



LAND AND ENVIRONMENT COURT OF NSW FILED ON 23 MAR 2018	
	INT

AGREEMENT BETWEEN THE PARTIES

SECTION 34(3) LAND & ENVIRONMENT COURT ACT 1979

COURT DETAILS

Court Land and Environment Court of New South Wales
Class 1
Case number 2017 / 268600

TITLE OF PROCEEDINGS

Applicant **UNIVERSAL PROPERTY GROUP PTY LTD**

Respondent **BLACKTOWN CITY COUNCIL**

FILING DETAILS

Filed for **Universal Property Group Pty Ltd, Applicant**
Legal representative Emma Fleming, Swaab Attorneys
Legal representative reference EJF:171057
Contact name and telephone Emma Fleming, 9777 8319 / Alyce Jefferys 9777 8313
Contact email ejf@swaab.com.au / aij@swaab.com.au

DETAILS

- 1 The Court notes that the parties have reached an agreement in a conciliation conference conducted pursuant to section 34(3) of the *Land and Environment Court Act 1979*, being a decision that the Court could have made in the proper exercise of its functions.
- 2 The terms of the decision as agreed by the parties are as follows:
 - (a) The Applicant is granted leave to rely upon the following amended material copies of which are behind **Annexure 'A'**:

Proposed Lot 6 amended material:

Drawing reference	Title	Prepared by	Date
DA000, Revision 4	Cover Page	The Bathla Group	01 March 2018
DA001, Revision 4	Site Analysis	The Bathla Group	01 March 2018
DA002, Revision 4	Site Plan	The Bathla Group	01 March 2018
DA003, Revision 4	Ground Floor Part 1	The Bathla Group	01 March 2018
DA004, Revision 4	Ground Floor Part 2	The Bathla Group	01 March 2018
DA005, Revision 4	First Floor Part 1	The Bathla Group	01 March 2018
DA006, Revision 4	First Floor Part 2	The Bathla Group	01 March 2018
DA007, Revision 4	Elevations & Section	The Bathla Group	01 March 2018
DA008, Revision 4	Elevations& Sections	The Bathla Group	01 March 2018
DA009, Revision 4	Shadow 1	The Bathla Group	01 March 2018
DA010, Revision 4	Shadow 2	The Bathla Group	01 March 2018
DA011, Revision 4	Site Coverage	The Bathla Group	01 March 2018
LP-01, Revision C	Lot 6 – Landscape Plan	The Bathla Group	26 February 2018

SY170226C600, Revision B	Cover Sheet – General Notes, Sheet Index and Legend	Barker Ryan Stewart	Undated
SY170226C603, Revision B	Overall Site Plan	Barker Ryan Stewart	31 January 2018
SY170226C603, Revision B	Typical Driveway Section & Stormwater Filter Details	Barker Ryan Stewart	31 January 2018
SY170226C604, Revision B	Water Quality Catchment Plan	Barker Ryan Stewart	31 January 2018
SY170226C605, Revision B	Soil and Water Management Plan	Barker Ryan Stewart	31 January 2018
SY170226C606, Revision B	Soil and Water Management Details	Barker Ryan Stewart	31 January 2018

Proposed Lot 7 amended material:

Drawing reference	Title	Prepared by	Date
DA001, Revision 4	Site Analysis	The Bathla Group	28 February 2018
DA002, Revision 4	Site Plan	The Bathla Group	28 February 2018
DA003, Revision 4	Ground Floor	The Bathla Group	28 February 2018
DA004, Revision 4	First Floor	The Bathla Group	28 February 2018
DA005, Revision 4	Elevations & Section	The Bathla Group	28 February 2018
DA006, Revision 4	Shadow Analysis 1	The Bathla Group	28 February 2018
DA007, Revision 4	Shadow Analysis 2	The Bathla Group	28 February 2018
DA008, Revision 4	Site Coverage	The Bathla Group	28 February 2018
LP-001, Revision C	Landscape Plan	The Bathla Group	26 February 2018
SY170226C700, Revision B	Cover Sheet – General Notes, Sheet Index and Legend	Barker Ryan Stewart	31 January 2018
SY170226C702, Revision B	General Arrangement Plan	Barker Ryan Stewart	31 January 2018
SY170226C703, Revision B	Typical Driveway Section & Stormwater Filter Details	Barker Ryan Stewart	31 January 2018
SY170226C704, Revision B	Water Quality Catchment Plan	Barker Ryan Stewart	31 January 2018
SY170226C705, Revision B	Soil and Water Management Plan	Barker Ryan Stewart	31 January 2018
SY170226C706, Revision B	Soil and Water Management Details	Barker Ryan Stewart	31 January 2018

Proposed Lot 8 amended material:

Drawing reference	Title	Prepared by	Date
DA001, Revision 4	Site Analysis	The Bathla Group	28 February 2018
DA002, Revision 4	Site Plan	The Bathla Group	28 February 2018
DA003, Revision 4	Ground Floor	The Bathla Group	28 February 2018
DA004, Revision 3	First Floor	The Bathla Group	29 January 2018
DA005, Revision 4	Elevations & Section	The Bathla Group	28 February 2018
DA006, Revision 4	Shadow Analysis 1	The Bathla Group	28 February 2018
DA007, Revision 4	Shadow Analysis 2	The Bathla Group	28 February 2018
DA008, Revision 4	Site Coverage	The Bathla Group	28 February 2018
LP-001, Revision C	Landscape Plan	The Bathla Group	26 February 2018

SY170226C800, Revision B	Cover Sheet – General Notes, Sheet Index and Legend	Barker Ryan Stewart	31 January 2018
SY170226C802, Revision B	General Arrangement Plan	Barker Ryan Stewart	31 January 2018
SY170226C803, Revision B	Typical Driveway Section & Stormwater Filter Details	Barker Ryan Stewart	31 January 2018
SY170226C804, Revision B	Water Quality Catchment Plan	Barker Ryan Stewart	31 January 2018
SY170226C805, Revision B	Soil and Water Management Plan	Barker Ryan Stewart	31 January 2018
SY170226C806, Revision B	Soil and Water Management Details	Barker Ryan Stewart	31 January 2018
SY170226C807, Revision B	Soil and Water Management Details	Barker Ryan Stewart	31 January 2018

Proposed Lot 10 amended material:

Drawing reference	Title	Prepared by	Date
DA001, Revision 4	Site Analysis	The Bathla Group	28 February 2018
DA002, Revision 4	Site Plan	The Bathla Group	28 February 2018
DA003, Revision 4	Ground Floor	The Bathla Group	28 February 2018
DA004, Revision 4	First Floor	The Bathla Group	28 February 2018
DA005, Revision 4	Elevations & Section	The Bathla Group	28 February 2018
DA006, Revision 4	Shadow Analysis 1	The Bathla Group	28 February 2018
DA007, Revision 4	Shadow Analysis 2	The Bathla Group	28 February 2018
DA008, Revision 4	Site Coverage	The Bathla Group	28 February 2018
LP-001, Revision C	Landscape Plan	The Bathla Group	26 February 2018
SY170226C100, Revision B	Cover Sheet – General Notes, Sheet Index and Legend	Barker Ryan Stewart	31 January 2018
SY170226C102, Revision B	General Arrangement Plan	Barker Ryan Stewart	31 January 2018
SY170226C103, Revision B	Typical Driveway Section & Stormwater Filter Details	Barker Ryan Stewart	31 January 2018
SY170226C104, Revision B	Water Quality Catchment Plan	Barker Ryan Stewart	31 January 2018
SY170226C105, Revision B	Soil and Water Management Plan	Barker Ryan Stewart	31 January 2018
SY170226C106, Revision B	Soil and Water Management Details	Barker Ryan Stewart	31 January 2018

Other amended material

Document reference	Title	Prepared by	Date
Issue C	Colour Schedule	The Bathla Group	1 March 2018
SY170226, Revision 2	Stormwater Management Report	Barker Ryan Stewart	31 January 2018
20171661.1, Revision 0	Traffic Noise Intrusion Assessment	Acoustic Logic	27 November 2017
A18013	Bushfire Protection Assessment	Travers Bushfire & Ecology	February 2018

- (b) The appeal is upheld.
- (c) The Applicant is to pay the Respondent's costs under section 8.15(3) of the *Environmental Planning Assessment Act 1979* as agreed or assessed.
- (d) Development Application No. SPP-17-00018 for the construction of two storey multi dwellings on each proposed Lots 6, 7, 8 & 10 in the proposed subdivision of Lot 51 DP1196583, known as 1086 Richmond Road, Marsden Park (approved under DA16-03182) containing a total of 192 dwellings (Lot 6 x 66 dwellings, Lot 7 x 48 dwellings, Lot 8 x 38 dwellings and Lot 10 x 40 dwellings), including residential and visitor car spaces and internal private roads, storm water drainage, vegetation removal and landscaping, is approved subject to the conditions in **Annexure 'B'**.

- 3 Pursuant to Section 34(3)(a) and (b) of the *Land and Environment Court Act 1979*, the parties request the Commissioner to dispose of the proceedings in accordance with the terms of the decision set out in paragraph 2 above.

SIGNATURES

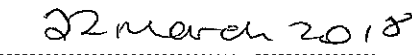
Signature of legal representative



Capacity

Solicitor for the applicant

Date of signature



Signature of legal representative



Capacity

Solicitor for the respondent

Date of signature



Annexure B

CONDITIONS OF CONSENT

NSWLEC Proceedings No. 2017 / 268600

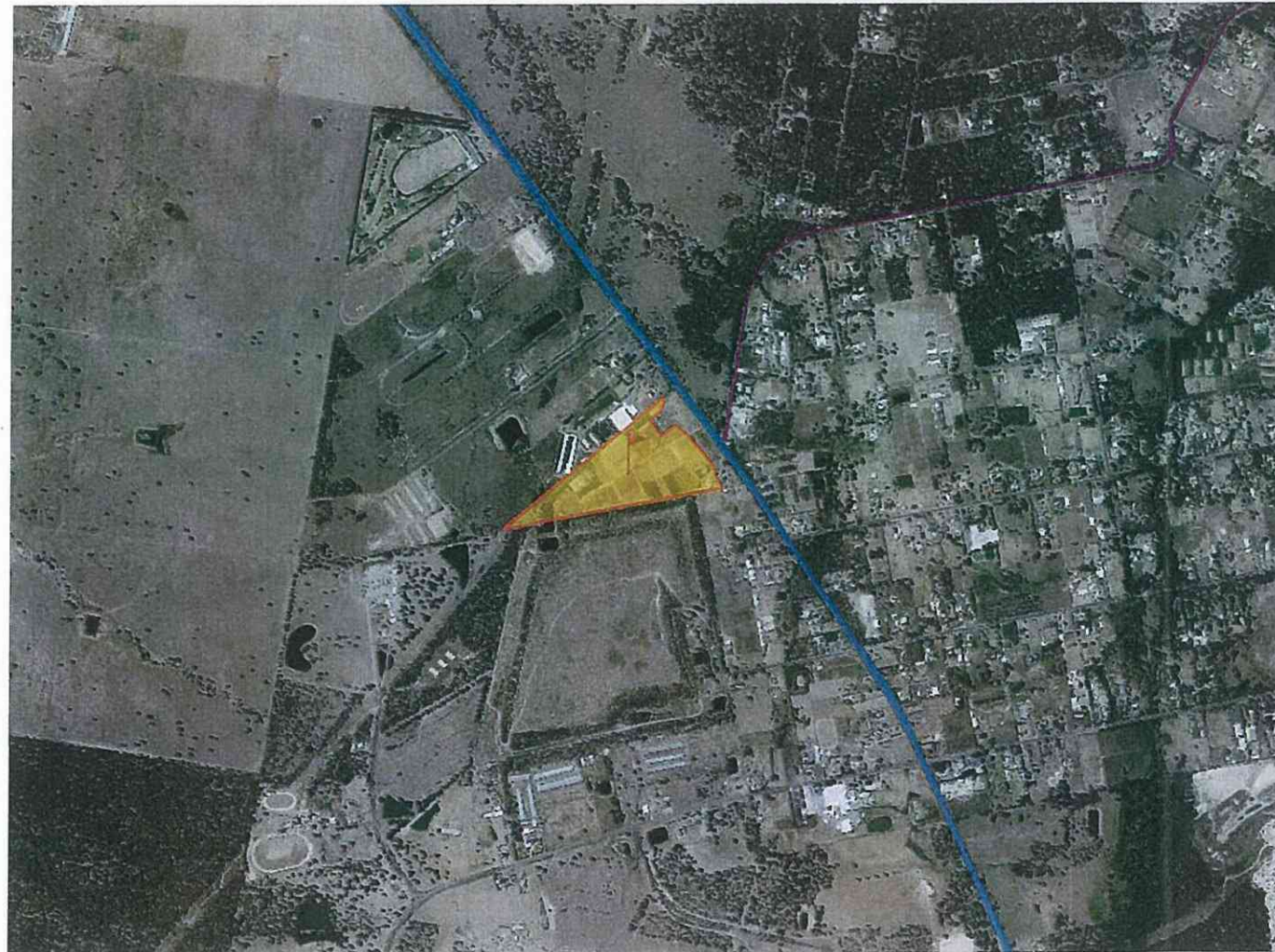
Development Application: Development Application No. SPP-17-00018 for the construction of two storey multi dwellings on each proposed Lots 6, 7, 8 & 10 in the proposed subdivision approved under DA16-03182 containing a total of 192 dwellings (Lot 6 x 66 dwellings, Lot 7 x 48 dwellings, Lot 8 x 38 dwellings and Lot 10 x 40 dwellings), including residential and visitor car spaces and internal private roads, storm water drainage vegetation removal and landscaping

Premises: Lot 51 DP1196583, known as 1086 Richmond Road, Marsden Park

DEVELOPMENT APPLICATION

PROPOSED RESIDENTIAL DEVELOPMENT AT:

LOT 6/STAGE 6, 1086 RICHMOND ROAD, MARSDEN PARK



DRAWING LIST				
Sheet Number	Rev	Sheet Name	Rev Date	By
DA000	4	COVER PAGE	01/03/18	TONY.T
DA001	4	SITE ANALYSIS	01/03/18	TONY.T
DA002	4	SITE PLAN	01/03/18	TONY.T
DA003	4	GROUND FLOOR_PART 1	01/03/18	TONY.T
DA004	4	GROUND FLOOR_PART 2	01/03/18	TONY.T
DA005	4	FIRST FLOOR_PART 1	01/03/18	TONY.T
DA006	4	FIRST FLOOR_PART 2	01/03/18	TONY.T
DA007	4	ELEVATIONS & SECTION	01/03/18	TONY.T
DA008	4	ELEVATIONS & SECTIONS	01/03/18	TONY.T
DA009	4	SHADOW 1	01/03/18	TONY.T
DA010	4	SHADOW 2	01/03/18	TONY.T
DA011	4	SITE COVERAGE	01/03/18	CD

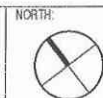
	Energy Rating	Certificate Number	833834M
<input type="checkbox"/> single-dwelling rating		heating	Minor
<input checked="" type="checkbox"/> multi-unit development (attach listing of ratings)		cooling	Minor
Placed on site/checked confirmation:		<input type="checkbox"/> Placed with	<input checked="" type="checkbox"/> Placed without
Assessor Name/Number:		Ingrid Tully	VIC/BOAM/131652
Assessor Signature			Date 29/05/2017

DO NOT SCALE
USE FIGURED DIMENSIONS AT ALL TIMES. IF IN DOUBT CHECK WITH THE BUILDER CONTRACTORS TO CHECK AND VERIFY ALL LEVELS, SIZES AND DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES OR OMISSIONS TO THE BUILDER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE.



ISSUE	DATE	REVISION	BY
4	01/03/18	AMENDED AS PER COURT COMMENTS	CD
3	23/01/18	AMENDED AS PER COURT CONTENTIONS	CD
2	21/06/17	AMENDED AS PER COUNCIL EMAIL 28.07.2017	TT
1	27/06/17	ISSUED FOR DEVELOPMENT APPLICATION	TT

GENERAL NOTES:
THIS DRAWING IS THE EXCLUSIVE PROPERTY OF THE DEVELOPER & THE REPRODUCTION OF ANY PART WITHOUT THE PRIOR WRITTEN CONSENT OF THE DEVELOPER IS A VIOLATION OF APPLICABLE LAWS. IN NO EVENT SHALL THE DEVELOPER BE HELD LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL LIABILITY IN CONNECTION WITH THE USE OF THIS DIGITAL OR ANALOGUE RELEASED FROM THE DEVELOPER'S OFFICE. THIS DRAWING IS TO BE READ & UNDERSTOOD IN CONJUNCTION WITH THE STRUCTURAL, MECHANICAL, ELECTRICAL &/OR ANY OTHER CONSULTANT'S DOCUMENTATION AS MAY BE APPLICABLE TO THE PROJECT PRIOR TO THE START OF ANY WORKS AND FOR ITS DURATION.



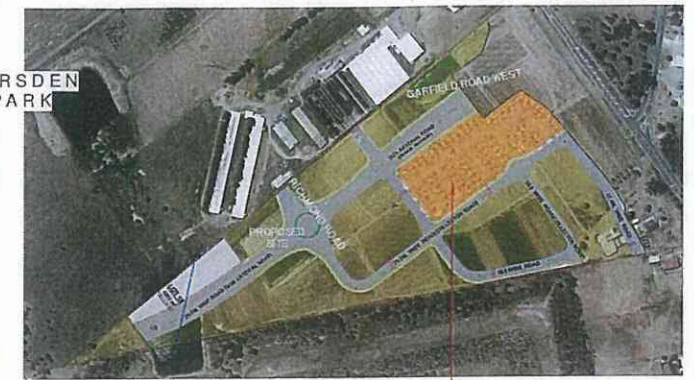
181 Little Park, South-west Sydney NSW 1545
PO Box 837 New South Wales 1545
T 02 9336 3653 F 0 2 9336 3652
info@bathla.com.au | www.bathla.com.au

PROJECT:
MARSDEN PARK
LOT 6/STAGE 6 -1086 RICHMOND
RD

LOT NUMBER:
LOT 51 DP1196533

DRAWING TITLE:
COVER PAGE

DA ISSUE			
PROJECT No	DATE	DRAWING No	REV
0100	MARCH 2018	DA000	4
DRAWN BY	SCALE		
TONY.T			
H:\Richmond Rd 1086 MARSDEN PARK\1010\Arch\LOT 6\DA R02\Richmond Road\1086 MARSDEN PARK_V15-CP-LOT6_R03.rvt			



LOT 6 / STAGE 6



BASIX Specifications

Project: 1086 Richmond Road - Lot 6
Marsden Park NSW 2765

BASIX Certificate:
833834M

The below specifications refer to all 68 Dwellings in the project

Water Commitments

Shower Heads:	3 Star (>4.5 but <= 6 L/min)
Toilets:	3 Star
Kitchen and Bathroom Taps:	3 Star
Water Tank:	1200L

Energy Commitments

Hot Water System:	Gas Instantaneous 5 Star
Bathroom, Kitchen, Laundry Ventilation:	Individual Fans not ducted
Air Conditioning (Heating & Cooling):	1 phase cooling 2.5 Stars heating 2.5 Stars
Cooktop and Oven:	Gas Cooktop/ Electric Oven

Please refer to BASIX report dated 29/06/2017 for detailed commitment requirements

Thermal Performance Specifications

Project: 1086 Richmond Road - Lot 6
Marsden Park NSW 2765

BASIX Certificate:
833834M

The below specifications refer to all 68 Dwellings in the project

Specifications -

Building Elements	Material	Insulation Details
External Walls	Brick Veneer	R1.5 Bulk Insulation
Internal Walls	Plasterboard on studs	N/A
Ceiling	Plasterboard	R 2.5 Bulk Insulation
Roof	Tiles - Medium Colour	Sarking
Floors	Concrete slab on ground Suspend slab to first floor	
Windows	Improved Aluminum Frame Single Glazed	Uval 5.91 SHGC 0.73



Energy Rating

Certificate Number 833834M

☐ single-dwelling rating
☒ multi-unit development (attach listing of ratings)
If selected, data specified is the average across the entire development

Recessed downlights confirmation: ☐ Rated with ☒ Rated without

Assessor Name/Number Ingrid Tuffin VIC/BDV/13/1652
Assessor Signature _____ Date 29/06/2017

DO NOT SCALE
USE FIGURED DIMENSIONS AT ALL TIMES. IF IN DOUBT CHECK WITH THE BUILDER. CONTRACTORS TO CHECK AND VERIFY ALL LEVELS, DATUMS AND DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES OF DIMENSIONS TO THE BUILDER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE.

GROUND FLOOR_PART 1

1 : 200

ISSUE	DATE	REVISION	BY
1	27/06/17	ISSUED FOR DEVELOPMENT APPLICATION	TT
2	21/08/17	AMENDED AS PER COUNCIL EMAIL 29 07 2017	CD
3	29/07/18	AMENDED AS PER COUNCIL CONTENTIONS	CD
4	01/03/18	AMENDED AS PER COUNCIL COMMENTS	CD

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NORTH



1086 Richmond Road, Marsden Park NSW 2765
PO Box 770, Marsden Park NSW 2765
T 02 7612 2452 F 02 7612 4762
info@bathlagroup.com.au www.bathlagroup.com.au

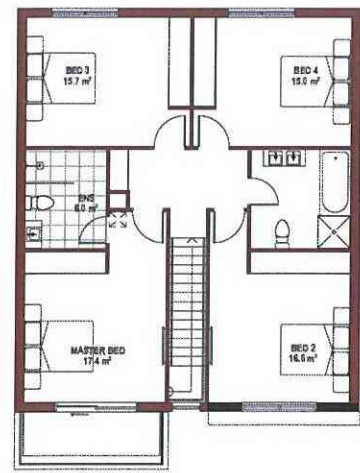
PROJECT:
MARSDEN PARK
LOT 6/ STAGE 6 - 1086 RICHMOND RD

LOT NUMBER
LOT 51 DP 1196533

DRAWING TITLE:
GROUND FLOOR_PART 1

PROJECT No	DATE	DRAWING No	REV.
0100	MARCH 2018	DA003	4
DRAWN BY:	SCALE		
TONY.T	1 : 200		

R 1086 Richmond Rd 1086 MARSDEN PARK (U1) DA Arch/LOT 6 DA R02 Richmond Road/086 MARSDEN PARK_V15-CP-LOT6_R02.rvt



Adaptable Dwelling - First Floor

2
1 : 100

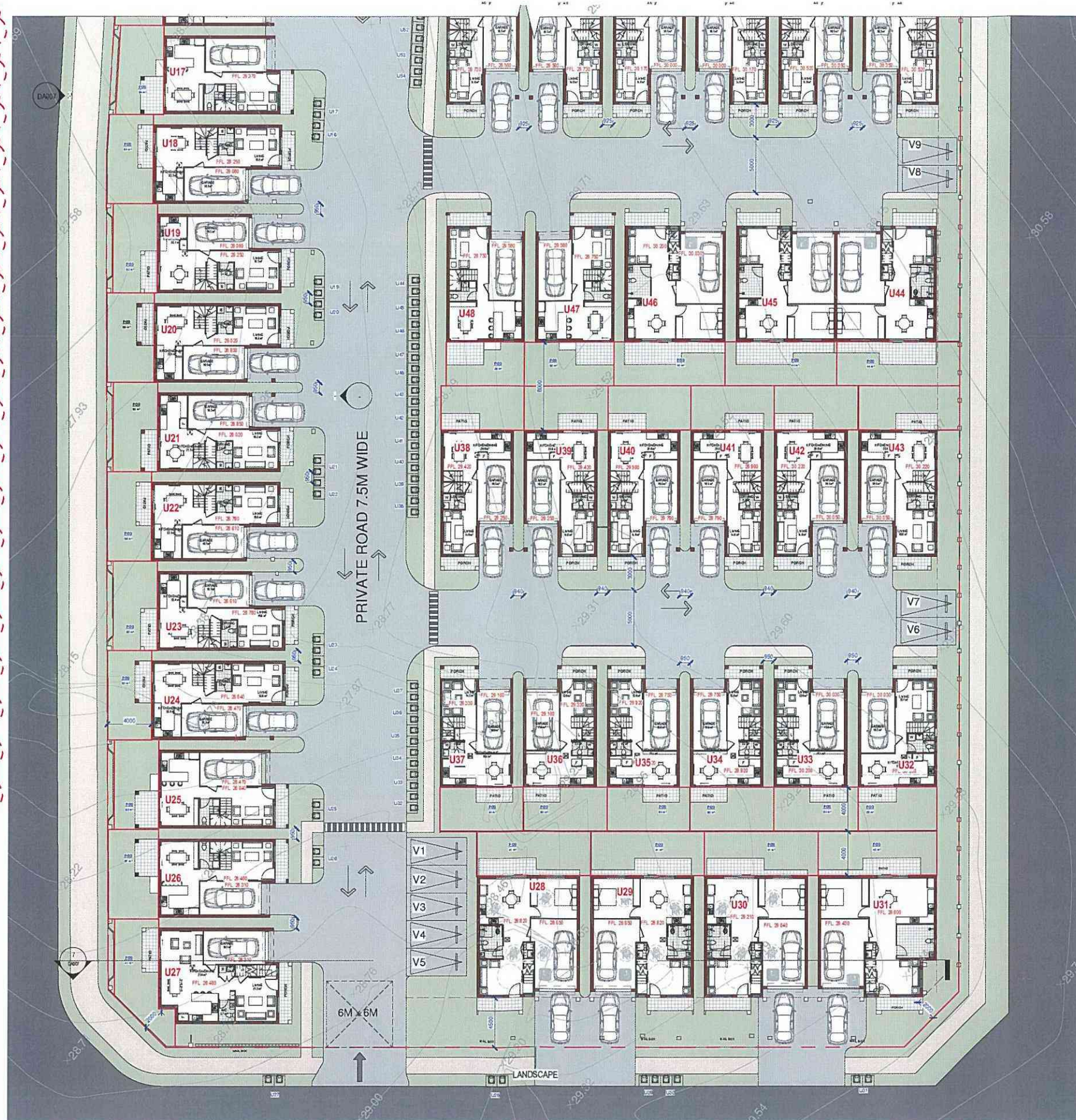


Standard Adaptable Dwelling

3
1 : 100

GROUND FLOOR_PART 2

1
1 : 200



BASIX Specifications

Project: 1086 Richmond Road - Lot 6
Marsden Park NSW 2765

BASIX Certificate:
833834M

The below specifications refer to all 68 Dwellings in the project

Water Commitments

Shower Heads:	3 Star (>4.5 but <= 6 L/min)
Toilets:	3 Star
Kitchen and Bathroom Taps:	3 Star
Water Tank:	1200L

Energy Commitments

Hot Water System:	Gas Instantaneous 5 Star
Bathroom, Kitchen, Laundry Ventilation:	Individual Fans not ducted
Air Conditioning (Heating & Cooling):	1 phase cooling 2.5 Stars heating 2.5 Stars
Cooktop and Oven:	Gas Cooktop/ Electric Oven

Please refer to BASIX report dated 29/06/2017 for detailed commitment requirements

Thermal Performance Specifications

Project: 1086 Richmond Road - Lot 6
Marsden Park NSW 2765

BASIX Certificate:
833834M

The below specifications refer to all 68 Dwellings in the project

Specifications -

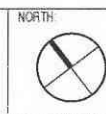
Building Elements	Material	Insulation Details
External Walls	Brick Veneer	R1.5 Bulk Insulation
Internal Walls	Plasterboard on studs	N/A
Ceiling	Plasterboard	R 2.5 Bulk Insulation
Roof	Tiles - Medium Colour	Sarking
Floors	Concrete slab on ground Suspend slab to first floor	
Windows	Improved Aluminium Frame Single Glazed	Uval 5.91 SHGC 0.73

		Certificate Number: 833834M
<input type="checkbox"/> single-dwelling rating	_____ stars	
<input checked="" type="checkbox"/> multi-unit development (attach listing of ratings)	heating	_____ Uval/
	cooling	_____ Uval/
Recessed downlights confirmation: <input type="checkbox"/> Rated with <input checked="" type="checkbox"/> Rated without		
Assessor Name/Number: Ingrid Tuffin VIC/BD4V/13/1652		
Assessor Signature: _____ Date: 29/06/2017		

DO NOT SCALE
USE DIMENSIONS AT ALL TIMES. IF IN DOUBT CHECK WITH THE BUILDER. CONTRACTORS TO CHECK AND
VERIFY ALL LEVELS, DATUMS AND DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES OF DIMENSIONS
TO THE BUILDER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE

ISSUE	DATE	REVISION	BY
1	27/09/17	ISSUED FOR DEVELOPMENT APPLICATION	TT
2	21/09/17	AMENDED AS PER COUNCIL EMAIL 28/07/2017	CD
3	23/07/18	AMENDED AS PER COURT CONTENTIONS	CD
4	01/09/18	AMENDED AS PER COURT COMMENTS	CD

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1086 Richmond Road, Marsden Park NSW 2765
P.O. Box 710, Marsden Park NSW 2765
T: 02 7615 2405 F: 02 7615 4962
info@bathlagroup.com.au www.bathlagroup.com.au

PROJECT
MARSDEN PARK
LOT 6/ STAGE 6 -1086 RICHMOND
RD

LOT NUMBER
LOT 51 DP 1196533

DRAWING TITLE
GROUND FLOOR_PART 2

PROJECT No:	0100	DATE:	MARCH 2018	DRAWING No:	DA004	REV:	4
DRAWN BY:	TONY.T	SCALE:	As indicated				

R: Richmond Rd 1086 MARSDEN PARK VIC 2765
Road 1086 MARSDEN PARK VIC 2765



INTERNAL LAYOUT OF UNIT 13
AMENDED TO PROVIDE MORE SUITABLE
FENESTRATION

FIRST FLOOR_PART 1

1
1 : 200

BASIX Specifications

Project: 1086 Richmond Road - Lot 6
Marsden Park NSW 2765
BASIX Certificate: 833834M

The below specifications refer to all 68 Dwellings in the project

Water Commitments

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Water Tank:	1200L

Energy Commitments

Hot Water System:	Gas Instantaneous 5 Star
Bathroom, Kitchen, Laundry Ventilation:	Individual Fans not ducted
Air Conditioning (Heating & Cooling):	1 phase cooling 2.5 Stars heating 2.5 Stars
Cooktop and Oven:	Gas Cooktop/ Electric Oven

Please refer to BASIX report dated 29/06/2017 for detailed commitment requirements

Thermal Performance Specifications

Project: 1086 Richmond Road - Lot 6
Marsden Park NSW 2765
BASIX Certificate: 833834M

The below specifications refer to all 68 Dwellings in the project

Specifications -

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Internal Walls	Plasterboard on studs	N/A
Ceiling	Plasterboard	R 2.5 Bulk Insulation
Roof	Tiles - Medium Colour	Sarking
Floors	Concrete slab on ground Suspend slab to first floor	
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**Energy Rating**
Certificate Number 833834M

☐ single-dwelling rating
☒ multi-unit development (attach listing of ratings)
If selected, data specified is the average across the entire development

Recessed downlights confirmation: ☐ Rated with ☒ Rated without

Assessor Name/Number Ingrid Tuffin VIC/BDV/13/1652

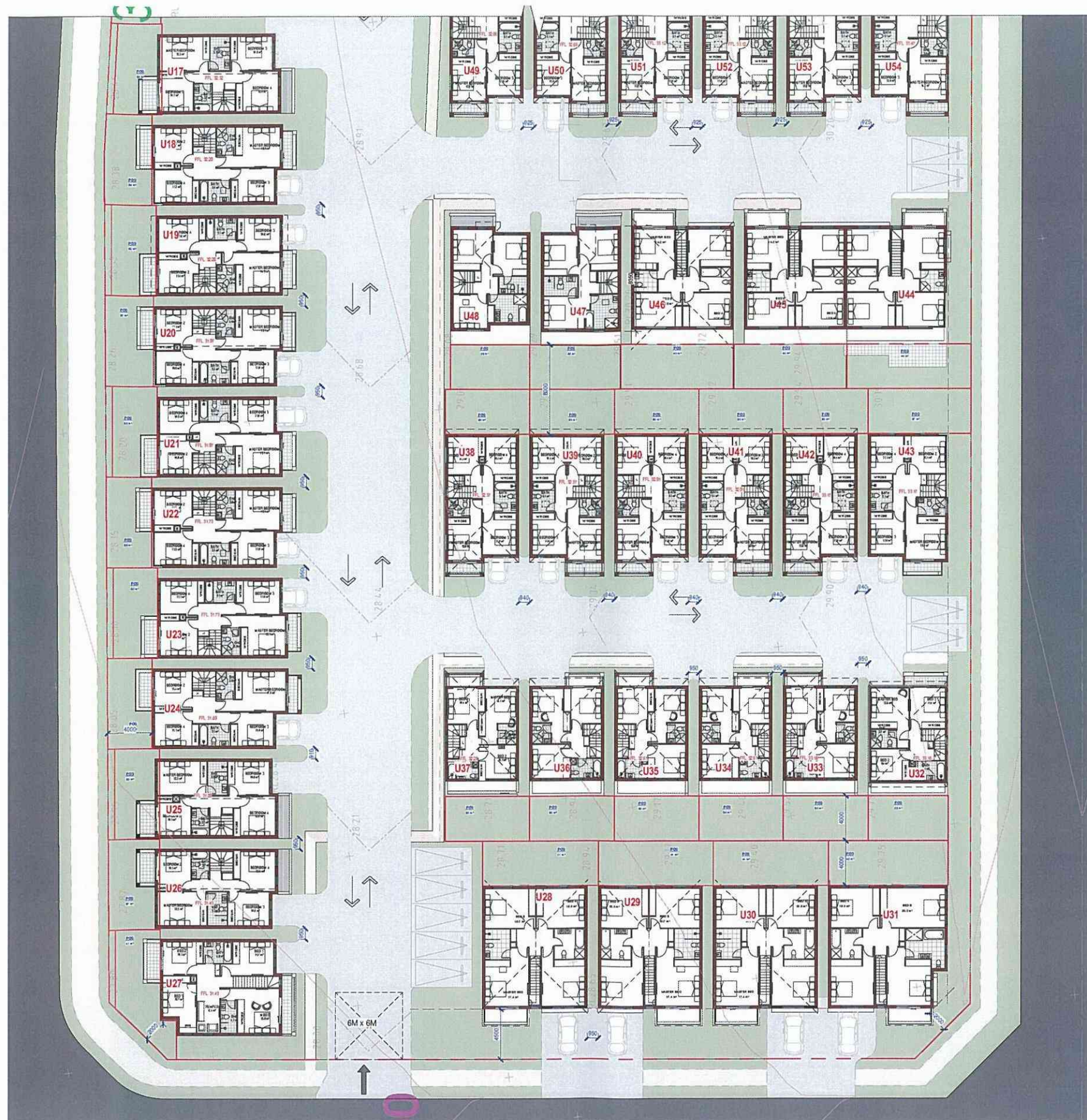
Assessor Signature  Date 29/06/2017

heating _____ stars
cooling _____ MJ/m²

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GENERAL NOTES:			PROJECT		LOT NUMBER		DRAWING TITLE		DA ISSUE	
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1 01/03/18 (AMENDED AS PER COURT COMMENTS)			DRAWN BY		SCALE		DATE		REV.	
2 28/01/18 (AMENDED AS PER COURT CONTENTIONS)			TONY.T		1 : 200		MARCH 2018		4	
3 21/05/17 (AMENDED AS PER COUNCIL EMAIL 28/07/2017)										
4 27/05/17 (ISSUED FOR DEVELOPMENT APPLICATION)										
ISSUE	DATE	REVISION								



BASIX Specifications

Project: 1086 Richmond Road - Lot 6
Marsden Park NSW 2765

BASIX Certificate:
833834M

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Cooktop and Oven	Gas Cooktop/ Electric Oven

Please refer to BASIX report dated 29/06/2017 for detailed commitment requirements

Thermal Performance Specifications

Project: 1086 Richmond Road - Lot 6
Marsden Park NSW 2765

BASIX Certificate:
833834M

The below specifications refer to all 68 Dwellings in the project

Specifications -

Building Elements	Material	Insulation Details
External Walls	Brick Veneer	R1.5 Bulk Insulation
Internal Walls	Plasterboard on studs	N/A
Ceiling	Plasterboard	R 2.5 Bulk Insulation
Roof	Tiles - Medium Colour	Sarking
Floors	Concrete slab on ground Suspend slab to first floor	
Windows	Improved Aluminum Frame Single Glazed	Uval 5.91 SHGC 0.73



Energy Rating

Certificate Number 833834M

☐ single-dwelling rating
☒ multi-unit development (attach listing of ratings)
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Recessed downlights confirmation: ☐ Rated with ☒ Rated without

Assessor Name/Number Ingrid Tuffin VIC/BDV/13/1652

Assessor Signature _____ Date 29/06/2017

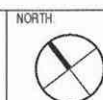
DO NOT SCALE
USE DIMENSIONS AT ALL TIMES IF IN DOUBT CHECK WITH THE BUILDER. CONTRACTORS TO CHECK AND
VERIFY ALL LEVELS, DATUMS AND DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES OR OMISSIONS
TO THE BUILDER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE.
0 10 20 30 40 50 60 70m

FIRST FLOOR_PART 2

1 : 200

ISSUE	DATE	REVISION	BY
1	27/06/17	ISSUED FOR DEVELOPMENT APPLICATION	TT
2	21/08/17	AMENDED AS PER COUNCIL EMAIL 28/07/2017	TT
3	28/01/18	AMENDED AS PER COURT CONTENTIONS	CD
4	01/03/18	AMENDED AS PER COURT COMMENTS	CD

GENERAL NOTES
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The Bathla Group

1/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000/1001/1002/1003/1004/1005/1006/1007/1008/1009/1010/1011/1012/1013/1014/1015/1016/1017/1018/1019/1020/1021/1022/1023/1024/1025/1026/1027/1028/1029/1030/1031/1032/1033/1034/1035/1036/1037/1038/1039/1040/1041/1042/1043/1044/1045/1046/1047/1048/1049/1050/1051/1052/1053/1054/1055/1056/1057/1058/1059/1060/1061/1062/1063/1064/1065/1066/1067/1068/1069/1070/1071/1072/1073/1074/1075/1076/1077/1078/1079/1080/1081/1082/1083/1084/1085/1086/1087/1088/1089/1090/1091/1092/1093/1094/1095/1096/1097/1098/1099/1100/1101/1102/1103/1104/1105/1106/1107/1108/1109/1110/1111/1112/1113/1114/1115/1116/1117/1118/1119/1120/1121/1122/1123/1124/1125/1126/1127/1128/1129/1130/1131/1132/1133/1134/1135/1136/1137/1138/1139/1140/1141/1142/1143/1144/1145/1146/1147/1148/1149/1150/1151/1152/1153/1154/1155/1156/1157/1158/1159/1160/1161/1162/1163/1164/1165/1166/1167/1168/1169/1170/1171/1172/1173/1174/1175/1176/1177/1178/1179/1180/1181/1182/1183/1184/1185/1186/1187/1188/1189/1190/1191/1192/1193/1194/1195/1196/1197/1198/1199/1200/1201/1202/1203/1204/1205/1206/1207/1208/1209/1210/1211/1212/1213/1214/1215/1216/1217/1218/1219/1220/1221/1222/1223/1224/1225/1226/1227/1228/1229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LOT 6_NORTH WEST ELEVATION-1

1 1:200



LOT 6_SOUTH WEST ELEVATION

6 1:200



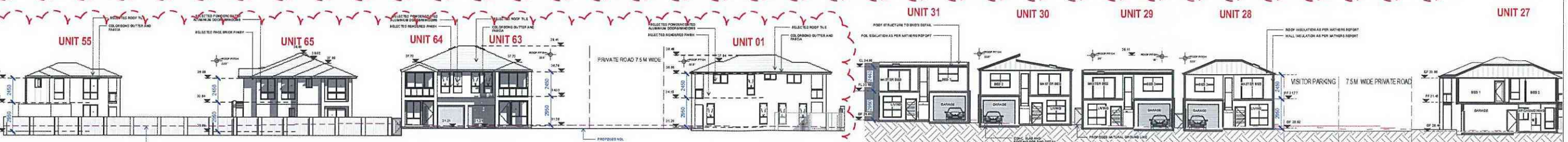
LOT 6_NORTH WEST ELEVATION-2

2 1:200



LOT 6_SOUTH EAST ELEVATION

3 1:200



LOT 6_ELEVATION 5

4 1:200



LOT 6_NORTH EAST ELEVATION

5 1:200

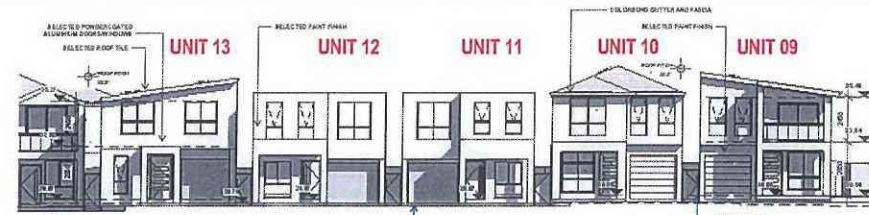
SECTION X-X

7 1:200

REVISIONS:
- PUBLIC ROAD FACING ELEVATIONS AMENDED TO
CREATE A MORE SUITABLE STREET FACING FACADE
- ELEVATIONS LABELLED TO REFLECT NORTH POINT

Energy Rating		Certificate Number	833834M
<input type="checkbox"/> single-dwelling rating		stars	
<input checked="" type="checkbox"/> multi-unit development (attach listing of ratings)	heating	MJ/m ²	
	cooling	MJ/m ²	
Recessed downlights confirmation:		<input type="checkbox"/> Rated with	<input checked="" type="checkbox"/> Rated without
Assessor Name/Number		Ingrid Tuffin	VIC/BDV/13/1852
Assessor Signature			Date 28/05/2017

			GENERAL NOTES		NORTH				PROJECT		LOT NUMBER		DRAWING TITLE		PROJECT No		DATE		DRAWING No		REV			
			THIS DRAWING IS THE EXCLUSIVE PROPERTY OF THE DEVELOPER & THE REPRODUCTION OF ANY PART WITHOUT THE WRITTEN CONSENT OF THE DEVELOPER IS A VIOLATION OF APPLICABLE LAWS. IN NO EVENT SHALL THE DEVELOPER BE HELD LIABLE FOR SPECIAL, CONSEQUENTIAL OR CONSEQUENTIAL LIABILITY IN CONNECTION WITH THE USE OF THIS DIGITAL DATA. ONCE RELEASED FROM THE DEVELOPER'S OFFICE, THIS DRAWING IS TO BE READ & UNDERSTOOD IN CONJUNCTION WITH THE S/STRUCTURAL, MECHANICAL, ELECTRICAL, AND/OR OTHER CONSULTANTS' DOCUMENTATION AS MAY BE APPLICABLE TO THE PROJECT PRIOR TO THE START OF ANY WORKS AND FOR ITS DURATION.						107 Collins Road, Glenview Sydney NSW - 2150 PO Box 270, Northmead NSW 2150 T: 02 9624 2463 F: 02 9624 4762 info@bathla.com.au www.bathla.com.au		MARSDEN PARK LOT 6/ STAGE 6 -1086 RICHMOND RD		LOT 51 DP 1196533		ELEVATIONS & SECTION		0100		MARCH 2018		DA007		4	
4			01/03/18		AMENDED AS PER COURT COMMENTS		CO																	
3			23/01/18		AMENDED AS PER COURT CONTENTIONS		CO																	
2			21/09/17		AMENDED AS PER COUNCIL: EMAIL: 29/07/2017																			
1			27/09/17		ISSUED FOR DEVELOPMENT APPLICATION		TY																	
ISSUE			DATE			REVISION			BY															
R:\Richmond Rd 1086 MARSDEN PARK\101\DA\LOT 6\DA R02\6-01.dwg Road 1086 MARSDEN PARK, V15-CP-LOT6_R03.rvt																								



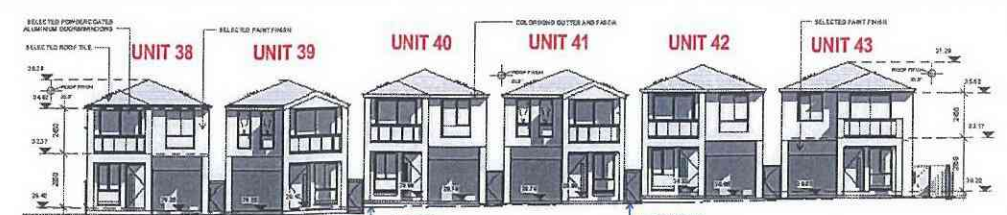
INTERNAL A_PART 2

1 1:200



INTERNAL B

2 1:200



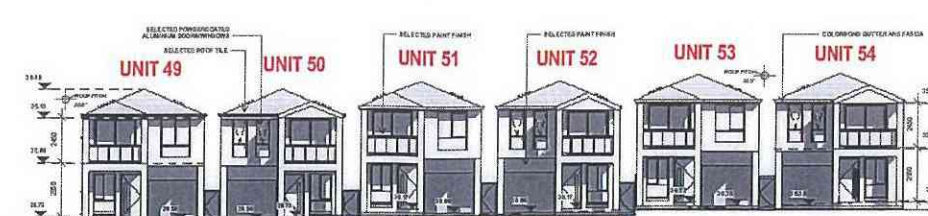
INTERNAL C

3 1:200



INTERNAL D

4 1:200



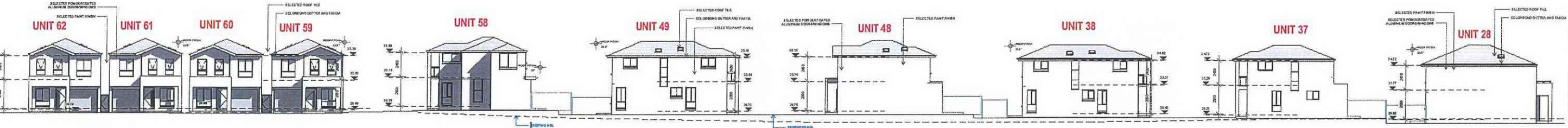
INTERNAL E

6 1:200



INTERNAL F

7 1:200



LONG INTERNAL A

5 1:200



INTERNAL G

8 1:200



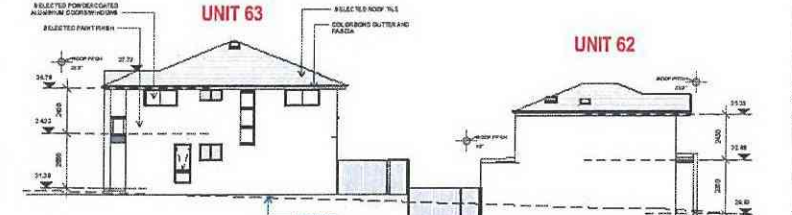
INTERNAL H

9 1:200



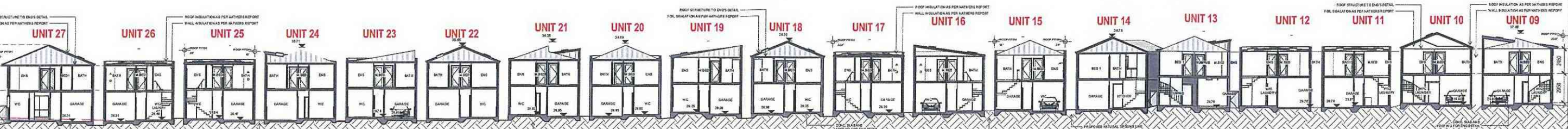
INTERNAL I

10 1:200



INTERNAL J

11 1:200



SECTION A-A

12 1:200

Energy Rating Certificate Number: 833834M

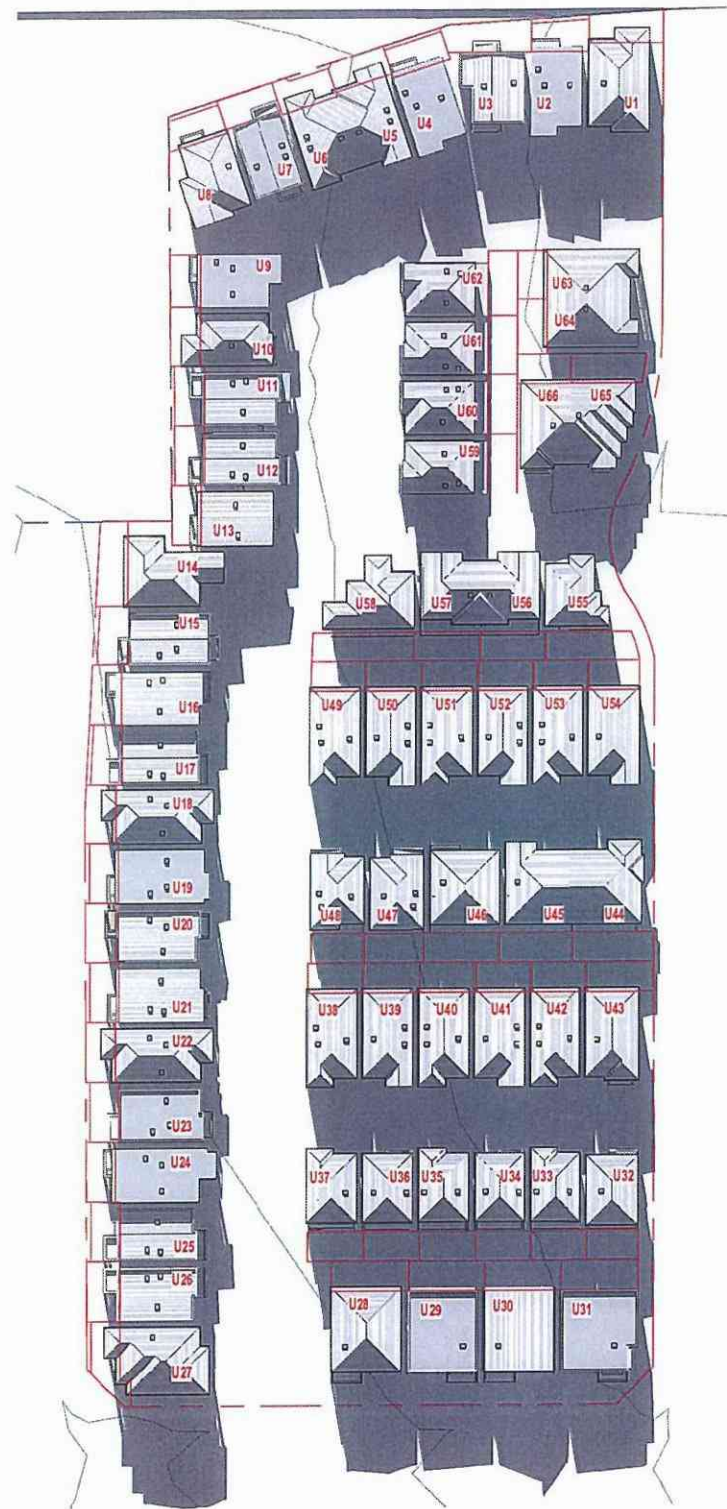
☐ single-dwelling rating

☒ multi-unit development (attach listing of ratings)

Recessed downlights confirmation: ☐ Rated with ☒ Rated without

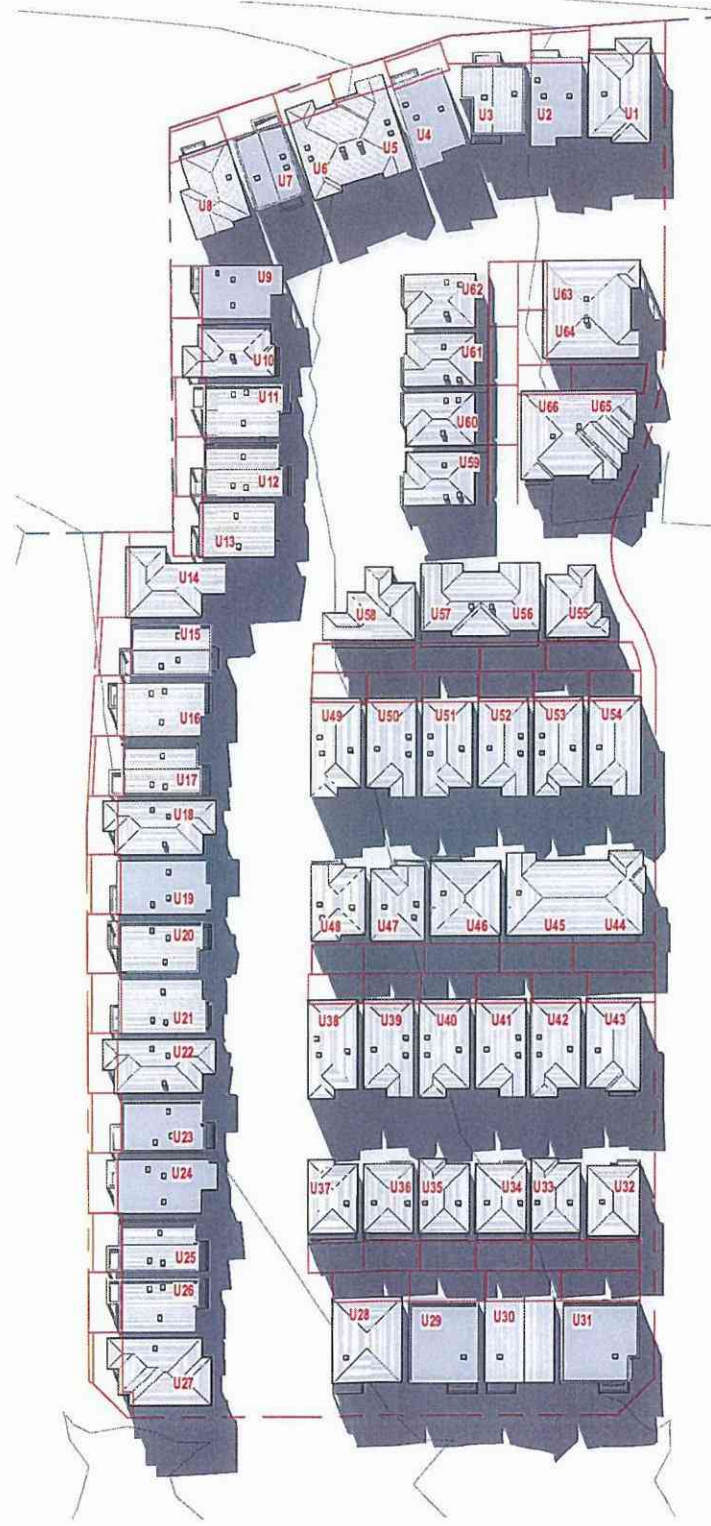
Assessor Name/Number: Ingrid Tuffin VIC/BD4V13/1652

Assessor Signature: [Signature] Date: 29/08/2017



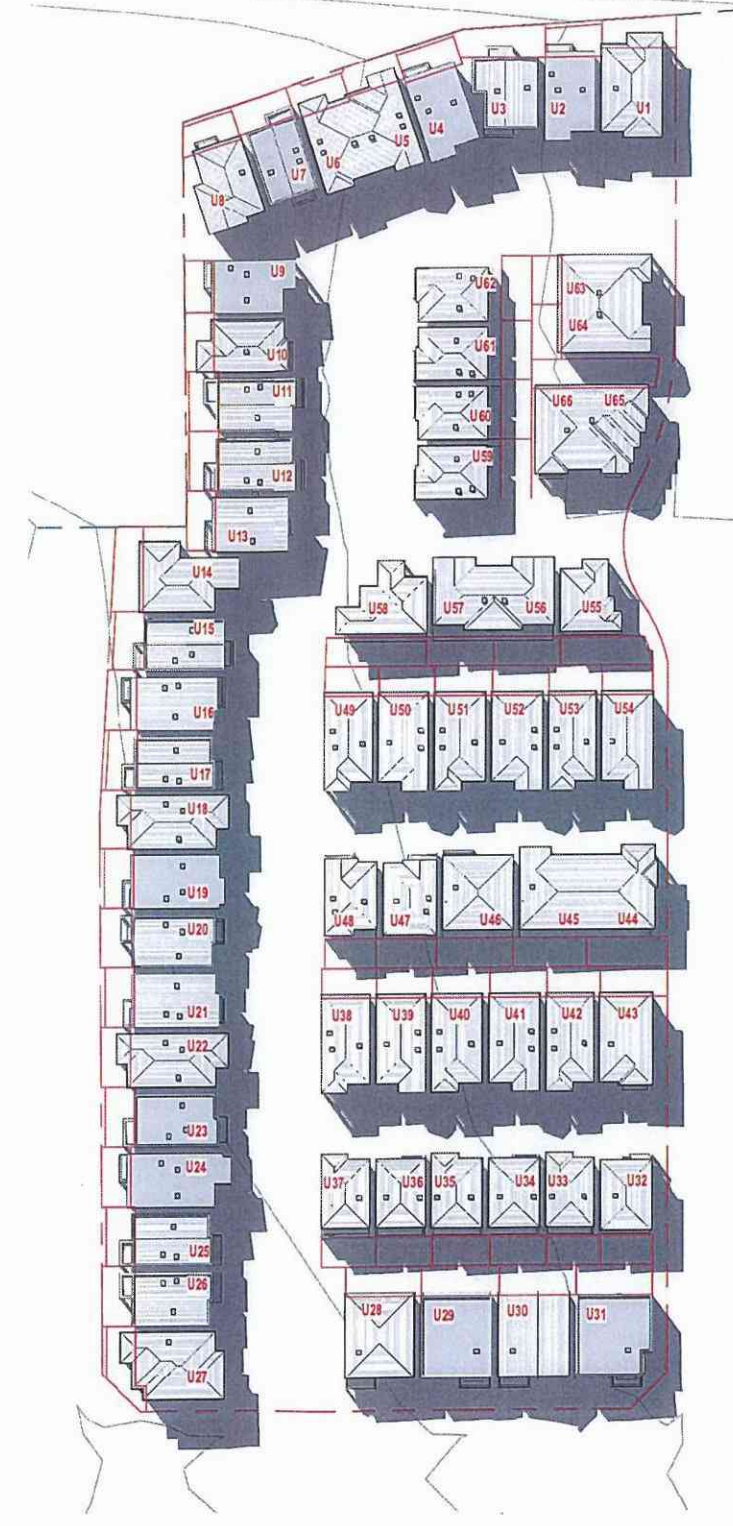
9AM SHADOWS

1 1 : 500



10AM SHADOWS

2 1 : 500



11AM SHADOWS

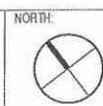
3 1 : 500

Energy Rating		Certificate Number	833034M
<input type="checkbox"/> single-dwelling rating		stars	
<input checked="" type="checkbox"/> multi-unit development (attach listing of ratings)		heating	3.5/4.0
If selected, data specified is the average across the whole development		cooling	4.0/4.0
Recessed downlights confirmation:		<input type="checkbox"/> Rated with	<input checked="" type="checkbox"/> Rated without
Assessor Name/Number		Ingrid Tuffin	VIC/BOAW131652
Assessor Signature			Date 29/06/2017

ISSUE	DATE	REVISION	BY
4	01/03/18	AMENDED AS PER COURT COMMENTS	CD
3	29/01/18	AMENDED AS PER COURT CONTENTIONS	CD
2	21/08/17	AMENDED AS PER COUNCIL EMAIL 28.07.2017	TT
1	27/06/17	ISSUED FOR DEVELOPMENT APPLICATION	TT

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LOT 51 DP 1196533
 100% SOLAR RADIATION
 100% SOLAR RADIATION
 100% SOLAR RADIATION

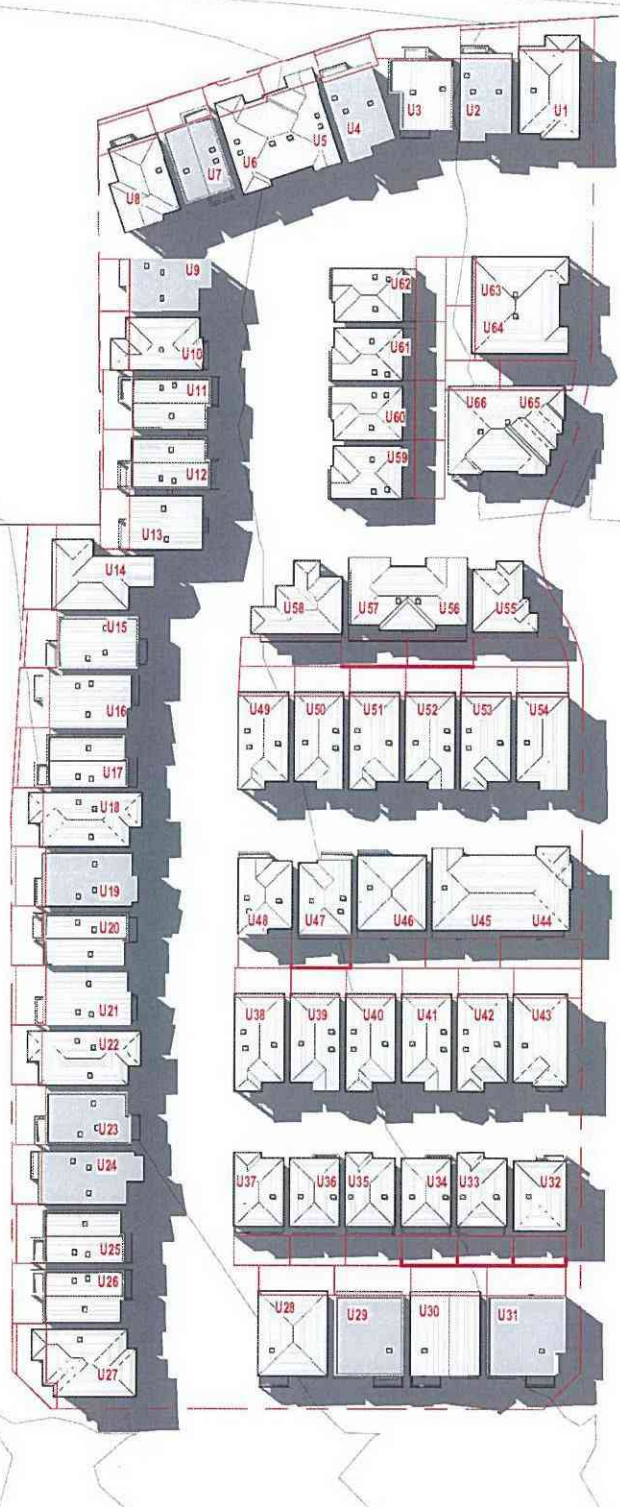
PROJECT:
MARSDEN PARK
 LOT 6/ STAGE 6 -1086 RICHMOND
 RD

LOT NUMBER:
LOT 51 DP 1196533

DRAWING TITLE:
SHADOW 1

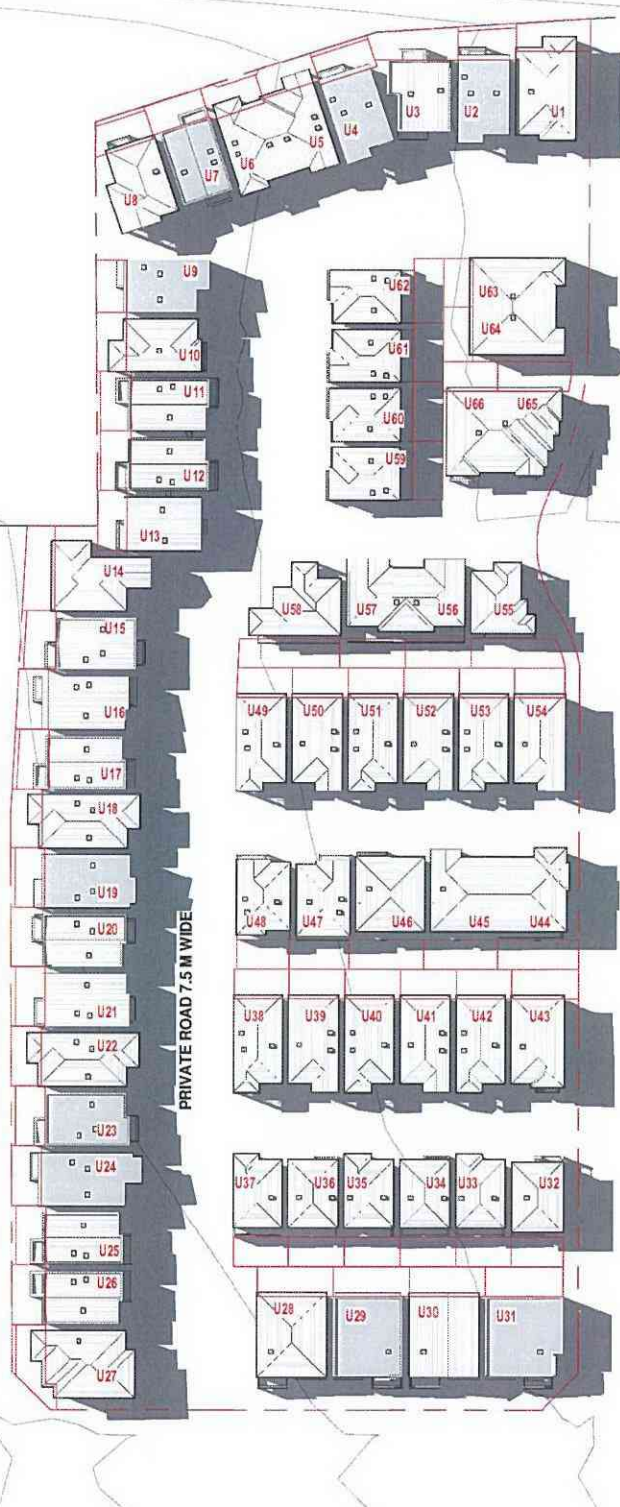
PROJECT No:	0100	DATE:	MARCH 2018	DRAWING No:	DA009	REV:	4
DRAWN BY:	TONY.T	SCALE:	1 : 500				

R:\Richmond Rd 1086 MARSDEN PARK\01DA\Arch\LOT 6\DA R02\Richmond Road\000 MARSDEN PARK_V15-CP-LOT6_R02.rvt



12PM SHADOWS

1
1 : 500



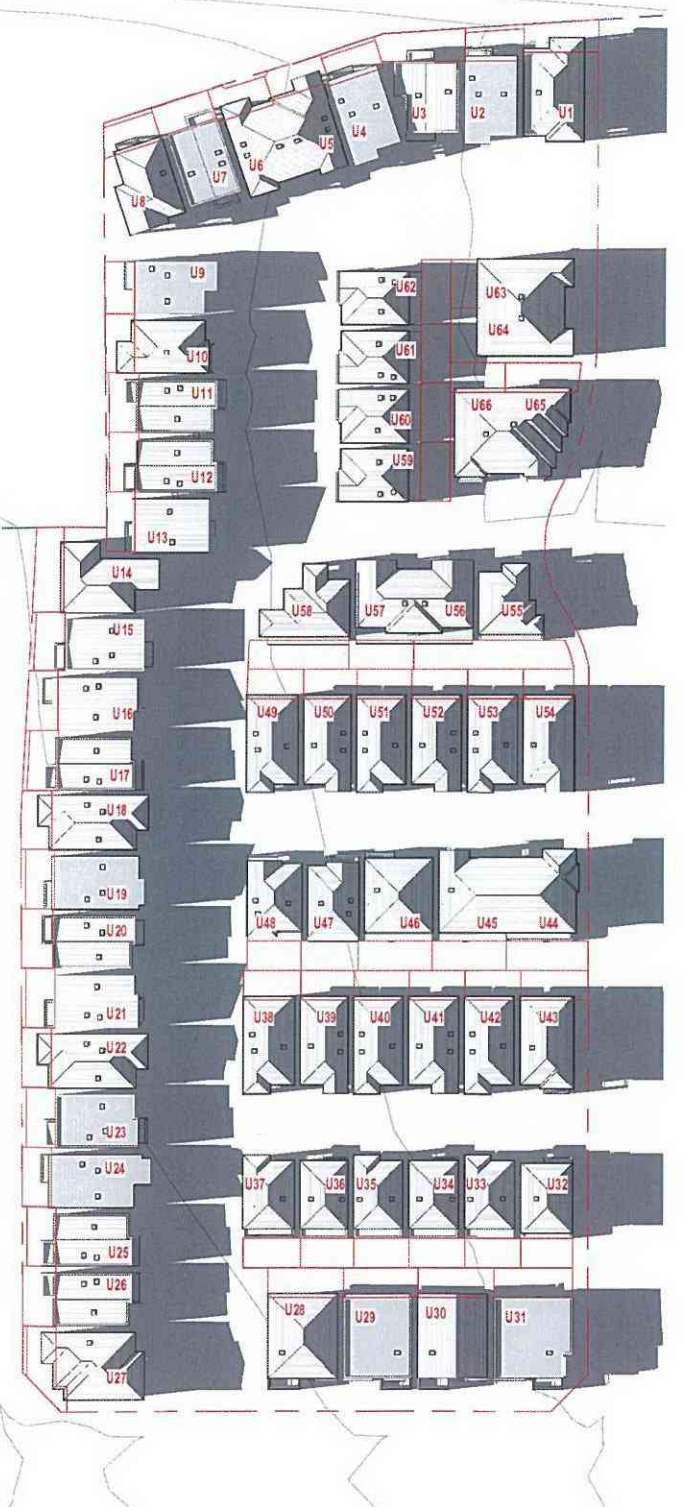
1PM SHADOWS

2
1 : 500



2PM SHADOWS

3
1 : 500



3PM SHADOWS

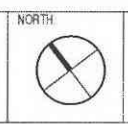
4
1 : 500

Energy Rating		Certificate Number: 833834M	
<input type="checkbox"/> single dwelling rating	<input checked="" type="checkbox"/> multi-unit development (attach listing of ratings)	heating _____	cooling _____
Recessed downlights conform to: <input type="checkbox"/> Rated with <input checked="" type="checkbox"/> Rated without			
Assessor Name/Number: Tony T. VIC/DAV/131652		Assessor Signature: _____ Date: 29/06/2017	

ISSUE	DATE	REVISION	BY
4	01/03/18	AMENDED AS PER COURT COMMENTS	CD
3	28/01/18	AMENDED AS PER COURT CONTENTIONS	CD
2	21/08/17	AMENDED AS PER COUNCIL EMAIL 28/07/2017	TT
1	27/06/17	ISSUED FOR DEVELOPMENT APPLICATION	TT

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The Bathla Group

137 (28th) Road, Cammeray NSW 1585
 Ph: 02 9439 2000 Fax: 02 9439 2001
 T: 02 9439 2002 F: 02 9439 4302
 info@bathlagroup.com.au www.bathlagroup.com.au

PROJECT: **MARSDEN PARK**
 LOT 6/ STAGE 6 - 1086 RICHMOND RD

LOT NUMBER: **LOT 51 DP 1196533**

DRAWING TITLE: **SHADOW 2**

PROJECT No: 0100	DATE: MARCH 2018	DRAWING No: DA010	REV: 4
DRAWN BY: TONY.T	SCALE: 1 : 500		

R 1086 Richmond Rd 1086 MARSDEN PARK VIC 3045 LOT 6/DA 02/2018
 Road 096 MARSDEN PARK VIC 3045 LOT 6/DA 02/2018



SITE COVERAGE PLAN

1
1 : 500

1086 RICHMOND ROAD, MARSDEN PARK LOT 6 / STAGE 6 DP 1196533			
SITE AREA	13331 M ²		
TOTAL DWELLING AREA	4784.46 M ²		
TOTAL ROAD AREA	3690.29 M ²		
TOTAL TERRACED AREA	741.64 M ²		
CONTROL	REQUIRED	PROVIDED	COMPLIANCE
SITE COVERAGE	PERMITTED MAX. 50% = 6665.5M ²	PROPOSED= 4784.46M ² , 35.89%	YES
LANDSCAPED AREA	MIN. 30% OF SITE AREA REQUIRED = 3999.3M ²	PROPOSED= 4114.61M ² 30.86%	YES

SITE COVERAGE						



1 CONCEPT LANDSCAPE PLAN
01 SCALE = 1:300

INDICATIVE IMAGES OF PROPOSED TREES



PROPOSED PLANTING SCHEDULE - LOT 6

BOTANICAL NAME	COMMON NAME	APPROX MATURED HEIGHT	POT SIZE	QUANTITY
----------------	-------------	-----------------------	----------	----------

TREES

EE	ELAECARPUS EUMUNDI	Quandong	4-6M	75 L	8
MG	MAGNOLA GRANDIFLORA 'LITTLE GEM'	Dwarf Mangola	2.5-3 M	75 L	57
TL	Tristaniopsis laurina 'Luscious'	Kanooka Gum	4m	75 L	11
GF	Glochklon Ferdinand	Cheese Tree	3-5m	75 L	36
LI	Lagerstroemia indica x L. fauriei 'Bleu'	Crepe Myrtle	4m	75 L	29

SHRUBS

AC	Arthropodium ciliatum	Renga Lily	0.8 m	300mm	34
WF	Westringia fruticosa 'Aussie Box'	Coastal Rosemary	1.5m	250mm	45
PX	Philodendron Xanadu	Xanadu	1m	300mm	51
PT	Phormium tenax	New Zealand Flax	1m	300mm	166
DE	Doryanthes excelsa	Gymea lily	1.5m	300mm	25
MP	Murraya paniculata	Orange Jessamine	2m	300mm	63

GROUND COVER / BOARDER

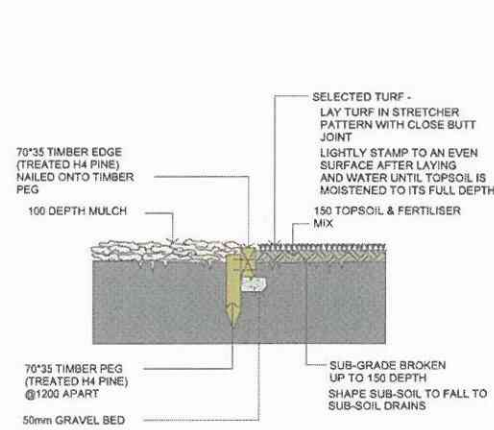
LM	Liriope muscari	Turf Lily	0.5m	150mm	52
DR	Dianella revoluta	Flax Lily	0.5m	150mm	15
BR	Anigozanthos 'Bush Ranger'	Kangaroo Paw	0.5m	150mm	51

STREET TREES

FP	Fraxinus pennsylvanica 'Urbanite'	Urbanite Green Ash	15-20m	8-10m	75LT	20
WF	Waterhousia floribunda	Weeping Lilly Pilly	5m	2-3m	75LT	7
UP	Ulmus parvifolia	Chinese Weeping Elm	10m	11m	75LT	14

Street planting detail and specifications:

- No timber or steel edging is permissible
- Install root barriers to protect assets, structures and/or underground services to a minimum depth of 600mm to street trees adjoining paths, kerb and gutter or roadways.
- Tree trunk to be a minimum 750mm from street kerb and guttering
- All imported soil to achieve the requirements of AS4419 - Soils for landscaping All tree planting holes are a minimum 1.5 times diameter and twice the depth of the root ball All mulch is to be free of deleterious material such as rock, soil, weeds and sticks.
- Mulch - Forest litter or pine bark mulch
- All soft edges (mulch, turf, grassed) to be finished to appropriate falls and flush with adjacent surface treatment.
- Use Buffalo as turf.
- Turf to consist of 25mm depth of dense, well rooted, vigorous grass growth with minimum 15mm on an average 100mm depth of top soil
- Staking is required specified as- drive 2x38x38x1800 mm hardwood stake 600mm into the ground. Secure the stem of the tree firmly with 2 x hessian ties fitted to the stem separately in opposite directions.

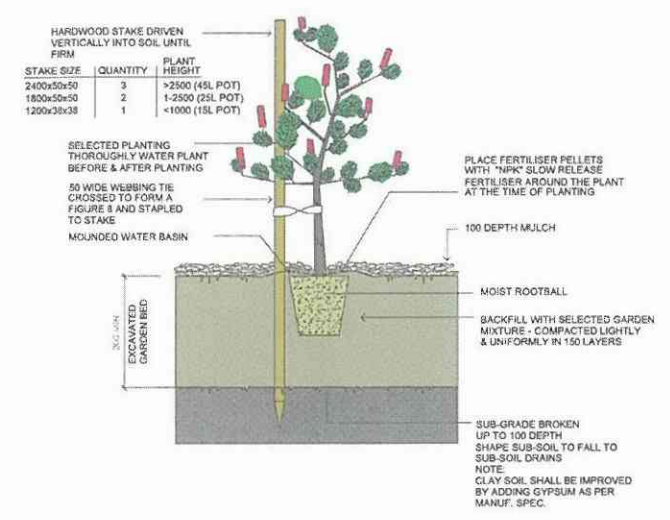


1. TURF & GARDEN EDGE DETAIL

NOTE: ALIGNMENT OF BRICK EDGE SHALL BE EVEN & FREE FROM DIPS AND HUMPS.

Specification for Maintenance:

- Mechanical line trimmers (whipper snippers) not be used within 300mm of out edge of tree trunks
- No grass to overgrow edges where it adjoins hard paved surfaces or kerbs and guttering
- No grass or weeds within mulched area in or around tree
- Stolen trees to be replaced within one week. Repeated removal of trees within the same location shall immediately be reported to Council
- All garden beds to be re-mulched to maintain a depth of 75mm and level finish with adjacent surfaces
- Mulch not to come into contact with the trunks of trees
- No visible signs of wilting of leaves or stems, with all plants to be fully turgid at all times
- No sign of over watering such as constantly wet soil, brown leaf margins, stem rot or brown spots on foliage
- No obvious signs of weed infestation in grass areas, pavements or mass planting beds
- Chemical not to be applied in extreme temperatures or wind conditions
- Removal of all suckers from base of trees
- Formative pruning of trees to allow effective canopy development and to retain natural or desired shape of the tree
- All damaged dead or diseased wood to be pruned to the nearest lateral shoot or active bud with a clean neat cut
- Performance of planting will be indicated by new growth with visible sign of new leaves; plants to possess a level of 'greenness' characteristic with the particular species; Strong floral habit and colour appropriate to the season and species; Absence of dead or damaged foliage, flowers or branches.



2. TREE & SHRUB PLANTING IN GARDEN BED

NOTE: DO NOT PLANT IN UNSUITABLE WEATHER CONDITIONS SUCH AS EXTREME HEAT, COLD, WIND OR RAIN. CLAY SOIL IS TO BE TREATED WITH CLAY BREAKER AND ORGANIC COMPOST

INSTALLATION/ EXCAVATION TIPS:

- ADD 5% TO OUTER PLAN DIMENSIONS WHEN EXCAVATING PIT.
- ALWAYS CHECK PIT DIMENSIONS AT BASE OF PIT, ENSURING SIDES ARE CLEAN AND SQUARE.
- LEVEL AND SCREED DRAINAGE LAYER PRIOR TO PLACEMENT OF CELLS.

ENSURE THAT THE PIT BASE IS SCREEDED AND COMPACTED ADEQUATELY BEFORE PLACING CELLS ON BASE, TO ALLOW FOR EASE OF INSTALLATION OF OVERALL MATRIX.

ADEQUATE DRAINAGE FROM BASE OF TREEPIT TO BE PROVIDED IF DESIGN INCORPORATES WSUD PRINCIPLES, OR IF SITE CONDITIONS REQUIRE.

PLEASE NOTE:

The contractor is to establish location and depth of services at each planting location prior to any machine excavation, especially water, gas, telecommunications, power, drainage and sewer. Where services interfere with tree placement, adjust position within 1.0m of designated location. Where tree cannot be accommodated due to services, this is a hold point and contractor is to apply for instructions.

DA ISSUE

26.02.2018	C	AMENDED AS PER COURT
29.01.2018	B	AMENDED AS PER COURT
26.05.2017	A	FOR DEVELOPMENT APPLICATION
DATE	REV	DESCRIPTION

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DO NOT SCALE

USE FIGURES DIMENSIONS AT ALL TIMES. IF IN DOUBT CHECK WITH THE BUILDER. CONTRACTORS TO CHECK AND VERIFY ALL LEVELS, DISTANCES AND DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES OR CONFLICTS TO THE BUILDER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE.

NORTH:



PROJECT:

1032,1036,1060,1070,1080,1082,1086,1132,1140
RICHMOND ROAD AND 230,232,234 GRANGE AVENUE
MARSDEN PARK

DRAWING TITLE:

LOT 6 - LANDSCAPE PLAN

PROJECT No.	DA	DATE	JAN 2017	DRAWING No.	REV.
DRAWN BY:	SS	SCALE:	AS SHOWN	LP - 01	C

BLACKTOWN CITY COUNCIL

PROPOSED RESIDENTIAL DEVELOPMENT

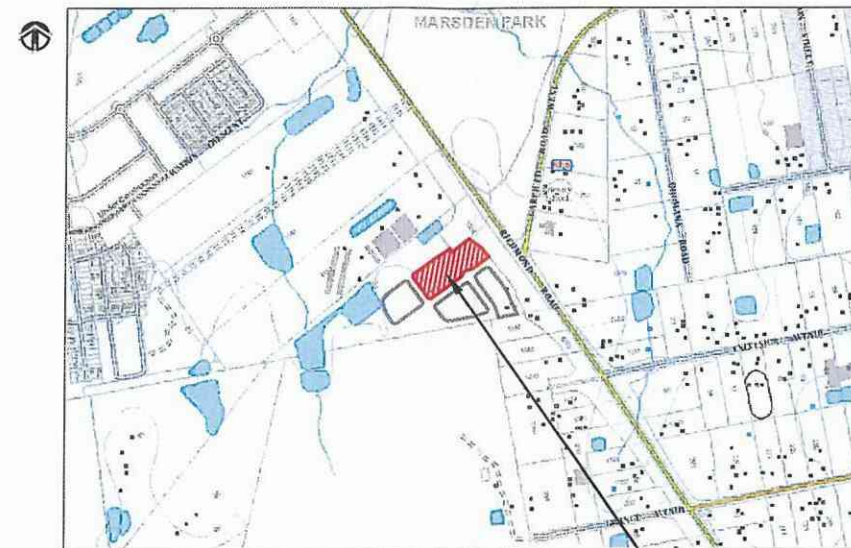
LOT 6, 1086 RICHMOND ROAD, MARSDEN PARK

DRIVEWAY & DRAINAGE PLANS

GENERAL NOTES

- ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL'S WORKS SPECIFICATION CIVIL - 2005 REQUIREMENTS AND/OR AS DIRECTED BY THEIR REPRESENTATIVE.
- THE CONTRACTOR IS TO IDENTIFY, LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION WORKS AND WHERE NECESSARY MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE OR ADJUST WHERE NECESSARY.
- COUNCIL'S TREE PRESERVATION ORDER MUST BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT THE PRIOR APPROVAL OF COUNCIL.
- ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE WORK HEALTH & SAFETY ACT 2011 AND ALL RELEVANT OCCUPATIONAL HEALTH & SAFETY POLICIES AND REGULATIONS.
- DIMENSIONS SHALL NOT BE SCALED FROM THE PLANS. CLARIFICATION OF DIMENSIONS SHALL BE SOUGHT FROM THE SUPERINTENDENT OR REFERRED TO THE DESIGNER.
- SURVEY MARKS SHOWN THUS Δ SHALL BE MAINTAINED AT ALL TIMES. WHERE RETENTION IS NOT POSSIBLE THE ENGINEER SHALL BE NOTIFIED AND CONSENT RECEIVED PRIOR TO THEIR REMOVAL.
- ALL NEW WORK IS TO MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS.
- THE CONTRACTOR IS NOT TO ENTER UPON NOR DO ANY WORK WITHIN OR ON ADJACENT LANDS WITHOUT THE PRIOR APPROVAL OF THE SUPERINTENDENT AND THE WRITTEN PERMISSION OF THE OWNERS.
- SEDIMENT MEASURES SHALL BE IMPLEMENTED PRIOR TO SOIL DISTURBANCE IN KEEPING WITH THE 4th EDITION OF LANDCOMS "SOILS AND CONSTRUCTION - MANAGING URBAN STORMWATER" MARCH 2004 TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE AND AS SHOWN IN THESE DRAWINGS.
- THE CONTRACTOR SHALL CLEAR AND DISPOSE OF ONLY THOSE TREES THAT ARE CONDEMNED BY THE PLANS. COUNCIL'S TREE PRESERVATION ORDER SHALL BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT PRIOR APPROVAL.
- THE CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES, OUT HOUSES, CAR BODIES, DEBRIS, ETC. THE CONTRACTOR SHALL NOT DISPOSE OF ANY DEBRIS BY BURNING OFF IN AN OPEN FIRE.
- UNSOFT MATERIALS AS DETERMINED BY COUNCIL'S REPRESENTATIVE SHALL BE REMOVED FROM ROADS AND LOTS PRIOR TO ANY FILLING.
- ALL SITE REGRADING AREAS SHALL BE GRADED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE. THE CONTRACTOR SHALL TAKE LEVELS ON THE EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING ANY FILL OPERATIONS.
- SURPLUS EXCAVATED MATERIAL SHALL BE PLACED OR DISPOSED OF IN ACCORDANCE WITH THE CONTRACT, OR AS DIRECTED BY THE SUPERINTENDENT.
- ALL SITE FILLING SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm AND COMPACTED IN ACCORDANCE WITH COUNCIL'S SPECIFICATION AND BE TESTED AT THE REQUIRED INTERVALS BY AN APPROVED N.A.T.A. GEOTECHNICAL LABORATORY.
- MINIMUM 150mm THICK TOPSOIL SHALL BE SPREAD ON ALL FOOTPATHS, BERMS, BATTERS AND SITE REGRADING AREAS. EXCESS TOPSOIL SHALL BE DISPOSED OF AS DIRECTED BY THE SUPERINTENDENT.
- ALL LAND DISTURBED BY EARTHWORKS SHALL BE SPRAY-GRASSED, OR SIMILARLY TREATED TO ESTABLISH GRASS COVER. SEED MIXTURES ARE TO BE APPROVED BY COUNCIL PRIOR TO SPRAYING. ALL GRASSED AREAS SHALL BE REGULARLY WATERED AND MAINTAINED UNTIL EXPIRATION OF THE MAINTENANCE PERIOD.
- THE CONTRACTOR SHALL MAINTAIN DUST CONTROL THROUGHOUT THE DURATION OF THE PROJECT.
- ALL PITS DEEPER THAN 1.2m SHALL HAVE STEP IRONS PROVIDED IN ACCORDANCE WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES THROUGH LOTS SHALL BE CONTAINED WITHIN THEIR EASEMENTS AND CONFORM WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES ON HIGH SIDE AND UNDER ROADS SHALL BE BACKFILLED SHARP SAND AND HAVE 3.0m OF AGRICULTURAL LINE WRAPPED IN AN APPROVED FILTER FABRIC, DISCHARGING INTO THE DOWNSTREAM PIT.
- SUBSOIL DRAINS SHALL BE CONSTRUCTED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE.
- PRECAST KERB INLET LINTELS SHALL BE USED ON GULLY PITS. GRATES SHALL BE "WELDLOK" TYPE GG 78-51 OR APPROVED EQUIVALENT.
- PROVIDE VEHICULAR ENTRIES IN KERB AND GUTTER WHERE SHOWN OR WHERE DIRECTED BY THE SUPERINTENDENT.
- GUIDE POSTS SHALL BE 100mm X 50mm HARDWOOD, PAINTED WHITE WITH REFLECTORS.
- ERECT STREET NAME SIGNS, CONDUIT WARNING SIGNS AND NO THROUGH ROAD SIGNS WHERE SHOWN OR WHERE DIRECTED BY COUNCIL'S REPRESENTATIVE.
- CONDUITS SHALL BE LAID AFTER POSITIONS HAVE BEEN DETERMINED BY THE RELEVANT AUTHORITIES AND BEFORE FINAL A.C. IS LAID.
- POSITION OF CONDUITS SHALL BE MARKED ON THE KERB.
- FELLED TREES SHALL BE SALVAGED FOR RE-USE AS WOODCHIP MULCH OR LOG FORM FOR SITE REHABILITATION. NON-SALVAGEABLE MATERIAL SUCH AS STUMPS AND ROOTS SHALL BE DISPOSED OF OFF SITE.
- THE CONTRACTOR SHALL PROVIDE MINIMUM 24 HOURS NOTICE TO COUNCIL'S REPRESENTATIVE FOR ALL INSPECTIONS.
- THE CONTRACTOR SHALL MAINTAIN SERVICES AND ALL WEATHER ACCESS AT ALL TIMES TO THE ADJOINING PROPERTIES.
- THE CONTRACTOR SHALL UNDERTAKE TRAFFIC CONTROL MEASURES TO COUNCIL'S SATISFACTION AND SHALL DISPLAY ALL APPROPRIATE WARNING SIGNS THROUGHOUT THE DURATION OF CONSTRUCTION.
- ALL NATURAL SURFACE DATA HAS BEEN DETERMINED BY TERRAIN MODELLING. ALL CONSTRUCTION SITE WORKS MUST BE CARRIED OUT USING THE BENCH MARKS SHOWN ON THESE DRAWINGS.

Prepared for: THE BATHLA GROUP



LOCALITY SKETCH
NOT TO SCALE

LOCATION OF WORKS

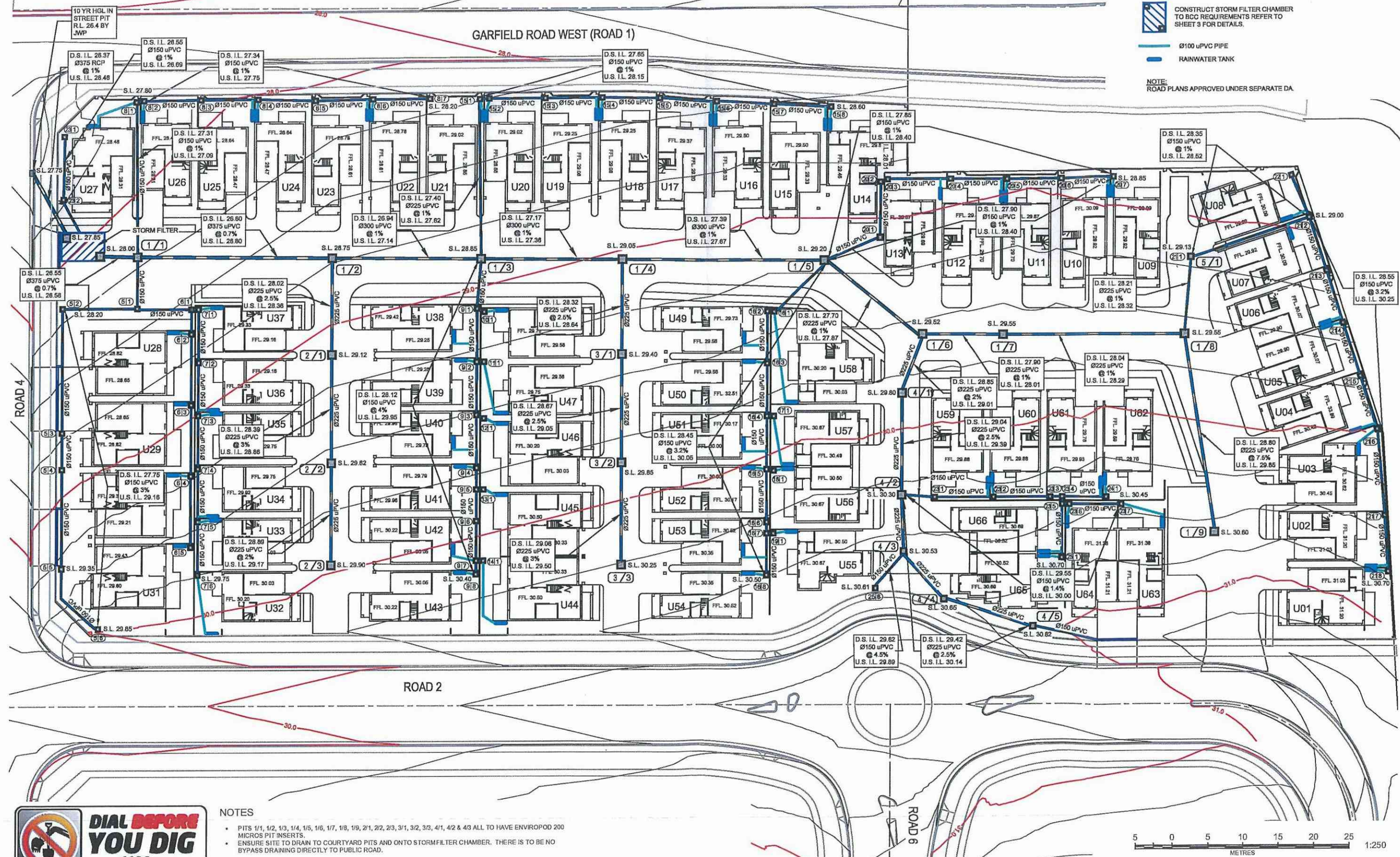
SHEET INDEX

SHEET No.	DESCRIPTION
COVER SHEET	COVER SHEET - GENERAL NOTES, SHEET INDEX AND LEGEND
2	GENERAL ARRANGEMENT PLAN
3	TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS
4	WATER QUALITY CATCHMENT PLAN
5	SOIL AND WATER MANAGEMENT PLAN
6	SOIL AND WATER MANAGEMENT DETAILS

LEGEND

---	ROOF DRAINAGE LINE
---	PROPOSED DRAINAGE LINE
---	EXISTING DRAINAGE LINE
---	NATURAL SURFACE CONTOUR
-79.2- - -	DESIGN SURFACE CONTOUR
---	TABLE DRAIN
---	EXISTING HEADWALL
---	PROPOSED HEADWALL
---	LIMIT OF CONSTRUCTION
---	LIMIT OF WORKS
PIT 1/2	PIT NUMBER
---	SUBSOIL DRAINAGE LINE
---	GRADED SURFACE INLET PIT
---	SEALED PIT
---	KERB INLET PIT

A1



NOTES

- PITS 1/1, 1/2, 1/3, 1/4, 1/5, 1/6, 1/7, 1/8, 1/9, 2/1, 2/2, 2/3, 3/1, 3/2, 3/3, 4/1, 4/2 & 4/3 ALL TO HAVE ENVIROPOD 200 MICRO PITS INSERTS.
- ENSURE SITE TO DRAIN TO COURTYARD PITS AND ONTO STORM FILTER CHAMBER. THERE IS TO BE NO BYPASS DRAINING DIRECTLY TO PUBLIC ROAD.

No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



SYDNEY
P. 02 9659 0005
CENTRAL COAST
P. 02 4325 5255
HUNTER
P. 02 4906 6308
ASB: 26 134 057 842
brs.com.au
mail@brs.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 6
1086 RICHMOND ROAD, MARSDEN PARK

OVERALL SITE PLAN

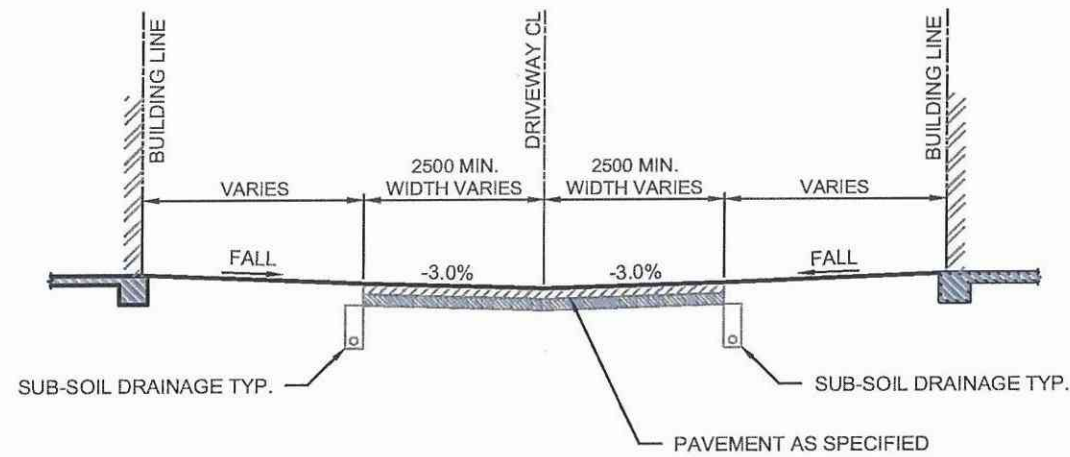
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Vert.
X-Sect.

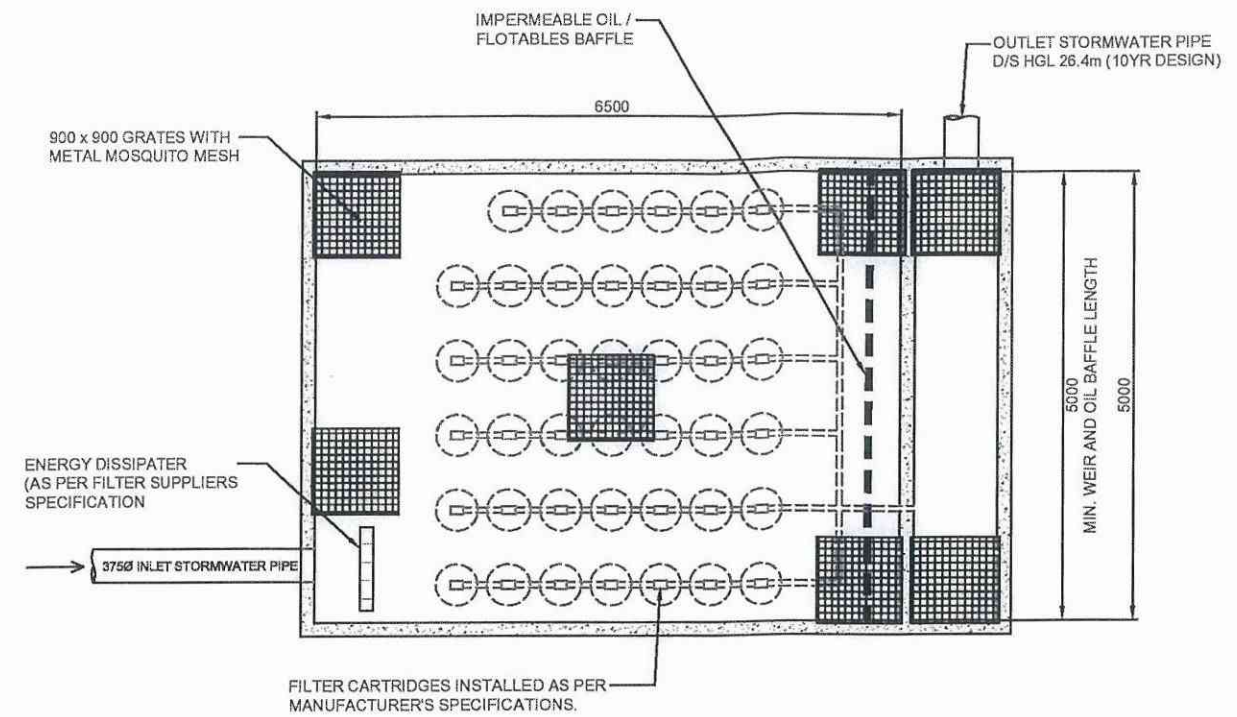
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Plan No.
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File Ref.
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SHEET 3 OF 6 SHEETS
REV.
B

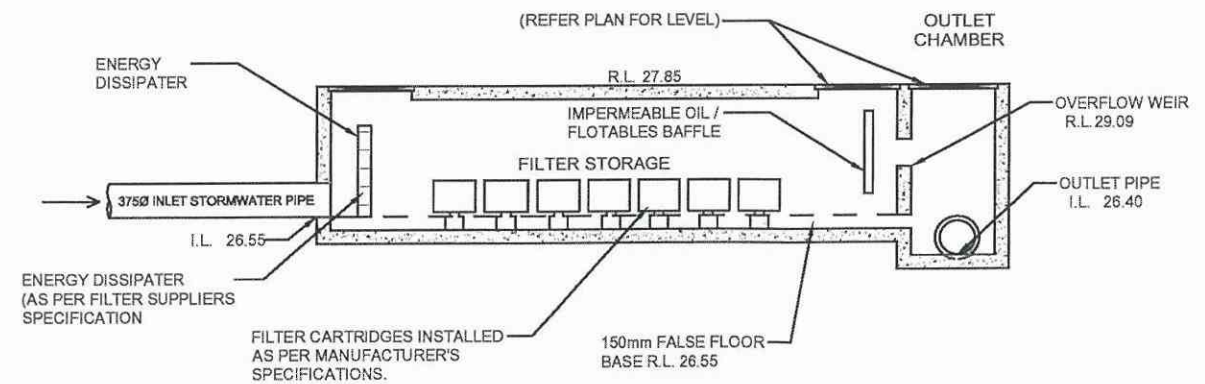
A1



TYPICAL SECTION - DRIVEWAY
NOT TO SCALE



PLAN FILTER STORAGE TANK &
OUTLET CHAMBER
SCALE 1:40



TYPICAL SECTION THROUGH FILTER
STORAGE TANK & OUTLET CHAMBER
SCALE 1:40

WATER QUALITY - LOT 6

3000L RWT PER UNIT	
STORMFILTER TANK DIMENSIONS	6.5m x 5.0m
NUMBER OF STORMFILTER CARTRIDGES (460mm)	41
NUMBER OF ENVIROPODS	18

0.8 0 0.8 1.6 2.4 3.2 4.0
METRES 1:40



No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



SYDNEY
P. 02 9559 0005
CENTRAL COAST
P. 02 4325 5255
HUNTER
P. 02 4966 6308
ASB: 20 134 057 842
brs.com.au
mail@brs.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 6
1086 RICHMOND ROAD, MARSDEN PARK

TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS

Designed: AD
Drawn: PMM
Checked: GJR

Scales: Plan
Horiz.
Vert.
X-Sect.

Datum: A.H.D.

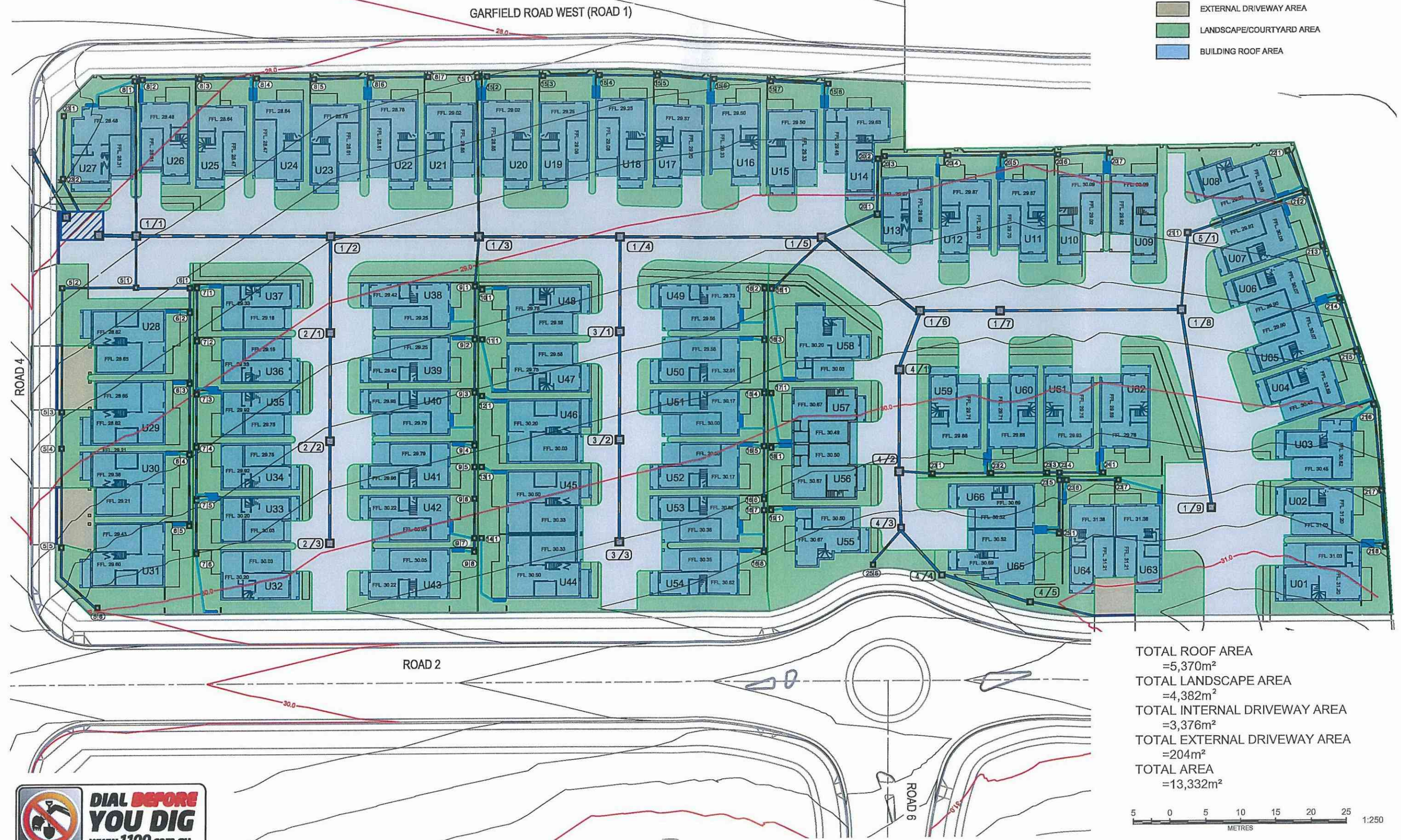
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SY170226C603
File Ref.
SY170226C600-B.dwg
SHEET 3 OF 6 SHEETS
REV. **B**

A1



LEGEND

- INTERNAL DRIVEWAY AREA
- EXTERNAL DRIVEWAY AREA
- LANDSCAPE/COURTYARD AREA
- BUILDING ROOF AREA



TOTAL ROOF AREA
=5,370m²
TOTAL LANDSCAPE AREA
=4,382m²
TOTAL INTERNAL DRIVEWAY AREA
=3,376m²
TOTAL EXTERNAL DRIVEWAY AREA
=204m²
TOTAL AREA
=13,332m²

5 0 5 10 15 20 25
METRES 1:250



No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



SYDNEY
P. 02 9559 0005
CENTRAL COAST
P. 02 4325 5255
HUNTER
P. 02 4968 8388
ABN: 26 134 057 842
bri.com.au
mai@bri.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 6
1086 RICHMOND ROAD, MARSDEN PARK

WATER QUALITY CATCHMENT PLAN

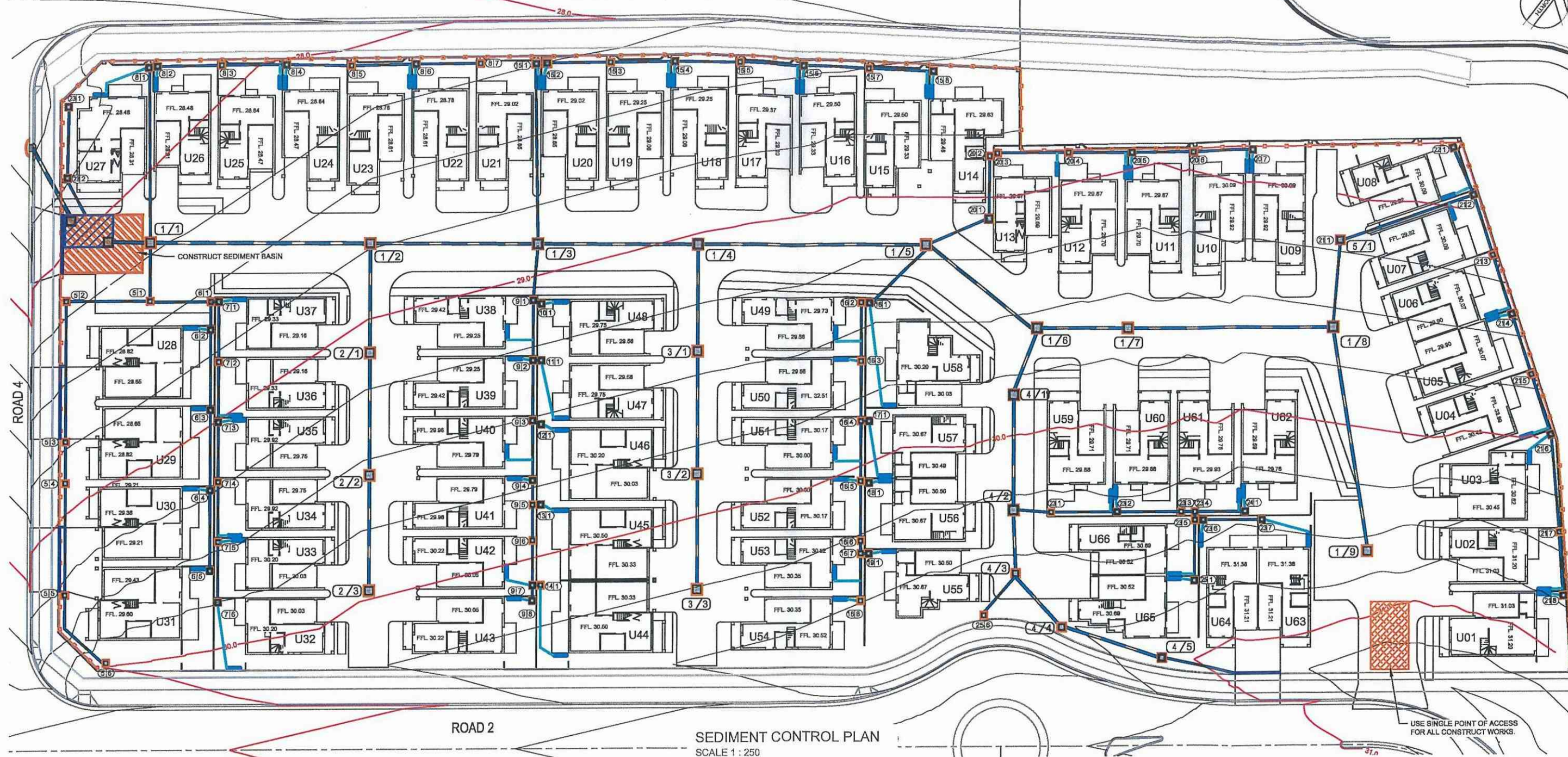
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Drawn: PMM
Checked: GJR

Scales: Plan 1 : 250
Horiz.
Vert.
X- Sect.
Datum: A.H.D.

Plan No.
SY170226C604
File Ref.
SY170226C600-B.dwg
SHEET 4 OF 6 SHEETS
REV. B

A1

GARFIELD ROAD WEST (ROAD 1)



LEGEND

- SEDIMENT FENCE
- STABILISED SITE ACCESS AT ENTRANCE TO WORKS
- SURFACE INLET PIT SEDIMENT TRAP
- HAY BALE SEDIMENT TRAP
- INLET 'SAUSAGE' FILTER

EROSION AND SEDIMENTATION CONTROL NOTES

- PRIOR TO THE COMMENCEMENT OF SITE DISTURBANCE, THE CONTRACTOR SHALL ESTABLISH ALL NECESSARY EROSION AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THIS PLAN, COUNCIL'S "CIVIL WORKS SPECIFICATION, PART 2-CONSTRUCTION", AND THE NSW DEPARTMENT OF HOUSING'S PUBLICATION "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION".
- THE LOCATION OF EROSION AND SEDIMENTATION CONTROL DEVICES SHOWN ON THIS PLAN ARE INDICATIVE ONLY AND SHOULD BE ADJUSTED TO SUIT SITE CONDITIONS.
- WHERE WORKS ARE DELAYED OR IN ABEYANCE AND DISTURBED AREAS ARE LIKELY TO BE EXPOSED FOR A PERIOD OF TWO MONTHS OR MORE, TEMPORARY REHABILITATION WORKS SHALL BE UNDERTAKEN TO PROTECT THE SITE.
- ALL DISTURBED AREAS SHALL BE TOPSOILED, SEEDED AND MULCHED WITHIN 20 DAYS OF THE COMPLETION OF THE WORKS.
- ALL AREAS WITH SLOPES STEEPER THAN 12% (1 in 5) SHALL BE STRAW MULCHED IN CONJUNCTION WITH SEEDED, OR TURFED.
- SILT BARRIERS LOCATED AROUND KERB INLET AND ROAD PITS SHALL BE REINSTATED FOLLOWING ROAD PAVING WORKS IF IT IS LIKELY THAT UNDISTURBED AREAS WILL STILL DRAIN TO THE PIT.
- SANDBAGS SHALL BE PLACED ACROSS THE END OF ROAD CONSTRUCTION AT THE COMPLETION OF EACH DAYS WORK TO PREVENT EROSION OF THE CONSTRUCTED MATERIAL.
- THE CONTRACTOR SHALL CONDUCT WEEKLY INSPECTIONS OF THE SITE TO ENSURE THAT ALL DEVICES AND REHABILITATION AREAS HAVE BEEN ADEQUATELY MAINTAINED. THE CONTRACTOR SHALL ALSO KEEP A LOG BOOK DETAILING SUCH INSPECTIONS, AND RECORDING RAINFALL EVENTS AND OTHER RELEVANT EVENTS.
- TOPSOIL SHALL BE STOCKPILED IN THE LOCATIONS SHOWN ON THIS PLAN OR AS DIRECTED BY COUNCIL'S ENGINEER. WHERE IT IS LIKELY THAT STOCKPILES WILL REMAIN IN PLACE FOR A PERIOD EXCEEDING 4 WEEKS, THEN THE STOCKPILE SHALL BE STABILISED BY SEEDED OR EQUIVALENT METHODS.
- ALL REVEGETATION WORKS ARE TO BE MAINTAINED, INCLUDING WATERING AND MOWING WHERE NECESSARY UNTIL THE COMPLETION OF THE MAINTENANCE PERIOD.
- THE MOVEMENT OF VEHICULAR TRAFFIC ON THE SITE SHALL BE CONFINED TO DESIGNATED AREAS DURING CONSTRUCTION WORKS. VEHICULAR ACCESS SHALL BE DENIED TO AREAS TO BE LEFT UNDISTURBED.
- SITE ACCESS SHALL BE LIMITED TO THE LOCATIONS SHOWN ON THIS PLAN. SHAKE-DOWN AREAS SHALL BE CONSTRUCTED AS SHOWN.
- DURING CONSTRUCTION WORKS, DUST CONTROL MEASURES SHALL BE IMPLEMENTED TO MINIMISE THE AMOUNT OF DUST GENERATED FROM THE SITE. THESE MEASURES TO BE IMPLEMENTED TO COUNCIL'S SATISFACTION.
- MAINTENANCE AND CLEANING OF CONSTRUCTION PLANT SHALL BE CARRIED OUT IN AN AREA WHERE RUNOFF CAN BE CONTAINED AND APPROPRIATELY TREATED AND DISPOSED OF.
- ALL EROSION AND SEDIMENTATION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE ADEQUATELY REGENERATED. THIS STAGE SHALL BE DETERMINED BY THE CERTIFIER.

SEDIMENT CONTROL PLAN
SCALE 1 : 250

No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



SYDNEY
P. 02 9559 0005
CENTRAL COAST
P. 02 4325 5255
HUNTER
P. 02 4995 6388
AS/NZS 25134:067 642
bbs.com.au
mailto:bbs@bbs.com.au

Client:

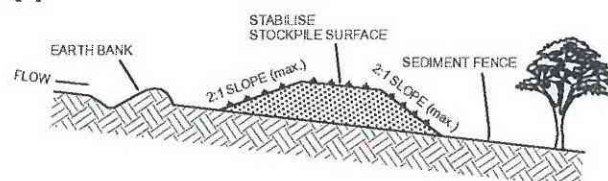


PROPOSED DEVELOPMENT AT LOT 6
1086 RICHMOND ROAD, MARSDEN PARK
SOIL AND WATER MANAGEMENT PLAN

Designed: AD
Drawn: PMM
Checked: GJR

Scales: Plan 1 : 250
Horiz.
Vert.
X-Sept.
Datum: A.H.D.

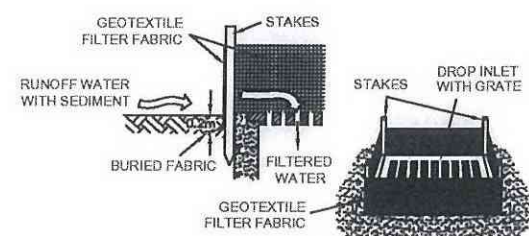
Plan No.
ST170226C605
File Ref.
SY170226C600-B.dwg
SHEET 5 OF 6 SHEETS
REV. **B**



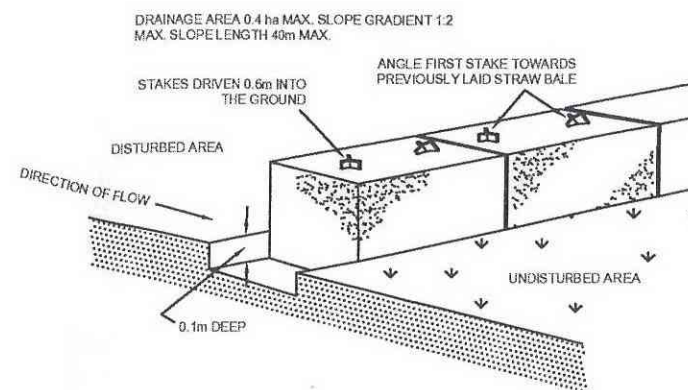
CONSTRUCTION NOTES

1. WHERE POSSIBLE LOCATE STOCKPILE AT LEAST 5 METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOWS, ROADS, HAZARD AREAS AND MIN. 15m AWAY FROM EMBANKMENTS.
2. CONSTRUCT ON THE CONTOUR AS A LOW, FLAT ELONGATED MOUND.
3. WHERE THERE IS SUFFICIENT AREA TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. REHABILITATE IN ACCORDANCE WITH THE SWMP/ESCP.
5. CONSTRUCT EARTH BANK (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT RUN OFF AROUND THE STOCKPILE AND A SEDIMENT FENCE (STANDARD DRAWING 6-6) 1 TO 2 METRES DOWNSLOPE OF STOCKPILE.

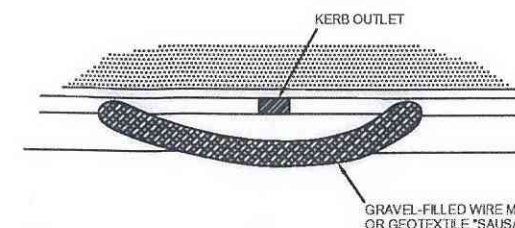
TOPSOIL STOCKPILE



SURFACE INLET PIT SEDIMENT TRAP



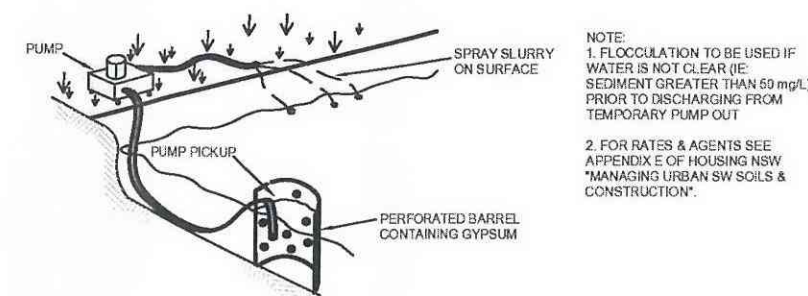
STRAW BALE SEDIMENT FILTER



CONSTRUCTION NOTES

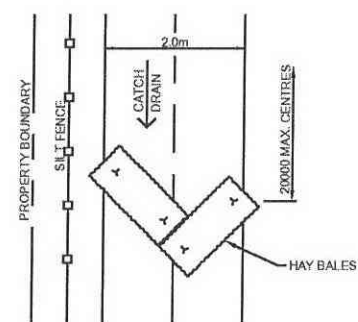
1. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH AND FILL IT WITH 25mm TO 50mm GRAVEL.
2. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH X 400mm WIDE.
3. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING FILTER.
4. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

MESH & GRAVEL FILTER "SAUSAGE" BARRIER

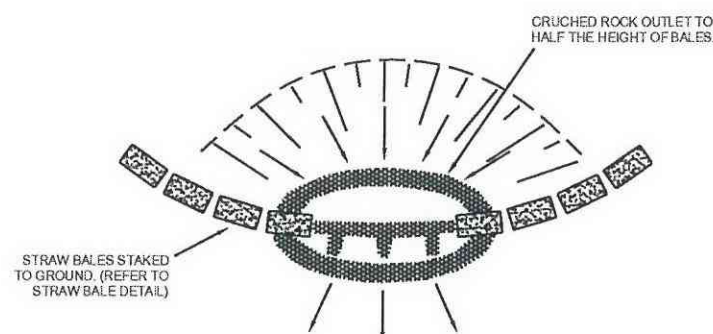


- NOTE:
1. FLOCCULATION TO BE USED IF WATER IS NOT CLEAR (IE: SEDIMENT GREATER THAN 50 mg/L) PRIOR TO DISCHARGING FROM TEMPORARY PUMP OUT
 2. FOR RATES & AGENTS SEE APPENDIX E OF HOUSING NSW "MANAGING URBAN SW SOILS & CONSTRUCTION".

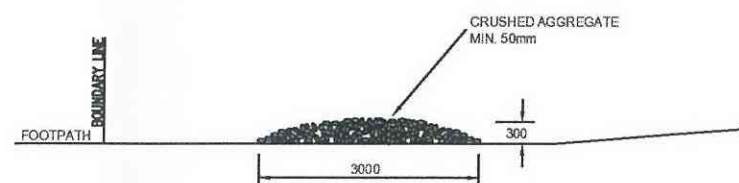
FLOCCULATION DETAIL



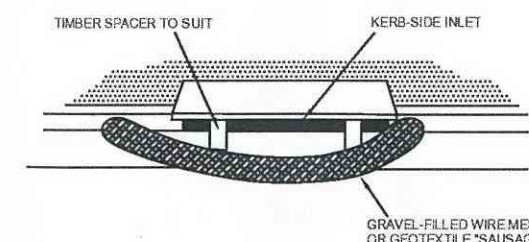
CATCH DRAIN DETAIL



STRAW BALE & CRUSHED ROCK SEDIMENT FILTER



VEHICLE DUST SHAKE DOWN DETAIL



CONSTRUCTION NOTES

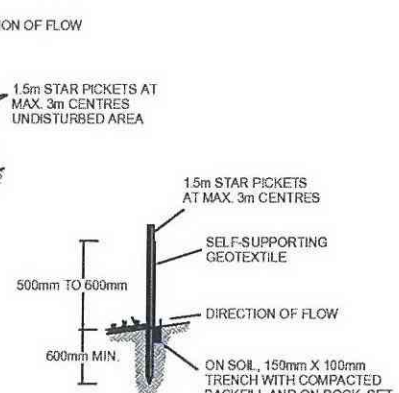
1. INSTALL FILTERS TO KERB INLET ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH X 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

MESH & GRAVEL INLET "SAUSAGE" FILTER

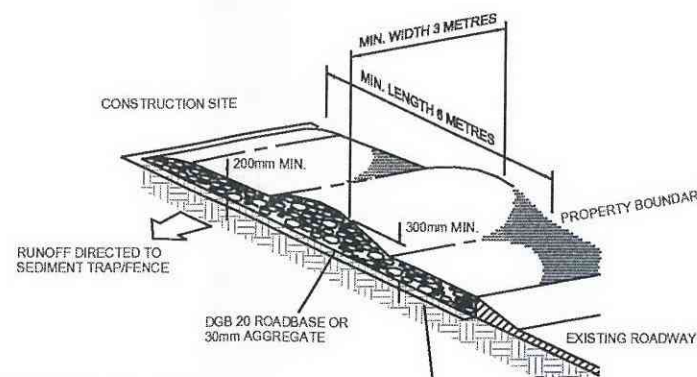
CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
2. DRIVE 1.5m LONG STAR PICKETS INTO GROUND 2.5 METRES APART (MAX.)
3. DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE



SECTION DETAIL



CONSTRUCTION NOTES

1. STRIP TOPSOIL AND LEVEL SITE.
2. COMPACT SUBGRADE.
3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
4. CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROADBASE OR 30mm AGGREGATE. MINIMUM LENGTH 15 METRES OR TO BUILDING ALIGNMENT. MINIMUM WIDTH 3 METRES.
5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR OTHER SEDIMENT TRAP.

STABILISED SITE ACCESS



No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



SYDNEY
P. 02 9859 0005
CENTRAL COAST
P. 02 4325 5255
HUNTER
P. 02 4969 8368
AEN 20 134 057 842
brs.com.au
mail@brs.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 6
1086 RICHMOND ROAD, MARSDEN PARK

SOIL AND WATER MANAGEMENT DETAILS

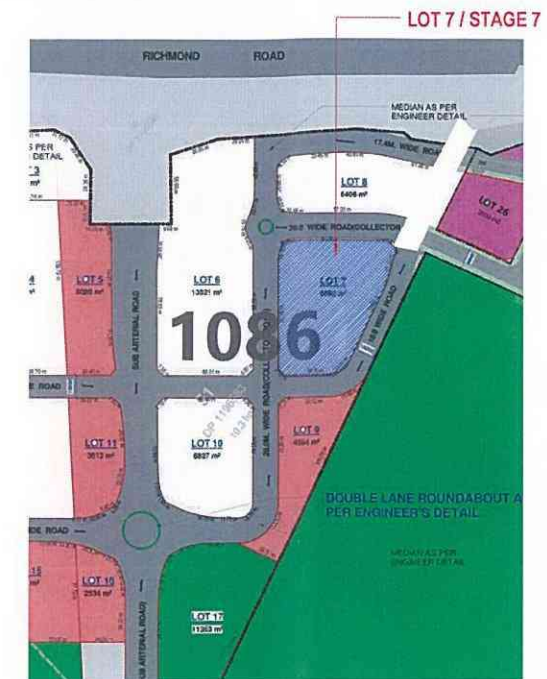
Designed: AD
Drawn: PMM
Checked: GJR

Scales: Plan
Horiz.
Vert.
X-Sect.
Datum: A.H.D.

Plan No.
SY170226C606
File Ref.
SY170226C600-B.dwg
SHEET 6 OF 6 SHEETS

REV.
B

The diagram illustrates a site analysis for a residential development. It features a central cluster of buildings, each labeled with a unit number (e.g., U1, U2, U3, U4, U5, U6, U7, U8, U9, U10, U11, U12, U13, U14, U15, U16, U17, U18, U19, U20, U21, U22, U23, U24, U25, U26, U27, U28, U29, U30, U31, U32, U33, U34, U35, U36, U37, U38, U39, U40, U41, U42, U43, U44, U45, U46, U47, U48, U49, U50, U51, U52, U53, U54, U55, U56, U57, U58, U59, U60, U61, U62, U63, U64, U65, U66, U67, U68, U69, U70, U71, U72, U73, U74, U75, U76, U77, U78, U79, U80, U81, U82, U83, U84, U85, U86, U87, U88, U89, U90, U91, U92, U93, U94, U95, U96, U97, U98, U99, U100). The buildings are arranged in a grid-like pattern, with some units labeled 'A' and others 'P'. The site is bounded by a '20m WIDE COLLECTOR ROAD (ACCESS GRANTED)' on the left and a '18m WIDE ROAD' on the right. A '20m WIDE COLLECTOR ROAD (ACCESS GRANTED)' is also shown at the top. The diagram includes wind direction indicators: 'TEMPERATE NORTH EASTERLY BREEZE' at the top, 'TEMPERATE SOUTH EASTERLY BREEZE' on the right, 'WINTER SUN' on the left, and 'SUMMER SUN' at the bottom. A 'SOUTH WESTERLY WINTER WINDS' indicator is shown at the bottom right. A north arrow is located in the top left corner. The scale is 1:500.



DRAWING REGISTER			
Sheet Number	Sheet Name	Issue Date	Re
DA001	SITE ANALYSIS	21/12/17	4
DA002	SITE PLAN	21/12/17	4
DA003	GROUND FLOOR	21/12/17	4
DA004	FIRST FLOOR	21/12/17	4
DA005	ELEVATIONS & SECTION	21/12/17	4
DA006	SHADOW ANALYSIS 1	21/12/17	4
DA007	SHADOW ANALYSIS 2	21/12/17	4
DA008	SITE COVERAGE	01/17/18	4

-  SITE BOUNDARY
-  WIND DIRECTION
-  PROPOSED BUILDING
-  NEIGHBOURHOOD PROPERTIES
-  PRIVATE OPEN SPACE
-  VEHICULAR MOVEMENT
-  VEHICULAR ACCESS
-  TREES TO BE RETAINED
-  TREES TO BE REMOVED

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4	28/02/18	AMENDED AS PER COURT COMMENTS	JM
3	29/01/18	AMENDED AS PER COURT COMMENTS	CD
2	20/12/17	AMENDMENTS AS PER COURT COMMENTS	AN
1	26/06/17	ISSUED FOR DA	TS
ISSUE	DATE	REVISION	BY




PROJECT:
1086 RICHMOND ROAD
MARSDEN PARK - LOT 7 / STAGE 7

LOT NUMBER:
LOT 51 DP 1196583

SITE ANALYSIS

DATE: JAN2018	SCALE: As indicated	DRAWING No.:	REV:
DRAWN BY: MCC & AH	PROJECT NO: 0100	DA001	4

DO NOT SCALE	NORTH
<p>USE FIGURED DIMENSIONS AT ALL TIMES. IF IN DOUBT CHECK WITH THE BUILDER.</p> <p>CONTRACTORS TO CHECK AND VERIFY ALL LEVELS, SATINGS AND DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES OR DIMENSIONS TO THE BUILDER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE.</p>	

DA ISSUE

COMPLIANCE TABLE - LOT 7 / STAGE 7							
PROPOSED DEVELOPMENT FACILITATE THE CONSTRUCTION OF 48 RESIDENTIAL TOWNHOUSES							
1566 RICHMOND ROAD, MARESDEN PARK LOT 51 DP 1506563							
SITE AREA	8080.0M ²	48 DWELLING-DOUBLE STOREY		39 UNITS - THREE BEDROOM 04 UNITS - FOUR BEDROOM 03 UNITS - ADAPTABLE HOUSES - FIVE BEDROOM 01 UNIT - ADAPTABLE HOUSES - FOUR BEDROOM 01 UNIT - ADAPTABLE HOUSES - THREE BEDROOM			
CONTROL	REQUIRED	PROVIDED	COMPLIANCE	CONTROL	REQUIRED	PROVIDED	COMPLIANCE
SITE COVERAGE	PERMITTED MAX 50% x 4540M ²	PROPOSED = 3969M ²	YES	FRONT SETBACK	4.5M	4.5M OR GREATER	YES
				REAR SETBACK	4M	4M OR GREATER	YES
				SIDE SETBACK	2.5M	2.5M OR GREATER	YES
LANDSCAPED AREA	MIN 30% OF SITE AREA REQUIRED = 2424M ²	PROPOSED = 2810M ²	YES	CORNER SETBACK	3M	3M OR GREATER	YES
CAR PARKINGS	1 CAR PARKING SPACE PER EACH DWELLING PLUS 2 SPACES FOR WORK BEDROOM DWELLING +12	11 CAR SPACES	YES	MAX. BUILDING HEIGHT	9M UNDERSIDE OF EAVES	LESS THAN 9M	YES
VISITOR CAR PARKING	1 CAR SPACES/5 DWELLINGS +12	12 CAR SPACES	YES	PRIVATE OPEN SPACE	MIN 100M ² WITH MIN. CONVERSION OF 2M OR 10M FOR DWELLING BALCONY OR ROOF TOP WITH MIN. DWELLING MIN.	MIN 100M ² P.D. 5. PER DWELLING OR GREATER	YES
				FENCING	1.8M HIGH	1.8M HIGH OR CF	YES

 **Energy Rating** Certificate Number **836507H**

☐ single-dwelling rating

☒ multi-unit development (attach sheet of ratings)

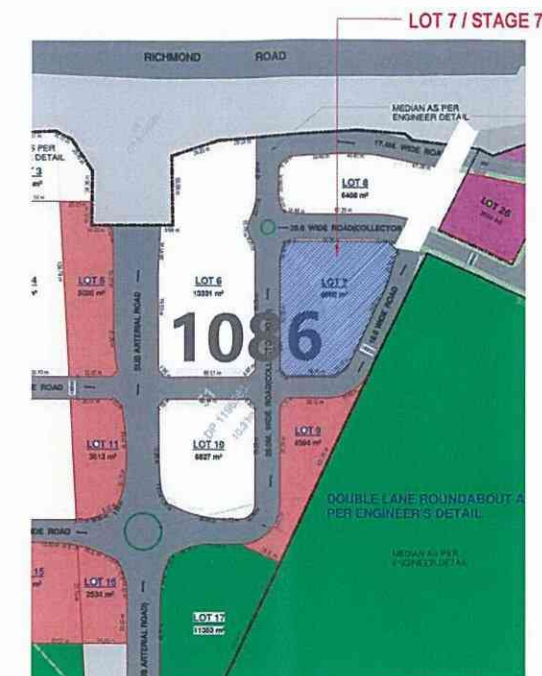
heating MJ/m²

cooling MJ/m²

Recessed downlights combination: ☐ Rated with ☒ Rated without

Assessor Name/Number Ingrid Tait VIC-BDAP-121852

Assessor Signature [Signature] Date 29/06/2017



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4	28/02/18	AMENDED AS PER COURT COMMENTS
3	29/01/18	AMENDED AS PER COURT COMMENTS
2	20/12/17	AMENDMENTS AS PER COURT COMMENTS
1	26/06/17	ISSUED FOR DA
ISSUE	DATE	REVISION



PROJECT:
1086 RICHMOND ROAD
MARSDEN PARK - LOT 7 / STAGE 7

LOT NUMBER:
LOT 51 DP 1196583

DRAWING TITLE:

SITE PLAN

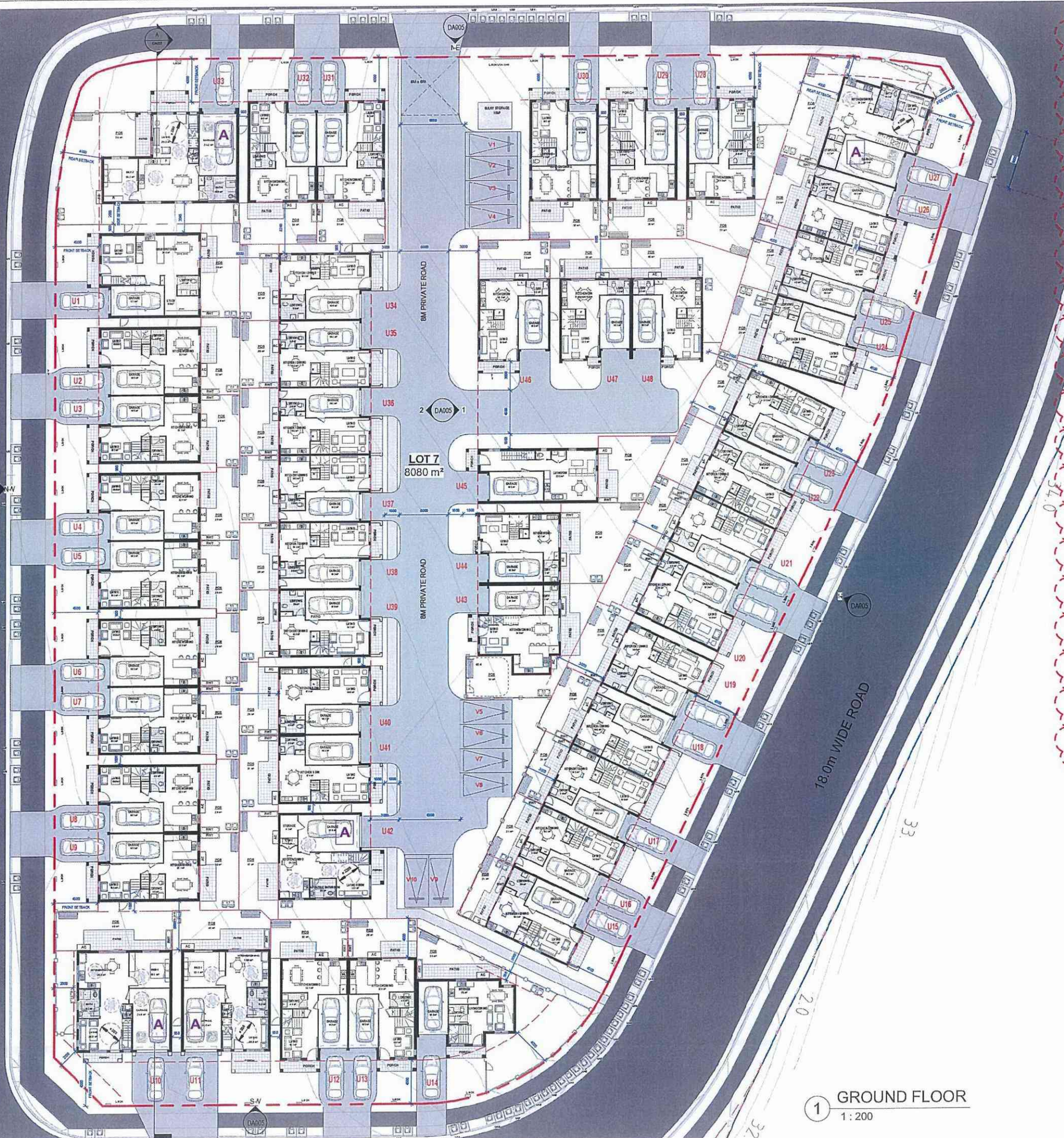
DATE: JAN2018	SCALE: As indicated	DRAWING No. DA002	REV.
DRAWN BY: MCC & AH	PROJECT NO: 0100		

USE FIGURED DIMENSIONS AT ALL TIMES. IF IN DOUBT CHECK WITH THE BUILDER.
CONTRACTORS TO CHECK AND VERIFY ALL LEVELS, DATUMS AND DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES OR OMISSIONS TO THE BUILDER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE.

DA ISSN

COMPLIANCE TABLE - LOT 7 / STAGE 7							
PROPOSED DEVELOPMENT FACILITATE THE CONSTRUCTION OF 48 RESIDENTIAL TOWNHOUSES							
1089 RICHMOND ROAD, MARSDEN PARK LOT 51 DP 1196583							
SITE AREA	8050 QM²	48 DWELLING - DOUBLE STOREY		39 UNITS - THREE BEDROOM 04 UNITS - FOUR BEDROOM 03 UNITS - ADAPTABLE HOUSES - FIVE BEDROOM 01 UNIT - ADAPTABLE HOUSES - FOUR BEDROOM 01 UNIT - ADAPTABLE HOUSES - THREE BEDROOM			
CONTROL	REQUIRED	PROVIDED	COMPLIANCE	CONTROL	REQUIRED	PROVIDED	COMPLIANCE
SITE COVERAGE	PERMITTED MAX 50% ± 4DIMP	PROPOSED = 3255M²	YES	FRONT SETBACK	4.5M	4.5M OR GREATER	YES
				REAR SETBACK	4M	4M OR GREATER	YES
				SIDE SETBACK	0.5M	0.5M OR GREATER	YES
				CORNER SETBACK	2M	2M OR GREATER	YES
				MAX. BUILDING HEIGHT	9M UNLESSIDE OF EAVES	LESS THAN 9M	YES
				PRIVATE OPEN SPACE	MIN 16M² WITH MIN. DIMENSION OF 3M OR 10M PER DWELLING BALCONY OR ROOF TOP (WITHIN MIN. DIMENSION 5M)	MIN 16M² P.O.S. PER DWELLING OR GREATER	YES
				FENCING	1.8M HIGH	1.8M HIGH OR CP	YES
LANDSCAPED AREA	MIN. 30% OF SITE AREA. REQUIRED = 2424M²	PROPOSED = 2810M²	YES				
CAR PARKING	1 CAR PARKING SPACE PER EACH DWELLING PLUS 2 SPACES PER 5 OR MORE BEDROOM DWELLING ±10	81 CAR SPACES	YES				
VISITOR CAR PARKING	1 CAR SPACES 5 DWELLING ±10	10 CAR SPACES	YES				

20.0m WIDE COLLECTOR ROAD
(ACCESS GRANTED)



1 GROUND FLOOR
1 : 200



2 Standard Adaptable Dwelling
1 : 100



③ First Floor
1 : 100

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28/02/18	AMENDED AS PER COURT COMMENTS
29/01/18	AMENDED AS PER COURT COMMENTS
29/12/17	AMENDMENTS AS PER COURT COMMENTS
26/06/17	ISSUED FOR DA
DATE	REVISION



357 Gibba Road, Gironwood Sydney NSW - 21
PO Box 220, Wentworthville NSW 2145
T: 02 9604 2405 | F: 02 9604 4702
info@hubble.com.au | www.hubble.com.au

PROJECT
1086 RICHMOND ROAD
MARSDEN PARK - LOT 7 / STAGE 7

LOT NUMBER
LOT 51 DP 1196583

DRAWING TITLE:

GROUND FLOOR

DATE: JAN2018	SCALE: As indicated	DRAWING No: DA003	REV: 4
DRAWN BY: MCC & AH	PROJECT NO: 0100		

USE FIGURED DIMENSIONS AT ALL TIMES. IF DOUBT CHECK WITH THE BUILDER. CONTRACTORS TO CHECK AND VERIFY ALL LEVELS, DATUMS AND DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES OR OMISSIONS TO THE BUILDER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE.

DA | SSU

R18Richmond Rd 1085 MARSDEN PARK01DAMCCHLOT TDA R03VRich

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ISSUE	DATE	REVISION	BY
4	28/02/18	AMENDED AS PER COURT COMMENTS	JM
3	29/01/18	AMENDED AS PER COURT COMMENTS	CD
2	20/12/17	AMENDMENTS AS PER COURT COMMENTS	AT
1	25/05/17	ISSUED FOR DA	TS

The Bathla Group

237 Giza Road, Crowsnest NSW 1585
PO Box 370, Wentworthville NSW 2145
T: 02 9636 2455 | F: 02 9636 4762
info@bathla.com.au | www.bathla.com.au

PROJECT:
**1086 RICHMOND ROAD
MARSDEN PARK - LOT 7 / STAGE 7**

LOT NUMBER:
LOT 51 DP 1196583

DRAWING TITLE:
FIRST FLOOR

DATE	SCALE	DRAWING NO.	REV.
JAN 2018	1:200	DA004	4
DRAWN BY: MCC & AH	PROJECT NO: 0100		
DO NOT SCALE			
NORTH			
USE DIMENSIONS AT ALL TIMES. IF IN DOUBT CHECK WITH THE BUILDER. CONTRACTORS TO CHECK AND VERIFY ALL LEVELS, DATUMS AND DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES OR CHANGES TO THE BUILDER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE.			

DA ISSUE
R/1086 Richmond Rd 1086 MARSDEN PARK (DA004) LOT 70A R/1086 Richmond Rd 1086 MARSDEN PARK - LOT 7 / STAGE 7



Energy Rating Certificate Number: B365971A

☐ Single-dwelling rating
☒ Multi-unit development (attach listing of ratings)
Relevant energy consumption: ☐ Rated with ☒ Rated without

Assessor Name/Number: **Angela Tullin VIC604V131652**
Assessor Signature: _____ Date: 28/09/2017

1 FIRST FLOOR PLAN
1:200



SOUTH ELEVATION

1 : 200



NORTH WEST ELEVATION

1 : 200



NORTH EAST ELEVATION

1 : 200



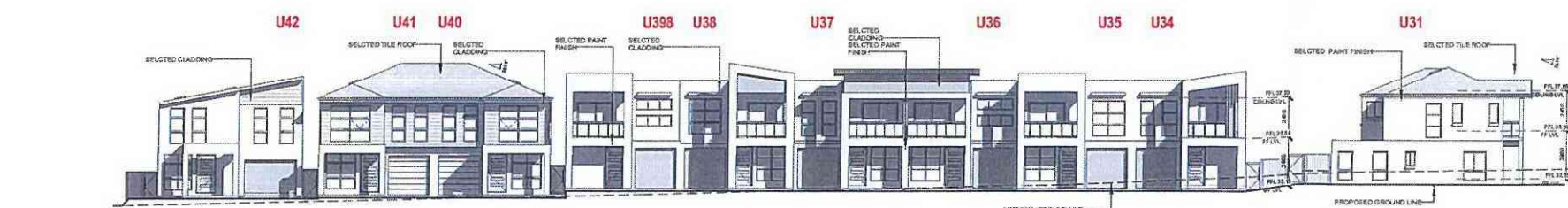
SOUTH WEST ELEVATION

1 : 200



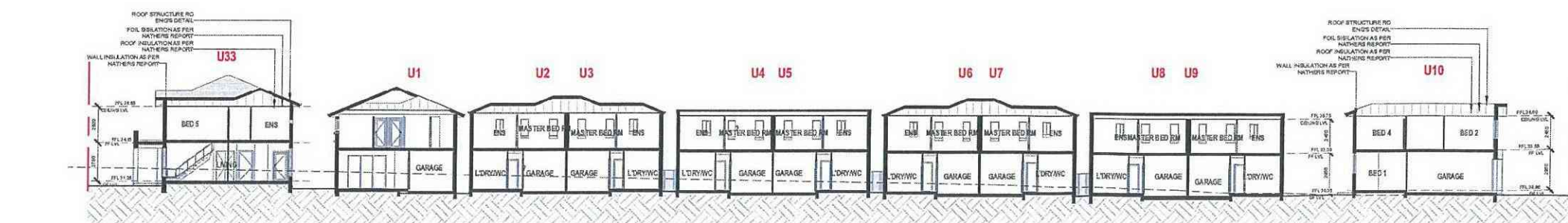
INTERNAL ELEVATION 1

1 : 200



INTERNAL ELEVATION 2

1 : 200



SECTION AA

1 : 200

GENERAL NOTES:

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ISSUE	DATE	REVISION	BY
4	28/02/18	AMENDED AS PER COURT COMMENTS	JM
3	20/01/18	AMENDED AS PER COURT COMMENTS	CD
2	20/12/17	AMENDMENTS AS PER COURT COMMENTS	AH
1	26/09/17	ISSUED FOR DA	TB



PROJECT
1086 RICHMOND ROAD
MARSDEN PARK - LOT 7 / STAGE 7

LOT NUMBER:
LOT 51 DP 1196583

DRAWING TITLE:
ELEVATIONS & SECTION

DATE	SCALE	DRAWING NO.	REV.
JAN 2018	1 : 200	DA005	4

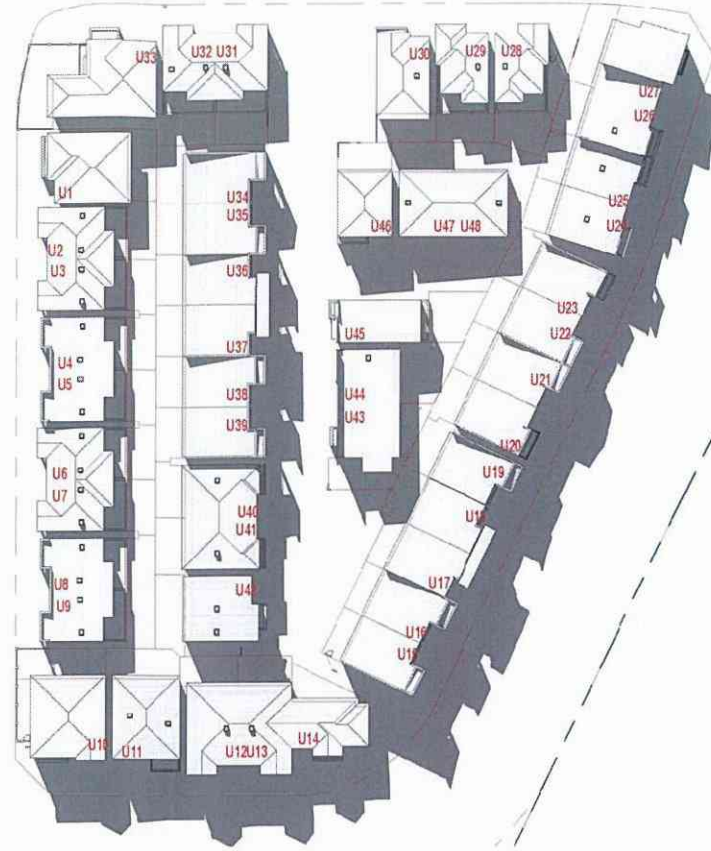
DONOT SCALE
USE DIMENSIONS AT ALL TIMES IF IN DOUBT CHECK WITH THE BUILDER CONTRACTORS TO CHECK AND VERIFY ALL LEVELS, DATA AND DIMENSIONS ON SITE AND REVAL REPORT ANY DISCREPANCIES OR OMISSIONS TO THE BUILDER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE.

DA ISSUE

R:\Richmond Rd 1086 MARSDEN PARK\DA\Lot 7\DA 1086 Richmond Rd\1086 Richmond Rd - Lot 7 - Stage 7.dwg



1 9AM SHADOWS
1 : 500



2 10AM SHADOWS
1 : 500



3 11AM SHADOWS
1 : 500



4 12PM SHADOWS
1 : 500

Energy Rating Certificate Number: 938067M

☐ single-dwelling rating

☒ multi-unit development (attach listing of ratings)

Recessed downlights transformation: ☐ Rated with ☒ Rated without

Assessor Name/Number: Ingrid Tullu VIC-BDA/131652

Assessor Signature: [Signature] Date: 29/06/2017

GENERAL NOTES:

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ISSUE	DATE	REVISION	BY
4	28/02/18	AMENDED AS PER COURT COMMENTS	JM
3	26/01/18	AMENDED AS PER COURT COMMENTS	GD
2	20/12/17	AMENDMENTS AS PER COURT COMMENTS	AH
1	26/06/17	ISSUED FOR DA	TS



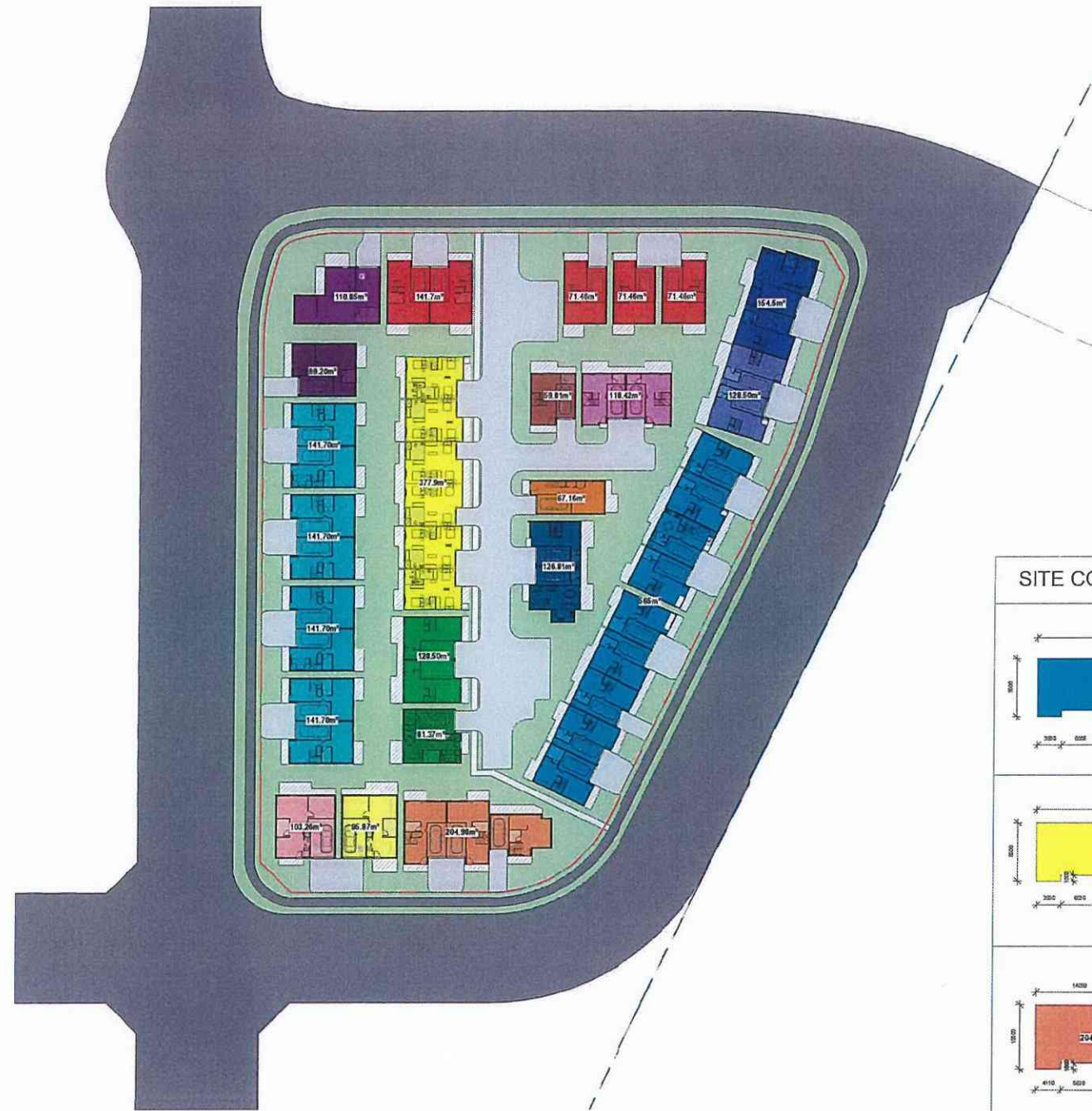
PROJECT
1086 RICHMOND ROAD
MARSDEN PARK - LOT 7 / STAGE 7

LOT NUMBER
LOT 51 DP 1196583

DRAWING TITLE
SHADOW ANALYSIS 1

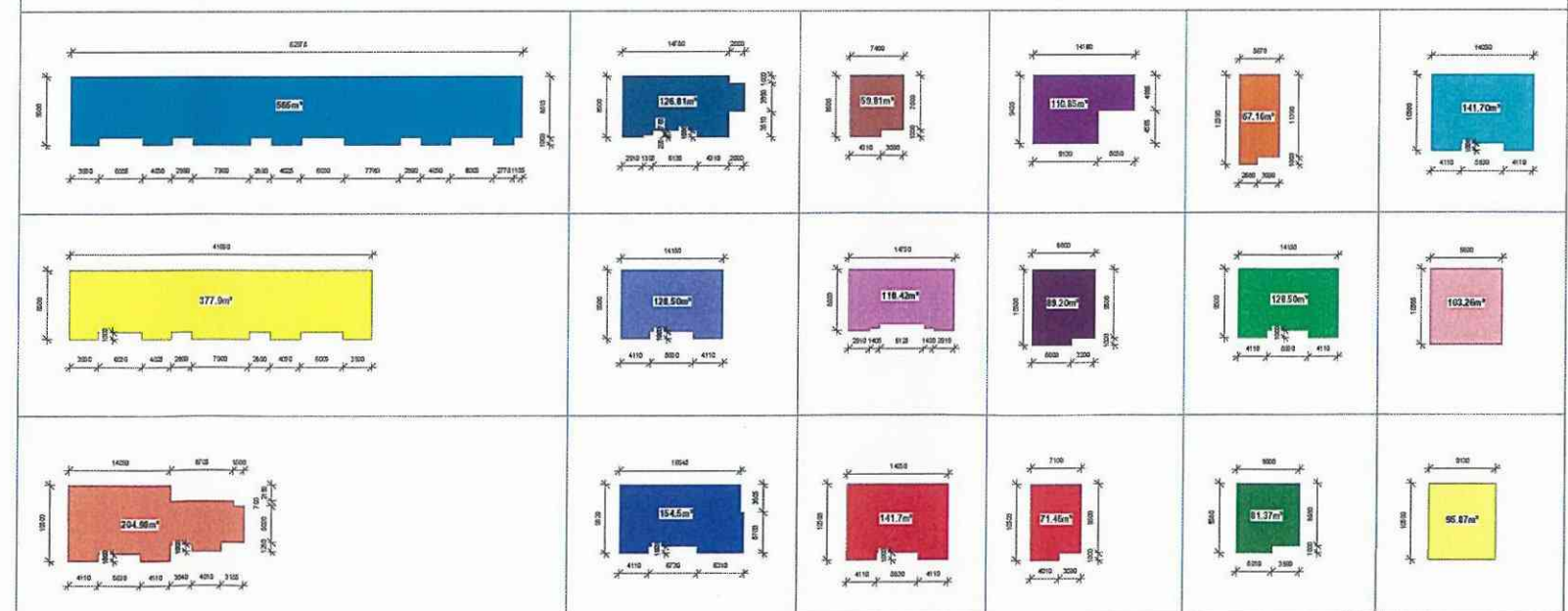
DATE	SCALE	DRAWING No.	REV.
JAN 2018	1 : 500	DA006	4
DRAWN BY: MCC & AH	PROJECT NO: 0100		
DO NOT SCALE	NORTH		
USE DIMENSIONS AT ALL TIMES. IF IN DOUBT CHECK WITH THE BUILDER. CONTRACTORS TO CHECK AND VERIFY ALL LEVELS, DATA AND DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES OR OMISSIONS TO THE BUILDER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE.			
DA ISSUE			

R:\Richmond Rd 1086 MARSDEN PARK\1086MarsdenLot 7\DA R03\Richmond Road\1086 MARSDEN PARK - LOT 7\DA006.dwg



1086 RICHMOND ROAD, MARSDEN PARK LOT 51 DP 1196583			
SITE AREA	8080.0M ²		
TOTAL DWELLING AREA	3334.82M ²		
TOTAL ROAD AREA	1463.43M ²		
TOTAL TERRACED AREA	638.64M ²		
CONTROL	REQUIRED	PROVIDED	COMPLIANCE
SITE COVERAGE	PERMITTED MAX. 50% = 4040m ²	PROPOSED = 3334.82M ² , 41.27%	YES
LANDSCAPED AREA	MIN. 30% OF SITE AREA REQUIRED = 2424M ²	PROPOSED = 2643.11M ² , 32.71%	YES

SITE COVERAGE



1 SITE PLAN_SITECOVERAGE
1 : 500

DO NOT SCALE
USE FIGURED DIMENSIONS AT ALL TIMES. IF IN DOUBT CHECK WITH THE BUILDER. CONTRACTORS TO CHECK AND VERIFY ALL LEVELS, DUTIES AND DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES OR OMISSIONS TO THE BUILDER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE.
20 10 0 10 20 30 40 50 60 70m

GENERAL NOTES			PROJECT		LOT NUMBER		DRAWING TITLE		PROJECT No		DATE		DRAWING No		REV.	
THIS DRAWING IS THE EXCLUSIVE PROPERTY OF THE DEVELOPER & THE REPRODUCTION OF ANY PART WITHOUT THE PRIOR WRITTEN CONSENT OF THE DEVELOPER IS A VIOLATION OF APPLICABLE LAWS. IN NO EVENT SHALL THE DEVELOPER BE HELD LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL LIABILITY IN CONNECTION WITH THE USE OF THIS DRAWING. DATA ONCE RELEASED FROM THE DEVELOPER'S OFFICE, THIS DRAWING IS TO BE READ & UNDERSTOOD IN CONNECTION WITH THE STRUCTURAL, MECHANICAL, ELECTRICAL & OR ANY OTHER CONSULTANT'S DOCUMENTATION AS MAY BE APPLICABLE TO THE PROJECT PRIOR TO THE START OF ANY WORKS AND FOR ITS DURATION.			1086 RICHMOND ROAD MARSDEN PARK - LOT 7 / STAGE 7				SITE COVERAGE		0100		JAN2018		DA008		4	
BY			The Bathla Group						DRAWN BY:		SCALE:		As indicated			
DATE			28/02/2018						CD							
REVISION																
AMENDMENTS AS PER COURT COMMENTS																
AMENDMENTS AS PER COURT COMMENTS																
AMENDMENTS AS PER COURT COMMENTS																
ISSUED FOR DA																
28/02/2018																
29/01/18																
20/12/17																
26/09/17																
26/09/17																



1 CONCEPT LANDSCAPE PLAN
SCALE: 1:300

INDICATIVE IMAGES OF PROPOSED TREES



PROPOSED PLANTING SCHEDULE - LOT 7

BOTANICAL NAME	COMMON NAME	APPROX MATURED HEIGHT	POT SIZE	QUANTITY
----------------	-------------	-----------------------	----------	----------

TREES

MG	MAGNOLA GRANDIFLORA 'LITTLE GEM'	Dwarf Mangola	2.5-3 M	75 L	38
TL	TRISTRAMIA LAURINA 'LUSCIOUS'	Kanooka Gum	4m	75 L	24
LI	LAGERSTROEMIA INDICA x L. FAURIEI 'BILOXI'	Crepe Myrtle	4m	75 L	15

SHRUBS

PX	PHILODENDRON XANADU	Xanadu	1m	300mm	100
PT	PHORMIUM TENAX	New Zealand Flax	1m	300mm	87
DE	DORYANTHES EXCELSA	Gymea lily	1.5m	300mm	43
MP	MURRAYA PANICULATA	Orange Jessamine	2m	300mm	15

GROUND COVER / BORDER

LM	LIRIOPE MUSCARI	Turf Lily	0.5m	150mm	15
DR	DIANELLA REVOLUTA	Flax Lily	0.5m	150mm	32
BR	ANIGOZANTHOS 'BUSH RANGER'	Kangaroo Paw	0.5m	150mm	29

STREET TREES

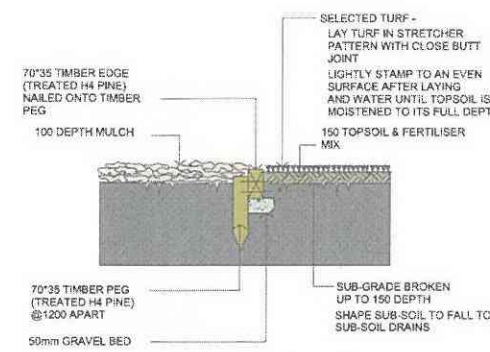
FP	FRAXINUS PENNSYLVANICA 'URBANITE'	Urbanite Green Ash	15-20m	8-10m	75LT	13
FA	FLINDERSIA AUSTRALIS	Crows Ash, Australian Teak	10-20m	10m	75LT	9
WF	WATERHUSIA FLORIBUNDA	Weeping Lilly Pilly	5m	2-3m	75LT	30

Street planting detail and specifications:

- No timber or steel edging is permissible
- Install root barriers to protect assets, structures and/or underground services to a minimum depth of 600mm to street trees adjoining paths, kerb and gutter or roadways.
- Tree trunk to be a minimum 750mm from street kerb and guttering
- All imported soil to achieve the requirements of AS4419 - Soils for landscaping All tree planting holes are a minimum 1.5 times diameter and twice the depth of the root ball All mulch is to be free of deleterious material such as rock, soil, weeds and sticks.
- Mulch - Forest litter or pine bark mulch
- All soft edges (mulch, turf, grassed) to be finished to appropriate falls and flush with adjacent surface treatment.
- Use Buffalo as turf.
- Turf to consist of 25mm depth of dense, well rooted, vigorous grass growth with minimum 15mm on an average 100mm depth of top soil
- Staking is required specified as - drive 2x38x38x1800 mm hardwood stake 600mm into the ground. Secure the stem of the tree firmly with 2 x hessian ties fitted to the stem separately in opposite directions.

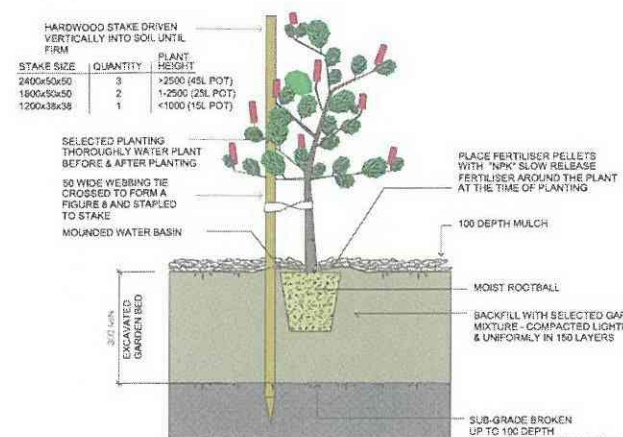
Specification for Maintenance:

- Mechanical line trimmers (whipper snippers) not be used within 300mm of out edge of tree trunks
- No grass to overgrow edges where it adjoins hard paved surfaces or kerbs and guttering
- No grass or weeds within mulched area in or around tree
- Stolen trees to be replaced within one week. Repeated removal of trees within the same location shall immediately be reported to Council
- All garden beds to be re-mulched to maintain a depth of 75mm and level finish with adjacent surfaces
- Mulch not to come into contact with the trunks of trees
- No visible signs of wilting of leaves or stems, with all plants to be fully turgid at all times
- No sign of over watering such as constantly wet soil, brown leaf margins, stem rot or brown spots on foliage
- No obvious signs of weed infestation in grass areas, pavements or mass planting beds
- Chemical not to be applied in extreme temperatures or wind conditions
- Removal of all suckers from base of trees
- Formative pruning of trees to allow effective canopy development and to retain natural or desired shape of the tree
- All damaged dead or diseased wood to be pruned to the nearest lateral shoot or active bud with a clean neat cut
- Performance of planting will be indicated by new growth with visible sign of new leaves; plants to possess a level of 'greenness' characteristic with the particular species; Strong floral habit and colour appropriate to the season and species; Absence of dead or damaged foliage, flowers or branches.



1. TURF & GARDEN EDGE DETAIL

NOTE:
ALIGNMENT OF BRICK EDGE SHALL BE EVEN & FREE FROM DIPS AND HUMPS.



2. TREE & SHRUB PLANTING IN GARDEN BED

NOTE:
DO NOT PLANT IN UNSUITABLE WEATHER CONDITIONS SUCH AS EXTREME HEAT, COLD, WIND OR RAIN. CLAY SOIL IS TO BE TREATED WITH CLAY BREAKER AND ORGANIC COMPOST.

INSTALLATION/ EXCAVATION TIPS:

- ADD 5% TO OUTER PLAN DIMENSIONS WHEN EXCAVATING PIT.
- ALWAYS CHECK PIT DIMENSIONS AT BASE OF PIT, ENSURING SIDES ARE CLEAN AND SQUARE.
- LEVEL AND SCREED DRAINAGE LAYER PRIOR TO PLACEMENT OF CELLS.

ENSURE THAT THE PIT BASE IS SCREEDED AND COMPACTED ADEQUATELY BEFORE PLACING CELLS ON BASE, TO ALLOW FOR EASE OF INSTALLATION OF OVERALL MATRIX.

ADEQUATE DRAINAGE FROM BASE OF TREE PIT TO BE PROVIDED IF DESIGN INCORPORATES WSUD PRINCIPLES, OR IF SITE CONDITIONS REQUIRE.

PLEASE NOTE:

The contractor is to establish location and depth of services at each planting location prior to any machine excavation, especially water, gas, telecommunications, power, drainage and sewer. Where services interfere with tree placement, adjust position within 1.0m of designated location. Where tree cannot be accommodated due to services, this is a hold point and contractor is to apply for instructions.

26/02/2018 C AMENDED AS PER COURT
23/01/2018 B AMENDED AS PER COURT
26/06/2017 A FOR DEVELOPMENT APPLICATION
DATE: REV DESCRIPTION

GENERAL NOTES:

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DO NOT SCALE

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NORTH:



The Bathla Group



PROJECT:

1032,1036,1060,1070,1080,1082,1086,1132,1140
RICHMOND ROAD AND 230,232,234 GRANGE AVENUE
MARSDEN PARK

DRAWING TITLE:

LOT 7 - LANDSCAPE PLAN

PROJECT NO.:

DA

DATE:

JAN 2017

DRAWING NO.:

LP-01

SCALE:

1:2000

REV:

C

DA ISSUE

BLACKTOWN CITY COUNCIL

PROPOSED RESIDENTIAL DEVELOPMENT

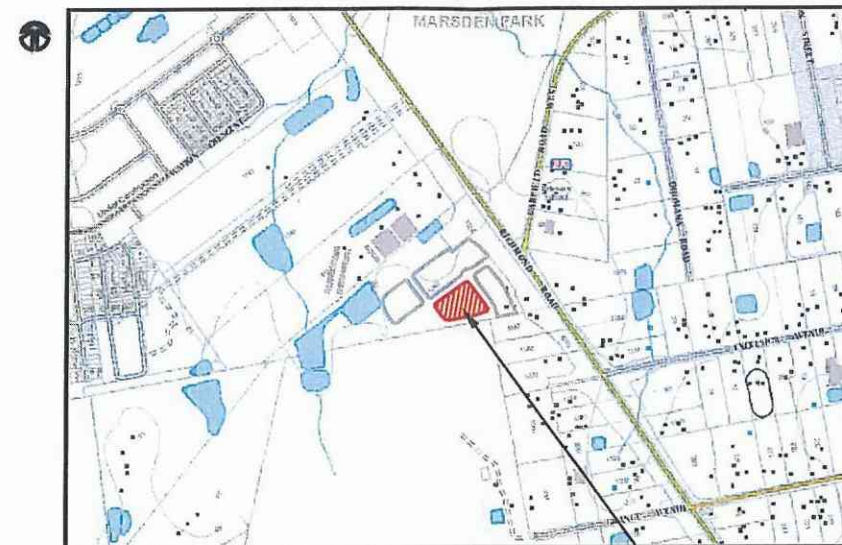
LOT 7, 1086 RICHMOND ROAD, MARSDEN PARK

DRIVEWAY & DRAINAGE PLANS

Prepared for: THE BATHLA GROUP

GENERAL NOTES

- ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL'S WORKS SPECIFICATION CIVIL - 2005 REQUIREMENTS AND/OR AS DIRECTED BY THEIR REPRESENTATIVE.
- THE CONTRACTOR IS TO IDENTIFY, LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION WORKS AND WHERE NECESSARY MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE OR ADJUST WHERE NECESSARY.
- COUNCIL'S TREE PRESERVATION ORDER MUST BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT THE PRIOR APPROVAL OF COUNCIL.
- ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE WORK HEALTH & SAFETY ACT 2011 AND ALL RELEVANT OCCUPATIONAL HEALTH & SAFETY POLICIES AND REGULATIONS.
- DIMENSIONS SHALL NOT BE SCALED FROM THE PLANS. CLARIFICATION OF DIMENSIONS SHALL BE SOUGHT FROM THE SUPERINTENDENT OR REFERRED TO THE DESIGNER.
- SURVEY MARKS SHOWN THUS Δ SHALL BE MAINTAINED AT ALL TIMES. WHERE RETENTION IS NOT POSSIBLE THE ENGINEER SHALL BE NOTIFIED AND CONSENT RECEIVED PRIOR TO THEIR REMOVAL.
- ALL NEW WORK IS TO MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS.
- THE CONTRACTOR IS NOT TO ENTER UPON NOR DO ANY WORK WITHIN OR ON ADJACENT LANDS WITHOUT THE PRIOR APPROVAL OF THE SUPERINTENDENT AND THE WRITTEN PERMISSION OF THE OWNERS.
- SEDIMENT MEASURES SHALL BE IMPLEMENTED PRIOR TO SOIL DISTURBANCE IN KEEPING WITH THE 4th EDITION OF LANDCOMS "SOILS AND CONSTRUCTION - MANAGING URBAN STORMWATER" MARCH 2004 TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE AND AS SHOWN IN THESE DRAWINGS.
- THE CONTRACTOR SHALL CLEAR AND DISPOSE OF ONLY THOSE TREES THAT ARE CONDEMNED BY THE PLANS. COUNCIL'S TREE PRESERVATION ORDER SHALL BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT PRIOR APPROVAL.
- THE CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES, OUT HOUSES, CAR BODIES, DEBRIS, ETC. THE CONTRACTOR SHALL NOT DISPOSE OF ANY DEBRIS BY BURNING OFF IN AN OPEN FIRE.
- UNSOOUND MATERIALS AS DETERMINED BY COUNCIL'S REPRESENTATIVE SHALL BE REMOVED FROM ROADS AND LOTS PRIOR TO ANY FILLING.
- ALL SITE REGRADING AREAS SHALL BE GRADED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE. THE CONTRACTOR SHALL TAKE LEVELS ON THE EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING ANY FILL OPERATIONS.
- SURPLUS EXCAVATED MATERIAL SHALL BE PLACED OR DISPOSED OF IN ACCORDANCE WITH THE CONTRACT, OR AS DIRECTED BY THE SUPERINTENDENT.
- ALL SITE FILLING SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm AND COMPACTED IN ACCORDANCE WITH COUNCIL'S SPECIFICATION AND BE TESTED AT THE REQUIRED INTERVALS BY AN APPROVED N.A.T.A. GEOTECHNICAL LABORATORY.
- MINIMUM 150mm THICK TOPSOIL SHALL BE SPREAD ON ALL FOOTPATHS, BERMS, BATTERS AND SITE REGRADING AREAS. EXCESS TOPSOIL SHALL BE DISPOSED OF AS DIRECTED BY THE SUPERINTENDENT.
- ALL LAND DISTURBED BY EARTHWORKS SHALL BE SPRAY-GRASSED, OR SIMILARLY TREATED TO ESTABLISH GRASS COVER. SEED MIXTURES ARE TO BE APPROVED BY COUNCIL PRIOR TO SPRAYING. ALL GRASSED AREAS SHALL BE REGULARLY WATERED AND MAINTAINED UNTIL EXPIRATION OF THE MAINTENANCE PERIOD.
- THE CONTRACTOR SHALL MAINTAIN DUST CONTROL THROUGHOUT THE DURATION OF THE PROJECT.
- ALL PITS DEEPER THAN 1.2m SHALL HAVE STEP IRONS PROVIDED IN ACCORDANCE WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES THROUGH LOTS SHALL BE CONTAINED WITHIN THEIR EASEMENTS AND CONFORM WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES ON HIGH SIDE AND UNDER ROADS SHALL BE BACKFILLED SHARP SAND AND HAVE 3.0m OF AGRICULTURAL LINE WRAPPED IN AN APPROVED FILTER FABRIC, DISCHARGING INTO THE DOWNSIDE PIT.
- SUBSOIL DRAINS SHALL BE CONSTRUCTED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE.
- PRECAST KERB INLET LINTELS SHALL BE USED ON GULLY PITS. GRATES SHALL BE "WELDLOK" TYPE GG 78-51 OR APPROVED EQUIVALENT.
- PROVIDE VEHICULAR ENTRIES IN KERB AND GUTTER WHERE SHOWN OR WHERE DIRECTED BY THE SUPERINTENDENT.
- GUIDE POSTS SHALL BE 100mm X 50mm HARDWOOD, PAINTED WHITE WITH REFLECTORS.
- ERECT STREET NAME SIGNS, CONDUIT WARNING SIGNS AND NO THROUGH ROAD SIGNS WHERE SHOWN OR WHERE DIRECTED BY COUNCIL'S REPRESENTATIVE.
- CONDUITS SHALL BE LAID AFTER POSITIONS HAVE BEEN DETERMINED BY THE RELEVANT AUTHORITIES AND BEFORE FINAL A.C. IS LAID.
- POSITION OF CONDUITS SHALL BE MARKED ON THE KERB.
- FELLED TREES SHALL BE SALVAGED FOR RE-USE AS WOODCHIP MULCH OR LOG FORM FOR SITE REHABILITATION. NON-SALVAGEABLE MATERIAL SUCH AS STUMPS AND ROOTS SHALL BE DISPOSED OF OFF SITE.
- THE CONTRACTOR SHALL PROVIDE MINIMUM 24 HOURS NOTICE TO COUNCIL'S REPRESENTATIVE FOR ALL INSPECTIONS.
- THE CONTRACTOR SHALL MAINTAIN SERVICES AND ALL WEATHER ACCESS AT ALL TIMES TO THE ADJOINING PROPERTIES.
- THE CONTRACTOR SHALL UNDERTAKE TRAFFIC CONTROL MEASURES TO COUNCIL'S SATISFACTION AND SHALL DISPLAY ALL APPROPRIATE WARNING SIGNS THROUGHOUT THE DURATION OF CONSTRUCTION.
- ALL NATURAL SURFACE DATA HAS BEEN DETERMINED BY TERRAIN MODELLING. ALL CONSTRUCTION SITE WORKS MUST BE CARRIED OUT USING THE BENCH MARKS SHOWN ON THESE DRAWINGS.



LOCALITY SKETCH
NOT TO SCALE

LOCATION OF WORKS

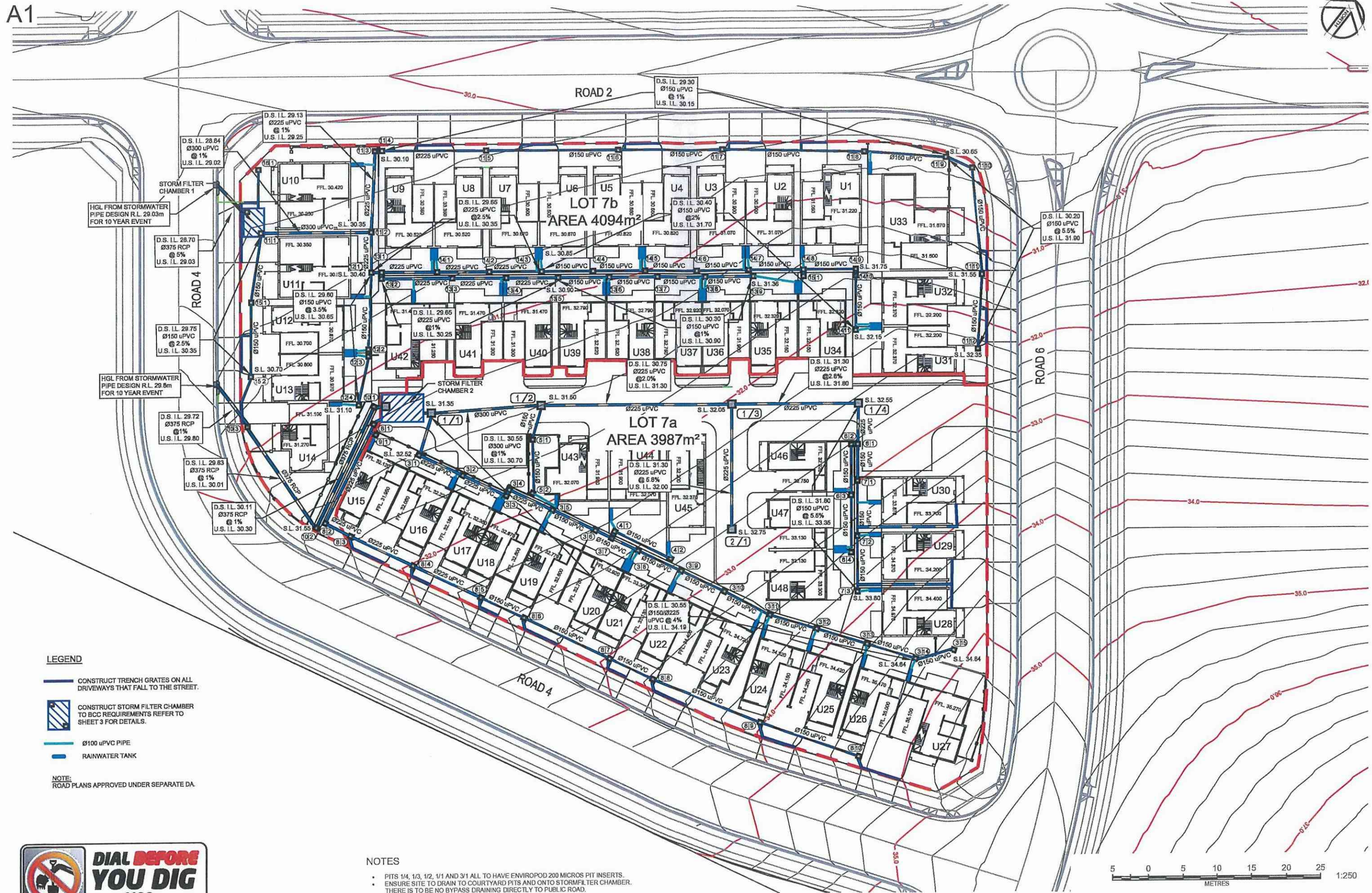
SHEET INDEX

SHEET No.	DESCRIPTION
COVER SHEET	COVER SHEET - GENERAL NOTES, SHEET INDEX AND LEGEND
2	GENERAL ARRANGEMENT PLAN
3	TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS
4	WATER QUALITY CATCHMENT PLAN
5	SOIL AND WATER MANAGEMENT PLAN
6	SOIL AND WATER MANAGEMENT DETAILS

LEGEND

---	ROOF DRAINAGE LINE
---	PROPOSED DRAINAGE LINE
---	EXISTING DRAINAGE LINE
---	NATURAL SURFACE CONTOUR
-79.2- - -	DESIGN SURFACE CONTOUR
---	TABLE DRAIN
---	EXISTING HEADWALL
---	PROPOSED HEADWALL
---	LIMIT OF CONSTRUCTION
---	LIMIT OF WORKS
PIT 1/2	PIT NUMBER
SS	SUBSOIL DRAINAGE LINE
---	GRATED SURFACE INLET PIT
---	SEALED PIT
---	KERB INLET PIT

A1



**DIAL BEFORE
YOU DIG**
www.1100.com.au

No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL

**BARKER
RYAN
STEWART**
TOTAL PROJECT SOLUTIONS
PLANNING - PROJECT MANAGEMENT - ENGINEERING - CERTIFICATION

SYDNEY
P. 02 9659 0005
CENTRAL COAST
P. 02 4325 5255
HUNTER
P. 02 4966 8368
ABN: 28 124 027 842
bry.com.au
mail@bry.com.au

Client:

**The Bathla
Group**

PROPOSED DEVELOPMENT AT LOT 7
1086 RICHMOND ROAD, MARSDEN PARK

GENERAL ARRANGEMENT PLAN

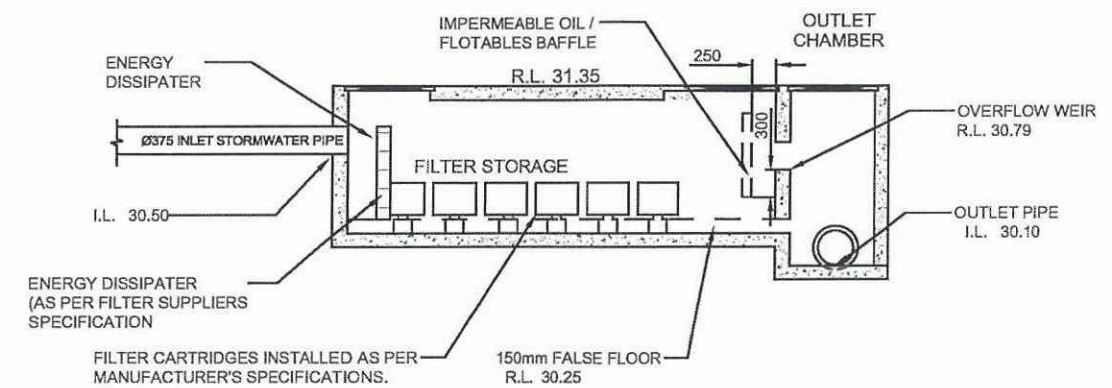
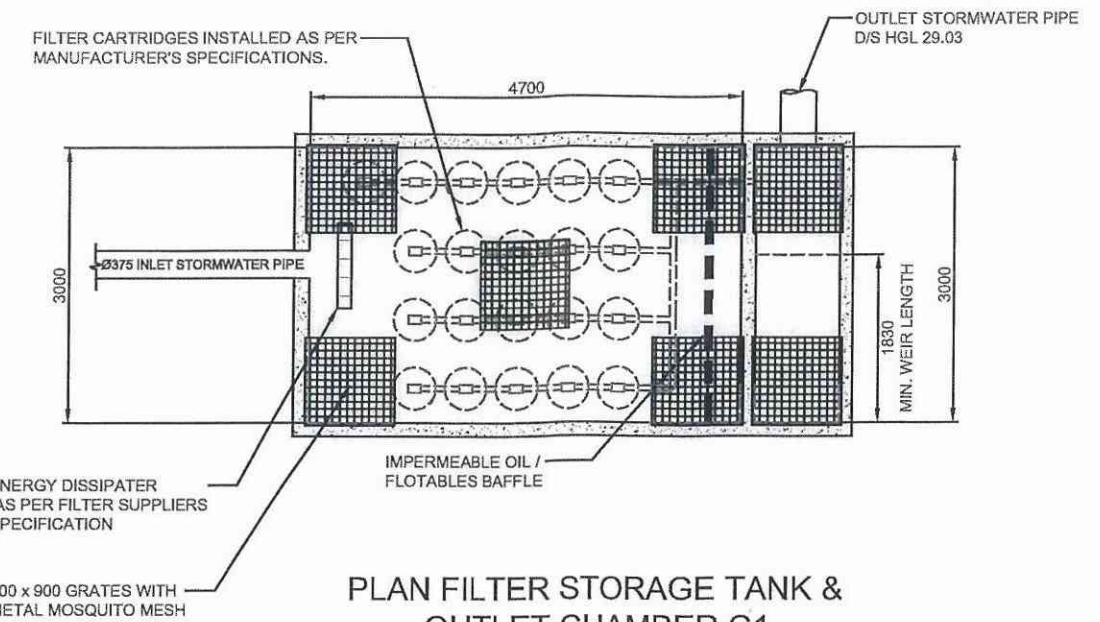
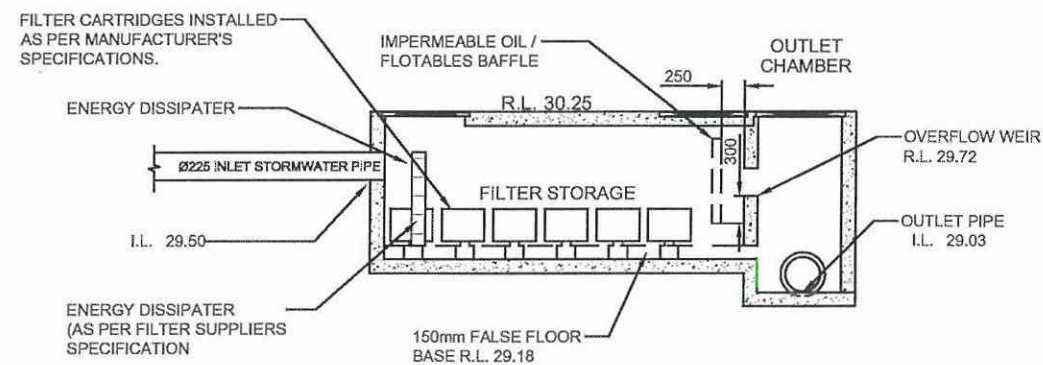
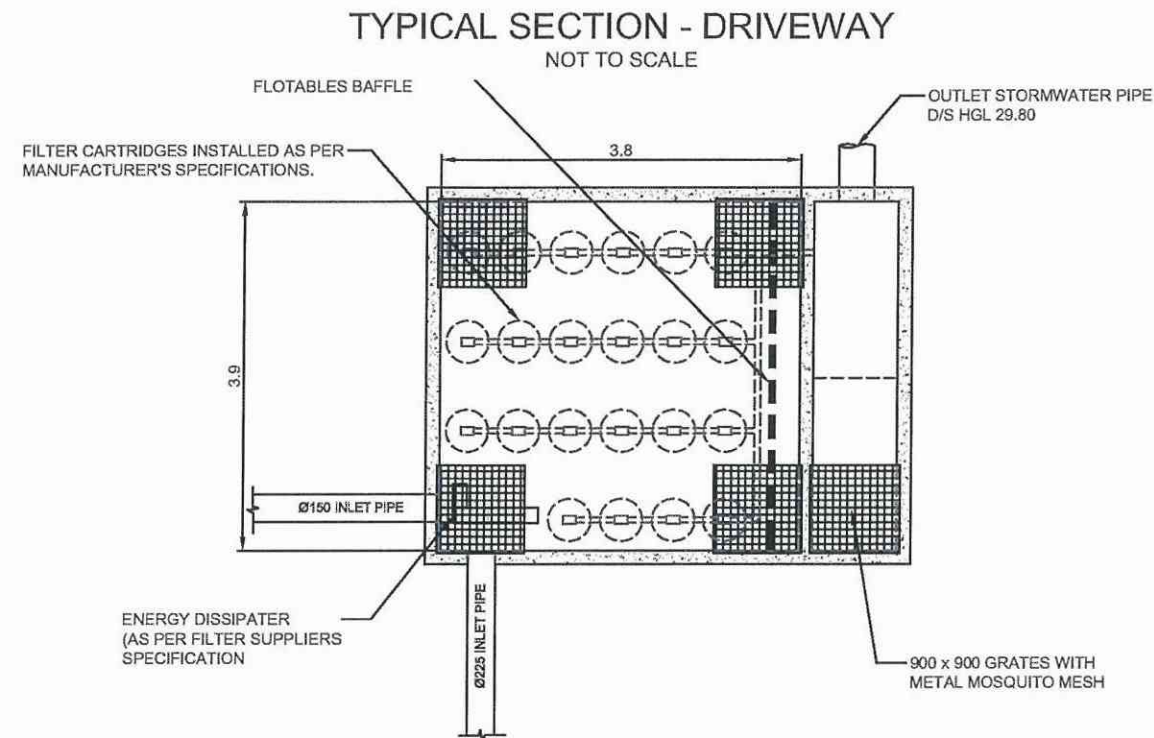
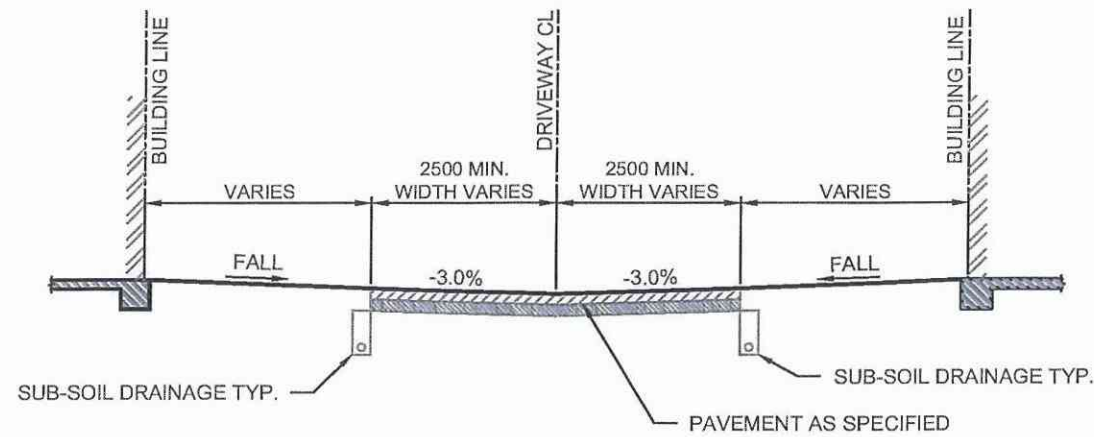
Designed: AD
Drawn: PMM
Checked: GJR

Scales: Plan
Horiz.
Vert.
X-Sect.

Datum: A.H.D.

Plan No.
SY170226C702
File Ref.
SY170226C700-B.dwg
SHEET 2 OF 6 SHEETS

REV.
B



WATER QUALITY - LOT 7

3000L RWT PER UNIT	
C1 - (UNITS 1 - 14, 31 - 42)	
STORM FILTER TANK DIMENSIONS	3.9m x 3.8m
NUMBER OF STORMFILTER CARTRIDGES (460mm)	22
C2 - (UNITS 15 - 30, 43 - 48)	
STORM FILTER TANK DIMENSIONS	4.7m x 3.0m
NUMBER OF STORMFILTER CARTRIDGES (460mm)	21
NUMBER OF ENVIPODS	5



Typical Section Through Filter Storage Tank & Outlet Chamber C2
SCALE 1:40

No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



SYDNEY
P. 02 9559 0056
CENTRAL COAST
P. 02 4325 5255
HUNTER
P. 02 4966 8388
ABN: 28 134 057 842
brs.com.au
mail@brs.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 7
1086 RICHMOND ROAD, MARSDEN PARK

TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS

Designed: AD
Drawn: PMM
Checked: GJR

Scales: Plan
Horiz.
Vert.
X-Sect.
Datum: A.H.D.

Plan No.
SY170226C703
File Ref.
SY170226C700-B.dwg
SHEET 3 OF 6 SHEETS
REV.
B

A1



LEGEND

- INTERNAL DRIVEWAY AREA
- EXTERNAL DRIVEWAY AREA
- LANDSCAPE/COURTYARD AREA
- BUILDING ROOF AREA

CHAMBER C1

TOTAL ROOF AREA
= 2,036m²
TOTAL LANDSCAPE AREA
= 1,760m²
TOTAL INTERNAL DRIVEWAY AREA
= NONE
TOTAL EXTERNAL DRIVEWAY AREA
= 298m²
TOTAL AREA
= 4,094m²

CHAMBER C2

TOTAL ROOF AREA
= 1,544m²
TOTAL LANDSCAPE AREA
= 1,295m²
TOTAL INTERNAL DRIVEWAY AREA
= 880m²
TOTAL EXTERNAL DRIVEWAY AREA
= 268m²
TOTAL AREA
= 3,987m²



No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



SYDNEY
P. 02 9559 0006
CENTRAL COAST
P. 02 4305 5255
HUNTER
P. 02 4906 8308
ABN: 20 134 067 642
brs.com.au
m@brs.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 7
1086 RICHMOND ROAD, MARSDEN PARK

WATER QUALITY CATCHMENT PLAN

Designed: AD
Drawn: PMM
Checked: GJR

Scales: Plan 1:250
Horiz.
Vert.
X-Sect.






Datum: A.H.D.

Plan No.
SY170226C704

File Ref.
SY170226C700-B.dwg
SHEET 4 OF 6 SHEETS

REV.
B

LEGEND

-  SEDIMENT FENCE
 STABILISED SITE ACCESS AT ENTRANCE TO WORKS
 SURFACE INLET PIT SEDIMENT TRAP
 HAY BALE SEDIMENT TRAP
 INLET 'SAUSAGE' FILTER

EROSION AND SEDIMENTATION CONTROL NOTES

1. PRIOR TO THE COMMENCEMENT OF SITE DISTURBANCE, THE CONTRACTOR SHALL ESTABLISH ALL NECESSARY EROSION AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THIS PLAN, COUNCIL'S 'CIVIL WORKS SPECIFICATION, PART 2 - CONSTRUCTION', AND THE NSW DEPARTMENT OF HOUSING'S PUBLICATION 'MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION'.
2. THE LOCATION OF EROSION AND SEDIMENTATION CONTROL DEVICES SHOWN ON THIS PLAN ARE INDICATIVE ONLY AND SHOULD BE ADJUSTED TO SUIT SITE CONDITIONS.
3. WHERE WORKS ARE DELAYED OR IN ABEYANCE AND DISTURBED AREAS ARE LIKELY TO BE EXPOSED FOR A PERIOD OF TWO MONTHS OR MORE, TEMPORARY REHABILITATION WORKS SHALL BE UNDERTAKEN TO PROTECT THE SITE.
4. ALL DISTURBED AREAS SHALL BE TOPSOILED, SEEDED AND MULCHED WITHIN 20 DAYS OF THE COMPLETION OF THE WORKS.
5. ALL AREAS WITH SLOPES STEEPER THAN 12% (1 in 8) SHALL BE STRAW MULCHED IN CONJUNCTION WITH SEEDING, OR TURFED.
6. SILT BARRIERS LOCATED AROUND KERB INLET AND ROAD PITS SHALL BE REINSTATED FOLLOWING ROAD PAVING WORKS IF IT IS LIKELY THAT UNDISTURBED AREAS WILL STILL DRAIN TO THE PIT.
7. SANDBAGS SHALL BE PLACED ACROSS THE END OF ROAD CONSTRUCTION AT THE COMPLETION OF EACH DAYS WORK TO PREVENT EROSION OF THE CONSTRUCTED MATERIAL.
8. THE CONTRACTOR SHALL CONDUCT WEEKLY INSPECTIONS OF THE SITE TO ENSURE THAT ALL DEVICES AND REHABILITATION AREAS HAVE BEEN ADEQUATELY MAINTAINED. THE CONTRACTOR SHALL ALSO KEEP A LOG BOOK DETAILING SUCH INSPECTIONS, AND RECORDING RAINFALL EVENTS AND OTHER RELEVANT EVENTS.
9. TOPSOIL SHALL BE STOCKPILED IN THE LOCATIONS SHOWN ON THIS PLAN OR AS DIRECTED BY COUNCIL'S ENGINEER. WHERE IT IS LIKELY THAT STOCKPILES WILL REMAIN IN PLACE FOR A PERIOD EXCEEDING 4 WEEKS, THEN THE STOCKPILE SHALL BE STABILISED BY SEEDING OR EQUIVALENT METHODS.
10. ALL REVEGETATION WORKS ARE TO BE MAINTAINED, INCLUDING WATERING AND MOWING WHERE NECESSARY UNTIL THE COMPLETION OF THE MAINTENANCE PERIOD.
11. THE MOVEMENT OF VEHICULAR TRAFFIC ON THE SITE SHALL BE CONFINED TO DESIGNATED AREAS DURING CONSTRUCTION WORKS. VEHICULAR ACCESS SHALL BE DENIED TO AREAS TO BE LEFT UNDISTURBED.
12. SITE ACCESS SHALL BE LIMITED TO THE LOCATIONS SHOWN ON THIS PLAN. SHAKE-DOWN AREAS SHALL BE CONSTRUCTED AS SHOWN.
13. DURING CONSTRUCTION WORKS, DUST CONTROL MEASURES SHALL BE IMPLEMENTED TO MINIMISE THE AMOUNT OF DUST GENERATED FROM THE SITE. THESE MEASURES TO BE IMPLEMENTED TO COUNCIL'S SATISFACTION.
14. MAINTENANCE AND CLEANING OF CONSTRUCTION PLANT SHALL BE CARRIED OUT IN AN AREA WHERE RUNOFF CAN BE CONTAINED AND APPROPRIATELY TREATED AND DISPOSED OF.
15. ALL EROSION AND SEDIMENTATION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE ADEQUATELY REGENERATED. THIS STAGE SHALL BE DETERMINED BY THE CERTIFIER.

-  INTERNAL DRIVEWAY AREA
 EXTERNAL DRIVEWAY AREA
 LANDSCAPE/COURTYARD AREA

SEDIMENT CONTROL PLAN
SCALE 1 : 250

5 0 5 10 15 20 25
METRES 1:250



No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



SYDNEY
 P: 02 955 9 0005
 CENTRAL COAST
 P: 02 4335 5255
 HUNTER
 P: 02 4969 8388
 ABN: 26 134 007 842
 brs.com.au
 mail@brs.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 7
1086 RICHMOND ROAD, MARSDEN PARK

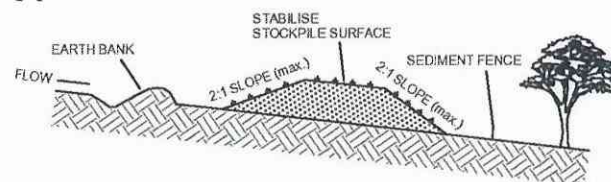
SOIL AND WATER MANAGEMENT PLAN

Designed: AD
 Drawn: PMM
 Checked: GJR

Scales: Plan 1 : 250
 Horiz.
 Vert.
 X-Sect.
 Datum: A.H.D.

Plan No.
SY170226C705
 File Ref.
 SY170226C700-B.dwg
 SHEET 5 OF 6 SHEETS
 REV.
B

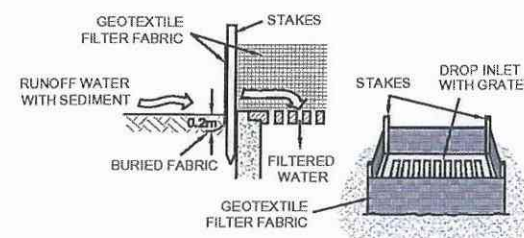
A1



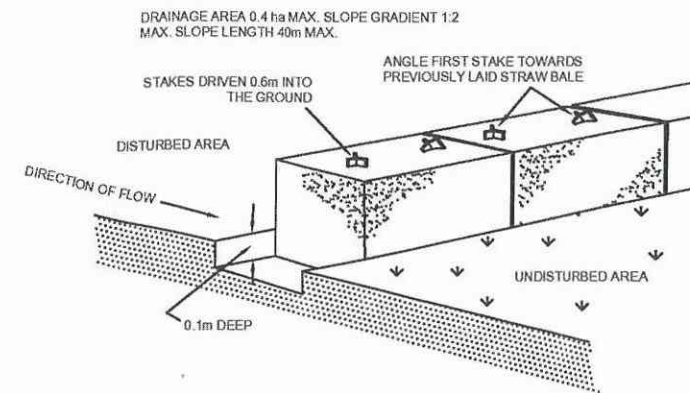
CONSTRUCTION NOTES

1. WHERE POSSIBLE LOCATE STOCKPILE AT LEAST 5 METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOWS, ROADS, HAZARD AREAS AND MIN. 1.5m AWAY FROM EMBANKMENTS.
2. CONSTRUCT ON THE CONTOUR AS A LOW, FLAT ELONGATED MOUND.
3. WHERE THERE IS SUFFICIENT AREA TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. REHABILITATE IN ACCORDANCE WITH THE SWMP/ESCP.
5. CONSTRUCT EARTH BANK (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT RUN OFF AROUND THE STOCKPILE AND A SEDIMENT FENCE (STANDARD DRAWING 6-5) 1 TO 2 METRES DOWNSLOPE OF STOCKPILE.

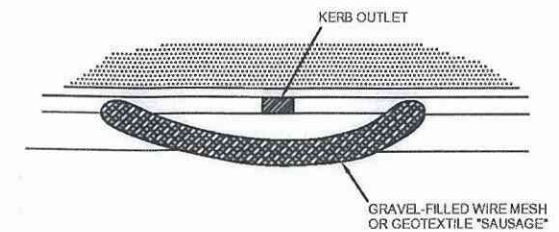
TOPSOIL STOCKPILE



SURFACE INLET PIT SEDIMENT TRAP



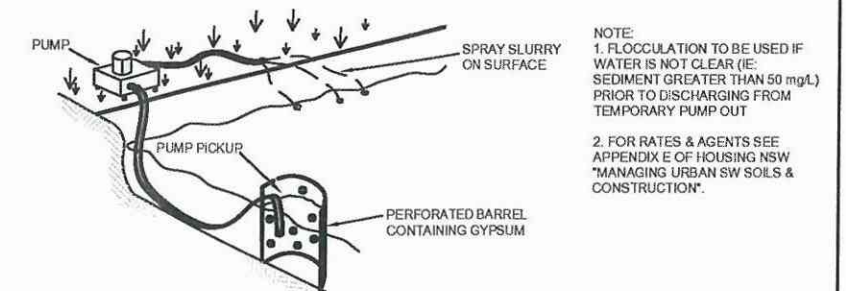
STRAW BALE SEDIMENT FILTER



CONSTRUCTION NOTES

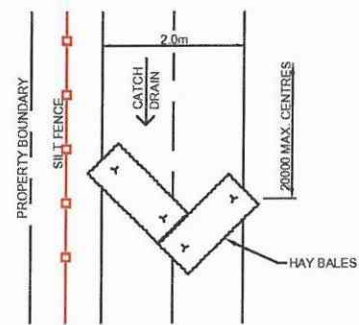
1. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH AND FILL IT WITH 25mm TO 50mm GRAVEL.
2. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH X 400mm WIDE.
3. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING FILTER.
4. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

MESH & GRAVEL FILTER "SAUSAGE" BARRIER

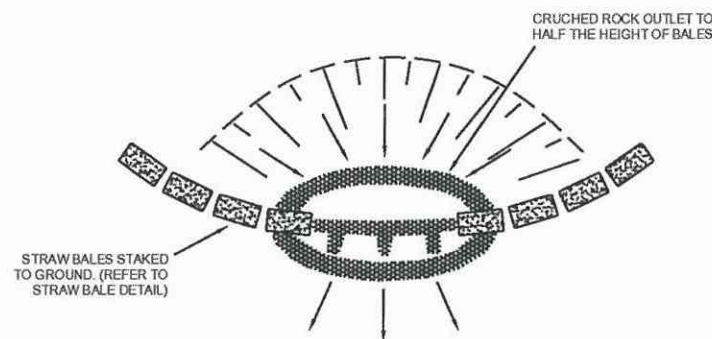


- NOTE:
1. FLOCCULATION TO BE USED IF WATER IS NOT CLEAR (IE SEDIMENT GREATER THAN 50 mg/L) PRIOR TO DISCHARGING FROM TEMPORARY PUMP OUT
 2. FOR RATES & AGENTS SEE APPENDIX E OF HOUSING NSW "MANAGING URBAN SW SOILS & CONSTRUCTION".

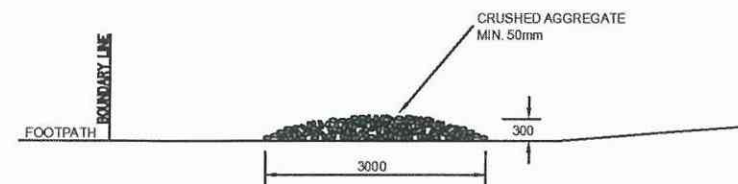
FLOCCULATION DETAIL



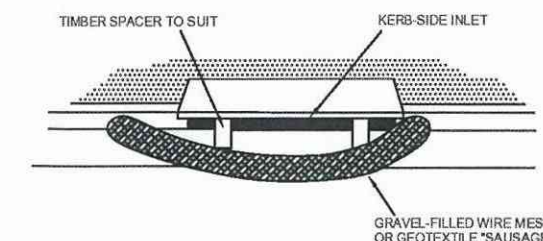
CATCH DRAIN DETAIL



STRAW BALE & CRUSHED ROCK SEDIMENT FILTER



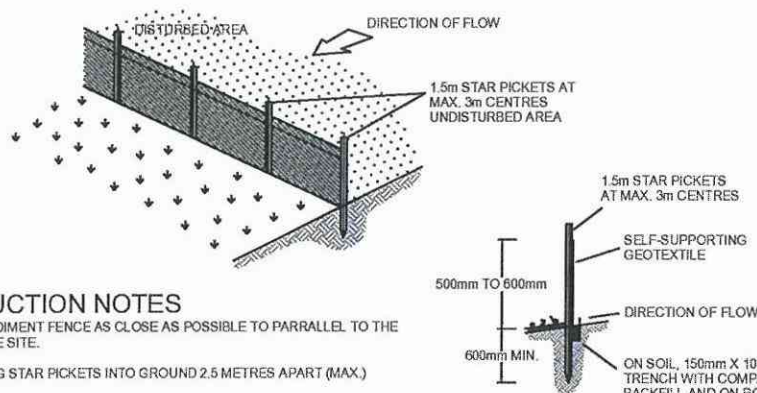
VEHICLE DUST SHAKE DOWN DETAIL



CONSTRUCTION NOTES

1. INSTALL FILTERS TO KERB INLET ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH X 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

MESH & GRAVEL INLET "SAUSAGE" FILTER



CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
2. DRIVE 1.5m LONG STAR PICKETS INTO GROUND 2.5 METRES APART (MAX.)
3. DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

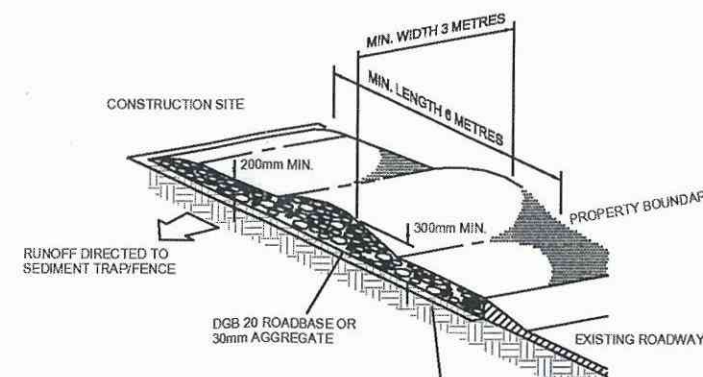
SEDIMENT FENCE

SECTION DETAIL

CONSTRUCTION NOTES

1. STRIP TOPSOIL AND LEVEL SITE.
2. COMPACT SUBGRADE.
3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
4. CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROADBASE OR 30mm AGGREGATE. MINIMUM LENGTH 15 METRES OR TO BUILDING ALIGNMENT. MINIMUM WIDTH 3 METRES.
5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR OTHER SEDIMENT TRAP.

STABILISED SITE ACCESS



GEOTEXTILE FABRIC DESIGNED TO PREVENT INTERMIXING OF SUBGRADE AND BASE MATERIALS AND TO MAINTAIN GOOD PROPERTIES OF THE SUB-BASE LAYERS.

GEOTEXTILE MAY BE A WOVEN OR NEEDLE PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4-90) OF 2500 N



No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



TOTAL PROJECT SOLUTIONS
PLANNING - PROJECT MANAGEMENT - ENGINEERING - DESIGNATION

SYDNEY
P. 02 9559 0005
CENTRAL COAST
P. 02 4325 5255
HUNTER
P. 02 4969 8388
ABN: 28 134 057 842
brs.com.au
mrl@brs.com.au

Client:

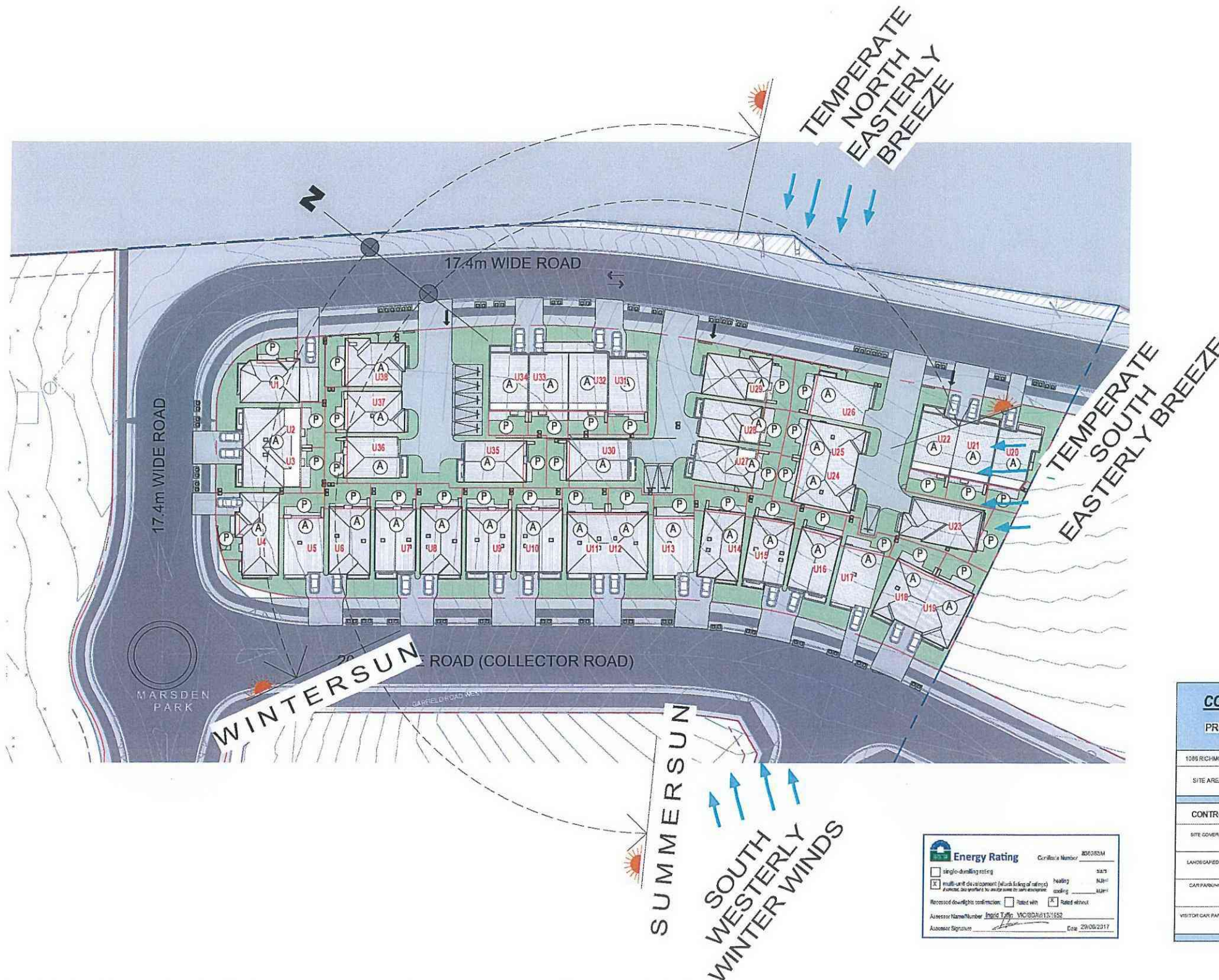


PROPOSED DEVELOPMENT AT LOT 7
1086 RICHMOND ROAD, MARSDEN PARK

SOIL AND WATER MANAGEMENT DETAILS

Designed: AD
Drawn: PMM
Checked: GJR
Scales: Plan
Horiz.
Vert.
X-Sect.
Datum: A.H.D.



Plan No.
SY170226C706
File Ref.
SY170226C700-B.dwg
SHEET 6 OF 6 SHEETS
REV.
B

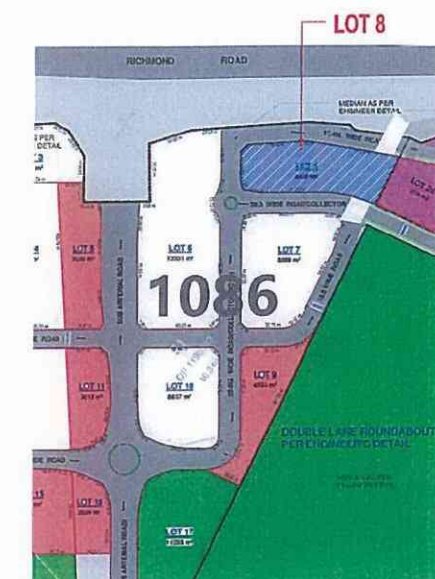
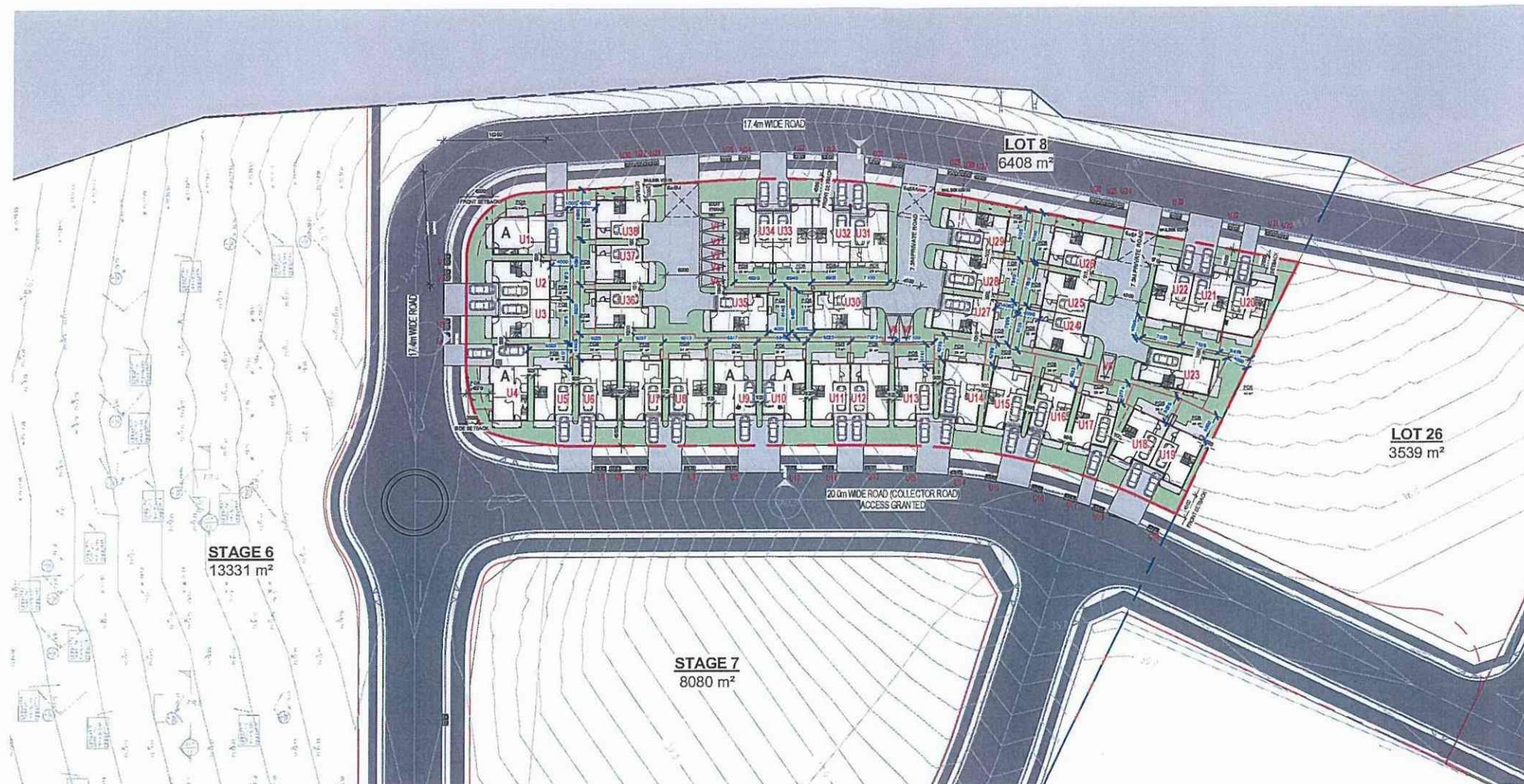


BASIX Specifications		Thermal Performance Specifications	
Project: 1686 Richmond Road - Stage 8 Marsden Park NSW 2763		Project: 1686 Richmond Road - Stage 8 Marsden Park NSW 2765	
The below specifications refer to all 36 Dwellings in the project		The below specifications refer to all 36 Dwellings in the project	
Water Commitments		Specifications -	
Shower Heads:	3 Star (>4.5 but <= 6 L/min)	Building Elements	Material
Toilets:	3 Star	External Walls	Brick Veneer
Kitchen and Bathroom Taps:	3 Star	Internal Walls	Plasterboard on studs
Water Tank:	1200L	Ceiling	Plasterboard
Energy Commitments		Roof	Tiles - Medium Colour
Hot Water System:	Gas Instantaneous 5 Star	Floors	Concrete slab on ground Suspend slab to first floor
Bathroom, Kitchen, Laundry Ventilation:	Individual Fans not ducted	Windows	Improved Aluminum Frame Single Glazed
Air Conditioning (Heating & Cooling):	1 phase cooling 2.5 Stars heating 2.5 Stars		Uval 5.91 SHGC 0.73
Cooktop and Oven	Gas Cooktop/ Electric Oven		
Please refer to BASIX report dated 25/06/2017 for detailed commitment requirements			

DRAWING REGISTER			
Sheet Number	Sheet Name	Issue Date	Rev
DA001	SITE ANALYSIS	21/12/2017	4
DA002	SITE PLAN	21/12/2017	4
DA003	GROUND FLOOR	21/12/2017	4
DA004	FIRST FLOOR	21/12/2017	3
DA005	ELEVATIONS & SECTION	21/12/2017	4
DA006	SHADOWS 1	21/12/2017	4
DA007	SHADOWS 2	21/12/2017	4
DA008	SITE COVERAGE PLAN	01/18/18	4

COMPLIANCE TABLE - LOT 8							
PROPOSED DEVELOPMENT FACILITATE THE CONSTRUCTION OF 38 RESIDENTIAL TOWNHOUSES							
1095 RICHMOND ROAD, MARSFIELD PARK LOT 51 DP 1196553							
SITE AREA	6408 SQM	38 DWELLING- DOUBLE STOREY - 23 X 3 BED UNITS 1 X 4 BED UNITS 1 X 5 BED		WHICH INCLUDING 4 ADAPTABLE UNITS AS REQUIRED			
CONTROL	REQUIRED	PROVIDED	COMPLIANCE	CONTROL	REQUIRED	PROVIDED	COMPLIANCE
SITE COVERAGE	PERMITTED MAX. 80% = 5126.4M ²	PROPOSED 1088.73M ²	YES	FRONT SETBACK	4.8M	4.8M OR GREATER	YES
LANDSCAPED AREA	MIN. 30% OF SITE AREA REQUIRED = 1922.4M ²	PROPOSED 11659.23M ²	YES	REAR SETBACK	4M	4M OR GREATER	YES
CAR PARKING	1 CAR PARKING SPACE PER EACH DWELLING PLUS 0.5M SPACE PER 3 OR MORE BEDROOM DWELLING	84 CAR SPACES	YES	SIDE SETBACK	0.9M	0.9M OR GREATER	YES
VISITOR CAR PARKING	1 CAR SPACES/ 8 DWELLINGS	8 CAR SPACES	YES	CORNER SETBACK	3M	2M OR GREATER	YES
				MAX. BUILDING HEIGHT	3M UNLESS OF EAVES	LESS THAN 3M	YES
				PRIVATE OPEN SPACE	MIN 1800MM MIN. DIMENSION OF 38 OR 1500MM SWELLING BALCONY OR 1000MM TOWNSHIP MIN. DIMENSION 300MM	MIN 1500 P.O.S. PER DWELLING OR GREATER	YES
				FENCING	1.8M HIGH	1.8M HIGH OR	YES

				GENERAL NOTES		NORTH		 The Bathla Group		PROJECT 1086 RICHMOND ROAD MARSDEN PARK - LOT 8 / STAGE 8		LOT NUMBER LOT 51 DP 1196583		DRAWING TITLE SITE ANALYSIS		PROJECT No 0100		DATE JAN 18		DRAWING No DA001		REV 4	
				THIS DRAWING IS THE EXCLUSIVE PROPERTY OF THE DEVELOPER & THE REPRODUCTION OF ANY PART WITHOUT THE PRIOR WRITTEN CONSENT OF THE DEVELOPER IS A VIOLATION OF APPLICABLE LAWS. IN NO EVENT SHALL THE DEVELOPER BE HELD LIABLE FOR SPECIAL, COLLATERAL, INCIDENTAL OR CONSEQUENTIAL LIABILITY IN CONNECTION WITH THE USE OF THIS DIGITAL DATA ONCE BASED FROM THE DEVELOPERS OFFICE. THIS DRAWING IS TO BE READ & UNDERSTOOD IN CONJUNCTION WITH THE SURVEYAL, MECHANICAL, ELECTRICAL & / OR ANY OTHER CONSULTANTS DOCUMENTATION AS MAY BE APPLICABLE TO THE PROJECT PRIOR TO THE START OF ANY WORKS AND FOR ITS DURATION.																			
				4 28/09/19 AMENDED AS PER COURT COMMENTS JM																			
				3 28/09/18 AMENDED AS PER COURT COMMENTS JM																			
				2 DEC 2017 CONVENTIONS LETTER JZ																			
				1 26/09/17 ISSUED FOR DA TS																			
				ISSUE DATE REVISION BY																			



LEGEND	
	CLOTHES LINING
	AIR CONDITIONING UNIT
	RAIN WATER TANK
	TOW TOP OF THE WALL LEVEL
	POS PRIVATE OPEN SPACE
	BUILDING SETBACK
	SITE BOUNDARY

1 SITE PLAN
1 : 500

COMPLIANCE TABLE - LOT 8							
PROPOSED DEVELOPMENT FACILITATE THE CONSTRUCTION OF 38 RESIDENTIAL TOWNHOUSES							
1086 RICHMOND ROAD, MARSDEN PARK LOT 81 DP 1196583							
SITE AREA	6408 SQM	38 DWELLING-DOUBLE STOREY - 23 X 3 BED UNITS (WHICH INCLUDING 4 ADAPTABLE UNITS AS REQUIRED) 14 X 4 BED UNITS 1 X 9 BED					
CONTROL	REQUIRED	PROVIDED	COMPLIANCE	CONTROL	REQUIRED	PROVIDED	COMPLIANCE
SITE COVERAGE	PERMITTED MAX. 80% + 3500M²	PROPOSED +3561.77M²	YES	FRONT SETBACK	4.8M	4.8M OR GREATER	YES
LANDSCAPED AREA	MIN. 30% OF SITE AREA, REQUIRED + 1825.43M²	PROPOSED +1825.00M²	YES	REAR SETBACK	6M	4M OR GREATER	YES
CAR PARKING	1 CAR PARKING SPACE PER EACH DWELLING PLUS ENTRIES PER 5 OR MORE BEDROOM DWELLING OF	84 CAR SPACES	YES	WIDE SETBACK	8.9M	8.9M OR GREATER	YES
VISITOR CAR PARKING	1 CAR SPACE/ DWELLING + 6	8 CAR SPACES	YES	CORNER SETBACK	3M	2M OR GREATER	YES
				MAX. BUILDING HEIGHT	8M UNDERSIDE OF EAVES	LESS THAN 8M	YES
				PRIVATE OPEN SPACE	MIN 18M² WITH MIN. DIMENSION OF 3M OR 10M² PER DWELLING BALCONY OR ROOF TERRACE WITH DIMENSIONS 3M	MIN 18M² P.O.S. PER DWELLING OR GREATER	YES
				PENDING	1.8M HIGH	1.8M HIGH OR	YES

Energy Rating Certificate Number: 836368M

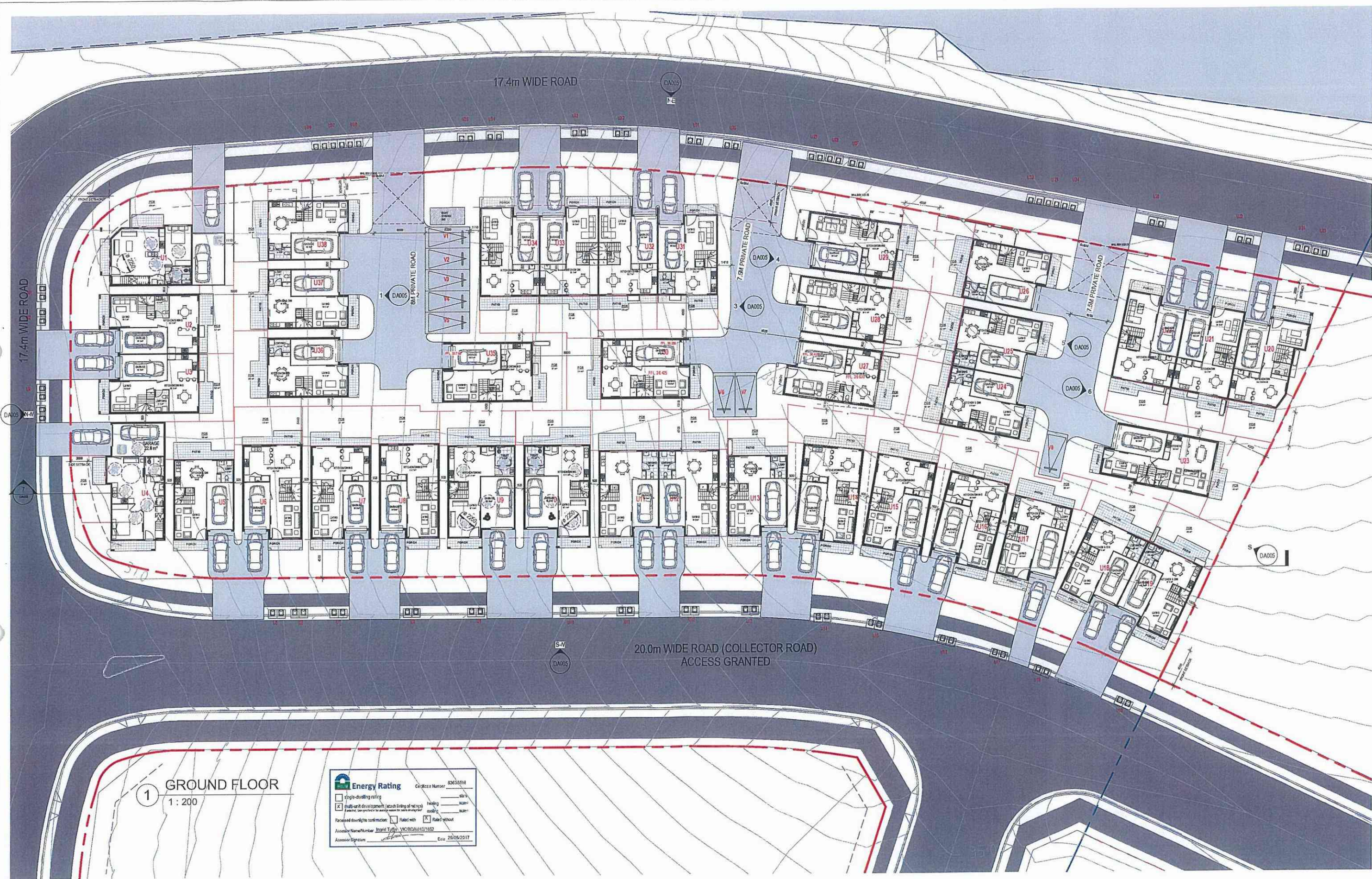
☒ Single dwelling rating

☒ Multi-unit development (attach listing of ratings)

Processed dwelling confirmation: ☐ Rated with ☒ Rated without

Assessor Name/Number: *James Tully* VSO/504/151052

Assessor Signature: *[Signature]* Date: 28/06/2017



1 GROUND FLOOR
1:200

Energy Rating Certificate Number: 83635554

☐ Single-dwelling rating

☒ Multi-unit development (attach listing of ratings)

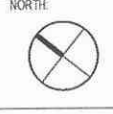
Rating: **A**

Assessor Name/Number: **James Taylor / MCRODA0151652**

Issue Date: **20/05/2017**

ISSUE	DATE	REVISION	BY
1	26/05/17	ISSUED FOR DA	TS
2	DEC 2017	CONTENTS LETTER	JZ
3	20/01/18	AMENDED AS PER COURT COMMENTS	CO
4	28/02/18	AMENDED AS PER COURT COMMENTS	JM

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The Bathla Group

327 Gt. Rd., Greenest Sydney NSW 2145
PO Box 243 Northmead NSW 2151
T: 02 9658 4444 F: 02 9658 4472
info@bathla.com.au | www.bathla.com.au

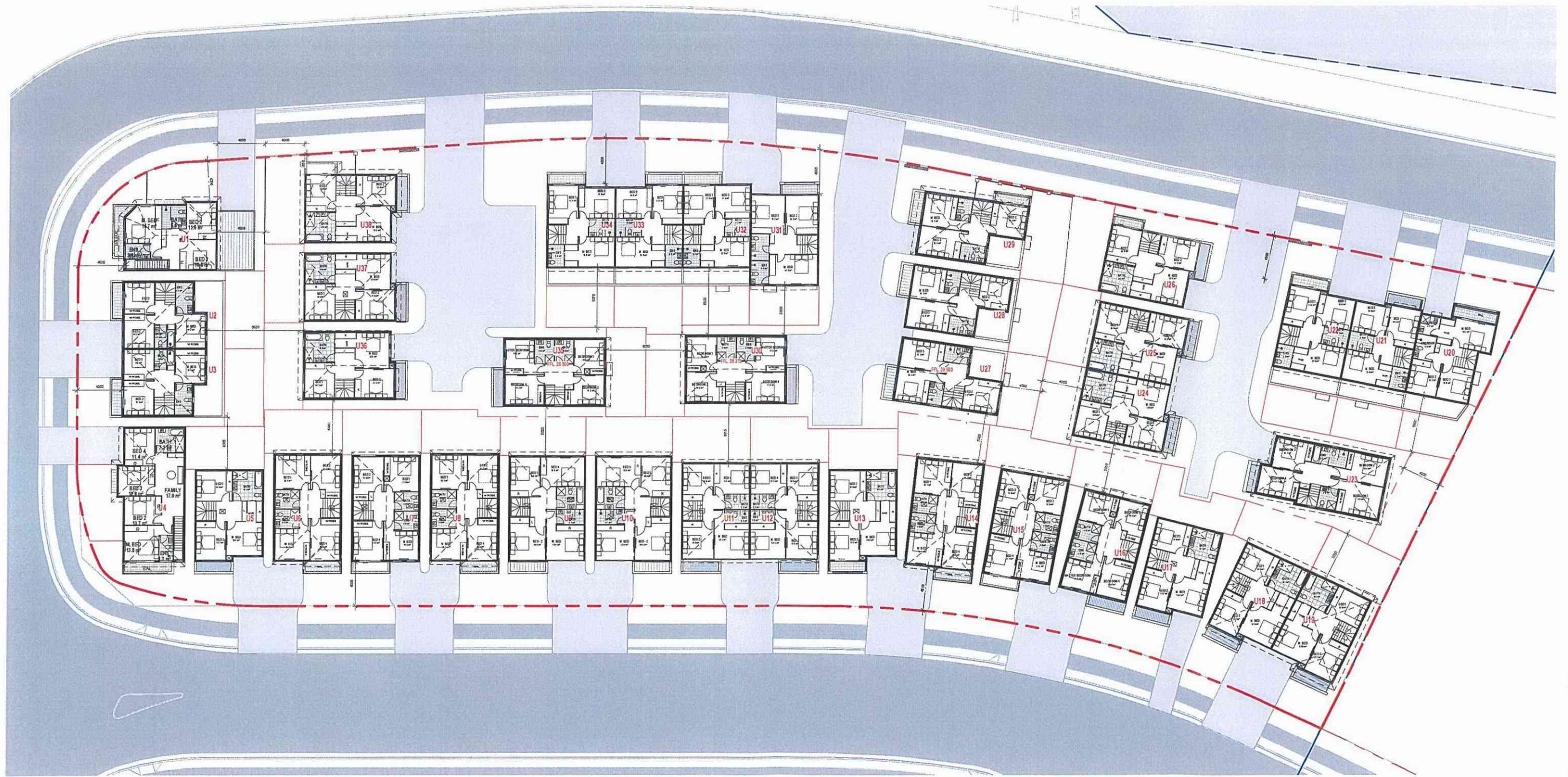
PROJECT:
**1086 RICHMOND ROAD
MARSDEN PARK - LOT 8 / STAGE 8**

LOT NUMBER:
LOT 51 DP 1196583

DRAWING TITLE:
GROUND FLOOR

PROJECT No.	DATE	DRAWING No.	REV.
0100	JAN18	DA003	4
DRAWN BY: JZ	SCALE: 1:200		

DA ISSUE



1 FIRST FLOOR
1 : 200

Energy Rating Certificate Number: B06355M

☐ Single-dwelling rating

☒ Multi-unit development (across building of ratings)

Relevant dwelling's construction: ☐ Rated with ☒ Rated without

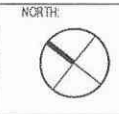
Assessor Name/Number: Jaz JZ 13080401131552

Assessor Signature: [Signature] Date: 29/06/2017

Heating: MJS
Cooling: MJS

ISSUE	DATE	REVISION	BY
3	23/01/18	AMENDED AS PER COURT COMMENTS	CD
2	DEC 2017	CONTENTIONS LETTER	JZ
1	26/06/17	ISSUED FOR DA	TS

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337 Gibba Road, Glenview Sydney NSW - 2155
PO Box 275, Wentworthville NSW 2145
T: 02 9637 2465 | F: 02 9637 4722
info@bathla.com.au | www.bathla.com.au

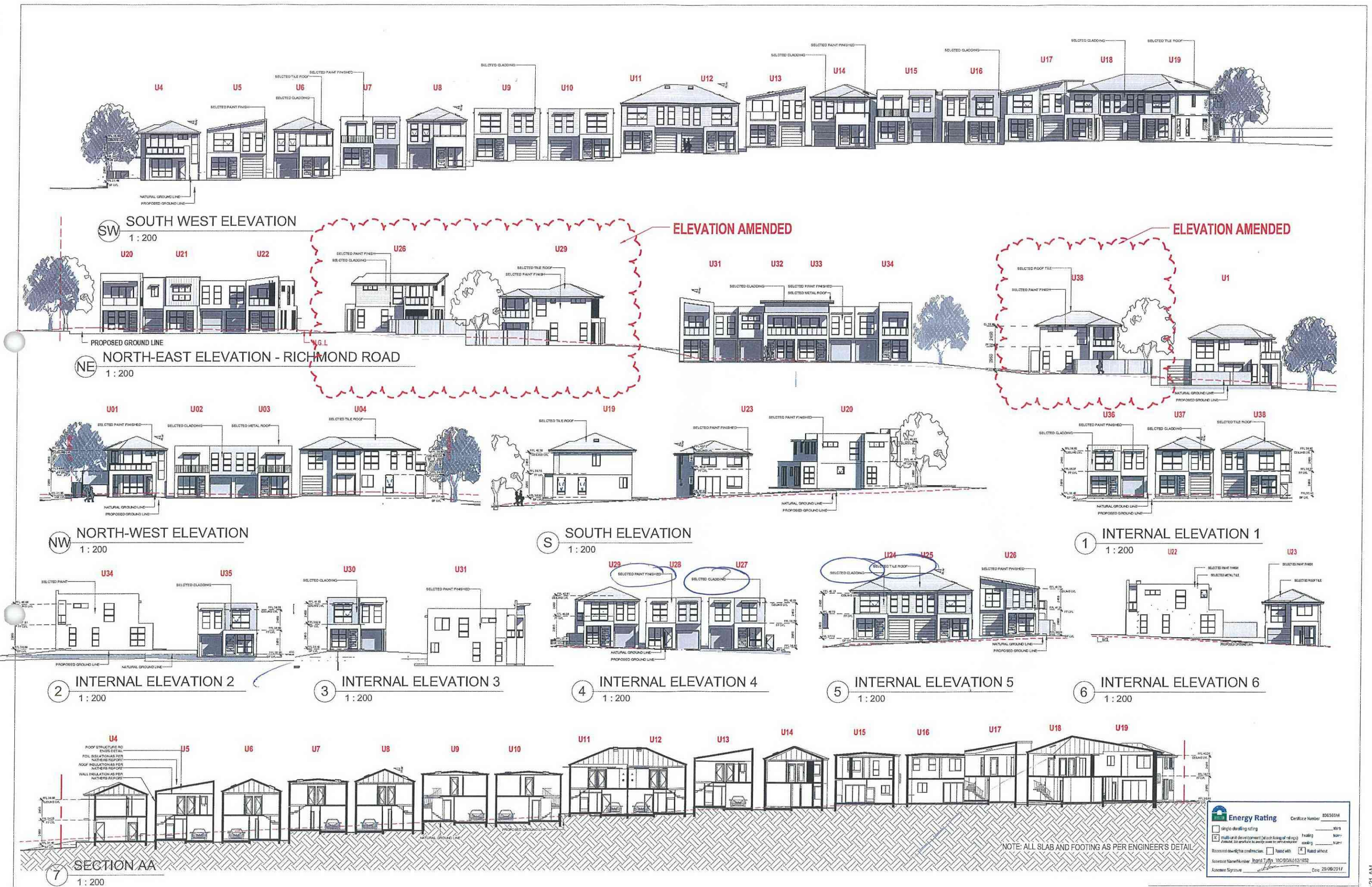
PROJECT
1086 RICHMOND ROAD
MARSDEN PARK - LOT 8 / STAGE 8

LOT NUMBER
LOT 51 DP 1196583

DRAWING TITLE
FIRST FLOOR

PROJECT No	0100	DATE	JAN18	DRAWING No	DA004	REV.	3
DRAWN BY	JZ	SCALE	1 : 200				

DA ISSUE



ISSUE	DATE	REVISION	BY
1	26/09/17	ISSUED FOR DA	TS
2	DEC 2017	CONTENTS LETTER	JZ
3	29/07/18	AMENDED AS PER COURT COMMENTS	CO
4	28/02/18	AMENDED AS PER COURT COMMENTS	JM

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NORTH



107 Glen Road, Glenview Sydney NSW - 2115
 PO Box 220, Waverley NSW 1540
 T: 02 9624 2445 | F: 02 9624 4192
 info@bathla.com.au | www.bathla.com.au

PROJECT
1086 RICHMOND ROAD
 MARSDEN PARK - LOT 8 / STAGE 8

LOT NUMBER
LOT 51 DP 1196583

DRAWING TITLE
ELEVATIONS & SECTION

PROJECT No	DATE	DRAWING No	REV
0100	JAN18	DA005	4
DRAWN BY	SCALE	DATE	REV
JZ	1:200		

DA ISSUE

Energy Rating Certificate Number: 856365M

☐ Single dwelling rating

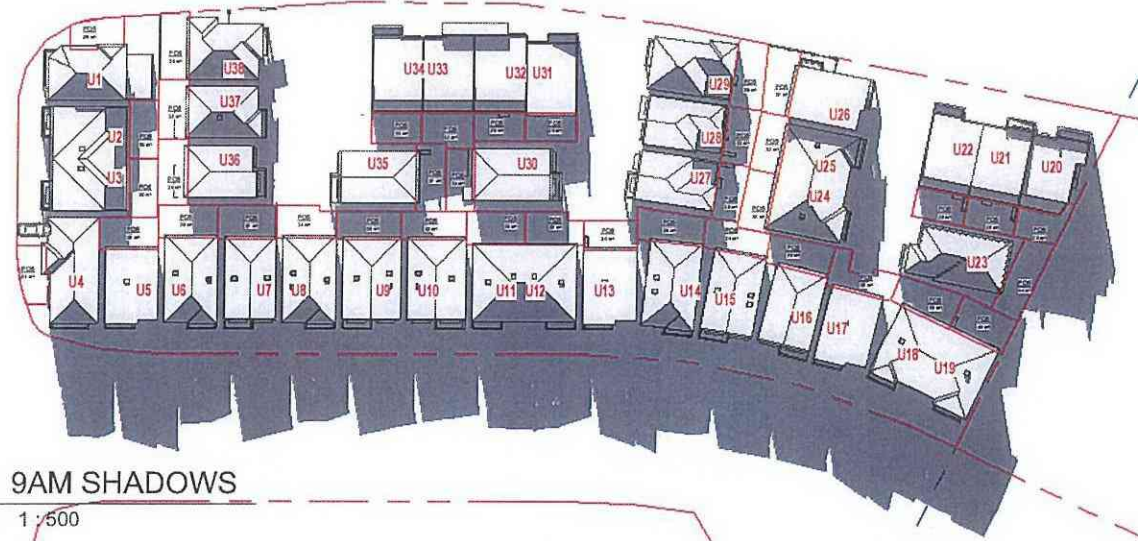
☒ Multi-unit development (each living or sleeping unit)

Product: See appendix A energy code for unit construction

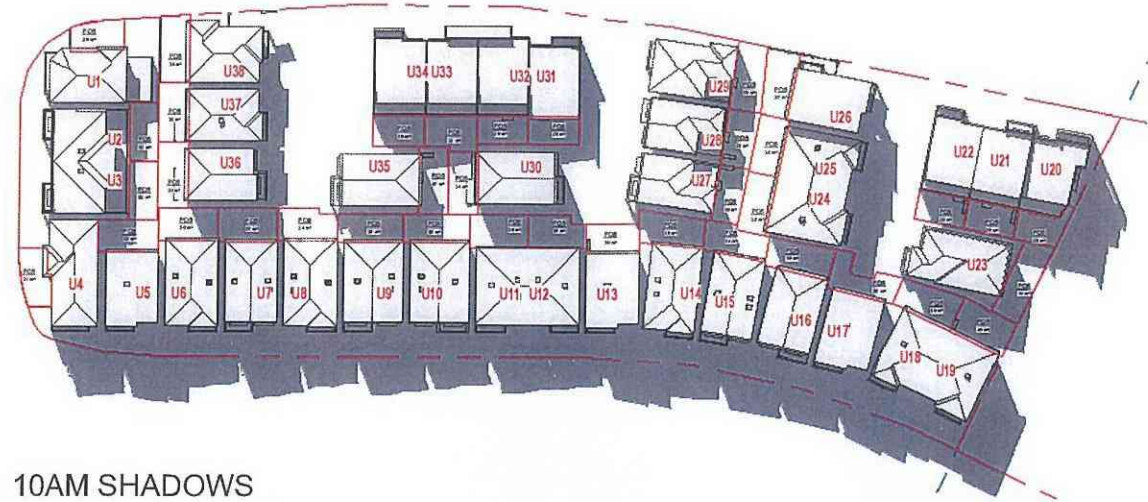
Relevant dwelling condition: ☐ Rated with ☒ Rated without

Assessor Name/Number: Ingrid Tappin YIC004/131652

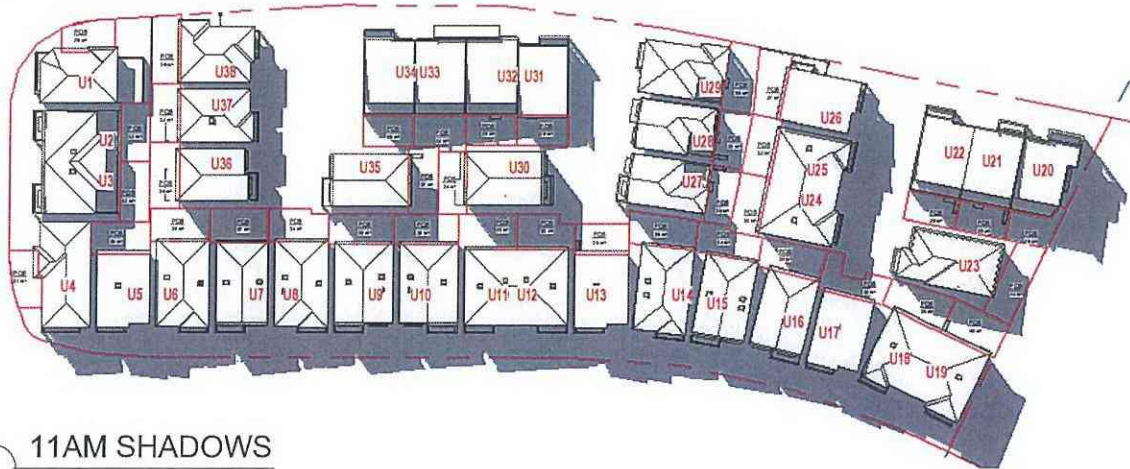
Assessor Signature: _____ Date: 28/08/2017



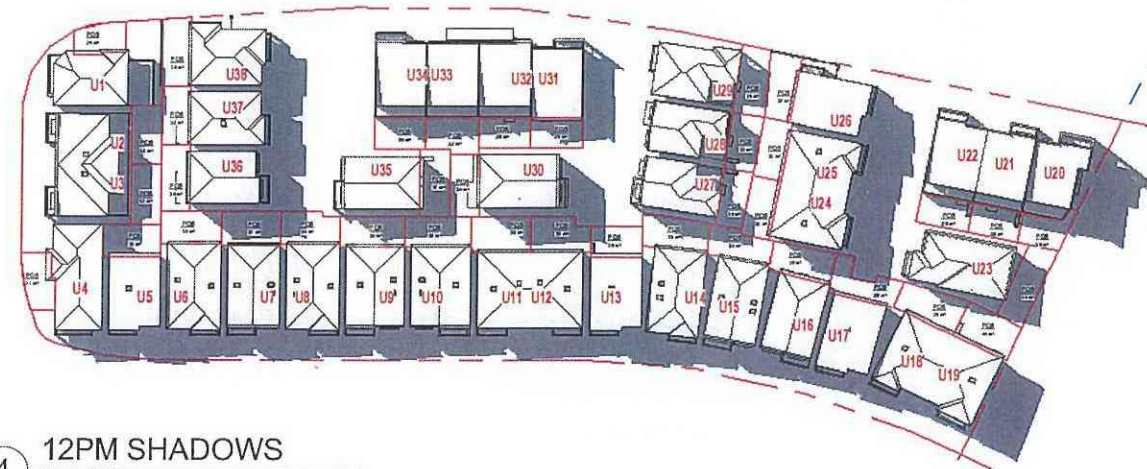
1 9AM SHADOWS
1 : 500



2 10AM SHADOWS
1 : 500



3 11AM SHADOWS
1 : 500



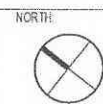
4 12PM SHADOWS
1 : 500

DO NOT SCALE
USE PROVIDED DIMENSIONS AT ALL TIMES. IF IN DOUBT CHECK WITH THE BUILDER. CONTRACTORS TO CHECK AND VERIFY ALL LEVELS, DATUMS AND DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES OR OMISSIONS TO THE BUILDER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE.

0 10 20 30 40 50 60m

ISSUE	DATE	REVISION
4	28/02/18	AMENDED AS PER COURT COMMENTS
3	29/01/18	AMENDED AS PER COURT COMMENTS
2	DEC 2017	CONTENTS LETTER
1	26/05/17	ISSUED FOR DA

GENERAL NOTES	BY
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	JZ
	TS



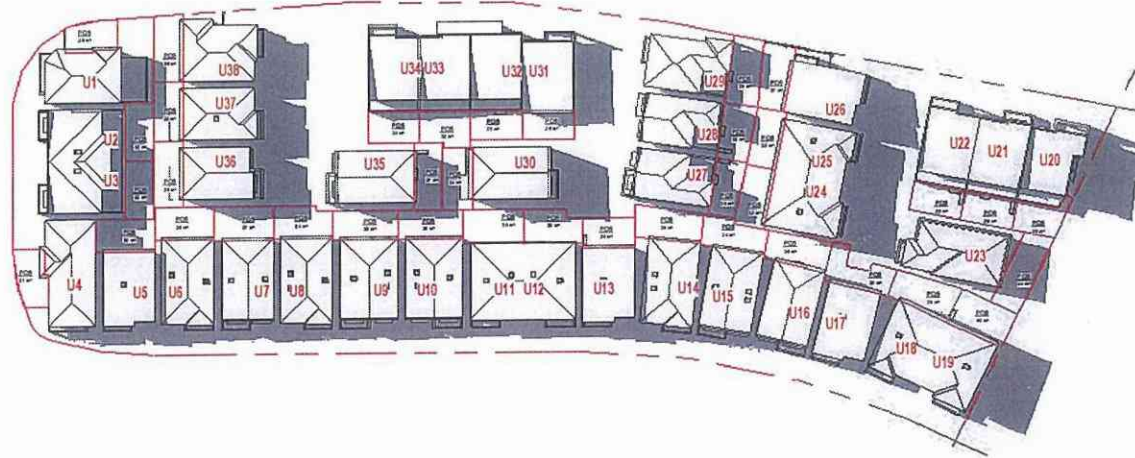
PROJECT
1086 RICHMOND ROAD
MARSDEN PARK - LOT 8 / STAGE 8

LOT NUMBER
LOT 51 DP 1196583

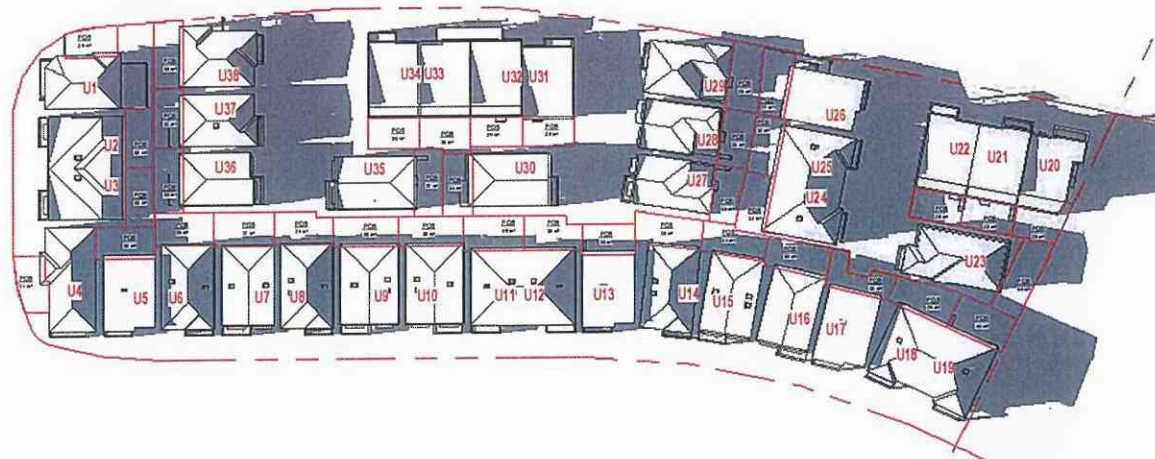
DRAWING TITLE
SHADOWS 1

PROJECT No.	DATE	DRAWING No.	REV.
0100	JAN 18	DA006	4
DRAWN BY:	SCALE		
JZ	1 : 500		

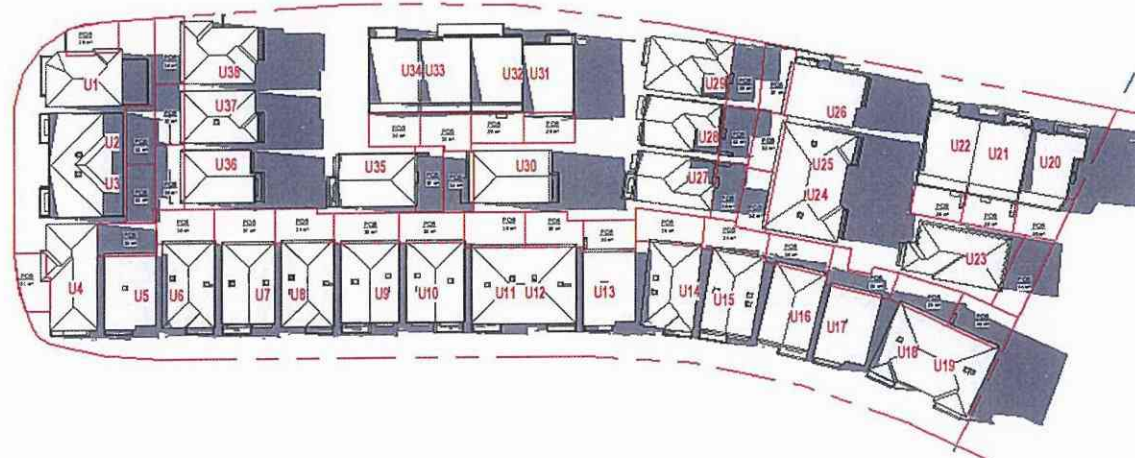
DA ISSUE



1 1PM SHADOWS
1 : 500

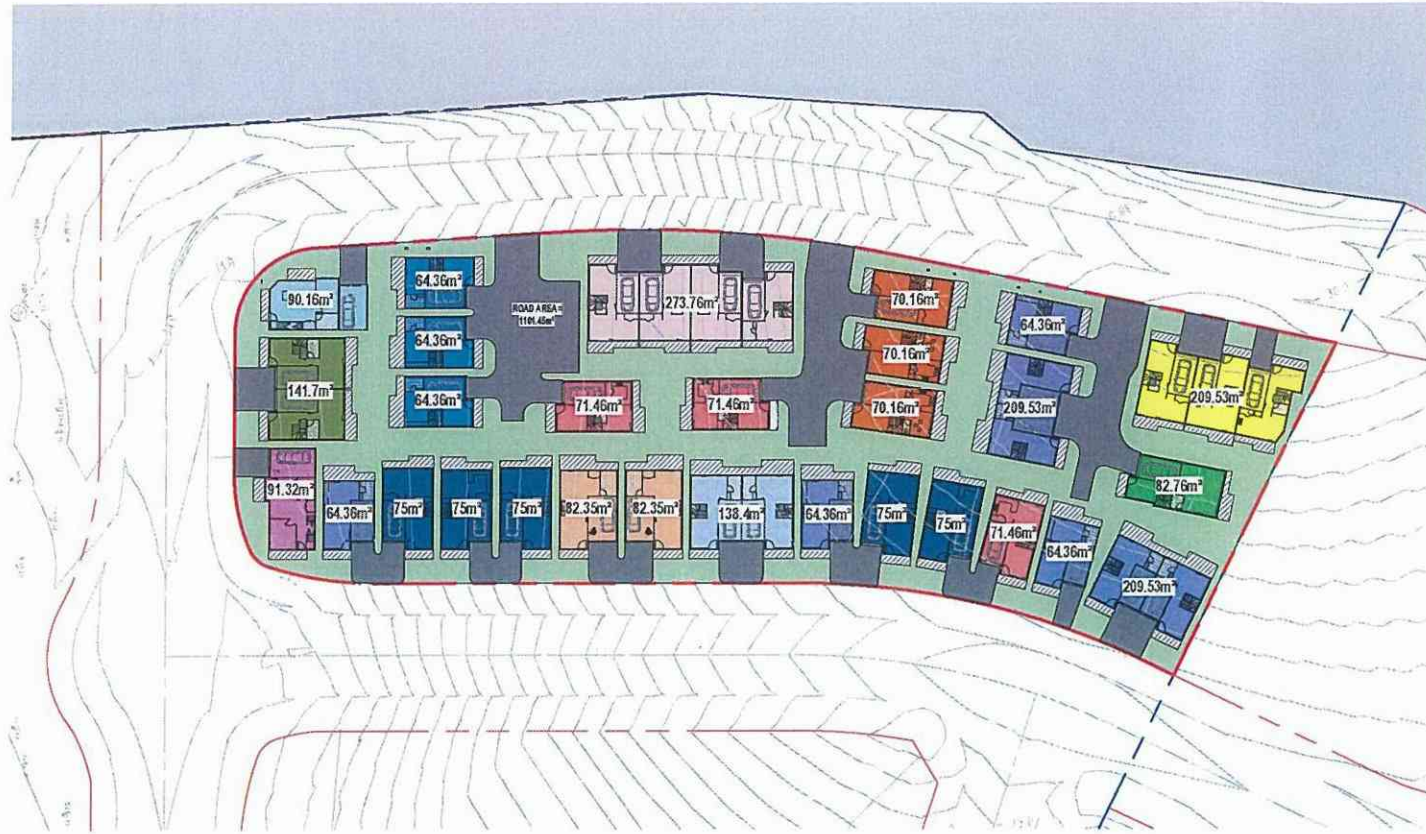


3 3PM SHADOWS
1 : 500



2 2PM SHADOWS
1 : 500

UNIT	TOTAL FOS (SQM)	MINIMUM FOS REQUIRED (SQM)	9AM	10AM	11AM	12NOON	1PM	2PM	3PM	HOURS-SON	COMPLIANCE
1	29	16	SQM 29 % 181.3%	29 181.3%	29 181.3%	29 181.3%	29 181.3%	29 181.3%	29 181.3%	6	YES
2	32	16	COMPLIANCE SQM 11.5 % 71.9%	YES 8.05 50.3%	YES 8.2 57.5%	YES 9.36 58.0%	YES 5.45 34.1%	YES 1.65 10.3%	YES 0 0.0%	3	YES
3	32	16	COMPLIANCE SQM 25 % 156.3%	YES 24.4 152.5%	YES 16.68 104.3%	YES 8.72 54.5%	NO 12.55 78.3%	NO 0 0.0%	NO 0 0.0%	3	YES
4	31	16	COMPLIANCE SQM 31 % 193.8%	YES 31 193.8%	YES 31 193.8%	YES 31 193.8%	YES 31 193.8%	YES 31 193.8%	YES 31 193.8%	6	YES
5	36	16	COMPLIANCE SQM 17.25 % 107.8%	YES 14.95 91.4%	YES 17.5 109.4%	YES 11.62 72.6%	YES 8.06 50.4%	YES 2.5 15.6%	YES 0 0.0%	4	YES
6	37	16	COMPLIANCE SQM 18 % 112.5%	YES 25.2 157.5%	YES 27.52 172.0%	YES 31.5 209.4%	YES 34.82 217.6%	YES 34.95 218.4%	YES 17.28 108.0%	6	YES
7	34	16	COMPLIANCE SQM 0 % 0.0%	NO 0 0.0%	NO 0 0.0%	NO 9.52 59.5%	YES 24.02 130.1%	YES 26.85 130.3%	YES 28.86 130.4%	3	YES
8	35	16	COMPLIANCE SQM 37 % 200.0%	YES 30.6 191.3%	YES 10.02 62.4%	YES 21.4 133.8%	YES 25.2 157.5%	YES 24.15 157.4%	YES 24.84 155.3%	6	YES
9	35	16	COMPLIANCE SQM 0 % 0.0%	NO 3.36 21.0%	NO 0 0.0%	NO 18.82 117.6%	YES 33.39 189.9%	YES 35 218.6%	YES 38.95 118.4%	3	YES
10	35	16	COMPLIANCE SQM 26.25 % 164.1%	YES 14.12 88.3%	YES 9.6 60.0%	YES 15.81 98.8%	YES 26.22 163.9%	YES 35 218.6%	YES 21.05 131.6%	6	YES
11	38	16	COMPLIANCE SQM 8.68 % 54.1%	YES 15.2 95.0%	YES 24.25 151.6%	YES 37.58 214.9%	YES 26 225.0%	YES 38 237.5%	YES 20.38 177.4%	6	YES
12	35	16	COMPLIANCE SQM 7.5 % 46.9%	YES 9.8 58.0%	YES 0 0.0%	YES 8.16 51.0%	YES 24.39 152.4%	YES 35 218.6%	YES 22.6 141.3%	3	YES
13	30	16	COMPLIANCE SQM 26.5 % 165.6%	YES 29 181.3%	YES 25.5 159.4%	YES 21.28 145.5%	YES 29 181.3%	YES 30 187.5%	YES 14.95 93.4%	6	YES
14	39	16	COMPLIANCE SQM 0 % 0.0%	NO 3.5 21.9%	NO 8.12 50.8%	YES 24.32 153.3%	YES 37.5 234.4%	YES 39 243.8%	YES 30.9 191.1%	4	YES
15	34	16	COMPLIANCE SQM 25.85 % 161.6%	YES 16.94 105.9%	YES 12.47 77.9%	YES 22.5 140.6%	YES 32 200.0%	YES 32.02 200.1%	YES 8.95 50.9%	6	YES
16	36	16	COMPLIANCE SQM 2.5 % 15.6%	YES 5.05 31.6%	YES 3.59 22.5%	YES 21.78 135.0%	YES 34.85 217.8%	YES 22.6 141.3%	YES 0.95 5.9%	3	YES
17	35	16	COMPLIANCE SQM 11.55 % 72.2%	YES 12.25 76.6%	YES 8.35 52.2%	YES 25.23 157.7%	YES 34.5 215.6%	YES 12.85 80.3%	YES 0 0.0%	3	YES
18	39	16	COMPLIANCE SQM 3.45 % 21.6%	YES 10.78 67.4%	YES 19.5 121.9%	YES 35.5 221.9%	YES 37.85 236.6%	YES 17.65 110.3%	YES 0 0.0%	4	YES
19	40	16	COMPLIANCE SQM 0 % 0.0%	NO 2.5 15.6%	NO 20.35 127.2%	YES 37.75 235.9%	YES 31.65 197.8%	YES 12.85 80.3%	YES 0 0.0%	3	YES
20	28	16	COMPLIANCE SQM 0 % 0.0%	NO 0 0.0%	NO 0 0.0%	YES 12.85 86.6%	YES 23.96 131.1%	YES 28 175.0%	YES 14.6 91.3%	3	YES
21	28	16	COMPLIANCE SQM 0 % 0.0%	NO 0 0.0%	NO 0 0.0%	NO 16.25 101.6%	YES 22.85 142.8%	YES 28 175.0%	YES 15.4 96.3%	3	YES
22	28	16	COMPLIANCE SQM 2.2 % 13.8%	YES 5.25 32.8%	YES 12.45 77.8%	YES 19.2 120.0%	YES 21.36 146.0%	YES 27.55 172.2%	YES 8.52 53.3%	4	YES
23	44	16	COMPLIANCE SQM 0.5 % 3.1%	YES 8.02 50.1%	YES 15.28 95.5%	YES 10.85 67.8%	YES 11.82 75.9%	YES 13.85 86.6%	YES 5.88 36.8%	4	YES
24	32	16	COMPLIANCE SQM 32 % 200.0%	YES 32 200.0%	YES 32 200.0%	YES 32 200.0%	YES 32 200.0%	YES 32 200.0%	YES 32 200.0%	6	YES
25	32	16	COMPLIANCE SQM 32 % 200.0%	YES 32 200.0%	YES 32 200.0%	YES 32 200.0%	YES 32 200.0%	YES 32 200.0%	YES 32 200.0%	6	YES
26	37	16	COMPLIANCE SQM 37 % 231.3%	YES 37 231.3%	YES 37 231.3%	YES 37 231.3%	YES 37 231.3%	YES 37 231.3%	YES 37 231.3%	6	YES
27	30	16	COMPLIANCE SQM 8.05 % 50.3%	YES 10.86 67.9%	YES 15.38 96.1%	YES 10.46 69.4%	YES 5.39 33.7%	YES 18.22 113.9%	YES 5.25 32.8%	3	YES
28	33	16	COMPLIANCE SQM 9.05 % 56.6%	YES 11.12 69.5%	YES 11.78 73.6%	YES 8.56 53.5%	YES 6.28 37.3%	YES 1.87 11.7%	YES 0.2 1.3%	3	YES
29	39	16	COMPLIANCE SQM 30.25 % 183.1%	YES 23.68 148.0%	YES 16.78 104.9%	YES 15.42 96.4%	YES 13.66 85.4%	YES 1.87 11.7%	YES 0.2 1.3%	4	YES
30	33	16	COMPLIANCE SQM 8.65 % 54.1%	YES 26.4 166.0%	YES 31 193.8%	YES 27.5 171.0%	YES 18.85 117.8%	YES 4.29 26.8%	YES 7.25 45.3%	4	YES
31	28	16	COMPLIANCE SQM 0 % 0.0%	NO 0 0.0%	NO 1.08 6.8%	NO 9.02 62.0%	YES 18.25 114.1%	YES 27.35 170.9%	YES 28 175.0%	3	YES
32	28	16	COMPLIANCE SQM 0 % 0.0%	NO 0 0.0%	NO 1.5 9.4%	NO 12.86 80.4%	YES 23.02 125.1%	YES 27.5 171.9%	YES 28 175.0%	3	YES
33	32	16	COMPLIANCE SQM 0 % 0.0%	NO 0 0.0%	NO 0 0.0%	YES 13.26 82.9%	YES 24.05 150.3%	YES 31 193.8%	YES 29.85 186.6%	3	YES
34	30	16	COMPLIANCE SQM 1.82 % 11.4%	YES 3.01 18.8%	YES 8.65 54.1%	YES 16.8 105.0%	YES 22.45 140.3%	YES 28.88 180.5%	YES 29.75 185.9%	4	YES
35	37	16	COMPLIANCE SQM 4.07 % 25.4%	YES 12.35 77.2%	YES 11.85 66.6%	YES 11.02 64.9%	YES 8.07 50.1%	YES 5.23 31.5%	YES 0.5 3.1%	3	YES
36	36	16	COMPLIANCE SQM 36 % 225.0%	YES 36 225.0%	YES 36 225.0%	YES 36 225.0%	YES 36 225.0%	YES 36 225.0%	YES 36 225.0%	6	YES
37	32	16	COMPLIANCE SQM 32 % 200.0%	YES 32 200.0%	YES 32 200.0%	YES 32 200.0%	YES 32 200.0%	YES 32 200.0%	YES 32 200.0%	6	YES
38	36	16	COMPLIANCE SQM 36 % 225.0%	YES 36 225.0%	YES 36 225.0%	YES 36 225.0%	YES 36 225.0%	YES 36 225.0%	YES 36 225.0%	6	YES



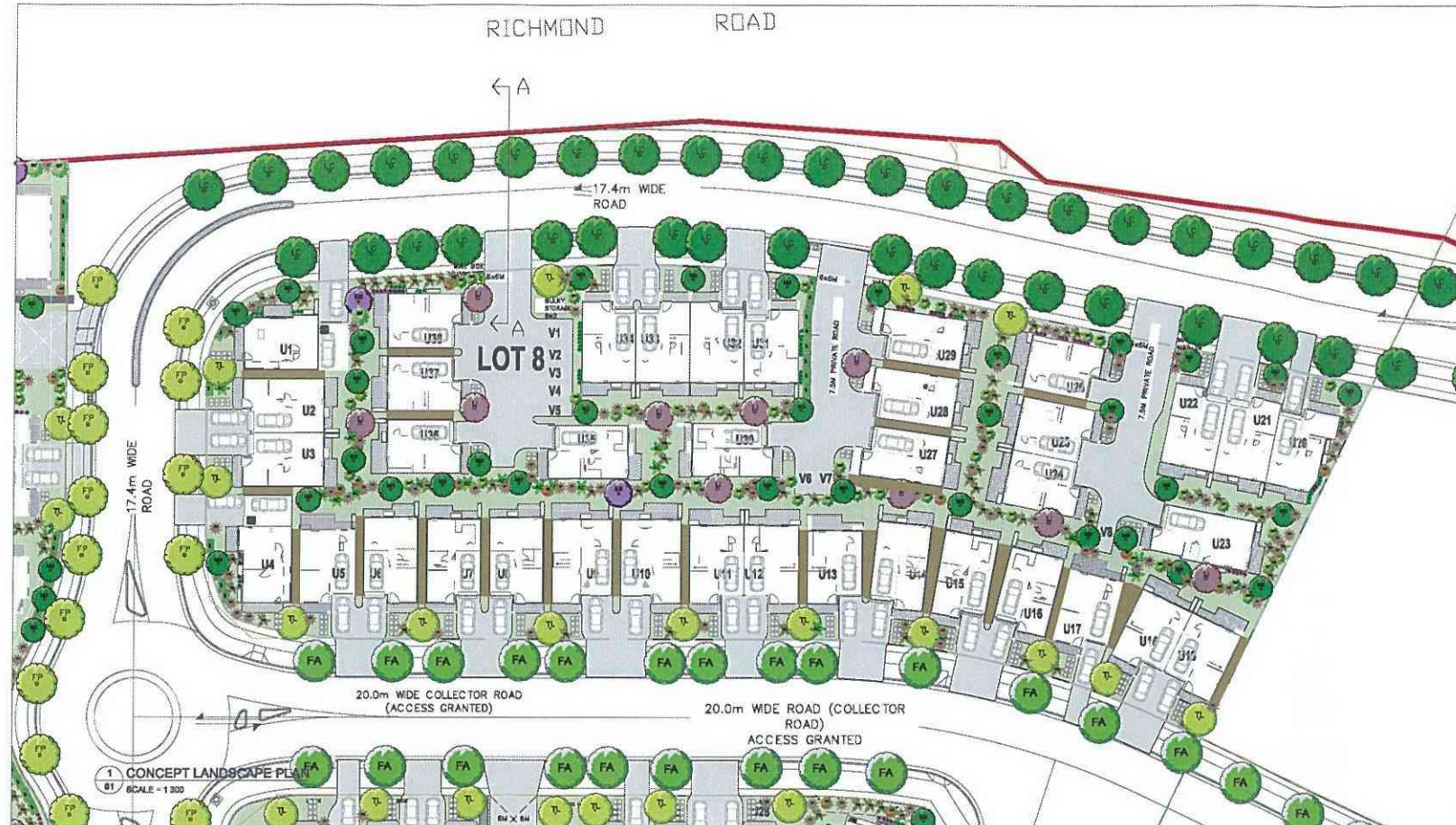
1 SITE PLAN_AREA CALCULATION
1 : 500

1086 RICHMOND ROAD, MARSDEN PARK LOT 51 DP 1196583			
SITE AREA	6408.0M²		
TOTAL DWELLING AREA	2861.77M²		
TOTAL ROAD AREA	1101.45M²		
TOTAL TERRACED AREA	515.52M²		
CONTROL	REQUIRED	PROVIDED	COMPLIANCE
SITE COVERAGE	PERMITTED MAX. 50% = 3204M²	PROPOSED =2861.77M²	YES
LANDSCAPED AREA	MIN. 30% OF SITE AREA REQUIRED = 1922.4M²	PROPOSED =1929.26M²	YES

SITE COVERAGE			

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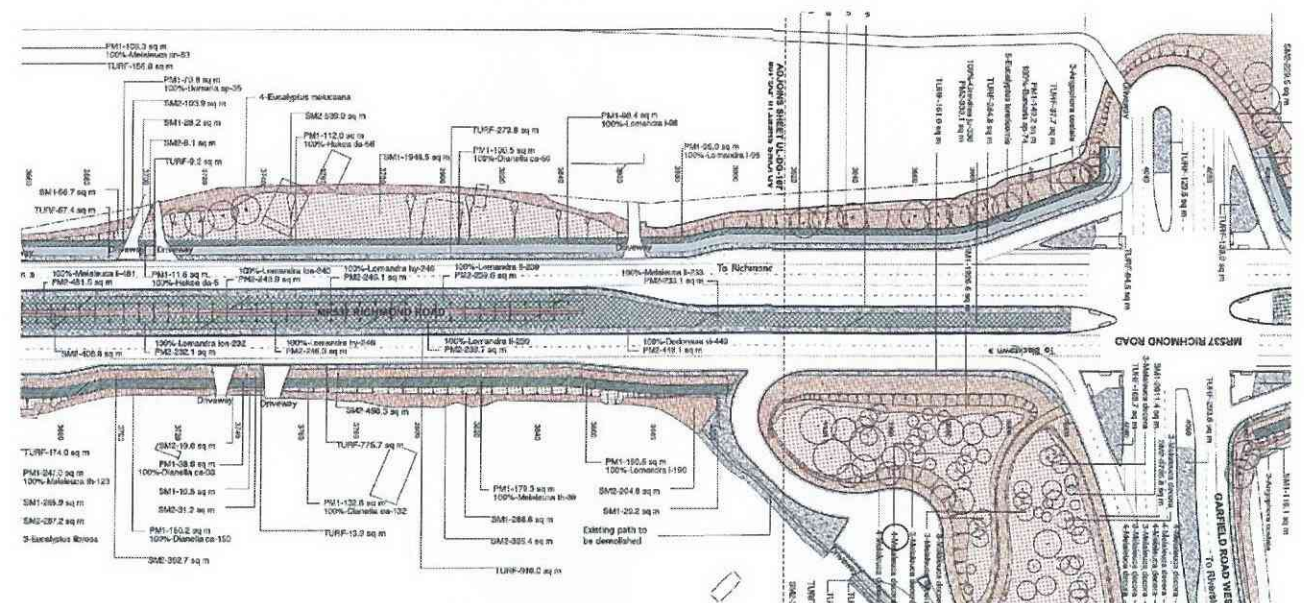


Street planting detail and specifications:

- No timber or steel edging is permissible
- Install root barriers to protect assets, structures and/or underground services to a minimum depth of 600mm to street trees adjoining paths, kerb and gutter or roadways.
- Tree trunk to be a minimum 750mm from street kerb and guttering
- All imported soil to achieve the requirements of AS4419 - Soils for landscaping. All tree planting holes are a minimum 1.5 times diameter and twice the depth of the root ball. All mulch is to be free of deleterious material such as rock, soil, weeds and sticks.
- Mulch - Forest litter or pine bark mulch
- All soft edges (mulch, turf, grassed) to be finished to appropriate falls and flush with adjacent surface treatment.
- Use Buffalo as turf.
- Turf to consist of 25mm depth of dense, well rooted, vigorous grass growth with minimum 15mm on an average 100mm depth of top soil
- Staking is required specified as - drive 2x38x38x1800 mm hardwood stake 600mm into the ground. Secure the

Specification for Maintenance:

- Mechanical line trimmers (whipper snippers) not be used within 300mm of out edge of tree trunks
- No grass to overgrow edges where it adjoins hard paved surfaces or kerbs and guttering
- No grass or weeds within mulched area in or around tree
- Stolen trees to be replaced within one week. Repeated removal of trees within the same location shall immediately be reported to Council
- All garden beds to be re-mulched to maintain a depth of 75mm and level finish with adjacent surfaces
- Mulch not to come into contact with the trunks of trees
- No visible signs of wilting of leaves or stems, with all plants to be fully turgid at all times
- No sign of over watering such as constantly wet soil, brown leaf margins, stem rot or brown spots on foliage
- No obvious signs of weed infestation in grass areas, pavements or mass planting beds
- Chemical not to be applied in extreme temperatures or wind conditions
- Removal of all suckers from base of trees
- Formative pruning of trees to allow effective canopy development and to retain natural or desired shape of the tree
- All damaged dead or diseased wood to be pruned to the nearest lateral shoot or active bud with a clean neat cut
- Performance of planting will be indicated by new growth with visible sign of new leaves;



FROM TOWNSON ROAD TO GARFIELD ROAD ROAD, MARSDEN PARK - LANDSCAPE PLAN - ROADS AND MARITIME SERVICE OF NSW

PROPOSED PLANTING SCHEDULE - LOT 8

BOTANICAL NAME	COMMON NAME	APPROXIMATE QUANTITY	POT SIZE	QUANTITY
TREES				
MAGNOLIA GRANDIFLORA 'LITTLE GEM'	David's Magnolia	2.5-3.0m	75L	24
TYLIDIOIDES SPURIA 'LANCEOLATA'	Servatoia Gum	4m	75L	14
LYGISTROSTYLIS SPURIA 'LANCEOLATA'	Orange Myrtle	4m	75L	10
SHRUBS				
ACACIA SPURIA	Range Lily	0.8m	300mm	32
MYRTILLIS SPURIA	Orange Rosemary	1.5m	300mm	48
PHILLODENDRON SPURIA	Yucca	1.5m	300mm	16
PHILLODENDRON SPURIA	New Zealand Flax	1.5m	300mm	32
SPURIA SPURIA	Orange Myrtle	1.5m	300mm	12
MYRTILLIS SPURIA	Orange Rosemary	1.5m	300mm	12
GROUND COVER / BARRIER				
LYGISTROSTYLIS SPURIA	Range Lily	0.8m	150mm	32
MYRTILLIS SPURIA	Orange Rosemary	1.5m	150mm	48
PHILLODENDRON SPURIA	Yucca	1.5m	150mm	16
PHILLODENDRON SPURIA	New Zealand Flax	1.5m	150mm	32
SPURIA SPURIA	Orange Myrtle	1.5m	150mm	12
MYRTILLIS SPURIA	Orange Rosemary	1.5m	150mm	12
STREET TREES				
LYGISTROSTYLIS SPURIA	Range Lily	0.8m	150mm	32
MYRTILLIS SPURIA	Orange Rosemary	1.5m	150mm	48
PHILLODENDRON SPURIA	Yucca	1.5m	150mm	16
PHILLODENDRON SPURIA	New Zealand Flax	1.5m	150mm	32
SPURIA SPURIA	Orange Myrtle	1.5m	150mm	12
MYRTILLIS SPURIA	Orange Rosemary	1.5m	150mm	12

INSTALLATION/ EXCAVATION TIPS:

- ADD 5% TO OUTER PLAN DIMENSIONS WHEN EXCAVATING PIT.
- ALWAYS CHECK PIT DIMENSIONS AT BASE OF PIT, ENSURING SIDES ARE CLEAN AND SQUARE.
- LEVEL AND SCEED DRAINAGE LAYER PRIOR TO PLACEMENT OF CELLS.

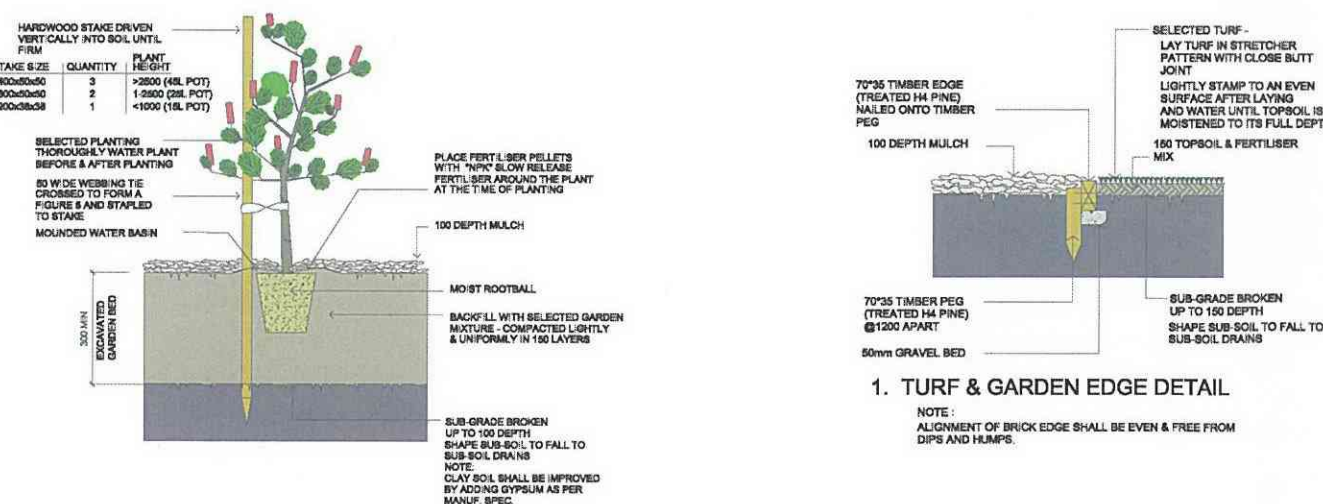
ENSURE THAT THE PIT BASE IS SCEEDED AND COMPACTED ADEQUATELY BEFORE PLACING CELLS ON BASE, TO ALLOW FOR EASE OF INSTALLATION OF OVERALL MATRIX.

ADEQUATE DRAINAGE FROM BASE OF TREE PIT TO BE PROVIDED IF DESIGN INCORPORATES WSUD PRINCIPLES, OR IF SITE CONDITIONS REQUIRE.

PLEASE NOTE:

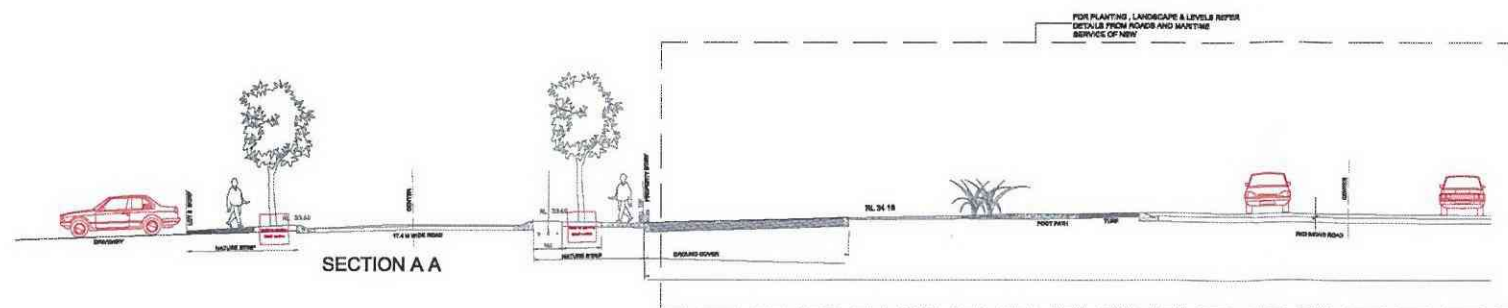
The contractor is to establish location and depth of services at each planting location prior to any machine excavation, especially water, gas, telecommunications, power, drainage and sewer. Where services interfere with tree placement, adjust position within 1.0m of designated location. Where tree cannot be accommodated due to services, this is a hold point and contractor is to apply for instructions.

INDICATIVE IMAGES OF PROPOSED TREES



1. TURF & GARDEN EDGE DETAIL

NOTE: ALIGNMENT OF BRICK EDGE SHALL BE EVEN & FREE FROM DIPS AND HUMPS.



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NORTH:



PROJECT:
1032,1036,1060,1070,1080,1082,1086,1132,1140
RICHMOND ROAD AND 230,232,234 GRANGE AVENUE
MARSDEN PARK

DRAWING TITLE:
LOT 8 - LANDSCAPE PLAN

PROJECT NO. DA DATE: JAN 2017 DRAWING NO. REV. C
DRAWN BY: SS SCALE: AS SHOWN LP - 01

DA ISSUE

BLACKTOWN CITY COUNCIL

PROPOSED RESIDENTIAL DEVELOPMENT

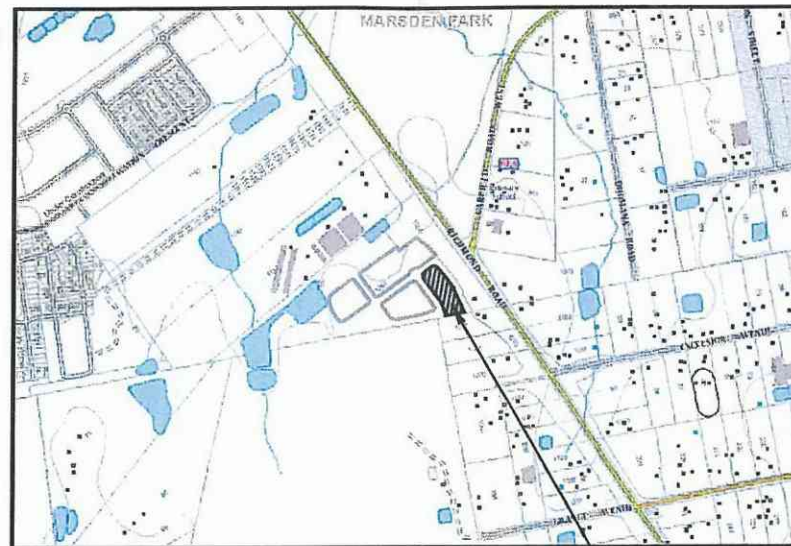
LOT 8, 1086 RICHMOND ROAD, MARSDEN PARK

DRIVEWAY & DRAINAGE PLANS

Prepared for: THE BATHLA GROUP

GENERAL NOTES

- ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL'S WORKS SPECIFICATION CIVIL - 2005 REQUIREMENTS AND/OR AS DIRECTED BY THEIR REPRESENTATIVE.
- THE CONTRACTOR IS TO IDENTIFY, LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION WORKS AND WHERE NECESSARY MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE OR ADJUST WHERE NECESSARY.
- COUNCIL'S TREE PRESERVATION ORDER MUST BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT THE PRIOR APPROVAL OF COUNCIL.
- ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE WORK HEALTH & SAFETY ACT 2011 AND ALL RELEVANT OCCUPATIONAL HEALTH & SAFETY POLICIES AND REGULATIONS.
- DIMENSIONS SHALL NOT BE SCALED FROM THE PLANS. CLARIFICATION OF DIMENSIONS SHALL BE SOUGHT FROM THE SUPERINTENDENT OR REFERRED TO THE DESIGNER.
- SURVEY MARKS SHOWN THUS Δ SHALL BE MAINTAINED AT ALL TIMES. WHERE RETENTION IS NOT POSSIBLE THE ENGINEER SHALL BE NOTIFIED AND CONSENT RECEIVED PRIOR TO THEIR REMOVAL.
- ALL NEW WORK IS TO MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS.
- THE CONTRACTOR IS NOT TO ENTER UPON NOR DO ANY WORK WITHIN OR ON ADJACENT LANDS WITHOUT THE PRIOR APPROVAL OF THE SUPERINTENDENT AND THE WRITTEN PERMISSION OF THE OWNERS.
- SEDIMENT MEASURES SHALL BE IMPLEMENTED PRIOR TO SOIL DISTURBANCE IN KEEPING WITH THE 4th EDITION OF LANDCOMS "SOILS AND CONSTRUCTION - MANAGING URBAN STORMWATER" MARCH 2004 TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE AND AS SHOWN IN THESE DRAWINGS.
- THE CONTRACTOR SHALL CLEAR AND DISPOSE OF ONLY THOSE TREES THAT ARE CONDEMNED BY THE PLANS. COUNCIL'S TREE PRESERVATION ORDER SHALL BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT PRIOR APPROVAL.
- THE CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES, OUT HOUSES, CAR BODIES, DEBRIS, ETC. THE CONTRACTOR SHALL NOT DISPOSE OF ANY DEBRIS BY BURNING OFF IN AN OPEN FIRE.
- UNSOFT MATERIALS AS DETERMINED BY COUNCIL'S REPRESENTATIVE SHALL BE REMOVED FROM ROADS AND LOTS PRIOR TO ANY FILLING.
- ALL SITE REGRADING AREAS SHALL BE GRADED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE. THE CONTRACTOR SHALL TAKE LEVELS ON THE EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING ANY FILL OPERATIONS.
- SURPLUS EXCAVATED MATERIAL SHALL BE PLACED OR DISPOSED OF IN ACCORDANCE WITH THE CONTRACT, OR AS DIRECTED BY THE SUPERINTENDENT.
- ALL SITE FILLING SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm AND COMPACTED IN ACCORDANCE WITH COUNCIL'S SPECIFICATION AND BE TESTED AT THE REQUIRED INTERVALS BY AN APPROVED N.A.T.A. GEOTECHNICAL LABORATORY.
- MINIMUM 150mm THICK TOPSOIL SHALL BE SPREAD ON ALL FOOTPATHS, BERMS, BATTERS AND SITE REGRADING AREAS. EXCESS TOPSOIL SHALL BE DISPOSED OF AS DIRECTED BY THE SUPERINTENDENT.
- ALL LAND DISTURBED BY EARTHWORKS SHALL BE SPRAY-GRASSED, OR SIMILARLY TREATED TO ESTABLISH GRASS COVER. SEED MIXTURES ARE TO BE APPROVED BY COUNCIL PRIOR TO SPRAYING. ALL GRASSED AREAS SHALL BE REGULARLY WATERED AND MAINTAINED UNTIL EXPIRATION OF THE MAINTENANCE PERIOD.
- THE CONTRACTOR SHALL MAINTAIN DUST CONTROL THROUGHOUT THE DURATION OF THE PROJECT.
- ALL PITS DEEPER THAN 1.2m SHALL HAVE STEP IRONS PROVIDED IN ACCORDANCE WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES THROUGH LOTS SHALL BE CONTAINED WITHIN THEIR EASEMENTS AND CONFORM WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES ON HIGH SIDE AND UNDER ROADS SHALL BE BACKFILLED SHARP SAND AND HAVE 3.0m OF AGRICULTURAL LINE WRAPPED IN AN APPROVED FILTER FABRIC, DISCHARGING INTO THE DOWNSTREAM PIT.
- SUBSOIL DRAINS SHALL BE CONSTRUCTED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE.
- PRECAST KERB INLET LINTELS SHALL BE USED ON GULLY PITS. GRATES SHALL BE "WELDLOK" TYPE GG 78-51 OR APPROVED EQUIVALENT.
- PROVIDE VEHICULAR ENTRIES IN KERB AND GUTTER WHERE SHOWN OR WHERE DIRECTED BY THE SUPERINTENDENT.
- GUIDE POSTS SHALL BE 100mm X 50mm HARDWOOD, PAINTED WHITE WITH REFLECTORS.
- ERECT STREET NAME SIGNS, CONDUIT WARNING SIGNS AND NO THROUGH ROAD SIGNS WHERE SHOWN OR WHERE DIRECTED BY COUNCIL'S REPRESENTATIVE.
- CONDUITS SHALL BE LAID AFTER POSITIONS HAVE BEEN DETERMINED BY THE RELEVANT AUTHORITIES AND BEFORE FINAL A.C. IS LAID.
- POSITION OF CONDUITS SHALL BE MARKED ON THE KERB.
- FELLED TREES SHALL BE SALVAGED FOR RE-USE AS WOODCHIP MULCH OR LOG FORM FOR SITE REHABILITATION, NON-SALVAGEABLE MATERIAL SUCH AS STUMPS AND ROOTS SHALL BE DISPOSED OF OFF SITE.
- THE CONTRACTOR SHALL PROVIDE MINIMUM 24 HOURS NOTICE TO COUNCIL'S REPRESENTATIVE FOR ALL INSPECTIONS.
- THE CONTRACTOR SHALL MAINTAIN SERVICES AND ALL WEATHER ACCESS AT ALL TIMES TO THE ADJOINING PROPERTIES.
- THE CONTRACTOR SHALL UNDERTAKE TRAFFIC CONTROL MEASURES TO COUNCIL'S SATISFACTION AND SHALL DISPLAY ALL APPROPRIATE WARNING SIGNS THROUGHOUT THE DURATION OF CONSTRUCTION.
- ALL NATURAL SURFACE DATA HAS BEEN DETERMINED BY TERRAIN MODELLING. ALL CONSTRUCTION SITE WORKS MUST BE CARRIED OUT USING THE BENCH MARKS SHOWN ON THESE DRAWINGS.



LOCALITY SKETCH
NOT TO SCALE

LOCATION OF WORKS

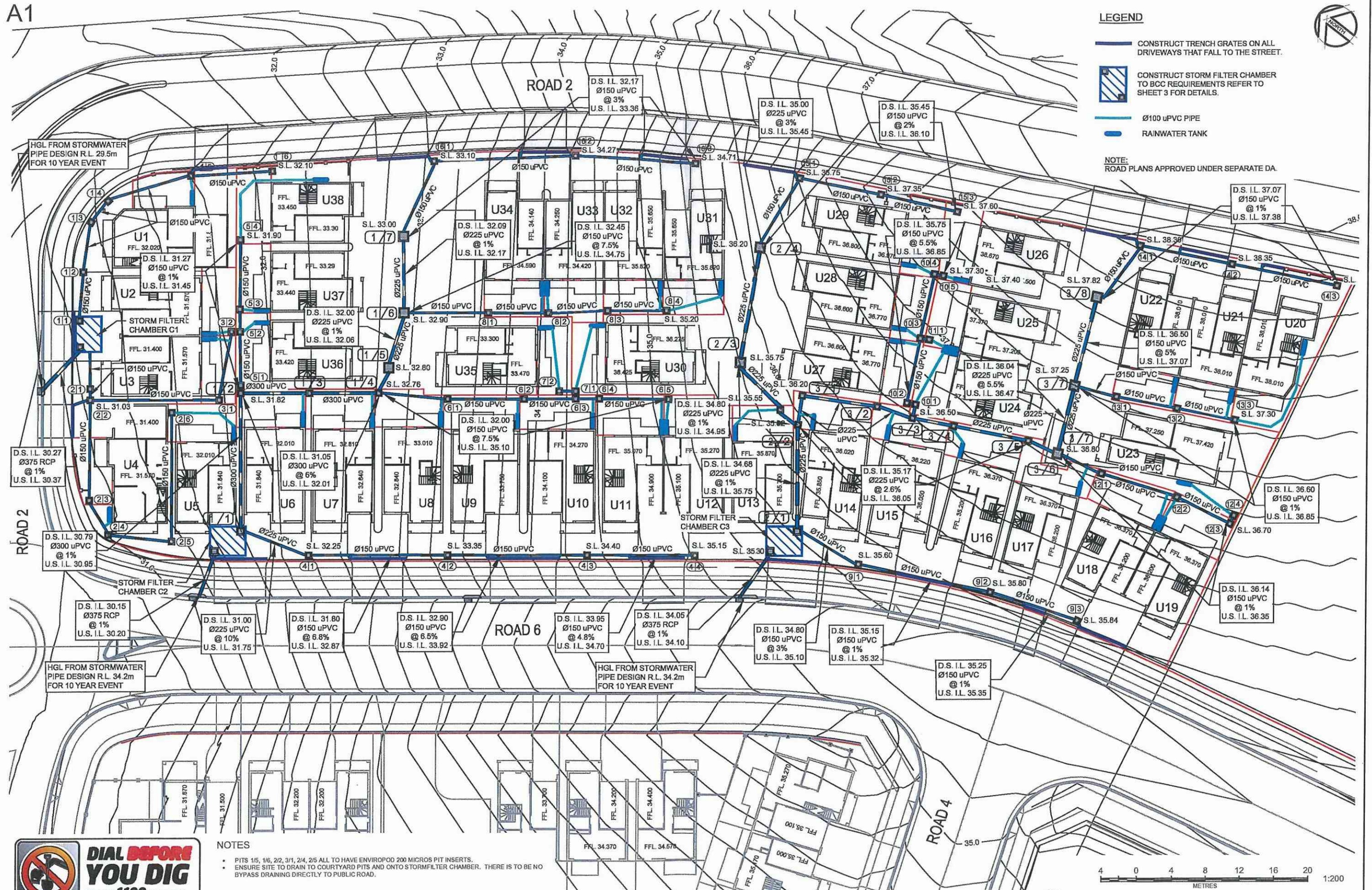
SHEET INDEX

SHEET No.	DESCRIPTION
COVER SHEET	COVER SHEET - GENERAL NOTES, SHEET INDEX AND LEGEND
2	GENERAL ARRANGEMENT PLAN
3	TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAIL CHAMBER 1
4	TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS CHAMBERS 2 & 3
5	WATER QUALITY CATCHMENT PLAN
6	SOIL AND WATER MANAGEMENT PLAN
7	SOIL AND WATER MANAGEMENT DETAILS

LEGEND

---	ROOF DRAINAGE LINE
---	PROPOSED DRAINAGE LINE
---	EXISTING DRAINAGE LINE
---	NATURAL SURFACE CONTOUR
-79.2- - -	DESIGN SURFACE CONTOUR
---	TABLE DRAIN
---	EXISTING HEADWALL
---	PROPOSED HEADWALL
---	LIMIT OF CONSTRUCTION
---	LIMIT OF WORKS
PIT 1/2	PIT NUMBER
---	SUBSOIL DRAINAGE LINE
---	GRADED SURFACE INLET PIT
---	SEALED PIT
---	KERB INLET PIT

A1



No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



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P. 02 9659 0005
CENTRAL COAST
P. 02 4325 5255
HUNTER
P. 02 4966 8398
ASBN: 25 134 057 842
bri.com.au
mail@bri.com.au



PROPOSED DEVELOPMENT AT LOT 8
1086 RICHMOND ROAD, MARSDEN PARK

GENERAL ARRANGEMENT PLAN

Designed: AD
Drawn: PMM
Checked: GJR

Scales: Plan 1 : 250
Horiz.
Vert.
X-Sept.

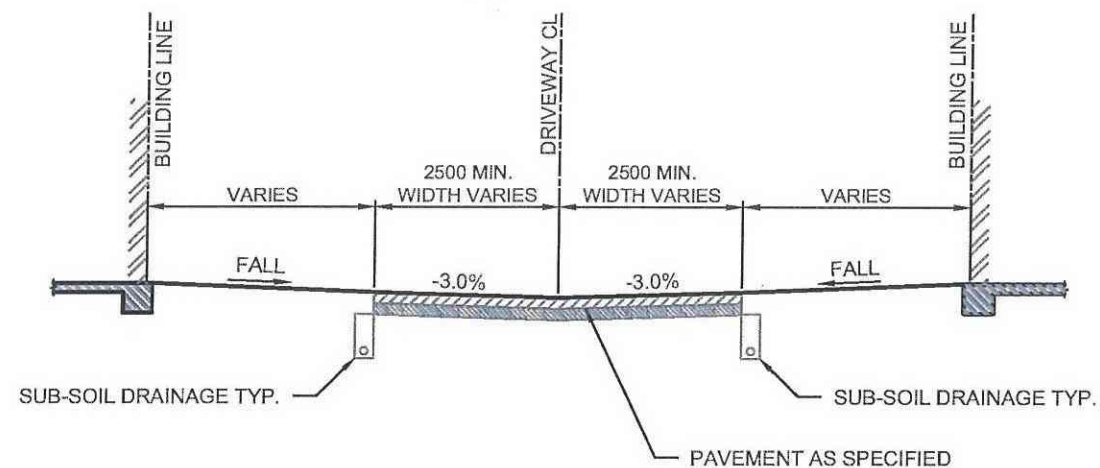
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Plan No.
SY170226C802

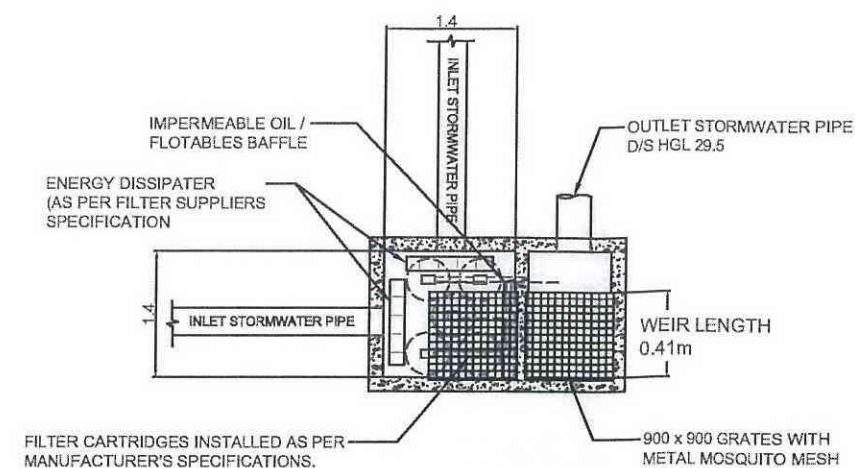
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SHEET 2 OF 7 SHEETS

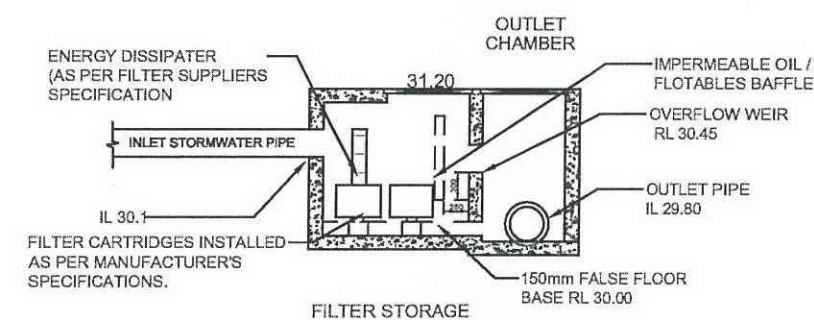
REV.
B



TYPICAL SECTION - DRIVEWAY
NOT TO SCALE

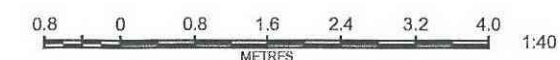


PLAN FILTER STORAGE TANK &
OUTLET CHAMBER C1
SCALE 1:40



SECTION THROUGH FILTER STORAGE
TANK & OUTLET CHAMBER C1
SCALE 1:40

WATER QUALITY - LOT 8	
3000L RWT PER UNIT	
C1 - (UNITS 1 - 4)	
STORM FILTER TANK DIMENSIONS	1.4m x 1.4m
NUMBER OF STORMFILTER CARTRIDGES (460mm)	5



No	DATE	AMENDMENT
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TOTAL PROJECT SOLUTIONS
PLANNING - PROJECT MANAGEMENT - ENGINEERING - CERTIFICATION

SYDNEY
P: 02 9659 0005
CENTRAL COAST
P: 02 4325 5255
HUNTER
P: 02 4966 6388
ABN: 26 134 057 842
brs.com.au
mal@brs.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 8
1086 RICHMOND ROAD, MARSDEN PARK

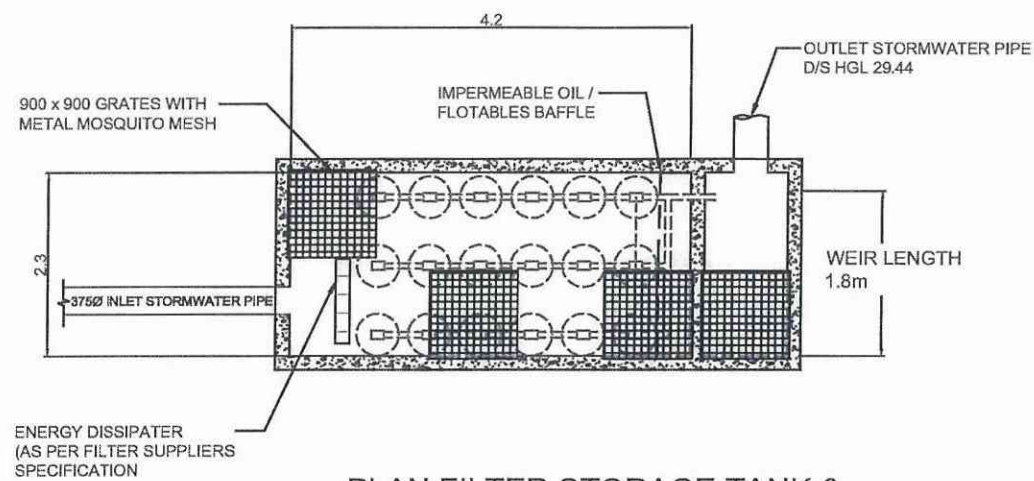
TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAIL CHAMBER 1

Designed: AD
Drawn: PMM
Checked: GJR

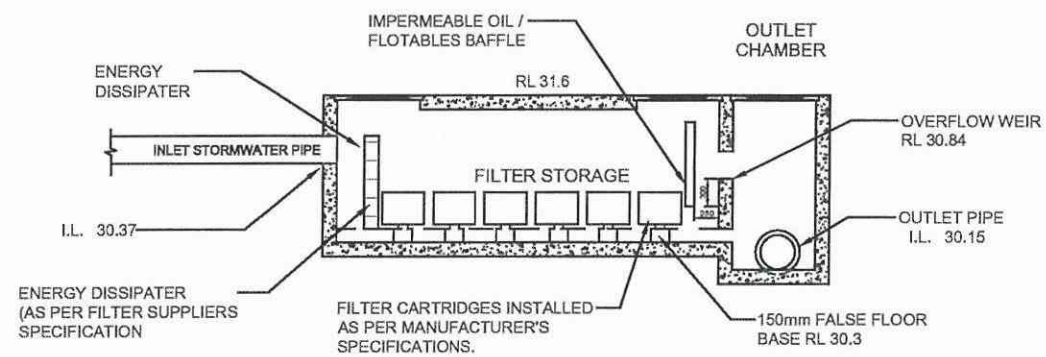
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Horiz.
Vert.
X-Sect.

Datum: A.H.D.

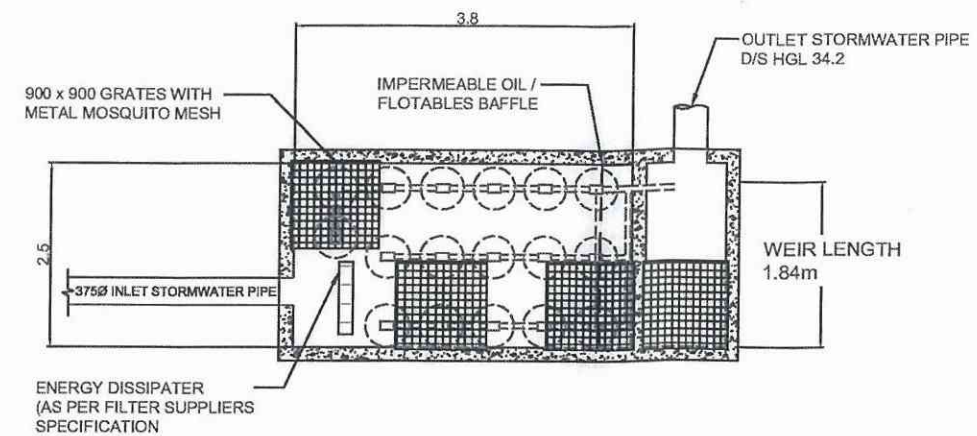
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File Ref.
SY170226C800-B.dwg
SHEET 3 OF 7 SHEETS
REV.
B



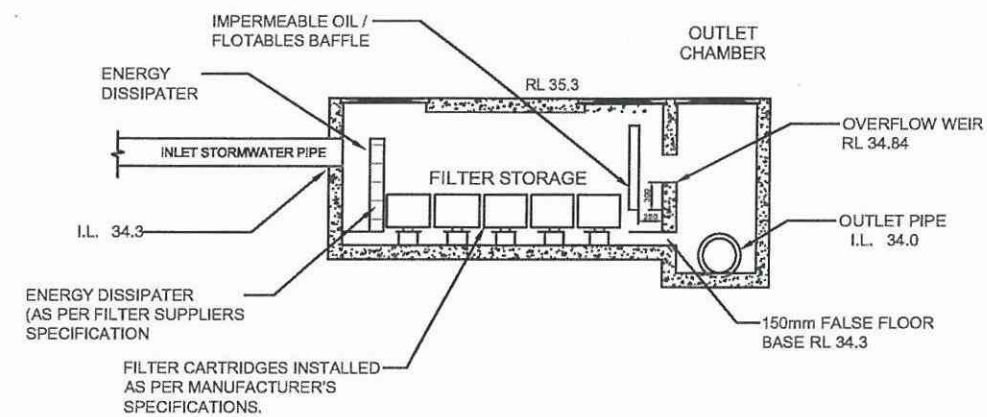
PLAN FILTER STORAGE TANK & OUTLET CHAMBER C2
SCALE 1:40



TYPICAL SECTION THROUGH FILTER STORAGE TANK & OUTLET CHAMBER C2
SCALE 1:40



PLAN FILTER STORAGE TANK & OUTLET CHAMBER C3
SCALE 1:40



TYPICAL SECTION THROUGH FILTER STORAGE TANK & OUTLET CHAMBER C3
SCALE 1:40

WATER QUALITY - LOT 8

3000L RWT PER UNIT

C2 - (UNITS 5-10 & 30-38)

STORM FILTER TANK DIMENSIONS	4.5m x 2.3m
NUMBER OF STORMFILTER CARTRIDGES (460mm)	18

C3 - (UNITS 18 - 31)

STORM FILTER TANK DIMENSIONS	3.8m x 2.5m
NUMBER OF STORMFILTER CARTRIDGES (460mm)	17
NUMBER OF ENVIPODS	4



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SYDNEY
P: 02 9559 0005
CENTRAL COAST
P: 02 4325 5255
HUNTER
P: 02 4955 8368
ABN: 26 134 057 842
bri.com.au
mail@bri.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 8
1086 RICHMOND ROAD, MARSDEN PARK

TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS CHAMBER 2 & 3

Designed: AD
Drawn: PMM
Checked: GJR

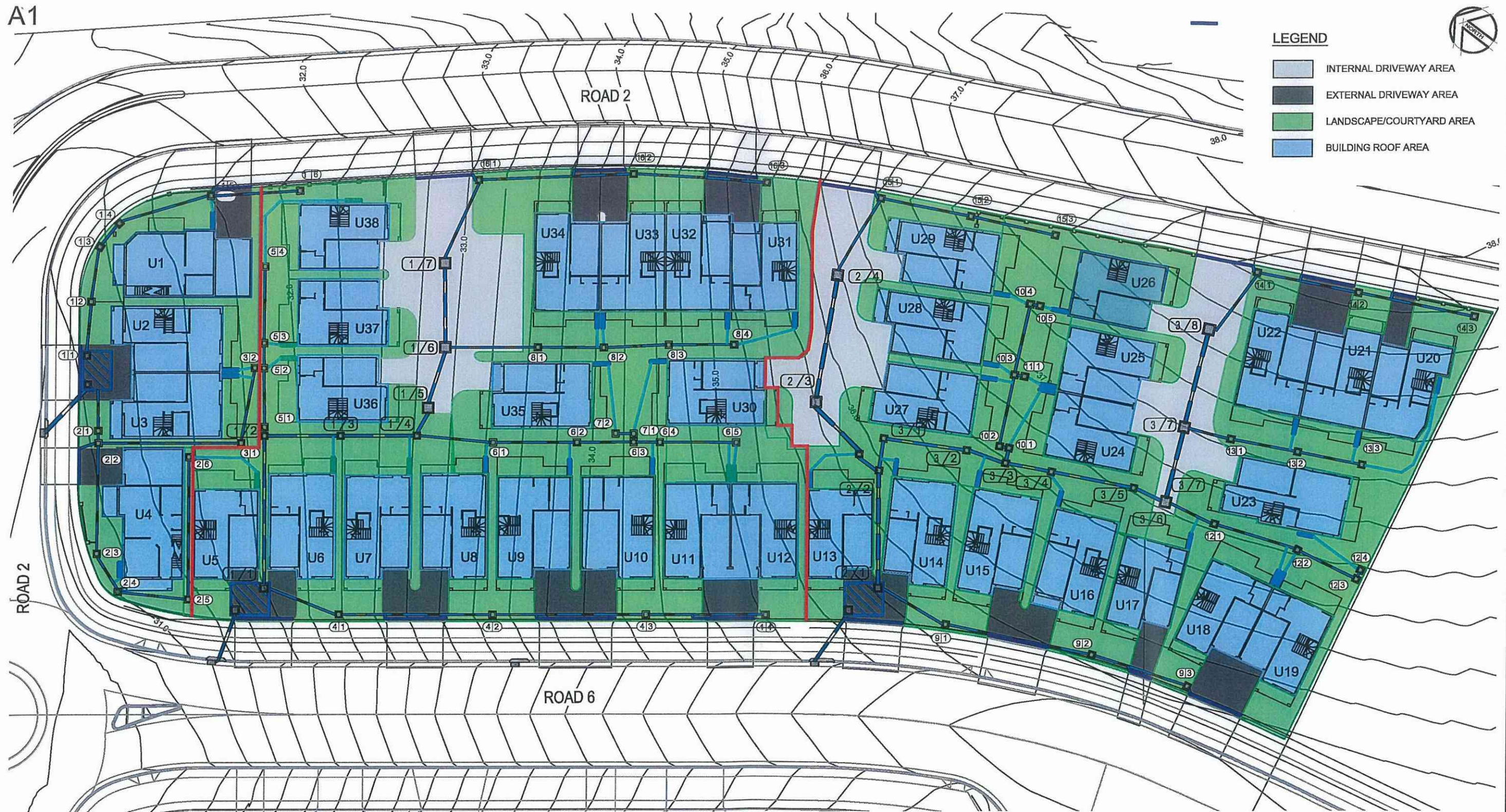
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Horiz.
Vert.
X-Section

Datum: A.H.D.

Plan No.
SY170226C804
File Ref.
SY170226C800-B.dwg
SHEET 4 OF 7 SHEETS
REV. **B**



A1



LEGEND

- INTERNAL DRIVEWAY AREA
- EXTERNAL DRIVEWAY AREA
- LANDSCAPE/COURTYARD AREA
- BUILDING ROOF AREA



DRAIN TO C1

DRAIN TO C2

DRAIN TO C3

Lot 8			
Chamber	C1 (Ka)	C2 (Ka)	C3 (Ka)
Total Roof Area	0.035	0.123	0.119
Total Landscape Area	0.020	0.115	0.116
Total Internal Driveway Area to Enviropod & then to Chamber		0.026	0.038
Total External Driveway Area to Chamber	0.007	0.021	0.017



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P: 02 4966 8388
ABN: 26 134 057 842
brs.com.au
mail@brs.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 8
1086 RICHMOND ROAD, MARSDEN PARK

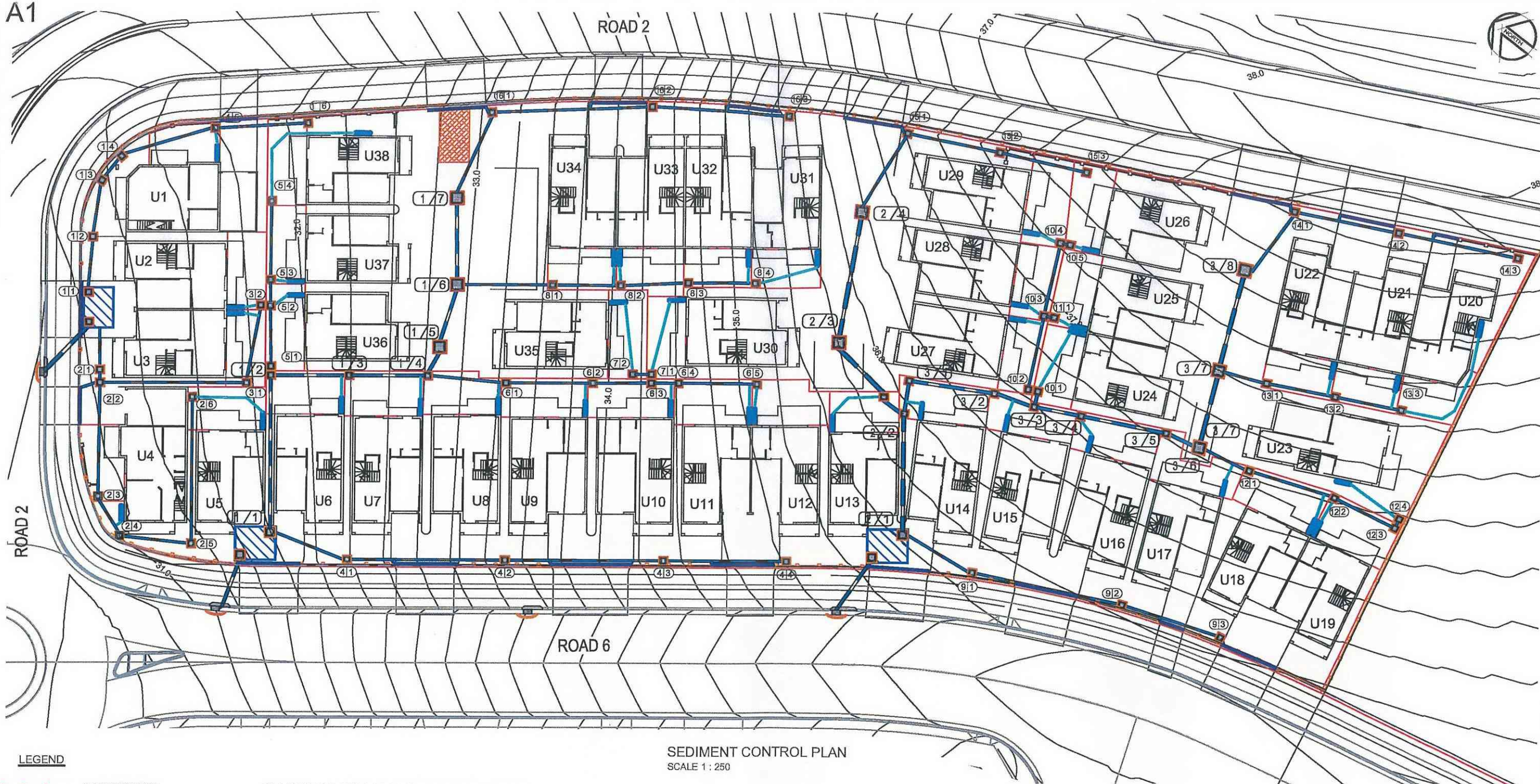
WATER QUALITY CATCHMENT PLAN

Designed: AD
Drawn: PMM
Checked: GJR

Scales: Plan 1:200
Horiz.
Vert.
X-Sect.
Datum: A.H.D.

Plan No.
SY170226C805
File Ref.
SY170226C800-B.dwg
SHEET 5 OF 7 SHEETS
REV. B

A1



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CENTRAL COAST
P. 02 4325 5255
HUNTER
P. 02 4906 8388
ABN: 20 134 067 842
bra.com.au
mail@bri.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 8
1086 RICHMOND ROAD, MARSDEN PARK

SOIL AND WATER MANAGEMENT PLAN

Designed: AD
Drawn: PMM
Checked: GJR

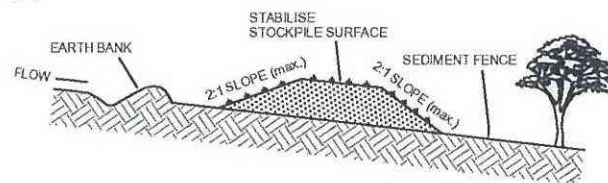
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Vert.
X-Section

Datum: A.H.D.

Plan No.
SY170226C806

File Ref.
SY170226C800-B.dwg
SHEET 6 OF 7 SHEETS

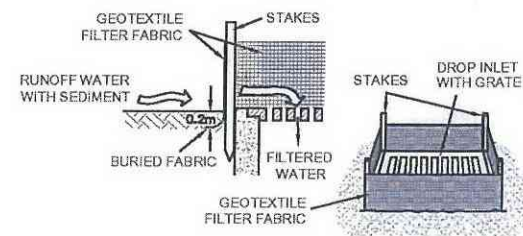
REV.
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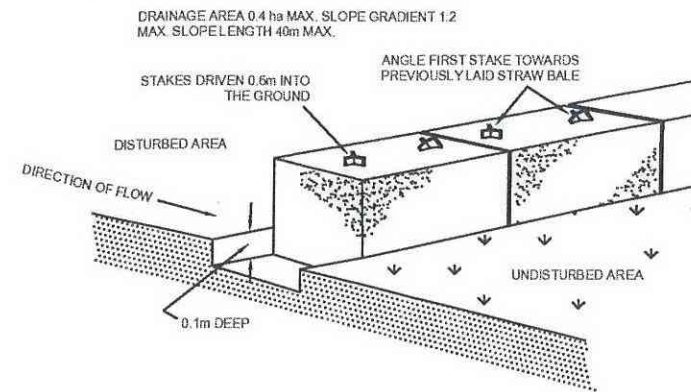
CONSTRUCTION NOTES

1. WHERE POSSIBLE LOCATE STOCKPILE AT LEAST 5 METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOWS, ROADS, HAZARD AREAS AND MIN. 1.5m AWAY FROM EMBANKMENTS.
2. CONSTRUCT ON THE CONTOUR AS A LOW, FLAT ELONGATED MOUND.
3. WHERE THERE IS SUFFICIENT AREA TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. REHABILITATE IN ACCORDANCE WITH THE SWMP/ESCP.
5. CONSTRUCT EARTH BANK (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT RUN OFF AROUND THE STOCKPILE AND A SEDIMENT FENCE (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE OF STOCKPILE.

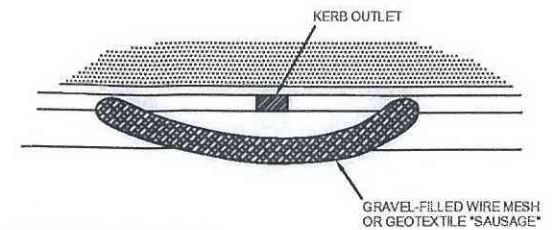
TOPSOIL STOCKPILE



SURFACE INLET PIT SEDIMENT TRAP



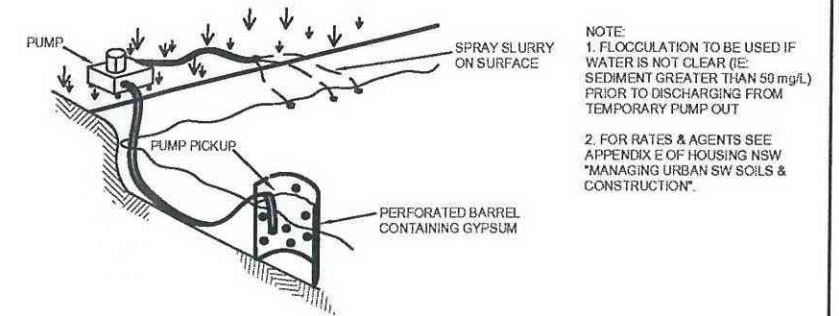
STRAW BALE SEDIMENT FILTER



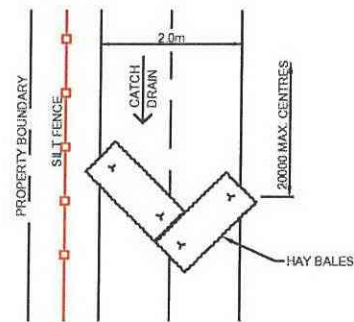
CONSTRUCTION NOTES

1. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH AND FILL IT WITH 25mm TO 50mm GRAVEL.
2. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH X 400mm WIDE.
3. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING FILTER.
4. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

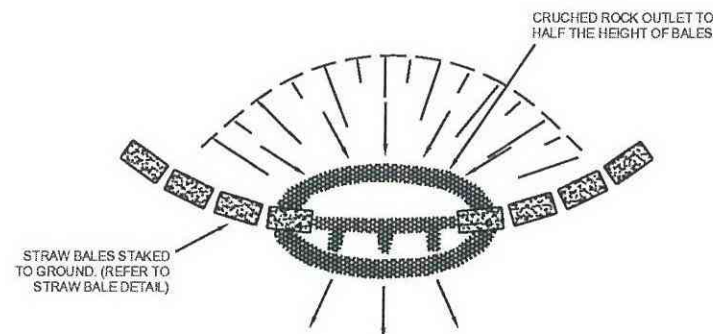
MESH & GRAVEL FILTER "SAUSAGE" BARRIER



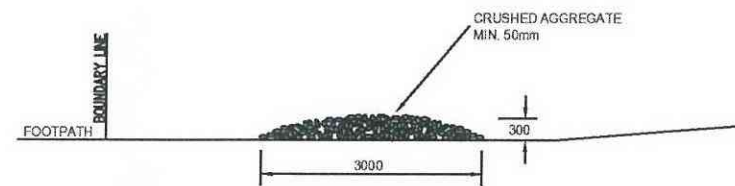
FLOCCULATION DETAIL



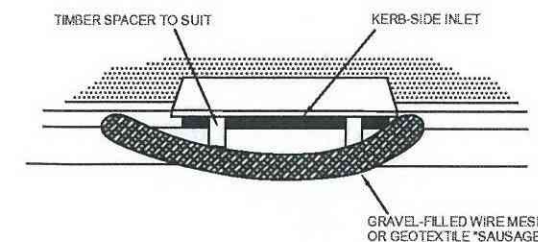
CATCH DRAIN DETAIL



STRAW BALE & CRUSHED ROCK SEDIMENT FILTER



VEHICLE DUST SHAKE DOWN DETAIL



CONSTRUCTION NOTES

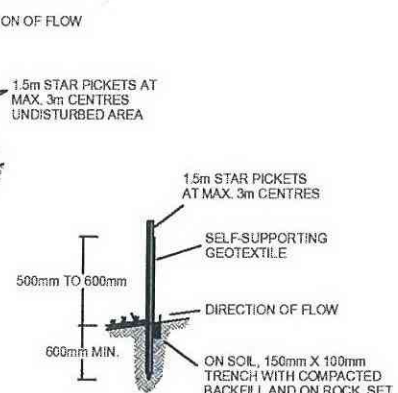
1. INSTALL FILTERS TO KERB INLET ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH X 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

MESH & GRAVEL INLET "SAUSAGE" FILTER

CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
2. DRIVE 1.5m LONG STAR PICKETS INTO GROUND 2.5 METRES APART (MAX.)
3. DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE

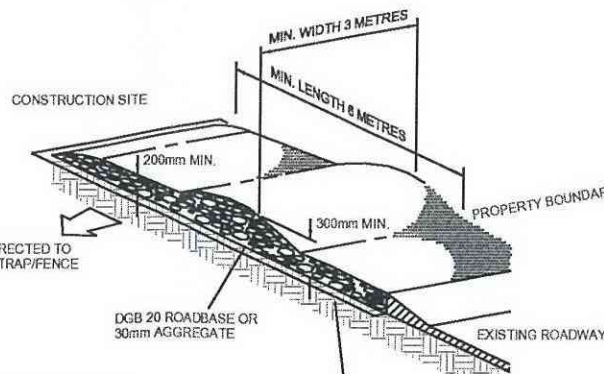


SECTION DETAIL

CONSTRUCTION NOTES

1. STRIP TOPSOIL AND LEVEL SITE.
2. COMPACT SUBGRADE.
3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
4. CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROADBASE OR 30mm AGGREGATE. MINIMUM LENGTH 15 METRES OR TO BUILDING ALIGNMENT. MINIMUM WIDTH 3 METRES.
5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR OTHER SEDIMENT TRAP.

STABILISED SITE ACCESS



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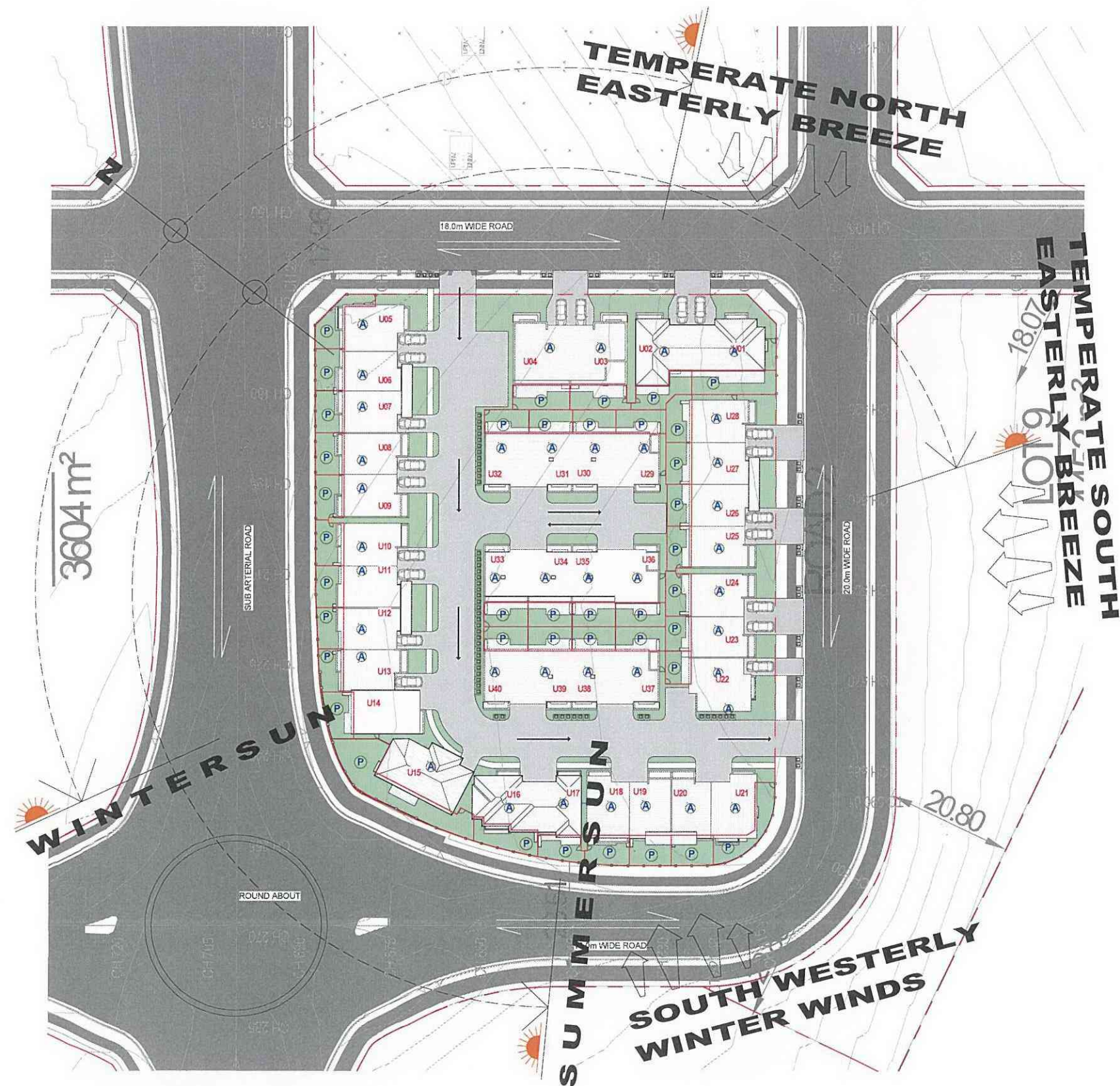
PROPOSED DEVELOPMENT AT LOT 8
1086 RICHMOND ROAD, MARSDEN PARK

SOIL AND WATER MANAGEMENT DETAILS

Designed: AD
Drawn: PMM
Checked: GJR
Scales: Plan
Horiz.
Vert.
X-Section
Datum: A.H.D.

Plan No.
SY170226C807
File Ref.
SY170226C800-B.dwg
SHEET 7 OF 7 SHEETS
REV.
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MULTI DWELLING DEVELOPMENT AT 1086 RICHMOND ROAD MARSDEN PARK - LOT 10 / STAGE 10



Energy Rating Certificate Number: 61363184

☐ single dwelling rating

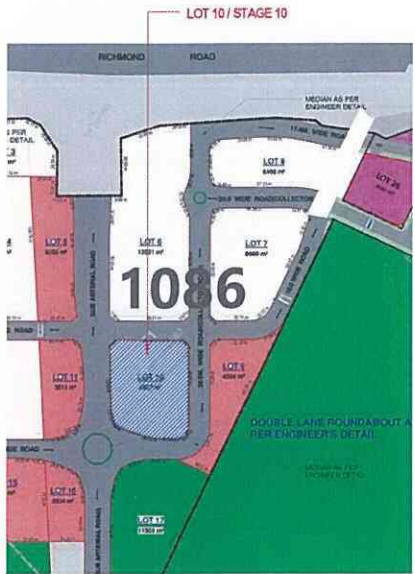
☒ multi-unit development (subject to rating of building)

Planned daylighting contribution: ☐ rated with ☒ rated without

Assessor Name/Number: *[Signature]* VCB001/191802

Assessor Signature: *[Signature]* Date: 26/06/2017

- SITE BOUNDARY
- WIND DIRECTION
- PROPOSED BUILDING
- NEIGHBOURHOOD PROPERTIES
- PRIVATE OPEN SPACE
- VEHICULAR MOVEMENT
- VEHICULAR ACCESS
- TREES TO BE RETAINED
- TREES TO BE REMOVED



DRAWING REGISTER			
Sheet Number	Sheet Name	Issue Date	Rev
DA01	SITE ANALYSIS	26/06/17	4
DA02	SITE PLAN	26/06/17	4
DA03	GROUND FLOOR PLAN	26/06/17	4
DA04	FIRST FLOOR PLAN	26/06/17	4
DA05	ELEVATIONS	26/06/17	4
DA06	ELEVATIONS & SECTION	12/21/17	4
DA07	SHADOW ANALYSIS	26/06/17	4
DA08	SITE COVERAGE PLAN	01/16/18	4

COMPLIANCE TABLE - LOT 10 / STAGE 10							
PROPOSED DEVELOPMENT FACILITATE THE CONSTRUCTION OF 40 RESIDENTIAL TOWNHOUSES							
1086 RICHMOND ROAD, MARSDEN PARK LOT 51 DP 1196583							
SITE AREA	8827 DM²	40 DWELLINGS - DOUBLE STOREY + 1 HOUSE FIVE BEDROOMS 4 HOUSES FOUR BEDROOMS 35 HOUSES THREE BEDROOMS					
CONTROL	REQUIRED	PROVIDED	COMPLIANCE	CONTROL	REQUIRED	PROVIDED	COMPLIANCE
SITE COVERAGE	PERMITTED MAX 50% = 2413.5M²	PROPOSED = 2805.15M² 41.06%	YES	FRONT SETBACK	4.5M	4.5M OR GREATER	YES
LANDSCAPED AREA	MIN 20% OF SITE AREA REQUIRED = 2008.1M²	PROPOSED = 2085.41M² 34.8%	YES	REAR SETBACK	4M	4M OR GREATER	YES
CAR PARKING	1 CAR PARKING SPACE PER EACH DWELLING PLUS 5 SPACES PER 1 OR MORE BEDROOM DWELLING = 45	60 CAR SPACES	YES	SIDE SETBACK	6M	6M OR GREATER	YES
VISITOR CAR PARKING	1 CAR SPACES DWELLING = 1	9 CAR SPACES	YES	CORNER SETBACK	3M	3M OR GREATER	YES
				MAX BUILDING HEIGHT	9M UNDER EAVES	LESS THAN 9M	YES
				PRIVATE OPEN SPACE	MIN 8M² WITH MIN DIMENSION OF 2M OR 50M² PER DWELLING BALCONY OR ROOF TOWNSHIP MIN OVERHANGING 2M	MIN 10M² PER DWELLING OR GREATER	YES
				FENCING	1.5M HIGH	1.5M HIGH OR GREATER	YES

1 SITE ANALYSIS
1 : 400

ISSUE	DATE	REVISION	BY
4	26/02/18	AMENDED AS PER COURT COMMENTS	JM
3	29/01/18	AMENDED AS PER COURT COMMENTS	CD
2	21/12/17	AMENDED AS PER COURT CONTENTIONS	CD
1	26/06/17	ISSUED FOR DA	

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The Bathla Group
127 Glen Road, Glenview Sydney NSW 1515
PO Box 270, Wentworth NSW 1515
T: 02 9616 2465 F: 02 9616 4165
info@bathla.com.au www.bathla.com.au

PROJECT:
**1086 RICHMOND ROAD
MARSDEN PARK - LOT 10 / STAGE
10**

LOT NUMBER:
LOT 51 DP 1196583

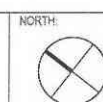
DRAWING TITLE:
SITE ANALYSIS

DA ISSUE			
PROJECT No:	0100	DATE:	JAN 2018
DRAWN BY:	CD	SCALE:	As indicated
R:\Richmond Rd\1086 MARSDEN PARK\DA\Arch\LOT 10\DA_R02-Richmond Road\1086 MARSDEN PARK_V15-CP-LOT10_R03.rvt		DA01	4



COMPLIANCE TABLE - LOT 10 / STAGE 10							
PROPOSED DEVELOPMENT FACILITATE THE CONSTRUCTION OF 40 RESIDENTIAL TOWNHOUSES							
1086 RICHMOND ROAD, MARSDEN PARK LOT 51 DP 11956853							
SITE AREA	6927.0M ²	40 DWELLING: DOUBLE STOREY -	1 HOUSE FIVE BEDROOMS 4 HOUSES FOUR BEDROOMS 35 HOUSES THREE BEDROOMS				
CONTROL	REQUIRED	PROVIDED	COMPLIANCE	CONTROL	REQUIRED	PROVIDED	COMPLIANCE
SITE COVERAGE	PERMITTED MAX 50% = 3463.5M ²	PROPOSED = 3026.25M ² , 43.9%	YES	FRONT SETBACK	4.5M	4.5M OR GREATER	YES
LANDSCAPED AREA	MIN. 30% OF SITE AREA REQUIRED = 2081.1M ²	PROPOSED = 2365.41M ² , 34.3%	YES	REAR SETBACK	4M	4M OR GREATER	YES
				SIDE SETBACK	0.5M	0.5M OR GREATER	YES
				CORNER SETBACK	2M	2M OR GREATER	YES
CAR PARKING	1 CAR PARKING SPACE PER EACH DWELLING PLUS 5 SPACES FOR 1-5 MORE BEDROOM DWELLING (N/C)	93 CAR SPACES	YES	MAX BUILDING HEIGHT	10M UNBROKEN ROOF EAVES	LESS THAN 8M	YES
VISITOR CAR PARKING	1 CAR SPACE/5 DWELLING (N/C)	9 CAR SPACES	YES	PRIVATE OPEN SPACE	MIN 10M ² WITH MIN DIMENSION OF 3M OR 10M ² PER DWELLING BALCONY OR ROOF TERRACE WITH MIN DIMENSION 2.5M	MIN 10M ² P.O.S PER DWELLING OR GREATER	YES
				FENCING	1.8M HIGH	1.8M HIGH CSF	YES

					GENERAL NOTES:
280627B	AMENDED AS PER COURT COMMENTS	JM			THIS DRAWING IS THE EXCLUSIVE PROPERTY OF THE DEVELOPER & THE REPRODUCTION OF ANY PART WITHOUT THE PRIOR WRITTEN CONSENT OF THE DEVELOPER IS A VIOLATION OF APPLICABLE LAWS AND EIGHT SHALL BE HELD LIABLE FOR SPECIAL CRIMINAL, INCIDENTAL OR CONSEQUENTIAL DAMAGE IN CONNECTION WITH THE USE OF THIS DIGITAL DATA ONCE RELEASED FROM THE DEVELOPERS OFFICE. THIS DRAWINGS TO BE PLACED UNDER LOCKSTOCHER IN CONJUNCTION WITH THE STRUCTURAL, MECHANICAL, ELECTRICAL & GR-ANY OTHER CONSULTANT'S DOCUMENTATIONS MAY BE AVAILABLE TO THE PROJECT PROCTOR TO THE START OF ANY WORKS AND FOR ITS DURATION.
290118B	AMENDED AS PER COURT COMMENTS	CD			
291217C	AMENDED AS PER COURT CONTENTIONS	CD			
290617F	ISSUED FOR CA	RD			
REV#	DATE	REVISION			



The
Bath
Group

132 Gillie Road, Greenway Sydney NSW - 21
PO Box 270 Westworth/Bc NSW 2115
T: 02 9620 2465 | F: 02 9608 4762
info@delia.com.au | www.delia.com.au

PROJECT:
1086 RICHMOND ROAD
MARSDEN PARK - LOT 10 / STAGE
10

LOT NUMBER:
LOT 51 DP 1196583

SITE PLAN

DA ISSUE

PROJECT No.	0100	DATE	JAN 2018	DRAWING No.	DA02	REV.	
DRAWN BY:	CD	SCALE:	As indicated				

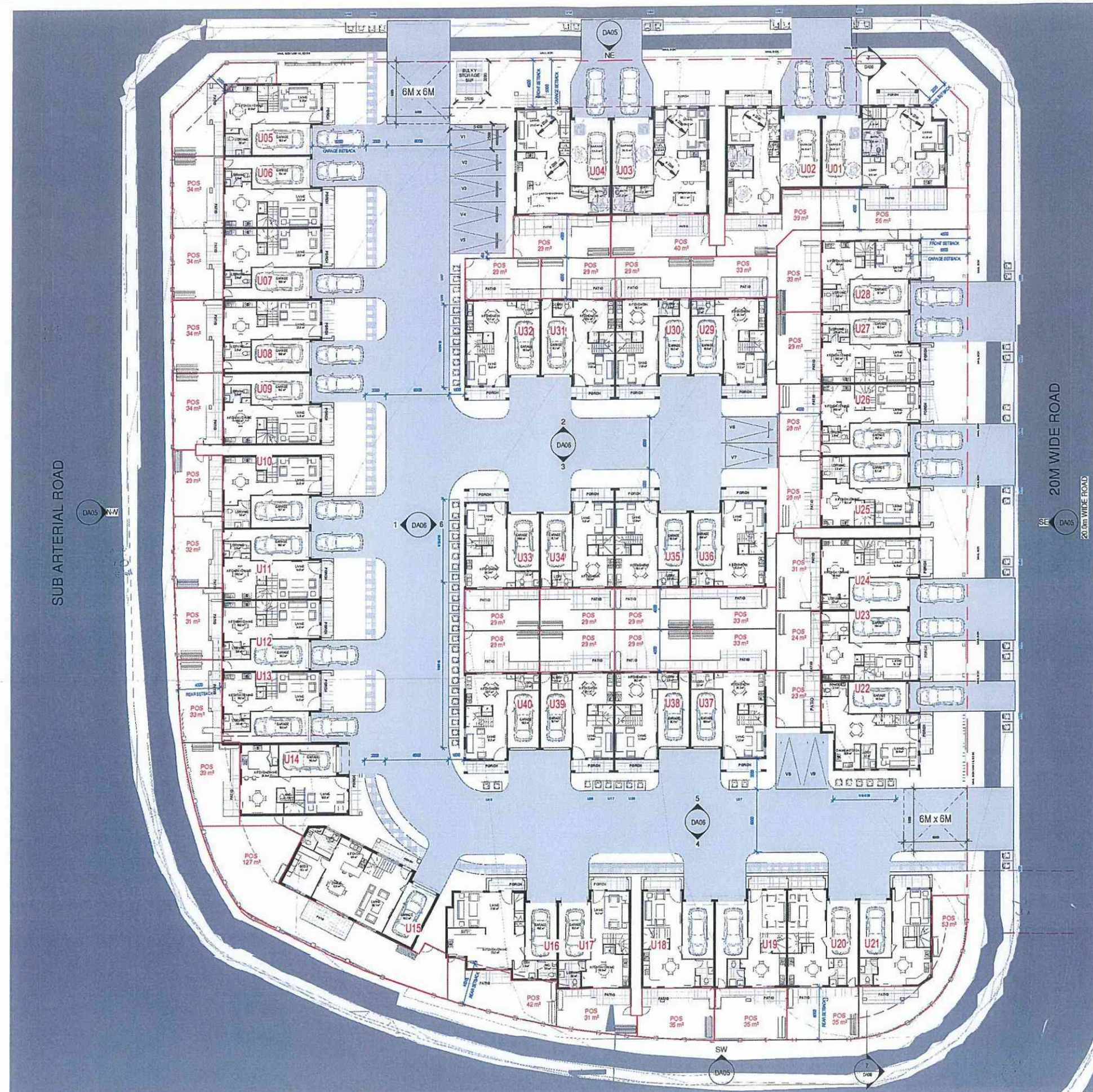
R:Richmond Rd 1006 MARSDEN PARK G1DA Arch LOT 10DA
Road 1006 MARSDEN PARK V15.CA

Energy Rating Certificate Number: 83263161

☐ Single dwelling rating
☒ Multi-unit development (with listing of ratings)
 (For multi-unit developments, the rating is based on the lowest rating of any unit)



Proposed dwelling configuration: ☐ Based on ☒ Based on ☐ Based on ☐

Assessor Name/Number: David Taylor V028040131602
 Assessor Signature: [Signature] Date: 29/05/2017



1 GROUND FLOOR
1 : 200

DA ISSUE

			GENERAL NOTES:		NORTH: 		 The Bathla Group		PROJECT: 1086 RICHMOND ROAD MARSDEN PARK - LOT 10 / STAGE 10		LOT NUMBER: LOT 51 DP 1196583		DRAWING TITLE: GROUND FLOOR PLAN		PROJECT No: 0100 DATE: JAN 2018 DRAWN BY: CD SCALE: 1:200		DRAWING No: DA03 REV: 4	
			THIS DRAWING IS THE EXCLUSIVE PROPERTY OF THE DEVELOPER & THE REPRODUCTION OF ANY PART WITHOUT THE PRIOR WRITTEN CONSENT OF THE DEVELOPER IS A VIOLATION OF APPLICABLE LAWS. IN NO EVENT SHALL THE DEVELOPER BE HELD LIABLE FOR SPECIAL, COLLATERAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE USE OF THIS DIGITAL DATA ONCE RELEASED FROM THE DEVELOPER'S OFFICE. THIS DRAWING IS TO BE READ & UNDERSTOOD IN CONJUNCTION WITH THE STRUCTURAL, MECHANICAL, ELECTRICAL & PLUMBING OTHER CONSULTANTS' DOCUMENTATION AS MAY BE APPLICABLE TO THE PROJECT PRIOR TO THE START OF ANY WORKS AND FOR ITS DURATION.				1/72 31, 7/12 Richmond Rd 1086 MARSDEN PARK NSW 2147 PO Box 200 Richmond NSW 2147 T: 02 9512 1001 F: 02 9512 4102 info@bathla.com.au www.bathla.com.au											
			1 28/02/18 AMENDED AS PER COURT COMMENTS JM		CD													
			2 28/02/18 AMENDED AS PER COURT COMMENTS		CD													
			3 28/02/18 AMENDED AS PER COURT COMMENTS		CD													
			4 28/02/18 AMENDED AS PER COURT COMMENTS		CD													
			1 28/02/17 ISSUED FOR DA															
			ISSUE DATE REVISION		BY													

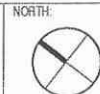
1 FIRST FLOOR
1 : 200

DA ISSUE

PROJECT No. 0100	DATE: JAN 2018	DRAWING No. DA04
DRAWN BY: CD	SCALE: 1:200	

117231 712V Richmond Rd 1066 MARSDEN PARK 015A/Vch LOT 10 DA
R02 Richmond Road 086 MARSDEN PARK V15-CF LOT10 R03.rvt

				GENERAL NOTES:
4	2/20/21	AMENDED AS PER COURT COMMENTS	JM	
3	2/20/18	AMENDED AS PER COURT COMMENTS	CD	
2	2/17/21	AMENDED AS PER COURT CONTENTIONS	CD	
1	2/20/17	ISSUED FOR DA		
ISSUE	DATE	REVISION	BY	



The
Bathla
Group

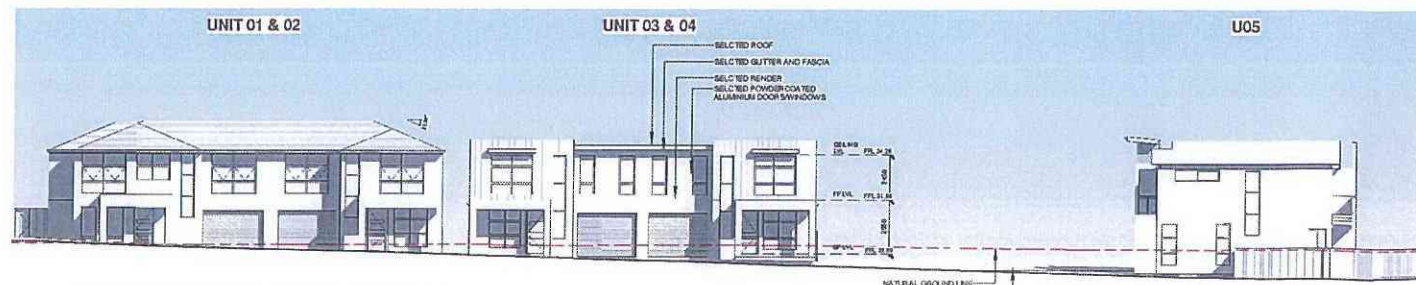
1.17 GMBH, Breda, The Netherlands
PO Box 27020, Schiedamschen Dijk 1077 CA
T: 011 80 13 145 | F: 011 800 4702
info@fischbacher.nl | www.fischbacher.nl

PROJECT:
1086 RICHMOND ROAD
MARSDEN PARK - LOT 10 / STAGE
10

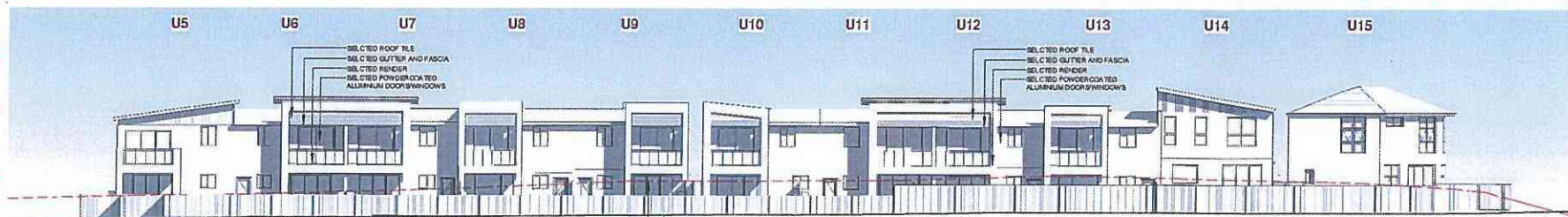
LOT NUMBER:
LOT 51 DP 1196583

DRAWING TITLE:

FIRST FLOOR PLAN

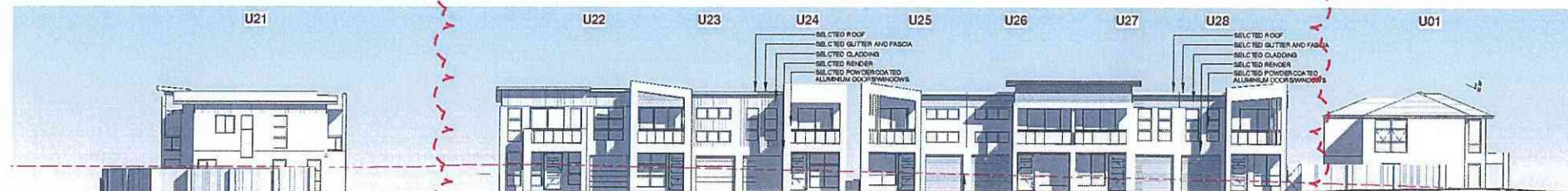


NE NORTH EAST ELEVATION
1 : 200



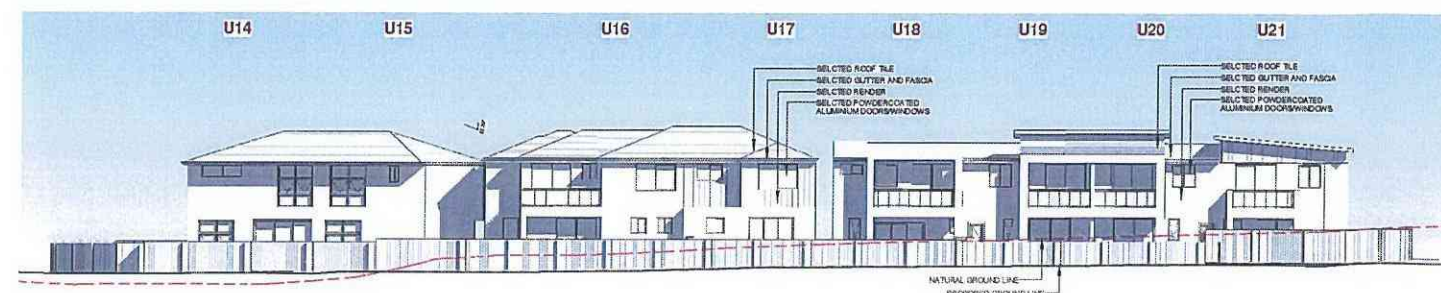
NW NORTH WEST ELEVATION
1 : 200

NO OF ATTACHED BUILDING IN A ROW REDUCED AND ELEVATION AMENDED



SE SOUTH EAST ELEVATION
1 : 200

NO OF ATTACHED BUILDING IN A ROW REDUCED



SW SOUTH WEST ELEVATION
1 : 200

Energy Rating		Certificate Number: 853613441
<input type="checkbox"/> Single-checking rating	Stars: _____	
<input checked="" type="checkbox"/> Individual development assess many of energy	Energy: _____	Water: _____
<input type="checkbox"/> Full assessment of the development energy and water	Energy: _____	Water: _____
Assessor Name/Number: Project Title: VAC/SP/13/1652		
Assessor Signature: _____		Date: 29/01/2017

ISSUE	DATE	REVISION	BY
1	28/02/18	AMENDED AS PER COURT COMMENTS	JM
2	23/01/18	AMENDED AS PER COURT COMMENTS	CD
3	21/12/17	AMENDED AS PER COURT COMMENTS	CD
4	26/06/17	ISSUED FOR DA	

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NORTH





 **Energy Rating** Certificate Number: 83382188

☐ Single-dwelling listing

☒ Multi-unit development (accumulating of energy)
2 points will be awarded for the average across the entire development

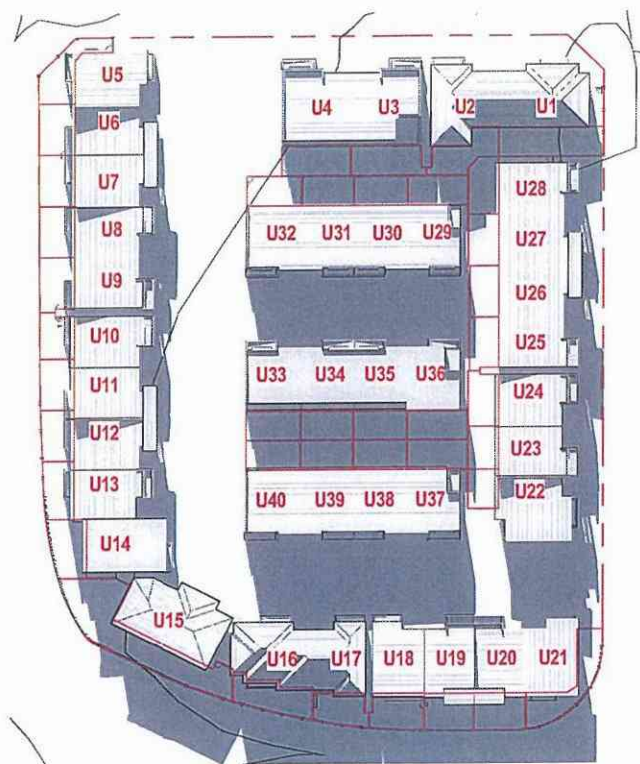
Roofed or partially roofed: ☐ Roofed with ☒ Partially roofed

Roofed Water Number: 1 ☐ No Roofed Water 1552

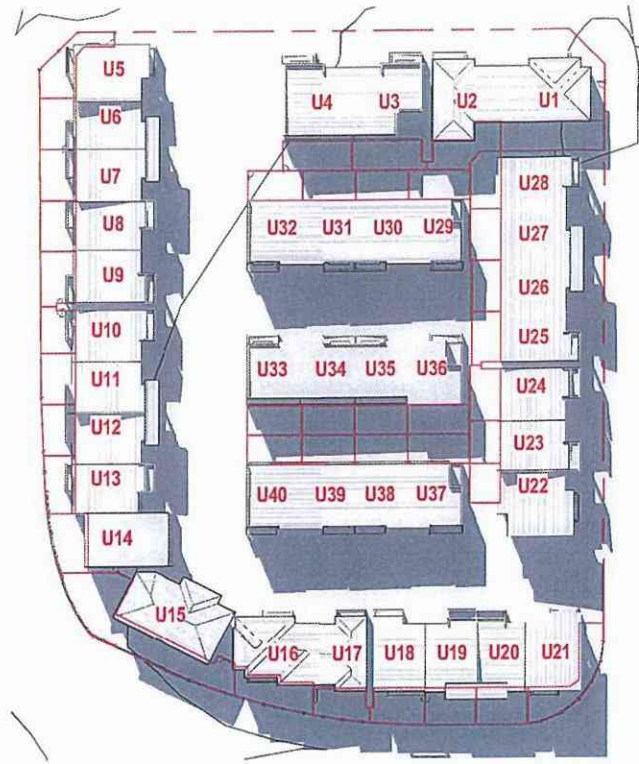
Assessor Signature: [Signature] Date: 2/25/2017

DA ISSUE

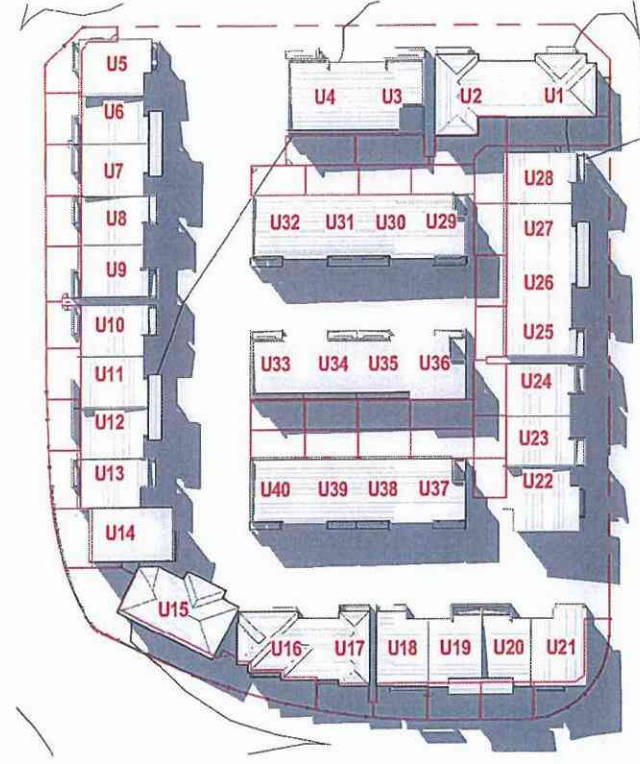
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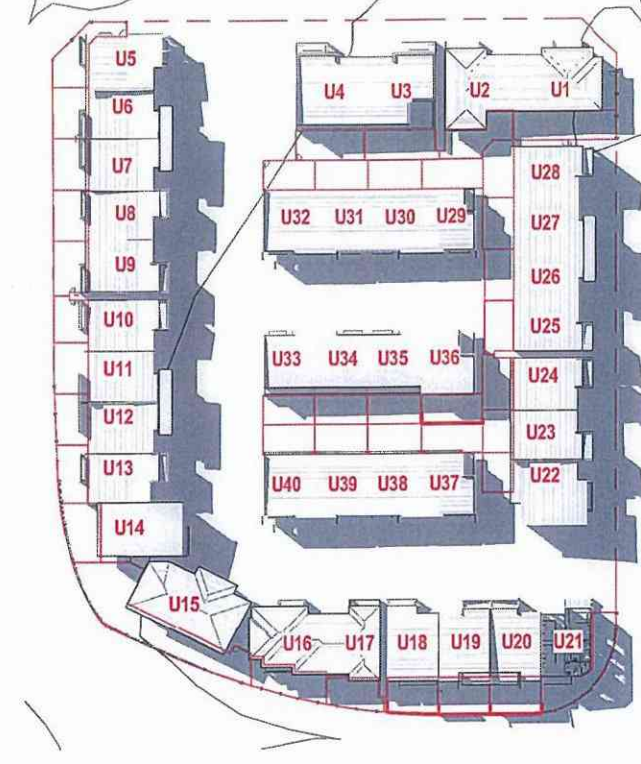
1 9AM SHADOWS
1 : 500



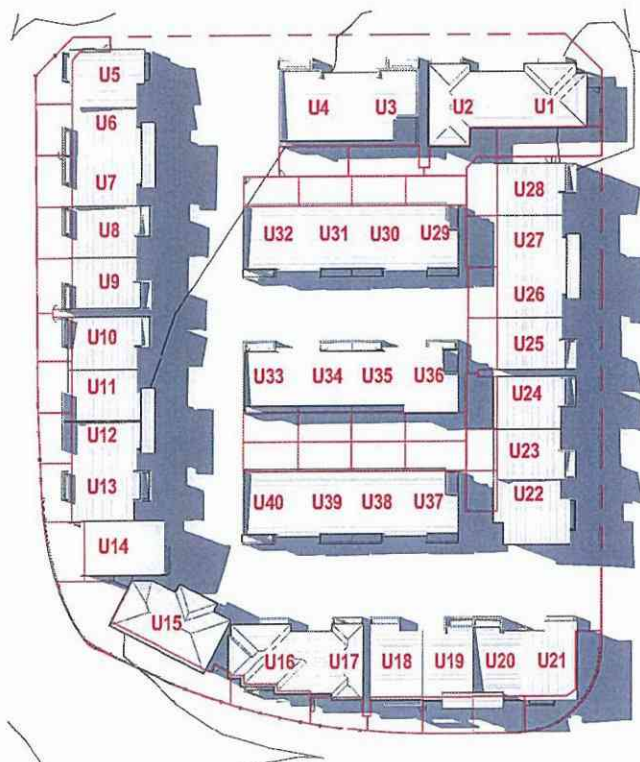
2 10AM SHADOWS
1 : 500



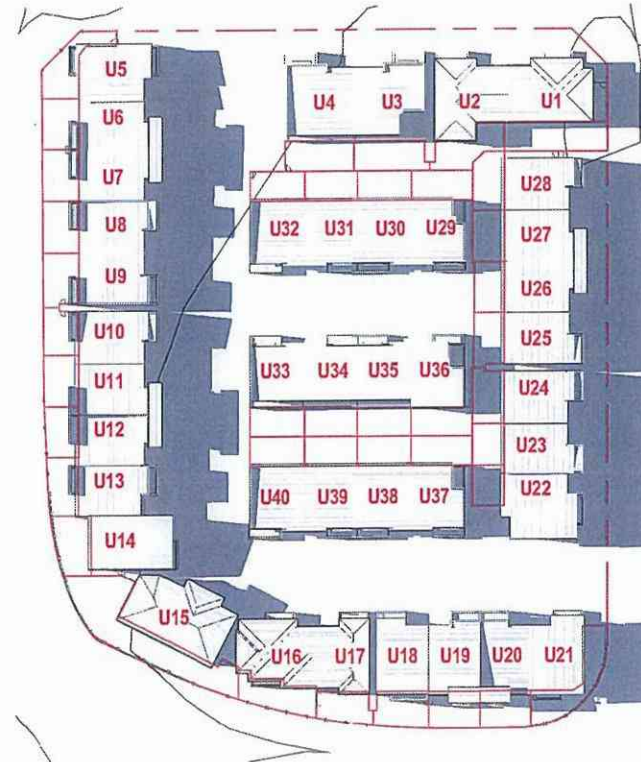
3 11AM SHADOWS
1 : 500



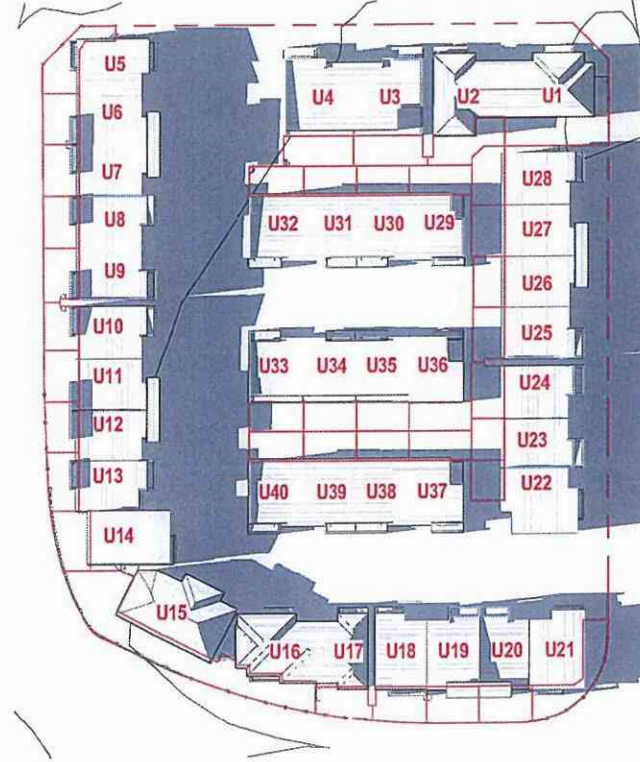
4 12PM SHADOWS
1 : 500



5 1PM SHADOWS
1 : 500



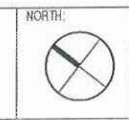
6 2PM SHADOWS
1 : 500



7 3PM SHADOWS
1 : 500

ISSUE	DATE	REVISION	BY
4	28/02/18	AMENDED AS PER COURT COMMENTS	JM
3	23/01/18	AMENDED AS PER COURT COMMENTS	CD
2	21/12/17	AMENDED AS PER COURT CONTENTIONS	CD
1	20/06/17	ISSUED FOR DA	

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The Bathla Group
117/118B Road, Glenview Sydney NSW - 2155
PO Box 2020 North Sydney NSW 1585
T: 02 9333 1205 F: 02 9333 6102
info@bathlagroup.com.au www.bathlagroup.com.au

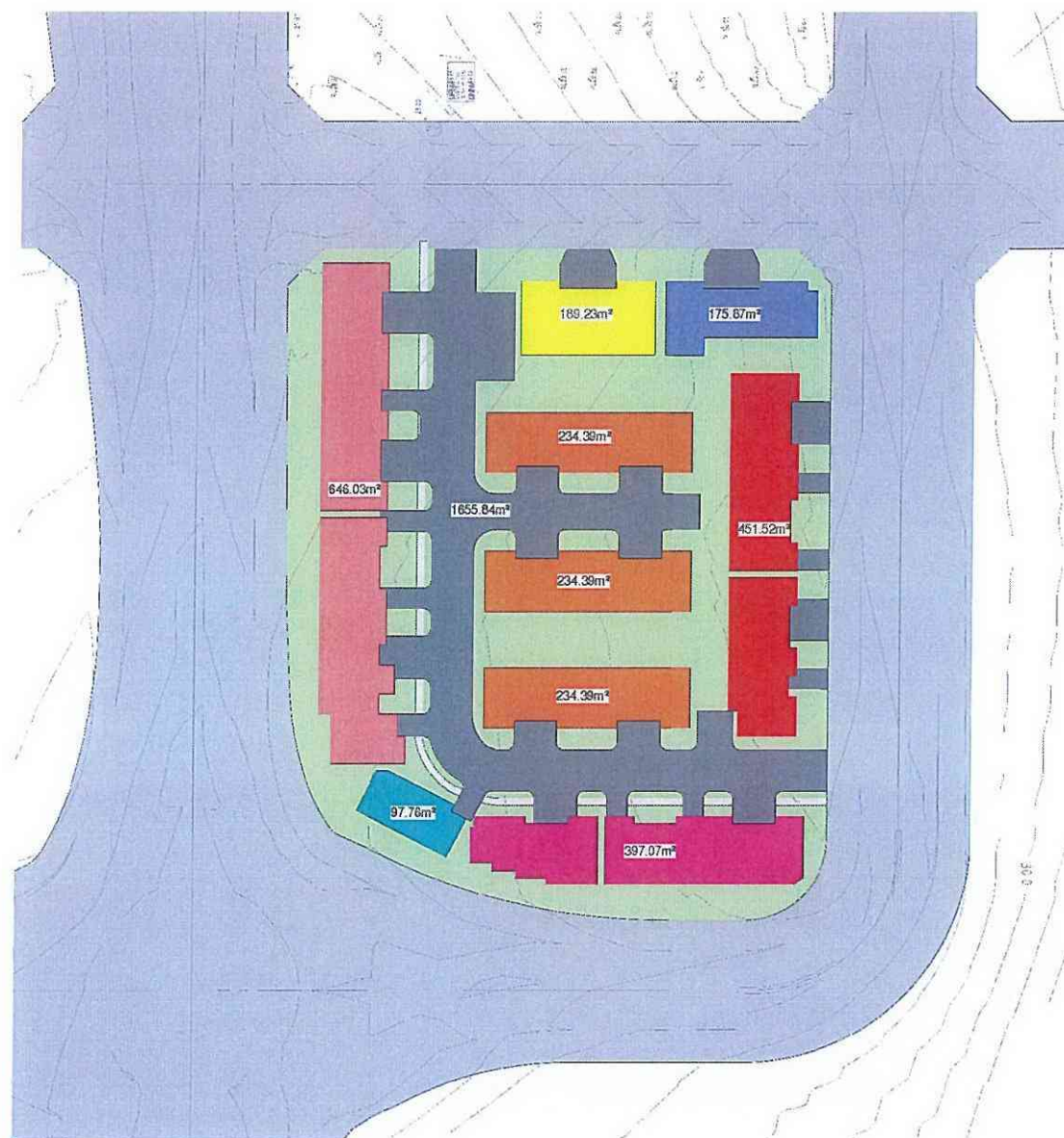
PROJECT:
**1086 RICHMOND ROAD
MARSDEN PARK - LOT 10 / STAGE
10**

LOT NUMBER:
LOT 51 DP 1196583

DRAWING TITLE:
SHADOW ANALYSIS

PROJECT No	DATE	DRAWING No	REV.
0100	JAN 2018	DA07	4
DRAWN BY: Author	SCALE: 1 : 500		

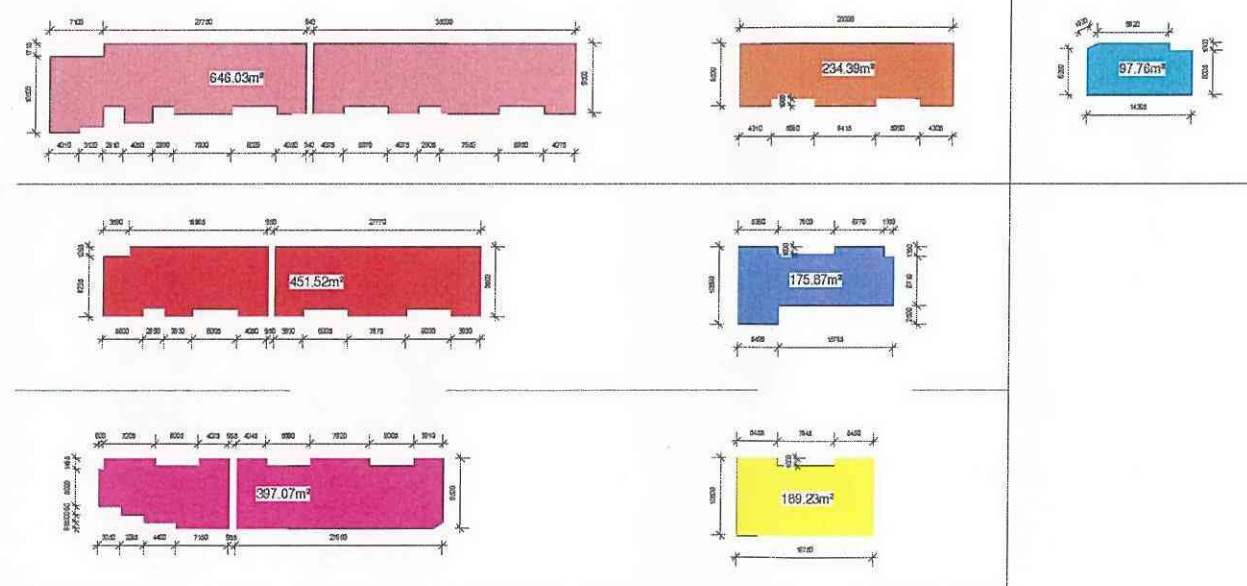
W172-31 712V Richmond Rd 1086 MARSDEN PARK NSW 2148 LOT 10 DA
R02/R10 Richmond Road 1086 MARSDEN PARK - V15-CP-LOT10_R02.rvt



1 SITE COVERAGE
1:500

TOTAL SITE AREA	6827m²		
TOTAL DWELLING AREA	2639.41m²		
TOTAL ROAD AREA	1655.84m²		
CONTROL	REQUIRED	PROVIDED	COMPLIANCE
SITE COVERAGE	PERMITTED MAX. 50% = 3413.5M²	PROPOSED = 2639.41M², 38.66%	YES
LANDSCAPED AREA	MIN. 30% OF SITE AREA REQUIRED = 2048.1M²	PROPOSED = 2531.75M², 37%	YES

SITE COVERAGE



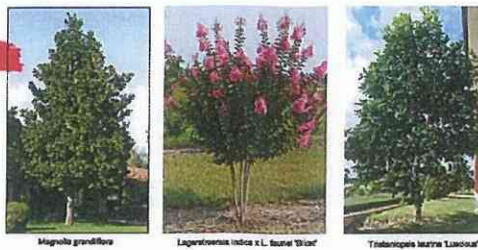
DO NOT SCALE
USE FIGURED DIMENSIONS AT ALL TIMES IF IN DOUBT CHECK WITH THE BUILDER CONTRACTORS TO CHECK AND VERIFY ALL LEVELS, DIMENSIONS AND DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES OR CHANGES TO THE BUILDER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE.

20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200m



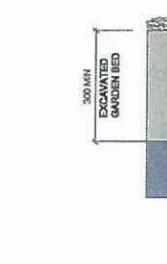
1 CONCEPT LANDSCAPE PLAN
SCALE = 1:300

INDICATIVE IMAGES OF PROPOSED TREES



STAKE SIZE	QUANTITY	PLANT HEIGHT
2400x50x50	3	>2500 (45L POT)
1800x50x50	2	1-2500 (25L POT)
1200x50x50	1	<1000 (15L POT)

SELECTED PLANTING THOROUGHLY WATER PLANT BEFORE & AFTER PLANTING
80 WIDE WEBBING THE CROSSED TO FORM A FIGURE 8 AND STAPLED TO STAKE
MOUND WATER BASIN



2. TREE & SHRUB PLANTING IN GARDEN BED

NOTE:
DO NOT PLANT IN UNSUITABLE WEATHER CONDITIONS SUCH AS EXTREME HEAT, COLD, WIND OR RAIN
CLAY SOIL IS TO BE TREATED WITH CLAY BREAKER AND ORGANIC COMPOST

PROPOSED PLANTING SCHEDULE - LOT 10

BOTANICAL NAME	COMMON NAME	APPROX. MATURED HEIGHT	POT SIZE	QUANTITY
----------------	-------------	------------------------	----------	----------

TREES

MG	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	Dwarf Magnolia	2.5-3 M	75 L	21
LI	Lagerstroemia indica x L. 'Bordeaux'	Crape Myrtle	4m	75 L	22
GF	Glochidion Fendleri	Chesee Tree	3-5m	75 L	20

SHRUBS

AC	Arthropodium ciliatum	Ranga Lily	0.8 m	300mm	43
WF	Westringia Fruticosa 'Aussie Box'	Coastal Rosemary	1.5m	250mm	14
PK	Philodendron Xanadu	Xanadu	1m	300mm	9
PT	Phormium tenax	New Zealand Flax	1m	300mm	47
DE	Doronicum eximium	Gymea Lily	1.5m	300mm	52

GROUND COVER / BORDER

LM	Liriope muscari	Turf Lily	0.5m	150mm	35
DR	Dianella revoluta	Flax Lily	0.5m	150mm	86
BR	Anigozanthos 'Bush Ranger'	Kangaroo Paw	0.5m	150mm	55

STREET TREES

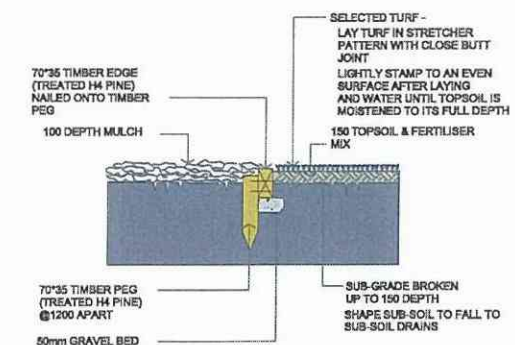
FP	Fraxinus pennsylvanica 'Urbanita'	Urbanite Green Ash	15-20m	8-10m	75LT	19
UP	Ulmus parvifolia	Chinese Weeping Elm	10m	11m	75LT	8
WF	Waterhousea floribunda	Weeping Lily Pilly	5m	2-3m	75LT	7
BA	Brexythyon acerifolius	Illawarra Flame Tree	15-20m	10m	75LT	11

Street planting detail and specifications:

- No timber or steel edging is permissible
- Install root barriers to protect assets, structures and/or underground services to a minimum depth of 600mm to street trees adjoining paths, kerb and gutter or roadways.
- Tree trunk to be a minimum 750mm from street kerb and guttering
- All imported soil to achieve the requirements of AS4419 - Soils for landscaping. All tree planting holes are a minimum 1.5 times diameter and twice the depth of the root ball. All mulch is to be free of deleterious material such as rock, soil, weeds and sticks.
- Mulch - Forest litter or pine bark mulch
- All soft edges (mulch, turf, grassed) to be finished to appropriate falls and flush with adjacent surface treatment.
- Use Buffalo as turf.
- Turf to consist of 25mm depth of dense, well rooted, vigorous grass growth with minimum 15mm on an average 100mm depth of top soil
- Staking is required specified as - drive 2x38x35x1800 mm hardwood stake 600mm into the ground. Secure the stem of the tree firmly with 2 x hessian ties fitted to the stem separately in opposite directions.

Specification for Maintenance:

- Mechanical line trimmers (whipper snippers) not be used within 300mm of out edge of tree trunks
- No grass to overgrow edges where it adjoins hard paved surfaces or kerbs and guttering
- No grass or weeds within mulched area in or around tree
- Stolen trees to be replaced within one week. Repeated removal of trees within the same location shall immediately be reported to Council
- All garden beds to be re-mulched to maintain a depth of 75mm and level finish with adjacent surfaces
- Mulch not to come into contact with the trunks of trees
- No visible signs of wilting of leaves or stems, with all plants to be fully turgid at all times
- No sign of over watering such as constantly wet soil, brown leaf margins, stem rot or brown spots on foliage
- No obvious signs of weed infestation in grass areas, pavements or mass planting beds
- Chemical not to be applied in extreme temperatures or wind conditions
- Removal of all suckers from base of trees
- Formative pruning of trees to allow effective canopy development and to retain natural or desired shape of the tree
- All damaged dead or diseased wood to be pruned to the nearest lateral shoot or active bud with a clean neat cut
- Performance of planting will be indicated by new growth with visible sign of new leaves; plants to possess a level of 'greenness' characteristic with the particular species; Strong form habit and colour appropriate to the season and species; Absence of dead or damaged foliage, flowers or branches.



1. TURF & GARDEN EDGE DETAIL

NOTE:
ALIGNMENT OF BRICK EDGE SHALL BE EVEN & FREE FROM DIPS AND HUMPS.

INSTALLATION/ EXCAVATION TIPS:

- ADD 5% TO OUTER PLAN DIMENSIONS WHEN EXCAVATING PIT.
- ALWAYS CHECK PIT DIMENSIONS AT BASE OF PIT, ENSURING SIDES ARE CLEAN AND SQUARE.
- LEVEL AND SCREED DRAINAGE LAYER PRIOR TO PLACEMENT OF CELLS.

ENSURE THAT THE PIT BASE IS SCREEDED AND COMPACTED ADEQUATELY BEFORE PLACING CELLS ON BASE, TO ALLOW FOR EASE OF INSTALLATION OF OVERALL MATRIX.

ADEQUATE DRAINAGE FROM BASE OF TREEPIT TO BE PROVIDED IF DESIGN INCORPORATES WSUD PRINCIPLES, OR IF SITE CONDITIONS REQUIRE.

PLEASE NOTE:

The contractor is to establish location and depth of services at each planting location prior to any machine excavation, especially water, gas, telecommunications, power, drainage and sewer. Where services interfere with tree placement, adjust position within 1.0m of designated location. Where tree cannot be accommodated due to services, this is a hold point and contractor is to apply for instructions.

DA ISSUE

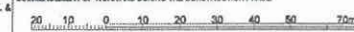
DATE	REV	DESCRIPTION
20/02/2018	C	AMENDED AS PER COURT
20/01/2018	B	AMENDED AS PER COURT
26/06/2017	A	FOR DEVELOPMENT APPLICATION

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DO NOT SCALE

USE FIGURED DIMENSIONS AT ALL TIMES. IF IN DOUBT CHECK WITH THE BUILDER. CONTRACTORS TO CHECK AND VERIFY ALL LEVELS, DATUMS AND DIMENSIONS ON SITE AND SHALL REPORT ANY DISCREPANCIES OR OMISSIONS TO THE DEVELOPER PRIOR TO COMMENCEMENT OF WORK AND DURING THE CONSTRUCTION PHASE.



NORTH:



PROJECT:

1032,1036,1060,1070,1080,1082,1086,1132,1140
RICHMOND ROAD AND 230,232,234 GRANGE AVENUE
MARSDEN PARK

DRAWING TITLE:

LOT 10 - LANDSCAPE PLAN

PROJECT No.	DA	DATE: JAN 2017	DRAWING No.	REV:
DRAWN BY: SS	SCALE: 1:2000	LP-01	C	

BLACKTOWN CITY COUNCIL

PROPOSED RESIDENTIAL DEVELOPMENT

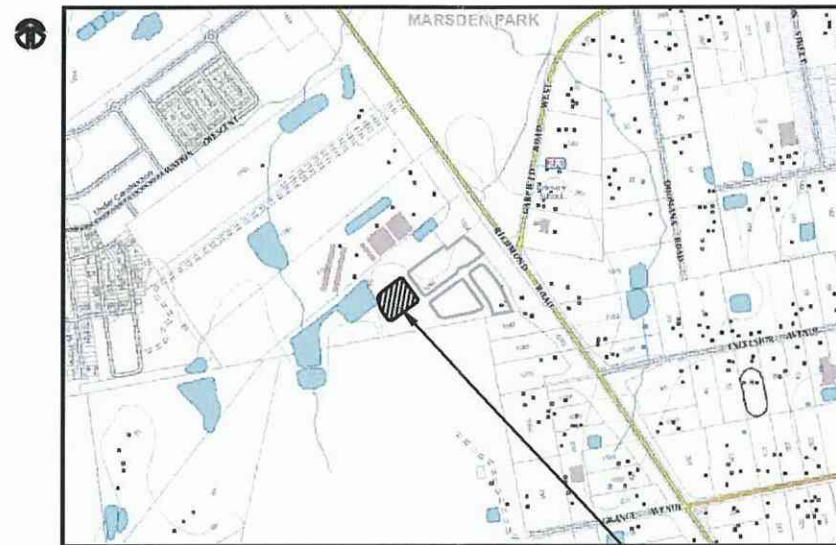
LOT 10, 1086 RICHMOND ROAD, MARSDEN PARK

DRIVEWAY & DRAINAGE PLANS

GENERAL NOTES

- ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL'S WORKS SPECIFICATION CIVIL - 2005 REQUIREMENTS AND/OR AS DIRECTED BY THEIR REPRESENTATIVE.
- THE CONTRACTOR IS TO IDENTIFY, LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION WORKS AND WHERE NECESSARY MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE OR ADJUST WHERE NECESSARY.
- COUNCIL'S TREE PRESERVATION ORDER MUST BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT THE PRIOR APPROVAL OF COUNCIL.
- ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE WORK HEALTH & SAFETY ACT 2011 AND ALL RELEVANT OCCUPATIONAL HEALTH & SAFETY POLICIES AND REGULATIONS.
- DIMENSIONS SHALL NOT BE SCALED FROM THE PLANS. CLARIFICATION OF DIMENSIONS SHALL BE SOUGHT FROM THE SUPERINTENDENT OR REFERRED TO THE DESIGNER.
- SURVEY MARKS SHOWN THUS Δ SHALL BE MAINTAINED AT ALL TIMES. WHERE RETENTION IS NOT POSSIBLE THE ENGINEER SHALL BE NOTIFIED AND CONSENT RECEIVED PRIOR TO THEIR REMOVAL.
- ALL NEW WORK IS TO MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS.
- THE CONTRACTOR IS NOT TO ENTER UPON NOR DO ANY WORK WITHIN OR ON ADJACENT LANDS WITHOUT THE PRIOR APPROVAL OF THE SUPERINTENDENT AND THE WRITTEN PERMISSION OF THE OWNERS.
- SEDIMENT MEASURES SHALL BE IMPLEMENTED PRIOR TO SOIL DISTURBANCE IN KEEPING WITH THE 4th EDITION OF LANDCOMS "SOILS AND CONSTRUCTION - MANAGING URBAN STORMWATER" MARCH 2004 TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE AND AS SHOWN IN THESE DRAWINGS.
- THE CONTRACTOR SHALL CLEAR AND DISPOSE OF ONLY THOSE TREES THAT ARE CONDEMNED BY THE PLANS. COUNCIL'S TREE PRESERVATION ORDER SHALL BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT PRIOR APPROVAL.
- THE CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES, OUT HOUSES, CAR BODIES, DEBRIS, ETC. THE CONTRACTOR SHALL NOT DISPOSE OF ANY DEBRIS BY BURNING OFF IN AN OPEN FIRE.
- UN SOUND MATERIALS AS DETERMINED BY COUNCIL'S REPRESENTATIVE SHALL BE REMOVED FROM ROADS AND LOTS PRIOR TO ANY FILLING.
- ALL SITE REGRADING AREAS SHALL BE GRADED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE. THE CONTRACTOR SHALL TAKE LEVELS ON THE EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING ANY FILL OPERATIONS.
- SURPLUS EXCAVATED MATERIAL SHALL BE PLACED OR DISPOSED OF IN ACCORDANCE WITH THE CONTRACT, OR AS DIRECTED BY THE SUPERINTENDENT.
- ALL SITE FILLING SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm AND COMPACTED IN ACCORDANCE WITH COUNCIL'S SPECIFICATION AND BE TESTED AT THE REQUIRED INTERVALS BY AN APPROVED N.A.T.A. GEOTECHNICAL LABORATORY.
- MINIMUM 150mm THICK TOPSOIL SHALL BE SPREAD ON ALL FOOTPATHS, BERMS, BATTERS AND SITE REGRADING AREAS. EXCESS TOPSOIL SHALL BE DISPOSED OF AS DIRECTED BY THE SUPERINTENDENT.
- ALL LAND DISTURBED BY EARTHWORKS SHALL BE SPRAY-GRASSED, OR SIMILARLY TREATED TO ESTABLISH GRASS COVER. SEED MIXTURES ARE TO BE APPROVED BY COUNCIL PRIOR TO SPRAYING. ALL GRASSED AREAS SHALL BE REGULARLY WATERED AND MAINTAINED UNTIL EXPIRATION OF THE MAINTENANCE PERIOD.
- THE CONTRACTOR SHALL MAINTAIN DUST CONTROL THROUGHOUT THE DURATION OF THE PROJECT.
- ALL PITS DEEPER THAN 1.2m SHALL HAVE STEP IRONS PROVIDED IN ACCORDANCE WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES THROUGH LOTS SHALL BE CONTAINED WITHIN THEIR EASEMENTS AND CONFORM WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES ON HIGH SIDE AND UNDER ROADS SHALL BE BACKFILLED SHARP SAND AND HAVE 3.0m OF AGRICULTURAL LINE WRAPPED IN AN APPROVED FILTER FABRIC, DISCHARGING INTO THE DOWNSTREAM PIT.
- SUBSOIL DRAINS SHALL BE CONSTRUCTED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE.
- PRECAST KERB INLET LINTELS SHALL BE USED ON GULLY PITS. GRATES SHALL BE "WELDLOK" TYPE GG 78-51 OR APPROVED EQUIVALENT.
- PROVIDE VEHICULAR ENTRIES IN KERB AND GUTTER WHERE SHOWN OR WHERE DIRECTED BY THE SUPERINTENDENT.
- GUIDE POSTS SHALL BE 100mm X 50mm HARDWOOD, PAINTED WHITE WITH REFLECTORS.
- ERECT STREET NAME SIGNS, CONDUIT WARNING SIGNS AND NO THROUGH ROAD SIGNS WHERE SHOWN OR WHERE DIRECTED BY COUNCIL'S REPRESENTATIVE.
- CONDUITS SHALL BE LAID AFTER POSITIONS HAVE BEEN DETERMINED BY THE RELEVANT AUTHORITIES AND BEFORE FINAL A.C. IS LAID.
- POSITION OF CONDUITS SHALL BE MARKED ON THE KERB.
- FELLED TREES SHALL BE SALVAGED FOR RE-USE AS WOODCHIP MULCH OR LOG FORM FOR SITE REHABILITATION. NON-SALVAGEABLE MATERIAL SUCH AS STUMPS AND ROOTS SHALL BE DISPOSED OF OFF SITE.
- THE CONTRACTOR SHALL PROVIDE MINIMUM 24 HOURS NOTICE TO COUNCIL'S REPRESENTATIVE FOR ALL INSPECTIONS.
- THE CONTRACTOR SHALL MAINTAIN SERVICES AND ALL WEATHER ACCESS AT ALL TIMES TO THE ADJOINING PROPERTIES.
- THE CONTRACTOR SHALL UNDERTAKE TRAFFIC CONTROL MEASURES TO COUNCIL'S SATISFACTION AND SHALL DISPLAY ALL APPROPRIATE WARNING SIGNS THROUGHOUT THE DURATION OF CONSTRUCTION.
- ALL NATURAL SURFACE DATA HAS BEEN DETERMINED BY TERRAIN MODELLING. ALL CONSTRUCTION SITE WORKS MUST BE CARRIED OUT USING THE BENCH MARKS SHOWN ON THESE DRAWINGS.

Prepared for: THE BATHLA GROUP



LOCALITY SKETCH
NOT TO SCALE

LOCATION OF WORKS

SHEET INDEX

SHEET No.	DESCRIPTION
COVER SHEET	COVER SHEET - GENERAL NOTES, SHEET INDEX AND LEGEND
2	GENERAL ARRANGEMENT PLAN
3	TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS
4	WATER QUALITY CATCHMENT PLAN
5	SOIL AND WATER MANAGEMENT PLAN
6	SOIL AND WATER MANAGEMENT DETAILS

LEGEND

	ROOF DRAINAGE LINE
	PROPOSED DRAINAGE LINE
	EXISTING DRAINAGE LINE
	NATURAL SURFACE CONTOUR
	DESIGN SURFACE CONTOUR
	TABLE DRAIN
	EXISTING HEADWALL
	PROPOSED HEADWALL
	LIMIT OF CONSTRUCTION
	LIMIT OF WORKS
	PIT NUMBER
	SUBSOIL DRAINAGE LINE
	GRADED SURFACE INLET PIT
	SEALED PIT
	KERB INLET PIT

A1

LEGEND

CONSTRUCT TRENCH GRATES ON ALL DRIVEWAYS THAT FALL TO THE STREET.

CONSTRUCT STORM FILTER CHAMBER TO BCC REQUIREMENTS REFER TO SHEET 3 FOR DETAILS.

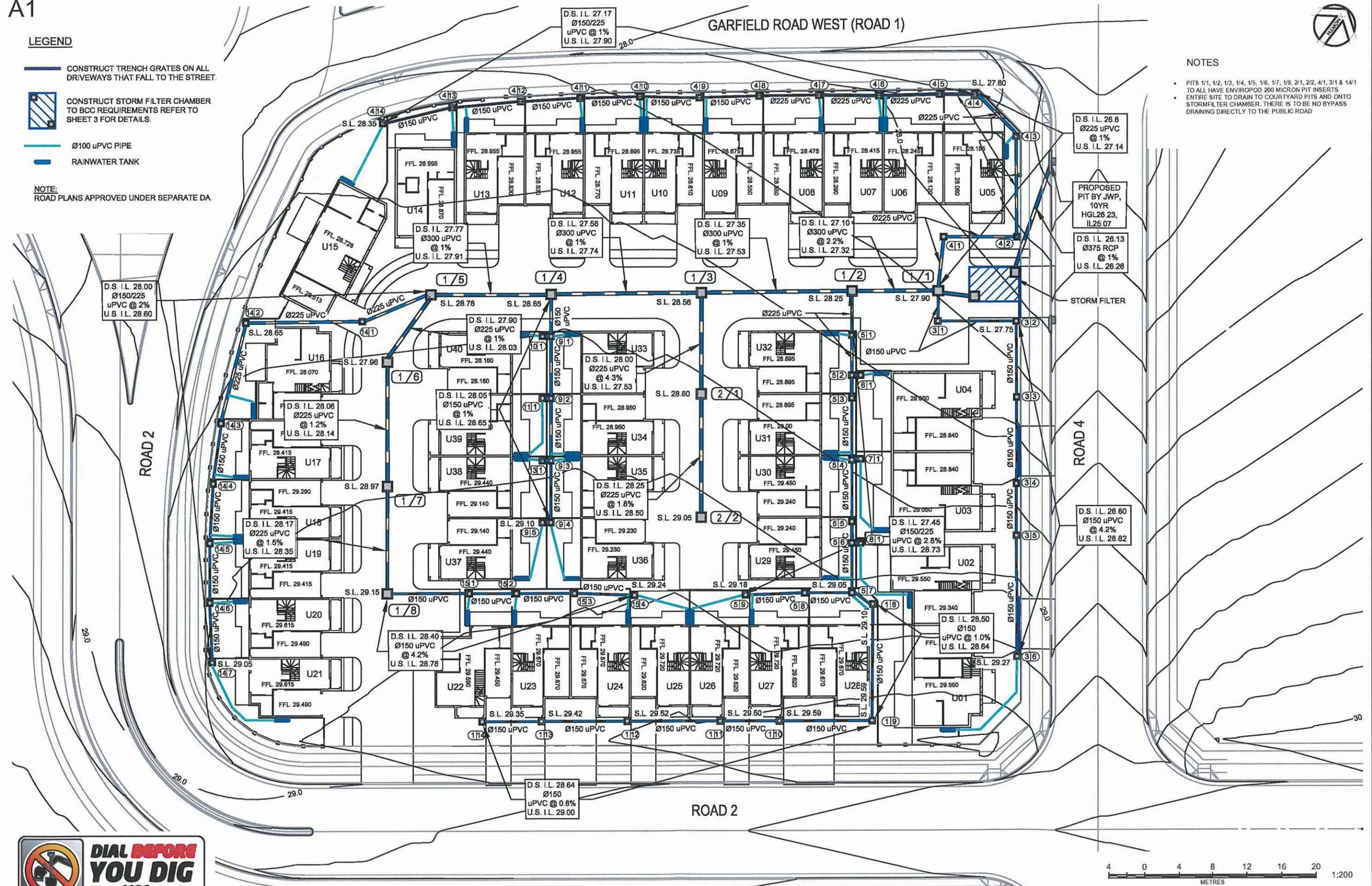
Ø100 uPVC PIPE
RAINWATER TANK

NOTE:
ROAD PLANS APPROVED UNDER SEPARATE DA

GARFIELD ROAD WEST (ROAD 1)

NOTES

- PITS 1/1, 1/2, 1/3, 1/4, 1/5, 1/6, 1/7, 1/8, 2/1, 2/2, 4/1, 3/1 & 14/1 TO ALL HAVE ENVIROPOD 200 MICRON PIT INSERTS
- ENTIRE SITE TO DRAIN TO COURTYARD PITS AND ONTO STORM FILTER CHAMBER. THERE IS TO BE NO BYPASS DRAINING DIRECTLY TO THE PUBLIC ROAD



4 0 4 8 12 16 20
METRES 1:200

No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL

**BARKER
RYAN
STEWART**
TOTAL PROJECT SOLUTIONS
PLANNING · PROJECT MANAGEMENT · SURVEYING · CONSTRUCTION

SYDNEY
P. 02 9659 0005
CENTRAL COAST
P. 02 4325 5255
HUNTER
P. 02 4966 8368
ABN: 25 134 057 842
brs.com.au
mail@brs.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 10
1086 RICHMOND ROAD, MARSDEN PARK

GENERAL ARRANGEMENT PLAN

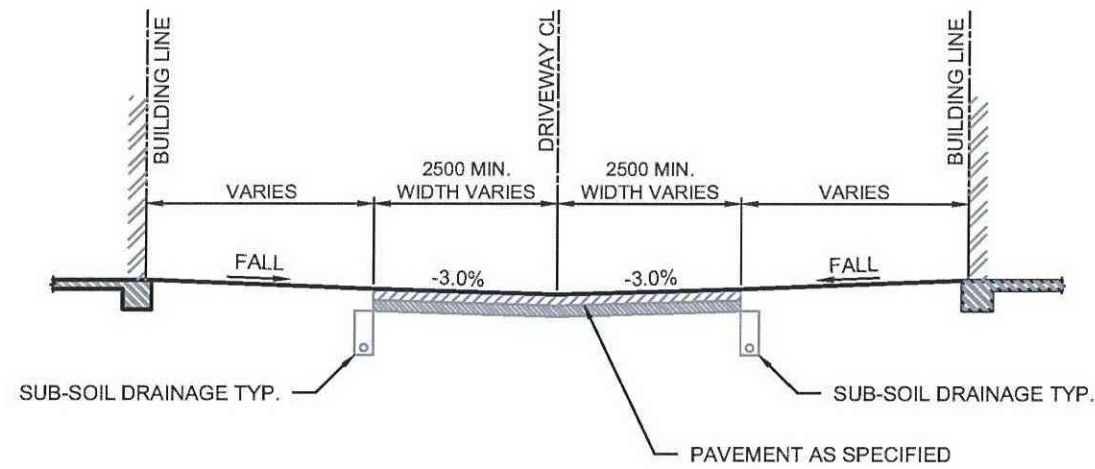
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Drawn: PMM
Checked: GJR

Scales: Plan 1:200
Horiz.
Vert.
X-Section

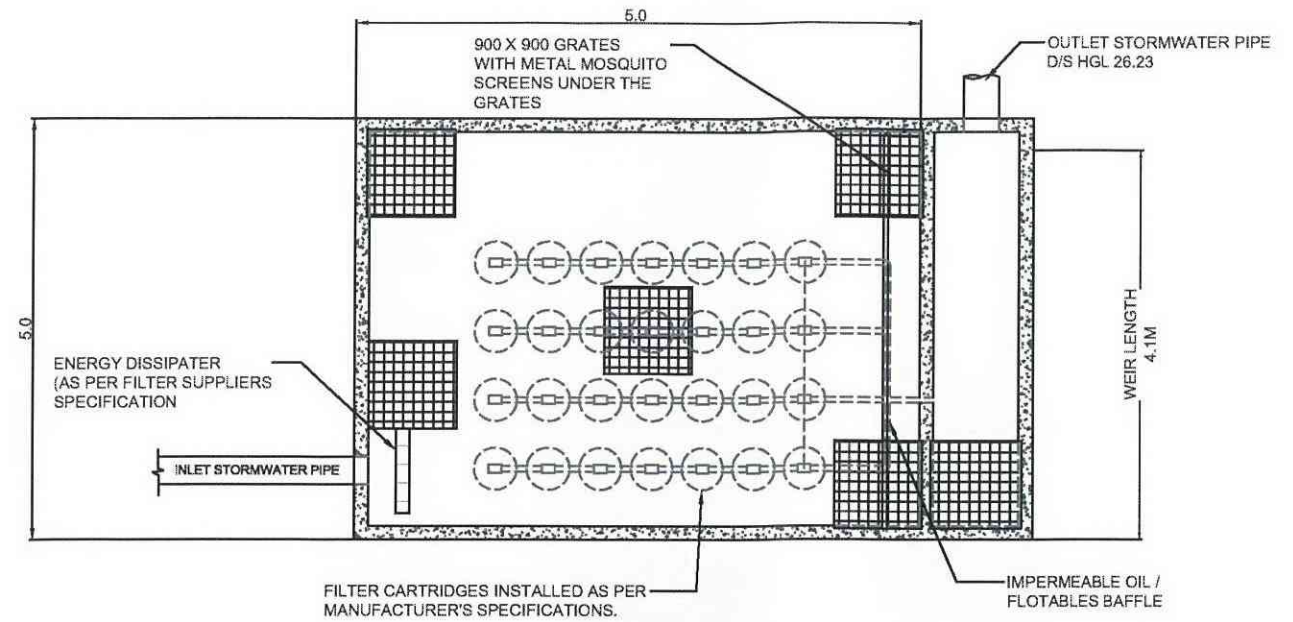
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Plan No.
SY170226C102
File Ref.
SY170226C100-B.dwg
SHEET 2 OF 6 SHEETS
REV. **B**

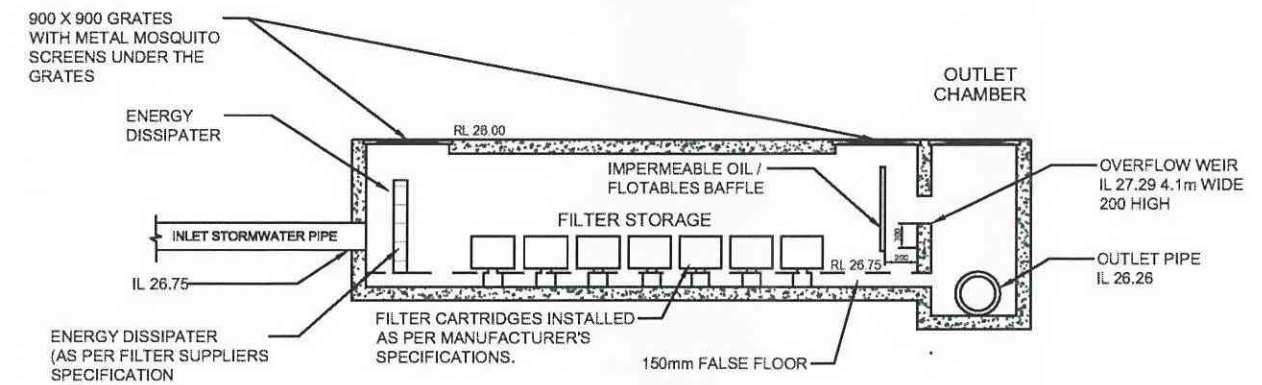
A1



TYPICAL SECTION - DRIVEWAY
NOT TO SCALE



PLAN FILTER STORAGE TANK &
OUTLET CHAMBER
SCALE 1:40



TYPICAL SECTION THROUGH FILTER
STORAGE TANK & OUTLET CHAMBER
SCALE 1:40

WATER QUALITY - LOT 10

3000L RWT PER UNIT	
STORM FILTER TANK DIMENSIONS	5.0m x 5.0m
NUMBER OF STORMFILTER CARTRIDGES (460mm)	28
NUMBER OF ENVIPODS (200 MICRON)	13



No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



TOTAL PROJECT SOLUTIONS
PLANNING - PROJECT MANAGEMENT - ENGINEERING - CERTIFICATION

SYDNEY
P: 02 9669 0005
CENTRAL COAST
P: 02 4325 5255
HUNTER
P: 02 4965 8368
AEN: 26 134 057 842
bri.com.au
mail@bri.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 10
1086 RICHMOND ROAD, MARSDEN PARK

TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS

Designed: AD
Drawn: PMM
Checked: GJR

Scales: Plan
Horiz.
Vert.
X-Sect.

Datum: A.H.D.

Plan No.
SY170226C103
File Ref.
SY170226C100-B.dwg
SHEET 3 OF 6 SHEETS
REV.
B

A1

GARFIELD ROAD WEST (ROAD 1)

LEGEND

- INTERNAL DRIVEWAY AREA TO ENVIROPOD THEN TO STORMFILTER
- EXTERNAL DRIVEWAY AREA TO STORMFILTER
- LANDSCAPE/COURTYARD AREA TO STORMFILTER
- BUILDING ROOF AREA TO STORMFILTER

TOTAL ROOF AREA
=2,880m²
TOTAL LANDSCAPE AREA
=2,310m²
TOTAL INTERNAL DRIVEWAY AREA
=1,440m²
TOTAL EXTERNAL DRIVEWAY AREA
=200m²
TOTAL AREA
=6,828m²

ROAD 2

ROAD 4

ROAD 2



No	DATE	AMENDMENT
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B	31/01/18	ISSUE FOR APPROVAL



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P. 02 965 9 0005
CENTRAL COAST
P. 02 4925 5255
HUNTER
P. 02 4965 8368
ABN: 26 134 057 842
brs.com.au
mail@brs.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 10
1086 RICHMOND ROAD, MARSDEN PARK

WATER QUALITY CATCHMENT PLAN






Designed: AD
Drawn: PMM
Checked: GJR

Scales: Plan 1:200
Horiz.
Vert.
X-Sect.
Datum: A.H.D.

Plan No.
SY170226C104
File Ref.
SY170226C100-B.dwg
SHEET 4 OF 6 SHEETS
REV.
B

A1

LEGEND

-  SEDIMENT FENCE
 STABILISED SITE ACCESS AT ENTRANCE TO WORKS
 SURFACE INLET PIT SEDIMENT TRAP
 HAY BALE SEDIMENT TRAP
 INLET 'SAUSAGE' FILTER (FOLLOWING K&G CONSTRUCTION)

EROSION AND SEDIMENTATION CONTROL NOTES

- PRIOR TO THE COMMENCEMENT OF SITE DISTURBANCE, THE CONTRACTOR SHALL ESTABLISH ALL NECESSARY EROSION AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THIS PLAN, COUNCIL'S "CIVIL WORKS SPECIFICATION, PART 2 CONSTRUCTION", AND THE NSW DEPARTMENT OF HOUSING'S PUBLICATION "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION".
- THE LOCATION OF EROSION AND SEDIMENTATION CONTROL DEVICES SHOWN ON THIS PLAN ARE INDICATIVE ONLY AND SHOULD BE ADJUSTED TO SUIT SITE CONDITIONS.
- WHERE WORKS ARE DELAYED OR IN ABEYANCE AND DISTURBED AREAS ARE LIKELY TO BE EXPOSED FOR A PERIOD OF TWO MONTHS OR MORE, TEMPORARY REHABILITATION WORKS SHALL BE UNDERTAKEN TO PROTECT THE SITE.
- ALL DISTURBED AREAS SHALL BE TOPSOILED, SEEDED AND MULCHED WITHIN 20 DAYS OF THE COMPLETION OF THE WORKS.
- ALL AREAS WITH SLOPES STEEPER THAN 12% (1 in 8) SHALL BE STRAW MULCHED IN CONJUNCTION WITH SEEDING, OR TURFED.
- SILT BARRIERS LOCATED AROUND KERB INLET AND ROAD PITS SHALL BE REINSTATED FOLLOWING ROAD PAVING WORKS IF IT IS LIKELY THAT UNDISTURBED AREAS WILL STILL DRAIN TO THE PIT.
- SANDBAGS SHALL BE PLACED ACROSS THE END OF ROAD CONSTRUCTION AT THE COMPLETION OF EACH DAY'S WORK TO PREVENT EROSION OF THE CONSTRUCTED MATERIAL.
- THE CONTRACTOR SHALL CONDUCT WEEKLY INSPECTIONS OF THE SITE TO ENSURE THAT ALL DEVICES AND REHABILITATION AREAS HAVE BEEN ADEQUATELY MAINTAINED. THE CONTRACTOR SHALL ALSO KEEP A LOG BOOK DETAILING SUCH INSPECTIONS, AND RECORDING RAINFALL EVENTS AND OTHER RELEVANT EVENTS.
- TOPSOIL SHALL BE STOCKPILED IN THE LOCATIONS SHOWN ON THIS PLAN OR AS DIRECTED BY COUNCIL'S ENGINEER. WHERE IT IS LIKELY THAT STOCKPILES WILL REMAIN IN PLACE FOR A PERIOD EXCEEDING 4 WEEKS, THEN THE STOCKPILE SHALL BE STABILISED BY SEEDING OR EQUIVALENT METHODS.
- ALL REVEGETATION WORKS ARE TO BE MAINTAINED, INCLUDING WATERING AND MOWING WHERE NECESSARY UNTIL THE COMPLETION OF THE MAINTENANCE PERIOD.
- THE MOVEMENT OF VEHICULAR TRAFFIC ON THE SITE SHALL BE CONFINED TO DESIGNATED AREAS DURING CONSTRUCTION WORKS. VEHICULAR ACCESS SHALL BE DENIED TO AREAS TO BE LEFT UNDISTURBED.
- SITE ACCESS SHALL BE LIMITED TO THE LOCATIONS SHOWN ON THIS PLAN. SHAKE-DOWN AREAS SHALL BE CONSTRUCTED AS SHOWN.
- DURING CONSTRUCTION WORKS, DUST CONTROL MEASURES SHALL BE IMPLEMENTED TO MINIMISE THE AMOUNT OF DUST GENERATED FROM THE SITE. THESE MEASURES TO BE IMPLEMENTED TO COUNCIL'S SATISFACTION.
- MAINTENANCE AND CLEANING OF CONSTRUCTION PLANT SHALL BE CARRIED OUT IN AN AREA WHERE RUNOFF CAN BE CONTAINED AND APPROPRIATELY TREATED AND DISPOSED OF.
- ALL EROSION AND SEDIMENTATION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE ADEQUATELY REGENERATED. THIS STAGE SHALL BE DETERMINED BY THE CERTIFIER.

ROAD 2

GARFIELD ROAD WEST (ROAD 1)

ROAD 4

ROAD 2



No	DATE	AMENDMENT
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 P. 02 4966 8368
 AEN: 25 134 057 842
 brs.com.au
 mail@brs.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 10
 1086 RICHMOND ROAD, MARSDEN PARK

SOIL AND WATER MANAGEMENT PLAN

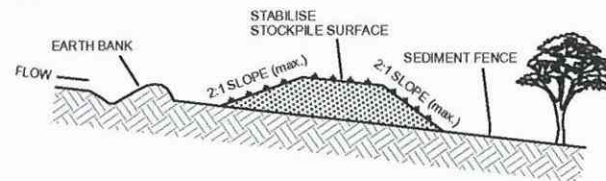
Designed: AD
 Drawn: PMM
 Checked: GJR

Scales: Plan 1 : 200
 Horiz.
 Vert.
 X-Section
 Datum: A.H.D.

Plan No.
SY170226C105
 File Ref.
 SY170226C100-B.dwg
 SHEET 6 OF 6 SHEETS
 REV. **B**

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 METRES 1:200

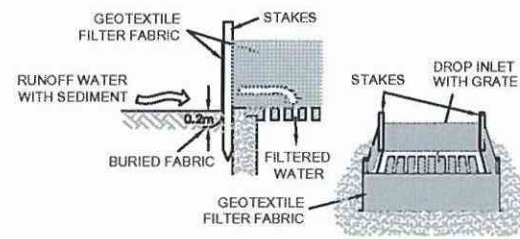
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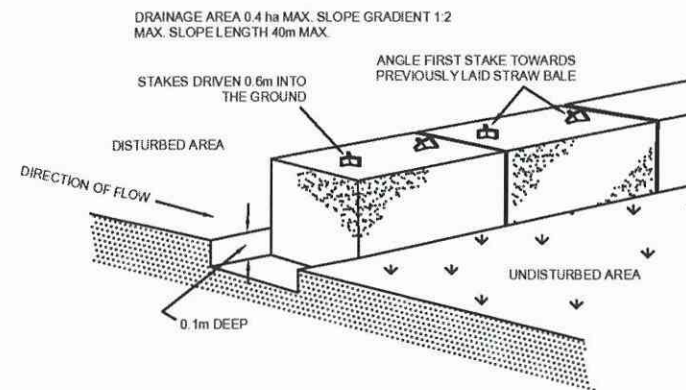
CONSTRUCTION NOTES

1. WHERE POSSIBLE LOCATE STOCKPILE AT LEAST 5 METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOWS, ROADS, HAZARD AREAS AND MIN. 1.5m AWAY FROM EMBANKMENTS.
2. CONSTRUCT ON THE CONTOUR AS A LOW, FLAT ELONGATED MOUND.
3. WHERE THERE IS SUFFICIENT AREA TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. REHABILITATE IN ACCORDANCE WITH THE SWMP/ESCP.
5. CONSTRUCT EARTH BANK (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT RUN OFF AROUND THE STOCKPILE AND A SEDIMENT FENCE (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE OF STOCKPILE.

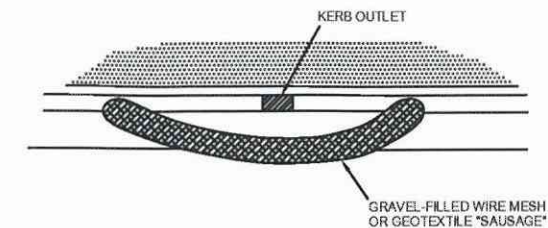
TOPSOIL STOCKPILE



SURFACE INLET PIT SEDIMENT TRAP



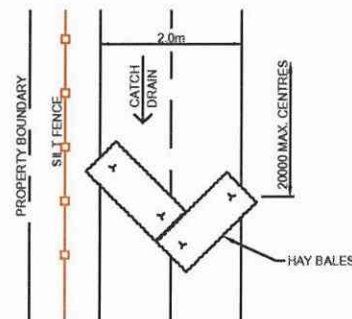
STRAW BALE SEDIMENT FILTER



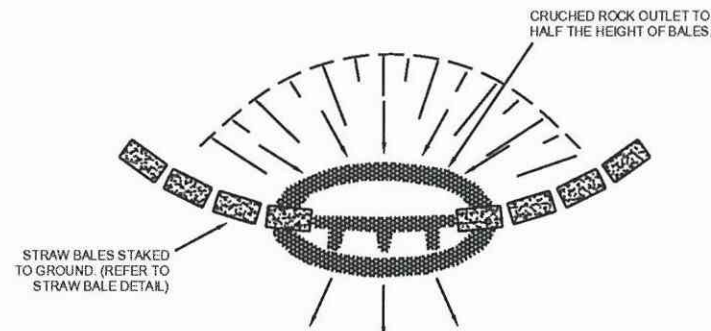
CONSTRUCTION NOTES

1. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH AND FILL IT WITH 25mm TO 50mm GRAVEL.
2. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH X 400mm WIDE.
3. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING FILTER.
4. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

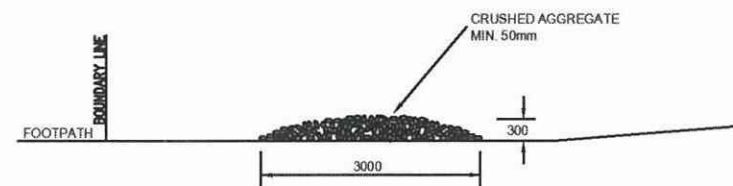
MESH & GRAVEL FILTER "SAUSAGE" BARRIER



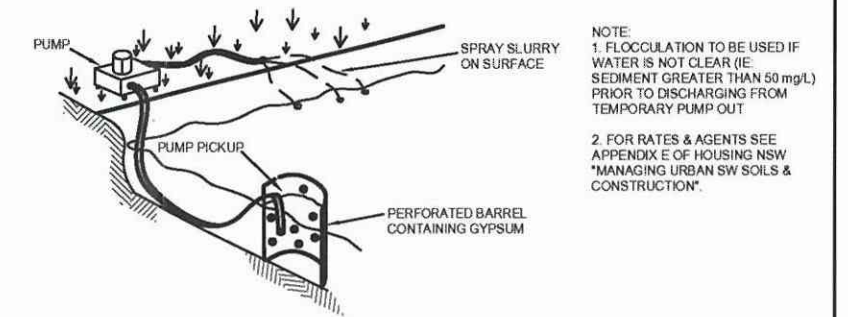
CATCH DRAIN DETAIL



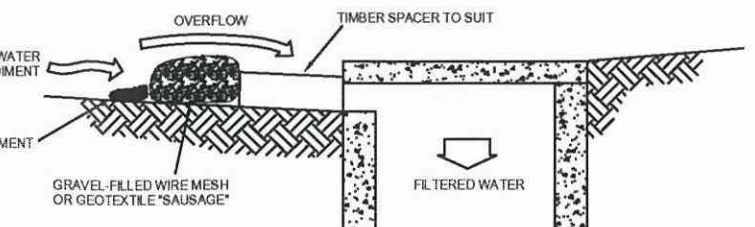
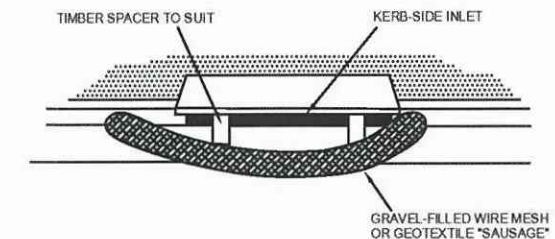
STRAW BALE & CRUSHED ROCK SEDIMENT FILTER



VEHICLE DUST SHAKE DOWN DETAIL



FLOCCULATION DETAIL



CONSTRUCTION NOTES

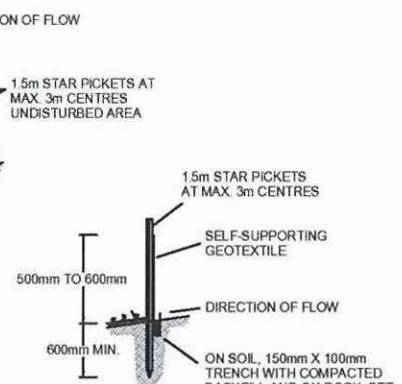
1. INSTALL FILTERS TO KERB INLET ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH X 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

MESH & GRAVEL INLET "SAUSAGE" FILTER

CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
2. DRIVE 1.5m LONG STAR PICKETS INTO GROUND 2.5 METRES APART (MAX.)
3. DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

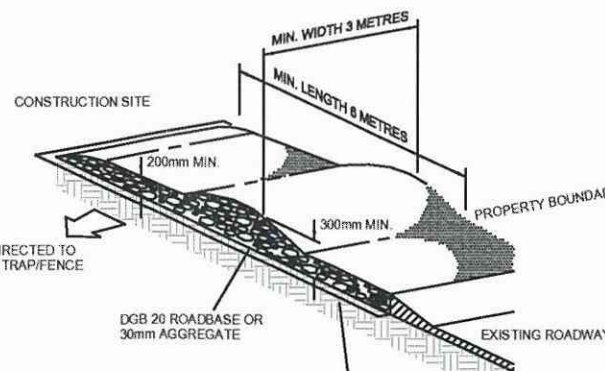
SEDIMENT FENCE



SECTION DETAIL

CONSTRUCTION NOTES

1. STRIP TOPSOIL AND LEVEL SITE.
2. COMPACT SUBGRADE.
3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
4. CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROADBASE OR 30mm AGGREGATE. MINIMUM LENGTH 15 METRES OR TO BUILDING ALIGNMENT. MINIMUM WIDTH 3 METRES.
5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR OTHER SEDIMENT TRAP.



STABILISED SITE ACCESS



No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



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P. 02 9559 0005
CENTRAL COAST
P. 02 4325 5255
HUNTER
P. 02 4905 8308
ABN: 20 134 057 842
bri.com.au
mail@bri.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 10
1086 RICHMOND ROAD, MARSDEN PARK

SOIL AND WATER MANAGEMENT DETAILS

Designed: AD
Drawn: PMM
Checked: GJR
Scales: Plan
Horiz.
Vert.
X-Section
Datum: A.H.D.

Plan No.
SY170226C106
File Ref.
SY170226C100-B.dwg
SHEET 6 OF 6 SHEETS
REV.
B

MAIN BODY COLOUR SCHEMES

CS 1

WALLS (MAIN)
Material : Cement Render
Finish : Paint
Colour : Dune (Dulux)

WALLS (FEATURE)
Material : Cement Render
Finish : Paint
Colour : Woodland Grey (Dulux)

GARAGE DOOR
Material : Colorbond Steel
Finish : Colorbond
Colour : Dune (Dulux)

WINDOWS
Material : Aluminium
Finish : Powdercoating
Colour : Anotec Silver Grey (Dulux)

FRONT DOOR
Material : Selected Door
Finish : Paint
Colour : Malay Grey (Dulux)

SCREENS/ BALUSTRADES/ LIGHTWEIGHT STRUCTURE (IF REQUIRED)
Material : Aluminium/ Steel
Finish : Powdercoating
Colour : Dune (Dulux)

CS 2

WALLS (MAIN)
Material : Cement Render
Finish : Painted
Colour : Windspray (Dulux)

WALLS (FEATURE)
Material : Masonry
Finish : Painted & Render
Colour : Vivid White (Dulux)

GARAGE DOOR
Material : Colorbond Steel
Finish : Colorbond
Colour : Windspray (Dulux)

WINDOWS
Material : Aluminium
Finish : Powdercoating
Colour : Anotec Silver Grey (Dulux)

FRONT DOOR
Material : Selected Door
Finish : Paint
Colour : Lexicon Quarter (Dulux)

SCREENS/ BALUSTRADES/ LIGHTWEIGHT STRUCTURE (IF REQUIRED)
Material : Aluminium/ Steel
Finish : Powdercoating
Colour : Windspray (Dulux)

CS 3

WALLS (MAIN)
Material : Cement Render
Finish : Painted
Colour : Jasper (Dulux)

WALLS (FEATURE)
Material : Cement Render
Finish : Painted
Colour : Shale Grey (Dulux)

GARAGE DOOR
Material : Colorbond Steel
Finish : Colorbond
Colour : Shale Grey (Dulux)

WINDOWS
Material : Aluminium
Finish : Powdercoating
Colour : Anotec Silver Grey (Dulux)

FRONT DOOR
Material : Selected Door
Finish : Paint
Colour : Lexicon Quarter (Dulux)

SCREENS/ BALUSTRADES/ LIGHTWEIGHT STRUCTURE (IF REQUIRED)
Material : Aluminium/ Steel
Finish : Powdercoating
Colour : Jasper (Dulux)

CS 4

WALLS (MAIN)
Material : Cement Render
Finish : Painted
Colour : Sago Quarter (Dulux)

WALLS (FEATURE)
Material : Cement Render
Finish : Painted
Colour : Blue Steel (Dulux)

GARAGE DOOR
Material : Colorbond Steel
Finish : Colorbond
Colour : Shale Grey (Dulux)

WINDOWS
Material : Aluminium
Finish : Powdercoating
Colour : Anotec Silver Grey (Dulux)

FRONT DOOR
Material : Selected Door
Finish : Paint
Colour : Lexicon Quarter (Dulux)

SCREENS/ BALUSTRADES/ LIGHTWEIGHT STRUCTURE (IF REQUIRED)
Material : Aluminium/ Steel
Finish : Powdercoating
Colour : Blue Steel (Dulux)

CS 5

WALLS (MAIN)
Material : Cement Render
Finish : Painted
Colour : Sago Quarter (Dulux)

WALLS (FEATURE)
Material : Cement Render
Finish : Painted
Colour : Jasper (Dulux)

GARAGE DOOR
Material : Colorbond Steel
Finish : Colorbond
Colour : Jasper (Dulux)

WINDOWS
Material : Aluminium
Finish : Powdercoating
Colour : Anotec Silver Grey (Dulux)

FRONT DOOR
Material : Selected Door
Finish : Paint
Colour : Lexicon Quarter (Dulux)

SCREENS/ BALUSTRADES/ LIGHTWEIGHT STRUCTURE (IF REQUIRED)
Material : Aluminium/ Steel
Finish : Powdercoating
Colour : Jasper (Dulux)

CS 6

WALLS (MAIN)
Material : Cement Render
Finish : Painted
Colour : Deep Walnut (Dulux)

WALLS (FEATURE)
Material : Cement Render
Finish : Painted
Colour : Sago Quarter (Dulux)

GARAGE DOOR
Material : Colorbond Steel
Finish : Colorbond
Colour : Jasper (Dulux)

WINDOWS
Material : Aluminium
Finish : Powdercoating
Colour : Anotec Silver Grey (Dulux)

FRONT DOOR
Material : Selected Door
Finish : Paint
Colour : Lexicon Quarter (Dulux)

SCREENS/ BALUSTRADES/ LIGHTWEIGHT STRUCTURE (IF REQUIRED)
Material : Aluminium/ Steel
Finish : Powdercoating
Colour : JSago Quarter (Dulux)

ROOF SCHEMES

RF 1

ROOF
Material : Timber Roof Truss
Finish : Concrete roof tiles
Colour : Barramundi (Monier)

GUTTER
Material : Colorbond steel
Finish : Colorbond
Colour : Woodland Grey

FASCIA
Material : Colorbond steel
Finish : Colorbond
Colour : Shale Grey

RF 2

ROOF
Material : Timber Roof Truss
Finish : Concrete roof tiles
Colour : Silver Perch (Monier)

GUTTER
Material : Colorbond steel
Finish : Colorbond
Colour : Shale Grey

FASCIA
Material : Colorbond steel
Finish : Colorbond
Colour : Shale Grey

RF 3

ROOF
Material : Timber Roof Truss
Finish : Concrete roof tiles
Colour : Babylon (Monier)

GUTTER
Material : Colorbond steel
Finish : Colorbond
Colour : Windspray

FASCIA
Material : Colorbond steel
Finish : Colorbond
Colour : Surfist

RF 4

ROOF
Material : Timber Roof Truss
Finish : Concrete roof tiles
Colour : Anisec (Monier)

GUTTER
Material : Colorbond steel
Finish : Colorbond
Colour : Jasper

FASCIA
Material : Colorbond steel
Finish : Colorbond
Colour : Jasper

RF 5

ROOF
Material : Timber Roof Truss
Finish : Concrete roof tiles
Colour : Sambuca (Monier)

GUTTER
Material : Colorbond steel
Finish : Colorbond
Colour : Monument

FASCIA
Material : Colorbond steel
Finish : Colorbond
Colour : Dune

GENERAL SITE

MASONRY FENCE
Material : Masonry
Finish : Coloured Blockwork
Colour : Charcoal (Boral)

BOUNDARY FENCE
Material : Colorbond steel
Finish : Colorbond
Colour : Summershade or as required (Colorbond)

RENDERED BOUNDARY FENCE
Material : Colorbond steel
Finish : Colorbond
Colour : Jarrrah (Colorbond)

MAILBOX
Material : Aluminium/ Steel
Finish : Powdercoating
Colour : Woodland Grey (Dulux)

MAILBOX
Material : Masonry
Finish : Facebrick
Colour : To match house colour

U20 - U22

U26

U29

U31 - U34

U38

U1



NORTH EASTERN ELEVATION TO RICHMOND RD (LOT 8)

U1 - U8



NORTH EASTERN ELEVATION TO RICHMOND RD (LOT 6)

U27

U28 - U30

U31 - U33



NORTH EASTERN ELEVATION TO RICHMOND RD (LOT 7)

U28

U29

U30

U31



SOUTH WEST ELEVATION (LOT 6)

U5 - U9

U10 - U14

U15



NORTH WESTERN ELEVATION TO RICHMOND RD (LOT 10)

U21

U22 - U24

U25 - U28

U1



SOUTH EAST ELEVATION TO RICHMOND RD (LOT 10)

U15

U16 - U17

U18 - U21



SOUTH WEST ELEVATION TO RICHMOND RD (LOT 10)



The Bathla Group

Stormwater Management Report

1086 Richmond Road, Marsden Park

January 2018

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Project No.	SY170226
Author	GL
Checked	GJ
Approved	GJ

Rev No.	Status	Date	Comments
1	DA	20/12/2017	Issue for DA
2	DA	31/01/18	Council Comments

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SYDNEY

Suite 603, Level 6, 12 Century Circuit
Norwest Business Park NSW 2153
P (02) 9659 0005 F (02) 9659 0006
E sydney@brs.com.au

CENTRAL COAST

Studio 5, 78 York Street
East Gosford NSW 2250
P (02) 4325 5255
E coast@brs.com.au

HUNTER

Unit 1, 17 Babilla Close
Beresfield NSW 2322
P (02) 4966 8388 F (02) 4966 1399
E hunter@brs.com.au

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Attachment A – Proposed Development

1 Introduction

This report has been prepared to detail the results of the concept design of the stormwater management of the proposed development super lots 6, 7, 8 and 10 at 1086 Richmond Road, Marsden Park.

In considering the stormwater management at the site, this investigation will consider the following:

1. The existing site conditions and councils stormwater quality requirements.
2. No temporary on-site detention (OSD) basins have been considered as Council's regional basins have been consented in the development Determination associated with the road and drainage construction.
3. Discharge locations within the proposed street drainage system.

2 Site Location and Development Proposal

2.1 Site Location

The site of the proposed development is described as Lot 51 in DP 1196583. This lot is known as 1086 Richmond Road, Marsden Park.

The location of the site is shown in Figure 2.1 below.



Figure 2.1 Site location (NSW Land & Property Information SIX Maps 2017)

2.2 Existing Site

The area of the site proposed for the current development drains to the north west towards existing dams along the boundary. The site is bounded by Richmond Road on the north east and rural land of a similar nature on all other boundaries. The site has an existing two storey brick dwelling, shed and associated outbuildings located on the eastern corner of the site.

2.3 Proposed Development

The proposed development involves the construction of 4 super lots which will result in a total of 185 dwellings with associated driveway areas, pervious and other impervious areas.

The on-site detention (OSD) requirements for the area have been proposed for the development which has been approved under the subdivision of the site to create the road and the super lots which were considered at that stage as of a medium density nature. As it has been approved under the subdivision DA, this development deals with the super lots and will focus on the water quality component for these lots.

Permanent water quality devices have been provided for the site in the form of Stormfilters, Enviropods and rainwater tanks.

The configuration of the proposed development is shown on the plans contained in Appendix A.

3 Council's Stormwater Management Requirements

3.1 Council's Policy

Reference was made to Blacktown City Council's Development Control Plan (DCP) 2006, Engineering Guide for Development 2005 and Civil Works Specification 2005.

The zoning for the proposed site is R3, therefore permanent water quality has been provided for the site in the form of Stormfilter tanks, Stormfilter cartridges and Enviropods.

Due to the nature of the development, permanent water quality measures are required for each super lot.

3.2 Water Quality Design

The water quality model in MUSIC applied the Blacktown Council Parameters as per table 5 Stormwater quality parameters for MUSIC source nodes and table 6 Rainfall-runoff parameters of the Developer Handbook for Water Sensitive Urban Design.

In order to meet Blacktown Council's water quality requirements as per Table 4.1 of DCP Part J target reduction rate of Total Suspended Solids 85%, Total Phosphorous 65%, Total Nitrogen 45%, the following was required:

- A minimum 3,000 litre rainwater tank per household was required, it was assumed that 50% of the roof will be plumbed back into the dwelling for the supply of toilet and laundry re-use.
- Providing a combination of Stormfilter tanks, Stormfilter cartridges (460mm high), and Enviropods.
- A minimum impervious area of 85% was modelled.

The following characteristics of each of the superlots were used to model the site in Music:

Lot 6

Which has the entire site (1.333 Ha) draining into a single stormfilter chamber is broken into the following areas;

- | | |
|---------------------------|----------|
| • Total Roof area | 0.537 Ha |
| • Total landscape area | 0.438 Ha |
| • Total Internal Driveway | 0.338 Ha |
| • Total External Driveway | 0.021 Ha |

As the minimum impervious area is 85%, the landscape percentage impervious has been set via the following;

- Min 85% by area is 1.133 Ha
- Roof and driveway impervious area is 0.896 Ha
- Need landscape area to have 0.237 Ha of impervious area
- Landscape imperviousness is 54%

Stormfilter chamber size check;

- Allowable size is $20 \times 1.333 = 26.6 \text{ m}^3$
- Provided size is $6.5 \times 5 \times 0.54 = 17.6 \text{ m}^3$

Stormfilter weir length to be $> Q_{20} / (0.4 \times 0.19)$

- Where $Q_{20} = CIA / 360$
- $C = 0.86$ – council manual
- Time of conc is 6m to top pit and 2m/s flow to chamber = 8min, where 8 min intensity is 140
- $Q_{20} = 0.86 \times 140 \times 1.133 / 360 = 0.38 \text{ m}^3/\text{s}$

- Weir length = $0.38 / (0.4 \times 0.19) = 5\text{m}$

Lot 7 – which has the entire site (0.808 Ha) draining into two stormfilter chambers is broken into the following areas;

Chamber 1

- Total Roof area 0.204 Ha
- Total landscape area 0.176 Ha
- Total External Driveway 0.030 Ha

As the minimum impervious area is 85%, the landscape percentage impervious has been set via the following;

- Min 85% by area is 0.409 Ha
- Roof and driveway impervious area is 0.233 Ha
- Need landscape area to have 0.0.115 Ha of impervious area
- Landscape imperviousness is 65%

Stormfilter chamber size check;

- Allowable size is $20 \times 0.409 = 8.2 \text{ m}^3$
- Provided size is $3.9 \times 3.8 \times 0.54 = 8.0 \text{ m}^3$

Stormfilter weir length to be $> Q_{20} / (0.4 \times 0.19)$

- Where $Q_{20} = CIA / 360$
- $C = 0.86$ – council manual
- Time of conc is 6m to top pit and 2m/s flow to chamber = 7min, where 7 min intensity is 148
- $Q_{20} = 0.86 \times 148 \times 0.41 / 360 = 0.15 \text{ m}^3/\text{s}$

Weir length = $0.15 / (0.4 \times 0.19) = 2\text{m}$

Chamber 2

- Total Roof area 0.154 Ha
- Total landscape area 0.130 Ha
- Total Internal Driveway 0.088 Ha
- Total External Driveway 0.027 Ha

As the minimum impervious area is 85%, the landscape percentage impervious has been set via the following;

- Min 85% by area is 0.339 Ha
- Roof and driveway impervious area is 0.269 Ha
- Need landscape area to have 0.07 Ha of impervious area
- Landscape imperviousness is 53%

Stormfilter chamber size check;

- Allowable size is $20 \times 1.333 = 26.6 \text{ m}^3$
- Provided size is $6.5 \times 5 \times 0.54 = 17.6 \text{ m}^3$

Stormfilter weir length to be $> Q_{20} / (0.4 \times 0.19)$

- Where $Q_{20} = CIA / 360$
- $C = 0.86$ – council manual
- Time of conc is 6m to top pit and 2m/s flow to chamber = 7min, where 7 min intensity is 148
- $Q_{20} = 0.86 \times 148 \times 0.399 / 360 = 0.14 \text{ m}^3/\text{s}$

Weir length = $0.14 / (0.4 \times 0.19) = 1.85\text{m}$

Lot 8 – which has the entire site (0.637Ha) draining into three stormfilter chambers is broken into the following areas;

Chamber 1

- Total Roof area 0.035 Ha
- Total landscape area 0.020 Ha
- Total External Driveway 0.007 Ha

As the minimum impervious area is 85%, the landscape percentage impervious has been set via the following;

- Min 85% by area is 0.052 Ha
- Roof and driveway impervious area is 0.0.042 Ha

- Need landscape area to have 0.01 Ha of impervious area
- Landscape imperviousness is 53%

Stormfilter chamber size check;

- Allowable size is $20 \times 0.061 = 1.2 \text{ m}^3$
- Provided size is $1.4 \times 1.4 \times 0.54 = 1.1 \text{ m}^3$

Stormfilter weir length to be $>Q_{20}/(0.4 \times 0.19)$

- Where $Q_{20}=CIA/360$
- $C=0.86$ – council manual
- Time of conc is 6m to top pit and 2m/s flow to chamber = 7min, where 7 min intensity is 148
- $Q_{20}=0.86 \times 148 \times 0.061 / 360 = 0.021 \text{ m}^3/\text{s}$

Weir length = $0.021/(0.4 \times 0.19) = 0.3\text{m}$

Chamber 2

- Total Roof area 0.123 Ha
- Total landscape area 0.115 Ha
- Total Internal Driveway 0.026 Ha
- Total External Driveway 0.021 Ha

As the minimum impervious area is 85%, the landscape percentage impervious has been set via the following;

- Min 85% by area is 0.242 Ha
- Roof and driveway impervious area is 0.169 Ha
- Need landscape area to have 0.073 Ha of impervious area
- Landscape imperviousness is 63%

Stormfilter chamber size check;

- Allowable size is $20 \times 0.285 = 5.7 \text{ m}^3$
- Provided size is $4.5 \times 2.3 \times 0.54 = 5.6 \text{ m}^3$

Stormfilter weir length to be $>Q_{20}/(0.4 \times 0.19)$

- Where $Q_{20}=CIA/360$
- $C=0.86$ – council manual
- Time of conc is 6m to top pit and 2m/s flow to chamber = 7min, where 7 min intensity is 148
- $Q_{20}=0.86 \times 148 \times 0.285 / 360 = 0.10 \text{ m}^3/\text{s}$

Weir length = $0.10/(0.4 \times 0.19) = 1.32\text{m}$

Chamber 3

- Total Roof area 0.119 Ha
- Total landscape area 0.116 Ha
- Total Internal Driveway 0.038 Ha
- Total External Driveway 0.017 Ha

As the minimum impervious area is 85%, the landscape percentage impervious has been set via the following;

- Min 85% by area is 0.247 Ha
- Roof and driveway impervious area is 0.174 Ha
- Need landscape area to have 0.073 Ha of impervious area
- Landscape imperviousness is 63%

Stormfilter chamber size check;

- Allowable size is $20 \times 0.29 = 5.8 \text{ m}^3$
- Provided size is $3.8 \times 2.5 \times 0.54 = 5.13 \text{ m}^3$

Stormfilter weir length to be $>Q_{20}/(0.4 \times 0.19)$

- Where $Q_{20}=CIA/360$
- $C=0.86$ – council manual
- Time of conc is 6m to top pit and 2m/s flow to chamber = 7min, where 7 min intensity is 148
- $Q_{20}=0.86 \times 148 \times 29 / 360 = 0.10 \text{ m}^3/\text{s}$

Weir length = $0.10/(0.4 \times 0.19) = 1.32\text{m}$

Lot 10 – which has the entire site (0.683Ha) draining into a single stormfilter chamber is broken into the following areas;

- Total Roof area 0.288 Ha
- Total landscape area 0.231 Ha
- Total Internal Driveway 0.144 Ha
- Total External Driveway 0.020 Ha

As the minimum impervious area is 85%, the landscape percentage impervious has been set via the following;

- Min 85% by area is 0.58 Ha
- Roof and driveway impervious area is 0.452 Ha
- Need landscape area to have 0.129 Ha of impervious area
- Landscape imperviousness is 56%

Stormfilter chamber size check;

- Allowable size is $20 \times 0.683 = 13.7 \text{ m}^3$
- Provided size is $5 \times 5 \times 0.54 = 13.5 \text{ m}^3$

Stormfilter weir length to be $> Q20 / (0.4 \times 0.19)$

- Where $Q20 = CIA / 360$
- $C = 0.86$ – council manual
- Time of conc is 6m to top pit and 2m/s flow to chamber = 8min, where 8 min intensity is 140
- $Q20 = 0.86 \times 140 \times 0.683 / 360 = 0.23 \text{ m}^3/\text{s}$

Weir length = $0.23 / (0.4 \times 0.19) = 3\text{m}$

Each super lot was modelled in MUSIC separately for simplicity. Figures 3.2.1, 3.2.2, 3.2.3 and 3.2.4 show the MUSIC layout and results from each model. Appendix A shows the water quality catchment plan for each super lot.

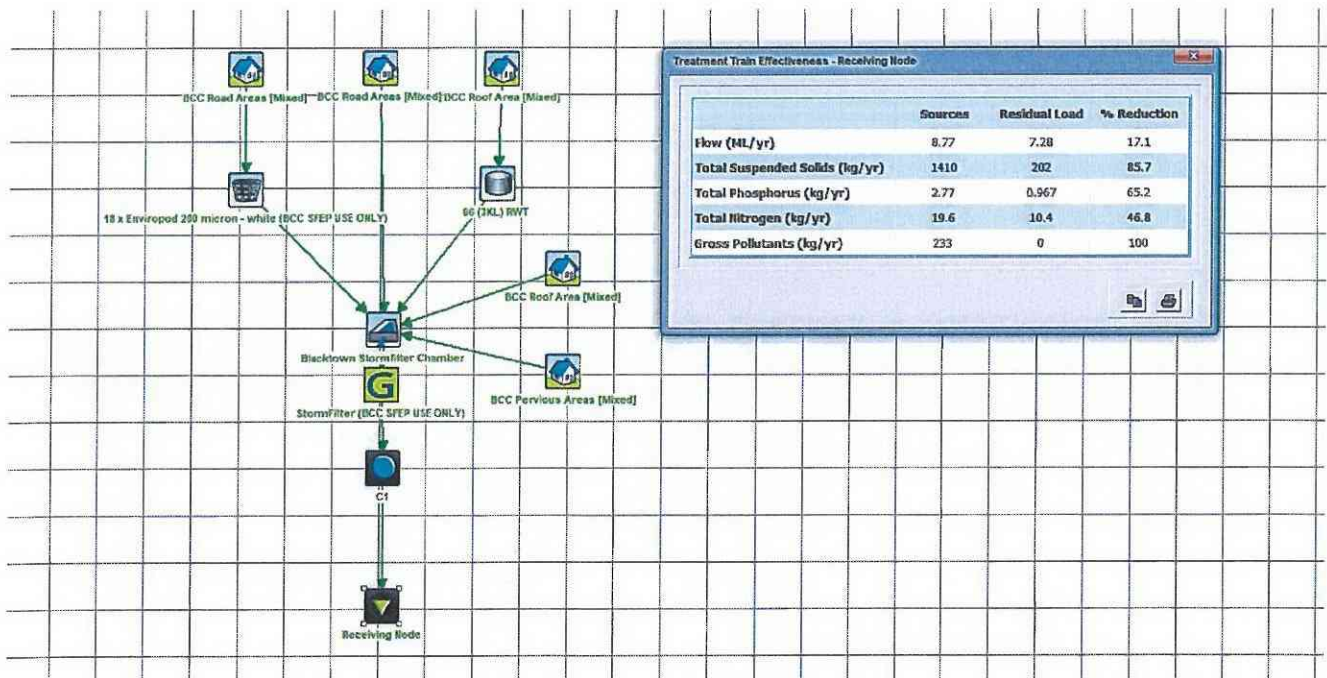


Figure 3.1.1 MUSIC model Layout and Results for Super Lot 6

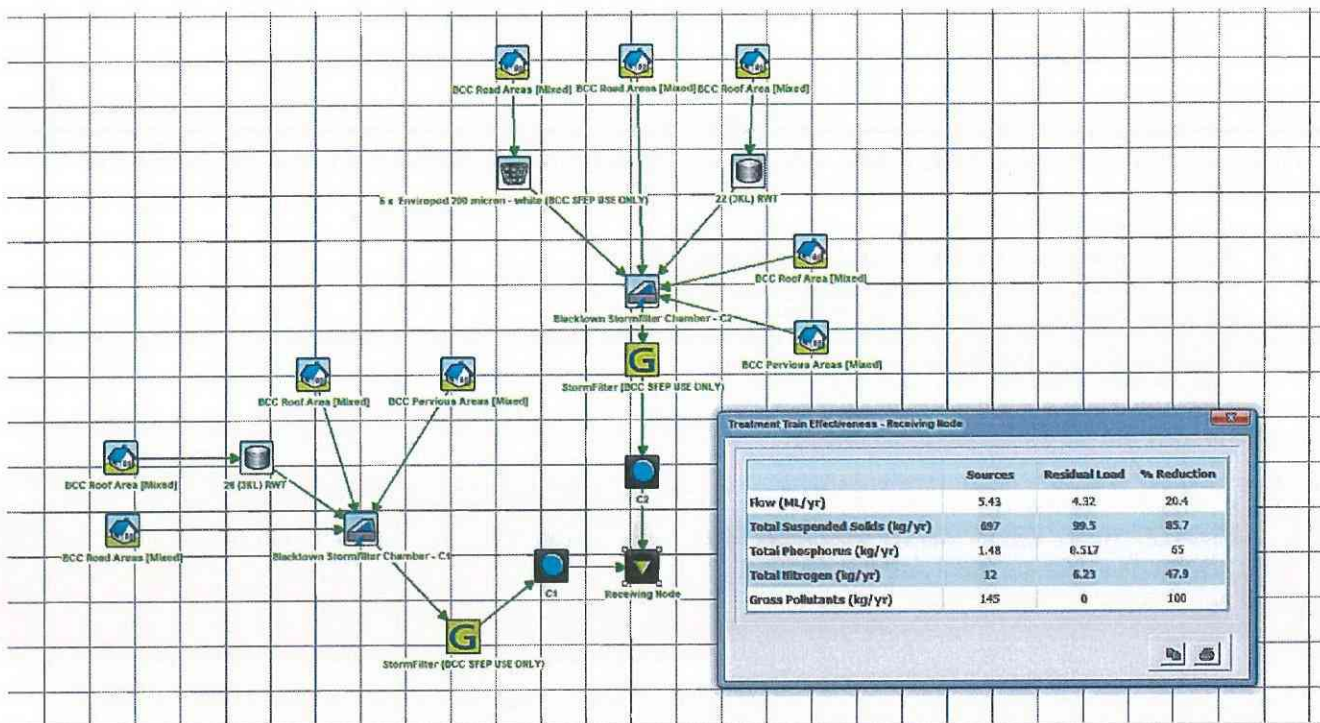


Figure 3.2.2 MUSIC model Layout and Results for Super Lot 7

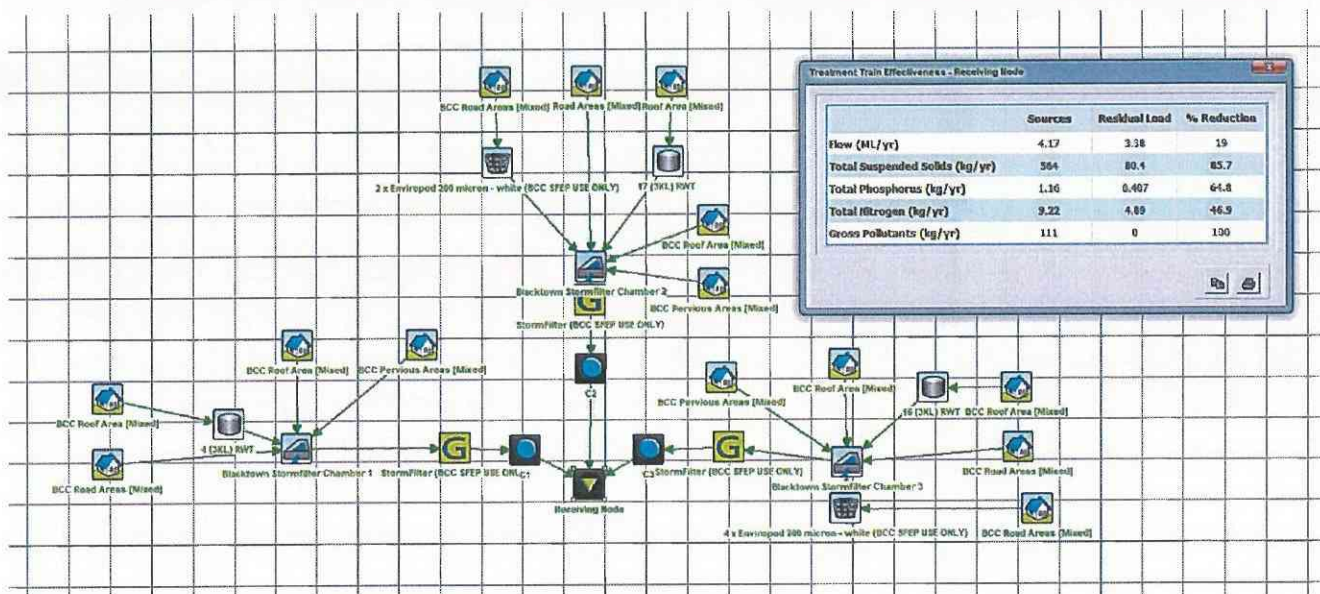


Figure 3.2.3 MUSIC model Layout and Results for Super Lot 8

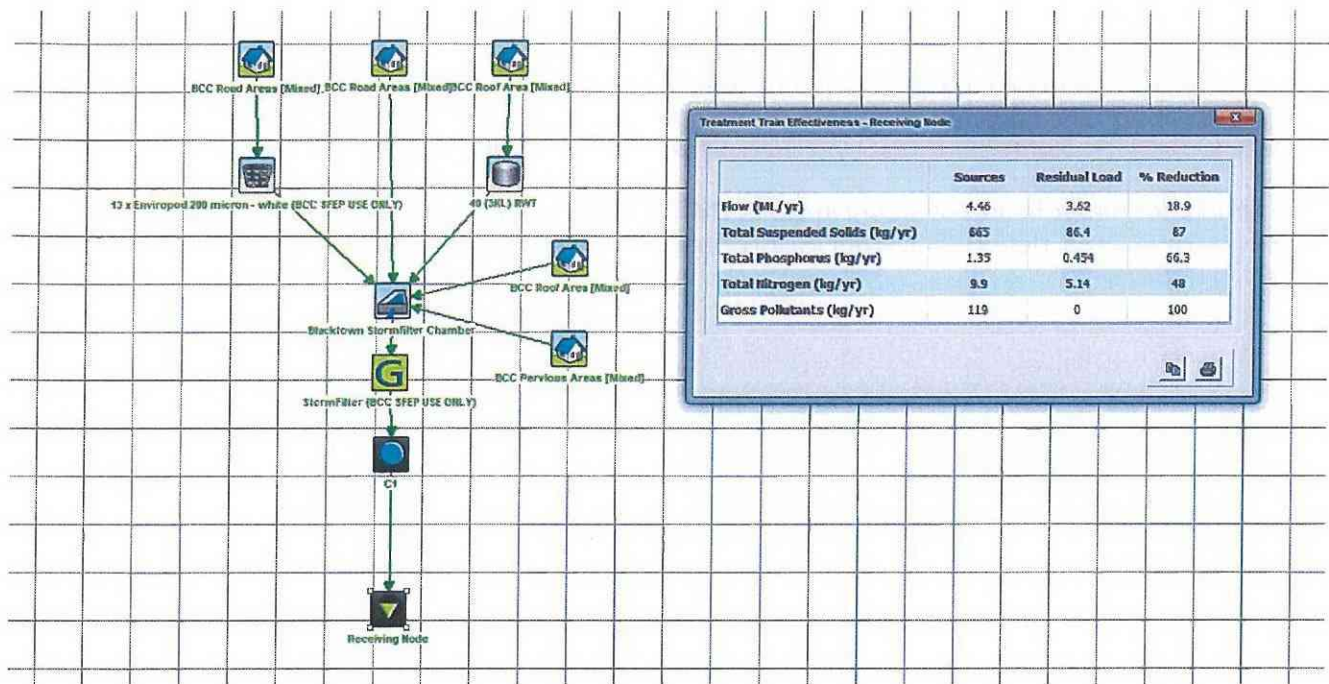


Figure 3.2.4 MUSIC model Layout and Results for Super Lot 10

4 Summary

The results show that there is a significant improvement in the water quality discharging from the site in the post development case. These improvements resulted from the use of a combination of water quality devices such as the Stormfilter tanks, cartridges, Enviropods and the rainwater tanks.

The models demonstrate improvement in water quality leaving the site and water quantity has been approved by council, permanent water quality and temporary water quantity measures comply with Council's requirement.

5 References

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Stormwater 360, 2015, <http://www.stormwater360.com.au/products/stormwater-management/gross-pollutant-traps/prod/enviropod>

APPENDIX A
PROPOSED DEVELOPMENT

BLACKTOWN CITY COUNCIL

PROPOSED RESIDENTIAL DEVELOPMENT

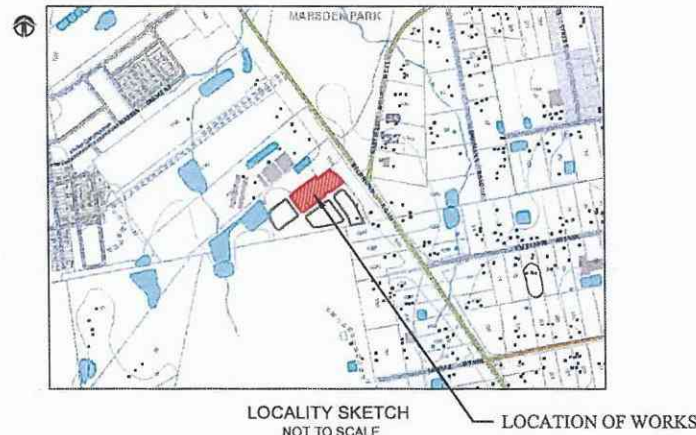
LOT 6, 1086 RICHMOND ROAD, MARSDEN PARK

DRIVEWAY & DRAINAGE PLANS

GENERAL NOTES

- ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL'S WORKS SPECIFICATION CIVIL - 2005 REQUIREMENTS AND/OR AS DIRECTED BY THEIR REPRESENTATIVE.
- THE CONTRACTOR IS TO IDENTIFY, LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION WORKS AND WHERE NECESSARY MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE OR ADJUST WHERE NECESSARY.
- COUNCIL'S TREE PRESERVATION ORDER MUST BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT THE PRIOR APPROVAL OF COUNCIL.
- ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE WORK HEALTH & SAFETY ACT 2011 AND ALL RELEVANT OCCUPATIONAL HEALTH & SAFETY POLICIES AND REGULATIONS.
- DIMENSIONS SHALL NOT BE SCALED FROM THE PLANS. CLARIFICATION OF DIMENSIONS SHALL BE SOUGHT FROM THE SUPERINTENDENT OR REFERRED TO THE DESIGNER.
- SURVEY MARKS SHOWN THIS ▲ SHALL BE MAINTAINED AT ALL TIMES. WHERE RETENTION IS NOT POSSIBLE THE ENGINEER SHALL BE NOTIFIED AND CONSENT RECEIVED PRIOR TO THEIR REMOVAL.
- ALL NEW WORK IS TO MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS.
- THE CONTRACTOR IS NOT TO ENTER UPON NOR DO ANY WORK WITHIN OR ON ADJACENT LANDS WITHOUT THE PRIOR APPROVAL OF THE SUPERINTENDENT AND THE WRITTEN PERMISSION OF THE OWNERS.
- SEDIMENT MEASURES SHALL BE IMPLEMENTED PRIOR TO SOIL DISTURBANCE IN KEEPING WITH THE 4th EDITION OF LANDCOM'S 'SOILS AND CONSTRUCTION - MANAGING URBAN STORMWATER' MARCH 2004 TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE AND AS SHOWN IN THESE DRAWINGS.
- THE CONTRACTOR SHALL CLEAR AND DISPOSE OF ONLY THOSE TREES THAT ARE CONDEMNED BY THE PLANS. COUNCIL'S TREE PRESERVATION ORDER SHALL BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT PRIOR APPROVAL.
- THE CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES, OUTHOUSES, CAR BOOTIES, DEBRIS, ETC. THE CONTRACTOR SHALL NOT DISPOSE OF ANY DEBRIS BY BURNING OFF IN AN OPEN FIRE.
- UNUSABLE MATERIALS AS DETERMINED BY COUNCIL'S REPRESENTATIVE SHALL BE REMOVED FROM ROADS AND LOTS PRIOR TO ANY FILLING.
- ALL SITE REGRADING AREAS SHALL BE GRADED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE. THE CONTRACTOR SHALL TAKE LEVELS ON THE EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING ANY FILL OPERATIONS.
- SURPLUS EXCAVATED MATERIAL SHALL BE PLACED OR DISPOSED OF IN ACCORDANCE WITH THE CONTRACT, OR AS DIRECTED BY THE SUPERINTENDENT.
- ALL SITE FILLING SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm AND COMPACTED IN ACCORDANCE WITH COUNCIL'S SPECIFICATION AND BE TESTED AT THE REQUIRED INTERVALS BY AN APPROVED N.A.T.A. GEOTECHNICAL LABORATORY.
- MINIMUM 150mm THICK TOPSOIL SHALL BE SPREAD ON ALL FOOTPATHS, BERMS, BATTERS AND SITE REGRADING AREAS. EXCESS TOPSOIL SHALL BE DISPOSED OF AS DIRECTED BY THE SUPERINTENDENT.
- ALL LAND DISTURBED BY EARTHWORKS SHALL BE SPRAY GRASSSED, OR SIMILARLY TREATED TO ESTABLISH GRASS COVER. SEED MIXTURES ARE TO BE APPROVED BY COUNCIL PRIOR TO SPRAYING. ALL GRASSSED AREAS SHALL BE REGULARLY WATERED AND MAINTAINED UNTIL EXPIRATION OF THE MAINTENANCE PERIOD.
- THE CONTRACTOR SHALL MAINTAIN DUST CONTROL THROUGHOUT THE DURATION OF THE PROJECT.
- ALL PITS DEEPER THAN 1.2m SHALL HAVE STEP IRONS PROVIDED IN ACCORDANCE WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES THROUGH LOTS SHALL BE CONTAINED WITHIN THEIR EASEMENTS AND CONFORM WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES ON HIGH SIDE AND UNDER ROADS SHALL BE BACKFILLED 50/50 SAND AND HAVE 3.0m OF AGRICULTURAL LINE WRAPPED IN AN APPROVED FILTER FABRIC, DISCHARGING INTO THE DOWNSIDE PIT.
- SUBSOIL DRAINS SHALL BE CONSTRUCTED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE.
- PRECAST KERB INLET LINTELS SHALL BE USED ON GULLY PITS. GRATES SHALL BE "WELDOX" TYPE GG 78-81 OR APPROVED EQUIVALENT.
- PROVIDE VEHICULAR ENTRIES IN KERB AND GUTTER WHERE SHOWN OR WHERE DIRECTED BY THE SUPERINTENDENT.
- GUIDE POSTS SHALL BE 100mm X 50mm HARDWOOD, PAINTED WHITE WITH REFLECTORS.
- ERECT STREET NAME SIGNS, CONDUIT WARNING SIGNS AND NO THROUGH ROAD SIGNS WHERE SHOWN OR WHERE DIRECTED BY COUNCIL'S REPRESENTATIVE.
- CONDUITS SHALL BE LAID AFTER POSITIONS HAVE BEEN DETERMINED BY THE RELEVANT AUTHORITIES AND BEFORE FINAL A.C. IS LAID.
- POSITION OF CONDUITS SHALL BE MARKED ON THE KERB.
- FELLED TREES SHALL BE SALVAGED FOR RE-USE AS WOODCHIP MULCH OR LOG FORM FOR SITE REHABILITATION. NON-SALVAGEABLE MATERIAL SUCH AS STUMPS AND ROOTS SHALL BE DISPOSED OF OFF SITE.
- THE CONTRACTOR SHALL PROVIDE MINIMUM 24 HOURS NOTICE TO COUNCIL'S REPRESENTATIVE FOR ALL INSPECTIONS.
- THE CONTRACTOR SHALL MAINTAIN SERVICES AND ALL WEATHER ACCESS AT ALL TIMES TO THE ADJOINING PROPERTIES.
- THE CONTRACTOR SHALL UNDERTAKE TRAFFIC CONTROL MEASURES TO COUNCIL'S SATISFACTION AND SHALL DISPLAY ALL APPROPRIATE WARNING SIGNS THROUGHOUT THE DURATION OF CONSTRUCTION.
- ALL NATURAL SURFACE DATA HAS BEEN DETERMINED BY TERRAIN MODELLING. ALL CONSTRUCTION SITE WORKS MUST BE CARRIED OUT USING THE BENCH MARKS SHOWN ON THESE DRAWINGS.

Prepared for: THE BATHLA GROUP



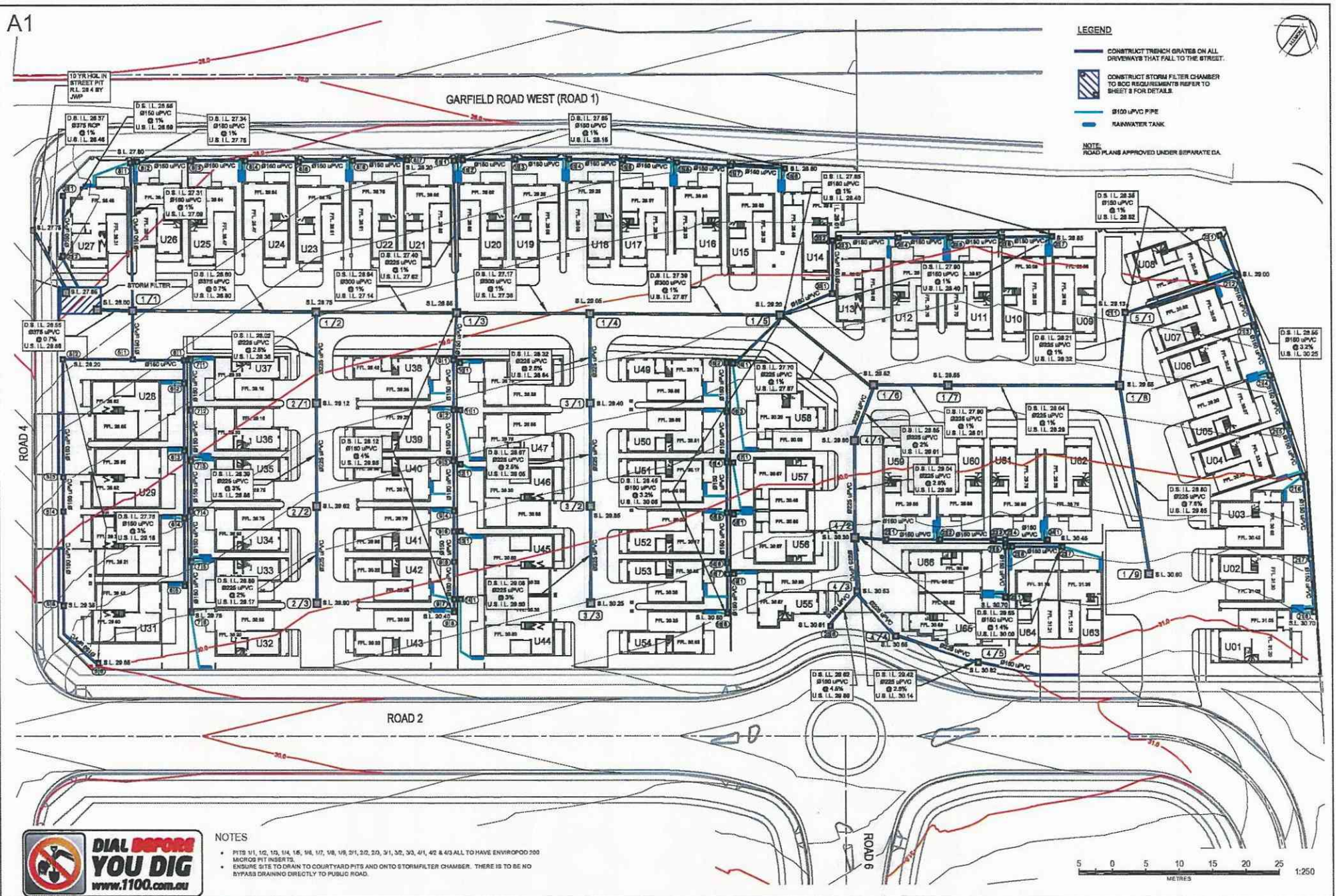
SHEET INDEX

SHEET No.	DESCRIPTION
COVER SHEET	COVER SHEET - GENERAL NOTES, SHEET INDEX AND LEGEND
2	GENERAL ARRANGEMENT PLAN
3	TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS
4	WATER QUALITY CATCHMENT PLAN
5	SOIL AND WATER MANAGEMENT PLAN
6	SOIL AND WATER MANAGEMENT DETAILS

LEGEND

- ROOF DRAINAGE LINE
- PROPOSED DRAINAGE LINE
- EXISTING DRAINAGE LINE
- NATURAL SURFACE CONTOUR
- DESIGN SURFACE CONTOUR
- TABLE DRAIN
- EXISTING HEADWALL
- PROPOSED HEADWALL
- LIMIT OF CONSTRUCTION
- LIMIT OF WORKS
- PIT 1/2 PIT NUMBER
- SUBSOIL DRAINAGE LINE
- GRATED SURFACE INLET PIT
- SEALED PIT
- KERB INLET PIT

A1



NOTES

- PITS U1, U2, U3, U4, U5, U6, U7, U8, U9, U10, U11, U12, U13, U14, U15, U16, U17, U18, U19, U20, U21, U22, U23, U24, U25, U26, U27, U28, U29, U30, U31, U32, U33, U34, U35, U36, U37, U38, U39, U40, U41, U42, U43, U44, U45, U46, U47, U48, U49, U50, U51, U52, U53, U54, U55, U56, U57, U58, U59, U60 ALL TO HAVE ENVIROPOD 200 MICROB PIT INSERTS.
- ENSURE SITE TO DRAIN TO COURTYARD PITS AND ONTO STORMFILTER CHAMBER. THERE IS TO BE NO BYPASS DRAINING DIRECTLY TO PUBLIC ROAD.

NO	DATE	AMENDMENT
A	20/10/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



SYDNEY
P. 02 9869 0205
CENTRAL COAST
P. 02 4355 5554
HUNTER
P. 02 4005 5555
AGM: 28/12/17 OCT 2017
BRS: 28/12/17 OCT 2017
BRS: 28/12/17 OCT 2017



PROPOSED DEVELOPMENT AT LOT 6
1086 RICHMOND ROAD, MARSDEN PARK

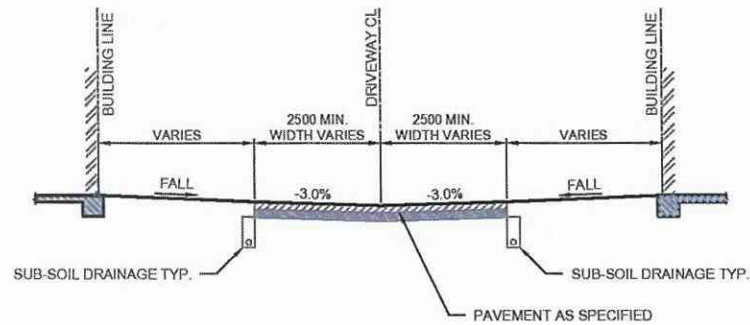
OVERALL SITE PLAN

Designed: AD
Drawn: PMM
Checked: CLJ

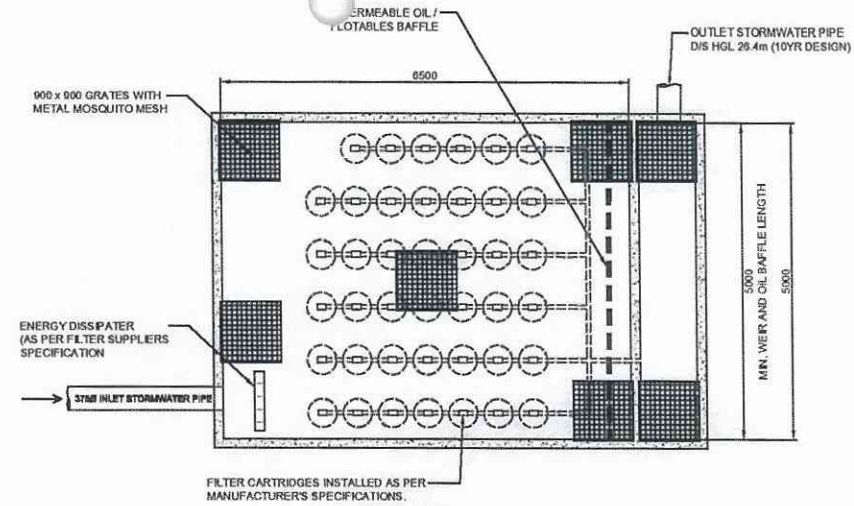
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Horiz. Vert. X-500
Datum: A.H.D.

Plan No.
SY170226C603
File Ref.
SY170226C600-B.dwg
SHEET 3 OF 4 SHEETS
REV
B

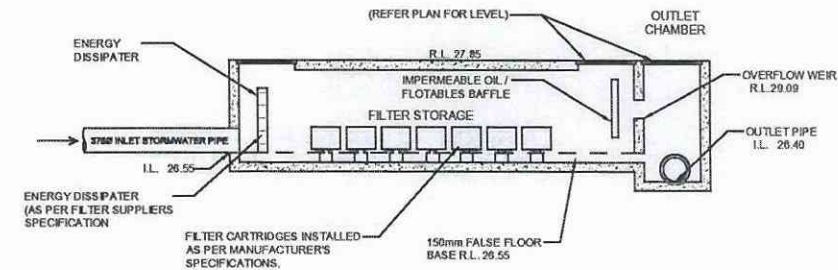
A1



TYPICAL SECTION - DRIVEWAY
NOT TO SCALE



PLAN FILTER STORAGE TANK &
OUTLET CHAMBER
SCALE 1:40



TYPICAL SECTION THROUGH FILTER
STORAGE TANK & OUTLET CHAMBER
SCALE 1:40

WATER QUALITY - LOT 6	
3000L RWT PER UNIT	
STORMFILTER TANK DIMENSIONS	6.5m x 5.0m
NUMBER OF STORMFILTER CARTRIDGES (460mm)	41
NUMBER OF ENVIPODS	18

0.8 0 0.8 1.6 2.4 3.2 4.0
METRES 1:40

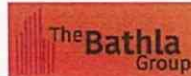


No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



SYDNEY
P. 02 9654 0000
CENTRAL COAST
P. 02 4326 6868
HUNTER
P. 02 4965 9098
ADEL P. 08 134 067 042
NEWCASTLE
P. 02 4965 9098

Client:



PROPOSED DEVELOPMENT AT LOT 6
1086 RICHMOND ROAD, MARSDEN PARK

TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS

Designed: AD
Drawn: PMM
Checked: GJR

Scale: Plan
Horiz.
Vert.
X-Section

Datum: A.H.D.

Plan No.
SY170226C603
File Ref.
SY170226C600-B.dwg
SHEET 3 OF 5 SHEETS
REV. B

A1

GARFIELD ROAD WEST (ROAD 1)

LEGEND

- INTERNAL DRIVEWAY AREA
- EXTERNAL DRIVEWAY AREA
- LANDSCAPE/COURTYARD AREA
- BUILDING ROOF AREA



TOTAL ROOF AREA
=5,370m²
TOTAL LANDSCAPE AREA
=4,382m²
TOTAL INTERNAL DRIVEWAY AREA
=3,376m²
TOTAL EXTERNAL DRIVEWAY AREA
=204m²
TOTAL AREA
=13,332m²

5 0 5 10 15 20 25
METRES 1:250



No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL

**BARKER
RYAN
STEWART**
TOTAL PROJECT SOLUTIONS
PLANNING - PROJECT MANAGEMENT - DESIGN - ENGINEERING - CONSTRUCTION

SYDNEY
P. 02 986 6006
CENTRAL COAST
P. 02 4386 6006
MILKTON
P. 02 4386 6006
ADEL P. 02 4386 6006
BIRMINGHAM
P. 02 4386 6006
MELBOURNE
P. 02 4386 6006

Client:



PROPOSED DEVELOPMENT AT LOT 6
1086 RICHMOND ROAD, MARSDEN PARK

WATER QUALITY CATCHMENT PLAN

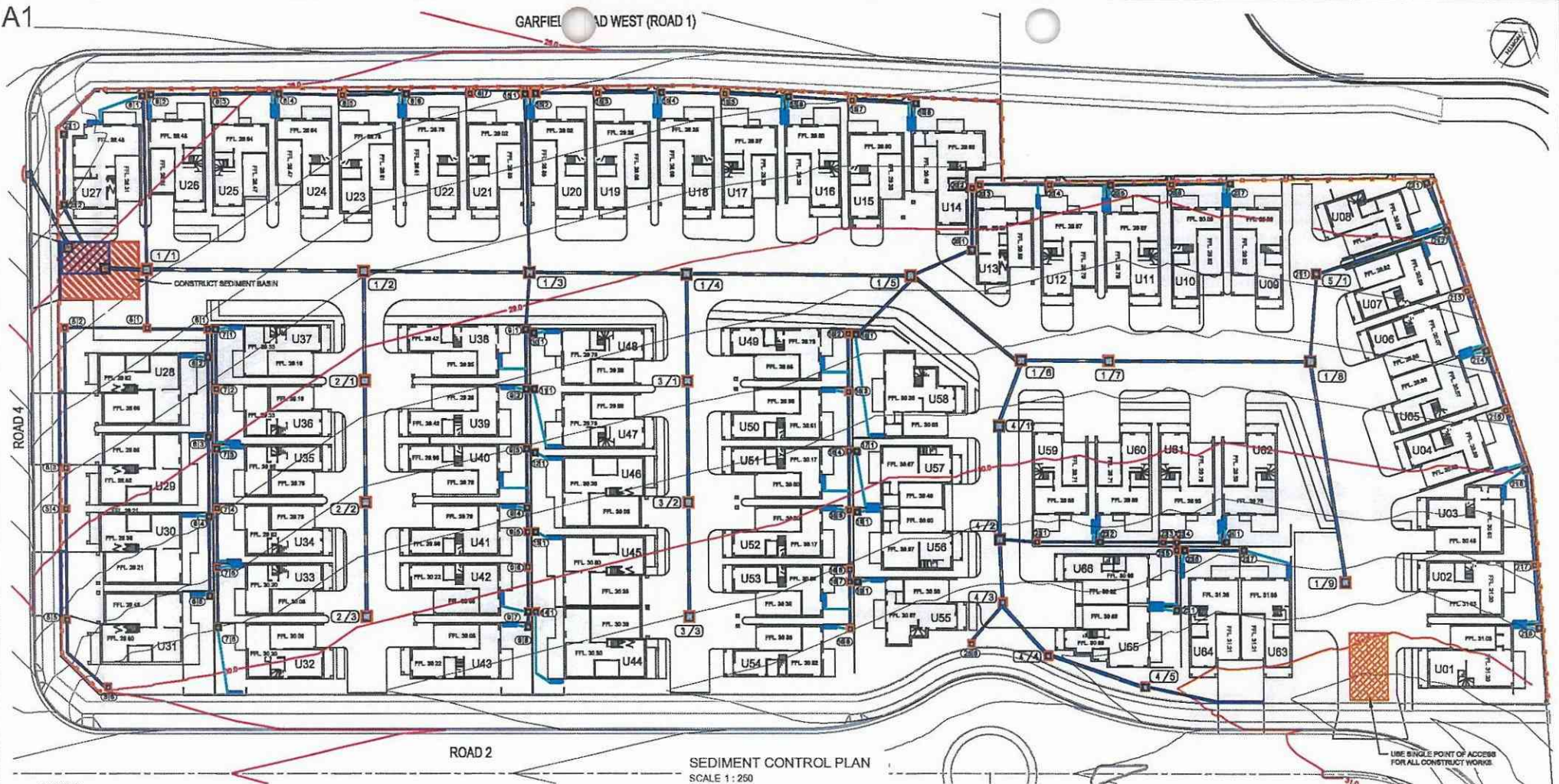
Designed: AD
Drawn: PMA
Checked: GJR

Scale: Plan 1:250
Hort: Veri
X-Sect.
Datum: A.H.D.

Plan No.
SY170226C604
File Ref.
SY170226C600-B.dwg
SHEET 4 OF 6 SHEETS
REV. **B**

A1

GARFIELD ROAD WEST (ROAD 1)



SEDIMENT CONTROL PLAN
SCALE 1:250

LEGEND

- SEDIMENT FENCE
- STABILISED SITE ACCESS AT ENTRANCE TO WORKS
- SURFACE INLET PIT SEDIMENT TRAP
- HAY BALE SEDIMENT TRAP
- INLET 'SAUSAGE' FILTER

EROSION AND SEDIMENTATION CONTROL NOTES

- PRIOR TO THE COMMENCEMENT OF SITE DISTURBANCE, THE CONTRACTOR SHALL ESTABLISH ALL NECESSARY EROSION AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THIS PLAN, COUNCIL'S 'CIVIL WORKS SPECIFICATION, PART 2 - CONSTRUCTION', AND THE NSW DEPARTMENT OF HOUSING'S PUBLICATION 'MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION'.
- THE LOCATION OF EROSION AND SEDIMENTATION CONTROL DEVICES SHOWN ON THIS PLAN ARE INDICATIVE ONLY AND SHOULD BE ADJUSTED TO SUIT SITE CONDITIONS.
- WHERE WORKS ARE DELAYED OR IN ABANDONED AND DISTURBED AREAS ARE LIKELY TO BE EXPOSED FOR A PERIOD OF TWO MONTHS OR MORE, TEMPORARY REHABILITATION WORKS SHALL BE UNDERTAKEN TO PROTECT THE SITE.
- ALL DISTURBED AREAS SHALL BE TOPSOILED, SEEDED AND MULCHED WITHIN 20 DAYS OF THE COMPLETION OF THE WORKS.
- ALL AREAS WITH SLOPES STEEPER THAN 12% (1 IN 8) SHALL BE STRAW MULCHED IN CONJUNCTION WITH SEEDINGS, OR TURFED.
- SILT BARRIERS LOCATED AROUND KERB INLET AND ROAD PITS SHALL BE REINSTATED FOLLOWING ROAD PAVING WORKS IF IT IS LIKELY THAT UNDISTURBED AREAS WILL STILL DRAIN TO THE PIT.
- SANDBAGS SHALL BE PLACED ACROSS THE END OF ROAD CONSTRUCTION AT THE COMPLETION OF EACH DAY'S WORK TO PREVENT EROSION OF THE CONSTRUCTED MATERIAL.
- THE CONTRACTOR SHALL CONDUCT WEEKLY INSPECTIONS OF THE SITE TO ENSURE THAT ALL DEVICES AND REHABILITATION AREAS HAVE BEEN ADEQUATELY MAINTAINED. THE CONTRACTOR SHALL ALSO KEEP A LOG BOOK DETAILING SUCH INSPECTIONS, AND RECORDING RAINFALL EVENTS AND OTHER RELEVANT EVENTS.
- TOPSOIL SHALL BE STOCKPILED IN THE LOCATIONS SHOWN ON THIS PLAN OR AS DIRECTED BY COUNCIL'S ENGINEER. WHERE IT IS LIKELY THAT STOCKPILES WILL REMAIN IN PLACE FOR A PERIOD EXCEEDING 4 WEEKS, THEN THE STOCKPILE SHALL BE STABILISED BY SEEDING OR EQUIVALENT METHODS.
- ALL REVEGETATION WORKS ARE TO BE MAINTAINED, INCLUDING WATERING AND MOWING WHERE NECESSARY UNTIL THE COMPLETION OF THE MAINTENANCE PERIOD.
- THE MOVEMENT OF VEHICULAR TRAFFIC ON THE SITE SHALL BE CONFINED TO DESIGNATED AREAS DURING CONSTRUCTION WORKS. VEHICULAR ACCESS SHALL BE DENIED TO AREAS TO BE LEFT UNDISTURBED.
- SITE ACCESS SHALL BE LIMITED TO THE LOCATIONS SHOWN ON THIS PLAN. SHAKE-DOWN AREAS SHALL BE CONSTRUCTED AS SHOWN.
- DURING CONSTRUCTION WORKS, DUST CONTROL MEASURES SHALL BE IMPLEMENTED TO MINIMISE THE AMOUNT OF DUST GENERATED FROM THE SITE. THESE MEASURES TO BE IMPLEMENTED TO COUNCIL'S SATISFACTION.
- MAINTENANCE AND CLEANING OF CONSTRUCTION PLANT SHALL BE CARRIED OUT IN AN AREA WHERE RUNOFF CAN BE CONTAINED AND APPROPRIATELY TREATED AND DISPOSED OF.
- ALL EROSION AND SEDIMENTATION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE ADEQUATELY REGENERATED. THIS STAGE SHALL BE DETERMINED BY THE CERTIFIER.

5 0 5 10 15 20 25 1:250
METRES



No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL

**BARKER
RYAN
STEWART**
TOTAL PROJECT SOLUTIONS
BARKER RYAN STEWART PTY LTD
10/100 WILSON ROAD, MARS DEN PARK, NSW 2755
TEL: 02 9255 0000
WWW.BARKER-RYAN-STEWARD.COM.AU

SYDNEY
P.O. BOX 999
CENTRAL COAST
P.O. BOX 608
HUNTER
P.O. BOX 608
ADEL: 08 134 007 340
WWW.BARKER-RYAN-STEWARD.COM.AU

Client:

The Bathla Group

PROPOSED DEVELOPMENT AT LOT 6
1086 RICHMOND ROAD, MARSDEN PARK

SOIL AND WATER MANAGEMENT PLAN

Designed: AD
Drawn: PAM
Checked: GJR

Scale: Plan 1:250
Horiz. Vert. X-Sect.
Datum: A.H.D.

Plan No.
ST170226C605
File Ref.
SY170226C600-B.dwg
SHEET 5 OF 8 SHEETS
REV. B


BLACKTOWN CITY COUNCIL

PROPOSED RESIDENTIAL DEVELOPMENT

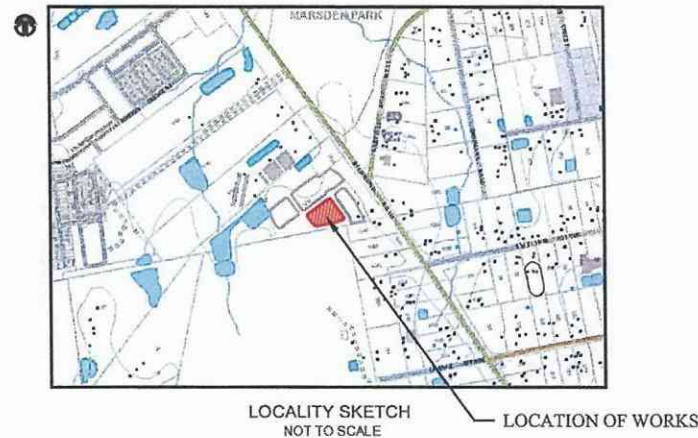
LOT 7, 1086 RICHMOND ROAD, MARSDEN PARK

DRIVEWAY & DRAINAGE PLANS

GENERAL NOTES

- ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL'S WORKS SPECIFICATION CIVIL - 2005 REQUIREMENTS AND/OR AS DIRECTED BY THEIR REPRESENTATIVE.
- THE CONTRACTOR IS TO IDENTIFY, LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION WORKS AND WHERE NECESSARY MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE OR ADJUST WHERE NECESSARY.
- COUNCIL'S TREE PRESERVATION ORDER MUST BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT THE PRIOR APPROVAL OF COUNCIL.
- ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE WORK HEALTH & SAFETY ACT 2011 AND ALL RELEVANT OCCUPATIONAL HEALTH & SAFETY POLICIES AND REGULATIONS.
- DIMENSIONS SHALL NOT BE SCALED FROM THE PLANS. CLARIFICATION OF DIMENSIONS SHALL BE SOUGHT FROM THE SUPERINTENDENT OR REFERRED TO THE DESIGNER.
- SURVEY MARKS SHOWN THUS  SHALL BE MAINTAINED AT ALL TIMES WHERE RETENTION IS NOT POSSIBLE. THE ENGINEER SHALL BE NOTIFIED AND CONSENT RECEIVED PRIOR TO THEIR REMOVAL.
- ALL NEW WORK IS TO MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS.
- THE CONTRACTOR IS NOT TO ENTER UPON NOR DO ANY WORK WITHIN OR ON ADJACENT LANDS WITHOUT THE PRIOR APPROVAL OF THE SUPERINTENDENT AND THE WRITTEN PERMISSION OF THE OWNERS.
- SEDIMENT MEASURES SHALL BE IMPLEMENTED PRIOR TO SOIL DISTURBANCE IN KEEPING WITH THE 4th EDITION OF LANDCOMB'S SOILS AND CONSTRUCTION - MANAGING URBAN STORMWATER MARCH 2004 TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE AND AS SHOWN IN THESE DRAWINGS.
- THE CONTRACTOR SHALL CLEAR AND DISPOSE OF ONLY THOSE TREES THAT ARE CONDEMNED BY THE PLANS. COUNCIL'S TREE PRESERVATION ORDER SHALL BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT PRIOR APPROVAL.
- THE CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES, OUT HOUSES, CAR BOOTIES, DEBRIS, ETC. THE CONTRACTOR SHALL NOT DISPOSE OF ANY DEBRIS BY BURNING OFF IN AN OPEN FIRE.
- UNSOUND MATERIALS AS DETERMINED BY COUNCIL'S REPRESENTATIVE SHALL BE REMOVED FROM ROADS AND LOTS PRIOR TO ANY FILLING.
- ALL SITE REGRADING AREAS SHALL BE GRADED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE. THE CONTRACTOR SHALL TAKE LEVELS ON THE EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING ANY FILL OPERATIONS.
- SURPLUS EXCAVATED MATERIAL SHALL BE PLACED OR DISPOSED OF IN ACCORDANCE WITH THE CONTRACT, OR AS DIRECTED BY THE SUPERINTENDENT.
- ALL SITE FILLING SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm AND COMPACTED IN ACCORDANCE WITH COUNCIL'S SPECIFICATION AND BE TESTED AT THE REQUIRED INTERVALS BY AN APPROVED NATAA GEOTECHNICAL LABORATORY.
- MINIMUM 150mm THICK TOPSOIL SHALL BE SPREAD ON ALL FOOTPATHS, BERMS, BATTERS AND SITE REGRADING AREAS. EXCESS TOPSOIL SHALL BE DISPOSED OF AS DIRECTED BY THE SUPERINTENDENT.
- ALL LAND DISTURBED BY EARTHWORKS SHALL BE SPRAY-GRASSED, OR SIMILARLY TREATED TO ESTABLISH GRASS COVER. SEED MIXTURES ARE TO BE APPROVED BY COUNCIL PRIOR TO SPRAYING. ALL GRASSED AREAS SHALL BE REGULARLY WATERED AND MAINTAINED UNTIL EXPIRATION OF THE MAINTENANCE PERIOD.
- THE CONTRACTOR SHALL MAINTAIN DUST CONTROL THROUGHOUT THE DURATION OF THE PROJECT.
- ALL PITS DEEPER THAN 1.2m SHALL HAVE STEP IRONS PROVIDED IN ACCORDANCE WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES THROUGH LOTS SHALL BE CONTAINED WITHIN THEIR EASEMENTS AND CONFORM WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES ON HIGH SIDE AND UNDER ROADS SHALL BE BACKFILLED SHARP SAND AND HAVE 3.0m OF AGRICULTURAL LINE WRAPPED IN AN APPROVED FILTER FABRIC, DISCHARGING INTO THE DOWNSTREAM PIT.
- SUBSOIL DRAINS SHALL BE CONSTRUCTED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE.
- PRECAST KERB INLET LINTELS SHALL BE USED ON GULLY PITS. GRATES SHALL BE "WELDON" TYPE GG 18-41 OR APPROVED EQUIVALENT.
- PROVIDE VEHICULAR ENTRIES IN KERB AND GUTTER WHERE SHOWN OR WHERE DIRECTED BY THE SUPERINTENDENT.
- GUIDE POSTS SHALL BE 100mm X 50mm HARDWOOD, PAINTED WHITE WITH REFLECTORS.
- ERECT STREET NAME SIGNS, CONDUIT WARNING SIGNS AND NO THROUGH ROAD SIGNS WHERE SHOWN OR WHERE DIRECTED BY COUNCIL'S REPRESENTATIVE.
- CONDUITS SHALL BE LAID AFTER POSITIONS HAVE BEEN DETERMINED BY THE RELEVANT AUTHORITIES AND BEFORE FINAL A.C. IS LAID.
- POSITION OF CONDUITS SHALL BE MARKED ON THE KERB.
- FELLED TREES SHALL BE SALVAGED FOR RE-USE AS WOODCHIP MULCH OR LOG FORM FOR SITE REHABILITATION. NON-SALVAGEABLE MATERIAL SUCH AS STUMPS AND ROOTS SHALL BE DISPOSED OF OFF SITE.
- THE CONTRACTOR SHALL PROVIDE MINIMUM 24 HOURS NOTICE TO COUNCIL'S REPRESENTATIVE FOR ALL INSPECTIONS.
- THE CONTRACTOR SHALL MAINTAIN SERVICES AND ALL WEATHER ACCESS AT ALL TIMES TO THE ADJOINING PROPERTIES.
- THE CONTRACTOR SHALL UNDERTAKE TRAFFIC CONTROL MEASURES TO COUNCIL'S SATISFACTION AND SHALL DISPLAY ALL APPROPRIATE WARNING SIGNS THROUGHOUT THE DURATION OF CONSTRUCTION.
- ALL NATURAL SURFACE DATA HAS BEEN DETERMINED BY TERRAIN MODELING. ALL CONSTRUCTION SITE WORKS MUST BE CARRIED OUT USING THE BENCH MARKS SHOWN ON THESE DRAWINGS.


Prepared for: THE BATHLA GROUP

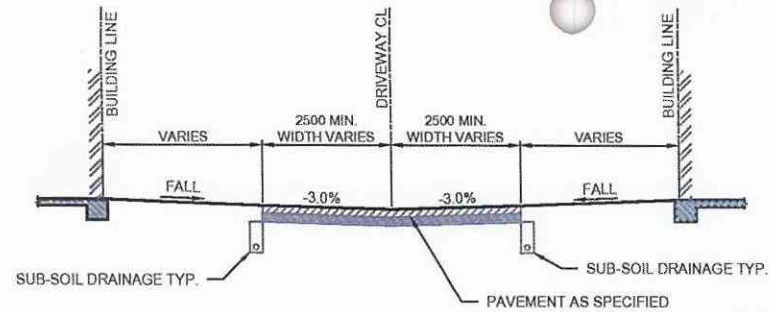


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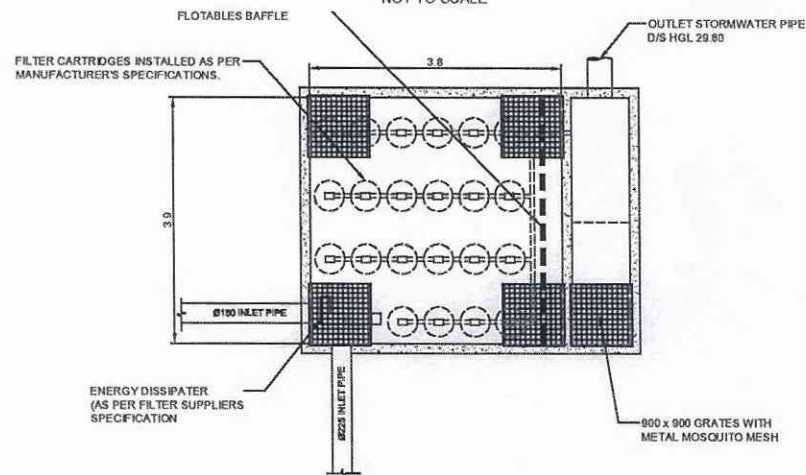
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COVER SHEET	COVER SHEET - GENERAL NOTES, SHEET INDEX AND LEGEND
2	GENERAL ARRANGEMENT PLAN
3	TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS
4	WATER QUALITY CATCHMENT PLAN
5	SOIL AND WATER MANAGEMENT PLAN
6	SOIL AND WATER MANAGEMENT DETAILS

LEGEND

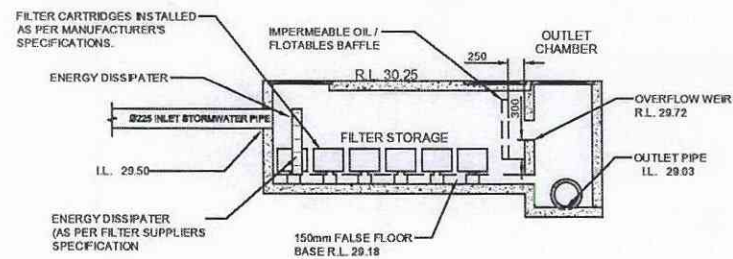
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	PROPOSED DRAINAGE LINE
	EXISTING DRAINAGE LINE
	NATURAL SURFACE CONTOUR
	DESIGN SURFACE CONTOUR
	TABLE DRAIN
	EXISTING HEADWALL
	PROPOSED HEADWALL
	LIMIT OF CONSTRUCTION
	PIT NUMBER
	SUBSOIL DRAINAGE LINE
	GRADED SURFACE INLET PIT
	SEALED PIT
	KERB INLET PIT



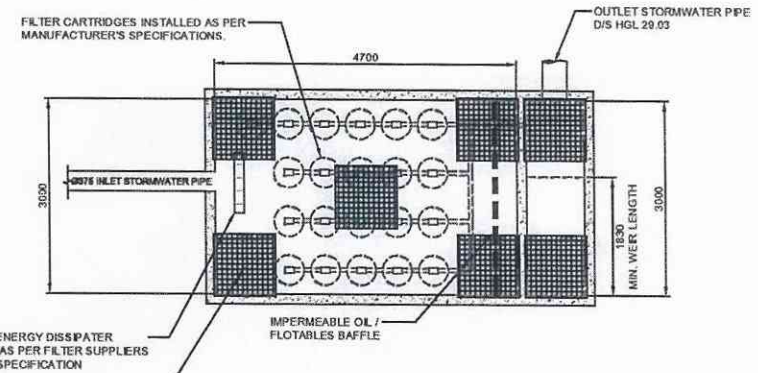
TYPICAL SECTION - DRIVEWAY
NOT TO SCALE



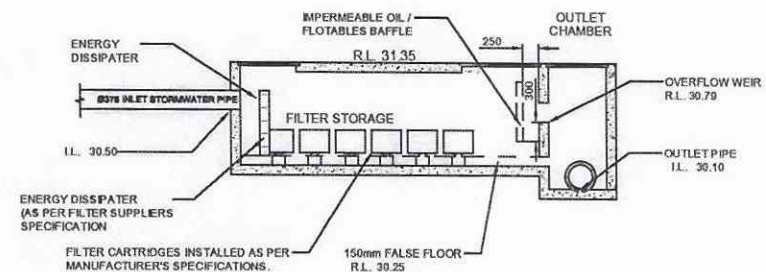
PLAN FILTER STORAGE TANK &
OUTLET CHAMBER C2
SCALE 1:40



TYPICAL SECTION THROUGH FILTER
STORAGE TANK & OUTLET CHAMBER C2
SCALE 1:40



PLAN FILTER STORAGE TANK &
OUTLET CHAMBER C1
SCALE 1:40



TYPICAL SECTION THROUGH FILTER
STORAGE TANK & OUTLET CHAMBER C1
SCALE 1:40

WATER QUALITY - LOT 7	
3000L RWT PER UNIT	
C1 - (UNITS 1 - 14, 31 - 42)	
STORM FILTER TANK DIMENSIONS	3.9m x 3.8m
NUMBER OF STORMFILTER CARTRIDGES (460mm)	22
C2 - (UNITS 15 - 30, 43 - 48)	
STORM FILTER TANK DIMENSIONS	4.7m x 3.0m
NUMBER OF STORMFILTER CARTRIDGES (460mm)	21
NUMBER OF ENVIROPODS	5



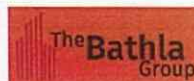
No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/05/18	ISSUE FOR APPROVAL



TOTAL PROJECT SOLUTIONS
PLANNING - PROJECT MANAGEMENT - SURVEYING - DESIGN

SYDNEY
P 02 9668 0205
CENTRAL COAST
P 02 4355 6255
HUNTER
P 02 4355 6255
ADEL 26 134 067 940
NEW SOUTH WALES
M 08 9271 1611
mail@trn.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 7
1086 RICHMOND ROAD, MARSDEN PARK

TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS

Designed: AD
Drawn: P.M.B.
Checked: G.J.R.

Scales: Plan
Horiz.
Vert.
X-Section

Datum: A.H.D.

Plan No.
SY170226C703

File Ref.
SY170226C700-B.dwg
SHEET 3 OF 6 SHEETS

REV.
B

A1

ROAD 2

CHAMBER C1

LOT 7b
AREA 4094m²LOT 7a
AREA 3987m²

CHAMBER C2

ROAD 4

ROAD 6

LEGEND

- INTERNAL DRIVEWAY AREA
- EXTERNAL DRIVEWAY AREA
- LANDSCAPE/COURTYARD AREA
- BUILDING ROOF AREA

CHAMBER C1

TOTAL ROOF AREA
= 2,036m²
TOTAL LANDSCAPE AREA
= 1,760m²
TOTAL INTERNAL DRIVEWAY AREA
= NONE
TOTAL EXTERNAL DRIVEWAY AREA
= 298m²
TOTAL AREA
= 4,094m²

CHAMBER C2

TOTAL ROOF AREA
= 1,544m²
TOTAL LANDSCAPE AREA
= 1,295m²
TOTAL INTERNAL DRIVEWAY AREA
= 880m²
TOTAL EXTERNAL DRIVEWAY AREA
= 268m²
TOTAL AREA
= 3,987m²



No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL

**BARKER
RYAN
STEWART**

TOTAL PROJECT SOLUTIONS
P/L
1100 PROJECT MANAGEMENT - DESIGN & CONSTRUCTION

SYDNEY
P.O. BOX 2005
CENTRAL COAST
P.O. BOX 5205
HASTINGS
P.O. BOX 5205
ARL 26 154 057 642
barker@barker-ryan-stewart.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 7
1086 RICHMOND ROAD, MARSDEN PARK

WATER QUALITY CATCHMENT PLAN

Designed: AD
Drawn: PNM
Checked: GJR

Scale: Plan 1:250
Horiz. Vert. X-Sect.

Datum: A.H.D.

Plan No.
SY170226C704

File Ref.
SY170226C700-B.dwg
SHEET 4 OF 6 SHEETS

REV.
B

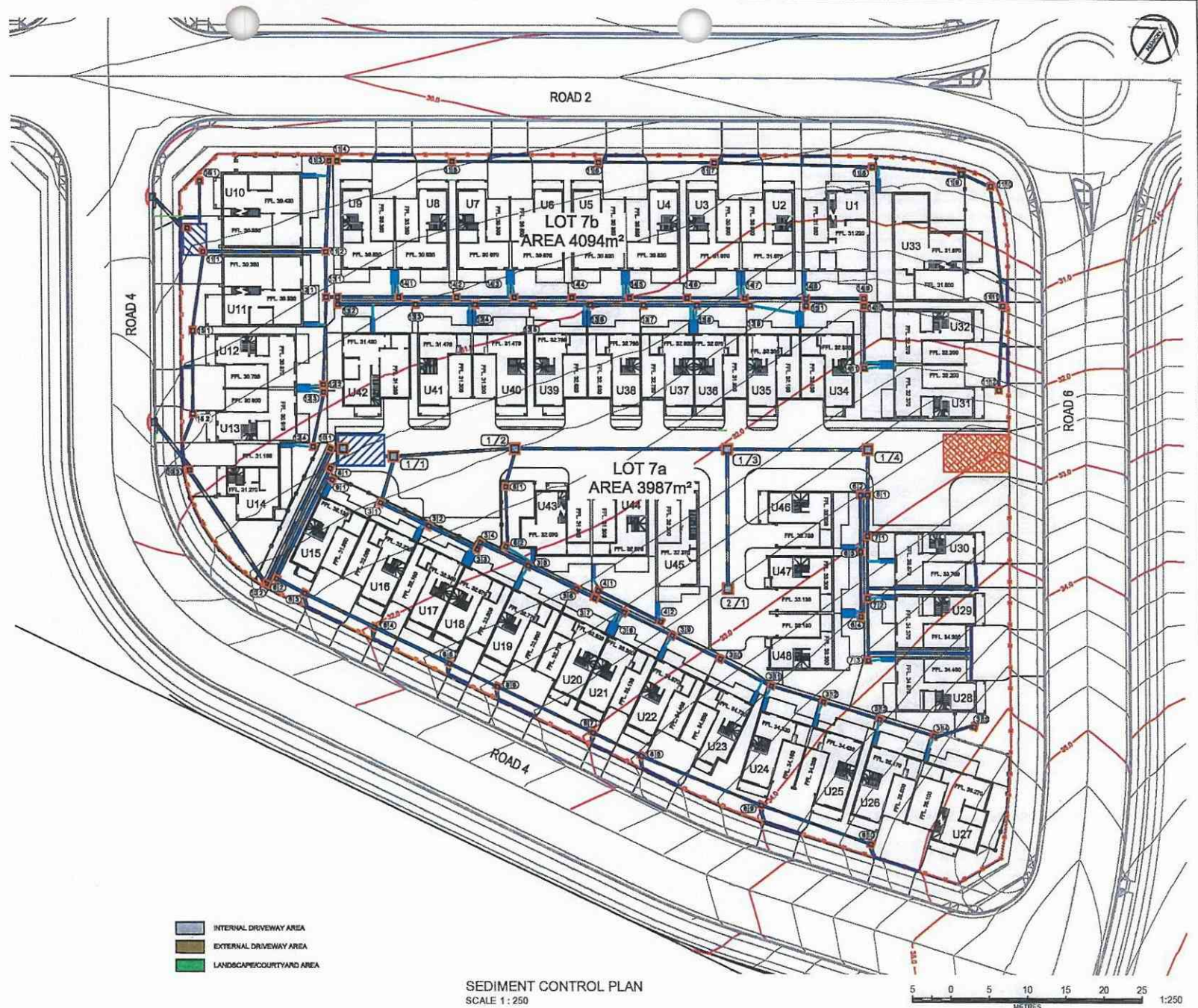
0 5 10 15 20 25 1:250
METRES

LEGEND

- SEDIMENT FENCE
- STABILISED SITE ACCESS AT ENTRANCE TO WORKS
- SURFACE INLET PIT SEDIMENT TRAP
- HAY BALE SEDIMENT TRAP
- INLET 'SAUSAGE' FILTER

EROSION AND SEDIMENTATION CONTROL NOTES

- PRIOR TO THE COMMENCEMENT OF SITE DISTURBANCE, THE CONTRACTOR SHALL ESTABLISH ALL NECESSARY EROSION AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THIS PLAN, COUNCIL'S CIVIL WORKS SPECIFICATION, PART 2 'CONSTRUCTION', AND THE NEW DEPARTMENT OF HOUSING'S PUBLICATION 'MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION'.
- THE LOCATION OF EROSION AND SEDIMENTATION CONTROL DEVICES SHOWN ON THIS PLAN ARE INDICATIVE ONLY AND SHOULD BE ADJUSTED TO SUIT SITE CONDITIONS.
- WHERE WORKS ARE DELAYED OR IN ABEYANCE AND DISTURBED AREAS ARE LIKELY TO BE EXPOSED FOR A PERIOD OF TWO MONTHS OR MORE, TEMPORARY REHABILITATION WORKS SHALL BE UNDERTAKEN TO PROTECT THE SITE.
- ALL DISTURBED AREAS SHALL BE TOPSOILED, SEEDED AND MULCHED WITHIN 20 DAYS OF THE COMPLETION OF THE WORKS.
- ALL AREAS WITH SLOPES STEEPER THAN 12% (1 in 8) SHALL BE STRAW MULCHED IN CONJUNCTION WITH SEEDING, OR TURFED.
- SILT BARRIERS LOCATED AROUND KERB INLET AND ROAD PITS SHALL BE REINSTATED FOLLOWING ROAD PAVING WORKS IF IT IS LIKELY THAT UNDISTURBED AREAS WILL STILL DRAIN TO THE PIT.
- SANDBAGS SHALL BE PLACED ACROSS THE END OF ROAD CONSTRUCTION AT THE COMPLETION OF EACH DAY'S WORK TO PREVENT EROSION OF THE CONSTRUCTED MATERIAL.
- THE CONTRACTOR SHALL CONDUCT WEEKLY INSPECTIONS OF THE SITE TO ENSURE THAT ALL DEVICES AND REHABILITATION AREAS HAVE BEEN ADEQUATELY MAINTAINED. THE CONTRACTOR SHALL ALSO KEEP A LOG BOOK DETAILING SUCH INSPECTIONS, AND RECORDING RAINFALL EVENTS AND OTHER RELEVANT EVENTS.
- TOPSOIL SHALL BE STOCKPILED IN THE LOCATIONS SHOWN ON THIS PLAN OR AS DIRECTED BY COUNCIL'S ENGINEER, WHERE IT IS LIKELY THAT STOCKPILES WILL REMAIN IN PLACE FOR A PERIOD EXCEEDING 4 WEEKS, THEN THE STOCKPILE SHALL BE STABILISED BY SEEDING OR EQUIVALENT METHODS.
- ALL REVEGETATION WORKS ARE TO BE MAINTAINED, INCLUDING WATERING AND MOWING WHERE NECESSARY UNTIL THE COMPLETION OF THE MAINTENANCE PERIOD.
- THE MOVEMENT OF VEHICULAR TRAFFIC ON THE SITE SHALL BE CONFINED TO DESIGNATED AREAS DURING CONSTRUCTION WORKS. VEHICULAR ACCESS SHALL BE DENIED TO AREAS TO BE LEFT UNDISTURBED.
- SITE ACCESS SHALL BE LIMITED TO THE LOCATIONS SHOWN ON THIS PLAN. SHAKE-DOWN AREAS SHALL BE CONSTRUCTED AS SHOWN.
- DURING CONSTRUCTION WORKS, DUST CONTROL MEASURES SHALL BE IMPLEMENTED TO MINIMISE THE AMOUNT OF DUST GENERATED FROM THE SITE. THESE MEASURES TO BE IMPLEMENTED TO COUNCIL'S SATISFACTION.
- MAINTENANCE AND CLEANING OF CONSTRUCTION PLANT SHALL BE CARRIED OUT IN AN AREA WHERE RUNOFF CAN BE CONTAINED AND APPROPRIATELY TREATED AND DISPOSED OF.
- ALL EROSION AND SEDIMENTATION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE ADEQUATELY REGENERATED. THIS STAGE SHALL BE DETERMINED BY THE CERTIFIER.



- INTERNAL DRIVEWAY AREA
- EXTERNAL DRIVEWAY AREA
- LANDSCAPE/COURTYARD AREA

SEDIMENT CONTROL PLAN
SCALE 1 : 250

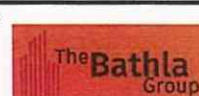


No.	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



SYDNEY
P. 02 9658 0000
CENTRAL COAST
P. 02 4305 0050
HUNTER
P. 02 4968 0000
ADEL P. 08 1241 0070
BIRKBECK
P. 08 9391 0000

Client:



PROPOSED DEVELOPMENT AT LOT 7
1086 RICHMOND ROAD, MARSDEN PARK

SOIL AND WATER MANAGEMENT PLAN

Designed: AD
Drawn: PAM
Checked: GJR

Scales: Plan 1 : 250
HORIZ. X-SECT.
Datum: A.H.D.

Plan No.
SY170226C705
File Ref.
SY170226C700-B.dwg
SHEET 6 OF 6 SHEETS

REV.

B

1. WHERE POSSIBLE LOCATE STOCKPILE AT LEAST 5 METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOWS, ROADS, HAZARD AREAS AND MIN. 1.5m AWAY FROM EMBANKMENTS.

2. CONSTRUCT ON THE CONTOUR AS A LOW, FLAT ELONGATED MOUND.
3. WHERE THERE IS SUFFICIENT AREA TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. REHABILITATE IN ACCORDANCE WITH THE SWAMP/SCP.
5. CONSTRUCT EARTH BANK (STANDARD DRAWING 5-8) ON THE UPSLOPE SIDE TO DIVERT RUN OFF AROUND THE STOCKPILE AND A SEDIMENT FENCE (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE OF STOCKPILE.

The diagram illustrates a drop inlet system. On the left, runoff water with sediment flows over a buried fabric. This fabric is connected to a vertical pipe structure supported by stakes. The water passes through a geotextile filter fabric, which is also supported by stakes, and is then collected in a drop inlet with a grate on the right. Labels include: GEOTEXTILE FILTER FABRIC, STAKES, RUNOFF WATER WITH SEDIMENT, BURIED FABRIC, FILTERED WATER, and DROP INLET WITH GRATE.

Diagram illustrating the construction of a straw bale check dam. The dam is built across a channel, with stakes driven 0.8m into the ground. The first stake is angled towards the previously laid straw bale. The dam is 0.1m deep. The area upstream is labeled 'DISTURBED AREA' and the area downstream is labeled 'UNDISTURBED AREA'. The flow direction is indicated by an arrow labeled 'DIRECTION OF FLOW'. Text above the dam specifies: 'DRAINAGE AREA 0.4 ha MAX. SLOPE GRADIENT 1:2 MAX. SLOPE LENGTH 40m MAX.'

Diagram illustrating a cross-section of a road surface. A gravel-filled wedge-shaped structure is shown, labeled "KERB OUTLET" and "GRAVEL-FILLED WEDGE OR GEOTEXTILE 'SAUS'".

1. FABRICATE A BLEVEE MADE FROM GEOTEXTILE OR WIRE MESH AND FILL IT WITH 25mm TO 50mm GRAVEL.
2. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 180mm HIGH X 400mm WIDE.
3. FORM A SEAL WITH THE KERBS TO PREVENT SEDIMENT BYPASSING FILTER.
4. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ADJUT EACH OTHER AND SEDIMENT-LOADED WATERS CANNOT PASS BETWEEN.

The diagram illustrates a hayrack layout. It features a red line labeled 'PROPERTY BOUNDARY' and 'SALE FENCE'. A '2.5m' dimension is shown for the 'CATCH CHAIN'. A '2000mm MAX. CHUTE' is indicated for the hayrack. Hay bales are shown being loaded into the rack.

CRUSHED ROCK OUTLET TO HALF THE HEIGHT OF BALES

STRAW BALES STAKED TO GROUND (REFER TO STRAW BALE DETAIL)

NOTE:

1. FLOCCULATION TO BE USED IF WATER IS NOT CLEARER SEDIMENT GREATER THAN 50 mg/L PRIOR TO DISCHARGING FROM TEMPORARY PUMP OUT
2. FOR RATES & AGENTS SEE APPENDIX E OF HOUSING NSW "MANAGING URBAN SW SOILS & CONSTRUCTION"

Diagram illustrating a cross-section of a kerb and gutter system. The diagram shows a concrete kerb on the left, a gravel-filled wire mesh or geotextile 'saus' (labeled 'GRAVEL FILLED WIRE MESH OR GEOTEXTILE SAUS') supporting the gutter, and a timber spacer (labeled 'TIMBER SPACER TO SUIT') positioned above the gutter. A kerb-side inlet is also indicated.

MESH & GRAVEL INLET "SAUSAGE" FILTER

1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.

2. DRIVE 1.5m LONG STAKE POCKETS INTO GROUND 2.5 METRES APART (MAX.)
3. DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

1. STRIP TOPSOIL AND LEVEL SITE.
2. COMPACT SUBGRADE.
3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
4. CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROADBASE OR 300mm AGGREGATE. MINIMUM LENGTH 15 METRES OR TO BUILDING ALIGNMENT; MINIMUM WIDTH 3 METRES.
5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR OTHER SEDIMENT TRAP.

STABILISED SITE ACCESS



PROPOSED DEVELOPMENT AT LOT 7
1086 RICHMOND ROAD, MARSDEN PARK

SOIL AND WATER MANAGEMENT DETAILS

No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



**BARKER
RYAN
STEWART**

TOTAL PROJECT SOLUTIONS
 A Division of The McGraw-Hill Companies

SYDNEY
P: 02 955 9 0005
CENTRAL COAST
P: 02 4365 6255
HUNTER
P: 02 4966 6058
ABN 25 124 067 542
Box 6871
mail@the-press.com.au

Client:



Designed:	AD
Drawn:	PMM
Checked:	GJR

Section: Plan
Horiz.
Vert.
X- Sect.

Debut:	A.H.D.
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Plan No.
SY170226C706

File Ref.
SY170226C700-B.dwg
SHEET 8 OF 8 SHEET

REV
B

BLACKTOWN CITY COUNCIL

PROPOSED RESIDENTIAL DEVELOPMENT

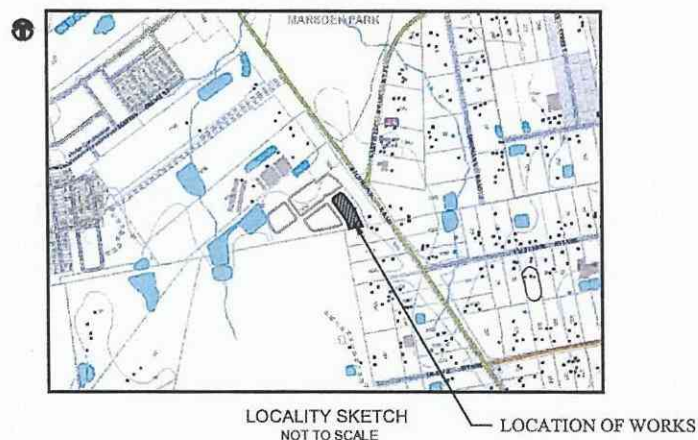
LOT 8, 1086 RICHMOND ROAD, MARSDEN PARK

DRIVEWAY & DRAINAGE PLANS

GENERAL NOTES

- ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL'S WORKS SPECIFICATION CIVIL - 2005 REQUIREMENTS AND/OR AS DIRECTED BY THEIR REPRESENTATIVE.
- THE CONTRACTOR IS TO IDENTIFY, LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION WORKS AND WHERE NECESSARY MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE OR ADJUST WHERE NECESSARY.
- COUNCIL'S TREE PRESERVATION ORDER MUST BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT THE PRIOR APPROVAL OF COUNCIL.
- ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE WORK HEALTH & SAFETY ACT 2011 AND ALL RELEVANT OCCUPATIONAL HEALTH & SAFETY POLICIES AND REGULATIONS.
- DIMENSIONS SHALL NOT BE SCALED FROM THE PLANS. CLARIFICATION OF DIMENSIONS SHALL BE SOUGHT FROM THE SUPERINTENDENT OR REFERRED TO THE DESIGNER.
- SURVEY MARKS SHOWN THUS Δ SHALL BE MAINTAINED AT ALL TIMES. WHERE RETENTION IS NOT POSSIBLE THE ENGINEER SHALL BE NOTIFIED AND CONSENT RECEIVED PRIOR TO THEIR REMOVAL.
- ALL NEW WORK IS TO MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS.
- THE CONTRACTOR IS NOT TO ENTER UPON NOR DO ANY WORK WITHIN OR ON ADJACENT LANDS WITHOUT THE PRIOR APPROVAL OF THE SUPERINTENDENT AND THE WRITTEN PERMISSION OF THE OWNERS.
- SEDIMENT MEASURES SHALL BE IMPLEMENTED PRIOR TO SOIL DISTURBANCE IN KEEPING WITH THE 4th EDITION OF LANDCOM'S SOILS AND CONSTRUCTION - MANAGING URBAN STORMWATER MARCH 2004 TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE AND AS SHOWN IN THESE DRAWINGS.
- THE CONTRACTOR SHALL CLEAR AND DISPOSE OF ONLY THOSE TREES THAT ARE CONDEMNED BY THE PLANS. COUNCIL'S TREE PRESERVATION ORDER SHALL BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT PRIOR APPROVAL.
- THE CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES, OUTHOUSES, CAR BOOTIES, DEBRIS, ETC. THE CONTRACTOR SHALL NOT DISPOSE OF ANY DEBRIS BY BURNING OFF IN AN OPEN FIRE.
- UNDESIRABLE MATERIALS AS DETERMINED BY COUNCIL'S REPRESENTATIVE SHALL BE REMOVED FROM ROADS AND LOTS PRIOR TO ANY FILLING.
- ALL SITE REGRADING AREAS SHALL BE GRADED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE. THE CONTRACTOR SHALL TAKE LEVELS ON THE EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING ANY FILL OPERATIONS.
- SURPLUS EXCAVATED MATERIAL SHALL BE PLACED OR DISPOSED OF IN ACCORDANCE WITH THE CONTRACT, OR AS DIRECTED BY THE SUPERINTENDENT.
- ALL SITE FILLING SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm AND COMPACTED IN ACCORDANCE WITH COUNCIL'S SPECIFICATION AND BE TESTED AT THE REQUIRED INTERVALS BY AN APPROVED NATA GEOTECHNICAL LABORATORY.
- MINIMUM 150mm THICK TOPSOIL SHALL BE SPREAD ON ALL FOOTPATHS, BEIRMS, BATTERS AND SITE REGRADING AREAS. EXCESS TOPSOIL SHALL BE DISPOSED OF AS DIRECTED BY THE SUPERINTENDENT.
- ALL LAND DISTURBED BY EARTHWORKS SHALL BE SPRAY-GRASSED, OR SIMILARLY TREATED TO ESTABLISH GRASS COVER. SEED MIXTURES ARE TO BE APPROVED BY COUNCIL PRIOR TO SPRAYING. ALL GRASSED AREAS SHALL BE REGULARLY WATERED AND MAINTAINED UNTIL EXPIRATION OF THE MAINTENANCE PERIOD.
- THE CONTRACTOR SHALL MAINTAIN DUST CONTROL THROUGHOUT THE DURATION OF THE PROJECT.
- ALL PITS DEEPER THAN 1.2m SHALL HAVE STEP IRONS PROVIDED IN ACCORDANCE WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES THROUGH LOTS SHALL BE CONTAINED WITHIN THEIR EASEMENTS AND CONFORM WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES ON HIGH SIDE AND UNDER ROADS SHALL BE BACKFILLED SHARP SAND AND HAVE 3.0m OF AGRICULTURAL LINE WRAPPED IN AN APPROVED FILTER FABRIC, DISCHARGING INTO THE DOWNSTREAM PIT.
- SUBSOIL DRAINS SHALL BE CONSTRUCTED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE.
- PRECAST KERB INLET UNITS SHALL BE USED ON GULLY PITS. GRATES SHALL BE "WELDOK" TYPE GG 73.61 OR APPROVED EQUIVALENT.
- PROVIDE VEHICULAR ENTRIES IN KERB AND CUTTER WHERE SHOWN OR WHERE DIRECTED BY THE SUPERINTENDENT.
- GUIDE POSTS SHALL BE 100mm X 50mm HARDWOOD, PAINTED WHITE WITH REFLECTORS.
- ERECT STREET NAME SIGNS, CONDUIT WARNING SIGNS AND NO THROUGH ROAD SIGNS WHERE SHOWN OR WHERE DIRECTED BY COUNCIL'S REPRESENTATIVE.
- CONDUITS SHALL BE LAID AFTER POSITIONS HAVE BEEN DETERMINED BY THE RELEVANT AUTHORITIES AND BEFORE FINAL A.C. IS LAID.
- POSITION OF CONDUITS SHALL BE MARKED ON THE KERB.
- FELLED TREES SHALL BE SALVAGED FOR RE-USE AS WOODCHIP MULCH OR LOG FORM FOR SITE REHABILITATION. NON-SALVAGEABLE MATERIAL SUCH AS STUMPS AND ROOTS SHALL BE DISPOSED OF OFF SITE.
- THE CONTRACTOR SHALL PROVIDE MINIMUM 24 HOURS NOTICE TO COUNCIL'S REPRESENTATIVE FOR ALL INSPECTIONS.
- THE CONTRACTOR SHALL MAINTAIN SERVICES AND ALL WEATHER ACCESS AT ALL TIMES TO THE ADJOINING PROPERTIES.
- THE CONTRACTOR SHALL UNDERTAKE TRAFFIC CONTROL MEASURES TO COUNCIL'S SATISFACTION AND SHALL DISPLAY ALL APPROPRIATE WARNING SIGNS THROUGHOUT THE DURATION OF CONSTRUCTION.
- ALL NATURAL SURFACE DATA HAS BEEN DETERMINED BY TERRAIN MODELLING. ALL CONSTRUCTION SITE WORKS MUST BE CARRIED OUT USING THE BENCH MARKS SHOWN ON THESE DRAWINGS.

Prepared for: THE BATHLA GROUP



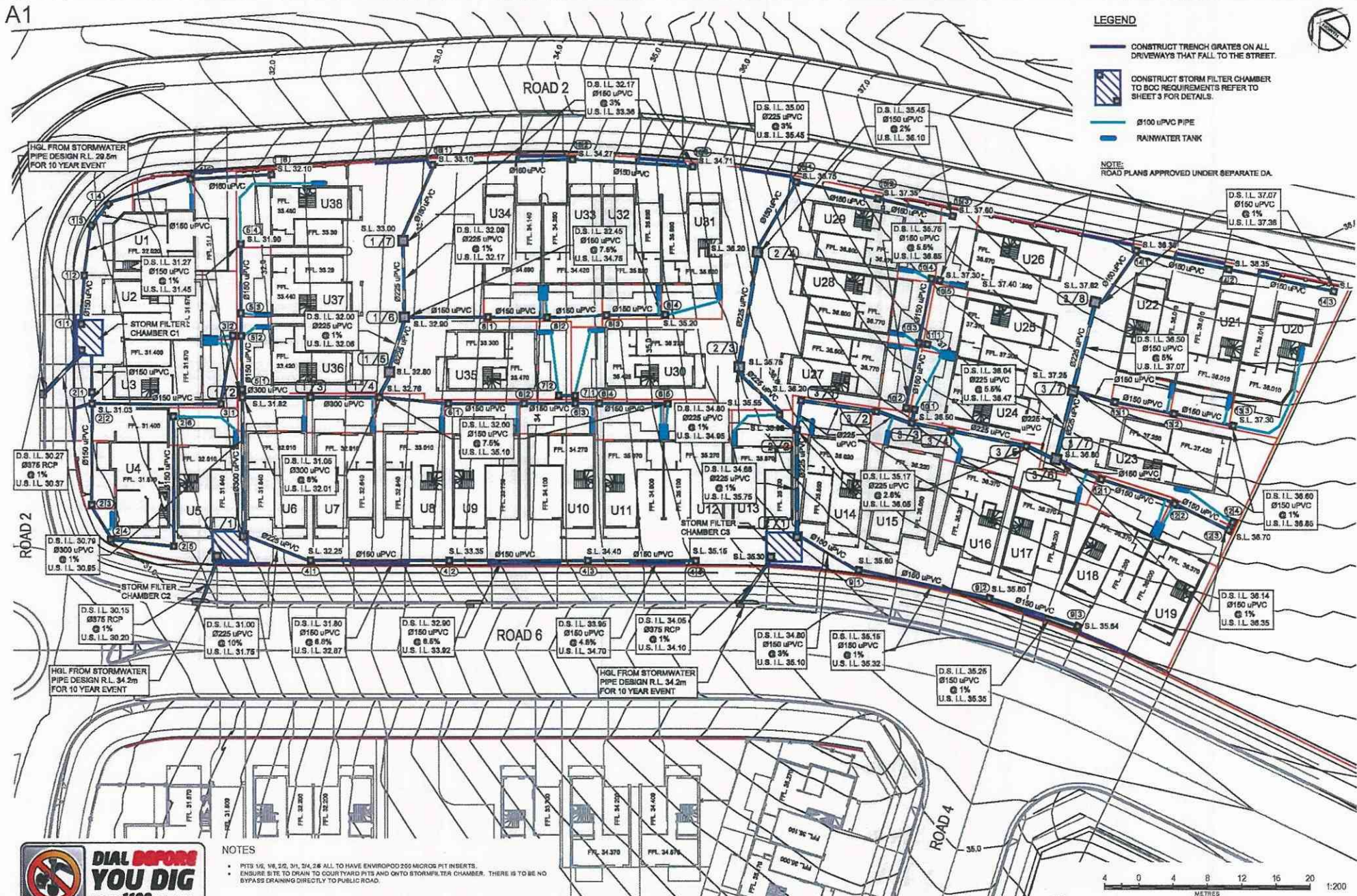
SHEET INDEX

SHEET No.	DESCRIPTION
COVER SHEET	COVER SHEET - GENERAL NOTES, SHEET INDEX AND LEGEND
2	GENERAL ARRANGEMENT PLAN
3	TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAIL CHAMBER 1
4	TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS CHAMBERS 2 & 3
5	WATER QUALITY CATCHMENT PLAN
6	SOIL AND WATER MANAGEMENT PLAN
7	SOIL AND WATER MANAGEMENT DETAILS

LEGEND

- ROOF DRAINAGE LINE
- PROPOSED DRAINAGE LINE
- EXISTING DRAINAGE LINE
- NATURAL SURFACE CONTOUR
- 78.2 --- DESIGN SURFACE CONTOUR
- TABLE DRAIN
- EXISTING HEADWALL
- PROPOSED HEADWALL
- LIMIT OF CONSTRUCTION
- PIT 1/2 PIT NUMBER
- SUBSOIL DRAINAGE LINE
- GRATED SURFACE INLET PIT
- SEALED PIT
- KERB INLET PIT

A1



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A	20/12/17	CLIENT REVIEW
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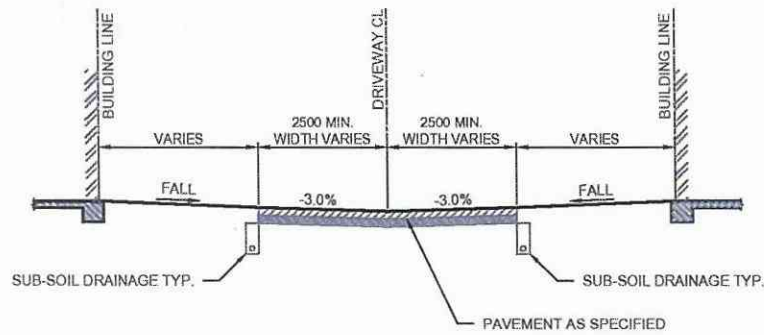
SYDNEY
P 02 955 0000
CENTRAL COAST
P 02 433 5565
HUNTER
P 02 408 6300
ADEL 08 124 0000
TOLL FREE 1800 000 000
www.barker-ryan-stewart.com.au



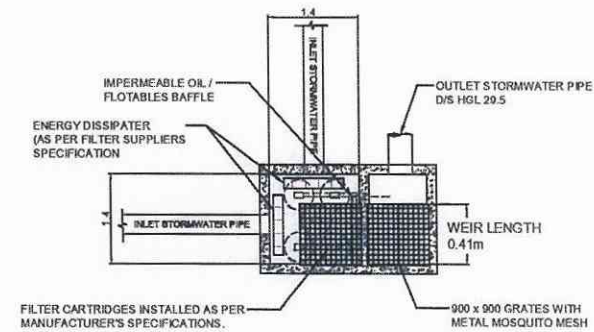
PROPOSED DEVELOPMENT AT LOT 8
1086 RICHMOND ROAD, MARSDEN PARK
GENERAL ARRANGEMENT PLAN

Designed: AD
Drawn: PAM
Checked: QJR
Scale: Plan 1:200
Horiz. Vert. X-Section
Datum: A.H.D.

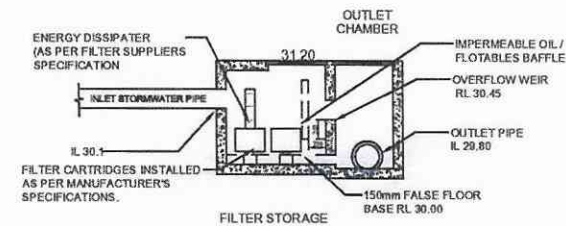
Plan No:
SY170226C802
File Ref:
SY170226C800-B.dwg
SHEET 2 OF 7 SHEETS
REV. B



TYPICAL SECTION - DRIVEWAY
NOT TO SCALE



PLAN FILTER STORAGE TANK &
OUTLET CHAMBER C1
SCALE 1:40



SECTION THROUGH FILTER STORAGE
TANK & OUTLET CHAMBER C1
SCALE 1:40

WATER QUALITY - LOT 8	
3000L RWT PER UNIT	
C1 - (UNITS 1 - 4)	
STORM FILTER TANK DIMENSIONS	1.4m x 1.4m
NUMBER OF STORMFILTER CARTRIDGES (460mm)	5

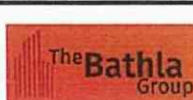


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SYDNEY
P: 02 955 9 0005
CENTRAL COAST
P: 02 4326 5255
HUNTER
P: 02 4364 6368
ABN 25 154 567 842
bna.com.au
na@bna.com.au

Clients:



**PROPOSED DEVELOPMENT AT LOT 8
1086 RICHMOND ROAD, MARSDEN PARK**

TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAIL CHAMBER 1

Designed:	AD
Drawn:	PMM
Checked:	QJR

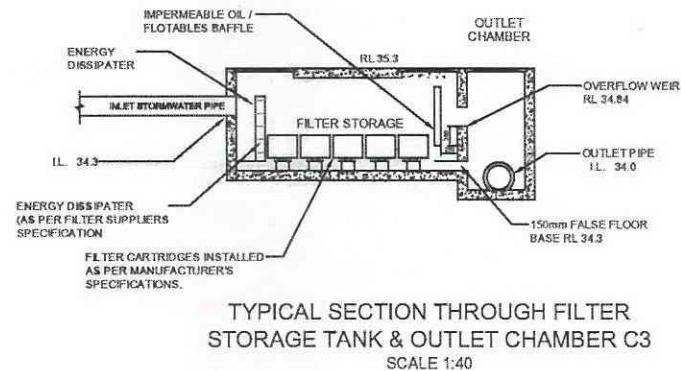
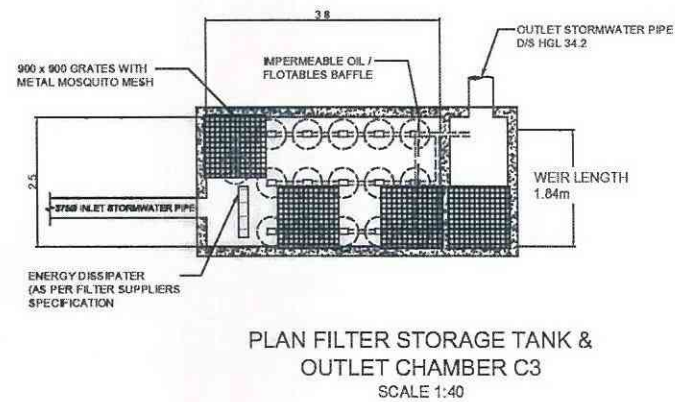
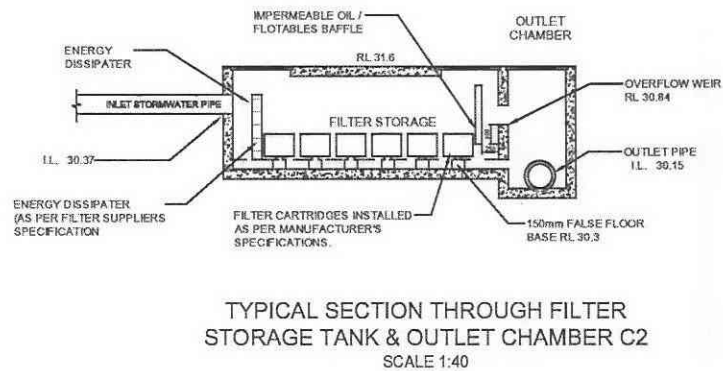
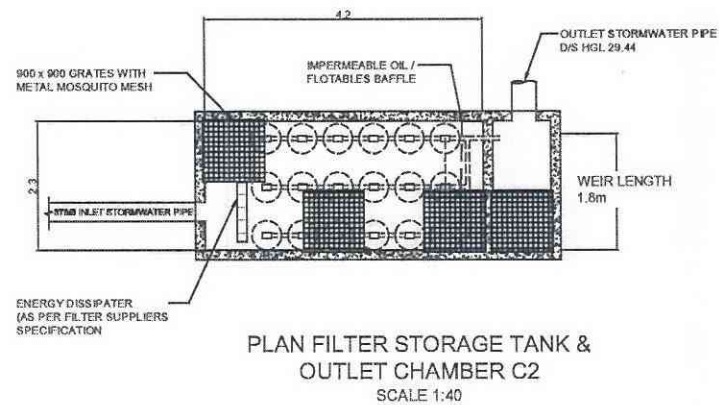
Scales: Plan 1 : 250
 Horiz.
 Vert.
 X- Sect.
 Returns: A.H.D.

Plan No.
SY170226C803

File Ref.
SY170226C800-B.dwg

SHEET 3 OF 7 SHEETS

REV.
B



WATER QUALITY - LOT 8	
3000L RWT PER UNIT	
C2 - (UNITS 5-10 & 30-38)	
STORM FILTER TANK DIMENSIONS	4.5m x 2.3m
NUMBER OF STORMFILTER CARTRIDGES (460mm)	18
C3 - (UNITS 18-31)	
STORM FILTER TANK DIMENSIONS	3.8m x 2.5m
NUMBER OF STORMFILTER CARTRIDGES (460mm)	17
NUMBER OF ENVIROPODS	4



No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



TOTAL PROJECT SOLUTIONS
PLANNING, PROJECT MANAGEMENT, SURVEYING, CONSTRUCTION

SYDNEY
P: 02 9559 0205
CENTRAL COAST
P: 02 4355 6555
HUNTER
P: 02 4355 6555
ABN: 26 134 027 842
barker.ryan@barker-ryan.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 8
1086 RICHMOND ROAD, MARSDEN PARK

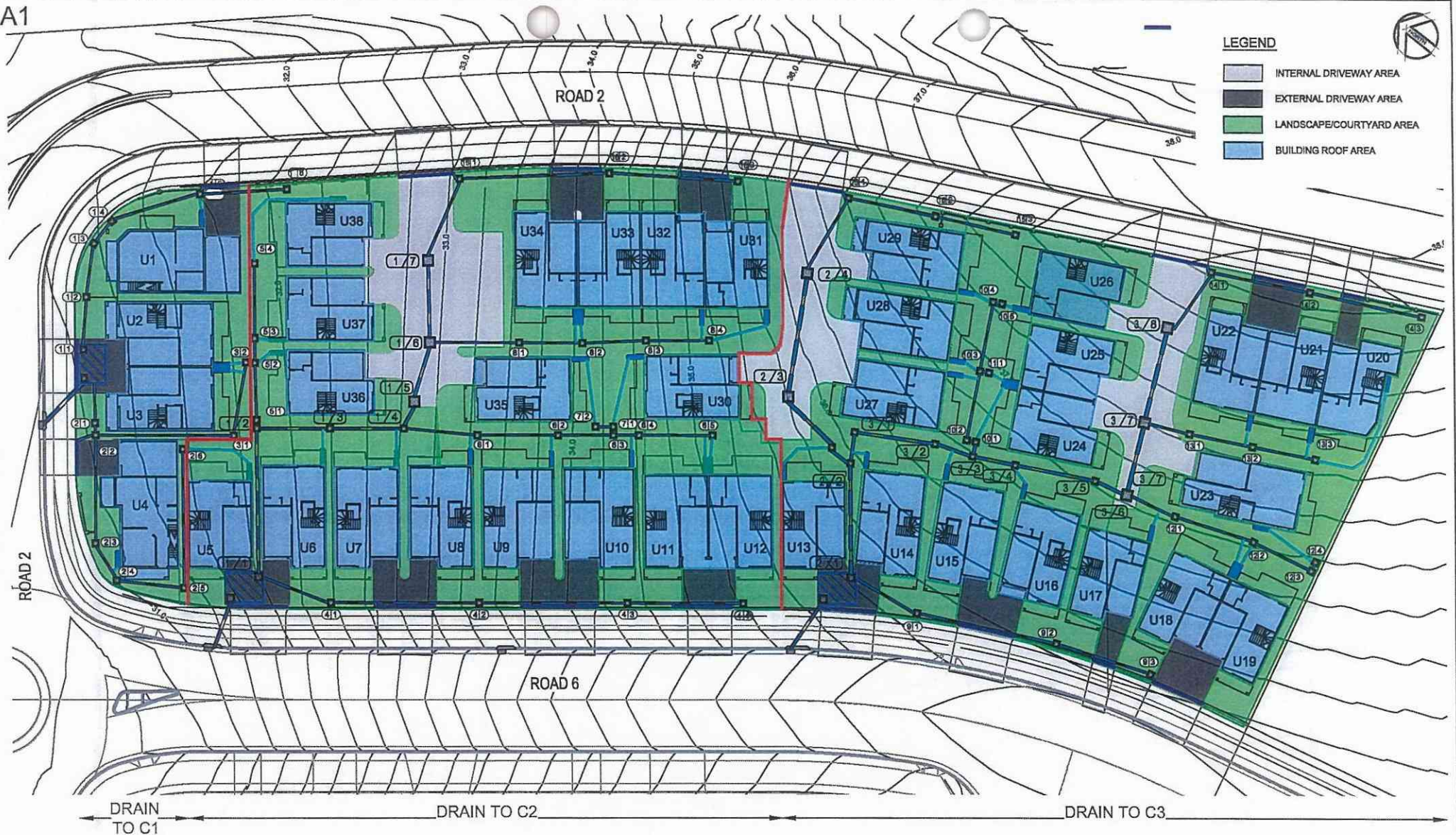
TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS CROSSER 2 & 3

Designed: AD
Drawn: PMM
Checked: QJR

Scales: Plan 1:250
Horizontal: Vert.
X-Section
Datum: A.H.D.

Plan No.
SY170226C804
File Ref.
SY170226C800-B.dwg
SHEET 4 OF 7 SHEETS
REV: B

A1



LEGEND

- INTERNAL DRIVEWAY AREA
- EXTERNAL DRIVEWAY AREA
- LANDSCAPE/COURTYARD AREA
- BUILDING ROOF AREA

DRAIN
TO C1

DRAIN TO C2

DRAIN TO C3

Lot 8

Chamber	C1 (Ka)	C2 (Ka)	C3 (Ka)
Total Roof Area	0.035	0.123	0.119
Total Landscape Area	0.020	0.115	0.116
Total Internal Driveway Area to Enviropod & then to Chamber		0.026	0.038
Total External Driveway Area to Chamber	0.007	0.021	0.017



4 0 4 8 12 16 20
METRES 1:200

No	DATE	AMENDMENT
A	20/1/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL

**BARKER
RYAN
STEWART**
TOTAL PROJECT SOLUTIONS
PLANNING, PROJECT MANAGEMENT, DESIGNING, DEVELOPING

SYDNEY
P 02 9669 0000
CENTRAL COAST
P 02 4355 1555
HUNTER
P 02 4900 0298
ASHE P 02 131 057 842
barker.ryan.au
rml@barker.com.au

Client:

**The Bathla
Group**

PROPOSED DEVELOPMENT AT LOT 8
1086 RICHMOND ROAD, MARSDEN PARK

WATER QUALITY CATCHMENT PLAN

Designed: AD
Drawn: PAM
Checked: GJR

Scales: Plan 1:200
Horiz. Vert. X-Section
Datum: A.H.D.

Plan No.
SY170226C805
File Ref.
SY170226C800-B.dwg
SHEET 6 OF 7 SHEETS
REV. **B**






A1

ROAD 2

ROAD 6

SEDIMENT CONTROL PLAN SCALE 1 : 250

LEGEND

-  SEDIMENT FENCE
-  STABILISED SITE ACCESS AT ENTRANCE TO WORKS
-  SURFACE INLET PIT
SEDIMENT TRAP
-  HAY BALE SEDIMENT TRAP
-  INLET 'SAUSAGE' FILTER

EROSION AND SEDIMENTATION CONTROL NOTES

- PRIOR TO THE COMMENCEMENT OF SITE DISTURBANCE, THE CONTRACTOR SHALL ESTABLISH ALL NECESSARY EROSION AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THIS PLAN, COUNCIL'S 'CIVIL WORKS SPECIFICATION PART 2 - CONSTRUCTION', AND THE NSW DEPARTMENT OF HOUSING'S PUBLICATION 'MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION'.
- THE LOCATION OF EROSION AND SEDIMENTATION CONTROL DEVICES SHOWN ON THIS PLAN ARE INDICATIVE ONLY AND SHOULD BE ADJUSTED TO SUIT SITE CONDITIONS.
- WHERE WORKS ARE DELAYED OR IN ABEYANCE AND DISTURBED AREAS ARE LIKELY TO BE EXPOSED FOR A PERIOD OF TWO MONTHS OR MORE, TEMPORARY REHABILITATION WORKS SHALL BE UNDERTAKEN TO PROTECT THE SITE.
- ALL DISTURBED AREAS SHALL BE TOPSOILED, SEEDED AND MULCHED WITHIN 20 DAYS OF THE COMPLETION OF THE WORKS.
- ALL AREAS WITH SLOPES STEEPER THAN 12% (1 in 8) SHALL BE STRAW MULCHED IN CONJUNCTION WITH SEEDING, OR TURFED.
- SILT BARRIERS LOCATED AROUND KERB INLET AND ROAD PITS SHALL BE REINSTATED FOLLOWING ROAD PAVING WORKS IF IT IS LIKELY THAT UNDISTURBED AREAS WILL STILL DRAIN TO THE PIT.
- SANDBAGS SHALL BE PLACED ACROSS THE END OF ROAD CONSTRUCTION AT THE COMPLETION OF EACH DAYS WORK TO PREVENT EROSION OF THE CONSTRUCTED MATERIAL.
- THE CONTRACTOR SHALL CONDUCT WEEKLY INSPECTIONS OF THE SITE TO ENSURE THAT ALL DEVICES AND REHABILITATION AREAS HAVE BEEN ADEQUATELY MAINTAINED. THE CONTRACTOR SHALL ALSO KEEP A LOG BOOK DETAILING SUCH INSPECTIONS, AND RECORDING RAINFALL EVENTS AND OTHER RELEVANT EVENTS.
- TOPSOIL SHALL BE STOCKPILED IN THE LOCATIONS SHOWN ON THIS PLAN OR AS DIRECTED BY COUNCIL'S ENGINEER. WHERE IT IS LIKELY THAT STOCKPILES WILL REMAIN IN PLACE FOR A PERIOD EXCEEDING 4 WEEKS, THEN THE STOCKPILE SHALL BE STABILISED BY SEEDING OR EQUIVALENT METHODS.
- ALL REVEGETATION WORKS ARE TO BE MAINTAINED, INCLUDING WATERING AND MOWING WHERE NECESSARY UNTIL THE COMPLETION OF THE MAINTENANCE PERIOD.
- THE MOVEMENT OF VEHICULAR TRAFFIC ON THE SITE SHALL BE CONFINED TO DESIGNATED AREAS DURING CONSTRUCTION WORKS. VEHICULAR ACCESS SHALL BE DENIED TO AREAS TO BE LEFT UNDISTURBED.
- SITE ACCESS SHALL BE LIMITED TO THE LOCATIONS SHOWN ON THIS PLAN. SHAKE-DOWN AREAS SHALL BE CONSTRUCTED AS SHOWN.
- DURING CONSTRUCTION WORKS, DUST CONTROL MEASURES SHALL BE IMPLEMENTED TO MINIMISE THE AMOUNT OF DUST GENERATED FROM THE SITE. THESE MEASURES TO BE IMPLEMENTED TO COUNCIL'S SATISFACTION.
- MAINTENANCE AND CLEANING OF CONSTRUCTION PLANT SHALL BE CARRIED OUT IN AN AREA WHERE RUNOFF CAN BE CONTAINED AND APPROPRIATELY TREATED AND DISPOSED OF.
- ALL EROSION AND SEDIMENTATION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE ADEQUATELY REGENERATED. THIS STAGE SHALL BE DETERMINED BY THE CERTIFIER.



No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



SYDNEY
P 02 9550 0005
CENTRAL COAST
P 02 4336 1005
HUNTER
P 02 4960 0005
ADEL: 08 134 0087 5402
bri.com.au
info@bri.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 8
1086 RICHMOND ROAD, MARSDEN PARK

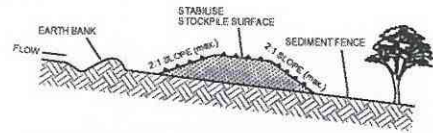
SOIL AND WATER MANAGEMENT PLAN

Designed: AD
Drawn: PMM
Checked: GJR

Scales: Plan 1 : 200
HORIZ: VerL
X-SECT:
Datum: A.H.D.

Plan No.
SY170226C806
File Ref.
SY170226C800-B.dwg
SHEET 8 OF 7 SHEETS
REV.
B

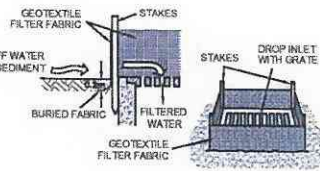
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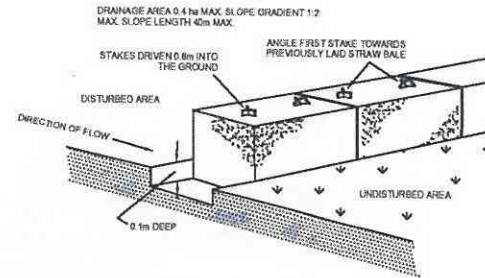
CONSTRUCTION NOTES

1. WHERE POSSIBLE LOCATE STOCKPILE AT LEAST 5 METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOWS, ROADS, HAZARDOUS AREAS AND MIN. 1.5m AWAY FROM EMBANKMENTS.
2. CONSTRUCT ON THE CONTOUR AS A LOW, FLAT, ELONGATED MOUND.
3. WHERE THERE IS SUFFICIENT AREA TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. REHABILITATE IN ACCORDANCE WITH THE SWAMPSCIP.
5. CONSTRUCT EARTH BANK (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT RUN OFF AROUND THE STOCKPILE AND A SEDIMENT FENCE (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWN SLOPE OF STOCKPILE.

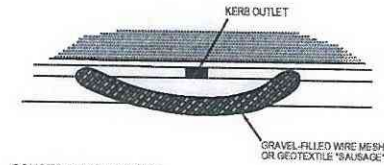
TOPSOIL STOCKPILE



SURFACE INLET PIT SEDIMENT TRAP



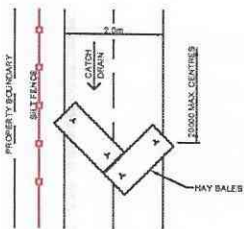
STRAW BALE SEDIMENT FILTER



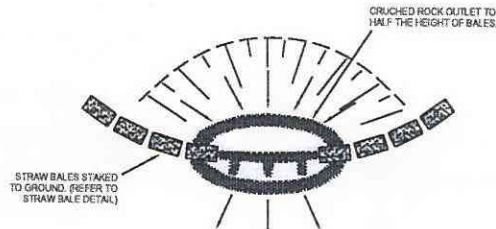
CONSTRUCTION NOTES

1. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH AND FILL IT WITH 25mm TO 50mm GRAVEL.
2. FORM AN ELLIPTICAL CROSS SECTION ABOUT 150mm HIGH X 400mm WIDE.
3. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING FILTER.
4. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LOADED WATERS CANNOT PASS BETWEEN.

MESH & GRAVEL FILTER "SAUSAGE" BARRIER



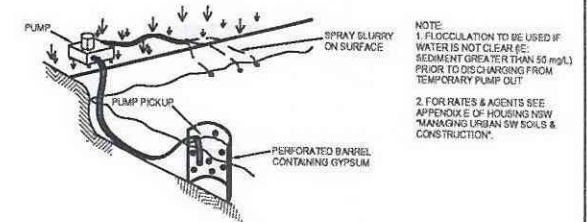
CATCH DRAIN DETAIL



STRAW BALE & CRUSHED ROCK SEDIMENT FILTER

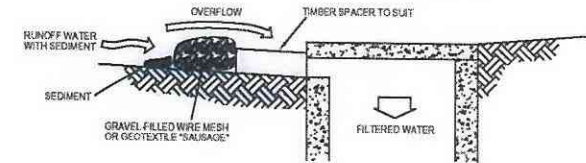
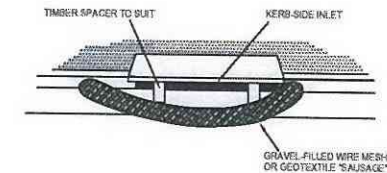


VEHICLE DUST SHAKE DOWN DETAIL



- NOTE:
1. FLOCCULATION TO BE USED IF WATER IS NOT CLEAR (i.e. SEDIMENT GREATER THAN 50 mg/L) PRIOR TO DISCHARGING FROM TEMPORARY PUMP OUT.
 2. FOR RATES & AGENTS SEE APPENDIX E OF HOUSING NSW MARKING URBAN SW SOILS & CONSTRUCTION.

FLOCCULATION DETAIL



CONSTRUCTION NOTES

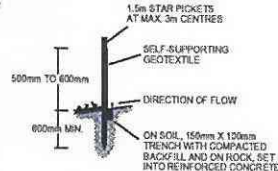
1. INSTALL FILTERS TO KERB INLET ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS SECTION ABOUT 150mm HIGH X 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LOADED WATERS CANNOT PASS BETWEEN.

MESH & GRAVEL INLET "SAUSAGE" FILTER

CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOUR OF THE SITE.
2. DRIVE 1.5m LONG STAR PICKETS INTO GROUND 2.5 METRES APART (MAX).
3. DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF PICKETS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

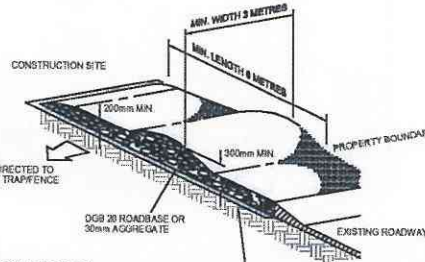
SEDIMENT FENCE



SECTION DETAIL

CONSTRUCTION NOTES

1. STRIP TOPSOIL AND LEVEL SITE.
2. COMPACT SUBGRADE.
3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
4. CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROADBASE OR 30mm AGGREGATE. MINIMUM LENGTH 15 METRES OR TO BUILDING ALIGNMENT. MINIMUM WIDTH 3 METRES.
5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR OTHER SEDIMENT TRAP.



STABILISED SITE ACCESS

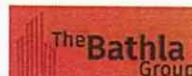


No	DATE	AMENDMENT
A	2012/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



SECURITY
P. 02 9553 0705
CENTRAL COAST
P. 02 4325 6265
HUNTER
P. 02 4988 0335
4241 3G 13a 0807 012
BARKER RYAN STEWART
TOTAL PROJECT SOLUTIONS
P.O. BOX 1000 WARRIORHILL NSW 2128

Client:



PROPOSED DEVELOPMENT AT LOT 8
1086 RICHMOND ROAD, MARSDEN PARK

SOIL AND WATER MANAGEMENT DETAILS

Designed: AD
Drawn: PHM
Checked: QJR

Scales: Plan
Horiz.
Vert.
X-Section
Datum: A.H.D.

Plan No.
SY170226C807
File Ref.
SY170226C800-B.dwg
SHEET 7 OF 7 SHEETS

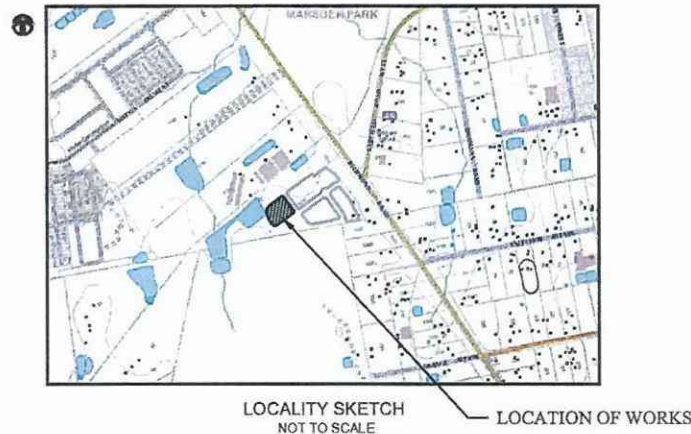
REV.
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BLACKTOWN CITY COUNCIL PROPOSED RESIDENTIAL DEVELOPMENT LOT 10, 1086 RICHMOND ROAD, MARSDEN PARK DRIVEWAY & DRAINAGE PLANS

GENERAL NOTES

- ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL'S WORKS SPECIFICATION CIVIL - 2005 REQUIREMENTS AND/OR AS DIRECTED BY THEIR REPRESENTATIVE.
- THE CONTRACTOR IS TO IDENTIFY, LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION WORKS AND WHERE NECESSARY MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE OR ADJUST WHERE NECESSARY.
- COUNCIL'S TREE PRESERVATION ORDER MUST BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT THE PRIOR APPROVAL OF COUNCIL.
- ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE WORK HEALTH & SAFETY ACT 2011 AND ALL RELEVANT OCCUPATIONAL HEALTH & SAFETY POLICIES AND REGULATIONS.
- DIMENSIONS SHALL NOT BE SCALED FROM THE PLANS. CLARIFICATION OF DIMENSIONS SHALL BE SOUGHT FROM THE SUPERINTENDENT OR REFERRED TO THE DESIGNER.
- SURVEY MARKS SHOWN THIS Δ SHALL BE MAINTAINED AT ALL TIMES. WHERE RETENTION IS NOT POSSIBLE THE ENGINEER SHALL BE NOTIFIED AND CONSENT RECEIVED PRIOR TO THEIR REMOVAL.
- ALL NEW WORK IS TO MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS.
- THE CONTRACTOR IS NOT TO ENTER UPON NOR DO ANY WORK WITHIN OR ON ADJACENT LANDS WITHOUT THE PRIOR APPROVAL OF THE SUPERINTENDENT AND THE WRITTEN PERMISSION OF THE OWNERS.
- SEDIMENT MEASURES SHALL BE IMPLEMENTED PRIOR TO SOIL DISTURBANCE IN KEEPING WITH THE 4th EDITION OF LANDCOVER'S SOILS AND CONSTRUCTION - MANAGING URBAN STORMWATER MARCH 2004 TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE AND AS SHOWN IN THESE DRAWINGS.
- THE CONTRACTOR SHALL CLEAR AND DISPOSE OF ONLY THOSE TREES THAT ARE CONDEMNED BY THE PLANS. COUNCIL'S TREE PRESERVATION ORDER SHALL BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT PRIOR APPROVAL.
- THE CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES, OUTHOUSES, CAR BODIES, DEBRIS, ETC. THE CONTRACTOR SHALL NOT DISPOSE OF ANY DEBRIS BY BURNING OFF IN AN OPEN FIRE.
- UNBOUND MATERIALS AS DETERMINED BY COUNCIL'S REPRESENTATIVE SHALL BE REMOVED FROM ROADS AND LOTS PRIOR TO ANY FILLING.
- ALL SITE REGRADE AREAS SHALL BE GRADED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE. THE CONTRACTOR SHALL TAKE LEVELS ON THE EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING ANY FILL OPERATIONS.
- SURPLUS EXCAVATED MATERIAL SHALL BE PLACED OR DISPOSED OF IN ACCORDANCE WITH THE CONTRACT, OR AS DIRECTED BY THE SUPERINTENDENT.
- ALL SITE FILLING SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm AND COMPACTED IN ACCORDANCE WITH COUNCIL'S SPECIFICATION AND BE TESTED AT THE REQUIRED INTERVALS BY AN APPROVED N.A.T.A. GEOTECHNICAL LABORATORY.
- MINIMUM 150mm THICK TOPSOIL SHALL BE SPREAD ON ALL FOOTPATHS, BERMS, BATTERS AND SITE REGRADE AREAS. EXCESS TOPSOIL SHALL BE DISPOSED OF AS DIRECTED BY THE SUPERINTENDENT.
- ALL LAND DISTURBED BY EARTHWORKS SHALL BE SPRAY-GRASSED, OR SIMILARLY TREATED TO ESTABLISH GRASS COVER. SEED MIXTURES ARE TO BE APPROVED BY COUNCIL PRIOR TO SPRAYING. ALL GRASSED AREAS SHALL BE REGULARLY WATERED AND MAINTAINED UNTIL EXPIRATION OF THE MAINTENANCE PERIOD.
- THE CONTRACTOR SHALL MAINTAIN DUST CONTROL THROUGHOUT THE DURATION OF THE PROJECT.
- ALL PITS DEEPER THAN 1.2m SHALL HAVE STEP IRONS PROVIDED IN ACCORDANCE WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES THROUGH LOTS SHALL BE CONTAINED WITHIN THEIR EASEMENTS AND CONFORM WITH COUNCIL'S STANDARDS.
- ALL DRAINAGE LINES ON HIGH SIDE AND UNDERROADS SHALL BE BACKFILLED SHARP SAND AND HAVE 3.0m OF AGRICULTURAL LINE WRAPPED IN AN APPROVED FILTER FABRIC, DISCHARGING INTO THE DOWNSTREAM PIT.
- SUBSOIL DRAINS SHALL BE CONSTRUCTED TO THE SATISFACTION OF COUNCIL'S REPRESENTATIVE.
- PRECAST KERB INLET UNITS SHALL BE USED ON GULLY PITS. GRATES SHALL BE "WELDOK" TYPE GG 78-51 OR APPROVED EQUIVALENT.
- PROVIDE VEHICULAR ENTRIES IN KERB AND GUTTER WHERE SHOWN OR WHERE DIRECTED BY THE SUPERINTENDENT.
- GUIDE POSTS SHALL BE 100mm X 50mm HARDWOOD, PAINTED WHITE WITH REFLECTORS.
- ERECT STREET NAME SIGNS, CONDUIT WARNING SIGNS AND NO THROUGH ROAD SIGNS WHERE SHOWN OR WHERE DIRECTED BY COUNCIL'S REPRESENTATIVE.
- CONDUITS SHALL BE LAID AFTER POSITIONS HAVE BEEN DETERMINED BY THE RELEVANT AUTHORITIES AND BEFORE FINAL A.C. IS LAID.
- POSITION OF CONDUITS SHALL BE MARKED ON THE KERB.
- FELLED TREES SHALL BE SALVAGED FOR RE-USE AS WOODCHIP MULCH OR LOG FORM FOR SITE REHABILITATION. NON-SALVAGEABLE MATERIAL SUCH AS STUMPS AND ROOTS SHALL BE DISPOSED OF OFF SITE.
- THE CONTRACTOR SHALL PROVIDE MINIMUM 24 HOURS NOTICE TO COUNCIL'S REPRESENTATIVE FOR ALL INSPECTIONS.
- THE CONTRACTOR SHALL MAINTAIN SERVICES AND ALL WEATHER ACCESS AT ALL TIMES TO THE ADJOINING PROPERTIES.
- THE CONTRACTOR SHALL UNDERTAKE TRAFFIC CONTROL MEASURES TO COUNCIL'S SATISFACTION AND SHALL DISPLAY ALL APPROPRIATE WARNING SIGNS THROUGHOUT THE DURATION OF CONSTRUCTION.
- ALL NATURAL SURFACE DATA HAS BEEN DETERMINED BY TERRAIN MODELLING. ALL CONSTRUCTION SITE WORKS MUST BE CARRIED OUT USING THE BENCH MARKS SHOWN ON THESE DRAWINGS.

Prepared for: THE BATHLA GROUP

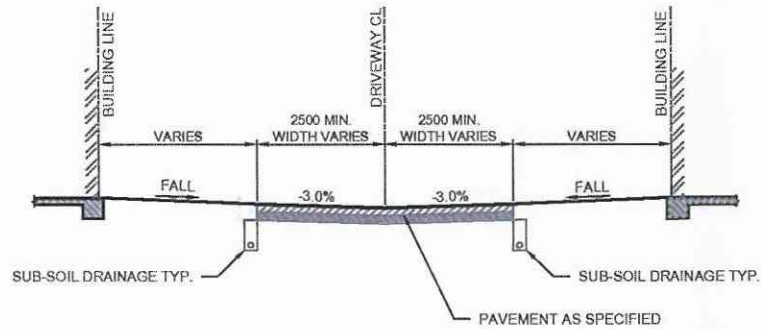


SHEET INDEX

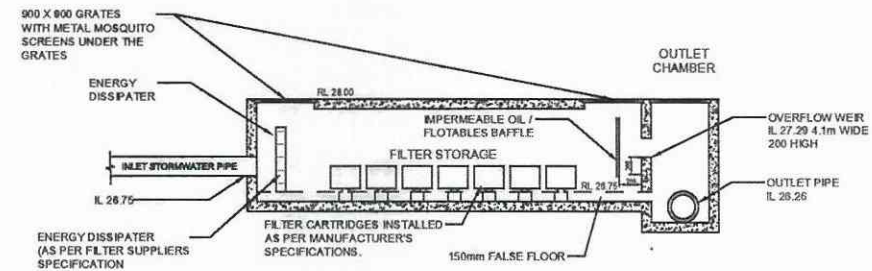
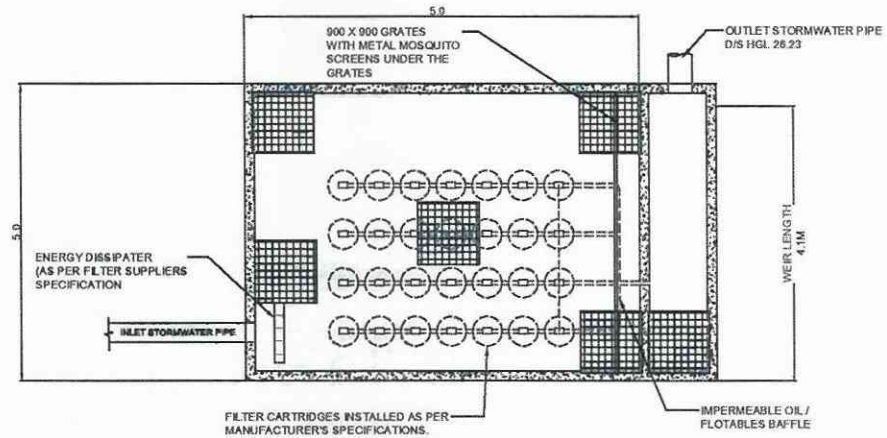
SHEET No.	DESCRIPTION
COVER SHEET	COVER SHEET - GENERAL NOTES, SHEET INDEX AND LEGEND
2	GENERAL ARRANGEMENT PLAN
3	TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS
4	WATER QUALITY CATCHMENT PLAN
5	SOIL AND WATER MANAGEMENT PLAN
6	SOIL AND WATER MANAGEMENT DETAILS

LEGEND

- ROOF DRAINAGE LINE
- PROPOSED DRAINAGE LINE
- EXISTING DRAINAGE LINE
- NATURAL SURFACE CONTOUR
- 70.2 --- DESIGN SURFACE CONTOUR
- TABLE DRAIN
- EXISTING HEADWALL
- PROPOSED HEADWALL
- LIMIT OF CONSTRUCTION
- LIMIT OF WORKS
- PIT 1/2 PIT NUMBER
- SUBSOIL DRAINAGE LINE
- GRATED SURFACE INLET PIT
- SEALED PIT
- KERB INLET PIT



TYPICAL SECTION - DRIVEWAY
NOT TO SCALE



WATER QUALITY - LOT 10

3000L RWT PER UNIT	
STORM FILTER TANK DIMENSIONS	5.0m x 5.0m
NUMBER OF STORMFILTER CARTRIDGES (460mm)	28
NUMBER OF ENVIPODS (200 MICRON)	13



No	DATE	AMENDMENT
A	23/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



TOTAL PROJECT SOLUTIONS
PLANNING, PROJECT MANAGEMENT, DESIGNING, CONSTRUCTION

BYRONBAY
P.O. BOX 9005
CENTRAL COAST
P.O. BOX 855
HUNTER
P.O. BOX 855
ALICE SPRING 5154 DEF 612
08 855 1244 DEF 612
mail@barker.com.au

Client



PROPOSED DEVELOPMENT AT LOT 10
1086 RICHMOND ROAD, MARSDEN PARK

TYPICAL DRIVEWAY SECTION & STORMWATER FILTER DETAILS

Designed: AD
Drawn: PMM
Checked: GJR

Scales: Plan
Horiz. Vert. X-Section
Datum: A.H.D.

Plan No.
SY170226C103
File Ref.
SY170226C100-B.dwg
SHEET 3 OF 8 SHEETS
REV. **B**

A1

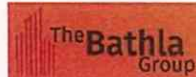


No.	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL

**BARKER
RYAN
STEWART**
TOTAL PROJECT SOLUTIONS
10/11/17 - PROJECT MANAGER - 02 4555 1000

SYDNEY
P.O. BOX 2005
CENTRAL, NSW 1585
P.O. BOX 4555
HUNTER
P.O. BOX 8200
ARM 28 124 REF 8-01
barker@barker.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 10
1086 RICHMOND ROAD, MARSDEN PARK

WATER QUALITY CATCHMENT PLAN






Designed: AD
Drawn: PMM
Checked: QJR

Scale: Plan 1:200
Horiz. Verif. X-Sect.
Datum: A.H.D.

Plan No.
SY170226C104
File Ref.
SY170226C100-B.dwg
SHEET 4 OF 8 SHEETS
REV. **B**

A1

LEGEND

-  SEDIMENT FENCE
 STABILISED SITE ACCESS AT ENTRANCE TO WORKS
 SURFACE INLET PIT SEDIMENT TRAP
 HAY BALE SEDIMENT TRAP
 INLET 'SAUSAGE' FILTER (FOLLOWING K&G CONSTRUCTION)

EROSION AND SEDIMENTATION CONTROL NOTES

- PRIOR TO THE COMMENCEMENT OF SITE DISTURBANCE, THE CONTRACTOR SHALL ESTABLISH ALL NECESSARY EROSION AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THIS PLAN, COUNCIL'S CIVIL WORKS SPECIFICATION, PART 2 'CONSTRUCTION', AND THE NSW DEPARTMENT OF HOUSING'S PUBLICATION 'MANAGING URBAN STORMWATER - EROSION AND CONSTRUCTION'.
- THE LOCATION OF EROSION AND SEDIMENTATION CONTROL DEVICES SHOWN ON THIS PLAN ARE INDICATIVE ONLY AND SHOULD BE ADJUSTED TO SUIT SITE CONDITIONS.
- WHERE WORKS ARE DELAYED OR IN ABeyANCE AND DISTURBED AREAS ARE LIKELY TO BE EXPOSED FOR A PERIOD OF TWO MONTHS OR MORE, TEMPORARY REHABILITATION WORKS SHALL BE UNDERTAKEN TO PROTECT THE SITE.
- ALL DISTURBED AREAS SHALL BE TOPSOILED, SEEDED AND MULCHED WITHIN 20 DAYS OF THE COMPLETION OF THE WORKS.
- ALL AREAS WITH SLOPES STEEPER THAN 12% (1 IN 8) SHALL BE STRAW MULCHED IN CONJUNCTION WITH SEEDING, OR TURFED.
- SILT BARRIERS LOCATED AROUND KERB INLET AND ROAD PITS SHALL BE REINSTITUTED FOLLOWING ROAD PAVING WORKS IF IT IS LIKELY THAT UNDISTURBED AREAS WILL STILL DRAIN TO THE PIT.
- SANDBAGS SHALL BE PLACED ACROSS THE END OF ROAD CONSTRUCTION AT THE COMPLETION OF EACH DAYS WORK TO PREVENT EROSION OF THE CONSTRUCTED MATERIAL.
- THE CONTRACTOR SHALL CONDUCT WEEKLY INSPECTIONS OF THE SITE TO ENSURE THAT ALL DEVICES AND REHABILITATION AREAS HAVE BEEN ADEQUATELY MAINTAINED. THE CONTRACTOR SHALL ALSO KEEP A LOG BOOK DETAILING SUCH INSPECTIONS, AND RECORDING RAINFALL EVENTS AND OTHER RELEVANT EVENTS.
- TOPSOIL SHALL BE STOCKPILED IN THE LOCATIONS SHOWN ON THIS PLAN OR AS DIRECTED BY COUNCIL'S ENGINEER, WHERE IT IS LIKELY THAT STOCKPILES WILL REMAIN IN PLACE FOR A PERIOD EXCEEDING 4 WEEKS, THEN THE STOCKPILE SHALL BE STABILISED BY SEEDING OR EQUIVALENT METHODS.
- ALL REVEGETATION WORKS ARE TO BE MAINTAINED, INCLUDING WATERING AND MOWING WHERE NECESSARY UNTIL THE COMPLETION OF THE MAINTENANCE PERIOD.
- THE MOVEMENT OF VEHICULAR TRAFFIC ON THE SITE SHALL BE CONFINED TO DESIGNATED AREAS DURING CONSTRUCTION WORKS. VEHICULAR ACCESS SHALL BE DENIED TO AREAS TO BE LEFT UNDISTURBED.
- SITE ACCESS SHALL BE LIMITED TO THE LOCATIONS SHOWN ON THIS PLAN. SHAKE-DOWN AREAS SHALL BE CONSTRUCTED AS SHOWN.
- DURING CONSTRUCTION WORKS, DUST CONTROL MEASURES SHALL BE IMPLEMENTED TO MINIMISE THE AMOUNT OF DUST GENERATED FROM THE SITE. THESE MEASURES TO BE IMPLEMENTED TO COUNCIL'S SATISFACTION.
- MAINTENANCE AND CLEANING OF CONSTRUCTION PLANT SHALL BE CARRIED OUT IN AN AREA WHERE RUNOFF CAN BE CONTAINED AND APPROPRIATELY TREATED AND DISPOSED OF.
- ALL EROSION AND SEDIMENTATION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE ADEQUATELY REGENERATED. THIS STAGE SHALL BE DETERMINED BY THE CERTIFIER.

ROAD 2

GARFIELD ROAD WEST (ROAD 1)

ROAD 4

ROAD 2



No	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL

**BARKER
RYAN
STEWART**

TOTAL PROJECT SOLUTIONS
PLAN 916 - PLAN 1027 (17/11/2017) - 17/11/2017 - 17/11/2017

SYDNEY
P. 02 9600 0000
CENTRAL COAST
P. 02 6305 5516
HUNTER
P. 02 6305 5516
ADEL
P. 08 124 007 940
Brisbane
P. 07 555 0000

Client:



PROPOSED DEVELOPMENT AT LOT 10
1086 RICHMOND ROAD, MARSDEN PARK

SOIL AND WATER MANAGEMENT PLAN

Designed: AD
Drawn: PMM
Checked: GJR

Scale: Plan 1:200
Horiz. Vert. X-Section

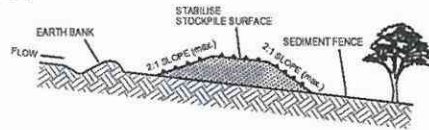
Datum: A.H.D.

Plan No.
SY170226C105

File Ref.
SY170226C100-B.dwg
SHEET 6 OF 6 SHEETS

REV.
B

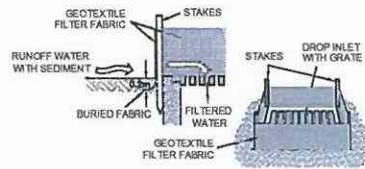
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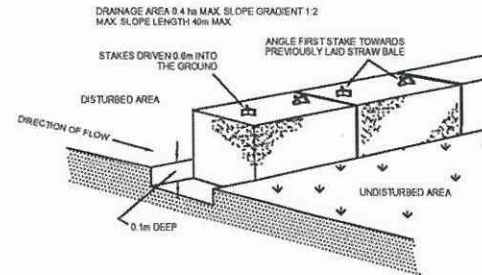
CONSTRUCTION NOTES

1. WHERE POSSIBLE LOCATE STOCKPILE AT LEAST 5 METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOWS, ROADS, HAZARD AREAS AND MIN. 1.5m AWAY FROM EMBANKMENTS.
2. CONSTRUCT ON THE CONTOUR AS A LOW, FLAT ELONGATED MOUND.
3. WHERE THERE IS SURFICIENT AREA TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. REHABILITATE IN ACCORDANCE WITH THE SWMP/ESCP.
5. CONSTRUCT EARTH BANK (AS STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT RUN OFF AROUND THE STOCKPILE AND A SEDIMENT FENCE (STANDARD DRAWING 8-4) 1 TO 2 METRES DOWNSLOPE OF STOCKPILE.

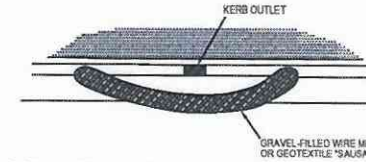
TOPSOIL STOCKPILE



SURFACE INLET PIT SEDIMENT TRAP



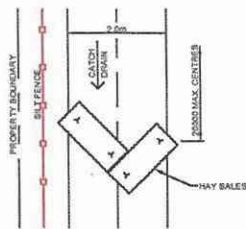
STRAW BALE SEDIMENT FILTER



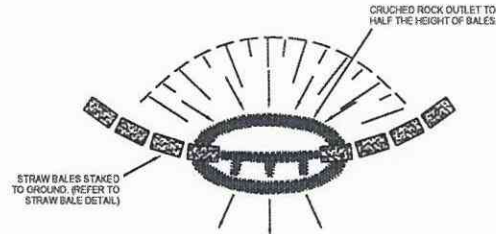
CONSTRUCTION NOTES

1. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH AND FILL IT WITH 25mm TO 50mm GRAVEL.
2. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH X 400mm WIDE.
3. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING FILTER.
4. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

MESH & GRAVEL FILTER "SAUSAGE" BARRIER



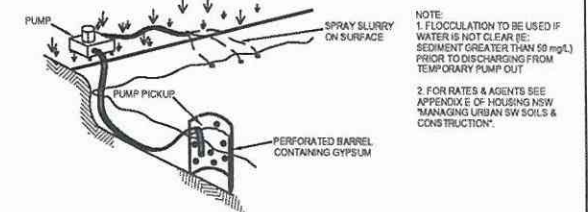
CATCH DRAIN DETAIL



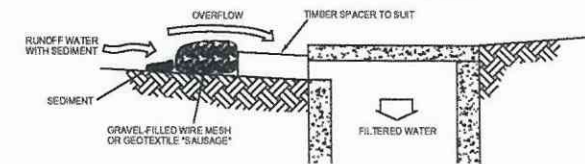
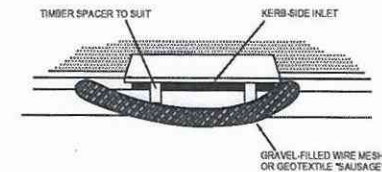
STRAW BALE & CRUSHED ROCK SEDIMENT FILTER



VEHICLE DUST SHAKE DOWN DETAIL



FLOCCULATION DETAIL



CONSTRUCTION NOTES

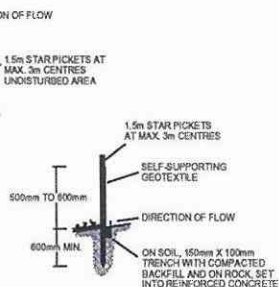
1. INSTALL FILTERS TO KERB INLET ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH X 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

MESH & GRAVEL INLET "SAUSAGE" FILTER

CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
2. DRIVE 1.5m LONG STAR PICKETS INTO GROUND 2.5 METRES APART (MAX).
3. DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF PICKETS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE

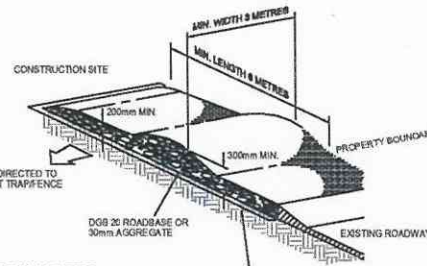


SECTION DETAIL

CONSTRUCTION NOTES

1. STRIP TOPSOIL AND LEVEL SITE.
2. COMPACT SUBGRADE.
3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
4. CONSTRUCT 250mm THICK PAD OVER GEOTEXTILE USING ROADBASE OR 30mm AGGREGATE. MINIMUM LENGTH 15 METRES OR TO BUILDING ALIGNMENT. MINIMUM WIDTH 3 METRES.
5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR OTHER SEDIMENT TRAP.

STABILISED SITE ACCESS



GEOTEXTILE FABRIC DESIGNED TO PREVENT INTERMIXING OF SUBGRADE AND BASE MATERIALS AND TO MAINTAIN GOOD PROPERTIES OF THE SUB-BASE LAYERS.

GEOTEXTILE MAY BE A WOVEN OR NEEDLE PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3708 4.40) OF 2500 N



No.	DATE	AMENDMENT
A	20/12/17	CLIENT REVIEW
B	31/01/18	ISSUE FOR APPROVAL



SYDNEY
P 02 9669 0000
CENTRAL COAST
P 02 4335 5205
HUNTER
P 02 4908 0305
4021 06 134 007 5-42
barker@barker.com.au
ryan@barker.com.au

Client:



PROPOSED DEVELOPMENT AT LOT 10
1086 RICHMOND ROAD, MARSDEN PARK

SOIL AND WATER MANAGEMENT DETAILS

Designed: AD
Drawn: PMM
Checked: QJR

Scale: Plan
Horiz.
Vert.
X-Sect.

Datum: A.H.D.

Plan No.
SY170226C106
File Ref.
SY170226C100-B.dwg
SHEET 6 OF 6 SHEETS

REV.
B

MANAGING DIRECTORS
MATTHEW PALAVIDIS
VICTOR FATTORETTO

DIRECTORS
MATTHEW SHIELDS
BEN WHITE



Lot 6, 7, 8, 10 - 1086 Richmond Road, Marsden Park

Traffic Noise Intrusion Assessment

SYDNEY
A: 9 Sarah St Mascot NSW 2020
T: (02) 8339 8000
F: (02) 8338 8399

SYDNEY MELBOURNE BRISBANE CANBERRA
LONDON DUBAI SINGAPORE GREECE

ABN: 11 068 954 343

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DOCUMENT CONTROL REGISTER

Project Number	20171661.1
Project Name	Lot 6, 7, 8, 10 - 1086 Richmond Road, Marsden Park
Document Title	Traffic Noise Intrusion Assessment
Document Reference	20171661.1/2711A/R0/MF
Issue Type	Email
Attention To	The Bathla Group

Revision	Date	Document Reference	Prepared By	Checked By	Approved By
0	27/11/2017	20171661.1/2711A/R0/MF	MF		GW

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1 INTRODUCTION

This report presents our acoustic assessment for the proposed residential development to be constructed at Lot 51 DP 1196583 and known as 1086 Richmond Road, Marsden Park

This report has been prepared to satisfy the acoustic requirements in contention 3 from the *Statement of Facts and Contentions* from the NSW Land and Environment Court Case 2017/0026800 dated 12th October 2017.

This assessment has been based on architectural drawings provided by The Bathla Group Pty Ltd, for detailed information please see Table 1 below.

Table 1 – Architectural Drawing Information

Drawing Number	Drawing Title	Date	Revision
DA00	COVER SHEET	27/06/17	A
DA01	SITE ANALYSIS		
DA02	SITE PLAN		
DA03	GROUND FLOOR PLAN PART-1		
DA04	GROUND FLOOR PLAN PART-2		
DA05	FIRST FLOOR PLAN PART-1		
DA06	FIRST FLOOR PLAN PART-2		
DA07	ELEVATIONS		
DA08	ELEVATIONS AND SECTIONS		
DA09	SHADOW ANALYSIS 1		
DA10	SHADOW ANALYSIS 2		
DA001	SITE ANALYSIS	26/06/17	1
DA002	SITE PLAN		
DA003	GROUND FLOOR		
DA004	FIRST FLOOR		
DA005	ELEVATIONS & SECTIONS		
DA006	SHADOWS 1		
DA007	SHADOWS 2	JUNE 2017	1
DA000	MASTER PLAN		

2 SITE DESCRIPTION

The proposed sites are located at Lot 51 DP 1196583 and known as 1086 Richmond Road, Marsden Park. The subject site is one of 14 allotments consolidated and subdivided to create 20 super lots, 3 SP2 Drainage lots, 3 RE1 Public Recreation Lots and 2 residue lots and associated road construction and civil works under DFA-16-03182. See Figure 1.

Based on onsite investigations the following uses have been identified around the site;

- North of the site is R3 zoned land for use of *Medium Density Residential* as per Blacktown Council LEP Maps. Existing use of the land is agriculture.
- East of the site is Richmond Road which carries a high volume of daily traffic. Further east of Richmond Road is the intersection of Richmond Road and Garfield Road West as well as RU4 zoned land for *Rural Small Holdings* as per Blacktown Council LEP Maps.
- South west of the site is an area of land which is owned by NSW Government Waste Management Corporation. South east of the site is existing R3 zoned land for use of *Medium Density Residential* as per Blacktown Council LEP Maps. Existing use of the land is single storey residential.
- West of the site R3 zoned land for use of *Medium Density Residential* as per Blacktown Council LEP Maps.

Additionally, it was observed around the site that major infrastructure along Richmond Rd is currently being constructed or proposed to be upgraded in the near future.

For detailed site map please see below.

Proposed Site – 1086 Richmond Road Marsden Park

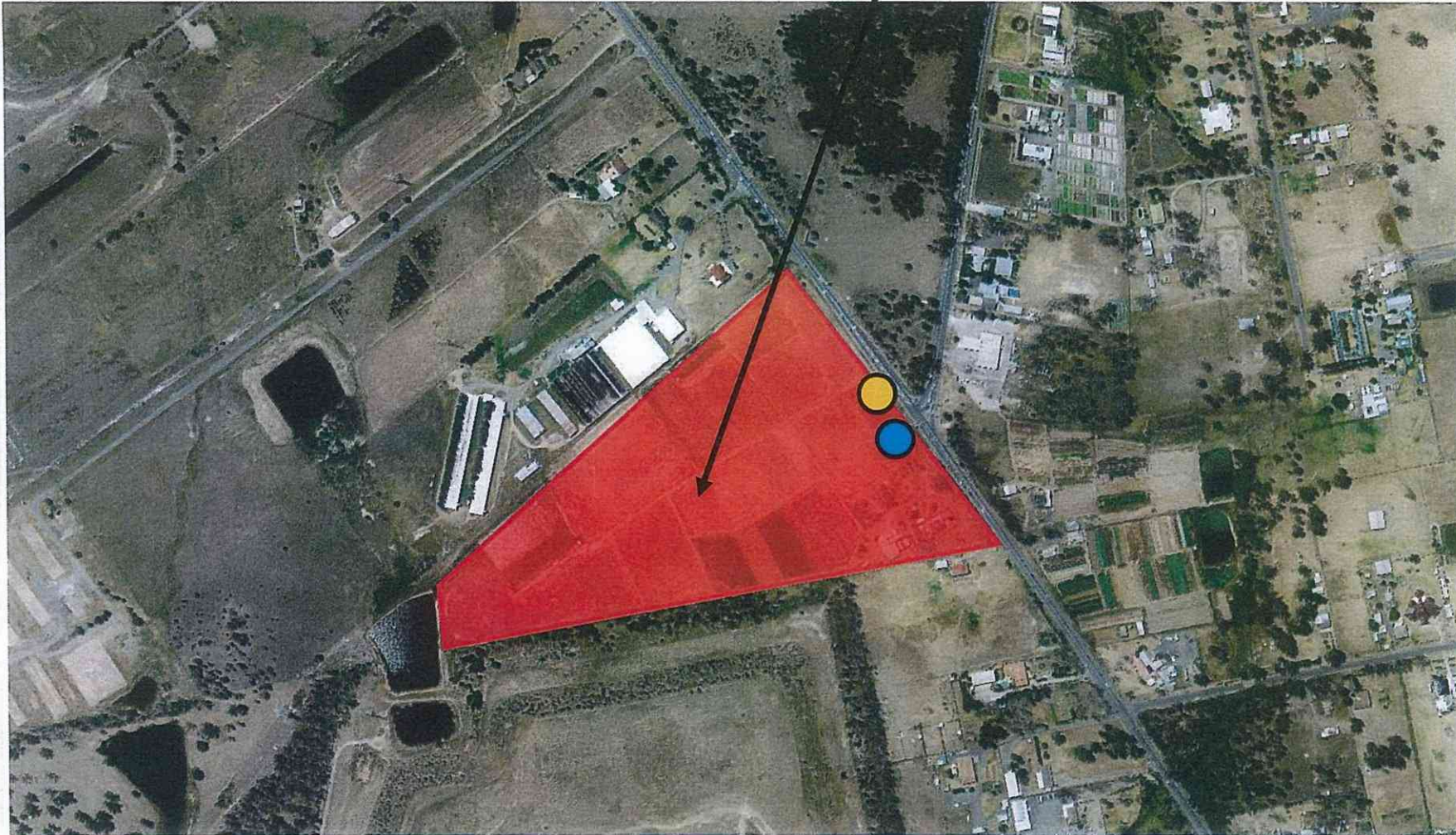




Figure 2 Site Map
Sourced from Google Maps

-  Unattended Noise Monitor
-  Attended Noise Measurement

3 NOISE DESCRIPTORS

Traffic noise constantly varies in level, due to fluctuations in traffic speed, vehicle types, road conditions and traffic densities. Accordingly, it is not possible to accurately determine prevailing traffic noise conditions by measuring a single, instantaneous noise level. To accurately determine the effects of traffic noise a 15-20 minute measurement interval is utilised. Over this period, noise levels are monitored on a continuous basis and statistical and integrating techniques are used to determine noise description parameters. These parameters are used to measure how much annoyance would be caused by a particular noise source.

In the case of environmental noise three principle measurement parameters are used, namely L_{10} , L_{90} and L_{eq} .

The L_{10} and L_{90} measurement parameters are statistical levels that represent the average maximum and average minimum noise levels respectively, over the measurement intervals. The L_{10} parameter is commonly used to measure noise produced by a particular intrusive noise source since it represents the average of the loudest noise levels produced at the source. Conversely, the L_{90} level (which is commonly referred to as the background noise level) represents the noise level heard in the quieter periods during a measurement interval. The L_{90} parameter is used to set the allowable noise level for new, potentially intrusive noise sources since the disturbance caused by the new source will depend on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the L_{90} level.

The L_{eq} parameter represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the measurement period. L_{eq} is important in the assessment of traffic noise impact as it closely corresponds with human perception of a changing noise environment; like traffic noise.

4 TRAFFIC NOISE INTRUSION ASSESSMENT

This section of the report presents detail into the acoustic assessment of traffic noise intrusion to the proposed residential development.

4.1 PROJECT ACOUSTIC OBJECTIVES

4.1.1 Facts and Contentions - Land and Environmental Court of NSW – 201700268600

3. Acoustic privacy

The proposal will not provide suitable levels of residential amenity in terms of acoustic privacy due to the proximity of the site to Richmond Road and the significant traffic noise associated with the traffic volumes.

Particulars

- (a) The Traffic Volume Map for ISEPP estimates that Richmond Road carries between 20,000 and 40,000 annual average daily traffic (AADT). Pursuant to clause 102(3) of ISEPP, Council is not satisfied that road traffic noise associated with the traffic volumes on Richmond Road will not adversely impact on the proposed development, particularly residential dwellings within the proposed Lot 6 and Lot 8.
- (b) The applicant has not provided any evidence to demonstrate that suitable levels of residential amenity, in terms of acoustic privacy, would be afforded to dwellings in proposed Lots 6 and 8.

4.1.2 NSW Department of Planning and Environment document – ‘State Environmental Planning Policy (SEPP) (Infrastructure) 2007’

Clause 102 Impact of road noise or vibration on non-road development

(3) If the development is for the purposes of a building for residential use, the consent authority must not grant consent to the development unless it is satisfied that appropriate measures will be taken to ensure that the following L_{Aeq} levels are not exceeded:

- (a) in any bedroom in the building--35 dB(A) at any time between 10 pm and 7 am,*
- (b) anywhere else in the building (other than a garage, kitchen, bathroom or hallway) - 40 dB(A) at any time.*

4.1.3 Summary of Project Acoustic Objectives

The following table shows the internal noise objectives which will be adopted for this project for the different spaces found in the development.

Table 2 – Summary of Project Acoustic Objective

Space /Activity Type	Recommended Maximum Design Sound Level dB(A) $L_{Aeq}(\text{Period})$
Living Areas	40dB(A) $L_{Aeq}(\text{any time})$
Sleeping Areas	35dB(A) $L_{Aeq}(10\text{pm}-7\text{am})$

4.2 EXTERNAL NOISE MEASUREMENTS

This section of the report details noise measurements conducted at the site to establish traffic and surrounding environmental noise levels impacting the development.

4.2.1 Measurement Equipment

Attended short term measurements of traffic noise which were undertaken by this office, to supplement the unattended noise monitoring. Measurements were conducted using a Norsonic 140 Sound Analyser. The analyser was set to fast response and calibrated before and after the measurements using a Norsonic Sound Calibrator type 1251. No significant drift was noted.

Unattended noise monitoring was conducted using one Acoustic Research Laboratories Pty Ltd noise logger. The logger was programmed to store 15-minute statistical noise levels throughout the monitoring period. The equipment was calibrated at the beginning and the end of each measurement using a Rion NC-73 calibrator; no significant drift was detected. All measurements were taken on A-weighted fast response mode.

4.2.2 Measurement Location

An unattended noise monitor was installed on the eastern boundary of project site, 1086 Richmond Road, Marsden Park. For detailed location refer to Figure 1. Noise monitor location was approximately 70m from the kerb of Richmond Road.

An attended traffic noise measurements was conducted along Richmond Road was located along the eastern boundary of 1086 Richmond Road, Marsden Park. See figure 1 for Measurement location. Noise measurement location had a 180° view of Richmond Road and was conducted at a distance of 5m from the kerb.

4.2.3 Measurement Period

Unattended noise monitoring was conducted from Monday, 24th July 2017 to Monday, 31st July 2017.

Attended noise measurements were undertaken between the hours of 4:30pm and 5:30pm on Tuesday, 25th July 2017.

4.2.4 Measured Traffic Noise Measurements

Attended and unattended noise measurements have been summarised below.

4.2.4.1 Unattended Noise Monitoring

Results from the unattended noise monitoring having been provided below.

Table 3 – Unattended Noise Monitor – Location 1 – Traffic Noise Measurements

Date	Measured Traffic Noise Level dB(A) _{Leq}	
	Day (7am-10pm)	Night (10pm-7am)
Monday, 24 th July, 2017	-	57
Tuesday, 25 th July, 2017	59	55
Wednesday, 26 th July, 2017	60	56
Thursday, 27 th July, 2017	58	56
Friday, 28 th July, 2017	59	55
Saturday, 29 th July, 2017	57	51
Sunday, 30 th July, 2017	58	55
Monday, 31 st July, 2017	-	-
Logarithmic Average	58	55

*Partially obstructed view.

4.2.4.2 Attended Traffic Noise Measurements

Attended noise measurements have been summarised below for each location.

Table 4 – Attended Traffic Noise Measurements

Location	Time of Measurement	Measured Noise Level
Richmond Road (See Figure 1) 5m from kerb 180° view of the road	4:30pm – 5:30pm Tuesday, 25 th July, 2017	69dB(A) _{Leq(15minutes)}

4.2.4.3 Predicted Noise Level at New Facade

Based on the unattended and attended noise measurements above, the resultant noise level at the proposed facades are listed below.

Table 5 – Predicted Noise Level at New Facade

Location	Summary of Measured Existing Traffic Noise Level	
	Daytime (7am-10pm)	Night time (10pm-7am)
Eastern Boundary of Lot 6 and 8 (Richmond Road)	65 dB(A) L_{Aeq} (15hour)	62 dB(A) L_{Aeq} (9hour)

4.3 NOISE INTRUSION ANALYSIS

Traffic noise intrusion into the proposed development was assessed using the measured traffic noise levels presented above.

Calculations were undertaken taking into account the orientation of windows, barrier effects (*where applicable*), the total area of glazing, facade transmission loss and room sound absorption characteristics. In this way, the likely interior noise levels can be predicted.

4.4 RECOMMENDED CONSTRUCTIONS

4.4.1 Glazed Windows and Doors

The following constructions are recommended to comply with the project noise objectives. Aluminium framed/sliding glass doors and windows will be satisfactory provided they meet the following criteria. All external windows and doors listed are required to be fitted with Q-lon type acoustic seals. **(Mohair Seals are unacceptable).**

Thicker glazing may be required for structural, safety or other purposes. Where it is required to use thicker glazing than scheduled, this will also be acoustically acceptable.

The recommended constructions are listed in Table 6 below.

Table 6 – Glazing Thickness Requirements

Lot	Town House Number	Space	Recommended Glazing	Acoustic Seals
6	Townhouse 1 to 8	Living/Kitchen (Facing Richmond Road)	10mm Float	Yes
		Living (Internal Road)	6mm Float	
		Bedroom (Facing Richmond Road)	10.38mm Laminate	
		Bedroom (Internal Road)	6.38mm Laminate	

Table 7 – Glazing Thickness Requirements (Cont.)

Lot	Town House Number	Space	Recommended Glazing	Acoustic Seals
6	Townhouse 9 to 13 and 61-67	Living Space	6.38mm Laminate	Yes
		Bedrooms	6.38mm Laminate	
	All Remaining	Living Space	6mm Float	
		Bedroom	6mm Float	
		Bedroom (Facing RMS Road/Sub Arterial Road)	6.38mm Laminate	
8	Townhouse 1 to 3, Townhouse 20 to 36	Living/Kitchen (Facing Richmond Road)	10mm Float	
		Living (Internal Road)	6mm Float	
		Bedroom (Facing Richmond Road)	10.38mm Laminate	
		Bedroom (Internal Road)	6.38mm Laminate	
	All Remaining	Living Space	6mm Float	
		Bedrooms	6.38mm Laminate	
	7	All Remaining	Living Space	
Bedroom			6mm Float	
Bedroom (Facing RMS Road/Sub Arterial Road)			6.38mm Laminate	
10	All Remaining	Living Space	6mm Float	
		Bedroom	6mm Float	
		Bedroom (Facing RMS Road/Sub Arterial Road)	6.38mm Laminate	

It is recommended that only window systems having test results indicating compliance with the required ratings obtained in a certified laboratory be used where windows with acoustic seals have been recommended.

In addition to complying with the minimum scheduled glazing thickness, the R_w rating of the glazing fitted into open-able frames and fixed into the building opening should not be lower than the values listed in Table 8 for all rooms. Where nominated, this will require the use of acoustic seals around the full perimeter of open-able frames and the frame will need to be sealed into the building opening using a flexible sealant.

Table 8 - Minimum R_w of Glazing (with Acoustic Seals)

Glazing Assembly	Minimum R_w of Installed Window
5mm Float	27
6mm Float	29
6.38mm Laminate	31
10mm Float	33
10.38mm Laminate	35

4.4.2 External Roof Constructions

External roof construction will be constructed from concrete tile system; this proposed structure will require further acoustic upgrading, see below. In the event that any penetrations are required thru the external skin, an acoustic sealant should be used to minimise all gaps.

Table 9 – External Roof Construction

Space	Internal Lining	Truss System	External Lining
Bedrooms (Facing Richmond Road)	2x13mm Plasterboard	Minimum 250mm Air Cavity with 75mm thick 11kg/ ³ glasswool insulation	Roof Tile System
Remaining Bedrooms & all Living Rooms	1x13mm Plasterboard		

The recommended roof/ceiling construction is shown in Figure 3 below.

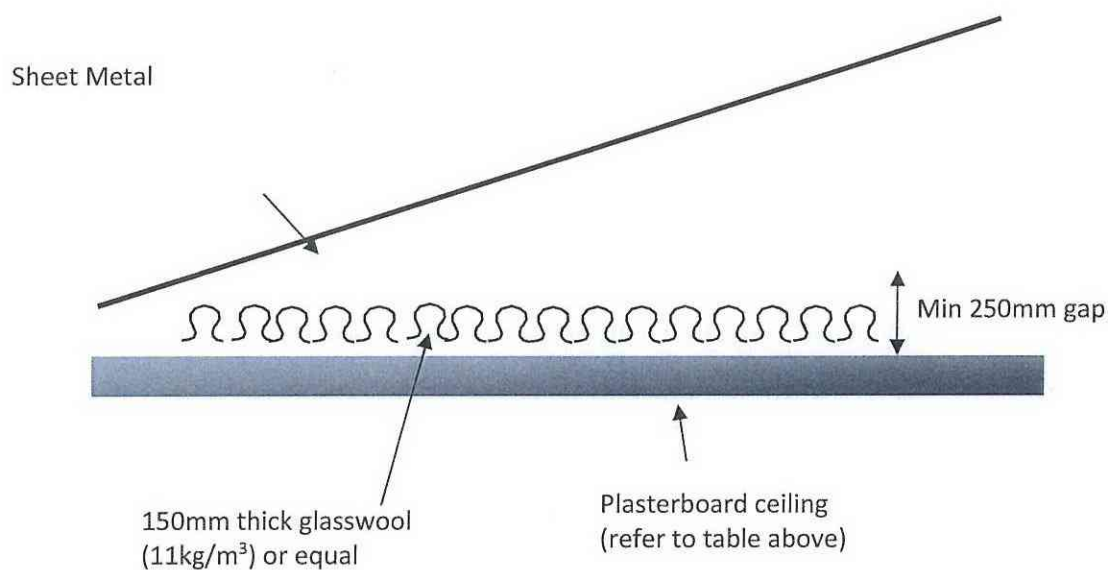


Figure 3 – Roof / Ceiling Construction

4.4.3 External Wall Constructions

External wall construction will be constructed from the combination of Masonry Brick or Lightweight elements. External facades constructed from masonry elements will not require any further acoustic upgrading. External wall which are constructed from Lightweight elements will require the following acoustic upgrading. In the event that any penetrations are required thru the external skin, an acoustic sealant should be used to minimise all gaps.

Table 10 – External Wall Construction

Space	Internal Lining	Stud System	External Lining
Bedrooms (Facing Richmond Road)	2x13mm Plasterboard	92mm Stud with 75mm thick 11kg/m ³ glasswool insulation	Lightweight Cladding System
Bedrooms	1x13mm Plasterboard		
Living Space	1x13mm Plasterboard		

5 CONCLUSION

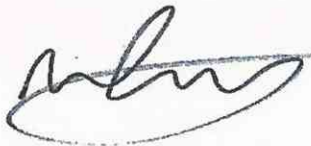
This report provides the findings of the acoustic assessment undertaken by this office for the residential development located at Lot 51 DP 1196583 and known as 1086 Richmond Road, Marsden Park.

Provided that the detailed recommendations which are detailed in section 4.4 of this report are incorporated into the construction, internal noise levels shall comply with the requirements below:

- Facts and Contentions - Land and Environmental Court of NSW – 201700268600; and
- NSW Department of Planning and Environment document – ‘State Environmental Planning Policy (SEPP) (Infrastructure) 2007’.

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,

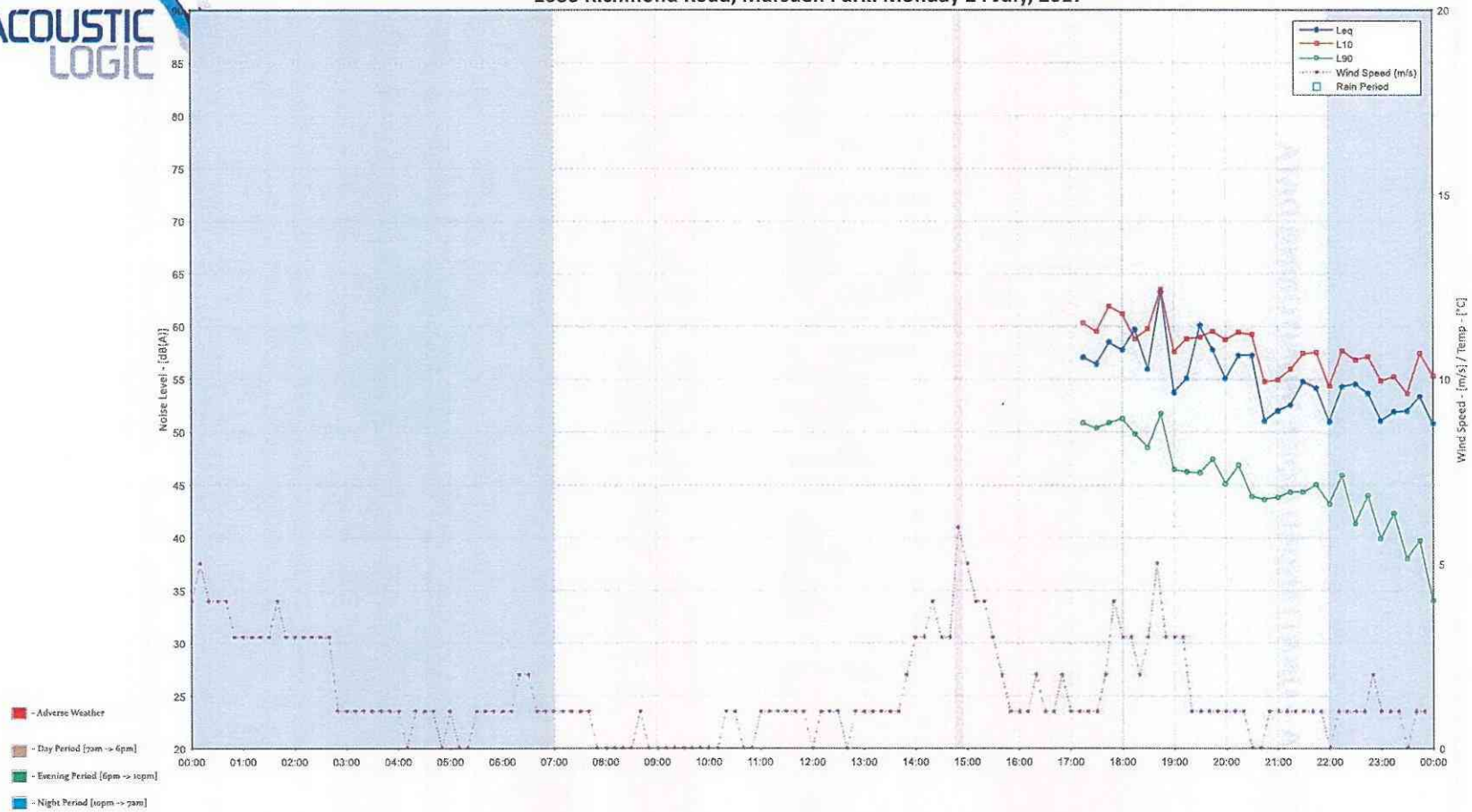
A handwritten signature in black ink, appearing to read 'Matthew Furlong', with a large, sweeping flourish at the end.

Acoustic Logic Consultancy Pty Ltd
Matthew Furlong

APPENDIX A – UNATTENDED NOISE MONITORING DATA

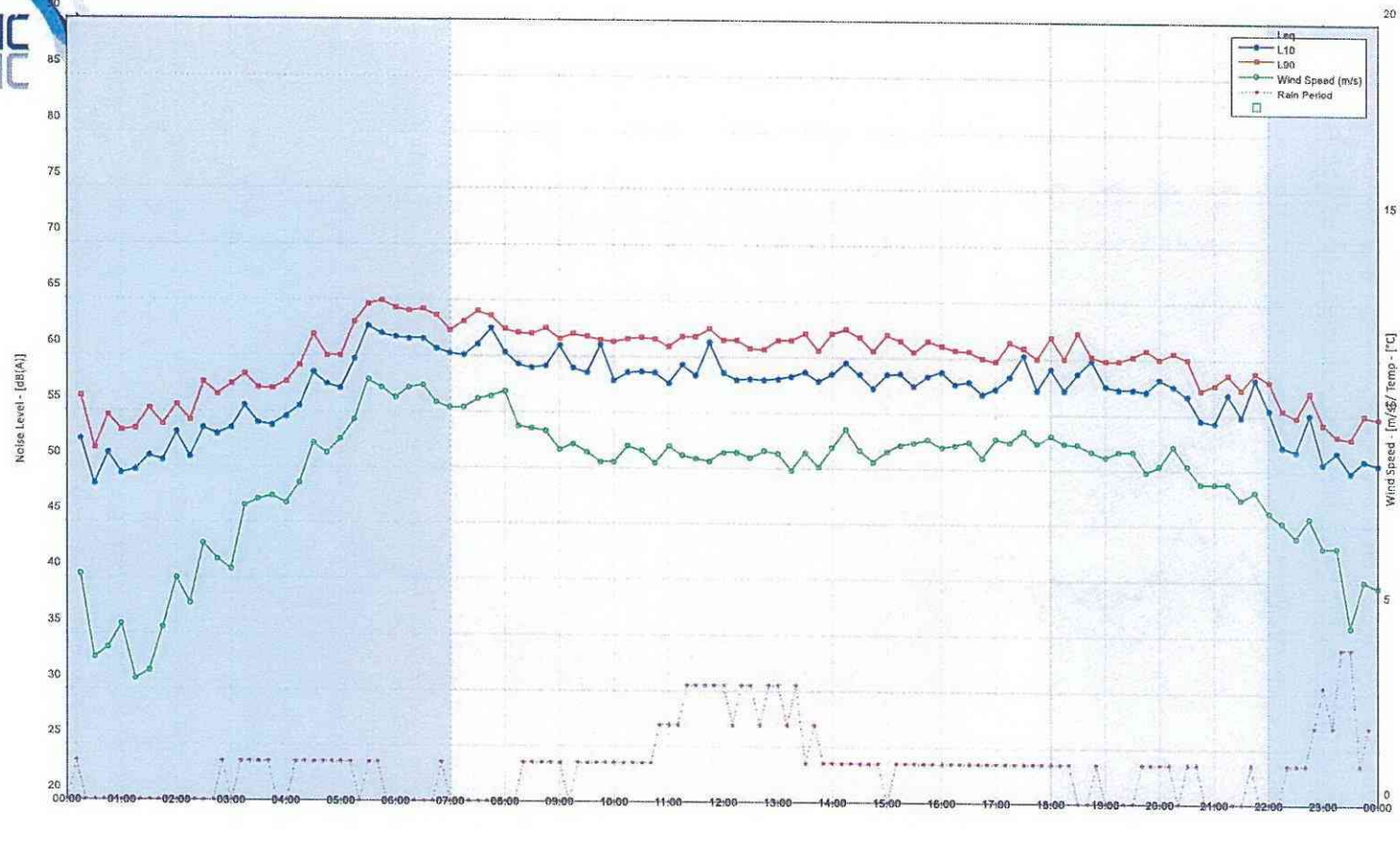


1086 Richmond Road, Marsden Park: Monday 24 July, 2017

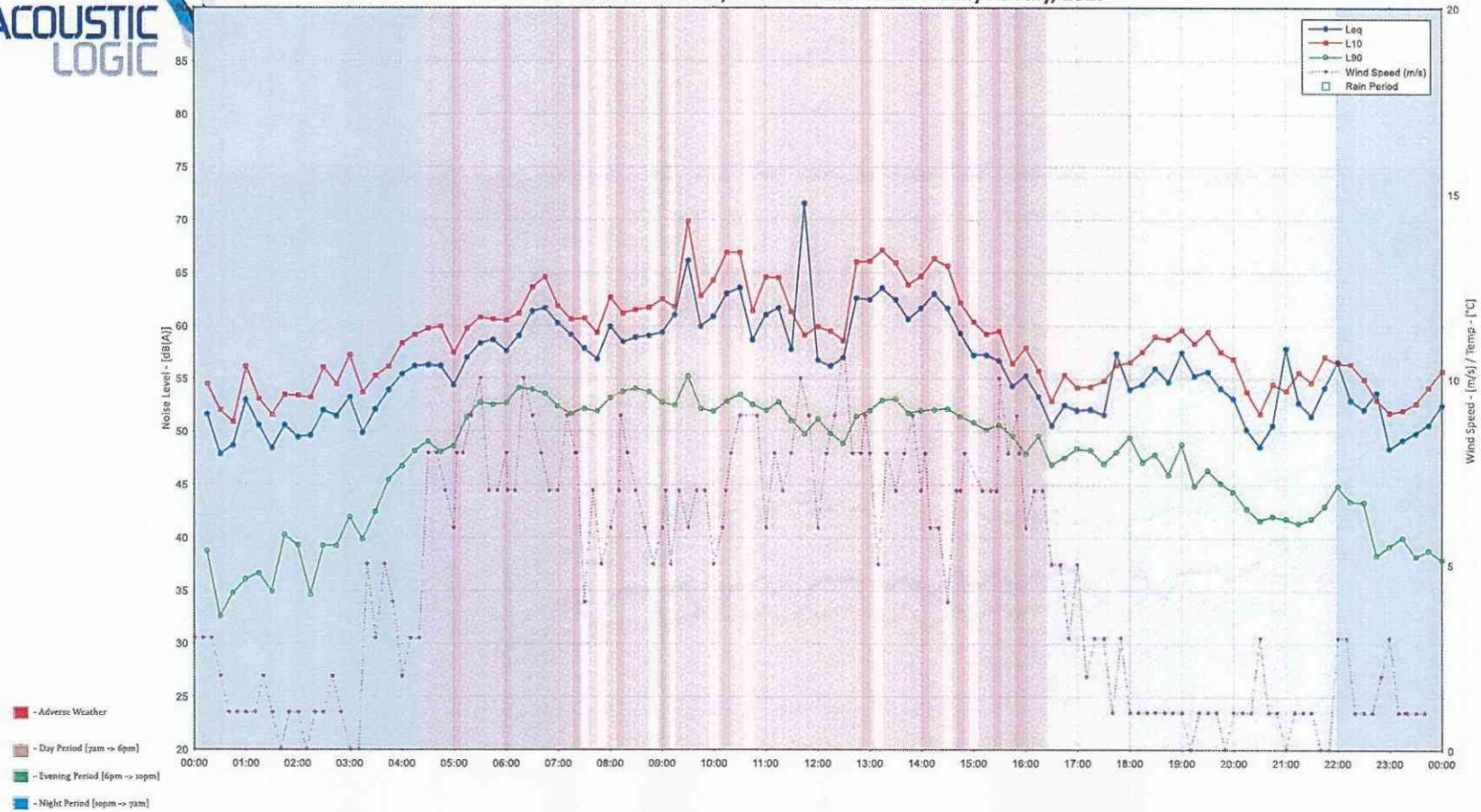




1086 Richmond Road, Marsden Park: Tuesday 25 July, 2017

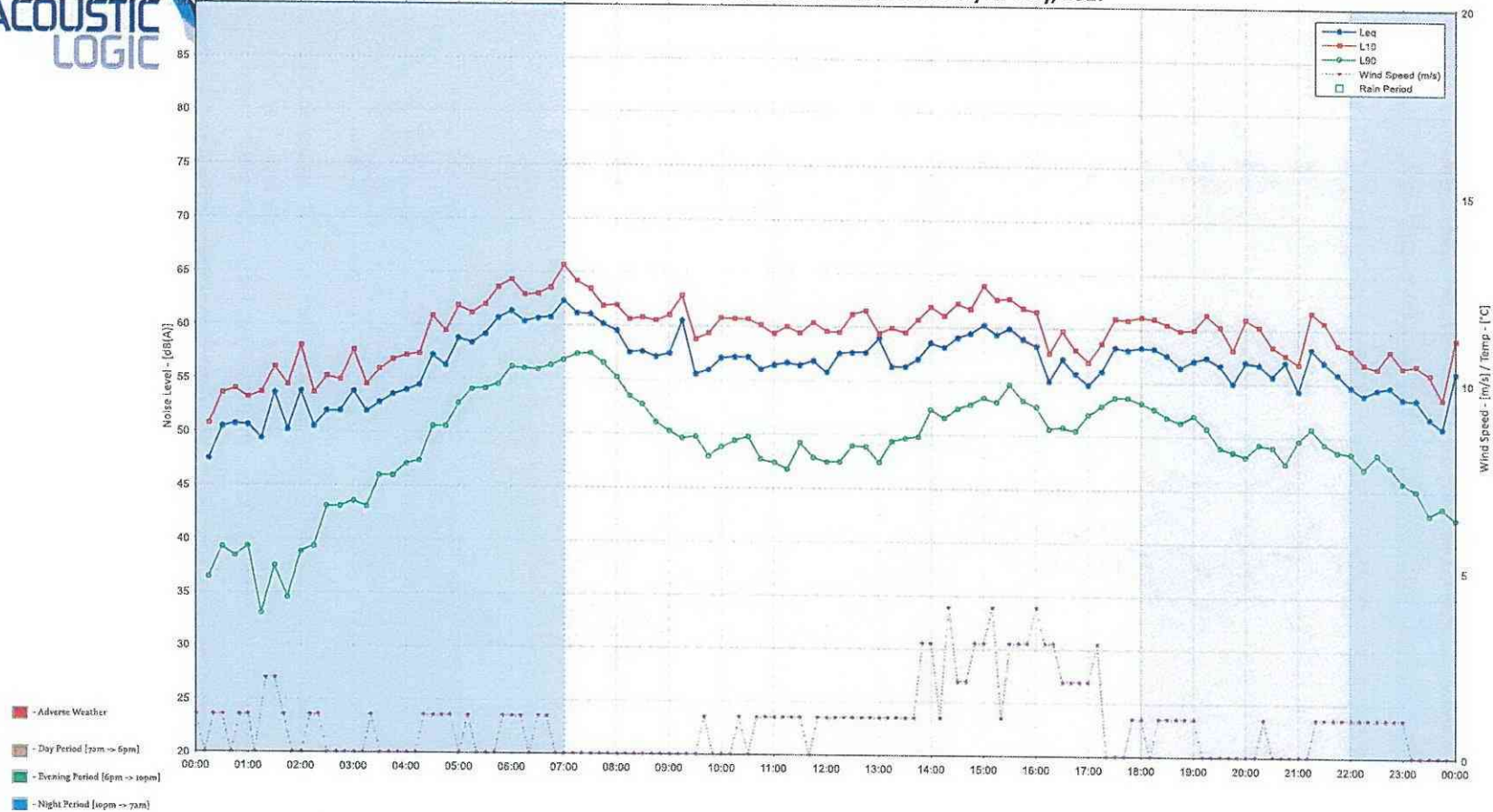


1086 Richmond Road, Marsden Park: Wednesday 26 July, 2017

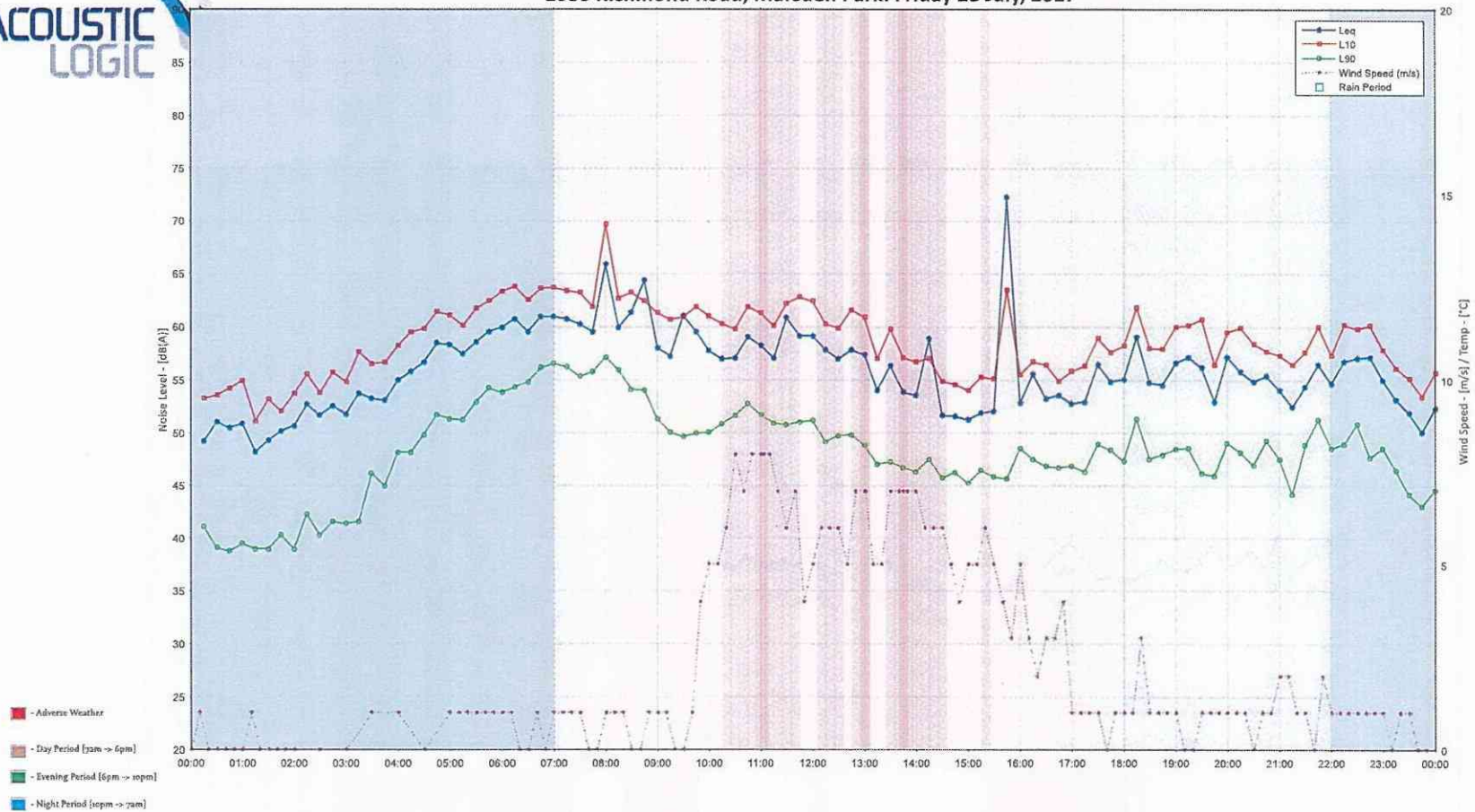




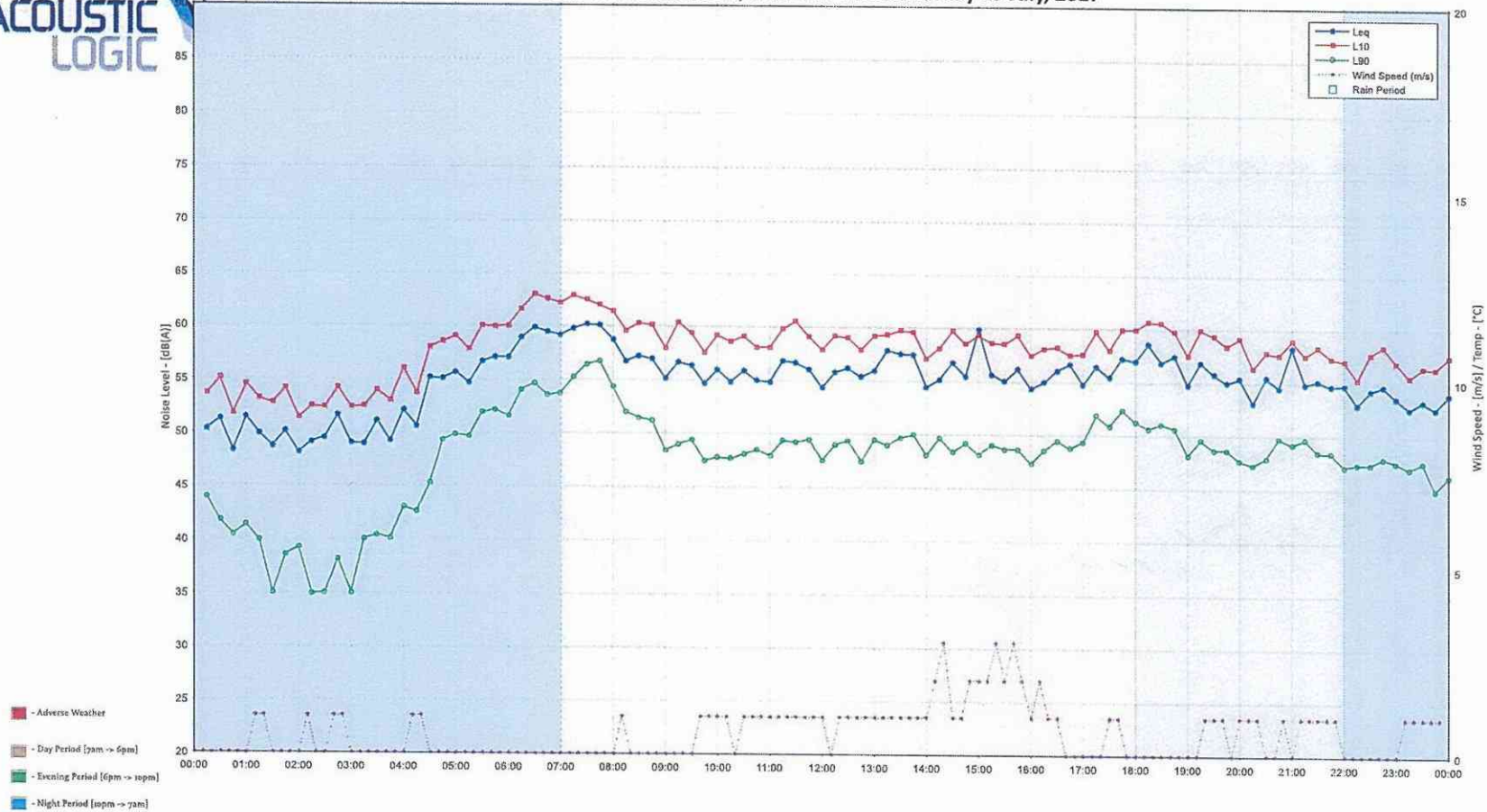
1086 Richmond Road, Marsden Park: Thursday 27 July, 2017



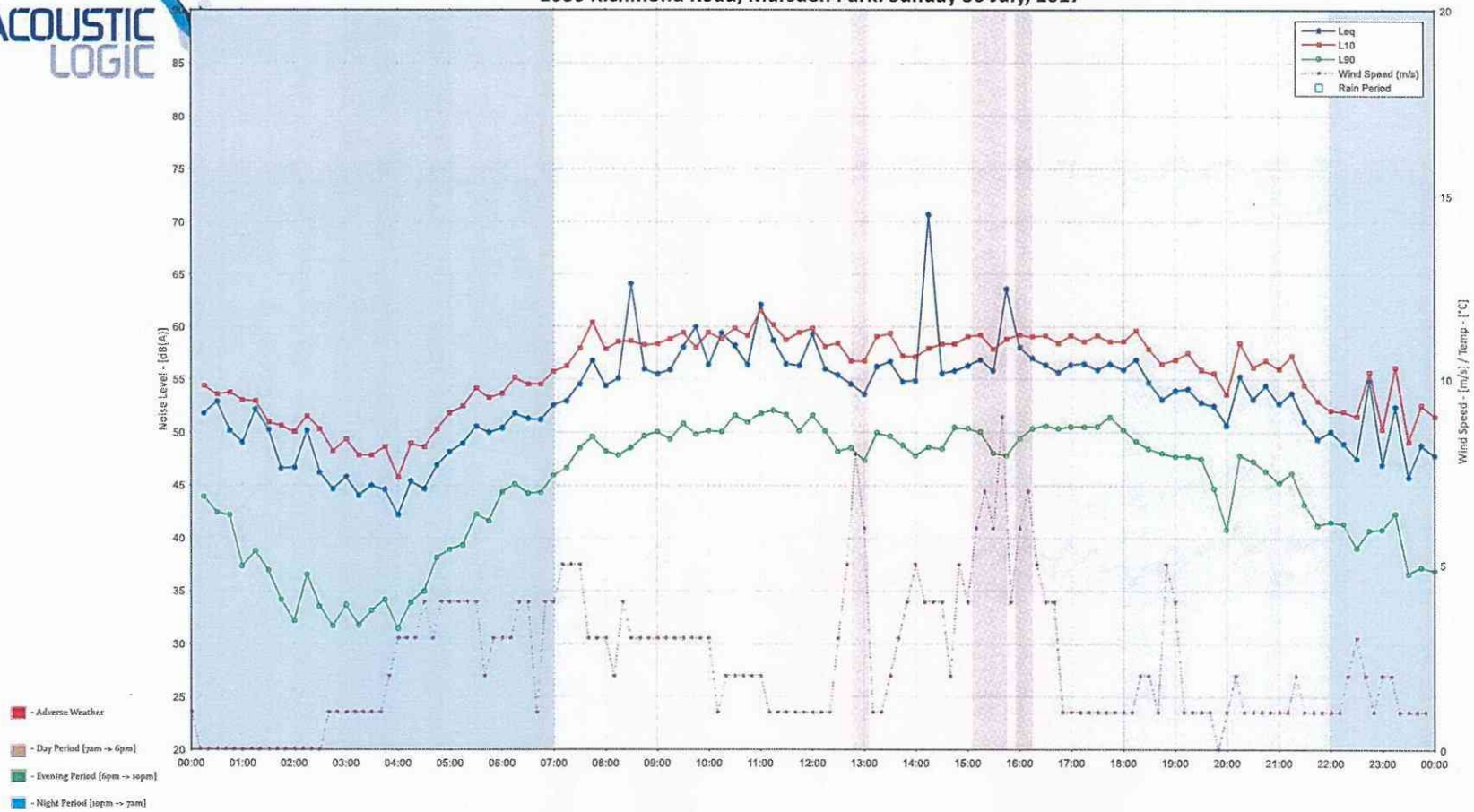
1086 Richmond Road, Marsden Park: Friday 28 July, 2017



1086 Richmond Road, Marsden Park: Saturday 29 July, 2017

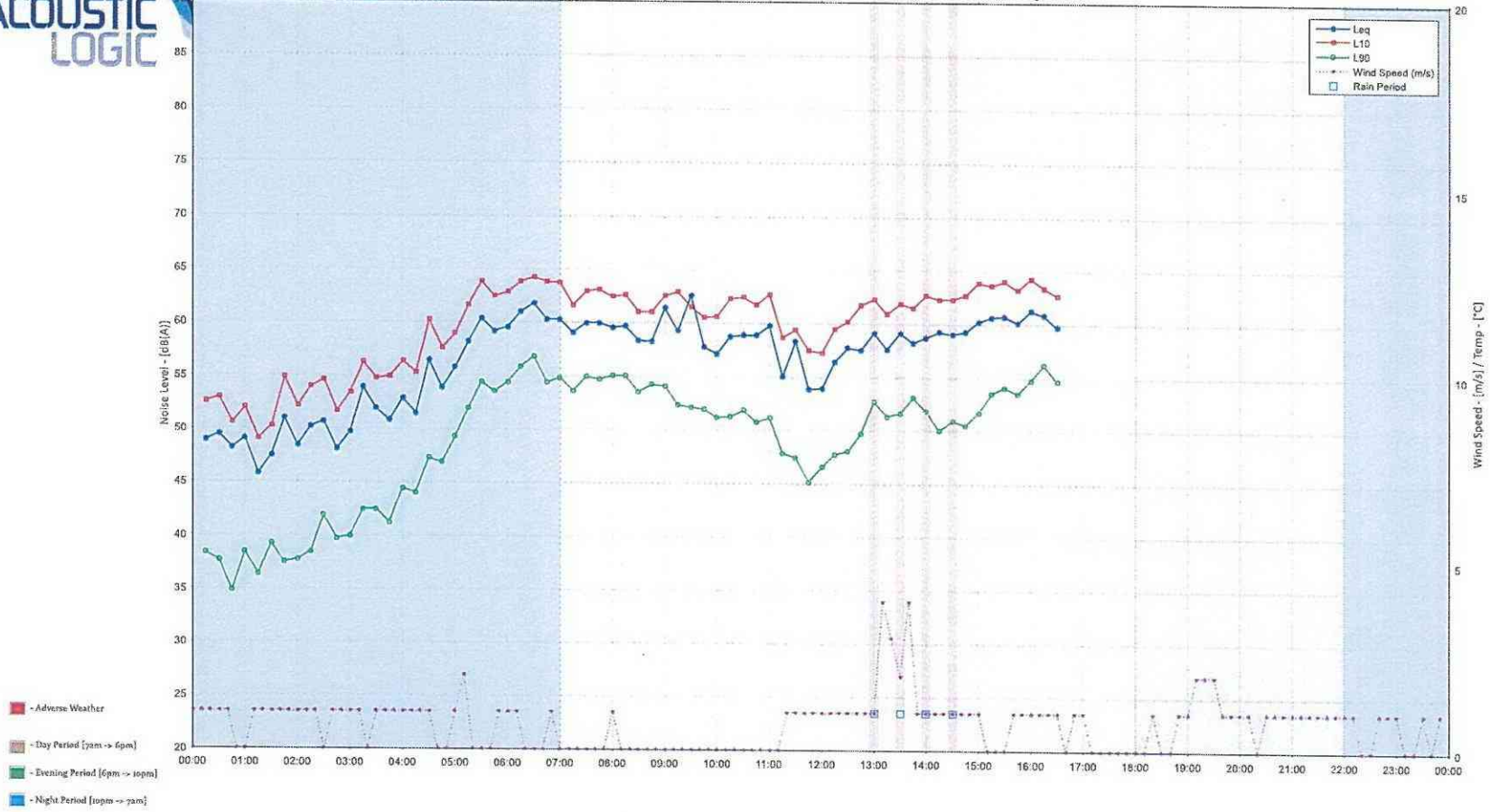


1086 Richmond Road, Marsden Park: Sunday 30 July, 2017





1086 Richmond Road, Marsden Park: Monday 31 July, 2017





Travers

bushfire & ecology

bushfire protection assessment

Proposed Residential Development
(Super lots 6, 7, 8 & 10)

Lot 51 DP 1196583
1086 Richmond Road, Marsden Park

Under Section 79BA of the EP&A Act 1979

February 2018
(REF: A18013)



Bushfire Protection Assessment

Proposed Residential Development
(Super lots 6, 7, 8 & 10)

Lot 51 DP 1196583
1086 Richmond Road, Marsden Park

Report Authors:	Nicole van Dorst BPAD Level 2 John Travers BPAD-L3 15195
Plans prepared:	Alexandra Scott
Checked by:	John Travers BPAD-L3 15195
Date:	2 February 2018
File:	A18013

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Disclaimer:

This report has been prepared to provide advice to the client on matters pertaining to the particular and specific development proposal as advised by the client and / or their authorised representatives. This report can be used by the client only for its intended purpose and for that purpose only. Should any other use of the advice be made by any person including the client then this firm advises that the advice should not be relied upon. The report and its attachments should be read as a whole and no individual part of the report or its attachments should be relied upon as meaning it reflects any advice by this firm. The report does not suggest or guarantee that a bush or grass fire will not occur and or impact the development. This report advises on matters published by the *NSW Rural Fire Service* in their guideline *Planning for Bush Fire Protection 2006* and other advice available from that organisation.

The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features are to be confirmed by a registered surveyor.

EXECUTIVE SUMMARY

Travers bushfire & ecology (TBE) prepared a bushfire protection assessment report (May 2016) and an addendum letter (25th November 2016) for the approved subdivision at Richmond Road, Marsden Park. Subsequently the NSW RFS issued its concurrence for the subdivision.

The proposed development forms part of the broader *Marsden Park Precinct* with the adjoining land to subject to development in the near future.

UPG have since lodged another DA application with Blacktown City Council to erect 189 dwellings on the approved subdivision (SPP-17-00018). This proposal involves a multi-dwelling housing development over four (4) super lots as well as the construction of internal roads and landscaping.

As a result this report has been prepared in accordance with the requirements of *Planning for Bushfire Protection 2006* (PBP) and addresses the NSW RFS request (via letter dated 25 August 2017) to prepare a revised bush fire protection assessment to include:

1. The type of development and determination of the vegetation management of proposed Lot 9, particularly in terms of the proximity of the proposed dwellings located on Lots 10 & 7 and the construction levels that they would be required to be built to in accordance with the highest bushfire attack level.
2. A determination of the nature and type of current and future vegetation management of the proposed unmanaged vegetation located to the south west.
3. An indication of the highest bushfire attack levels that the proposed dwelling would be constructed to on all Lots.

PBP dictates that the subsequent extent of bushfire attack that can potentially impact a building must not exceed a radiant heat flux of $29kW/m^2$ for multiple occupancy residential developments. This rating assists in determining the size of the asset protection zone (APZ), to provide the necessary defensible space between hazardous vegetation and a habitable building.

The assessment found that bushfire can potentially affect the proposed development from the existing forest / remnant vegetation located within the Grange Avenue Landfill site to the south and grassland areas to the north-west and south-east.

The assessment has concluded that the proposed development will provide compliance with *PBP* with the BAL determined in compliance with Appendix B Method 2 (alternative solution) of *AS3959 Construction of buildings in bushfire prone areas* (2009).

GLOSSARY OF TERMS

AHIMS	Aboriginal Heritage Information System
APZ	asset protection zone
AS1596	<i>Australian Standard – The storage and handling of LP Gas</i>
AS2419	<i>Australian Standard – Fire hydrant installations</i>
AS3745	<i>Australian Standard – Planning for emergencies in facilities</i>
AS3959	<i>Australian Standard – Construction of buildings in bushfire-prone areas 2009</i>
BCA	<i>Building Code of Australia</i>
BSA	bushfire safety authority
<i>EP&A Act</i>	<i>Environmental Planning & Assessment Act 1979</i>
FDI	fire danger index
IPA	inner protection area
LEP	Local Environmental Plan
OPA	outer protection area
<i>PBP</i>	<i>Planning for Bush Fire Protection 2006</i>
<i>RF Act</i>	<i>Rural Fires Act 1997</i>
RFS	NSW Rural Fire Service
SFPP	special fire protection purpose

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REFERENCES

SCHEDULE 1 – Bushfire Protection Measures

APPENDIX 1 – Management of Asset Protection Zones

APPENDIX 2 – Performance based assessment



Introduction

1

Travers bushfire & ecology has been requested to undertake a bushfire protection assessment for the proposed multi-dwelling housing development involving the construction of 185 two-story dwellings over super Lots 6, 7, 8 & 10 as well as the construction of internal roads and landscaping at Lot 51 DP 1196583, 1086 Richmond Road, Marsden Park.

The proposed development is located on land mapped by Blacktown Council as being bushfire prone. This triggers a formal assessment by Council in respect of the NSW Rural Fire Service (RFS) policy against the provisions of *Planning for Bush Fire Protection 2006 (PBP)*.

1.1 Aims of the assessment

The aims of the bushfire protection assessment are to:

- review the bushfire threat to the landscape
- undertake a bushfire attack assessment in accordance with *PBP*
- provide advice on mitigation measures, including the provision of asset protection zones (APZs), construction standards and other specific fire management issues
- review the potential to carry out hazard management over the landscape.

1.2 Project synopsis

The proposed development forms part of the Marsden Park Precinct in the North West Growth Centre.

The proposed development will occur within the approved super lots 6, 7, 8 & 10 as outlined below and depicted in Figures 1.1 – 1.4.

Lot 6 / Stage 6

- sixty six (66) double storey townhouses
- Private roads with a carriageway width of 5m and 7.5m

Lot 7 / Stage 7

- Forty five (45) double storey townhouses
- Private roads with a carriageway width of 6.660m & 5m

Lot 8 / Stage 8

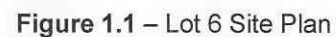
- Thirty eight (38) double storey townhouses
- Private roads with a carriageway width of 6m & 4.5m

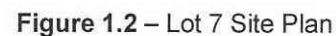
Lot 10 / Stage 10

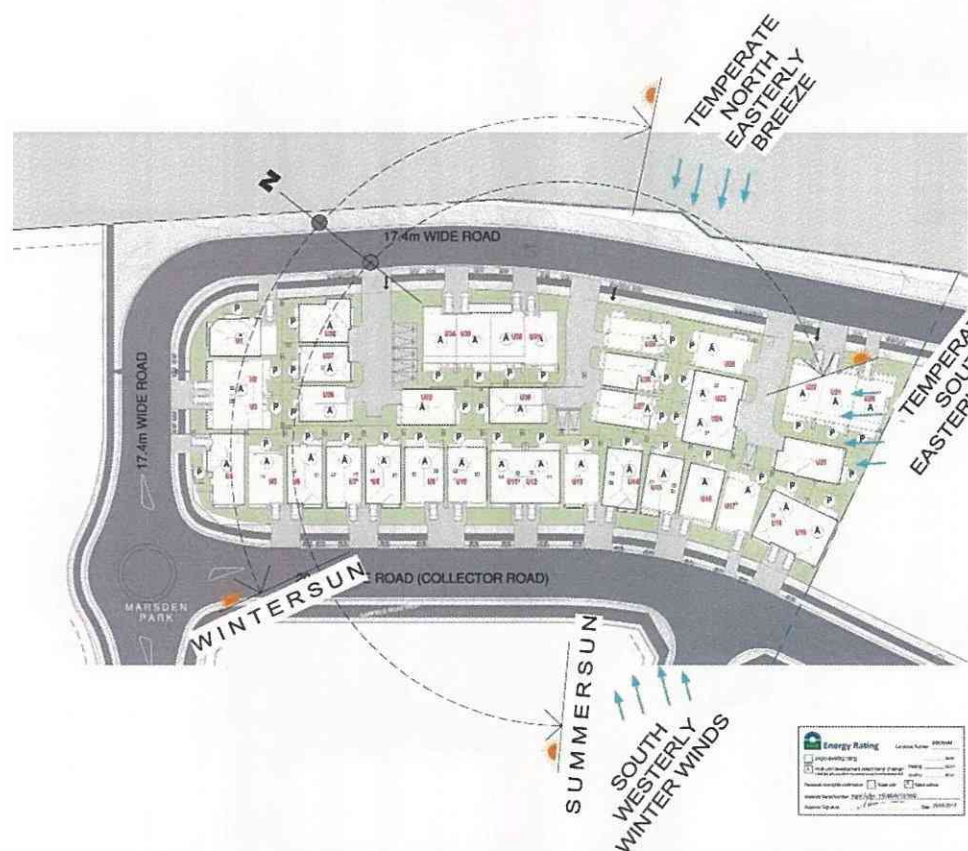
- Thirty six (36) double storey townhouses
- Private roads with a carriageway width of 6m & 5m

The indicative layout plan (refer Figure 1.5) illustrates the broad level development outcomes for the Marsden Park Precinct such as the development footprint, land uses, open space, major transport linkages and community facilities.

Schedule 1 attached shows the proposed development and bushfire protection measures, including APZs and BAL levels, incorporating the surrounding land uses as identified within the indicative layout plan.





[illegible]

DRAWING REGISTER			
Sheet Number	Sheet Name	Issue Date	Rev
DA001	SITE ANALYSIS	21/12/2017	3
DA002	SITE PLAN	21/12/2017	3
DA003	GROUND FLOOR	21/12/2017	3
DA004	FIRST FLOOR	21/12/2017	3
DA005	SECTIONS & SECTION	21/12/2017	3
DA006	SHADOWS 1	21/12/2017	3
DA007	SHADOWS 2	21/12/2017	3
DA008	SITE COVERAGE PLAN	01/10/18	2

[illegible]

GENERAL INFO										Q/114		Q/115		Q/116		Q/117		Q/118		Q/119		Q/120		Q/121		Q/122		Q/123		Q/124		Q/125		Q/126		Q/127		Q/128		Q/129		Q/130		Q/131		Q/132		Q/133		Q/134		Q/135		Q/136		Q/137		Q/138		Q/139		Q/140		Q/141		Q/142		Q/143		Q/144		Q/145		Q/146		Q/147		Q/148		Q/149		Q/150		Q/151		Q/152		Q/153		Q/154		Q/155		Q/156		Q/157		Q/158		Q/159		Q/160		Q/161		Q/162		Q/163		Q/164		Q/165		Q/166		Q/167		Q/168		Q/169		Q/170		Q/171		Q/172		Q/173		Q/174		Q/175		Q/176		Q/177		Q/178		Q/179		Q/180		Q/181		Q/182		Q/183		Q/184		Q/185		Q/186		Q/187		Q/188		Q/189		Q/190		Q/191		Q/192		Q/193		Q/194		Q/195		Q/196		Q/197		Q/198		Q/199		Q/200		Q/201		Q/202		Q/203		Q/204		Q/205		Q/206		Q/207		Q/208		Q/209		Q/210		Q/211		Q/212		Q/213		Q/214		Q/215		Q/216		Q/217		Q/218		Q/219		Q/220		Q/221		Q/222		Q/223		Q/224		Q/225		Q/226		Q/227		Q/228		Q/229		Q/230		Q/231		Q/232		Q/233		Q/234		Q/235		Q/236		Q/237		Q/238		Q/239		Q/240		Q/241		Q/242		Q/243		Q/244		Q/245		Q/246		Q/247		Q/248		Q/249		Q/250		Q/251		Q/252		Q/253		Q/254		Q/255		Q/256		Q/257		Q/258		Q/259		Q/260		Q/261		Q/262		Q/263		Q/264		Q/265		Q/266		Q/267		Q/268		Q/269		Q/270		Q/271		Q/272		Q/273		Q/274		Q/275		Q/276		Q/277		Q/278		Q/279		Q/280		Q/281		Q/282		Q/283		Q/284		Q/285		Q/286		Q/287		Q/288		Q/289		Q/290		Q/291		Q/292		Q/293		Q/294		Q/295		Q/296		Q/297		Q/298		Q/299		Q/300		Q/301		Q/302		Q/303		Q/304		Q/305		Q/306		Q/307		Q/308		Q/309		Q/310		Q/311		Q/312		Q/313		Q/314		Q/315		Q/316		Q/317		Q/318		Q/319		Q/320		Q/321		Q/322		Q/323		Q/324		Q/325		Q/326		Q/327		Q/328		Q/329		Q/330		Q/331		Q/332		Q/333		Q/334		Q/335		Q/336		Q/337		Q/338		Q/339		Q/340		Q/341		Q/342		Q/343		Q/344		Q/345		Q/346		Q/347		Q/348		Q/349		Q/350		Q/351		Q/352		Q/353		Q/354		Q/355		Q/356		Q/357		Q/358		Q/359		Q/360		Q/361		Q/362		Q/363		Q/364		Q/365		Q/366		Q/367		Q/368		Q/369		Q/370		Q/371		Q/372		Q/373		Q/374		Q/375		Q/376		Q/377		Q/378		Q/379		Q/380		Q/381		Q/382		Q/383		Q/384		Q/385		Q/386		Q/387		Q/388		Q/389		Q/390		Q/391		Q/392		Q/393		Q/394		Q/395		Q/396		Q/397		Q/398		Q/399		Q/400		Q/401		Q/402		Q/403		Q/404	
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Figure 1.3 – Lot 8 Site Plan

MULTI DWELLING DEVELOPMENT AT 1086 RICHMOND ROAD MARSDEN PARK - LOT 10 / STAGE 10

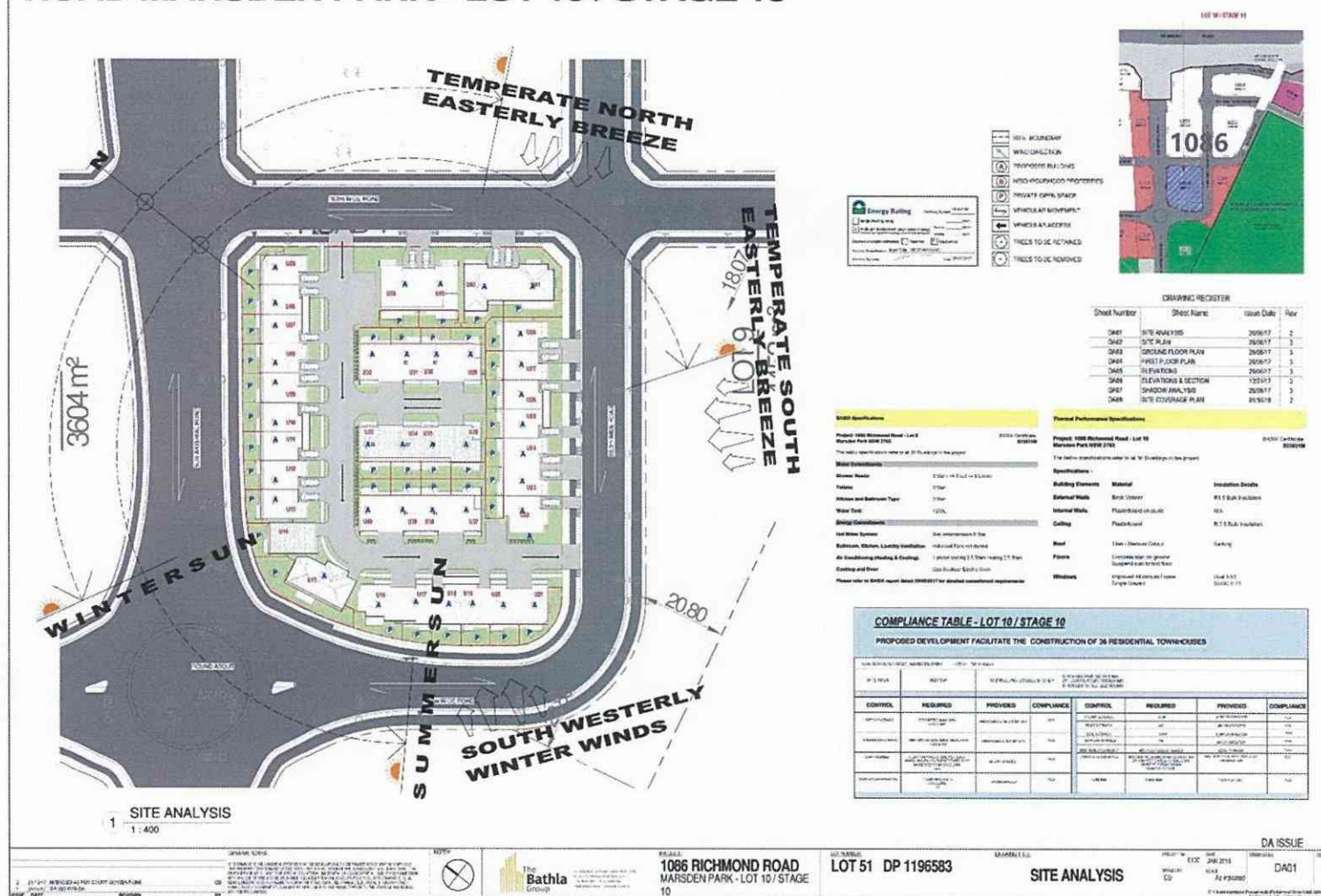


Figure 1.4 – Lot 10 Site Plan

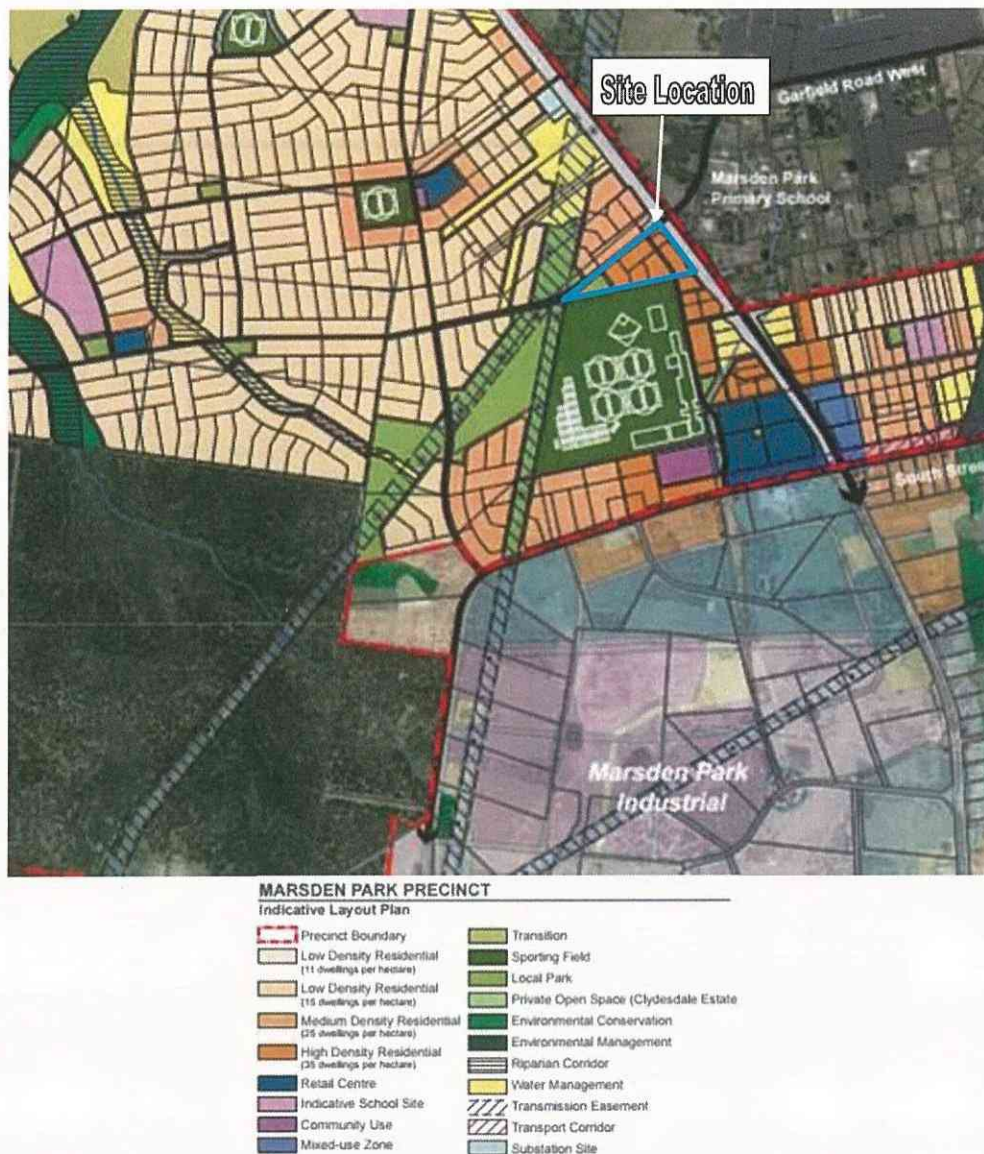


Figure 1.5 – Precinct Indicative Layout Plan

1.3 Information collation

To achieve the aims of this report, a review of the information relevant to the property was undertaken prior to the initiation of field surveys. Information sources reviewed include the following:

- Site Plans (Lot 10) prepared by *The Bathla Group* as amended per Court Contentions (dated 21.12.2017). Project no. 0100
- Site Plans (Lot 6) prepared by *The Bathla Group* as amended per Court Contentions (dated 29.1.2018). Project no. 0100
- Site Plans (Lot 7) prepared by *The Bathla Group* as amended per Court Comments (dated 29.1.2018). Project no. 0100
- Site Plans (Lot 8) prepared by *The Bathla Group* as amended per Court Comments (dated 29.1.2018). Project no. 0100
- State Environmental Planning Policy (Sydney Region Growth Centres) 2006.

- Section 94 Contributions Plan No 21 Marsden Park prepared by *Blacktown City Council*
- Blacktown City Council Growth Centre Precincts Development Control Plan 2016
- *Google* aerial photography
- Topographical maps DLPI of NSW 1:25,000
- Australian Standard 3959 *Construction of buildings in bushfire-prone areas (AS3959)*
- *Planning for Bush Fire Protection (PBP)*

An inspection of the proposed development site and surrounds was undertaken by John Travers in May 2016 and Nicole van Dorst in January 2017 to assess the topography, slopes, aspect, drainage, vegetation and adjoining land use. The identification of existing bushfire measures and a visual appraisal of bushfire hazard and risk were also undertaken.

1.4 Site description

Super Lots 6, 7, 8 & 10 (depicted in red below) are located to the west of Richmond Road, opposite its intersection with Garfield Road West, Marsden Park within the local government area (LGA) of Blacktown City (refer Figure 1.6).

The development site is adjoined to the north-west and south-east by rural lands approved for development (SPP-17-00018). The blue outline below depicts the boundary of the approved subdivision.

The land to the south is the former Grange Avenue Landfill site. This site will be converted overtime for sporting facilities to support active and passive recreational uses.



Figure 1.6 – Aerial appraisal

1.5 Legislation and planning instruments

Is the site mapped as bushfire prone?	Yes
Proposed development type	Multi-dwelling housing development (townhouses)
Is the development considered integrated for the purposes of Section 100B of the <i>Rural Fires Act 1997</i>	No – Section 79BA of the EP&A Act applies
Is the proposal located in an Urban Release Area as defined under Clause 273 of the EP&A Regulations?	Yes – State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (SEPP) applies.
Zoning	R3 – medium density residential, RE1 Public Recreation and SP2 Infrastructure.
Significant environmental features	No – the proposed development (including APZs) are located wholly outside of vegetation shown in the native vegetation protection map and riparian protection area map (as identified in the SEPP)
Details of any Aboriginal heritage	No known aboriginal sites
Does the proposal rely on an alternative solution	Yes – an alternative solution has been used to determine the BAL ratings (Method 2 of AS3959)



Bushfire Threat Assessment

2

To assess the bushfire threat and to determine the required width of an APZ for a development, a review of the elements that comprise the overall threat needs to be completed.

PBP provides a methodology to determine the size of any APZ that may be required to offset possible bushfire attack. These elements include the potential hazardous landscape that may affect the site and the effective slope within that hazardous vegetation.

2.1 Hazardous fuels

PBP guidelines require the identification of the predominant vegetation formation in accordance with David Keith (2004) to determine APZ distances for residential developments. The hazardous vegetation is calculated for a distance of at least 140m from a proposed building envelope.

The vegetation posing a bushfire threat to the site is:

- The existing remnant vegetation located within the Grange Avenue Landfill site to the south. This site will be converted overtime for sporting facilities to support active and passive recreational uses close to the town centre. As outlined in the contributions plan (refer Figure 2.1) the site is identified as Reserve 1006 and includes the existing landfill site as well as Lot 17 (west of super lot 10) to create a large active reserve with playing fields, playgrounds, youth recreation and lookout areas. The expected time for delivery is 2028-2032.

Based on the existing vegetation (refer Photo 1) and time of delivery a worst case scenario has been adopted and a remnant forest vegetation community has been adopted (south of Lot 10 and part Lot 7) due to the narrow width of the vegetation (<50m). A 'forest' vegetation community has been adopted to the south-east of Lot 7 and south-west of Lot 8 based on the fire run >50m. It is noted that this land is not mapped as bushfire prone.

- Unmanaged grassland vegetation located to the north-west and south-east of the proposed super lots. This land forms part of the broader approved subdivision, with Lots 5, 11 & 16 currently subject to a development application for medium density housing lodged with Council on 26th July 2017 (DPP 17-00024). Temporary APZ's have been applied to these aspects.



Reserve Number	Area (Ha)	Description	Completed cost Indexed to June 2016	Estimated Cost & Indicative Timing of Delivery			Total
				2016 - 2021	2022 - 2027	2028 -2032	
1006	64,2540	Large active reserve with playing fields, playgrounds, youth recreation and lookout areas. Land previously used as a waste disposal facility, remediation required.	\$0			\$70,790,000	\$70,790,000
		Remediation cost estimate	\$0		\$33,040,000		\$33,040,000

Figure 2.1 – Contributions Plan



Photo 1 – Strip of vegetation located within the adjoining Grange Avenue Landfill site (refer Schedule 1 for photo location)

2.2 Effective slope

The effective slope is assessed for a distance of 100m. Effective slope refers to that slope which provides the most effect upon likely fire behaviour.

The effective slope within the hazardous areas is provided in detail within Table 2.1 however can be summarised as follows;

- 0-5 degrees within the grassland vegetation to the south-east and north-west.
- Level within the forest vegetation to the south-east of Lot 7 and south-west of Lot 8.
- 10 degrees upslope within the remnant forest to the south. The actual upslope is 15 degrees upslope, however for calculation purposes the result has been reduced to 10 degrees because of recent research findings in a paper entitled 'A downslope fire spread correction factor based on landscape-scale fire behaviour' prepared by A.L. Sullivan, J.J Sharples, S. Matthews, M.P. Plucinski.

2.3 Bushfire attack assessment

A fire danger index (FDI) of 100 has been used to calculate bushfire behaviour on the site based on its location within the Greater Sydney region. Table 2.1 provides a summary of the bushfire attack assessment. Column 4 identifies the APZ's provided with Column 5 providing the BAL level that will apply to the proposed dwellings.

Table 2.1 – Bushfire attack assessment

Aspect	Vegetation formation within 140m of development	Effective slope of land	APZ provided (metres)	Building Construction standards
West	Managed land	N/A	>100 (includes Richmond Road)	N/A
South-east	Grassland (future high density development)	0-5° ^D	>50 (temporary – refer Note 1)	N/A
North-west	Grassland (future high density development)	0-5° ^D	>50 (temporary – refer Note 1)	N/A
South	Remnant forest (future sports field) (refer Note 2)	10° ^U	>12 (update based on plan)	BAL 12.5 (12m-<100m) (refer Note 3)
South	Forest (future sports field)	Level to upslope	21	BAL 29 (21-<36m) BAL 19 (36<48m) BAL 12.5 (48m-<100m)

Notes: * Slope is either 'U' meaning up slope or 'C' meaning cross slope or 'D' meaning down slope

Note 1: The unmanaged grassland (within adjoining Lots 5, 9, 11 & 16) to the north-west and south are currently subject to a development application (DPP 17-00024) for medium density development. Temporary APZ's have been applied within these lots and will be removed once the adjoining land is developed.

The timeline for development within adjoining Lot 26 to the south-east is not known and therefore it is recommended that this lot is managed as an APZ to remove the requirement for BAL levels. This APZ is temporary and will be removed once the adjoining land is developed.

Note 2: PBP describes remnant vegetation as a parcel of vegetation with a size of less than 1ha or a shape that provides a potential fire run directly towards a building not exceeding 50m. The vegetation to the south exhibits these qualities and therefore the threat posed is considered low and APZ setbacks for this aspect are the same as for the rainforest category outlined in PBP.

Note 3: A performance based assessment using Appendix B of AS3959 was undertaken to determine the required BAL setbacks based on remnant forest vegetation (PBP fuel load of 8/10t/ha) on an up slope of 10 degrees and forest (PBP fuel load 20/25t/ha) on a level slope. The results of the assessment, provided within Appendix 2, were prepared using the bushfire attack assessor (BFAA) developed by Newcastle Bushfire Consulting.



Specific Protection Issues

3

3.1 Asset protection zones

Table 3.1 outlines the proposal's compliance with the performance criteria for APZs

Table 3.1 – Performance criteria for asset protection zones (*PBP* guidelines pg. 19)

Performance criteria	Acceptable solutions	Statement of compliance with the acceptable solutions
A defensible space is provided onsite.	APZs are provided in accordance with Appendix 2.	<u>Compliant</u> with the acceptable solutions – Please note that an alternate solution has been proposed as detailed within Section 2.3 to determine the BAL rating.
An APZ is provided and maintained for the life of the development.		

3.2 Building protection

Table 3.2 outlines the proposal's compliance with the performance criteria for construction standards.

Table 3.2 – Performance criteria for building construction standards (Addendum Appendix 3)

Performance criteria	Acceptable solutions	Statement of compliance with the acceptable solutions
In relation to siting and design: <ul style="list-style-type: none"> Buildings are sited and designed to minimise the risk of bushfire attack. 	Buildings are designed and sited in accordance with the siting and design principles in this section (see <i>PBP</i> section 4.3.5).	<u>Compliant</u> . The proposed multi dwelling housing development are located within an approved subdivision.
In relation to construction standards: <ul style="list-style-type: none"> It is demonstrated that the proposed building can withstand bushfire attack in the form of wind, smoke, embers, radiant heat and flame contact. 	Construction determined in accordance with Addendum Appendix 3 of <i>PBP</i> and the requirements for attached garages and other structures in this section (<i>PBP</i>).	<u>Compliant</u> . Proposed dwellings within 100m of bushfire prone vegetation will be constructed to comply with BAL 29, 19 or 12.5 as identified in Table 2.1 and depicted in Schedule 1 attached.

3.3 Hazard management

Should the development be approved, the owner or occupier of each lot will be required to manage their property in accordance with RFS guidelines *Standards for Asset Protection Zones* (RFS, 2005), with landscaping to comply with Appendix 5 of *PBP*.

In terms of implementing and / or maintaining APZs, there is no physical reason that would constrain hazard management from being successfully carried out by normal means (e.g. mowing / slashing / grazing).

Adjoining Lots 5, 11, 16, 9, 17 & 26 are to be maintained by the developer (UPG) as a temporary APZ. An 88b easement is required to be applied over this land to ensure the grassland area is slashed to maintain a height not exceeding 10cm. This APZ is temporary and can be removed once the adjoining land is developed and the hazard removed.

3.4 Access for fire fighting operations

Public access to the development will be provided via the approved extension from Richmond Road as depicted in Figure 3.1. These roads will be constructed in accordance with the Blacktown City Council Growth Centre Precincts DCP (2016).

These roads consist of the following:

- Sub arterial road (26m) – 3.5m verge + 7m carriageway + 4m median + 7m carriageway + 4.5m verge.
- Collector road (20m) – 4.5m verge + 11m carriageway + 4.5m verge
- 18m wide road – 3.5m verge + 11m carriageway + 3.5m verge
- 17m wide road – 3.5m verge + 9m carriageway + 3.5m verge

This public access, and its compliance with *PBP*, is detailed within Table 3.3.

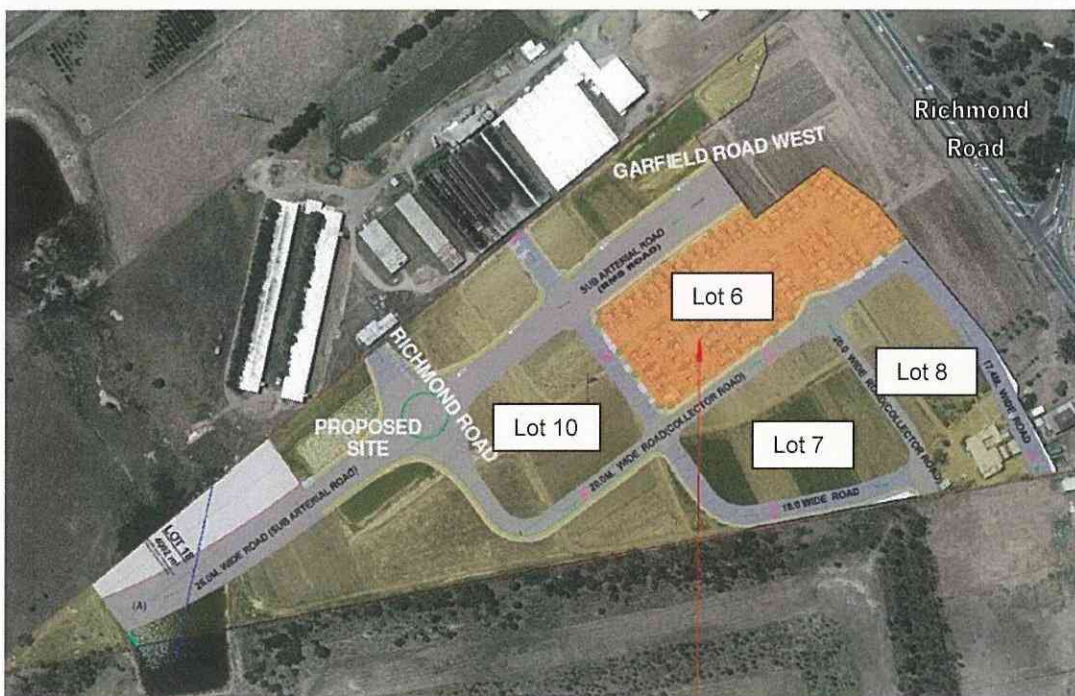


Figure 3.1 – Public road network

The proposed private access to the townhouse developments within each of the super lots will be provided via access driveways varying in width between 4.5m and 6.6m. Parking has been provided outside of these minimum widths. This private access, and its compliance with *PBP*, is detailed within Table 3.5.

Table 3.3 – Performance criteria for public roads (*PBP guidelines* pg. 20)

Performance criteria	Acceptable solutions	Statement of compliance with the acceptable solutions
Fire fighters are provided with safe all weather access to structures (thus allowing more efficient use of fire fighting resources).	Public roads are two-wheel drive, all weather roads.	Compliant
Public road widths and design that allow safe access for fire fighters while residents are evacuating an area.	<p>Urban perimeter roads are two way, that is, at least two traffic lane widths (carriageway 8m minimum kerb to kerb) allowing traffic to pass in opposite directions. Non perimeter roads comply with Table 3.4.</p> <p>Perimeter road is linked with the internal road system at an interval of no greater than 500m in urban areas.</p> <p>Traffic management devices are constructed to facilitate access by emergency services.</p> <p>Public roads have a cross fall not exceeding 3°.</p> <p>All roads are through roads. If unavoidable, dead end roads are not more than 200m in length, incorporate a minimum 12m outer radius turning circle, sign posted dead end and direct traffic away from the hazard.</p> <p>Curves of roads (other than perimeter) have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress.</p> <p>The minimum distance between inner and outer curves is 6m.</p>	<p>Compliant.</p> <p>Compliant.</p> <p>Compliant – can be a condition of consent</p> <p>Compliant.</p> <p>Not compliant. The 17m wide road (east of Lot 8) is a temporary dead end road which will provide a link to future development in the south. A temporary turning head of 24m diameter is to be provided until such time as the adjoining land is developed and through roads are provided.</p> <p>Compliant.</p> <p>Compliant.</p>

Performance criteria	Acceptable solutions	Statement of compliance with the acceptable solutions
	<p>Maximum grades for sealed roads do not exceed 15° and an average grade of not more than 10°.</p> <p>Minimum vertical clearance of 4m above the road at all times.</p>	<p>Compliant.</p> <p>Compliant -can be made a condition of consent.</p>
The capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles.	The capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles (15 tonnes for reticulated water and 28 tonnes for all other areas). Bridges clearly indicate load rating.	Compliant – Can be made a condition of consent.
Roads that are clearly sign posed (with easily distinguishable names) and buildings / properties that are clearly numbered.	<p>Public roads >6.5m wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water.</p> <p>Public roads 6.5 - 8m wide are No Parking on one side with the hydrant located on this side to ensure accessibility to reticulated water.</p> <p>Public roads <6.5m wide provide parking within parking bays and locate services outside of parking bays to ensure accessibility to reticulated water.</p> <p>One way only public access are no less than 3.5m wide and provide parking within parking bays and locate services outside of parking bays to ensure accessibility to reticulated water.</p>	Yes – Can be made a condition of consent.
There is clear access to reticulated water supply. Parking does not obstruct the minimum paved width	<p>Parking bays are a minimum of 2.6m wide from kerb edge to road pavement. No services or hydrants are located within parking bays.</p> <p>Public roads directly interfacing the bushfire hazard are to provide roll top kerbing to the hazard side of the road.</p>	Yes – Can be made a condition of consent.

Table 3.4 – Minimum widths for public roads that are not perimeter roads

Curve radius (inside edge) (metres)	Swept Path (metres width)	Single lane (metres width)	Two way (metres width)
<40	3.5	4.5	8.0
40-69	3.0	3.9	7.5
70-100	2.7	3.6	6.9
>100	2.5	3.5	6.5

Table 3.5 – Performance criteria for property access (PBP guidelines pg. 22)

Performance criteria	Acceptable solutions	Statement of compliance with the acceptable solutions
Access to properties is provided in recognition of the risk to fire fighters and / or evacuating occupants.	At least one alternative property access road is provided for individual dwellings (or groups of dwellings) that are located more than 200m from a public through road.	Compliant.
The capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles. All weather access is provided.	Bridges clearly indicate load rating and pavements and bridges are capable of carrying a load of 15 tonnes. Roads do not traverse a wetland or other land potentially subject to periodic inundation (other than a flood or storm surge).	Compliant.
Road widths and design enable safe access for vehicles.	A minimum carriageway width of 4m for dwellings with a distance of greater than 70m from the nearest hydrant point to the most external part of a proposed building. <i>Note: No specific access requirements apply in a urban area where a 70m unobstructed path can be demonstrated between the most distant external part of a dwelling and the nearest part of the public access road that supports the operational use of firefighting vehicles (road speed limit <70kph).</i>	Compliant – private roads have a width of >4m. All dwellings are within 70m of a public road.

	<p>In forest, woodland and heath situations, rural property access roads have passing bays every 200m that are 20m long x 2m wide (min. width 6m).</p> <p>A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches.</p> <p>Internal roads for rural properties provide a loop road around any dwelling or incorporate a turning circle with a minimum outer radius of 12m.</p> <p>Curves have a minimum inner radius of 6m and are minimal in number to allow rapid access / egress.</p> <p>The minimum distance between inner and outer curves is 6m.</p> <p>The cross fall is not more than 10°.</p> <p>Maximum grades for sealed roads do not exceed 15° and not more than 10° for unsealed roads.</p>	<p>Not applicable – the proposal is not rural residential</p> <p>Compliant – can be a condition of consent.</p> <p>Not applicable – the proposal is not rural residential</p> <p>Compliant</p> <p>Compliant</p> <p>Compliant</p> <p>Compliant</p>
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3.5 Water supplies

Table 3.6 outlines the required performance criteria for water supply.

Table 3.6 – Performance criteria for reticulated water supplies (PBP guidelines pg. 27)

Performance criteria	Acceptable solutions	Statement of compliance with the acceptable solutions
Water supplies are easily accessible and located at regular intervals.	<p>Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.</p> <p>Fire hydrant spacing, sizing and pressures comply with AS2419.1 - 2005. Where this cannot be met, the RFS will require a test report of the water pressures anticipated by the relevant water supply authority, once development has been completed. In such cases, the location, number and sizing of hydrants shall be determined using fire engineering principles.</p> <p>Hydrants are not located within any road carriageway</p> <p>All above ground water and gas service pipes external to the building are metal, including and up to any taps.</p> <p>The provisions of public roads are met.</p>	Complies - can be made a condition of consent.

3.6 Gas

Table 3.7 outlines the required performance criteria for gas supply.

Table 3.7 – Performance criteria for gas supplies (PBP guidelines pg. 27)

Performance criteria	Acceptable solutions	Statement of compliance with the acceptable solutions
Location of gas services will not lead to the ignition of surrounding bushland land or the fabric of buildings.	<p>Reticulated or bottled gas bottles are to be installed and maintained in accordance with AS1596 – 2002 and the requirements of relevant authorities. Metal piping is to be used.</p> <p>All fixed gas cylinders are to be kept clear of flammable materials to a distance of 10m and shielded on the hazard side of the installation.</p> <p>If gas cylinders are to be kept close to the building the release valves must be directed away from the building and at least 2m away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are metal.</p> <p>Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used.</p>	Yes – any future gas supply is to comply with this acceptable solution.



Conclusion & Recommendations

4

4.1 Conclusion

This bushfire report has been prepared in support of the proposed multi-dwelling housing development over four (4) super lots created from the approved subdivision (SPP-17-00018) subdivision at Richmond Road, Marsden Park.

This report has been prepared in accordance with the requirements of *Planning for Bushfire Protection 2006* (PBP) and addresses the NSW RFS request (via letter dated 25 August 2017) to prepare a revised bush fire protection assessment to include:

1. ***The type of development and determination of the vegetation management of proposed Lot 9, particularly in terms of the proximity of the proposed dwellings located on Lots 10 & 7 and the construction levels that they would be required to be built to in accordance with the highest bushfire attack level.***

Response: Lot 9 (located to the south of Lot 10) is zoned R3 and is subject to a current development application for medium density housing lodged with Council on 26th July 2017 (DPP 17-00024). This lot will be managed as a temporary APZ by UPG (i.e. slashed <10cm height) in accordance with an 88b easement. This APZ can be removed once the lot is developed and the hazard is removed.

2. ***A determination of the nature and type of current and future vegetation management of the proposed unmanaged vegetation located to the south west.***

Response: The Grange Avenue Landfill site to the south as well as Lot 17 (west of super lot 10) will be converted overtime for sporting facilities to support a large active reserve with playing fields, playgrounds, youth recreation and lookout areas. The expected time for delivery is 2028-2032.

Based on the existing vegetation (refer Photo 1) and time of delivery a worst case scenario has been adopted and a remnant forest/ forest vegetation community has been adopted. Lot 17 will present an entry to the major playing fields and will be maintained as a grass area. This lot will be managed as a temporary APZ by UPG (i.e. existing grassland will be slashed <10cm height) in accordance with an 88b easement.

3. ***An indication of the highest bushfire attack levels that the proposed dwelling would be constructed to on all Lots.***

Response: Table 2.1 and Schedule 1 attached depicts the BALs applicable to all dwellings within super lots 6, 7, 8 & 10. BAL ratings will apply to all dwellings within 100m of forest / remnant vegetation.

The assessment has concluded that the proposed development will provide compliance with *PBP* with the BAL determined in compliance with Appendix B Method 2 (alternative solution) of *AS3959 Construction of buildings in bushfire prone areas* (2009).

4.2 Recommendations

Recommendation 1 - The development is as generally indicated on the attached Schedule 1 – Plan of Bushfire Protection Measures.

Recommendation 2 – The development lots are to be maintained as an asset protection zone with regular maintenance of the landscaped areas, mowing of lawns in accordance with the guidelines provided in Appendix 1, and / or as generally advised by the RFS in their publications.

Recommendation 3 – A temporary APZ has been applied to the south (within Lot 9, 17 & 26) and to the north-west (within Lots 5, 11 & 16). An 88b easement is required to be applied over these lots to ensure the grassland area is slashed to maintain a height not exceeding 10cm. This APZ is temporary and can be removed once the adjoining land is developed and the hazard removed.

Recommendation 4 - Building construction standards for the proposed future buildings are to be applied in accordance with *AS3959 Construction of buildings in bushfire prone areas* (2009) with additional construction requirements as listed within Section A3.7 of Addendum Appendix 3 *PBP* as outlined in Table 2.1 and as depicted within Schedule 1 attached.

Recommendation 5 – Public access is to comply with Section 4.1.3(1) of *PBP*. The public 17m wide road (east of Lot 8) is a temporary dead end road which will provide a link to future development in the south. A temporary turning head of 24m diameter is to be provided until such time as the adjoining land is developed and through roads are provided.

Recommendation 6 - Water, electricity and gas supply is to comply with Section 4.1.3 of *PBP*.

Recommendation 7 - Landowners living in bushfire prone areas should familiarise themselves with publications published by the NSW Rural Fire Service. These are located on the RFS web site www.rfs.nsw.gov.au under 'Publications'.

REFERENCES

Australian Building Codes Board (2010) – *Building Code of Australia, Class 1 and Class 10 Buildings Housing Provisions Volume 2.*

Chan, K.W. (2001) – *The suitability of the use of various treated timbers for building constructions in bushfire prone areas.* Warrington Fire Research.

Councils of Standards Australia AS3959 (2009) – *Australian Standard Construction of buildings in bush fire-prone areas.*

Keith, David (2004) – *Ocean Shores to Desert Dunes – The Native Vegetation of New South Wales and the ACT.* The Department of Environment and Climate Change.

Rural Fire Service (2006) - *Planning for bushfire protection – a guide for councils, planners, fire authorities and developers.* NSW Rural Fire Service.

Rural Fire Service (2006) - Bushfire Attack Software on RFS Web site.

Tan, B., Midgley, S., Douglas, G. and Short (2004) - *A methodology for assessing bushfire attack.* RFS Development Control Service.



Plan of Bushfire Protection Measures

S1



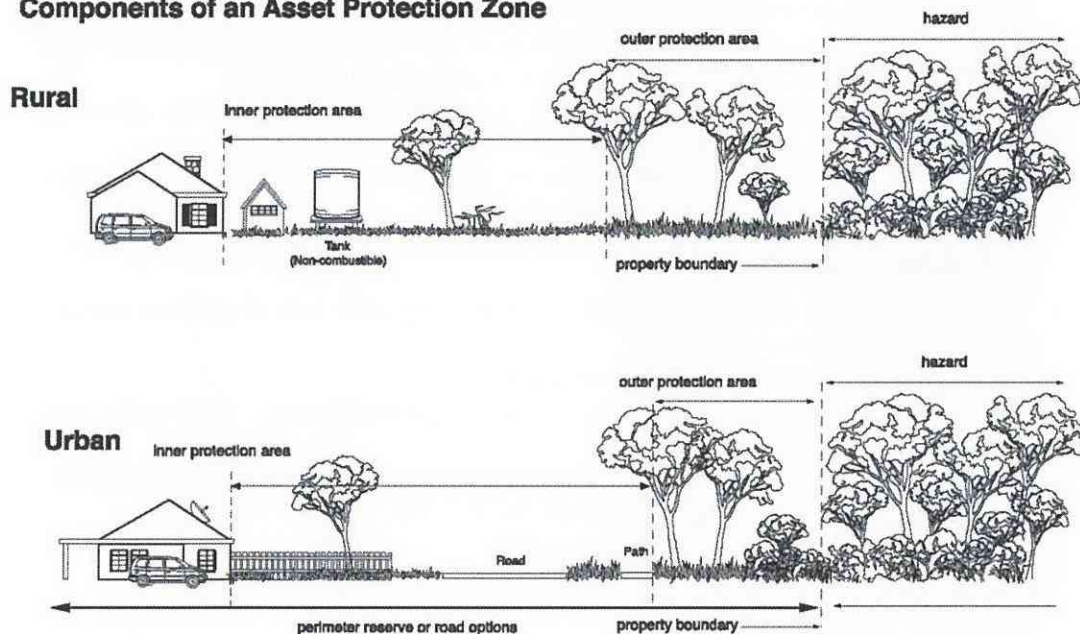
Management of Asset Protection Zones

A1

The RFS provides basic advice in respect of managing APZs through documents such as, *Standards for Asset Protection Zones* (RFS, 2005), with landscaping to comply with Appendix 5 of *PBP*.

The APZ generally consists of two subordinate areas, an inner protection area (IPA) and an outer protection area (OPA). The OPA is closest to the bush and the IPA is closest to the dwellings. A typical APZ is graphically represented below:

Components of an Asset Protection Zone



APZs and progressive reduction in fuel loads (Source: RFS, 2006)

Note: Vegetation management as shown is for illustrative purposes only. Specific advice is to be sought in regard to vegetation removal and retention from a qualified and experienced expert to ensure APZs comply with the RFS performance criteria.

The following provides maintenance advice for vegetation within the IPA.

Inner Protection Area (IPA)

Fuel loads within the IPA are to be maintained so it does not exceed 4t/ha.

Trees are to be maintained to ensure;

- Canopy cover does not exceed 15%
- Trees (at maturity) do not touch or overhang the building
- Tree canopies (at maturity) should be well spread out and not form a continuous canopy

- There should be no unmanaged vegetation within 10m of windows, doorways, eaves and gutters
- Lower limbs should be removed up to a height of 2m above ground

Shrubs are to be maintained to ensure;

- Large discontinuities or gaps in vegetation
- Shrubs should not be located under trees
- Shrubs should be in clumps no greater than 5m²
- Shrubs should be no closer than 10 metres from an exposed window or door.

Grass is to be maintained to ensure:

- A height of 10cm or less
- Leaves and debris is removed.

Landscaping to the site is to comply with the principles of Appendix 5 of PBP. In this regard the following landscaping principles are to be incorporated into the development:

- Suitable impervious areas being provided immediately surrounding the building such as courtyards, paths and driveways;
- Restrict planting in the immediate vicinity of the building which may over time and if not properly maintained come in contact with the building;
- When considering landscape species consideration needs to be given to estimated size of the plant at maturity;
- Avoid species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopies;
- Use smooth bark species of trees species which generally do not carry a fire up the bark into the crown;
- Avoid planting of deciduous species that may increase fuel at surface/ ground level (i.e. leaf litter);
- Avoid climbing species to walls and pergolas;
- Locate combustible materials such as woodchips/mulch, flammable fuel stores away from the building;
- Locate combustible structures such as garden sheds, pergolas and materials such timber garden furniture way from the building; and
- Use of low flammability vegetation species.



Performance based assessment

A2

NBC Bushfire Attack Assessment Report V2.1

AS3959 (2009) Appendix B - Detailed Method 2

Printed: 31/01/2018 Assessment Date: 31/01/2018

Site Street Address: 1086 Richmond Road, Marsden Park

Assessor: Mr Admin; admin

Local Government Area: Blacktown

Alpine Area: No

Equations Used

Transmissivity: Fuss and Hammins, 2002

Flame Length: RFS PBP, 2001

Rate of Fire Spread: Noble et al., 1980

Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005

Peak Elevation of Receiver: Tan et al., 2005

Peak Flame Angle: Tan et al., 2005

Run Description: C South (BAL 12.5)

Vegetation Information

Vegetation Type: Remnant Vegetation

Vegetation Group: Remnant Vegetation

Vegetation Slope: 10 Degrees

Vegetation Slope Type: Upslope

Surface Fuel Load(t/ha): 8

Overall Fuel Load(t/ha): 10

Site Information

Site Slope: 0 Degrees

Site Slope Type: Downslope

Elevation of Receiver(m): Default

APZ/Separation(m): 12

Fire Inputs

Veg./Flame Width(m): 100

Flame Temp(K): 1090

Calculation Parameters

Flame Emissivity: 95

Relative Humidity(%): 25

Heat of Combustion(kJ/kg): 18600

Ambient Temp(K): 308

Moisture Factor: 5

FDI: 100

Program Outputs

Category of Attack: LOW

Peak Elevation of Receiver(m): 2.13

Level of Construction: BAL 12.5

Fire Intensity(kW/m): 2488

Radiant Heat(kW/m2): 11.71

Flame Angle (degrees): 79

Flame Length(m): 4.33

Maximum View Factor: 0.179

Rate Of Spread (km/h): 0.48

Inner Protection Area(m): 12

Transmissivity: 0.858

Outer Protection Area(m): 0

Run Description: D South -west (BAL 29)			
<u>Vegetation Information</u>			
Vegetation Type:	Forest	Vegetation Group:	Forest and Woodland
Vegetation Slope:	0 Degrees	Vegetation Slope Type:	Level
Surface Fuel Load(t/ha):	20	Overall Fuel Load(t/ha):	25
<u>Site Information</u>			
Site Slope	0 Degrees	Site Slope Type:	Level
Elevation of Receiver(m)	Default	APZ/Separation(m):	21
<u>Fire Inputs</u>			
Veg./Flame Width(m):	100	Flame Temp(K)	1090
<u>Calculation Parameters</u>			
Flame Emissivity:	95	Relative Humidity(%):	25
Heat of Combustion(kJ/kg)	18600	Ambient Temp(K):	308
Molsture Factor:	5	FDI:	100
<u>Program Outputs</u>			
Category of Attack:	HIGH	Peak Elevation of Receiver(m):	8.29
Level of Construction:	BAL 29	Fire Intensity(kW/m):	31000
Radiant Heat(kW/m2):	27.87	Flame Angle (degrees):	63
Flame Length(m):	18.6	Maximum View Factor:	0.436
Rate Of Spread (km/h):	2.4	Inner Protection Area(m):	21
Transmissivity:	0.841	Outer Protection Area(m):	0
Run Description: E South -west (BAL 19)			
<u>Vegetation Information</u>			
Vegetation Type:	Forest	Vegetation Group:	Forest and Woodland
Vegetation Slope:	0 Degrees	Vegetation Slope Type:	Level
Surface Fuel Load(t/ha):	25	Overall Fuel Load(t/ha):	35
<u>Site Information</u>			
Site Slope	0 Degrees	Site Slope Type:	Level
Elevation of Receiver(m)	Default	APZ/Separation(m):	36
<u>Fire Inputs</u>			
Veg./Flame Width(m):	100	Flame Temp(K)	1090
<u>Calculation Parameters</u>			
Flame Emissivity:	95	Relative Humidity(%):	25
Heat of Combustion(kJ/kg)	18600	Ambient Temp(K):	308
Molsture Factor:	5	FDI:	100
<u>Program Outputs</u>			
Category of Attack:	MODERATE	Peak Elevation of Receiver(m):	10.91
Level of Construction:	BAL 19	Fire Intensity(kW/m):	54250
Radiant Heat(kW/m2):	18.55	Flame Angle (degrees):	67
Flame Length(m):	23.7	Maximum View Factor:	0.304
Rate Of Spread (km/h):	3	Inner Protection Area(m):	24
Transmissivity:	0.802	Outer Protection Area(m):	12

Run Description: F South -west (BAL 12.5)			
<u>Vegetation Information</u>			
Vegetation Type:	Forest	Vegetation Group:	Forest and Woodland
Vegetation Slope:	0 Degrees	Vegetation Slope Type:	Level
Surface Fuel Load(t/ha):	20	Overall Fuel Load(t/ha):	25
<u>Site Information</u>			
Site Slope	0 Degrees	Site Slope Type:	Level
Elevation of Receiver(m)	Default	APZ/Separation(m):	40
<u>Fire Inputs</u>			
Veg./Flame Width(m):	100	Flame Temp(K)	1090
<u>Calculation Parameters</u>			
Flame Emisivity:	95	Relative Humidity(%):	25
Heat of Combustion(kJ/kg)	18600	Ambient Temp(K):	308
Moisture Factor:	5	FDI:	100
<u>Program Outputs</u>			
Category of Attack:	LOW	Peak Elevation of Receiver(m):	8.89
Level of Construction:	BAL 12.5	Fire Intensity(kW/m):	31000
Radiant Heat(kW/m2):	12.47	Flame Angle (degrees):	73
Flame Length(m):	18.6	Maximum View Factor:	0.208
Rate Of Spread (km/h):	2.4	Inner Protection Area(m):	40
Transmissivity:	0.789	Outer Protection Area(m):	0

ANNEXURE "B"

CONDITIONS OF CONSENT

NSWLEC Proceedings No. 2017 / 268600

Development Application: Development Application No. SPP-17-00018 for the construction of 192 x 2 storey multi-dwellings on proposed Lots 6, 7, 8 & 10 in the proposed subdivision of Lot 51 DP1196583, known as 1086 Richmond Road, Marsden Park (approved under DA16-03182), including residential and visitor car spaces and internal private roads, stormwater drainage, vegetation removal and landscaping

DEFERRED COMMENCEMENT CONDITIONS

Part A

1. This consent is not to operate until the Applicant has satisfied all deferred commencement conditions in Development Consent No. DA-16-04175 issued by the Land and Environment Court in Proceedings No. 2016/316901. The deferred commencement conditions in DA-16-04175 that are required to be satisfied are as follows:

(a) The applicant has prepared and submitted to Council all investigation and concept design requirements as set out in Sections 3.1 (Pre-DA Stage-Data Collection and Review) and 3.2 (DA Stage-Concept Design verification, Optimisation & Risk Management), respectively, of Council's document "Guidelines for the Investigation and Design of Section 94 Stormwater Works" And the Council has approved the said concept design.

This condition applies to the design and construction of the following infrastructure listed in the Council's Section 94 Contributions Plan No. 21-Marsden Park:

- MM 2.0 Detention Basin;
- MM 2.1 Bioretention Areas;
- MM 2.3 Gross Pollutant Trap;
- MM 2.4 Gross Pollutant Trap;
- MM 2.5 Gross Pollutant Trap;
- MM 2.6 Landscaped Open Channel;
- MM 2.7 Gross Pollutant Trap;
- MM 2.8 Gross Pollutant Trap; and
- MM 2.9 Landscaped Open Channel.

(b) Confirmation in writing from the Council that it is satisfied that the applicant owns the SP2 zoned drainage land upon which the drainage works are proposed to be constructed or alternatively that it is satisfied that the written agreement from the owners of the said SP2 zoned land gives authority to the applicant to enter upon and carry out the proposed works on the SP2 zoned drainage land. The applicant shall provide evidence to the Council of the above matters to enable Council to consider its position with respect to the above matters."

2. This consent is not to operate until the Applicant has satisfied all deferred commencement conditions in Development Consent No. DA-16-03182 issued by the Land and Environment Court in Proceedings No. 2016/00204258. The deferred commencement conditions in DA-16-03182 that are required to be satisfied are as follows:

"(a) The Council has approved the concept design of the following infrastructure listed in the Council's Section 94 Contributions Plan No.21 – Marsden Park:

- MM 2.0 Detention Basin;
- MM 2.1 Bioretention Areas;
- MM 2.3 Gross Pollutant Trap;
- MM 2.4 Gross Pollutant Trap;
- MM 2.5 Gross Pollutant Trap;
- MM 2.6 Landscaped Open Channel;
- MM 2.7 Gross Pollutant Trap;
- MM 2.8 Gross Pollutant Trap; and
- MM 2.9 Landscaped Open Channel.

And Deferred Commencement DA-16-04175 is granted and compliance is met with Deferred Commencement condition in DA-16-04175 relating to number 1160 Richmond Road, Marsden Park, which requires the investigation and concept design documentation for regional stormwater infrastructure, to be submitted to, and approved by Council. Such design to be generally in accordance with Sections 3.1 (Pre DA-Stage-Data Collection and Review) and 3.2 (DA Stage- Concept Design Verification, Optimisation & Risk Management), respectively, of Council's document "Guidelines for the Investigation and Design of Section 94 Stormwater Works".

3. This consent is not to operate until the Plan of Subdivision as approved in Development Consent No. DA-16-03182 issued by the Land and Environment Court in proceedings No. 2016/00204258 is registered with NSW Land Registry Services and public road access to the subject site is provided. This may require the registration of the adjoining subdivision (as approved under Development Consent No. DA-16-04408).
4. The Applicant is to submit an Amended BASIX Certificate in respect of Lots 7 and 10.
5. Nominated Period: All of the requirements listed in the above condition must be completed within 36 months of the date of this "Deferred Commencement" consent,

Should these matters not be completed to Council's satisfaction within this time period, this "Deferred Commencement" consent will lapse.

PART B

1 ADVISORY NOTES

1.1 Terminology

- 1.1.1 Any reference in this document to a "consent" means a "development consent" defined in the Environmental Planning and Assessment Act 1979.
- 1.1.2 Any reference in this consent to a Construction, Compliance, Occupation or Subdivision Certificate is a reference to a certificate as defined by Section 6.4 of the Environmental Planning and Assessment Act 1979.

1.2 Scope of Consent

- 1.2.1 The granting of this consent does not imply or confer compliance with the requirements of the Disability Discrimination Act 1992. The applicant is advised to investigate any liability that may apply under that Act. The current suite of Australian Standard 1428 - Design for Access and Mobility, should be consulted for guidance. The prescriptive requirements of Part 1 of the Standard apply to certain buildings requiring development consent.
- 1.2.2 Should it be intended to subdivide the approved development into strata title allotments, Council will require the lodgement of a separate Development Application for consideration. Council advises that any new Development Application for Strata Subdivision will not be approved until such time as the approved development has reached practical completion and issues such as internal and external boundary fencing, construction of internal roads, stormwater drainage works and associated works, landscaping or any other works required in accordance with this consent or as modified and all associated Construction Certificates have been fully completed to Council's satisfaction.
- 1.2.3 This consent gives approval for construction of 185 two-storey dwellings over 4 super lots; car parking spaces; construction of internal roads and stormwater drainage works; provision of landscaping and private open space.

1.3 Other Approvals

- 1.3.1 A separate valid Construction Certificate shall be issued prior to commencement of any construction works.
- 1.3.2 The applicant's attention is drawn to the need to obtain separate appropriate approval for any ancillary development not approved by this consent, including:
 - (a) the removal of any tree(s) not indicated on the approved plans, and any tree(s) located greater than 3 metres from the building perimeter, and
 - (b) any fence, retaining wall, land excavation, advertising structure or other development not being exempt development or development shown on the approved plans, and

- (c) demolition of any existing buildings and associated structures in accordance with the requirements of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008, and
- (d) strata subdivision, and
- (e) separate Council approval under the Roads Act 1993 for any crane used to construct this development that swings over public air space.

1.3.3 The applicant's attention is drawn to the need to obtain Council's separate approval for any ancillary activity not approved by this consent, including:

- (a) the installation of a caravan, temporary structure, stormwater drainage in a public place, amusement device or other activity not being an exempt activity under Council's Local Approvals Policy adopted under the provisions of the Local Government Act 1993,
- (b) the installation of a vehicular footway crossing servicing the development,
- (c) the importation of any fill to the site.

1.3.4 This consent does not authorise the encroachment or overhang of any building or structure over or within any easement.

1.4 **Heritage Matters**

1.4.1 If, during the course of construction works, the applicant or person acting on this consent become aware of any previously unidentified heritage object(s), all works likely to affect the object(s) shall cease immediately and the Heritage Council of New South Wales shall be notified immediately in accordance with section 146 of the *Heritage Act 1977*. Relevant works shall not recommence until written authorisation from the Heritage Council is issued.

1.4.2 If, during the course of construction works, the applicant or person acting on this consent become aware of any previously unidentified Aboriginal object(s), all works likely to affect the object(s) shall cease immediately and the NSW Office of Environment and Heritage informed in accordance with Section 89A of the *National Parks and Wildlife Act 1974*. Relevant works shall not recommence until written authorisation from NSW Office of Environment and Heritage is received by the Applicant. In addition, a member of each of the Western Sydney Aboriginal Stakeholder Groups is to be contacted.

1.5 **Services**

1.5.1 The applicant is advised to consult with:

- (a) Sydney Water Corporation Limited
- (b) A recognised Energy provider
- (c) Natural Gas Company
- (d) The relevant local telecommunications carrier

regarding any requirements for the provision of services to the development and the location of existing services that may be affected by proposed works, either on the land or on the adjacent public road(s).

All approved building construction plans attached to the Construction Certificate should be submitted to Sydney Water Tap In, to determine whether the

development will affect Sydney Water's sewer and water mains, stormwater drains and/or easements and if further requirements need to be met. The plans are to be appropriately stamped and all amended plans will require re-stamping. For further information go to:

www.sydneywater.com.au, then follow the 'Developing Your Land' link or telephone 1300 082 746 for assistance.

Sydney Water may also require the applicant to obtain a Trade Waste Approval as part of the operation of the approved development. Enquiries should be made to ascertain the Sydney Water requirements for the eventual operation of the approved use.

- 1.5.2 Information regarding the location of underground services may be obtained from the Sydney "Dial Before You Dig" service, telephone number 1100, fax number (02) 9806 0777. Inquirers should provide the street/road name and number, side of street/road name and the nearest cross street/road name.
- 1.5.3 Prior to any demolition works, all services or utilities should be disconnected in consultation with the relevant service provider.
- 1.5.4 Underground assets may exist in the area that is subject to your application. In the interests of health, safety, and in order to protect damage to third party assets, please contact Dial Before You Dig at www.1100.com.au or telephone on 1100 before excavating or erecting structures (this is the law in NSW). If alterations are required to the configuration, size, form or design of the development upon contacting the Dial Before You Dig service, an amendment to the development consent (or a new development application) may be necessary. Individuals owe asset holders a duty of care that must be observed when working in the vicinity of plant or assets. It is the individual's responsibility to anticipate and request the nominal location of plant or assets on the relevant property via contacting the Dial Before You Dig service in advance of any construction or planning activities.
- 1.5.5 Telstra (and its authorised contractors) are the only companies that are permitted to conduct works on Telstra's network and assets. Any person interfering with a facility or installation owned by Telstra is committing an offence under the Criminal Code Act 1995 (Cth) and is liable for prosecution. Furthermore, damage to Telstra's infrastructure may result in interruption to the provision of essential services and significant costs. If you are aware of any works or proposed works which may affect or impact on Telstra's assets in any way, you are required to contact: Telstra's Network Integrity Team on phone number: 1800 810 443.

1.6 **Street Tree Planting and Service Locations**

- 1.6.1 Street tree and tree planting must not impact on public utilities. The applicant should liaise with the relevant service authorities on the location and use of services within the public road reserve. These authorities may be able to lay their services on the opposite side of the road, thereby providing larger areas for tree planting.

Tree planting must not interfere with street light spill. The applicant is to provide documentation to confirm there is no conflict between proposed vegetation at maturity and street lighting. This confirmation must be received before a Construction Certificate can be issued.

1.7 Identification Survey

- 1.7.1 The applicant is advised to obtain an identification survey from a registered surveyor to ascertain the correct location of the property boundaries, and to ensure the development does not encroach upon adjoining properties.

1.8 Engineering Notes

- 1.8.1 Any Construction Certificate covering Engineering Works must include and address the following:

- Design of specified Engineering Works as required by this consent.
- Any ancillary works necessary to make the construction effective

If both Building and Engineering works are required, separate construction certificates can be issued for the following works:

- Construction Certificate for Building Works
- Construction Certificate for Engineering Works (As nominated in the 'Prior to Construction Certificate (Engineering)' section of the consent)

Works which require approval under the *Roads Act 1993* or *Local Government Act 1993* CAN NOT be privately certified. Examples of these works are, but not limited to:

- Works in public areas (i.e. Road Reserve, Public Reserves)
- Inter-allotment drainage (i.e. drainage outside the boundary of the land being developed)

Engineering works (as nominated in the 'Prior to Construction Certificate (Engineering)' section of the consent) can be included within a Construction Certificate for Building works, provided that:

- All Engineering Works are specifically mentioned on the Construction Certificate
- The Certifier holds relevant qualifications to issue a Construction Certificate for the Engineering works. Appropriate accreditation qualifications must be shown on Construction Certificate.

- 1.8.2 All works requiring approval under the *Roads Act 1993* or *Local Government Act 1993* must be approved PRIOR to the issue of any Construction Certificate.

1.9 Payment of Engineering Fees

- 1.9.1 If the applicant wishes for Council to issue the Construction Certificate for Engineering Works (As nominated in the 'Prior to Construction Certificate (Engineering)') the applicant must:

- Complete application form
- Submit all relevant plans produced by a suitably qualified person and in accordance with Councils Standards.

A quote will be provided verbally generally within 2 days followed by confirmation in writing.

- 1.9.2 If the applicant wishes for Council to undertake Construction inspections and issue a Compliance Certificate for engineering works, the applicant must:

- Complete application form
- Submit all relevant plans produced by a suitably qualified person
- If plans are privately certified, applicant must supply Construction Certificate covering the required works.

A quote will be provided verbally generally within 2 days, followed by confirmation in writing.

1.10 **Other Matters.**

- 1.10.1 This plan of subdivision is not to be released until Public Road access is provided. This may require the registration of the adjoining subdivision.

1.11 **Cumberland Wood Plain Species**

- 1.11.1 When landscaping the site, the use of indigenous species grown from local seed is preferred to provide a link to the remnant vegetation community of the locality and subject site. These local species are adapted to the local climate and soil conditions and provide natural resources for the local wildlife while performing an 'accent' function within the planting plan.

2 **GENERAL**

2.1 **Scope of Consent**

- 2.1.1 This **consent** relates to the following drawings/details submitted to Council with the Development Application, subject to compliance with any other conditions of this consent:

Drawing No.	Dated
Plans prepared by the Bathla Group Pty Ltd	
DA001, Revision 4, Site Analysis Lot 10 Stage 10	28/02/18
DA001, Revision 4, Site Analysis Lot 8 Stage 8	28/02/18
DA002, Revision 4, Site Plan Lot 6 Stage 6	1/03/18
DA003, Revision 4, Ground Floor Plan – Lot 6 Stage 6	1/03/18
DA003, Revision 4, Ground Floor – Lot 8 Stage 8	28/02/18
DA004, Revision 4, Ground Floor_Part 2 Lot 6 Stage 6	1/03/18
DA005, Revision 4, First Floor_Part 1 Lot 6 Stage 6	1/03/18
DA006, Revision 4, First Floor_Part 2 Lot 6 Stage 6	1/03/18
DA007, Revision 4, Elevations & Section Lot 6 Stage 6	1/03/18

Drawing No.	Dated
DA02, Revision 4, Site Plan Lot 10 Stage 10	28/02/18
DA03, Revision 4, Ground Floor Plan Lot 10 Stage 10	28/02/18
DA04, Revision 4, First Floor Plan Lot 10 Stage 10	28/02/18
DA05, Revision 4, Elevations Lot 10 Stage 10	28/02/18
DA001, Revision 4, Site Analysis Lot 8 Stage 8	28/02/18
DA002, Revision 4, Site Plan Lot 8 Stage 8	28/02/18
DA003, Revision 4, Ground Floor Lot 8 Stage 8	28/02/18
DA004, Revision 3, First Floor Lot 8 Stage 8	29/01/18
DA005, Revision 4, Elevations & Section Lot 8 Stage 8	28/02/18
DA001, Revision 4, Site Analysis Lot 7 Stage 7	28/02/18
DA002, Revision 4, Site Plan Lot 7 Stage 7	28/02/18
DA003, Revision 4, Ground Floor Lot 7 Stage 7	28/02/18
DA004, Revision 4, First Floor Lot 7 Stage 7	28/02/18
DA005, Revision 4, Elevations & Section Lot 7 Stage 7	28/02/18
DA001, Revision 4, Site Analysis Lot 6 Stage 6	1/03/18
Landscape Plans prepared by the Bathla Group Pty Ltd:	
LP-01, Revision C, Concept Landscape Plan Lot 6	26/02/18
LP-01, Revision C, Concept Landscape Plan Lot 7	26/02/18
LP-01, Revision C, Concept Landscape Plan Lot 8	26/02/18
LP-01, Revision C, Concept Landscape Plan Lot 10	26/02/18

* Unless modified by any condition(s) of this consent.

2.1.2 This consent grants approval for the following, subject to full compliance with all other conditions of this consent:

(a) Construction of 192 two-storey multi-dwelling housing units as follows:

- Lot 6: 66 x 2 storey dwellings
- Lot 7: 48 x 2 storey dwellings
- Lot 8: 38 x 2 storey dwellings
- Lot 10: 40 x 2 storey dwellings.

A minimum of ten per cent of dwellings must be adaptable dwellings.

(b) Construction of internal roads

(c) Associated stormwater drainage works

(d) Landscaping, including street tree planting.

2.2 Services

- 2.2.1 Low voltage electricity and telecommunications services for the approved development shall be reticulated underground.

2.3 Suburb Name

- 2.3.1 The land the subject of this consent is known to be located in the following suburb. This suburb name shall be used for all correspondence and property transactions:

Suburb: Marsden Park

- 2.3.2 Any advertising of land sales in association with the approved development shall clearly indicate that the development is located in the following suburb. No other estate names shall be used in any advertisements or other promotional information:

Suburb: Marsden Park

2.4 Tree Removal

- 2.4.1 Any tree not indicated on the approved Development Application plans as being removed shall be effectively protected against damage.

2.5 Inconsistency between Documents

- 2.5.1 If there is any inconsistency between the plans and documentation referred to in the consent, the most recent document or plan will prevail to the extent of the inconsistency. However, conditions of the consent prevail to the extent of any inconsistency. Where there is an inconsistency between approved sections and plans, the plans prevail.

2.6 Compliance with BASIX Certificate

- 2.6.1 All commitments listed in the Amended BASIX Certificate provided for Lot 7 and Lot 10 under Part 1 of this consent and the following BASIX Certificates shall be complied with:

- BASIX Certificate 833834M (Lot 6)

- BASIX Certificate 836365M (Lot 8)

The BASIX Certificates are to be revised to accord with the final approved plans.

2.7 NSW Department of Roads and Maritime Services - Requirements

- 2.7.1 **General Terms of Approval – Construction of Housing Development - 1086 Richmond Road, Marsden Park**

Richmond Road is a classified road. The proposed removal of vehicular crossings requires concurrence from Roads and Maritime in accordance with Section 138 of the *Roads Act, 1993*.

Roads and Maritime has reviewed the submitted documentation and would provide concurrence to the removal of vehicular crossings on Richmond Road under Section 138 of the *Roads Act 1993*, subject to the following conditions:

1. Roads and Maritime has previously acquired a strip of land for road along the Richmond Road frontage of the subject property, as shown approximately by blue colour on the attached aerial — "X" being Lot 58 DP 1196583.

All buildings and structures, together with any improvements integral to the future use of the site must be erected clear of the land acquired for road (unlimited in height or depth).

2. Access is denied across the property boundary to Richmond Road.
3. The redundant driveways on Richmond Road shall be removed and replaced with kerb and gutter to match existing. The design and construction of the kerb and gutter on Richmond Road shall be in accordance with Roads and Maritime requirements. Details of these requirements should be obtained from Roads and Maritime Services, Manager Developer Works, Statewide Delivery, Parramatta (telephone 9598 7798).

Detailed design plans of the reinstatement of kerb and gutter are to be submitted to Roads and Maritime for approval prior to the issue of a Construction Certificate and commencement of any road works.

A plan checking fee (amount to be advised) and lodgement of a performance bond may be required from the applicant prior to the release of the approved road design plans by Roads and Maritime.

4. Any noise mitigation works (including foundations) required for the proposed development need to be contained fully within the developer's land, at the developer's cost.
5. Any post development changes to the stormwater drainage system are to be submitted to Roads and Maritime for approval, prior to the commencement of any works.

Detailed design plans and hydraulic calculations of any changes to the stormwater drainage system are to be submitted to Roads and Maritime for approval, prior to the commencement of any works. Details should be forwarded to suppiah.thillai@rms.nsw.gov.au

A plan checking fee will be payable and a performance bond may be required before Roads and Maritime approval is issued. With regard to the Civil Works requirement please contact the Roads and Maritime Project Engineer, External Works Ph: 8849 2114.

6. A Road Occupancy Licence should be obtained from Transport Management Centre for any works that may impact on traffic flows on Richmond Road during construction activities.

7. All demolition and construction vehicles are to be contained wholly within the site and vehicles must enter the site before stopping. A construction zone will not be permitted on Richmond Road.
8. The swept path of the longest vehicle (including garbage trucks) entering and exiting the subject site, as well as manoeuvrability through the site, shall be in accordance with AUSTROADS. In this regard, a plan shall be submitted to Council for approval, which shows that the proposed development complies with this requirement.
9. Any temporary and/or permanent relocation of utility services adjacent to the Roads and Maritime road corridor requires prior consultation and approval from Roads and Maritime Services.

Roads and Maritime has the following comment for the Council's consideration in the determination of the application:

10. Roads and Maritime has reviewed the submitted application and raises no objection to the Application, provided the proposed dwelling density and road layout design is consistent with the Marsden Park Precinct.
12. A Construction Traffic Management Plan detailing construction vehicle routes, number of trucks, hours of operation, access arrangements and traffic control should be submitted to Council for approval prior to the issue of a Construction Certificate.
13. The proponent should be advised that the subject property is within a broad investigation area in relation to the North West Growth Centre road network strategy. Further information can be obtained by visiting the RMS website www.rms.nsw.gov.au/projects/sydney-west/north-west-growth-centre-strategy or by contacting us on 1300 367 561 or via email RiverstoneNWGC@rms.nsw.gov.au

Any inquiries in relation to this application can be directed to Amanda Broderick on 8849 2391 or development.sydney@rms.nsw.gov.au

2.8 NSW Rural Fire Services – Requirements

2.8.1 General Terms of Approval – Construction of Housing Development - 1086 Richmond Road, Marsden Park

Asset Protection Zones

The intent of measures is to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting fire fighting activities. To achieve this, the following conditions shall apply:

- a) At the commence of building works, and in perpetuity, the entire property shall be managed as an Inner Protection Area (IPA) as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'.

- b) At the commencement of building works, a suitable worded instrument shall be created over Lot 17, pursuant to Section 88 of the *Conveyancing Act 1919* for it to be managed as an Inner Protection Area (IPA) as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'.
- c) At the commencement of building works, a suitably worded instrument shall be created over Lot 26, pursuant to Section 88 of the *Conveyancing Act 1919* for it to be managed as an Inner Protection Area (IPA) as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'. Blacktown City Council shall be nominated as the prescribed authority for variation or removal of the instruments. This restriction can be lifted upon commencement of any future proposed residential development on the adjacent lot, only if the hazard is removed as part of the proposal.

Water and Utilities

The intent of measures is to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting fire fighting activities. To achieve this, the following conditions shall apply:

- d) The provision of water, electricity and gas to the proposed lots and dwellings shall comply with section 4.1.3 of 'Planning for Bush Fire Protection 2006'.

Access

The intent of measures for public roads is to provide safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area. To achieve this, the following conditions shall apply:

- e) Public road access shall comply with section 4.3.1 (1) of 'Planning for Bush Fire Protection 2006' and the proposed property access road (driveway) shall comply with section 4.1.3(2) of 'Planning for Bush Fire Protection 2006'.

The intent of measures for internal roads is to provide safe operational access for emergency services personnel in suppressing a bush fire, while residents are accessing or egressing an area. To achieve this, the following conditions shall apply:

- f) Internal access roads shall comply with the requirements of section 4.2.7 and 4.1.3(2) of 'Planning for Bush Fire Protection 2006'.

Design and Construction

The intent of measures is that buildings are designed and constructed to withstand the potential impacts of bush fire attack. To achieve this, the following conditions shall apply:

- g) New construction for dwellings 16 to 27 southern and western elevations and roofing in Lot 7 and Units 16 to 19 in Lot 8 western and southern elevations and roofing shall comply with section 3 and section 7 (BAL 29) Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' or NASH

Standard (1.7.14 updated) 'National Standard Steel Framed Construction in Bushfire Areas-2014' as appropriate and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.

- h) New construction for dwellings Nos 28, 29, 30, 42, 43, 44 & 45 in Lot 7 and dwellings Nos 16 to 27 inclusive in Lot 8 eastern and northern elevations shall comply with section 3 and section 6 (BAL 19) Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' or NASH Standard (1.7.14 updated) 'National Standard Steel Framed Construction in Bushfire Areas-2014' as appropriate and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.
- i) New construction for dwellings 9 to 14 inclusive and 23 to 35 inclusive in Lot 8 shall comply with Sections 3 and 5 (BAL 12.5) Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' or NASH Standard (1.7.14 updated) 'National Standard Steel Framed Construction in Bushfire Areas-2014' as appropriate and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.

Landscape

- j) Landscaping to the site is to comply with the principles of Appendix 5 of 'Planning for Bush Fire protection 2006'

2.9 Signage

- 2.9.1 Entrance/exit points are to be clearly signposted and visible from the street.
- 2.9.2 Any other signage requires separate consent from Council, unless it is permitted pursuant to SEPP (Exempt and Complying Development Codes (2008).

2.10 Waste Management Plan

- 2.10.1 The development is to be carried out generally in accordance with the Amended Waste Management Plan that is required to be prepared and submitted in accordance with Condition 3.15.2 of this Consent.

2.11 Salinity

- 2.11.1 At the completion of site works, a post works salinity assessment shall be carried out and provide appropriate recommendations on construction materials for floor slab, footings and internal beams in accordance with AS2870-2011 'Residential Slabs and Footings'.

2.12 Other Matters

- 2.12.1 No construction preparatory work (including tree or vegetation, ground clearing, excavation, filling, and the like) shall be undertaken on the land prior to the valid Construction Certificate being issued for the construction works.
- 2.12.2 Any substation or other utility installation required to service the approved development shall not be sited on future or existing Council land, including road reservations and/or public reserves or drainage reserves. Any proposal to locate a

proposed substation or other utility installation on Council land shall be negotiated with and fully endorsed by the relevant Council Directorates.

- 2.12.3 All new and replacement boundary fencing associated with this development is to be at full cost to the parties acting on this consent.

2.13 Engineering Matters

2.13.1 Design and Works Specification / Definitions

- 2.13.1.1 All engineering works required by this consent must be designed and undertaken in accordance with the relevant aspects of the following documents except as otherwise authorised by this consent:

- (a) Blacktown City Council's Works Specification - Civil (Current Version)
- (b) Blacktown City Council's Engineering Guide for Development (Current Version)
- (c) Blacktown City Council Development Control Plan (Current Version) including Part J – Water Sensitive Urban Design and Integrated Water Cycle Management
- (d) Blacktown City Council Growth Centre Precincts Development Control Plan
- (e) Blacktown City Council Soil Erosion and Sediment Control Policy (Current Version)
- (f) Blacktown City Council On Site Detention General Guidelines and Checklist
- (g) Upper Parramatta River Catchment Trust On Site Stormwater Detention Handbook THIRD Edition December 1999.

Design plans, calculations and other supporting documentations prepared in accordance with the above requirements **MUST** be submitted to Council with any application for Construction Certificate, *Road Act 1993* or *Local Government Act 1993* approval.

Any Construction Certificates issued by Private Certifiers must also be accompanied by the above documents.

NOTE: Any variations from these design requirements must be separately approved by Council.

- 2.13.1.2 The Applicant is required to submit to Council, Bonds and/or Contributions for works associated with the development in conjunction with the civil engineering works required to be constructed as part of this development. Works may include:

- Path Paving construction
- Final Layer Asphaltic Concrete (AC) construction
- Maintenance of the construction works

These matters will be individually addressed within the consent

2.13.1.3 Prior to release of any bond securities held by Council for civil engineering works, the payment of a bond release inspection fee in accordance with Council's Goods and Services Pricing Schedule must be made.

2.13.1.4 Written notice must be provided to adjacent properties, at least 5 days prior to works commencing, where works are approved by this consent and located within Council controlled lands (i.e. Roads, drainage reserves, parks, etc)

A copy of this notice must be provided to Council's Co-ordinator of Engineering Approval.

2.13.2 Other Necessary Approvals

2.13.2.1 A separate application will be required for the following approvals, under the *Local Government Act 1993* and/or the *Roads Act 1993*.

- Vehicular Crossing
- Works on or occupation of existing public roads (Not including works covered by a Roads Act Approval)

2.13.3 Subdivision

2.13.3.1 Principal Certifying Authority - Blacktown City Council shall be the Principal Certifying Authority for the proposed subdivision and shall issue the Subdivision Certificate upon compliance with all conditions of this consent.

2.14 Other Matters

2.14.1 No construction preparatory work (including excavation, filling, bulk earthworks and the like) shall be undertaken on the land prior to a valid Construction Certificate being issued for the construction works.

2.14.2 Any future substation, temporary drainage works or other utility installation required to service the approved subdivision/development shall not be sited on future or existing Council land, including road reservations and/or public reserves.

2.14.3 Each year by the first business day on or after 1 September the registered proprietor/owners corporation is to provide to Council's Asset Design Services Section a report outlining all maintenance undertaken on the Stormwater Quality Improvement Devices in accordance with the approved maintenance schedule. All material removed are to be disposed of in an approved manner. Copies are to be provided of all contractor's cleaning reports or certificates to Council's WSUD Compliance Officer.

2.14.4 The development must at all times maintain the water quality system to achieve the following minimum pollutant removal targets of Part J of DCP 2015 for the entire site in perpetuity:

Required percentage reductions in post development average annual load of pollutants

Pollutant	% post development pollutant reduction targets
Gross Pollutants	90
Total Suspended Solids	85

Total Phosphorous	65
Total Nitrogen	45
Total Hydrocarbons	90

3 PRIOR TO CONSTRUCTION CERTIFICATE (GENERAL)

3.1 DA Plan Consistency

- 3.1.1 A Construction Certificate for the proposed development shall only be issued when the accompanying plans, specifications and/or details are consistent with the approved Development Application design plans.

3.2 Road Deposit/Bond

- 3.2.1 The following current fee (which is subject to periodic review and may vary at time of payment) shall be lodged with Council:

- (a) Road inspection fee of \$180.00;
- (b) Road maintenance bond of \$5,000.00;
- (c) Road maintenance bond administration fee of \$104.00.

The bond is required to cover the cost of any damage to Council's public assets (eg: road, guttering, footpaths, drainage systems) arising from development works. The bond (less an administration fee) will be refunded upon the completion of the development should there be no damage to Council's assets as a result of the development works.

The road inspection fee covers Council's costs to inspect public assets adjacent to the development site before and after development work.

3.3 Blacktown Growth Centres Development Control Plan 2018

- 3.3.1 Except as otherwise approved, the design plans which accompany the Construction Certificate shall comply with the design criteria specified in Council's Growth Centres Development Control Plan 2018.

3.4 Acoustic Attenuation

- 3.4.1 A qualified acoustic engineer must certify that the buildings have been designed to minimise the noise intrusion from any external noise source and when constructed the building shall satisfy the following criteria with windows and doors closed:

Internal Space	Time Period	Criteria $L_{Aeq} \text{ (period)}$
Living Areas	Any time	40 dB(A)
Sleeping Areas	Day (7am – 10pm)	40 dB(A)
	Night (10pm – 7am)	35 B(A)

- 3.4.2 A certificate must be provided by a qualified acoustic engineer stating that provision has been made in the design of all sound producing plant, equipment, machinery, mechanical ventilation system or refrigeration systems to ensure that it is acoustically attenuated so that the noise emitted:

- a) does not exceed an L_{Aeq} sound pressure level of 5dB (A) above the ambient background noise level when measured
 - at the most effected point on or within any residential property boundary or
 - at the external edge of any sole occupancy unit balcony within the premises itself at any time the plant or equipment operates.
- b) cannot be heard within a habitable room in any sole occupancy unit or other residential premises (regardless of whether any door or window to that room is open) between the hours of 10pm and 7am.

3.4.3 The method of measurement of sound must be carried out in accordance with Australian Standard 1055.1.

3.4.4 The Acoustic Assessment Report is required to be prepared based on the approved plans which verify that this residential development complies with AS2107-2000 Acoustics: Recommended Design Sound Levels and Reverberation Times for Building Interiors, as required by Clause 4.2.9 *Visual and Acoustic Privacy* of the Growth Centres Precincts DCP 2018. This Report is to consider the impact from the adjoining main road (Richmond Road) and the future extension of Garfield Road West on this development. The recommendations of the Report are to be included on the Construction Certificate documentation.

3.5 **Tree Protection and Street Trees**

3.5.1 Prior to the issue of a Construction Certificate relating to the approved development, full detail plans in relation to the proposed street tree planting and landscaping consistent with Council's adopted Street Tree Guidelines shall be submitted to and approved by Council's Manager Civil and Open Space Infrastructure. The Street Tree Plan shall observe the species palette identified by Council's Street Tree Guidelines, and will include the following:

- Cross-sections showing dimensions of tree pits
- Species
- Details of root protection barriers
- Soil specifications
- Location of tree pits in relation to services, intersections and future driveways, light poles, stormwater pits, sewerage infrastructure and utilities.

These shall be submitted to Council for the approval of Council's Manager Civil and Open Space Infrastructure. Note: any tree planting to be undertaken as part of the approved development shall be available to Council for inclusion in future carbon sequestration programs.

Details shall be submitted to Council for approval prior to the issue of any Construction Certificate. Landscaping to lot boundaries shall be shown wholly located within private property and not encroach upon the road reserve.

3.5.2 The proposed street tree planting shall be reviewed in relation to the proposed street lighting layout to ensure that the intended tree planting does not interfere with the street light spill. Documentation to confirm there is no conflict between proposed vegetation at maturity and street lighting shall be submitted to Council prior to the issue of a Construction Certificate relating to the approved development.

- 3.5.3 Council's Project Officer for Civil and Open Space infrastructure must be notified when street trees have been planted so practical completion can be given on the street tree planting and the 12 month maintenance period can commence.

3.6 **Salinity**

- 3.6.1 The recommendations and assessment detailed in the Preliminary Salinity and Geotechnical Assessment prepared by Martens Consulting Engineers (Report Reference P1504888JR05V01 and dated December 2015) are to be identified on the Construction Certificate plans and implemented during design and construction of the development. Note: Final validation will be required prior to the release of an Occupation Certificate.

3.7 **Contamination and Remediation**

- 3.7.1 Prior to the issue of a Construction Certificate all areas potentially contaminated / contaminated shall be remediated. Upon completion of remediation an appropriately qualified environmental consultant shall prepare a validation report. The validation report shall be carried out in accordance with:

- NSW Environment Protection Authority's *Guidelines for Consultants Reporting on Contaminated Sites* (1997)
- NSW Environment Protection Authority's *Contaminated Sites Sampling Design Guidelines* (1995).
- Australian and New Zealand Environment and Conservation Council and National Health and Medical Research Council's *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites* (1992).

3.8 **Construction Traffic Management Plan**

- 3.8.1 A Construction Traffic Management Plan detailing construction vehicle routes, parking, number of trucks, hours of access, access arrangements, road safety and traffic control is to be submitted to Council prior to the issue of any Construction Certificate.

3.9 **Construction Environmental Management Plan**

- 3.9.1 A Construction Environmental Management Plan is to be submitted to Council prior to the issue of any Construction Certificate as required by clause 3.3 *Construction Environmental Management* of the Growth Centres Precincts DCP 2018.

3.10 **Construction of Private Roads**

- 3.10.1 The private roads shall be designed as a rigid pavement of concrete construction only and in accordance with Council's Engineering Guide for Development (Current Issue).

3.11 **Retaining Walls**

- 3.11.1 Prior to the issue of any Construction Certificate, details of the approved retaining walls to be constructed on site as part of the development shall be submitted to

Council for approval. Please note that Council requires the construction of masonry retaining walls (i.e. no timber walls) on property boundaries where such structures are proposed to be constructed. Any retaining walls must comply with the requirements of the Blacktown Development Control Plan 2015.

3.12 **Other Matters**

- 3.12.1 The Construction Certificate plans are to show that each residential lot is serviced by a suitably located driveway which is able to achieve satisfactory street access meeting the relevant clearance requirements from tangent points, services, infrastructure and street trees. The location of street trees must not interfere with future driveways.
- 3.12.2 The Construction Certificate plans are to show any existing/proposed substations, kiosks, sewer man holes and/or vents affecting any lots / units, including corner lots / units in accordance with the Blacktown Growth Centres Precincts DCP 2018.
- 3.12.3 The Construction Certificate plans are to show that the construction and layout of the footpath system provides for continuous disabled and pram access movement in terms of crossing points, including to nearby public transport services.
- 3.12.4 All mail boxes are to accord with the requirements of Australia Post with regard to location, access and size. The letterbox system is to be vandal resistant and secure. Appropriate sight lines are to be provided for vehicles using the mail box waiting bay for safety purposes.

3.13 **Not Used**

3.14 **Waste Matters**

- 3.14.1 An amended waste management plan must be submitted to Council including information on:
- ongoing management of waste from the site
 - bulky waste is to be managed in perpetuity by the strata manager
- 3.14.2 Bin presentation areas within private property must be line marked and signposted with no parking signs to prevent the area being parked out and trucks being unable to service bins.
- 3.14.3 Access for collection vehicles must be designed in accordance with approved architectural plans, CAD files, and vertical clearances as per Australian Standards.
- 3.14.4 Prior to the issue of a Construction Certificate, the Applicant must submit to Council amended plans demonstrating the following:
- a) the eastern driveway crossing within Lot 6 is to be widened and a greater splay provided adjoining Unit 01 for the safe travel without obstruction of waste collection vehicles.
 - b) CAD files and swept path diagrams for an 11m heavy rigid vehicle are to be overlaid on the amended plans

4 PRIOR TO CONSTRUCTION CERTIFICATE (PLANNING)

4.1 Section 7.11 Contributions under Section 7.17 Directions

- 4.1.1 The following monetary contributions pursuant to Section 7.11 of the *Environmental Planning & Assessment Act 1979* must be paid. The amounts below are as at the date of this consent. They WILL BE INDEXED from the date of this consent to the date of payment. Payment of the indexed amounts must be made prior to the issue of a Construction Certificate (for building works) either by Council or any accredited certifier, whichever occurs first.

Under the Section 7.17 Direction issued by the Minister for Planning on 4 March 2011, Council must not impose a condition of development consent under Sections 7.11 (1) or 7.11 (3) or the Act requiring the payment of a monetary contribution exceeding \$35,000 for each dwelling authorised by the development consent, or in the case of a development consent that authorises the subdivision of land into residential lots, exceeding \$35,000 for each residential lot authorised to be created by the development consent. The Section 7.11 contributions payable below have been assessed in accordance with this Direction:

No. of intended dwellings: 192

Contribution: \$ 6,720,000

Payment of this amount must be made prior to the issue of a Construction Certificate (for building works) or Subdivision Certificate (for subdivision works) whichever occurs first.

PLEASE NOTE: Payments must be made by BANK CHEQUE IF IMMEDIATE CLEARANCE IS REQUIRED. Payments of the full amount by credit card or EFTPOS are accepted. However, payments by credit card or EFTPOS over \$10,000.00 are levied a 3% surcharge on the whole amount and cannot be split between different credit or EFTPOS cards.

Notes In complying with the Minister's Section 7.17 Direction, the applicant is advised that Council may not be in a position to provide all of the facilities listed in the applicable contributions plan due to the potential shortfall of contributions to be received as a result of the \$35,000 per dwelling/lot limit.

The amounts below are the INDEXED contributions as at the date of this consent which, if not for the Ministerial Direction, would have applied to this consent. These amounts have been supplied for your information.

Contribution Item	Amount	Relevant C.P
i. Stormwater quantity – Marsden Park Precinct – Marsden Creek	\$2,786,041	21
ii. Stormwater quality – Marsden Park Precinct – Marsden Creek – SWQ9	\$413,527.00	21
iii. Traffic Management – Marsden Park	\$580,243.00	21

Precinct		
iv. Open Space – Marsden Park	\$5,572,066.00	21
v. Community Facilities – Marsden Park	\$71,570.00	21
vi. Combined Precinct Facility – E2 Conservation Zone	\$177,193.00	21
vii. Combined Precinct Facility – Aquatic Facility	\$116,590.00	21

These contributions are based upon the following parameters as specified in the Contributions Plan.

Developable Area: 3.46460 ha

Additional Population: 556.8 persons

Copies of the following relevant Contributions Plan(s) may be inspected/purchased from Council's Customer Information Centre. Alternatively, Contributions Plans may be downloaded from Council's website:

S.94 CP No. 21

- 4.1.2 Any Compliance Certificate issued for the payment of Section 7.17 Contributions shall be accompanied by a letter from Council acknowledging that the correct Section 7.17 Contributions have been paid for that particular development or stage of development.

4.2 Special Infrastructure Contributions

- 4.2.1 The applicant is to make a special infrastructure contribution in accordance with any determination made by the Minister administering the Environmental Planning and Assessment Act 1979 under Section 7.23 of that Act that is in force on the date of the consent, and must obtain a certificate to that effect from the Department of Planning and Environment before a Construction Certificate is issued in relation to any part of the development to which this consent relates.

More information

Information about the special infrastructure contribution can be found on the Department of Planning and Environment's website.

4.3 Aesthetics

- 4.3.1 The reflectivity index of glass used in the external facades of the buildings is not to exceed 20 percent and must not affect road traffic and must not cause discomfort through glare or intense heat to surrounding areas.
- 4.3.2 Any bathroom, w.c. or laundry window in the external walls of the buildings shall be fitted with translucent glazing.
- 4.3.3 The development approved by Council is to be constructed in accordance with the approved schedule of materials, finishes and colours approved by Council on the approved Dwelling plans in condition 2.1.1 of this consent. Any variation to these will need the prior formal approval of Council.
- 4.3.4 External service fixtures and conduits are to be designed so that they form part of

the overall appearance of the building, or are to be screened from view.

4.4 Fencing

- 4.4.1 All fencing details and materials are to be as per the approved plans. All fencing is to be provided at full cost to the developer and is to be constructed on top of any masonry retaining walls. The selected fencing material / design must also minimise / eliminate the potential for graffiti attacks.
- 4.4.2 Where possible, foliage should be grown on/over fencing adjacent to public areas to minimise any potential for graffiti. All fencing which is visible from the public domain is not permitted to be continuous, closed board, or the like.
- 4.4.2 The fencing fronting Garfield Road West is to be constructed of masonry split-faced materials (not plain surface) and the recessed internals are to be of colours which contrast to the non-recessed parts of the fence.
- 4.4.4 The fences fronting new internal public roads are to incorporate masonry and other decorative materials in the manner shown on Colour Schedule, Issue C, dated 1 March 2018, 3 pages.

4.5 Common Areas and Landscaping

- 4.5.1 A detailed landscape plan for the landscaping associated with the multi-dwellings is to be submitted to Council prior to issue of the building Construction Certificate, to Council's satisfaction. The landscape plan and details should provide details of the species types, pot sizes and growth heights at maturity.
- 4.5.2 All common areas and landscaping shall be of a high quality and detailed on the landscaping design plans as part of the Construction Certificate.
- 4.5.3 At least 30% of the site area is to be landscaped in accordance with the Growth Centres Precincts DCP 2018.

4.6 Access and Parking

- 4.6.1 With regard to the multi dwelling development approved in Superlots 6, 7, 8 and 10, a minimum of 345 car parking spaces are required to be provided within the site, being 304 resident spaces and 41 visitor car parking spaces, and all are to be designed having minimum internal clear dimensions in accordance with the Growth Centres Precincts DCP 2018.
- 4.6.2 Adequate pedestrian and bicycle access is required to be provided to the adjoining road network.
- 4.6.3 The layout of the proposed car parking areas associated with the subject development (including, driveways, grades, turn paths, sight distance requirements, aisle widths, aisle lengths, and parking bay dimensions) are to be designed in accordance with Australian Standard 2890.1 – 2004 and AS 2890.2 – 2002 for heavy vehicles.
- 4.6.4 All internal roads and other paved areas shall be designed to provide continuous surface drainage flow paths to approved points of discharge.

- 4.6.5 Wheel stops are to be fitted to all of the uncovered car parking spaces on the site. This does not relate to the stacked residential car parking spaces.

4.7 Corner Lots

- 4.7.1 With regard to corner lots / units, any substations, kiosks, sewer man holes and/or vents affecting corner lots / units are to be shown on the Construction Certificate plans in accordance with the Growth Centres Precincts DCP 2018.

4.8 Access

- 4.8.1 Prior to the release of any Construction Certificate an access consultant is to certify that suitable access to and within the open space areas is provided.
- 4.8.2 A minimum of 10% of the units within each residential flat building are to be designed in accordance with the Australian Adaptable Housing Code (AS 4299-1995) which includes "pre-adaptation" design details to ensure visitability is achieved.

5 PRIOR TO CONSTRUCTION CERTIFICATE (BUILDING)

5.1 Building Code of Australia Compliance

- 5.1.1 All aspects of the building design shall comply with the applicable performance requirements of the Building Code of Australia so as to achieve and maintain acceptable standards of structural sufficiency, safety (including fire safety), health and amenity for the ongoing benefit of the community. Compliance with the performance requirements can only be achieved by:

- (a) Complying with the deemed to satisfy provisions, or
- (b) Formulating an alternative solution which:
 - (i) complies with the performance requirements, or
 - (ii) is shown to be at least equivalent to the deemed to satisfy provision, or
 - (iii) A combination of (a) and (b).

5.2 Site Works and Drainage

- 5.2.1 Any required retaining wall(s) and/or other effective method to retain excavated or filled ground (not being Exempt Development under the Blacktown Local Environmental Plan), together with any associated groundwater drainage system, shall be designed by an appropriately qualified person. Details of such site works shall accompany the Construction Certificate.

- 5.2.2 Stormwater drainage from the site shall be designed to satisfactorily drain rainfall intensities of 159mm per hour over an average recurrence interval of 5 years. The design shall:

- (a) be in accordance with Australian Standard 3500.3, and
- (b) provide for drainage discharge to an existing Council drainage system, and
- (c) ensure that the development, either during construction or upon completion, does not impede or divert natural surface water runoff so as to cause a

nuisance to adjoining properties.

- 5.2.3 Soil erosion and sediment control measures shall be designed in accordance with Council's Soil Erosion and Sediment Control BASIX Details shall accompany any Construction Certificate.

5.3 BASIX Certificate Compliance

- 5.3.1 The plans and specifications must indicate compliance with the Commitments listed in the Amended BASIX Certificates for Lot 7 and Lot 10 provided under Part 1 and also the commitments listed in the BASIX Certificate Numbers: 833834M for Lot 6, and 836365M for Lot 8, as revised to accord with the final approved plans.

6 PRIOR TO CONSTRUCTION CERTIFICATE (ENGINEERING)

6.1 General

- 6.1.1 All relevant conditions within the 'Prior to Construction Certificate' section of this consent shall be satisfied before any Construction Certificate can be issued.

- 6.1.2 All fees for Construction, *Roads Act 1993* and *Local Government Act 1993* approvals must be paid to Council prior to the issue of any of the above certificates or approvals. All fees for Compliance Certificates must be paid to Council prior to any construction certificate works commencing.

- 6.1.3 Construction certificate plans shall be generally in accordance with the following drawings:

Prepared By	Project No.	Drawing No.	Revision	Dated
Barker Ryan Stewart	SY170226	SY170226C100	B	-
Barker Ryan Stewart	SY170226	SY170226C102-106	B	31/01/18
Barker Ryan Stewart	SY170226	SY170226C600	B	-
Barker Ryan Stewart	SY170226	SY170226C603-606	B	31/01/18
Barker Ryan Stewart	SY170226	SY170226C700	B	-
Barker Ryan Stewart	SY170226	SY170226C702-706	B	31/01/18
Barker Ryan Stewart	SY170226	SY170226C800	B	-
Barker Ryan Stewart	SY170226	SY170226C802-804	B	31/01/18

- 6.1.4 The Applicant must submit to Council for its review and approval:

a) Revised MUSIC modelling to address the following:

- For Lot 7 the MUSIC model does not account for the front roof area and yard of Unit 14 in bypass.
- Given the large frontage area some allowance for bypass in the front yards of Lot 7 should also be allowed for even with the nominated pits. This should also be considered for Lots 6, 8 and 10.

b) Revised drainage plans to address the following:

- i. On each Stormfilter Chamber section show the baffle 250 mm upstream of the weir and extending from the tank soffit to 300 mm below the weir level and provide a minimum 1% fall in the overflow chamber to the outlet pipe.
- ii. Reposition the grates for the Stormfilter chambers to ensure the access points are all clear of the baffles.
- iii. On Dwg Nos SY170226C600 Rev B renumber the first Sheet 3 as Sheet 2.
- iv. On Dwg Nos SY170226C600 Rev B new Sheet 2 amend note at bottom to include an Enviropod at pit 5/1.
- v. On Dwg Nos SY170226C600 Rev B new Sheet 2 provide minimum 150 mm kerbs along the rear boundaries of units 1 to 27.
- vi. On Dwg Nos SY170226C600 Rev B new Sheet 2 provide a swale or raised planter box along the front boundaries of units 27 to 31.
- vii. On Dwg Nos SY170226C600 Rev B Sheet 3 amend the water quality table to show 19 Enviropods.
- viii. On Dwg Nos SY170226C700 Rev B Sheet 2 show minimum 150 mm trench grates in the legend.
- ix. On Dwg Nos SY170226C700 Rev B Sheet 2 provide a depressed (by minimum 100 mm) inlet pit in the front yards of units 16 to 27 repositioned closer to the front boundary and a minimum of 2.5m away from the driveway to better collect surface flows.
- x. On Dwg Nos SY170226C700 Rev B Sheet 2 redirect all roof water from the front (south) of units 34 to 42 to the rainwater tank at the rear to match the catchment boundary.
- xi. On Dwg Nos SY170226C700 Rev B Sheet 2 amend note at bottom to include Enviropods at pit 2/1 not 3/1.
- xii. On Dwg Nos SY170226C700 Rev B Sheet 3 Stormfilter Chamber C2 appears substantially drowned by the downstream tailwater level of 29.8 however the levels within the tank and at the surface may be transposed between tanks and require amendment to the naming of C1 and C2 on this plan.
- xiii. On Dwg Nos SY170226C800 Rev B Sheet 2 provide a depressed (by minimum 100 mm) inlet pit in the front southern yard of unit 19.
- xiv. On Dwg Nos SY170226C800 Rev B Sheet 2 provide minimum 150 mm kerbs along the southern side/rear boundaries of units 19, 21 and 23 and the courtyard boundaries of units 1 and 4.
- xv. On Dwg Nos SY170226C800 Rev B Sheet 2 amend note at bottom to include Enviropods at pits 1/7, 2/3, 3/6, 3/7 and 3/8. Delete references to Enviropods at pit 2/2, 2/5 and 3/1.
- xvi. On Dwg Nos SY170226C800 Rev B Sheet 4 amend the Water Quality Table to identify the correct lots draining to the Stormfilters C1, C2 and C3. Amend the correct number of Enviropods for C2 to 3 and C3 to 5.

- xvii. On Dwg Nos SY170226C100 Rev B Sheet 2 show minimum 150 mm trench grates at the front driveways of units 22 to 28.
- xviii. On Dwg Nos SY170226C100 Rev B Sheet 2 provide minimum 150 mm kerbs along the rear boundaries of units 5 to 21 and the side boundary of unit 5.
- xix. On Dwg Nos SY170226C100 Rev B Sheet 2 increase pit sizes at 3/1, 4/1 and 14/1 to 900 x 900 to fit the Enviropods.
- xx. For each lot provide MUSIC catchment plans showing land use and what areas go to which different devices including rainwater tanks. Differentiate between roof draining to the rainwater tank and roof bypassing. Provide areas.
- xxi. Number all pits
- xxii. Confined space entry warning signs are to be detailed on the drainage plans adjacent to all entries into the Stormfilter Chambers in accordance with Council's Engineering Guide for Development 2005.
- xxiii. Provide galvanised step irons or ladders for all entry points to the tanks.
- xxiv. Enviropods treating only surface flows require a minimum clear depth of 500 mm below the grate to any inlet or outlet pipe obvert. Enviropods treating surface flows and upstream pipe flows require a minimum clear depth of 500 mm from the invert of the upstream pipes to be treated, to the obvert of the outlet pipe. Where these pits are treating upstream pipe flows the inverts of all pipes in and out of the pit are to be shown.
- xxv. The internal pipe network is to be designed in accordance with the current Council's Engineering Guide for Development to carry the 20 year ARI storm flows.
- xxvi. Provide metal mosquito proof mesh welded under any access grate(s) into the Stormfilter Chambers.
- xxvii. All trench grates are to be noted as minimum 150 mm wide.

6.2 Construction Certificate Requirements

6.2.1 Under the *Environmental Planning and Assessment Act 1979* a Construction Certificate for engineering work is required. These works include but are not limited to the following:

Road and drainage construction

- On-site stormwater detention
- Water quality treatment
- Earthworks
- Inter-allotment drainage (created within the subject lot)
- Path Paving (within a subdivision)

The above requirements are further outlined in this section of the consent.

6.3 Local Government Act Requirements

6.3.1 Under *Section 68 of the Local Government Act 1993* an approval for engineering work is required. These works include but are not limited to the following:

- Any works within a Council Reserve
- Any works on adjoining land (outside the subject site boundaries)
- Inter-allotment drainage on adjoining land

The above requirements are further outlined in this section of the consent.

6.4 **Roads Act Requirements**

6.4.1 Under *Section 138 of the Roads Act 1993* an approval for engineering work is required. These works include but are not limited to the following:

- Any works within Council's road reserve
- Kerb inlet pit connections or construction
- Vehicular crossings
- Path Paving

The above requirements are further outlined in this section of the consent.

6.5 **Other Engineering Requirements**

6.5.1 Submit a detailed estimate of costs for the engineering works. If this detailed estimate is \$25,000 or greater then a long service levy payment is required. Provide proof of this payment to Council.

6.5.2 Any ancillary works undertaken shall be at no cost to Council.

6.5.3 Submit written permission from the affected property owner for any works proposed on adjoining land.

6.5.5 Submit written evidence from Sydney Water indicating compliance with all necessary requirements.

6.5.6 All street name poles, light poles and bus shelters shall be black powder coated in accordance with Blacktown City Council's Engineering Guide for Development. Ensure this is noted on the construction plans.

6.5.7 Submit a Public Utilities Plan demonstrating adequate clearance between services to stormwater pits, pipes, driveways, light poles, etc.

6.6 **Roads**

6.6.2 Submit a traffic management plan (TMP) including but not limited to a Traffic Control Plan (TCP) and Pedestrian Management Plan, for any works within public road reserves. The TCP shall be approved, signed and dated by a suitably qualified Roads and Maritime Services (RMS) accredited work site traffic designer.

6.7 **Drainage**

6.7.1 Drainage from the site must be designed so that it is connected into Council's existing drainage system and generally in accordance with the submitted concept stormwater plans prepared by Barker Ryan Stewart, Project No. SY170226C,

Drawing No. SY170226C102, SY170226C602, SY170226C703 and SY170226C802 dated 31/01/18 Rev B.

- 6.7.2 Construction Certificate plans must provide inter-allotment drainage lines for lots that do not drain directly to a public road. The design shall include pipeline long-sections and identify location and levels of services.
- 6.7.3 Foundations adjacent to easements shall not place a loading on the pipe within the easement. Foundations shall be located at:
- (a) the depth of the invert of the existing pipeline, and/or
 - (b) the depth of the invert of the proposed pipeline.

All developments shall be kept clear of drainage easements. The surface levels within the easement are not to be changed.

- 6.7.4 Pier and beam style construction shall be used adjacent to easements to the depth of the invert of the proposed or existing pipeline. A Registered Engineer (NER) shall certify that this condition has been satisfied.
- 6.7.5 Any overland or stormwater flows up to the 1% A.E.P. (100 year Average Recurrence Interval) event must be intercepted at the property boundary, conveyed through the site in a piped or channelled drainage system and discharged in a satisfactory manner.
- 6.7.6 To meet the water quality requirements the BASIX certificate is to be amended to include a 3000 litre rainwater tank for each dwelling as per the approved drainage plans and indicate the correct roof area (minimum 50%) draining to it. The certificate is to require a minimum of one tap in the front and one in the back and specify toilet usage and laundry cold water supply.
- 6.7.7 Provide details for separate permanent coloured interpretive signage minimum A1 size for each of the lots to be installed to highlight the water quality improvement process. The sign is to incorporate a simplified drainage layout of the site and detail through words and pictures all the different water quality devices including the rainwater tank and explain the benefit to the site and community. The sign is to be supported by a steel post or on a wall and is to be located adjacent to the major water quality device. The wording and detail is to be approved by Council.

6.9 Erosion and Sediment Control

- 6.9.1 Provide a sediment and erosion control plan in accordance with Council's Soil Erosion and Sediment Control Policy and Engineering Guide for Development.

6.10 Earthworks

- 6.10.1 Proposed lots are to be designed so that the ground levels at the building setback and beyond are a minimum of 500mm above the designed 100-year average recurrence interval flood level.

The lots and roads may require additional filling to be compatible with either existing or future adjacent development.

- 6.10.2 Proposed batters are not to exceed a grade of 1V:5H and are to be stabilised with topsoil, turf and vegetation.
- 6.10.3 Finished levels of all internal works at the road boundary of the property must be 4% above the top of kerb.
- 6.10.5 Any excavated material is to be placed within the site or removed from site and disposed of in an approved manner and at a registered tip site.

6.11 **Stormwater Quality Control**

- 6.11.1 Construction certificate plans must provide a stormwater quality treatment system in accordance with Council's Engineering Guide for Development and Development Control Plan Part J – Water Sensitive Urban Design and Integrated Water Cycle Management.
- 6.11.2 The engineering drawings approved under this consent are not to be used for construction. The Construction Certificate shall be generally in accordance with the approved DA plans however any significant variation to the water quality treatment design shall require a section 96 application.
- 6.11.3 Provide a maintenance schedule for the stormwater quality device that is signed and dated by the designer.

6.12 **Vehicular Crossings**

- 6.12.1 Construct a commercial and industrial vehicular crossing to Council's standard A(BS)103S.

7 **PRIOR TO DEVELOPMENT WORKS**

7.1 **Compliance Certificate Fee**

- 7.1.1 All fees for Compliance Certificates must be paid to Council prior to any construction certificate works commencing.

7.2 **Safety / Health / Amenity**

- 7.2.1 Toilet facilities shall be provided on the land at the rate of 1 toilet for every 20 persons or part thereof employed at the site.

Each toilet provided shall be:

- (a) a standard flushing toilet, or
- (b) a temporary on-site toilet which is regularly maintained and the waste disposed to an approved sewerage management facility.

- 7.2.2 A sign is to be erected and maintained in a prominent position on the site in accordance with Clause 98 A (2) of the Environmental Planning and Assessment Regulations 2000 indicating:
 - (a) the name, address and telephone number of the principal certifying authority for the work, and

- (b) the name of the principal contractor (if any) for the building work and a telephone number on which that person may be contacted outside working hours, and
- (c) stating that unauthorised entry to the work site is prohibited.

This condition does not apply to:

- (a) building work carried out inside an existing building, or
- (b) building work carried out on premises that are to be occupied continuously (both during and outside working hours) while the work is being carried out.

7.2.3 Should the development work:

- (a) be likely to cause pedestrian or vehicular traffic in a public place to be obstructed or rendered inconvenient, or
- (b) involve the enclosure of a public place, a hoarding or protective barrier shall be erected between the work site and the public place. Such hoarding or barrier shall be designed and erected in accordance with Council's current Local Approvals Policy under the Local Government Act 1993.

Where necessary, an awning shall be erected, sufficient to prevent any substance from, or in connection with, the work falling into the public place.

The hoarding, awning or protective barrier shall be effectively illuminated between sunset and sunrise where it may be hazardous to any person in the public place.

7.2.4 Soil erosion and sediment control measures shall be provided in accordance with Council's Soil Erosion and Sediment Control Policy.

7.2.5 All soil erosion and sedimentation control measures indicated in the documentation accompanying the Construction Certificate shall be installed prior to the commencement of development works.

7.2.6 A single vehicle/plant access to the land shall be provided to minimise ground disturbance and transport of soil onto any public place. Such access shall be provided in accordance with the requirements of Appendix "F" of Council's Soil Erosion and Sediment Control Policy. Single sized 40mm or larger aggregate placed 150mm deep, and extending from the street kerb/road shoulder to the land shall be provided as a minimum.

7.2.7 Any excavation and/or backfilling associated with the development shall be executed safely and in accordance with appropriate professional standards, with any excavation properly guarded and protected to prevent such work being dangerous to life or property.

7.3 Notification to Council

7.3.1 The person having the benefit of this consent shall, at least 2 days prior to work commencing on site, submit to Council a notice under Clauses 135 and 136 of the Environmental Planning and Assessment Regulation 2000, indicating details of the appointed Principal Certifying Authority and the date construction work is proposed to commence.

7.3.2 At least five (5) full working days written notice must be given for the commencement of engineering works. Such notice must be accompanied by

evidence of the contractors Public Liability and Workers Compensation Insurances. For Public Liability Insurance this should be a minimum amount of \$20,000,000.

7.4 Home Building Act

7.4.1 The construction of *residential building work* within the meaning of the *Home Building Act 1989* must not be carried out unless the principal certifying authority for the development to which the work relates (not being the council) has given the council written notice of the following information:

- (a) in the case of work for which a principal contractor is required to be appointed:
 - (i) the name and licence number of the principal contractor, and
 - (ii) the NSW Home Building Compensation Fund "Statement of Cover" under Part 6 of that Act,
- (b) in the case of work to be done by an owner-builder:
 - (i) the name of the owner-builder, and
 - (ii) if the owner-builder is required to hold an owner-builder permit under Part 3 of the Act, the number of the owner-builder permit.

7.5 Sydney Water Authorisation

7.5.1 Sydney Water Corporation's approval, in the form of appropriately stamped Construction Certificate plans, shall be obtained and furnished to the Principal Certifying Authority to verify that the development meets the Corporation's requirements concerning the relationship of the development to any water mains, sewers or stormwater channels.

OR

The approved plans are to be submitted to a Sydney Water Tap In, to determine whether the development will affect Sydney Water's sewer and water mains, stormwater drains and/or easements and if further requirements need to be met. The plans must be appropriately stamped and all amended plans will require restamping. For further information please refer to the "Developing Your Land" section of the website: www.sydneywater.com.au, or telephone 1300 082 746 for assistance.

7.6 Construction Details

7.6.1 Structural details of the nominated building component(s), prepared and/or certified by a professional engineer or other appropriately qualified person, shall be lodged with Council prior to commencing or erecting that portion of the approved development.

Nominated Component

- (a) Footing piers
- (b) Footing system
- (c) Floor slab
- (d) Structural concrete
- (e) Wall frame bracing
- (f) Roof trusses
- (g) Structural steelwork
- (h) Retaining walls

7.7 Protection of Fauna

- 7.7.1 All native fauna located within and surrounding the site shall be collected by an appropriately qualified and licensed ecologist or by a suitable person/organisation who has the appropriate experience and qualifications in the collecting and rehousing of native fauna species. Any captured native fauna shall be relocated to a suitable location managed by the applicant or as nominated by Council, and details submitted to Council confirming that fauna collection and relocation has been undertaken, including photographs, surveys and diary entries' of species found and details of relocation.

7.8 Tree Protection

- 7.8.1 Any tree not approved for removal or more than 3 metres from the building perimeter is to be effectively protected against damage.

7.9 Adjoining Owners

- 7.9.1 Written permission from the respective owner(s) must be obtained to:

- (a) discharge stormwater onto adjoining owner's land.
- (b) carry out works on adjoining land.
- (c) drain the site across land owned by others.

A copy of such written permission shall be lodged with Council.

7.10 Other Matters

- 7.10.1 The 200 micron Enviropods and/or Stormfilter cartridges supplied by Stormwater 360 as detailed on the approved drainage plans are not to be reduced in size or quantity, nor replaced with an alternate manufacturer's product.

8 DURING CONSTRUCTION (GENERAL)

8.1 Asbestos Handling

- 8.1.1 Any asbestos material is to be handled and treated in accordance with the WorkCover document "*Your Guide to Working with Asbestos- Safety guidelines and requirements for work involving asbestos*" dated March 2008.

8.2 European Heritage

- 8.2.1 If, during the course of construction works, the applicant or person acting on this consent become aware of any previously unidentified heritage object(s), all works likely to affect the object(s) shall cease immediately and the Heritage Council of New South Wales shall be notified immediately in accordance with section 146 of *the Heritage Act 1977*. Relevant works shall not recommence until written authorisation from the Heritage Council is issued.

8.3 Aboriginal Heritage

- 8.3.1 If, during the course of construction works, the applicant or person acting on this

consent become aware of any previously unidentified Aboriginal object(s), all works likely to affect the object(s) shall cease immediately and the NSW Office of Environment and Heritage informed in accordance with Section 89A of the *National Parks and Wildlife Act 1974*. Relevant works shall not recommence until written authorisation from NSW Office of Environment and Heritage is received by the Applicant. In addition, a member of each of the Western Sydney Aboriginal Stakeholder Groups is to be contacted.

8.4 Environmental Health Matters

8.4.1 Should any contaminated material be unearthed or fly-tipped rubbish be encountered during the demolition, excavation and construction works, all works are to cease immediately and a suitably qualified environmental site contamination consultant is to investigate and report on the findings. Any recommended remediation and validation works are to be undertaken pursuant to Council's Contamination Lands Policy. The environmental consultant engaged for this project is to be on site for regular monitoring of the approved site works.

8.4.2 The Construction Environment Management Plan must include specific advice on how water treatment and dewatering will be undertaken in accordance with the Blue Book, as well as demonstrating the discharged water complies with ANZECC water quality guidelines.

8.4.3 Throughout the duration of the works, the applicant is to demonstrate compliance with the following approval parameters:

- a) The applicant is to ensure that validation for the entire subject site can be prepared by a suitably qualified environmental consultant in accordance with Council's Contamination Land Policy.
- b) The applicant is to ensure that the site has been satisfactorily secured so as to prevent any unauthorised dumping of illegal fill/waste building materials (i.e. non-V.E.N.M soils) from entering onto the development site.
- c) Appropriate dust suppression measures are to be incorporated into the site works process, so as to ensure that adjoining properties in the local vicinity are not negatively impacted upon by dust generated from the development site.
- d) Any fill material imported to the site shall be certified at the source by a suitably qualified consultant as VENM fill material, non-slightly saline and non-aggressive to concrete or steel. If the importation of fill is undertaken under a specific EPA exemption, relevant details of the EPA exemption shall be forwarded to Council prior to the importation of fill to the site.

Should Council receive any complaints regarding non-compliance with any of the above matters or other such operational type matters, then Council will have no alternative but to fully investigate the complaint and pursue an appropriate course of action.

8.5 Acoustics

8.5.1 The recommendations provided in the *Traffic Noise Intrusion Assessment*, prepared

by Acoustic Logic Consultancy Pty Ltd, report no. 20171661.1/2711A/R0/MF, dated 27 November 2017, shall be implemented.

- 8.5.2 To minimise the noise impact of the development on the surrounding environment, the collection and delivery of goods and materials (including garbage and recycling waste) from and to the premises shall not take place between the hours of 10pm and 7am

9 DURING CONSTRUCTION (BUILDING)

9.1 Safety/Health/Amenity

- 9.1.1 The required toilet facilities shall be maintained on the land at the rate of 1 toilet for every 20 persons or part of 20 persons employed at the site.

- 9.1.2 A sign is to be erected and maintained in a prominent position on the site in accordance with Clause 98 A (2) of the Environmental Planning and Assessment Regulations 2000 indicating:

- (a) the name, address and telephone number of the principal certifying authority for the work, and
- (b) the name of the principal contractor (if any) for the building work and a telephone number on which that person may be contacted outside working hours, and
- (c) stating that unauthorised entry to the work site is prohibited.

- 9.1.3 Should the development work:

- (a) be likely to cause pedestrian or vehicular traffic in a public place to be obstructed or rendered inconvenient, or
- (b) involves the enclosure of a public place,

the required hoarding, awning or protective barrier shall be maintained between the land and the public place.

The hoarding, awning or protective barrier shall be effectively illuminated between sunset and sunrise where it may be hazardous to persons in the public place.

- 9.1.4 Soil erosion and sediment control measures (including the connection of roofwater downpipes to stormwater drainage lines upon fixing of roof covering) shall be maintained during the development works.

- 9.1.5 A single vehicle/plant access to the land shall be maintained to minimise ground disturbance and transport of soil onto any public place. Such access shall be maintained in accordance with the requirements of Appendix "F" of Council's Soil Erosion and Sediment Control Policy. As a minimum, single sized 40mm or larger aggregate placed 150mm deep, and extending from the street kerb/road shoulder to the land shall be provided.

- 9.1.6 Any excavation and/or backfilling associated with the ongoing development works shall be executed safely and in accordance with appropriate professional standards, with any excavation properly guarded and protected to prevent them from being dangerous to life or property.

- 9.1.7 Building and construction materials, plant, equipment and the like shall not to be placed or stored at any time on Council's footpath, roadway or any public place.

9.2 Building Code of Australia Compliance

- 9.2.1 All building work shall be carried out in accordance with the provisions of the Building Code of Australia.

9.3 Surveys

- 9.3.1 The building(s) shall be set out by a registered surveyor and a survey report lodged with the Principal Certifying Authority to verify the approved position of each structure in relation to the property boundaries.

9.4 Nuisance Control

- 9.4.1 Any objectionable noise, dust, concussion, vibration or other emission from the development works shall not exceed the limit prescribed in the Protection of the Environment Operations Act 1997.

- 9.4.2 The hours of any offensive noise-generating development works shall be limited to between 7.00am to 6.00pm, Mondays to Fridays: 8.00am to 1pm, Saturdays; and no such work to be undertaken at any time on Sundays or public holidays.

- 9.4.3 Construction work on all buildings (except that on single dwelling houses and associated structures on the site of a single dwelling house) shall not occur on Saturdays and Sundays on weekends adjacent to a public holiday.

9.5 Stormwater Drainage

- 9.5.1 Stormwater, surface water and sub-surface seepage (other than natural flows) shall be prevented from entering the building or being diverted onto any adjoining land (as applicable) by:

- (a) the floor level being a minimum 225mm above the adjoining finished ground level, and/or
- (b) being drained to an effective drainage system.

9.6 Waste Control

- 9.6.1 The waste material sorting, storage and re-use requirements of the approved Waste Management Plan to be submitted to Council for approval, and Council's Site Waste Management and Minimisation Development Control Plan shall be implemented during the course of development works. This includes the sorting and storage of waste and recyclable building materials on site for collection and disposal by the nominated waste/recycling contractor to the nominated disposal site.

9.7 Construction Inspections

- 9.7.1 The person having the benefit of this consent is required to notify the Principal Contractor for the building construction project that various mandatory and critical

stage inspections must be conducted by an accredited certifier, and may include inspections (where applicable):

- (a) After excavation for, and prior to placement of, any footings; and
- (b) Prior to pouring any in-situ reinforced concrete building element; and
- (c) Prior to the covering of the framework for any floor, wall roof or other building element, and prior to covering waterproofing in any wet areas; and
- (d) Prior to covering waterproofing in any wet areas (but for a minimum of 10% of rooms with wet areas in any class 2,3 or 4 building); and
- (e) Prior to covering any stormwater drainage connections; and
- (f) After the building work has been completed and prior to any Occupation Certificate being issued in relation to the building.

The critical stage inspection "(f)" must be carried out by the Principal Certifying Authority.

Any inspection conducted by an accredited other than the nominated PCA for the project must be verified by way of a Compliance Certificate issued for the relevant works.

Note: Failure to ensure the relevant inspections are conducted will preclude the issue of an Occupation Certificate.

10 DURING CONSTRUCTION (ENGINEERING)

10.1 Notification of Works

10.1.1 A written notification of works must be submitted to Council's Engineering Approvals Team prior to the commencement of any engineering works required by this consent. This must be submitted a minimum five (5) business days prior to commencement of engineering works.

10.1.2 A notification of works flyer (letter drop) is to be provided to all residential housing, businesses and organisations adjacent to any engineering works approved by this consent. This is for works undertaken on Council controlled lands such as roads, drainage reserves and parks. The notification of works flyer must contain details of the proposed works, locality map of works, contact details and the anticipated time period. A signed copy of the notice is to be provided to Council's Engineering Approvals Team and is to show the date of the letter drop as well as highlight the area that received the notification.

10.2 Insurances

10.2.1 Current copies of relevant insurance Certificates of Currency are to be submitted to Council's Engineering Approvals Team. This shall be submitted prior to commencement of engineering works required by this consent that are carried out on Council controlled lands such as roads, drainage reserves and parks. This

includes Public Liability Insurance with a minimum of \$20,000,000.00 Indemnity and Workers Compensation.

10.3 Service Authority Approvals

- 10.3.1 Prior to the commencement for construction of footway crossings and driveways a clearance shall be obtained from the relevant telecommunications carriers and Endeavour Energy. The clearance shall notify that all necessary ducts have been provided under the proposed crossing.

10.4 Boundary Levels

- 10.4.1 Any construction at the property boundary, including but not limited to fences, retaining walls and driveways shall not be carried out until boundary alignment levels have been fixed.

10.5 Tree Protection and Preservation

- 10.5.1 Existing vegetation and trees shall be left undisturbed except where roads, stormwater drainage infrastructure, site filling and/or building works are proposed.
- 10.5.2 Prior to commencement of engineering works that may disturb existing vegetation/trees, the site shall be inspected to identify and appropriately mark out any trees to be retained as well as determine areas that are to be left undisturbed. Proposed roads must be set-out onsite prior to this inspection. Note: Inspection must be carried out by Council's representative or an appropriately accredited private certifier. The applicant's representative must be present during this inspection.
- 10.5.3 There is to be no storage of materials, stockpiling of excavated material or parking of plant/machinery within the drip line of the crown of any retained trees.
- 10.5.4 Council must be notified a minimum of 24 hours prior to the removal of any branches from existing trees which are to be retained. Subject to Council's direction, this work must be generally undertaken by a qualified Arborist.

10.6 Soil Erosion and Sediment Control Measures

- 10.6.1 Soil erosion and sediment control measures onsite shall be implemented, maintained and monitored in accordance with Council's Soil Erosion and Sediment Control Policy.
- 10.6.3 All required soil erosion and sedimentation control measures are to be maintained throughout the entire construction period and until all disturbed areas are restored to the satisfaction of Council in accordance with the design and construction specification. Infringement Notices incurring a monetary penalty may be issued by Council where the maintenance of measures is deemed inadequate.

10.7 Filling of Land and Compaction Requirements

- 10.7.1 Suitable land fill replacement is required when unsuitable soils are removed. All fill including existing fill shall be compacted in accordance with Council's Works Specification - Civil (current version). A compaction certificate shall be obtained

from an appropriately qualified practising registered engineer (NER) verifying that the correct compaction requirements have been met. This compaction certificate is to be submitted to Council.

- 10.7.2 Site filling within lot boundaries (not in road reserves) and compaction is to be carried out under the supervision of a Chartered Geotechnical Engineer and shall be in accordance with Blacktown City Council's "Works Specification - Civil (Current Version)". Minimum standard compaction of 95% must be achieved and certified by a NATA registered soils lab and details submitted to Council.
- 10.7.3 Only clean fill shall be deposited/imported on site in accordance with Council's Works Specification - Civil (Current Version). Note: dry builder's waste i.e. bricks plaster and timber industrial waste or putrescible materials are not to be deposited on site. Validation of the imported fill material will be required by a suitably qualified registered engineer.
- 10.7.4 Appropriate dust control measures are to be implemented during construction to reduce any impact on local air quality and reduce dust emissions. This will include but not be limited to regularly wetting down of the site during the course of works being carried out in order to control wind blown dust.
- 10.7.5 All roads adjoining the site must be kept clean and free of all materials. Infringement Notices incurring a monetary penalty may be issued by Council where this measure is not being complied with.
- 10.7.6 Trucks transporting cut and fill must have their loads covered and provisions of "shaker pads" and wash-down areas for trucks leaving the site are to be made available. All details are to be shown on soil erosion and sediment control plans.
- 10.7.7 Prior to the placement of any fill on the site all topsoil and vegetation must be removed down to a suitable sub-grade material. The topsoil is to be stockpiled for use in revegetation of the site.

10.8 Filling in Contaminated Land

- 10.8.1 During the course of placement of filling the applicant shall undertake further testing for potential soil contamination. Validation of the imported fill material will be required.
- 10.8.2 All testing and validation of the fill material shall be undertaken by a suitably qualified *environmental consultant in accordance with Council's Policy and Procedures* for the determination of Rezoning Development and Building Applications involving Contaminated Land. A Remediation and Validation Report documenting the testing undertaken shall be submitted to Council for approval.
- 10.8.3 Should any remediation works be required documentary evidence prepared by a suitably qualified environmental consultant validating the site is to be submitted to Council for approval.

10.9 Inspection of Engineering Works - Environmental Planning and Assessment Act 1979.

- 10.9.1 Comprehensive inspection compliance certificate(s) to be issued for all engineering works required by this consent and the approved construction certificate. The inspection compliance certificate(s) can only be issued by Council or an accredited certifier, under *Part 6 of the Environmental Planning and Assessment Act 1979* as amended. A schedule of mandatory inspections is listed in Council's Works Specification – Civil (current version).

Where Council is appointed as the Principal Certifying Authority for the development, only compliance certificates issued by accredited certifiers will be accepted. All compliance certificate(s) must certify that the relevant work has been completed in accordance with the pertinent Development Consent and Construction Certificate.

10.10 Inspection of Engineering Works - Roads Act 1993

- 10.10.1 All inspection(s) required by this consent for any engineering works that are approved under the *Roads Act 1993* must be made by Council's Development Overseers.

Inspections must be pre-booked with a minimum twenty-four (24) hours notice. Council's Development Overseers may be contacted on 02 9839 6586 between 7am - 8am and 12.30pm - 1.30pm, Monday to Friday. Note: A site inspection is required prior to commencement of work. A schedule of mandatory inspections is listed in Council's Works Specification – Civil (current version).

10.11 Public Safety

- 10.11.1 The applicant is advised that all works undertaken are to be maintained in a safe condition at all times. Council may at any time and without prior notification make safe any such works Council considers to be unsafe and recover all reasonable costs incurred from the applicant.

10.12 Site Security

- 10.12.1 Chain wire gates and security fencing must be provided around the site in order to prevent unauthorised access and dumping of rubbish.

10.13 Traffic Control

- 10.13.1 Any "Traffic Control Plan" utilised for engineering works required by this consent must be prepared by a suitably qualified Roads and Maritime Services (RMS) accredited work site traffic designer for all works that are carried out in or adjacent to a public road. This Plan must satisfy all the requirements of AS 1742.3 - 2002.
- 10.13.2 Traffic control devices/facilities (i.e. barricades, signs, lights, etc) must be setup, installed, monitored and maintained in accordance with the certified Traffic Control Plan and by suitably qualified RMS accredited work site traffic controllers.
- 10.13.3 Persons undertaking the control of traffic through or around work sites on Council controlled roads must hold with them their RMS Traffic controllers accreditation.

10.13.4 The applicant is advised that prior to implementation of any traffic control system and during the entire course of construction suitably qualified RMS accredited work site traffic controllers will ensure a smooth transition with other nearby traffic control setups. The coordination, communication and cohesion between adjacent traffic control systems shall be addressed by the applicant and must satisfy all the requirements of AS 1742.3 - 2002.

10.13.5 Where the Traffic Control Plan may change during the course of construction to facilitate new works, a revised traffic control plan shall be prepared and certified by a suitably qualified RMS accredited worksite traffic control designer. This Plan must satisfy all the requirements of AS 1742.3 – 2002 and the current version of the RMS *Traffic Control at Work Sites* manual and shall be submitted to Council prior to implementation.

11 PRIOR TO OCCUPATION CERTIFICATE

11.1 Road Damage

11.1.1 The cost of repairing any damage caused to Council's assets in the vicinity of the subject site as a result of the development works will be met in full by the applicant/developer.

Note: Should the cost of damage repair work not exceed the road maintenance bond, Council will automatically call up the bond to recover its costs. Should the repair costs exceed the bond amount a separate invoice will be issued.

11.2 Compliance with Conditions

11.2.1 An Occupation Certificate shall not be issued until such time as all conditions of this consent, other than "Operational" conditions, have been satisfied. The use or occupation of the development prior to compliance with all conditions of consent, other than "Operational" conditions, may render the applicant/developer liable to legal proceedings.

11.2.2 Prior to occupation/use of a new building, it is necessary to obtain an Occupation Certificate from the Principal Certifying Authority in accordance with the provisions of Section 6.9 and 6.10 of the Environmental Planning & Assessment Act 1979.

11.2.3 A Subdivision Certificate (or any form of Subdivision approval) shall not be issued until all conditions of this consent, other than "operational" conditions, have been satisfied.

11.3 Service Authorities

11.3.1 A final written clearance shall be obtained from Sydney Water Corporation, Integral Energy and Telstra (or any other recognised communication carrier) if such clearance (in the form of a Section 73 Certificate, Notification of Arrangement, etc) has not previously been issued.

11.4 Temporary Facilities Removal

11.4.1 Any hoarding or similar barrier erected to protect a public place shall be removed

from the land and/or public place.

- 11.4.2 Any temporary toilet facilities provided during construction works shall be appropriately dismantled, disconnected and removed from the land.
- 11.4.3 Any temporary soil erosion control measure installed during development works shall be removed and other permanent measures required by Council's Soil Erosion Control Policy shall be provided.
- 11.4.4 Any temporary builder's sign or other site information sign shall be removed from the land.
- 11.4.5 Any temporary site access provided for the purpose of development works shall be removed and the kerb and gutter and/or previous roadworks reinstated in a manner satisfactory to Council. Should the reinstatement involve the provision of a new vehicular crossing, layback, kerb and gutter or road shoulder works the separate approval of Council's Maintenance Section shall be obtained (and any appropriate fees paid) prior to such works commencing.

11.5 Fee Payment

- 11.5.1 Any fee payable to Council as part of a Construction, Compliance or Occupation Certificate or inspection associated with the development (including the registration of privately issued certificates) shall be paid in full.

11.6 Services / Utilities

- 11.6.1 A Section 73 Compliance Certificate under the Sydney Water Act 1994 must be obtained. Applications must be made through an authorised Water Servicing Coordinator. Please refer to the "Building Plumbing and Developing" Section of the website www.sydneywater.com.au, then follow the "Developing Your Land" link or telephone 13 20 92 for assistance. Following application a "Notice of Requirements" will advise of water and sewer extensions to be built and charges to be paid. Please make early contact with the Coordinator since building of water/sewer extensions can be time consuming and may impact on other services and building, driveway or landscape design. A copy of Sydney Water's Notice of Requirements must be submitted to the Principal Certifying Authority prior to the Construction Certificate being issued. The Section 73 Certificate must be submitted to the Principal Certifying Authority prior to the occupation of the development.
- 11.6.2 A written clearance from Telstra or any other recognised communication carrier, is to be provided stating that services have been made available to the development or that arrangements have been made for the provision of services to the development.
- 11.6.3 A "Notification of Arrangement" Certificate is to be provided from a recognised energy provider, stating that electrical services, including the provision of street lighting, have been made available to the development.
- 11.6.4 If required, the applicant shall obtain a Trade Waste Approval from the Sydney Water Corporation Limited in relation to any discharges to the Corporation's sewerage system.

11.7 Site Contamination

- 11.7.1 A final site contamination Validation Report confirming the suitability of the site for the proposed development is to be endorsed by Council prior to the release of the final plan of subdivision. The Validation Report shall be prepared by a consultant engaged under the terms of Council's Contaminated Lands Policy.

11.8 Salinity

- 11.8.1 A report from a geotechnical engineer is to be submitted to Council certifying the site classification for the reactivity of the lots in the subdivision after identification of the soil characteristics in accordance with the provisions of AS 2870, "Residential Slabs and Footings."

11.9 Waste Services

- 11.9.1 A Community Management Agreement/Strata Management Agreement must be prepared, clearly outlining and including:

- that no bins are to be located or placed in the approved collection points outside the scheduled collection time for that area.
- the responsibility of residents to manage their bins and bulky waste onsite in accordance with the approved waste management plan.
- the responsibility for maintenance of the waste collection points and ensure they are clear and unobstructed prior to collection times
- the method of communication to new tenants and residents regarding the waste management services and collection system for the complex.
- the approved waste management plan (as required to be amended and submitted in accordance with condition 3.15.2 of this Consent) .

- 11.9.2 The applicant must provide an individual 240L waste and 240L recycling service to each dwelling consistent with Council's mobile garbage bin service. Should Council provide this service, we require the elected strata manager to sign our 'Onsite Waste Collection Agreement Form' before collections can occur onsite.

- 11.9.3 Prior to release of the Occupation Certificate, the applicant must install no parking signage on both sides of the road in any area of half road construction. This will ensure safe passage for waste collection vehicles until the full road network is completed.

- 11.9.4 The applicant must install no parking signage along the length of any private road where waste collection vehicles are required to travel to service bins as identified by our consultant.

11.10 Public Positive Covenant

- 11.10.1 The applicant must prepare and provide to Council for approval an instrument, substantially in the form attached and compliant with the requirements of NSW Land Registry Services, which will create a public positive covenant pursuant to

section 88E of the Conveyancing Act 1919 on all lots within the development providing for the management and collection of all forms of garbage, green waste and recycling from each of those lots.

11.10.2 The public positive covenant must require the lot owners to covenant on behalf of themselves and all occupants of the lots to:

- a) store all forms of garbage, green waste and recycling within the appropriate garbage bins on their respective lots;
- b) place all garbage, green waste and recycling bins in the designated communal garbage, green waste and recycling collection area within 24 hours of the collection time;
- c) collect and return the empty garbage, green waste and recycling bins to their respective lots within 12 hours after collection has taken place; and
- d) place whitegoods and large household items in the designated communal bulky waste collection area not more than 24 hours before each date allocated by the Prescribed Authority for the collection of such items.

11.10.3 The public positive covenant must:

- a) contain a plan, compliant with the requirements of NSW Land Registry Services, indicating the designated communal area/s within the development for the collection of garbage, green waste, recycling and bulky waste from all the lots within the development, with such designated communal collection area/s being in the location shown on the plans annexed to this consent;
- b) provide for the lot owners (on behalf of themselves and all occupants of the lots) to release the Prescribed Authority from, and not make any claim or demand or commence any proceedings (including without limitation in nuisance) against the Prescribed Authority in relation to any noise, debris, damage to property or other issue arising directly or indirectly from waste collection activities carried on by the Prescribed Authority or any agent acting on its behalf; and
- c) provide that the positive public covenant cannot be released, varied or modified without the Prescribed Authority's consent.

11.10.4 These provisions must be put into effect prior to the release of the occupation certificate and the applicant must ensure that the public positive covenant is registered with the plan of subdivision for the development.

11.11 Other Matters

11.11.1 All landscaping shall be completed in accordance with approved landscaping design plan. All turfed areas shall be finished level with adjoining surfaces and graded to approved points of drainage discharge.

11.11.2 All common areas and private driveways and pathways shall be appropriately illuminated by the use of bollard lighting or the like to provide for the safety and convenience of occupants and other people resorting to the land at night.

- 11.11.3 All fencing and retaining walls shall be completed in accordance with the approved plans and with the details submitted as part of the Construction Certificate. All fencing / retaining work must be provided at full cost to the developer. All fencing is to be constructed on top of any retaining walls. The selected fencing material / design must also minimise / eliminate the potential for graffiti attacks. Where possible, foliage should be grown on / over fencing adjacent to public areas to minimise the potential for graffiti.
- 11.11.4 Vandal proof and security lighting, and appropriate security measures are to be provided in accordance with the approved details submitted as part of the Construction Certificate.
- 11.11.5 The required letterboxes are to comply with the details submitted as part of the Construction Certificate and with Australia Posts requirements for size. The letterbox system should be vandal resistant and secure.
- 11.11.6 Off-street car parking shall be encouraged by the installation of appropriate, permanent and prominent signs indicating its availability. Wheel stops are to be fitted to all of the uncovered car parking spaces on the site. This does not relate to the stacked residential car parking spaces.
- 11.11.7 All required internal roads and car parking spaces shall be line-marked, sealed with a hard standing, all-weather material to a standard suitable for the intended purpose.
- 11.11.8 The turning bay areas at the end of the internal aisles within the development are to be signposted as 'Turning Bays' and 'No Parking'.
- 11.11.9 Any future substation or other utility installation required to service the approved development shall not under any circumstances be sited on future or existing Council land, including road reservations and/or public reserves and also not on drainage zoned land.
- 11.11.10 All privacy screening measures / devices detailed on the approved plans are to be installed.

11.12 Graffiti Management Plan

- 11.12.1 A "Graffiti Management Plan" is to be submitted for the separate approval of Council. The Plan is to address the following issues:
- (a) Methods to minimise the potential for graffiti;
 - (b) Management/notification procedures for the "early" removal of graffiti;
 - (c) Annual review of any "management agreement" for the removal of graffiti to ensure the property is maintained at its optimum level; and
 - (d) Maintenance of suitable landscaping to minimise the potential for graffiti attacks.

11.13 **Total Maintenance Plan**

11.13.1 A "total" maintenance plan is to be prepared for the site. The plan is to ensure the following:

- (a) The long term up-keep and cleanliness of the development, to ensure all buildings, public areas, through site links, soft and hard landscaping, security systems, mail boxes, lighting, bulky waste storage and loading areas, feature entry signage, parking signage and services are regularly inspected and maintained at optimum levels at all times.
- (b) That security, cleanliness and general repairs are managed appropriately, and that areas are not left unattended for long periods thereby substantially increasing the opportunity for graffiti or anti-social behaviour. Any unwanted "junk mail" is to be collected on a regular basis and disposed of as necessary.
- (c) The development is managed by a Site / Strata / Building Manager.

A copy of the Plan is to be submitted to Council for separate approval prior to the release of any Occupation Certificate.

11.14 **Acoustic Verification**

11.14.1 Certification must be provided by a qualified acoustic engineer that all work associated with the installation of the acoustic measures and noise attenuation has been completed in accordance with the certified design and to the standard required by this consent.

11.15 **NSW Department of Roads and Maritime Services - Requirements**

11.15.1 It is the responsibility of the registered proprietor to demonstrate compliance with the relevant General Terms of Approval issued by the NSW Department of Roads and Maritime Services - listed in **Condition 2.7**.

11.16 **Relationship with other Approvals**

11.16.1 Compliance with the relevant requirements of the following nominated approvals:

- a) Development Consent No. DA-16-03182 dated 8/05/2017 issued by Land and Environment Court.
- b) Development Consent No. DA-16-04408 dated 9/06/2017 issued by Land and Environment Court.
- c) Development Consent No. DA-16-04175 dated 26/05/2017 issued by Land and Environment Court.
- d) Relevant requirement of any other development consent, Construction Certificate issued under the *Environmental Planning*

- e) *and Assessment Act, 1979, The Local Government Act, 1993 or The Roads Act 1993.*

The conditions contained within the above approvals shall be fully complied with in order to obtain release of any Occupation Certificate.

The authorised person issuing the Occupation Certificate shall ascertain whether any Compliance Certificate(s) for the developments, are required to be issued in relation to any element, component or system incorporate in the development. A copy of each required Compliance certificate shall be lodged with Council.

11.17 Engineering Matters

11.17.1 Surveys/Certificates/Works As Executed plans

- 11.17.1.1 A Work-as-Executed (WAE) plan signed by a Registered Engineer (NER) or a Registered Surveyor must be submitted to Council when the engineering works are completed. A hardcopy (A1 size) and softcopy (on a CD/USB with file format .PDF) of the WAE plans are to be submitted to Council. All engineering Work-as-Executed plans MUST be prepared on a copy of the original, stamped Construction Certificate plans for engineering works.
- 11.17.1.2 A Certificate from a Registered Engineer (NER) must be lodged with Council verifying that pier and beam style construction was used adjacent to the easement to the depth of the invert of the pipeline.
- 11.17.1.3 A Certificate shall be submitted by a Registered Surveyor indicating that all pipelines and associated structures lie wholly within any easements required by this consent.
- 11.17.1.4 The submission to Council of Compliance Certificate(s) and construction inspection reports required by this consent for engineering works. A final inspection report is to be included noting that all works are complete.

When Council has been nominated or defaulted as the nominee for engineering compliance. Final inspections can be arranged through Councils Coordinator of Engineering Approvals contactable on (02) 9839 6000. A final inspection checklist must be completed by the applicant prior to the final inspection.

11.17.2 Easements/Restrictions/Positive Covenants

- 11.17.2.1 Any easement(s) or restriction(s) required by this consent must nominate Blacktown City Council as the authority to release vary or modify the easement(s) or restriction(s). The form of easement or restriction created as a result of this consent must be in accordance with the following:

(a) Blacktown City Council's standard recitals for Terms of Easements and Restrictions (Current Version).

(b) The standard format for easements and restrictions as accepted by the Lands Title Office.

- 11.17.2.2 Restrictions and positive covenants must be endorsed by Council and lodged with NSW Land and Registry Services over the on-site detention storage areas and outlet works.
- 11.17.2.3 Restrictions and positive covenants must be endorsed by Council and lodged with NSW Land and Registry Services over the Stormwater Quality Control devices/system and outlet works.
- 11.17.2.4 The creation of easement(s) related to inter-allotment drainage with a minimum width in accordance with Councils Engineering Guide for Development (current issue).
- 11.17.2.5 All Section 88B restrictions and covenants created, as part of this consent shall contain a provision that they cannot be extinguished or altered except with the consent of Blacktown City Council.

11.17.3 **Bonds/Securities/Payments in Lieu of Works**

- 11.17.3.1 The payment to Blacktown City Council of a monetary contribution in lieu of works for the placement of the final layer of asphaltic concrete (a.c.) on the new road works. The amount will be calculated at Council's approved rate upon request and following issue of a Construction Certificate for the work.
- 11.17.3.2 A maintenance security of 5% of the value of the required engineering works must be lodged with Council prior to the practical completion of the works. Council will hold this security for a period of at least twelve months.
 - a) In the case of subdivision - This period commences at the release of the final plan of subdivision. (Issue of Subdivision Certificate)
 - b) In the case where no subdivision occurs - This period commences at the date of practical completion of the development.

This maintenance period may be extended in the following situations to allow for the completion of i) necessary maintenance and or ii) all outstanding minor works.

- 11.17.3.3 Where Council's has granted approval of providing security in lieu of outstanding works. A security, in the form of a bank guarantee or a cash deposit, shall be lodged with Council to cover outstanding works required by this consent. The security amount will be calculated at Council's approved rate upon request.

11.17.4 **Inspections**

- 11.17.4.1 Any additional Council inspections beyond the scope of any Compliance Certificate package and needed to verify full compliance with the terms of this consent will be charged at the individual inspection rate nominated in Council's Fees and Charges Schedule.

11.17.5 **Other Matters**

- 11.17.5.1 Provide maintenance requirements for each of the proposed Stormwater Quality Improvement Devices. Where these devices are located in roadway/parking areas these are to include traffic management requirements. The designer of the

stormwater treatment system must prepare the maintenance schedule and this schedule must show the designer's name, company, signature and date on it.

- 11.17.5.2 The maintenance schedule is to contain a requirement that the Stormfilter cartridges can only be maintained by Stormwater 360 and either the filter cartridges are to be replaced no later than two years after the date of installation, or a flow test is to be undertaken on the filter cartridges in accordance with Council's WSUD Handbook. The flow test is to be repeated and passed each and every year after that for the filters to be retained, but the filters must be replaced after a maximum of 5 years.
- 11.17.5.3 A Civil Engineer registered with NER, is to certify that:
- i. all the requirements of the approved drainage plan have been undertaken;
 - ii. that each rainwater tank is a minimum volume of 3 m³ collecting half of the roof area;
 - iii. all the signage and warning notices have been installed;
 - iv. the interpretative water quality sign has been correctly installed for each lot;
 - v. any proprietary water quality devices have been installed for the site as per the manufacturer's recommendations;
 - vi. a copy of the certification and the works-as-executed drainage plan has been provided to the certifier, who shall provide it to Council.
- 11.17.5.4 Provide a Restriction to User and Positive Covenant over the Stormwater Quality Improvement Devices and Rainwater Tanks in accordance with the requirements of Council's Engineering Guide for Development 2005. The covenant requirements are to include the submission of an annual report on water treatment by the first business day on or after 1 September each year. The Restriction to User and Positive Covenant must be registered with Land & Property Information prior to the final occupation certificate.
- 11.17.5.5 Written evidence is to be provided that the registered owner/ owners corporation has entered into a minimum five (5) year signed and endorsed maintenance contract with a reputable and experienced cleaning contractor for the maintenance of the Enviropods and Stormfilter cartridges and contain a requirement that the Stormfilter cartridges can only be maintained by Stormwater 360. Forward a copy of the signed and endorsed contract(s) and maintenance contractor(s) details to Council's WSUD Compliance Officer at WSUD@blacktown.nsw.gov.au . This maintenance contract cannot be cancelled, but can be replaced with an alternative contract of the same standard or with a differing entity (e.g. owners' corporation).
- 11.17.5.6 The maintenance contract is to contain a requirement that either the filter cartridges are to be replaced no later than two years after the date of installation, or a flow test is to be undertaken on the filter chamber in accordance with Council's WSUD Handbook. The flow test is to be repeated and passed each and every year after that for the filters to be retained, but the filters must be replaced after a maximum of 5 years.

- 11.17.5.7 Provide a condition within the owners' corporation management rules and enforced that a maintenance contract with a reputable and experienced cleaning contractor is provided in perpetuity for the maintenance of the Enviropods and Stormfilter cartridges and the Stormfilter cartridges are maintained only by Stormwater 360.
- 11.17.5.8 Where Stormwater 360 is unable to undertake maintenance on the Stormfilter Cartridges at some time in the future and alternative water quality system is to be provided to achieve the removal targets subject to Council approval.
- 11.17.5.9 A plumber, licensed with NSW Fair Trading, is to certify that a minimum of one tap has been provided at the front and a minimum of one tap has been provided at the rear connected to the rainwater tank and rainwater warning signs fitted.
- 11.17.5.10 Stormwater 360 is to certify for the installation of the 200 micron Enviropods and Stormfilters that:
- i. They are installed in accordance with the Stormwater 360 standard operational guidelines and production drawings;
 - ii. The Stormfilter tanks includes a baffle 300 mm below the Stormfilter weir and set 250 mm upstream from the weir to retain floatables including oils for the 540 mm cartridges, or includes a baffle 400 mm below the Stormfilter weir and set 250 mm upstream from the weir to retain floatables including oils for the 690 mm cartridges.
 - iii. A minimum of 19 off 200 micron Enviropods have been installed within Lot 6.
 - iv. That the Stormfilters have a minimum flow rate of 45 l/s at standard weir height for the Stormfilter Chamber in Lot 6;
 - v. A minimum of 5 off 200 micron Enviropods have been installed within Lot 7 upstream of C2.
 - vi. That the Stormfilters have a minimum flow rate of 24 l/s at standard weir height for the Stormfilter Chamber in Lot 7 at C1 and 23 l/s at C2;
 - vii. A minimum of 3 off 200 micron Enviropods have been installed within Lot 8 upstream of C2 and a minimum of 5 off 200 micron Enviropods have been installed within Lot 8 upstream of C3.
 - viii. That the Stormfilters have a minimum flow rate of 5 l/s at standard weir height for the Stormfilter Chamber in Lot 8 at C1, a minimum flow rate of 19 l/s at standard weir height for the Stormfilter Chamber in Lot 8 at C2 and a minimum flow rate of 18 l/s at standard weir height for the Stormfilter Chamber in Lot 8 at C2;
 - ix. A minimum of 13 off 200 micron Enviropods have been installed within Lot 10.
 - x. That the Stormfilters have a minimum flow rate of 30 l/s at standard weir height for the Stormfilter Chamber in Lot 10.
 - xi. Mosquito proof screens have been provided under all grated accesses into the Stormfilter tanks; and
 - xii. Energy dissipaters have been provided on all the pipe inlets to the Stormfilter chambers

11.18 Adaptable Housing Units

- 11.18.1 Certification from a qualified Access Consultant confirming that the Adaptable Housing Units are capable of being modified when required by the occupants in accordance with the Australian Adaptable Housing Standard (AS 4299-1995) is to be submitted to Council

11.19 Street Tree Planting

- 11.19.1 Any tree planting (and maintenance) along the frontage of the development site to improve the amenity of the streetscape must be approved before an Occupation Certificate is issued.

The applicant is required to plant street trees and the number of trees should equal the number lots/dwellings with street frontage. However, corner lots require 1 tree for the primary frontage and 2 trees on the side frontage. In all other situations street trees will be planted at a minimum spacing of 8 metres.

Additional trees may be requested following assessment of the subdivision configuration.

Trees must be of a minimum container size of 45 litres with root directors.

The applicant must obtain clearances from relevant service authorities.

The applicant will be required to pay a bond of \$330 per tree to ensure the health and vigour of the tree(s). The bond will be returned 12 months after the completion of the development (i.e. on issue of final occupation/subdivision certificate), to council if the trees are maturing satisfactorily. The applicant is responsible for notifying Council when the works are completed.

The applicant will also be required to pay a \$136 inspection fee. A Blacktown City representative will inspect all street tree and public landscaping during the establishment period (i.e. between the practical date of completion and formal handover). Elements deemed to be not adequately performing are to be removed, substituted or repaired by the developer within 60 days of written notification."

12 OPERATIONAL (PLANNING)

12.1 Use of Premises

- 12.1.1 The development shall not be used or converted for use for any purpose other than that:
- (a) Granted consent by this consent or as modified, or
 - (b) Which is "Exempt Development" under the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 or other NSW or Council planning instrument.
- 12.1.2 The use of the approved development shall, at all times, be conducted in a manner consistent with the terms and conditions of this consent.

12.2 Access / Parking

- 12.2.1 All required off-street car parking spaces and internal roads shall be maintained to a standard suitable for the intended purpose.

12.3 Landscaping

- 12.3.1 All landscaped areas provided in accordance with the approved landscaping design plan shall be maintained at all times in a suitable manner.
- 12.3.2 Regular maintenance and up-keep of the site must therefore be undertaken to the site to ensure that sightlines are kept free from obstructions.
- 12.3.3 The management of vegetation, gardens, communal areas, fences, lighting and other similar areas is to be incorporated within the future strata management plan once the development is occupied.

12.4 Waste Management and Collection

- 12.4.1 Waste and recycling collection vehicles entering and exiting the property must do so in a forward direction.
- 12.4.2 The Owners Corporation/Community Management Association will be responsible for ensuring that clear access is provided to Council collection trucks entering the property.
- 12.4.3 Applicant is to ensure roads are rated for at least 24 tonne trucks.
- 12.4.4 All waste and recycling collection activities, including bulk waste storage and collection activities are to be appropriately managed at all times and are the responsibility of the strata management (or similar) of the site.
- 12.4.5 All waste and recycling bins must be stored wholly within each lot / unit and screened from view. The bins are not to be stored in common areas. The bins must only be put out for collection in the evening prior to pick-up and are to be returned to the storage area as soon as possible after pick-up.
- 12.4.6 The trees and landscaping in/near the areas which are to accommodate the kerbside collection of waste bins are to be maintained so as not to obstruct the collection of bins.
- 12.4.7 Waste management and collection associated with this site is to be maintained in accordance with the requirements of Condition 11.9.

12.5 Storage

- 12.5.1 No goods, materials, or trade waste shall be stored, displayed for sale or manufactured at any time outside the buildings on either the internal driveway / road, car parking areas, landscaping or footpaths, other than the approved garbage areas.

12.6 Lighting and Security

- 12.6.1 Spillage of light, if any, shall be controlled so as not to cause nuisance to the amenity of adjoining land.
- 12.6.2 All intruder alarms shall be fitted with a timing device in accordance with the requirements of the Protection of the Environment Operations Act 1997.
- 12.6.3 The maintenance of all external lighting is to be managed by way of an annual service agreement to ensure the security of the building and persons within are not compromised from dark or uncontrolled public areas.

12.7 Graffiti Removal

- 12.7.1 Removal of any graffiti, visible from any public road or place, is the responsibility of the property owner/s. All graffiti must be removed no later than 48 hours after detection. The approved Graffiti Management Plan is to be adhered to at all times.

12.8 Total Maintenance Plan

- 12.8.1 The approved Total Maintenance Plan must be adhered to at all times.

12.9 Environmental Management

- 12.9.1 Any activity carried out in accordance with this approval shall not give rise to air pollution (including odour), offensive noise or pollution of land and/or water as defined by the Protection of the Environment Operations Act 1997.
- 12.9.2 All waste generated on the site is to be stored, handled and disposed of in such a manner as to not create air pollution (including odour), offensive noise or pollution of land and/or water as defined by the Protection of the Environment Operations Act 1997.
- 12.9.3 In accordance with the requirements of Part 5.7 Protection of the Environment Operations Act 1997, Council is to be informed of any pollution incident that occurs in the course of carrying out the approved activity where material harm to the environment is caused or threatened.

12.10 Waste

- 12.10.1 Waste and recycling collection vehicles entering and exiting the property must do so in a forward direction.
- 12.10.2 The Owners Corporation/Community Management Association will be responsible for ensuring that clear access is provided to Council collection trucks entering the property.
- 12.10.3 The recommendations provided in the Traffic Noise Intrusion Assessment, report no. 20171661.1/2711A/R0/MF, dated 27 November 2017, prepared by Acoustic Logic Consultancy Pty Ltd, or as further amended as requested under this Consent, shall be implemented.