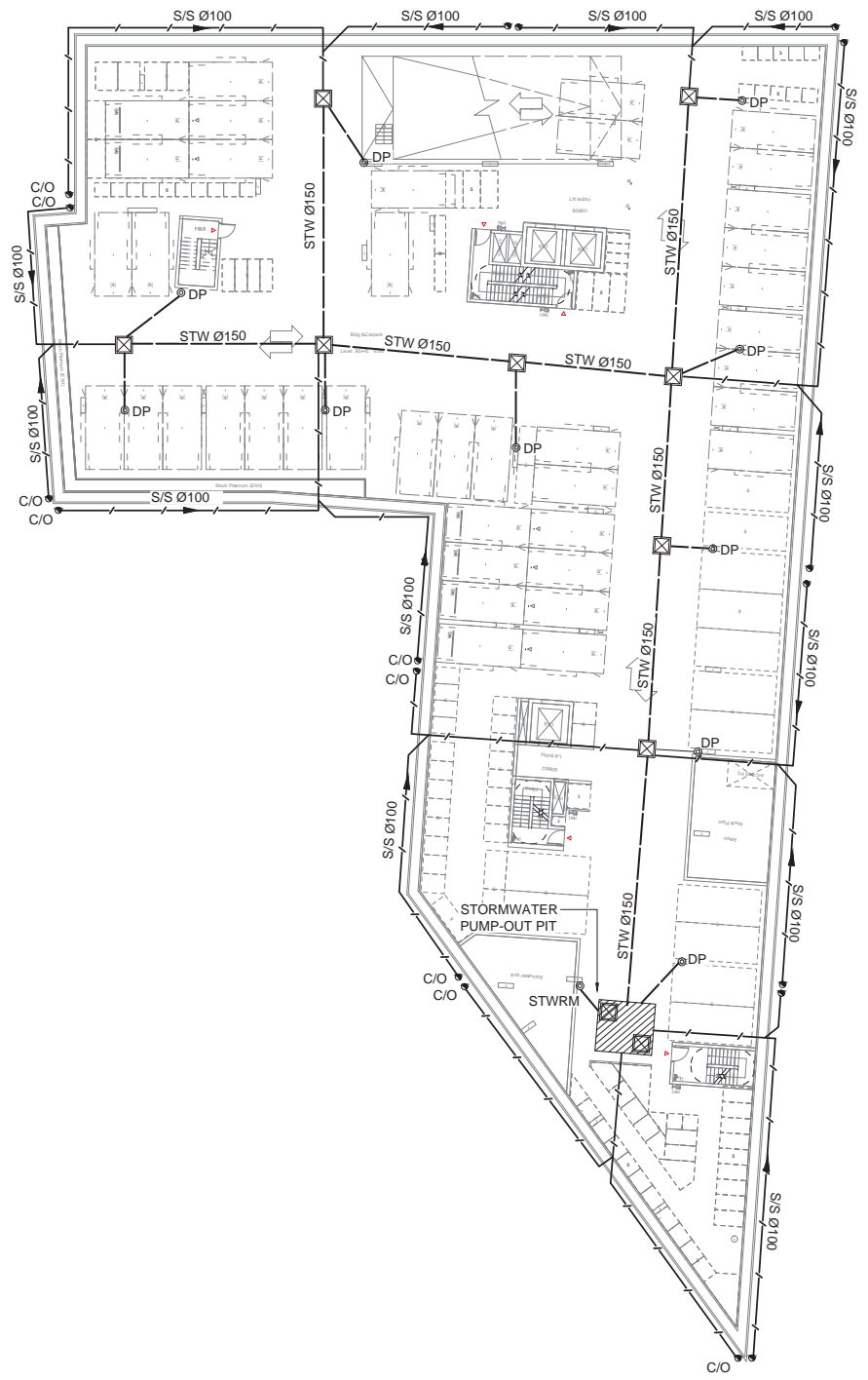
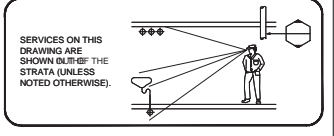
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STAGE 8 & 9

DRAWING TITLE

STORMWATER SERVICES
SEDIMENT & EROSION
CONTROL PLAN

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- LEGEND**
- CATCHMENT ZONE
 - SUBSOIL DRAINAGE LINE
 - ☒ STORMWATER PIT
 - ▣ 300mm² GRATED OUTLET
 - ◁ STORMWATER HEADWALL
 - ⊙ DOWNPIPE
 - CLEAR OUT
 - ▨ BIO-RETENTION AREA

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SHEPHERDS BAY
 STAGE 8 & 9

DRAWING TITLE

DA SUBMISSION
 STORMWATER CONCEPT
 BASEMENT LEVEL 5

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- GENERAL NOTES**
- THE STORMWATER DRAINAGE IS DESIGNED IN CONJUNCTION WITH CARDNO WSUD MASTER PLAN DOCUMENT 600283_WSUDMASTERPLANREPORTV02 DATED 24/04 /2013 & RYDE CITY COUNCILS DEVELOPMENT CONTROL PLAN 2010 SECTION 8.
 - ALL DRAWINGS TO BE READ IN CONJUNCTION WITH BG&E STORMWATER ROAD INFRASTRUCTURE DRAWINGS FOR CONNECTIONS TO BIO-RETENTION AREAS AND INFRASTRUCTURE TRUNK MAIN DESIGN.
 - ALL ARI(AVERAGE RECURRENCE INTERVALS) & RAINFALL INTENSITY DATA ARE BASED FROM INFORMATION COLLECTED FROM THE 'BUREAU OF METEOROLOGY'.
 - THE 'RATIONAL METHOD' HAS BEEN ADOPTED FOR ALL SITE CATCHMENTS CALCULATIONS.
 - 100% OF EACH BUILDING ROOF AREA ASSUMED TO BE NON TRAFFICABLE AND DISCHARGE TO ASSOCIATED RAINWATER TANKS.
 - ALL LANDSCAPE AREA TO DISCHARGE TO NOTED BIO-RETENTION FILTRATION BASIN. BIO RETENTION FILTRATION BASIN TO BG&E DESIGN DETAILS.
 -
- AVERAGE RECURRENCE INTERVALS (MEADOWBANK)
 20YR - 186MMHR
 50YR - 215MMHR
 100YR - 238MMHR

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LEGEND

- CATCHMENT ZONE
- SUBSOIL DRAINAGE LINE
- STORMWATER DRAINAGE LINE
- ☒ STORMWATER PIT
- ☒ 300mm² GRATED OUTLET
- ☒ STORMWATER HEADWALL
- ⊙ DOWNPIPE
- CLEAR OUT
- ▨ BIO-RETENTION AREA



- GENERAL NOTES**
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- AVERAGE RECURRENCE INTERVALS (MEADOWBANK)
- 20YR - 18MM/MHR
 - 50YR - 215MM/MHR
 - 100YR - 238MM/MHR
- THE 'RATIONAL METHOD' HAS BEEN ADOPTED FOR ALL SITE CATCHMENTS CALCULATIONS.
 - 100% OF EACH BUILDING ROOF AREA ASSUMED TO BE NON TRAFFICABLE AND DISCHARGE TO ASSOCIATED RAINWATER TANKS.
 - ALL LANDSCAPE AREA TO DISCHARGE TO NOTED BIO-RETENTION FILTRATION BASIN. BIO RETENTION FILTRATION BASIN TO BG&E DESIGN DETAILS.

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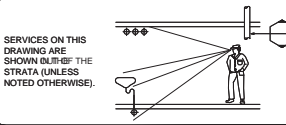
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STORMWATER CONCEPT
BASEMENT LEVEL 3

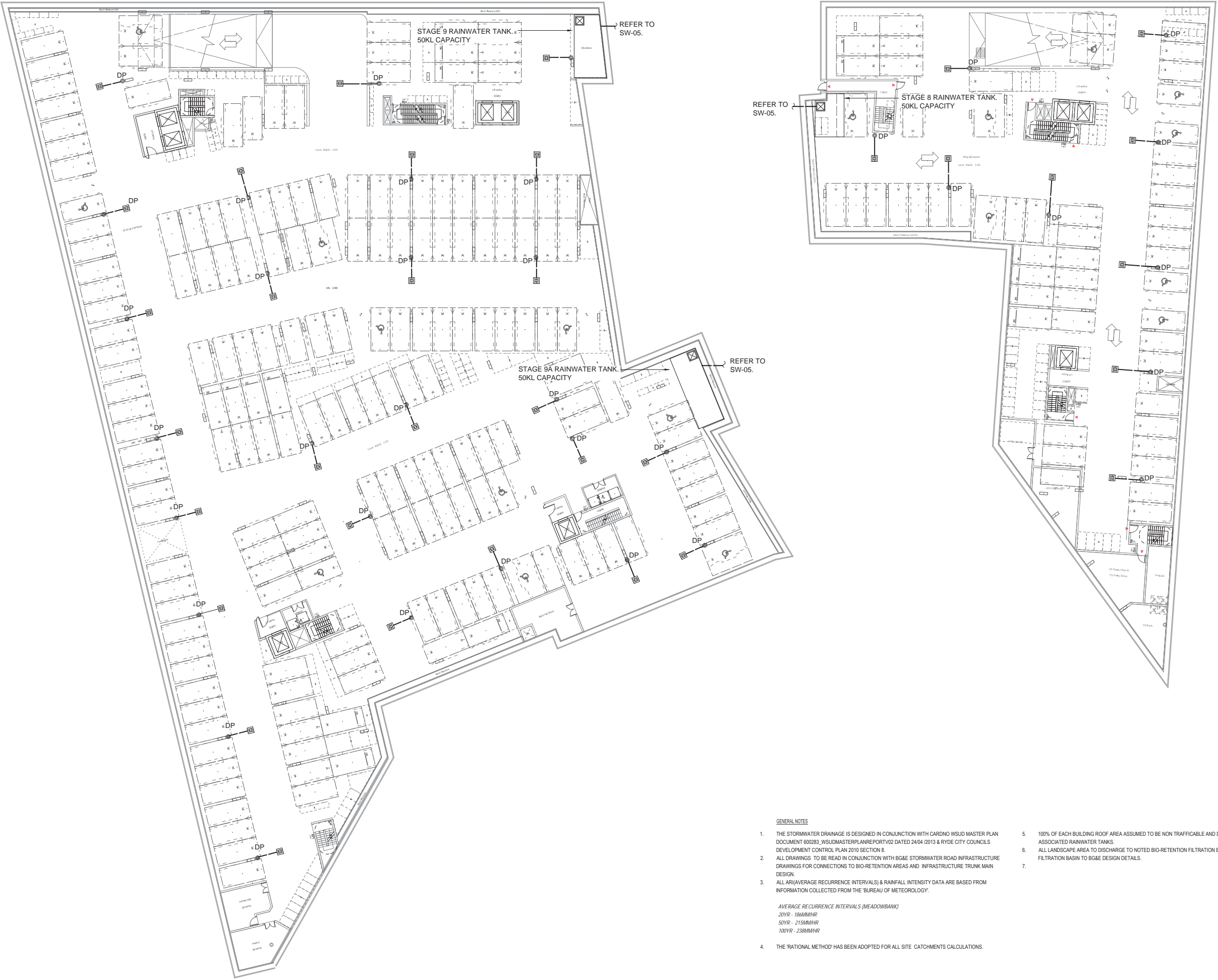
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LEGEND

- CATCHMENT ZONE
- SUBSOIL DRAINAGE LINE
- STORMWATER DRAINAGE LINE
- ☒ STORMWATER PIT
- ☒ 300mm² GRATED OUTLET
- ☒ STORMWATER HEADWALL
- ⊙ DOWNPIPE
- CLEAR OUT
- ▨ BIO-RETENTION AREA



- GENERAL NOTES**
- THE STORMWATER DRAINAGE IS DESIGNED IN CONJUNCTION WITH CARDNO WSUD MASTER PLAN DOCUMENT 600283_WSUDMASTERPLANREPORTV02 DATED 24/04 /2013 & RYDE CITY COUNCILS DEVELOPMENT CONTROL PLAN 2010 SECTION 8.
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 -

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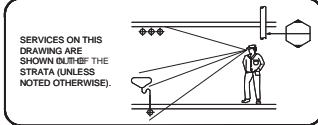
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STORMWATER CONCEPT
BASEMENT LEVEL 2

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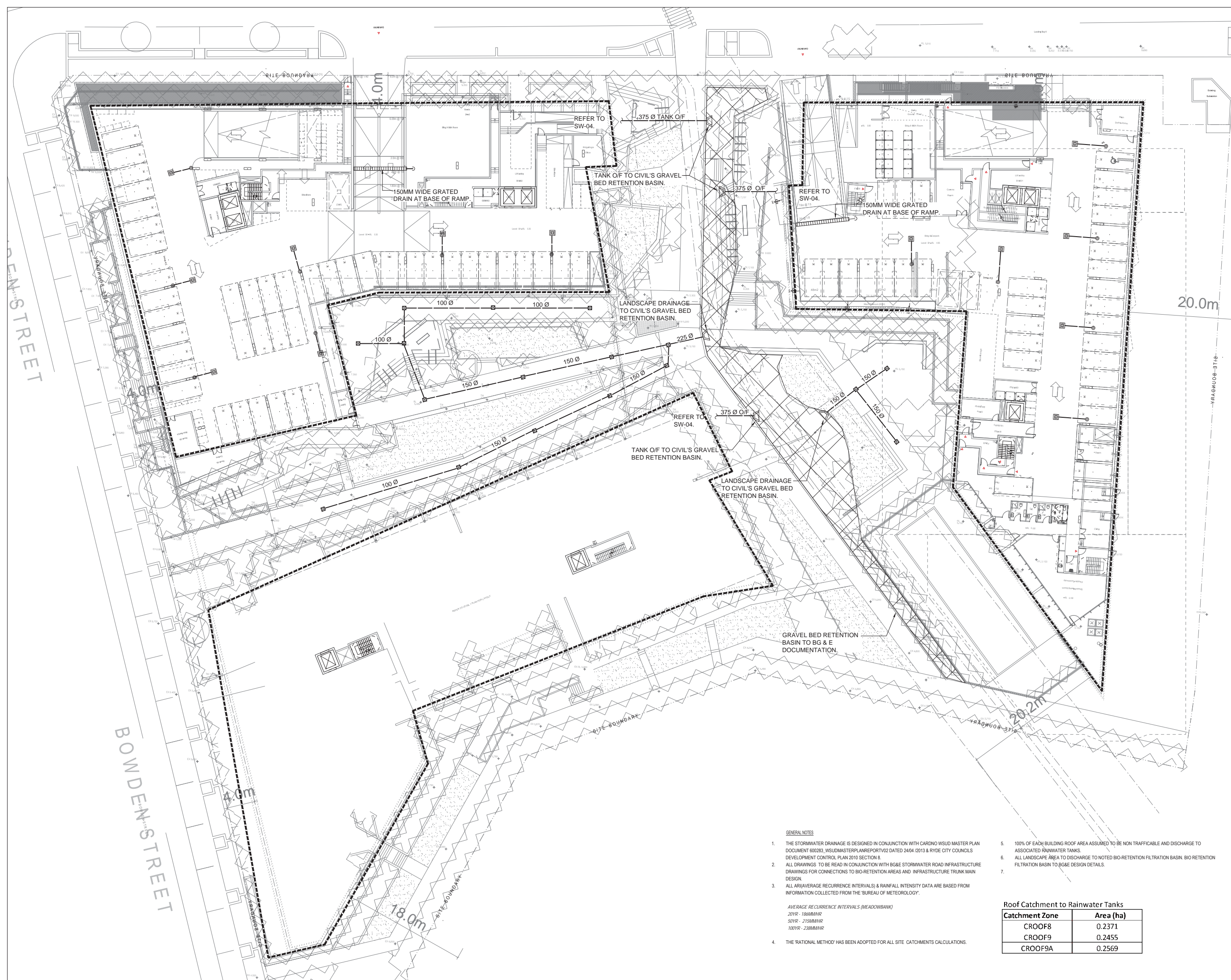
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LEGEND

- CATCHMENT ZONE
- SUBSOIL DRAINAGE LINE
- STORMWATER DRAINAGE LINE
- ☒ STORMWATER PIT
- ☒ 300mm² GRATED OUTLET
- ☒ STORMWATER HEADWALL
- DOWNPIPE
- CLEAR OUT
- ▨ BIO-RETENTION AREA



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PROJECT

SHEPHERDS BAY
STAGE 8 & 9

DRAWING TITLE

DA SUBMISSION
STORMWATER CONCEPT
BASEMENT LEVEL 1

DATE	DRAWN	CHECKED	NO IN SET	SCALE
OCT. 2014	AT	TN		1:200 @B1
PROJECT No.	DRAWING No.	REVISION		
5728	SW-06	P1		

- GENERAL NOTES**
- THE STORMWATER DRAINAGE IS DESIGNED IN CONJUNCTION WITH CARDNO WSUD MASTER PLAN DOCUMENT 600283_WSUDMASTERPLANREPORTV02 DATED 24/04/2013 & RYDE CITY COUNCILS DEVELOPMENT CONTROL PLAN 2010 SECTION 8.
 - ALL DRAWINGS TO BE READ IN CONJUNCTION WITH BG&E STORMWATER ROAD INFRASTRUCTURE DRAWINGS FOR CONNECTIONS TO BIO-RETENTION AREAS AND INFRASTRUCTURE TRUNK MAIN DESIGN.
 - ALL ARI(AVERAGE RECURRENCE INTERVALS) & RAINFALL INTENSITY DATA ARE BASED FROM INFORMATION COLLECTED FROM THE 'BUREAU OF METEOROLOGY'.
 - THE RATIONAL METHOD HAS BEEN ADOPTED FOR ALL SITE CATCHMENTS CALCULATIONS.
 - 100% OF EACH BUILDING ROOF AREA ASSUMED TO BE NON TRAFFICABLE AND DISCHARGE TO ASSOCIATED RAINWATER TANKS.
 - ALL LANDSCAPE AREA TO DISCHARGE TO NOTED BIO-RETENTION FILTRATION BASIN. BIO RETENTION FILTRATION BASIN TO BG&E DESIGN DETAILS.
 -

AVERAGE RECURRENCE INTERVALS (MEADOWBANK)

20YR - 18MM/MHR
50YR - 215MM/MHR
100YR - 238MM/MHR

Roof Catchment to Rainwater Tanks

Catchment Zone	Area (ha)
CROOF8	0.2371
CROOF9	0.2455
CROOF9A	0.2569