



23 March 2017

Chris Ritchie  
Director Industry Assessment  
Department of Planning & Environment  
23-33 Bridge Street  
SYDNEY NSW 2000

Attn: Thomas Piovesan, Planning Officer Industry Assessments

Dear Chris,

**DEXUS QUARRYWEST PROJECT (SSD 6801) – SECTION 96 MODIFICATION (MOD 3) –  
RESPONSE TO SUBMISSIONS**

DEXUS Quarry WEST Subtrust (DEXUS) is proposing to modify the development consent for the QuarryWEST Project within the Greystanes Southern Employment Lands. The proposed modification involves relatively minor changes to the layout of Precinct B of the estate, and is described in the Statement of Environmental Effects (SEE) for the proposal dated 17 February 2017.

The Department of Planning & Environment (the Department) received submissions from 3 government authorities in response to the exhibition/referral of the SEE, namely:

- Roads and Maritime Services (RMS);
- Blacktown City Council; and
- Cumberland Council.

RMS and Cumberland Council did not raise any objections or issues associated with the proposed modification. Blacktown City Council did not raise any objections, although it requested that DEXUS provides 'details of the necessity for the increased height, for example is this essential to accommodate a racking system', in order to demonstrate the need for the increased height.

In this regard, DEXUS has provided additional information on the operational need for the increased building height of Warehouse B2, which is attached as **Attachment A**. In summary, the increased height is required as a result of:

- the high clearance/high density materials handling equipment (MHE) system that is proposed to be installed within the building. The MHE system has a height of 12.7 metres, and to meet fire regulations a ceiling with sprinkler protection is required to be suspended from the structure at a height of 13.7 metres; and
- an increased roof pitch (2.5 degrees) to address the risk associated with increased hail loads as experienced in Sydney in recent years (which have lead to some notable warehouse collapses).

Additional justification for the increased height of Warehouse B2, from a planning and environmental perspective, is provided in the SEE.

In addition to Council's comments, the Department has also requested:

- updated estate elevations and sections showing the proposed modifications; and
- revised versions of stormwater plans (DA41 and DA 46) to correct revision and date details.

The updated estate elevations and sections are attached as **Attachment B**, and the updated stormwater plans are attached as **Attachment C**. It is noted that all of the civil/stormwater plans required updating to correct the revision details, and as such the complete set of civil plans (and review report) is provided in Appendix C.



I trust that the additional information provided in this response adequately addresses the comments raised by the Department and Blacktown Council. Should you have any enquiries in relation to this matter, please do not hesitate to contact me on 0400 392 861.

Yours faithfully,

**PJEP – Environmental Planning**

**Phil Jones**

Principal Environmental Planner

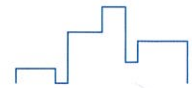
Cc: DEXUS, Tactical Group

Attachments: Attachment A  
Attachment B  
Attachment C

DEXUS Letter – Warehouse B2 Building Height  
Revised Architectural Design Plans – Estate Elevations and Sections  
Revised Civil Design Plans/Review (including Stormwater Review)



## ATTACHMENT A



**DEXUS**  
PROPERTY GROUP

23 March 2017

Judith Portelli  
Blacktown City Council  
62 Flushcombe Road  
Blacktown NSW 2148

DEXUS Projects Pty Limited  
ABN: 81 134 991 932  
Australia Square Tower  
Level 25, 264 George Street  
Sydney NSW 2000  
PO Box R1822  
Royal Exchange NSW 1225  
Tel: 02 9017 1100  
Fax: 02 9017 1101

Dear Judith,

**Re: SSD 6801 Mod 3 QuarryWEST Project, DEXUS Estate, Warehouse and Distribution Centre,  
Reconciliation Road, Pemulwuy, section 96 modification application**

In response to your request dated 16 March 2017 for the details of the necessity for the increased height for Warehouse B2 within the section 96 modification application, please see the below summary:

The application to increase the warehouse height to 17.4 metres is a result of recently securing Symbion Pty Ltd for a new warehouse and office building within the QuarryWEST estate. This will be Symbion Pty Ltd second facility within the estate and this part of the business will be relocating from 55 Kirby Street, Rydalmere bringing with it a workforce of up to 160 employees.

Symbion Pty Ltd propose to fitout the warehouse with a new state of the art high clearance/high density materials handling equipment (MHE) system, part of which will be automated. This MHE system will be used for the warehousing and distribution of pharmaceutical products.

The building is designed to accommodate this MHE system which will have product stored up to a maximum height of approximately 12.7 meters across the entire facility. In order to comply with fire regulations a ceiling with sprinkler protection is required to be suspended from the structure at 13.7 metres in order to provide adequate fire protection to the building.

Installing the ceiling within the warehouse will also provide energy efficiencies that will deal with the forecast temperature increases, this will allow for a better building performance operationally and for simpler / safer maintenance of plant within a ceiling space.

It should be noted that the structural design has not only had regard for the above but also has considered recent weather events in western Sydney with the roof pitch increased to 2.5 degree (from a eaves height of approximately 14.9 metres) in order to offset the risk of potential hail loads that have been recently experienced. Should the roof pitch be reduced to approximately 1.0 degrees as adopted on some warehouse projects the ridge height would reduce to circa 15.5 metres, this design would not be covered by a roof sheet warranty or be considered safe.

This new MHE system is critical to Symbion's operation moving forward and will allow for future growth within this building over the term of lease which could be up to 35 years.

Should you require further information or wish to discuss this matter further, please contact me on the below sign off.

Yours sincerely,

**Andrew Needham**

Development Manager

Tel: 02 9017 1269

Fax: 02 9017 1297

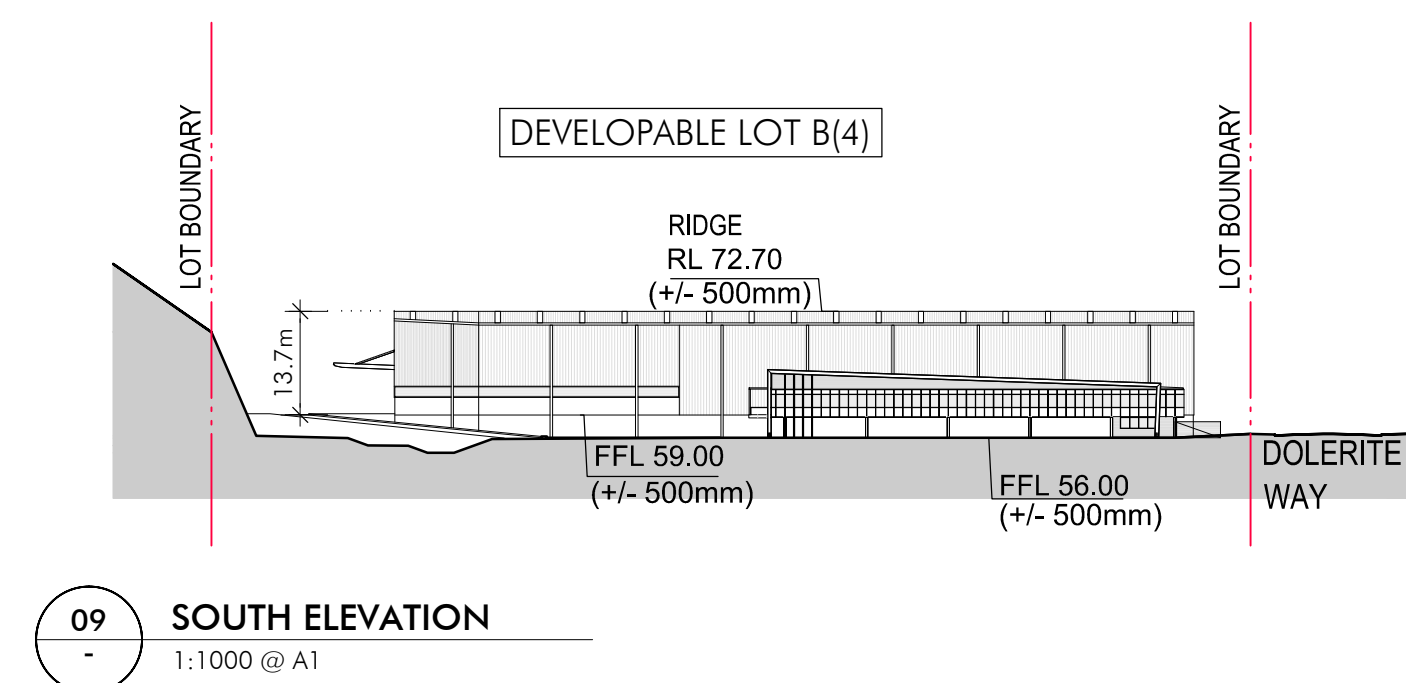
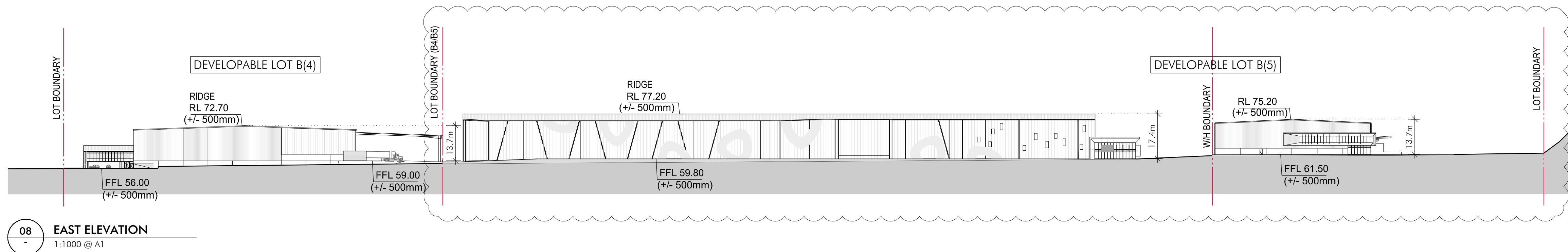
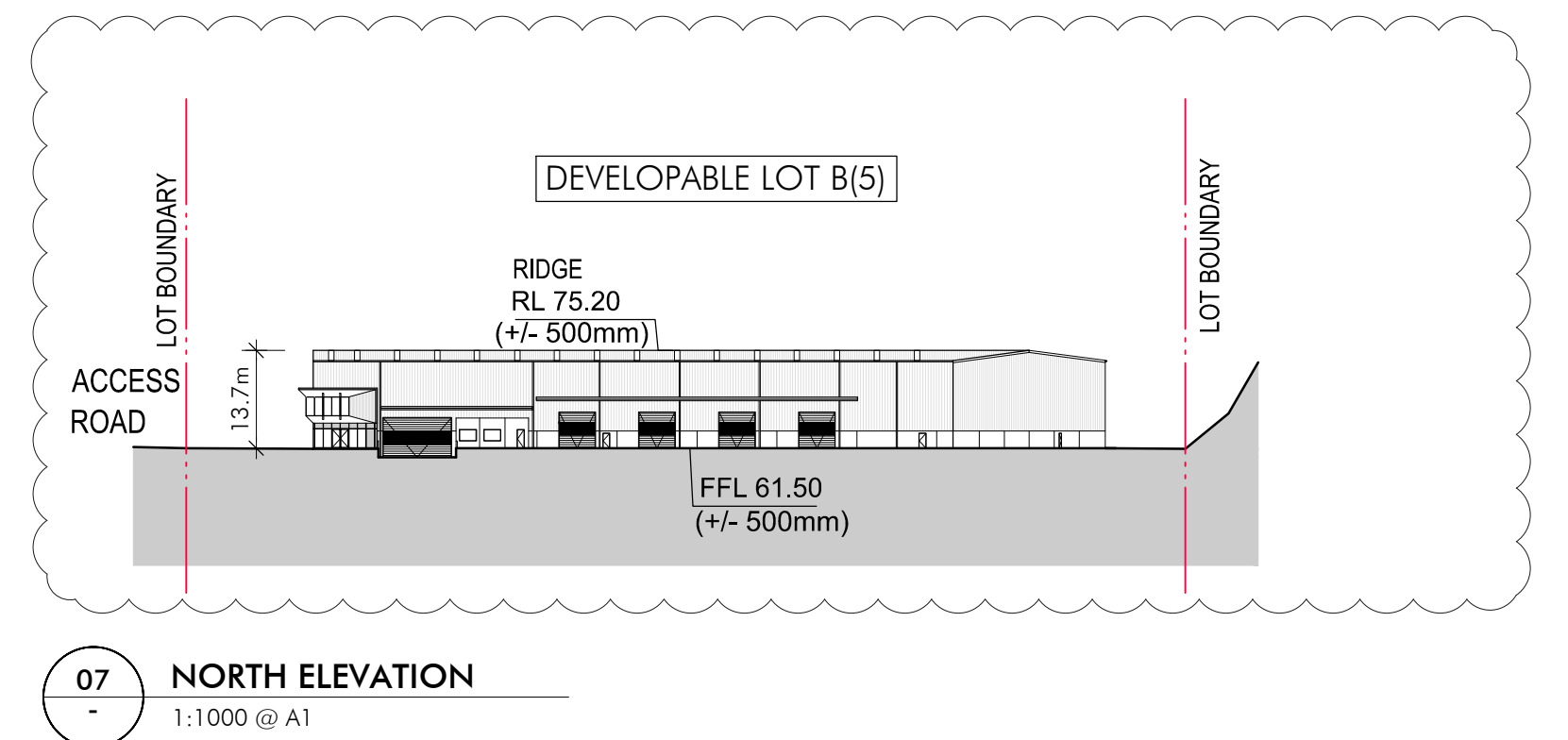
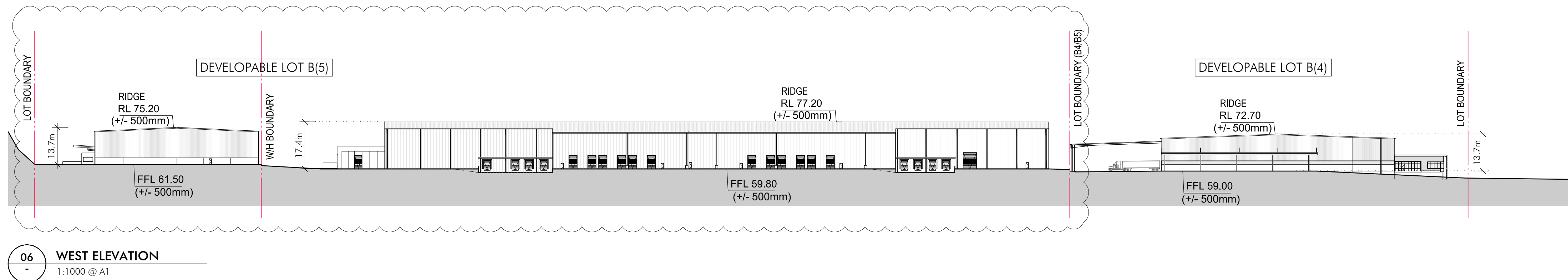
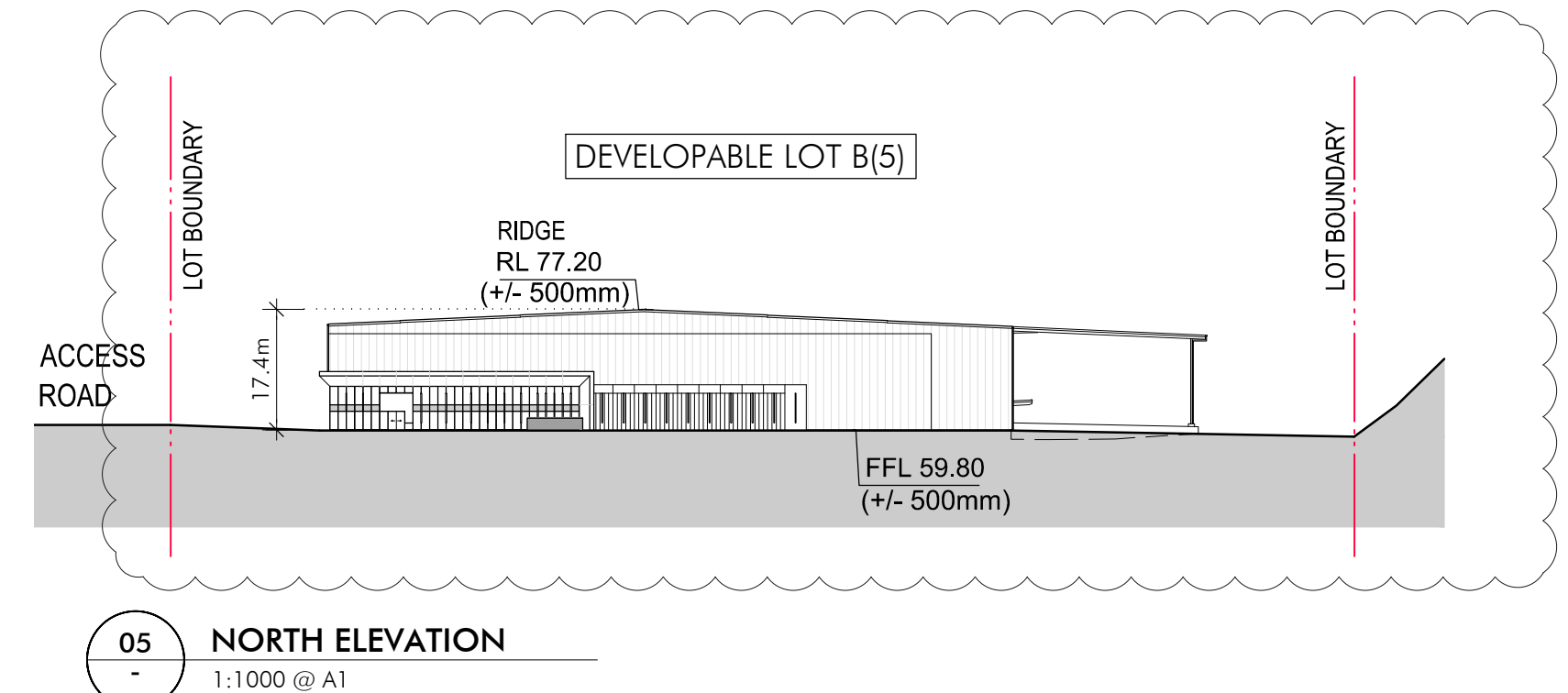
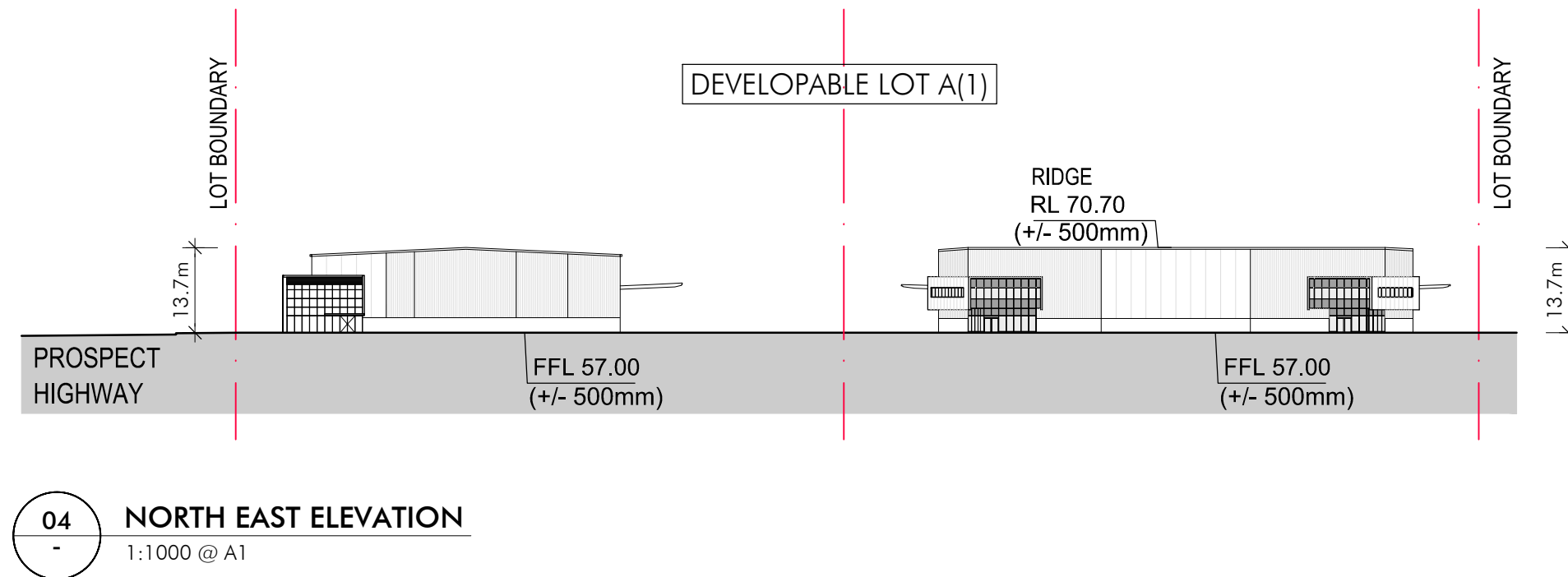
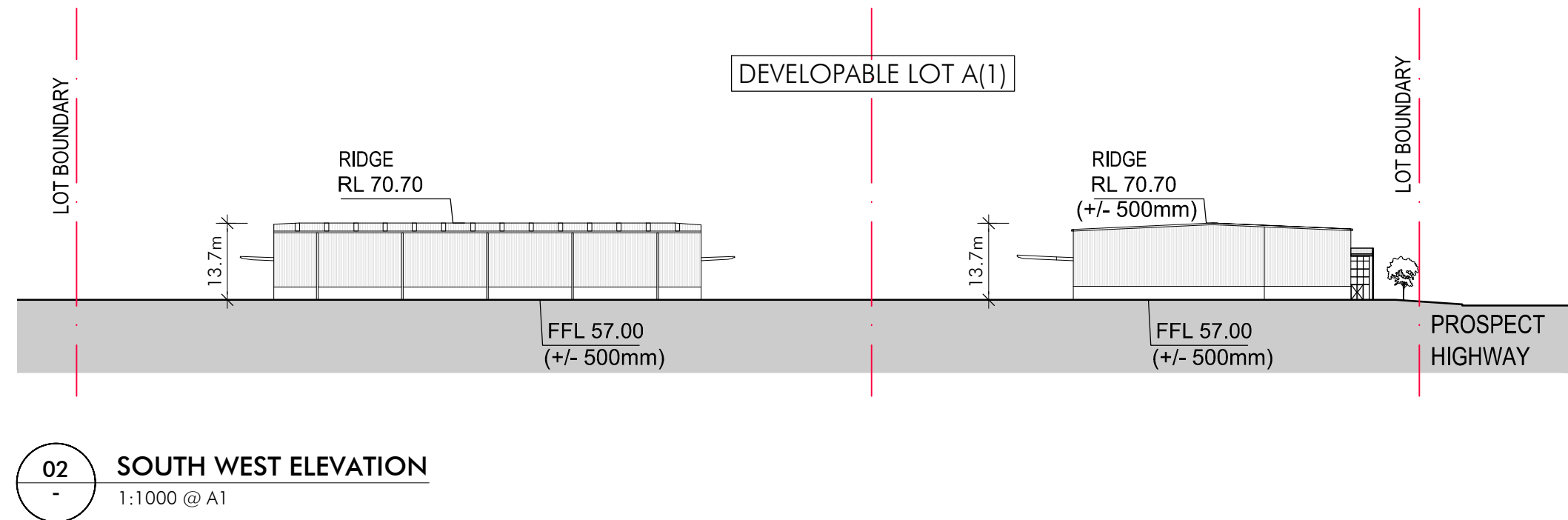
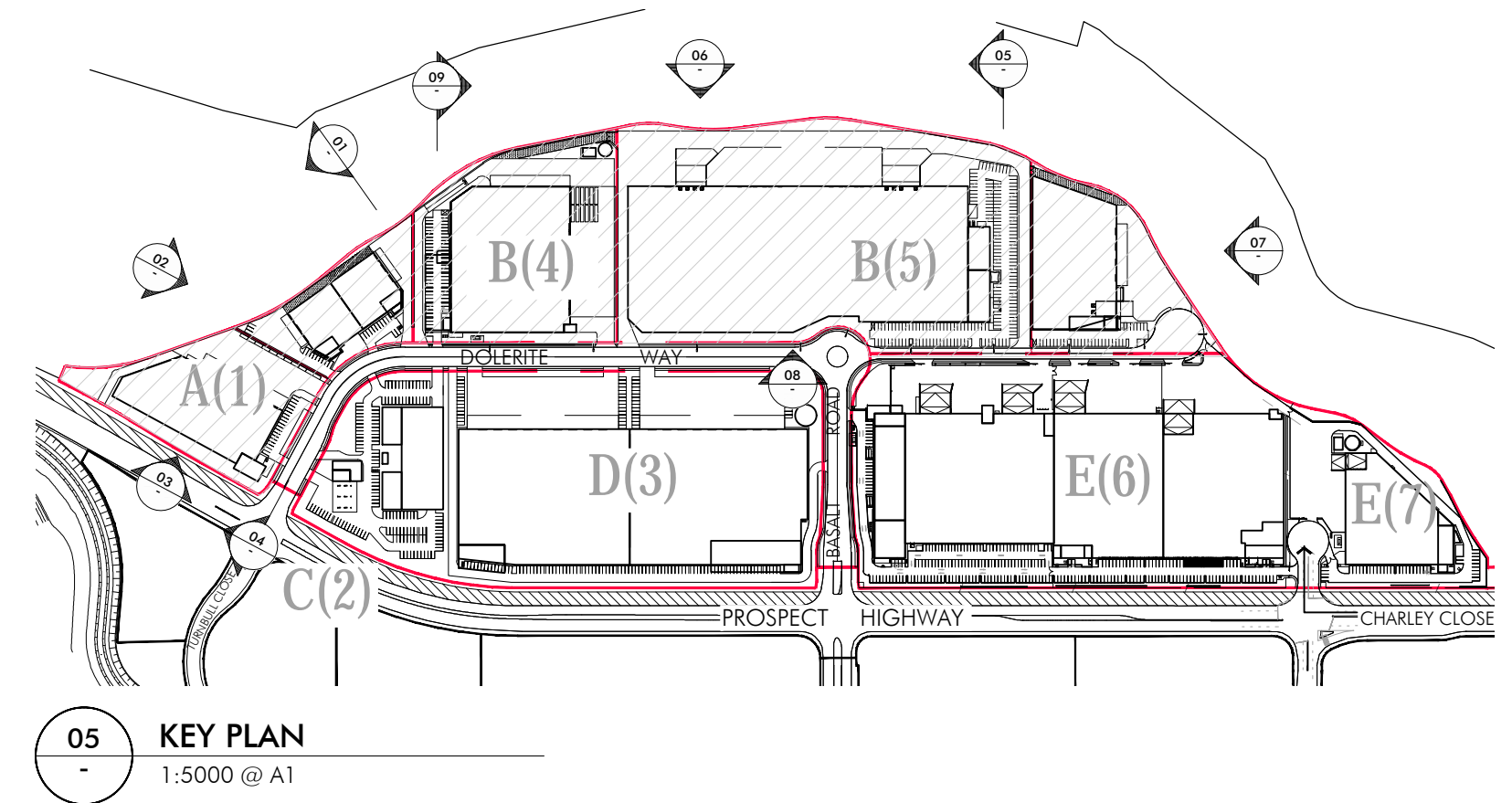
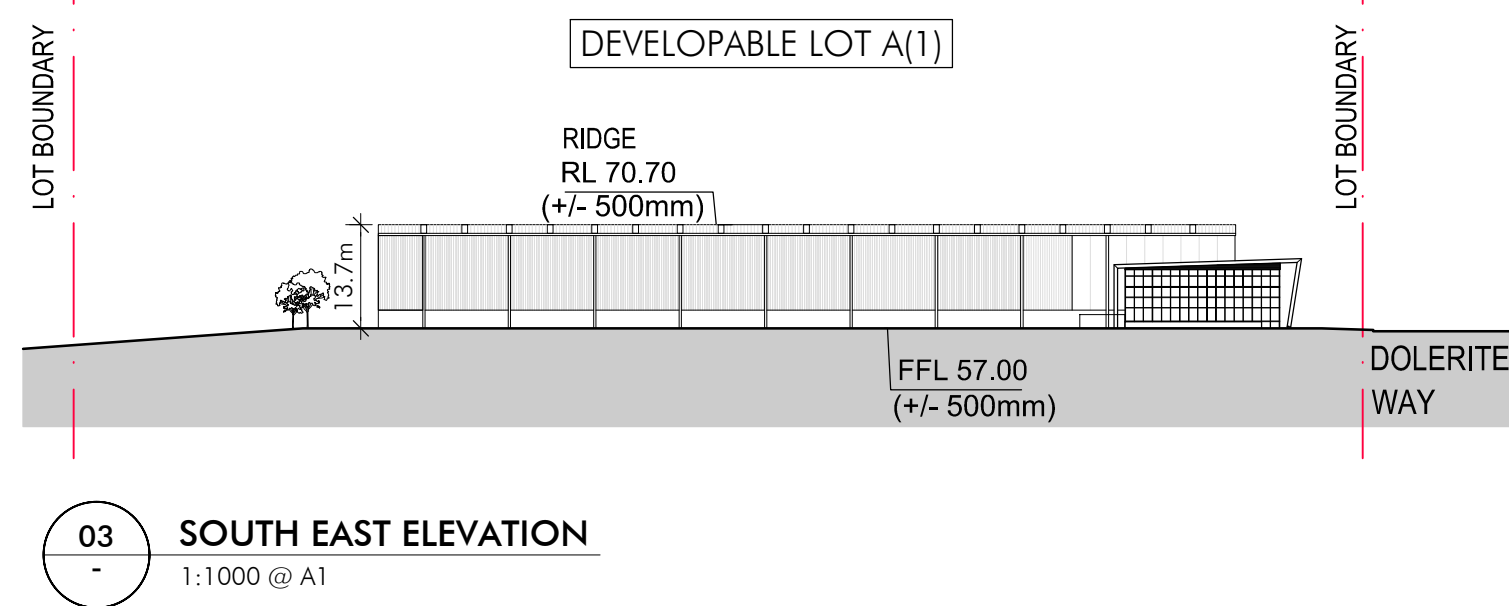
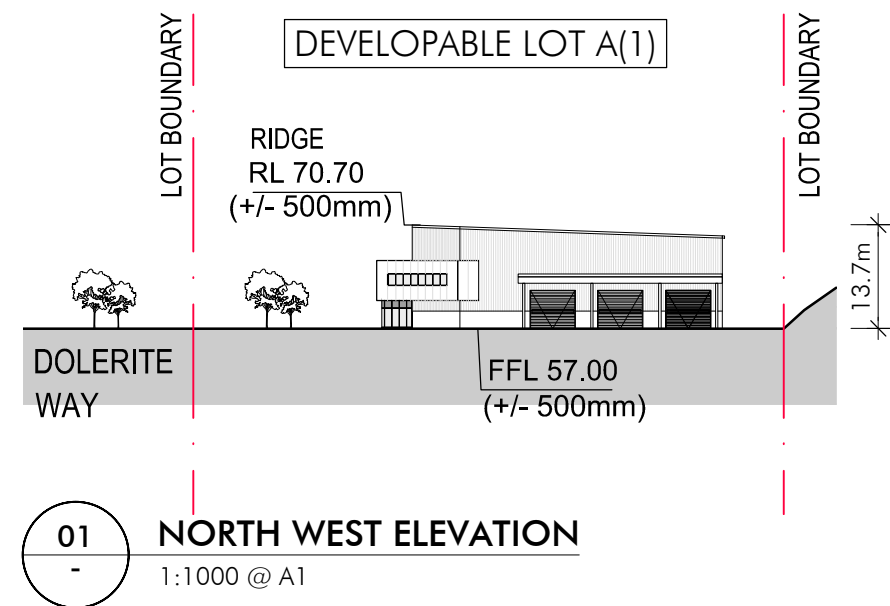
Mob: 0403 731 272

Email: [andrew.needham@dexus.com](mailto:andrew.needham@dexus.com)



## ATTACHMENT B





ISSUED FOR MODIFICATION TO DA

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quarry  
at Greystanes

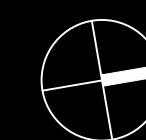
QUARRY WEST MASTERPLAN  
GREYSTANES ESTATE

Elevations - Developable Lots A & B

Scale 1:1000@A1

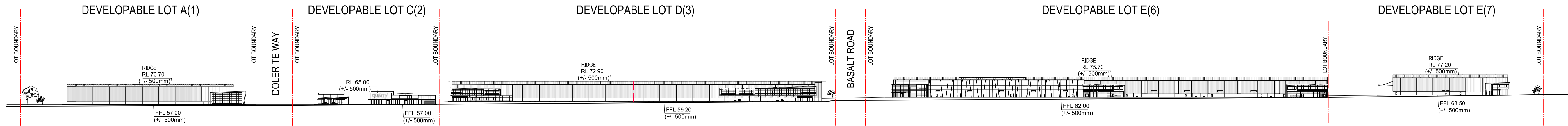
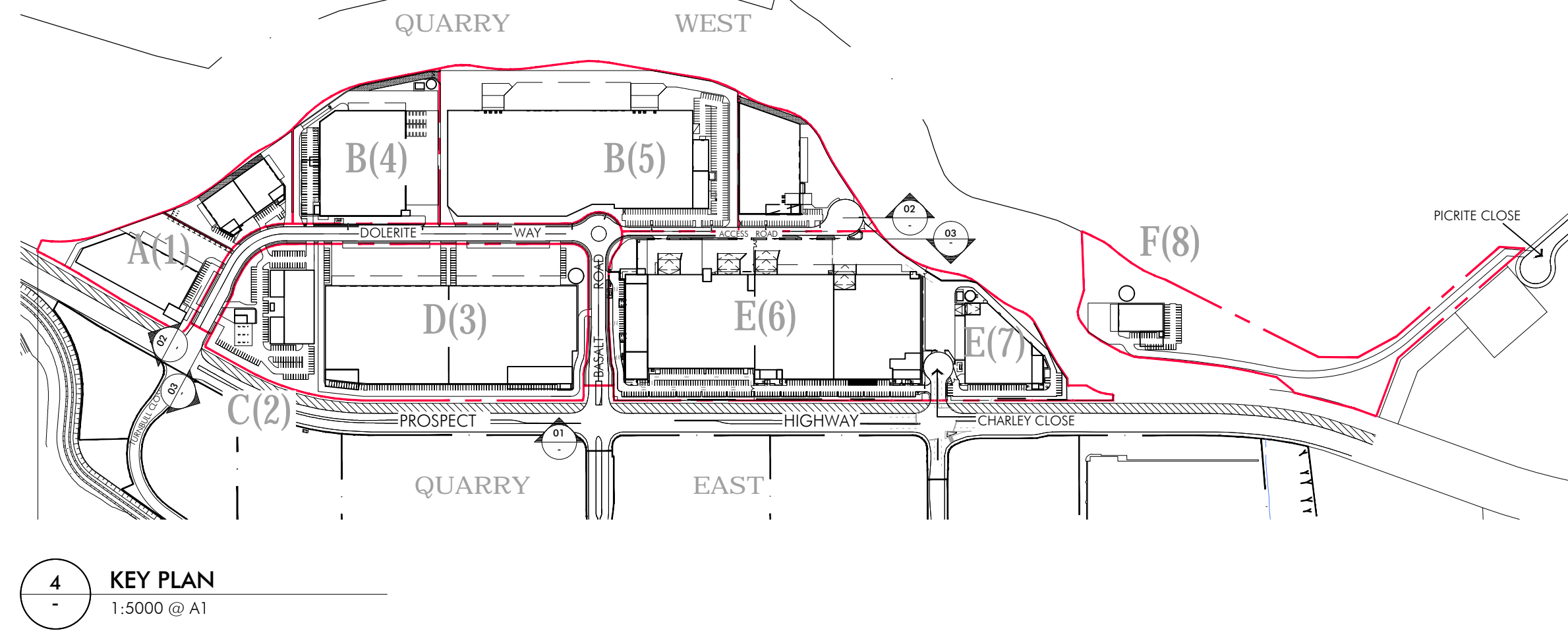
March 2017

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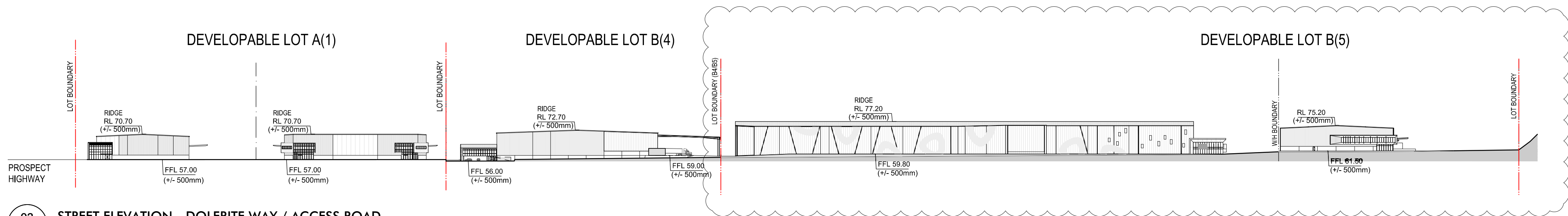


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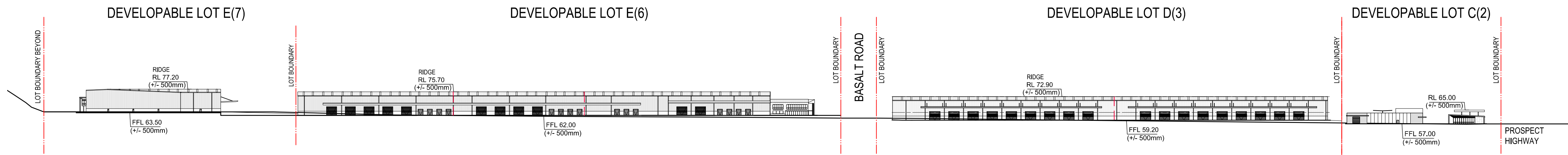
DEXUS  
PROPERTY GROUP



01 STREET ELEVATION - PROSPECT HIGHWAY  
1:1500 @ A1



02 STREET ELEVATION - DOLERITE WAY / ACCESS ROAD  
1:1500 @ A1



03 STREET ELEVATION - ACCESS ROAD / DOLERITE WAY  
1:1500 @ A1

ISSUED FOR MODIFICATION TO DA

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quarry  
at Greystanes

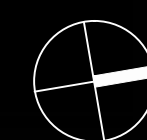
QUARRY WEST MASTERPLAN  
GREYSTANES ESTATE

Street Elevations

Scale 1:1500@A1

March 2017

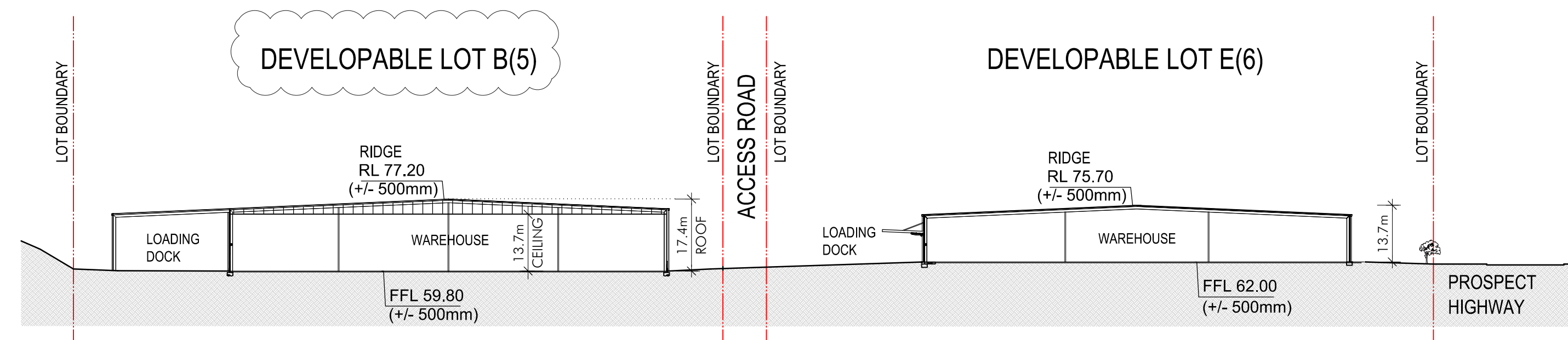
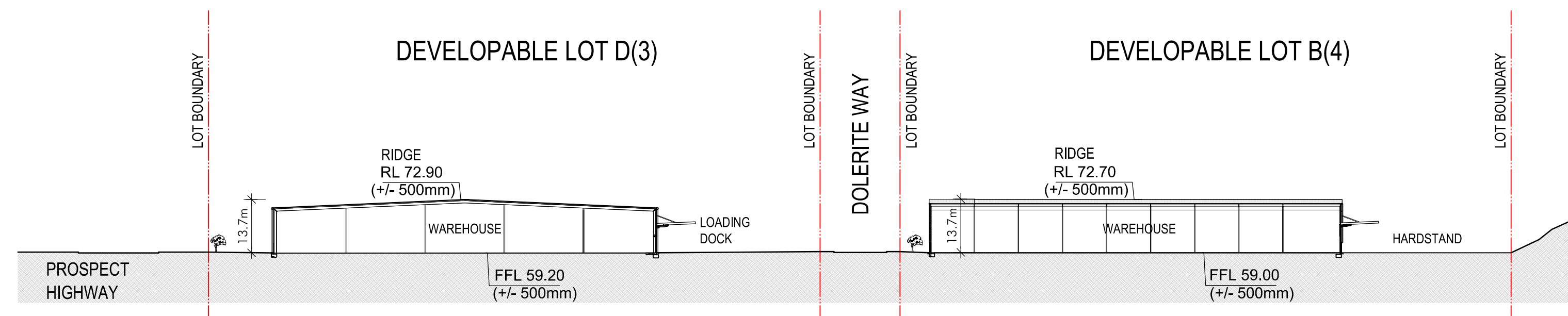
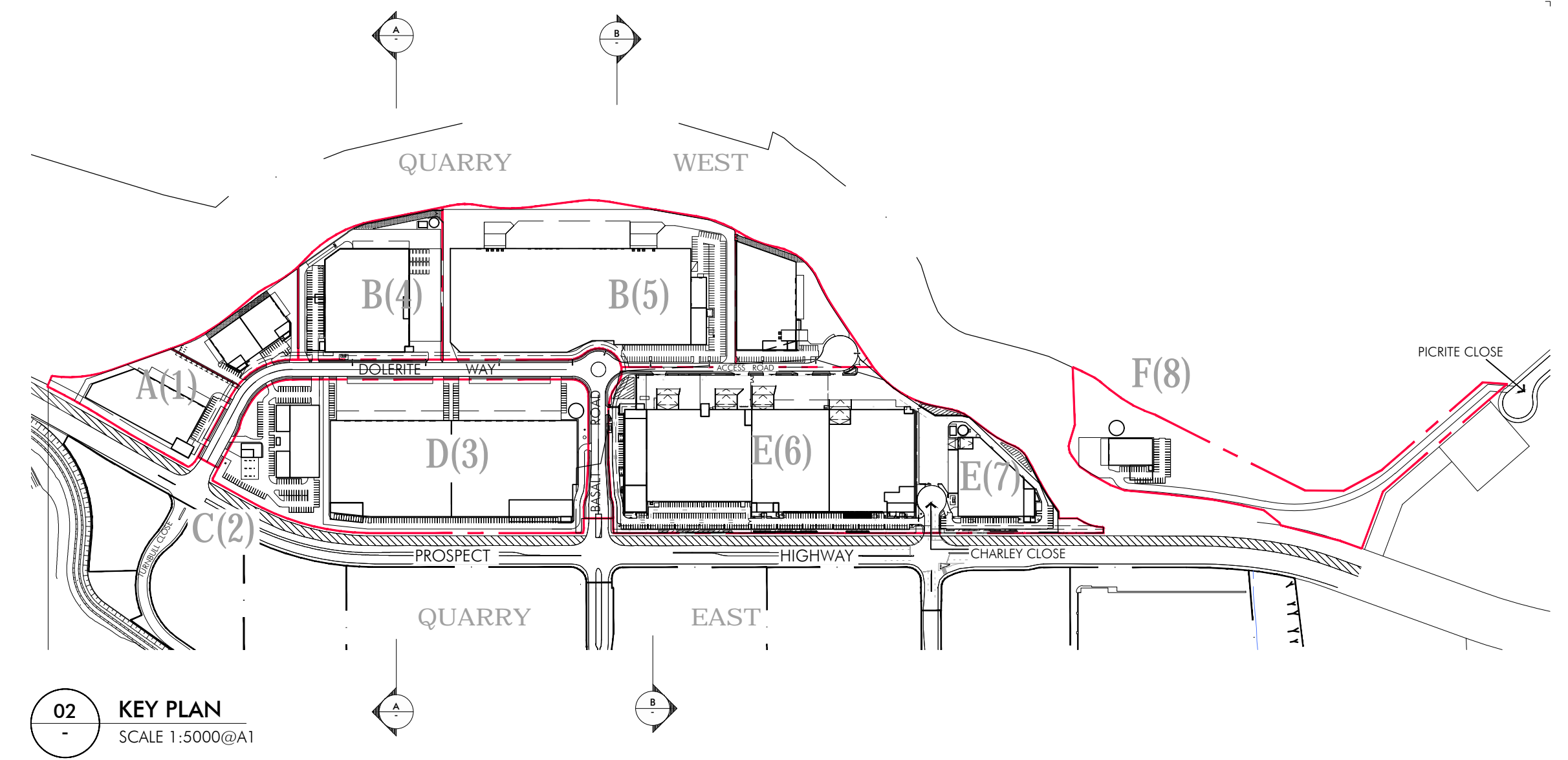
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DEXUS  
PROPERTY GROUP





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**quarry**  
at Greystanes

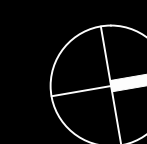
QUARRY WEST MASTERPLAN  
GREYSTANES ESTATE

Masterplan Sections

Scale 1:1000@A1

March 2017

3966\_MP-031[F]



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**DEXUS**  
PROPERTY GROUP





## ATTACHMENT C

13 February 2017

DEXUS Wholesale Management Limited (ACN 159 301 907)  
as trustee for DEXUS Quarry West Subtrust (ABN 65 043 801 812)  
c/- Tactical Project Management  
**Attention: Mr Terry Timso**  
Level 15  
124 Walker Street  
NORTH SYDNEY NSW 2060

Dear Sir

**Re: Lot 18 DP 270644, Greystanes Southern Employment Land (Boral Land)  
Section 96 Application SSD\_6801**

We provide this letter relating to a proposed Section 96 application to the Greystanes Southern Quarry West project approved under SSD\_6801. Specifically this letter covers the civil engineering aspects of the amendment.

The Section 96 Application is for an amendment to the approved layout defined in SSD\_6801, and to the previous two Section 96 Applications dated 29 April 2016 and 20 September 2016. The main component of the current amendment is for an adjustment to the approved masterplan lot layout in Precinct B.

A set of civil engineering drawings were completed by Costin Roe Consulting during 2015 and subsequently during 2016 as noted above. The following drawings have now been updated to show the new masterplan layout and adjustments to the engineering design:

- Co10529.34-DA40 [I] Site Masterplan
- Co10529.34-DA41 [I] Civil Works Plan Sheet 1
- Co10529.34-DA42 [I] Civil Works Plan Sheet 2
- Co10529.34-DA46 [K] Stormwater Management/Water Quality

We have also provided a summary of the engineering components of the development which will change from, or remain consistent with, the approved SSD\_6801 development, and previous Section 96 Application of 20 September 2016. The summary of design elements are as follows:

*1. Development Layout:*

The development layout differs from the previous submission in that the arrangement of the development lots on the northern side of Dolorite Close within Precinct B have been adjusted.

Warehouse B1 is now constructed and the adjustments to the masterplan relate to Warehouse B2 and Warehouse B3. The lot layouts to the east and south of the estate road

are generally consistent with the previous application. Some minor changes to car park arrangement to the north of Warehouse B3 have also been made. The floor level of warehouse B1 remains consistent with the previous application however Warehouse B2 and B3 have been amended to suit access from Dolerite Close, to meet flood planning requirements and to achieve cut to fill of earthworks over the site. It is noted that the final building level will be subject to detail geotechnical and earthwork volume assessment and may vary +/-500mm from the nominated level.

2. Stormwater Management & Layout:

The Stormwater Management Strategy for the site will remain generally consistent with the approved configuration produced by Costin Roe in 2015 and the overall Quarry Estate Management defined by GHD in 2006. The overall impervious surface area also remains generally consistent with the approved masterplan layout, hence stormwater runoff rates remain consistent with the approval and overall Quarry Estate Management Plan.

Minor adjustments to the locations of the bio-retentions within the site have been made. The basin to the north of Warehouse B2 & Warehouse B3 has been adjusted as a result of the carpark arrangement specified above. It can be confirmed that the minimum required 3000m<sup>2</sup> of bio retention, as defined in SSD\_6801, has been provided.

All stormwater runoff will remain being directed to the perimeter drainage channel on the western boundary of the development which ultimately conveys stormwater to the estate level detention basin provided off site and known as the Widemere East basin.

We trust the above information meets your current needs. Please do not hesitate in contacting the undersigned if any further clarification is required.

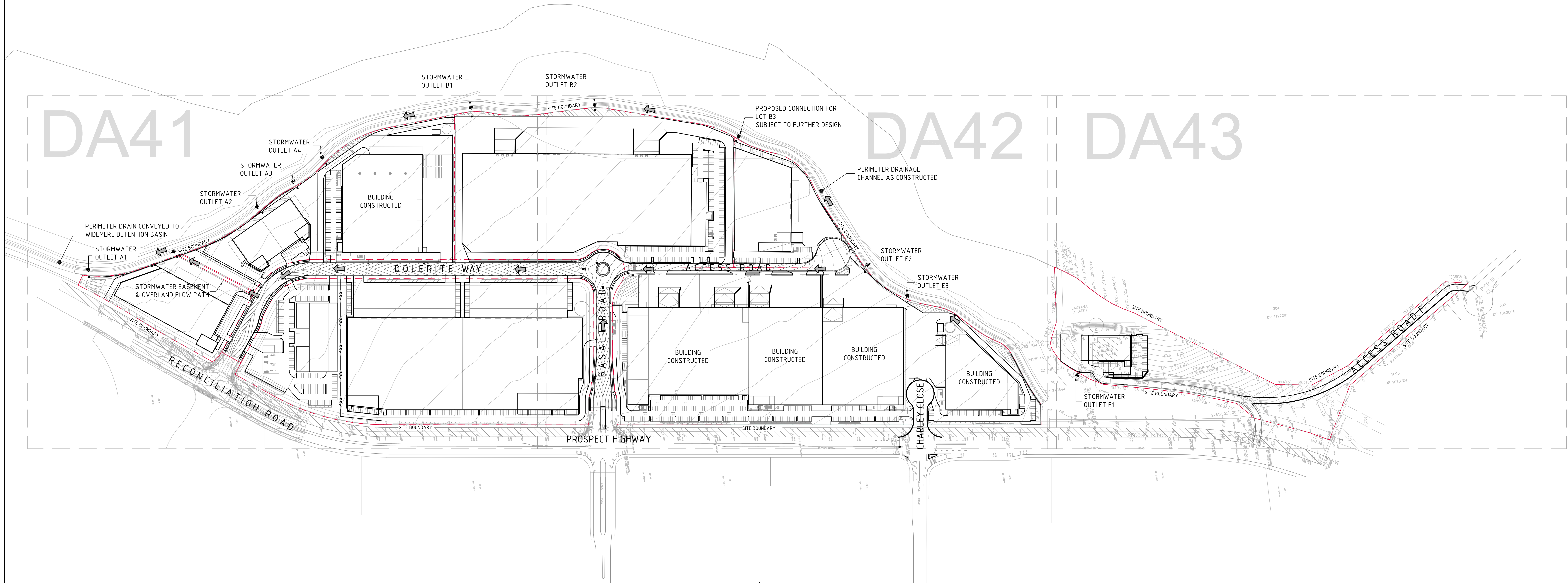
Yours faithfully,

**COSTIN ROE CONSULTING PTY LTD**



**MARK WILSON** MIEAust CPEng NER  
Director





**LEGEND:**

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY LAND PARTNERS DATED 11.05.14

- SGGP, SINGLE GRATED GULLY PIT
- SJP, SEALED JUNCTION PIT
- KIP, KERB INLET PIT
- DRAINAGE LINE
- FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS

**WATER QUALITY NOTE:**

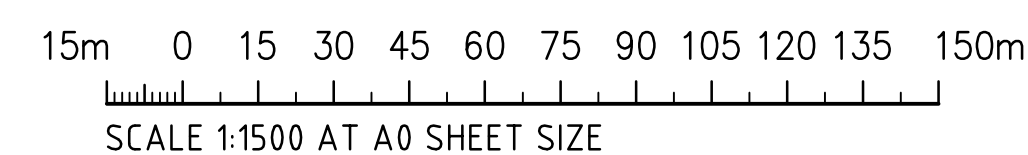
ALL DEVELOPMENT SITES TO PROVIDE AN END-OF-LINE GROSS POLLUTANT TRAP PRIOR TO CONNECTION TO ESTATE INFRASTRUCTURE SYSTEM OR TO PERIMETER DRAINAGE CHANNELS.



**SITE MASTERPLAN**

SCALE 1:1500

**FOR S96 MODIFICATION**



ISSUED FOR S96 MODIFICATION 29.04.16 F				ARCHITECT				CLIENT				PROJECT				Costin Roe Consulting Pty Ltd. Consulting Engineers Level 1, 8 Windmill Street Wahia Bay, Sydney NSW 2000 Tel: (02) 8551-7699 Fax: (02) 9241-3721 email: mail@costinroe.com.au ©				DRAWING TITLE SITE MASTERPLAN			
ISSUED FOR S96 MODIFICATION 22.04.16 E				noHolon				DEXUS PROPERTY GROUP				QUARRY WEST RECONCILIATION DRIVE PEMULWUY, NSW				PRECISION   COMMUNICATION   ACCOUNTABILITY				DRAWING No C010529.34-DA40			
ISSUED FOR DEVELOPMENT APPLICATION 01.07.15 D				ISSUED FOR S96 MODIFICATION 13.02.17 I				DESIGNED M.W.				CHECKED M.C.				DATE 06.05.16				SIZE A0			
ISSUED FOR DEVELOPMENT APPLICATION 20.03.15 C				ISSUED FOR S96 MODIFICATION 09.02.17 H				SCALE AS SHOWN				CNO REF: C010529.34-DA40				ISSUE				ISSUE			
ISSUED FOR DEVELOPMENT APPLICATION 11.12.14 B				ISSUED FOR S96 MODIFICATION 30.06.16 G				AMENDMENTS				DATE				ISSUE				DATE			
ISSUED FOR REVIEW 28.11.14 A				AMENDMENTS				DATE				ISSUE				DATE				ISSUE			



PIT SCHEDULE

PIT No.	GRATE RL	TYPE	SIZE (LxB)	COMMENT
P1-1	55.00	SJP	900x900	
P2-1	59.15	KIP	900x600	2400 LINTEL
P2-2	59.15	KIP	900x900	2400 LINTEL
P2-3	58.55	KIP	900x900	2400 LINTEL
P2-4	57.90	KIP	900x1200	2400 LINTEL
P2-5	57.30	KIP	900x1200	2400 LINTEL
P2-6	56.70	KIP	900x1200	2400 LINTEL
P2-7	56.40	KIP	900x1200	2400 LINTEL
P2-8	56.10	KIP	1200x1500	2400 LINTEL
P2-9	58.55	KIP	900x900	2400 LINTEL
P2-10	57.90	KIP	900x600	2400 LINTEL
P2-11	57.30	KIP	900x900	2400 LINTEL
P2-12	56.10	KIP	900x900	2400 LINTEL
P2-13	56.30	KIP	900x600	2400 LINTEL
P2-14	56.40	KIP	900x600	2400 LINTEL
P2-15	56.70	KIP	900x600	2400 LINTEL
P3-1	58.50	SJP	900x900	
P4-1	59.60	KIP	900x600	2400 LINTEL
P4-2	59.60	KIP	900x600	2400 LINTEL
P4-3	59.90	KIP	900x900	2400 LINTEL
P4-4	60.15	KIP	900x900	2400 LINTEL
P4-5	59.90	SJP	1200x1200	
P4-6	59.00	SJP	1200x1200	
P4-7	59.90	KIP	900x600	2400 LINTEL
P4-8	60.15	KIP	900x600	2400 LINTEL
P4-9	61.45	KIP	900x600	1800 LINTEL
P4-10	61.13	KIP	900x600	1800 LINTEL
P4-11	60.70	KIP	900x600	1800 LINTEL
P4-12	60.30	KIP	900x1200	1800 LINTEL
P4-13	60.50	SJP	900x900	
P5-1	61.50	SJP	900x900	
P6-1	62.20	SJP	900x900	
P7-1	56.60	SJP	900x900	
P8-1	56.00	SJP	900x900	
P9-1	71.80	KIP	900x600	1800 LINTEL
P9-2	70.15	KIP	900x600	1800 LINTEL
P9-3	68.50	KIP	900x600	1800 LINTEL
P10-1	91.00	SJP	900x900	
P11-1	56.30	SJP	900x900	
P12-1	60.40	SJP	900x900	

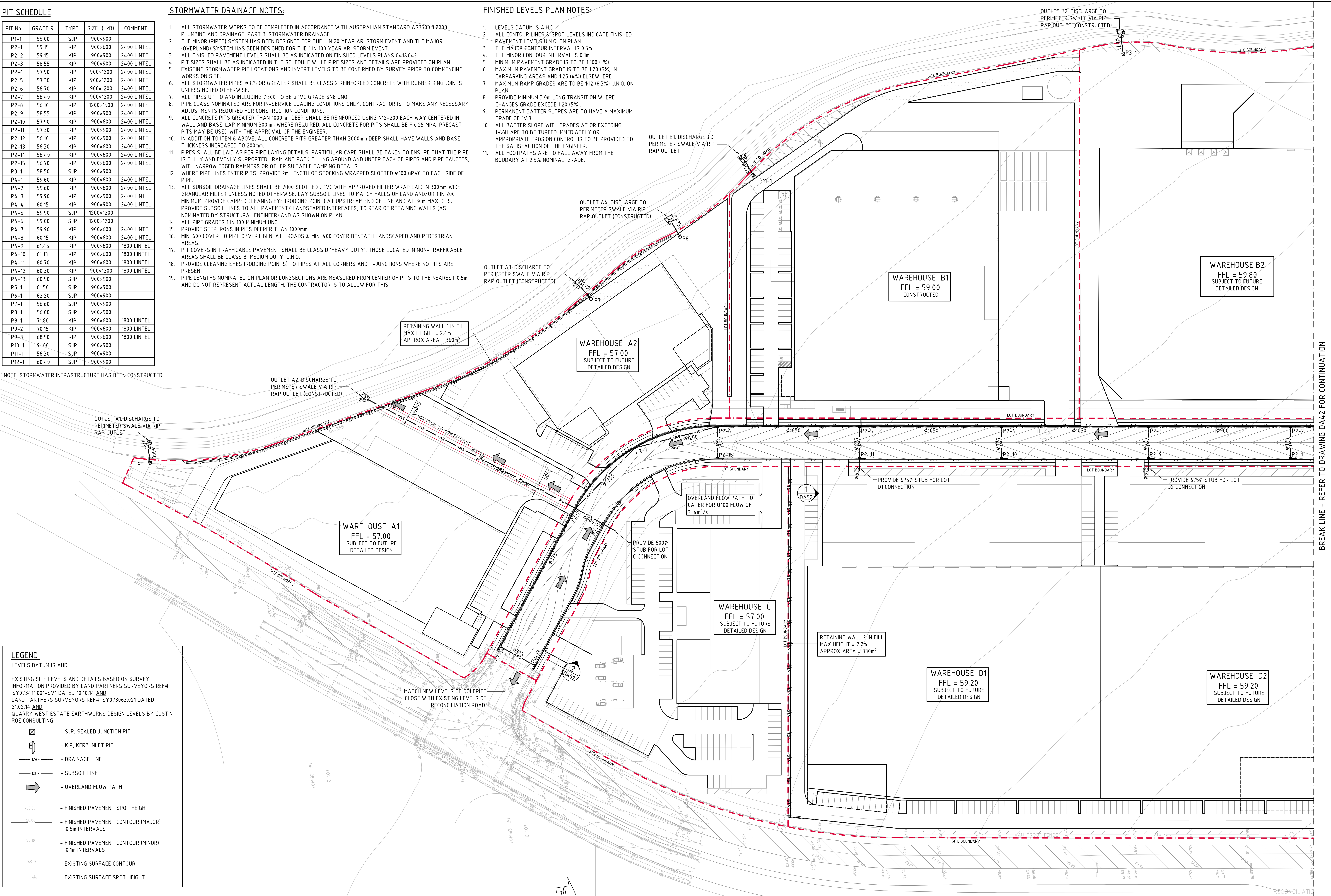
NOTE: STORMWATER INFRASTRUCTURE HAS BEEN CONSTRUCTED.

STORMWATER DRAINAGE NOTES:

- ALL STORMWATER WORKS TO BE COMPLETED IN ACCORDANCE WITH AUSTRALIAN STANDARD AS3500.3:2003 PLUMBING AND DRAINAGE, PART 3: STORMWATER DRAINAGE.
- THE MINOR (PIPED) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 20 YEAR ARI STORM EVENT AND THE MAJOR (OVERLAND) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 100 YEAR ARI STORM EVENT.
- ALL FINISHED PAVEMENT LEVELS SHALL BE AS INDICATED ON FINISHED LEVELS PLANS C41&C42
- PIT SIZES SHALL BE AS INDICATED IN THE SCHEDULE WHILE PIPE SIZES AND DETAILS ARE PROVIDED ON PLAN.
- EXISTING STORMWATER PIT LOCATIONS AND INVERT LEVELS TO BE CONFIRMED BY SURVEY PRIOR TO COMMENCING WORKS ON SITE.
- ALL STORMWATER PIPES Ø375 OR GREATER SHALL BE CLASS 2 REINFORCED CONCRETE WITH RUBBER RING JOINTS UNLESS NOTED OTHERWISE.
- ALL PIPES UP TO AND INCLUDING Ø300 TO BE uPVC GRADE SN8 UNO.
- PIPE CLASS NOMINATED ARE FOR IN-SERVICE LOADING CONDITIONS ONLY. CONTRACTOR IS TO MAKE ANY NECESSARY ADJUSTMENTS REQUIRED FOR CONSTRUCTION CONDITIONS.
- ALL CONCRETE PITS GREATER THAN 1000mm DEEP SHALL BE REINFORCED USING N12-200 EACH WAY CENTERED IN WALL AND BASE. LAP MINIMUM 300mm WHERE REQUIRED. ALL CONCRETE FOR PITS SHALL BE F'c 25 MPA. PRECAST PITS MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
- IN ADDITION TO ITEM 6 ABOVE, ALL CONCRETE PITS GREATER THAN 3000mm DEEP SHALL HAVE WALLS AND BASE THICKNESS INCREASED TO 200mm.
- PIPES SHALL BE LAID AS PER PIPE LAYING DETAILS. PARTICULAR CARE SHALL BE TAKEN TO ENSURE THAT THE PIPE IS FULLY AND EVENLY SUPPORTED. RAM AND PACK FILLING AROUND AND UNDER BACK OF PIPES AND PIPE FAUCETS, WITH NARROW EDGED RAMMERS OR OTHER SUITABLE TAMPING DETAILS.
- WHERE PIPE LINES ENTER PITS, PROVIDE 2m LENGTH OF STOCKING WRAPPED SLOTTED Ø100 uPVC TO EACH SIDE OF PIPE.
- ALL SUBSOIL DRAINAGE LINES SHALL BE Ø100 SLOTTED uPVC WITH APPROVED FILTER WRAP LAID IN 300mm WIDE GRANULAR FILTER UNLESS NOTED OTHERWISE. LAY SUBSOIL LINES TO MATCH FALLS OF LAND AND/OR 1 IN 200 MINIMUM. PROVIDE CAPPED CLEANING EYE (RODDING POINT) AT UPSTREAM END OF LINE AND AT 30m MAX. CTS. PROVIDE SUBSOIL LINES TO ALL PAVEMENT / LANDSCAPED INTERFACES, TO REAR OF RETAINING WALLS (AS NOMINATED BY STRUCTURAL ENGINEER) AND AS SHOWN ON PLAN.
- ALL PIPE GRADES 1 IN 100 MINIMUM UNO.
- PROVIDE STEP IRONS IN PITS DEEPER THAN 1000mm.
- MIN. 600 COVER TO PIPE OBVERT BENEATH ROADS & MIN. 400 COVER BENEATH LANDSCAPED AND PEDESTRIAN AREAS.
- PIT COVERS IN TRAFFICABLE PAVEMENT SHALL BE CLASS D 'HEAVY DUTY', THOSE LOCATED IN NON-TRAFFICABLE AREAS SHALL BE CLASS B 'MEDIUM DUTY' UNO.
- PROVIDE CLEANING EYES (RODDING POINTS) TO PIPES AT ALL CORNERS AND T-JUNCTIONS WHERE NO PITS ARE PRESENT.
- PIPE LENGTHS NOMINATED ON PLAN OR LONGSECTIONS ARE MEASURED FROM CENTER OF PITS TO THE NEAREST 0.5m AND DO NOT REPRESENT ACTUAL LENGTH. THE CONTRACTOR IS TO ALLOW FOR THIS.

FINISHED LEVELS PLAN NOTES:

- LEVELS DATUM IS A.H.D.
- ALL CONTOUR LINES & SPOT LEVELS INDICATE FINISHED PAVEMENT LEVELS U.N.O. ON PLAN.
- THE MAJOR CONTOUR INTERVAL IS 0.5m
- THE MINOR CONTOUR INTERVAL IS 0.1m.
- MINIMUM PAVEMENT GRADE IS TO BE 1:100 (1%).
- MAXIMUM PAVEMENT GRADE IS TO BE 1:20 (5%) IN CARPARKING AREAS AND 1:25 (4%) ELSEWHERE.
- MAXIMUM RAMP GRADES ARE TO BE 1:12 (8.3%) U.N.O. ON PLAN.
- PROVIDE MINIMUM 3.0m LONG TRANSITION WHERE CHANGES GRADE EXCEED 1:20 (5%).
- PERMANENT BATTER SLOPES ARE TO HAVE A MAXIMUM GRADE OF 1V:3H.
- ALL BATTER SLOPE WITH GRADES AT OR EXCEEDING 1V:6H ARE TO BE TURFED IMMEDIATELY OR APPROPRIATE EROSION CONTROL IS TO BE PROVIDED TO THE SATISFACTION OF THE ENGINEER.
- ALL FOOTPATHS ARE TO FALL AWAY FROM THE BOUDARY AT 2.5% NOMINAL GRADE.



**LEGEND:**  
LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY LAND PARTNERS SURVEYORS REF#: SY073411001-SV1 DATED 10.10.14 AND LAND PARTNERS SURVEYORS REF#: SY073063.021 DATED 21.02.14 AND QUARRY WEST ESTATE EARTHWORKS DESIGN LEVELS BY COSTIN ROE CONSULTING

- SJP, SEALED JUNCTION PIT
- KIP, KERB INLET PIT
- DRAINAGE LINE
- SUBSOIL LINE
- OVERLAND FLOW PATH

- FINISHED PAVEMENT SPOT HEIGHT

- FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS

- FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS

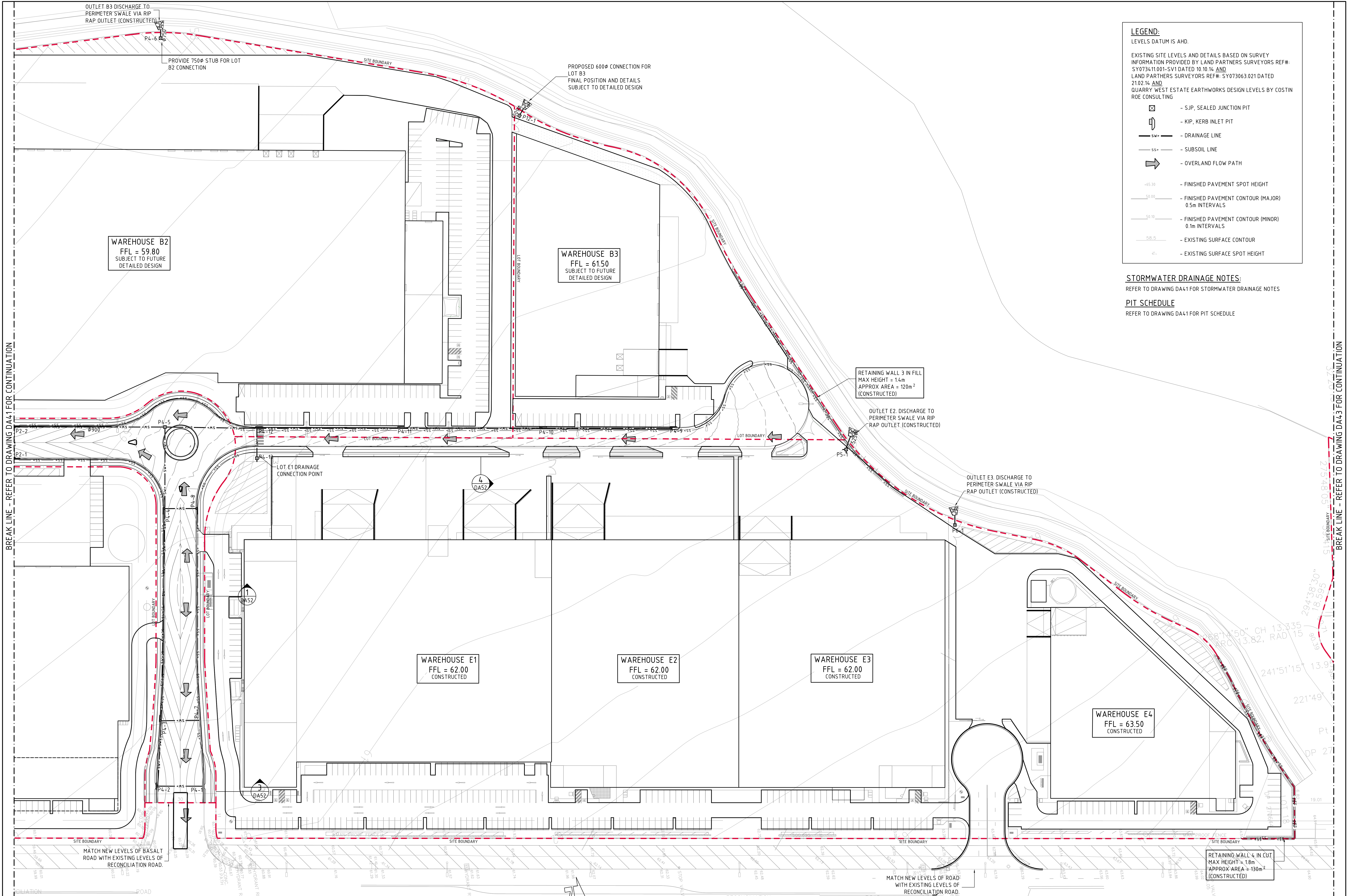
- EXISTING SURFACE CONTOUR

- EXISTING SURFACE SPOT HEIGHT

FOR S96 MODIFICATION

CIVIL WORKS PLAN - SHEET 1  
SCALE 1:500





**LEGEND:**  
LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY LAND PARTNERS SURVEYORS REF#: SY073411.001-SV1 DATED 10.10.14 AND LAND PARTNERS SURVEYORS REF#: SY073063.021 DATED 21.02.14 AND QUARRY WEST ESTATE EARTHWORKS DESIGN LEVELS BY COSTIN ROE CONSULTING

- SJP, SEALED JUNCTION PIT
- KIP, KERB INLET PIT
- DRAINAGE LINE
- SUBSOIL LINE
- OVERLAND FLOW PATH
- FINISHED PAVEMENT SPOT HEIGHT
- FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS
- EXISTING SURFACE CONTOUR
- EXISTING SURFACE SPOT HEIGHT

**STORMWATER DRAINAGE NOTES:**  
REFER TO DRAWING DA41 FOR STORMWATER DRAINAGE NOTES

**PIT SCHEDULE**  
REFER TO DRAWING DA41 FOR PIT SCHEDULE

BREAK LINE - REFER TO DRAWING DA41 FOR CONTINUATION

BREAK LINE - REFER TO DRAWING DA43 FOR CONTINUATION

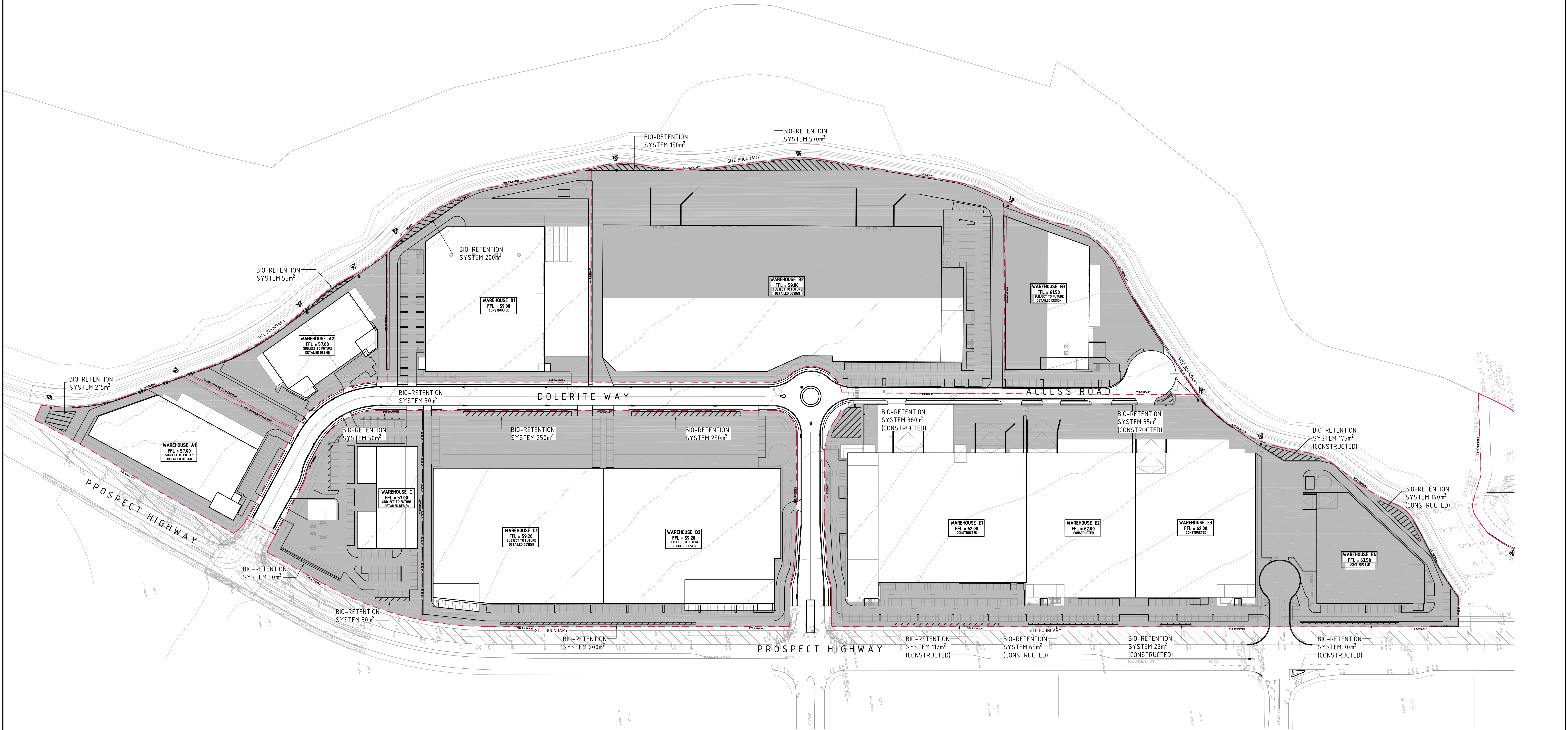
FOR S96 MODIFICATION

CIVIL WORKS PLAN - SHEET 2  
SCALE 1500

5m 0 10 20 30 40 50m  
SCALE 1500 AT A0 SHEET SIZE

ISSUED FOR S96 MODIFICATION 29.04.16 F			ARCHITECT			CLIENT			PROJECT			COSTIN ROE CONSULTING PTY LTD.			DRAWING TITLE		
ISSUED FOR S96 MODIFICATION 22.04.16 E			DESIGNER			DEXUS			QUARRY WEST			Consulting Engineers			CIVIL WORKS PLAN		
ISSUED FOR DEVELOPMENT APPLICATION 01.07.15 D			CHECKED			PROPERTY GROUP			RECONCILIATION DRIVE			Level 1, 8 Windmill Street			SHEET 2		
ISSUED FOR DEVELOPMENT APPLICATION 20.03.15 C			DATE			AMENDMENTS			PEMULWUY, NSW			Walsh Bay, Sydney NSW 2000			PRECISION   COMMUNICATION   ACCOUNTABILITY		
ISSUED FOR DEVELOPMENT APPLICATION 11.12.14 B			ISSUED FOR S96 MODIFICATION 13.02.17 I			DATE			CNO REF:			Tel: (02) 9251-7699 Fax: (02) 9241-3721			DRAWING No		
ISSUED FOR REVIEW 28.11.14 A			ISSUED FOR S96 MODIFICATION 09.02.17 H			ISSUE			C010529.34-DA2			email: mail@costinroe.com.au			C010529.34-DA42		
AMENDMENTS			AMENDMENTS			DATE			SIZE			SCALE			ISSUE		
DATE			DATE			DATE			A0			AS SHOWN					





WATER QUALITY STRATEGY NOTES:

- WATER QUALITY STRATEGY HAS BEEN COMPLETED IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED STORMWATER MANAGEMENT STRATEGY COMPLETED BY GHD DURING 2009. THE APPROVED STRATEGY INVOLVED TREATMENT OF A 11.30ha CATCHMENT VIA BIO RETENTION BASINS OR SWALES.
- THE PROPOSED STRATEGY TREATS 11.32ha VIA BIO RETENTION BASINS OR SWALES INTERSPERSED THROUGHOUT THE DEVELOPMENT FOOTPRINT.
- FINAL DETAILS & EXACT LOCATION OF BIO RETENTION SYSTEMS IN INDIVIDUAL DEVELOPMENT LOTS WILL BE SUBJECT TO SEPARATE FUTURE DEVELOPMENT APPLICATIONS.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH THE ENGINEERING REPORT C010529-02-02a.rpt BY COSTIN ROE CONSULTING PTY LTD.

NOTE:

BIO RETENTION CONFIGURATIONS SHOWN ARE INDICATIVE ONLY AND NOT DRAWN TO SCALE. REFERENCE IS TO BE MADE TO TEXT CALL UP FOR BIO RETENTION AREAS. CAD LINEWORK IS NOT TO BE USED FOR DETAILED CONFIGURATIONS.



STORMWATER MANAGEMENT/WATER QUALITY STRATEGY  
SCALE 1:1000

LEGEND:

- HATCHED AREA DENOTES CATCHMENT TO BE CONVEYED TO BIO RETENTION SYSTEMS FOR TREATMENT

10m 0 10 20 30 40 50 60 70 80 90 100m  
SCALE 1:1000 AT A0 SHEET SIZE

FOR S96 MODIFICATION

ISSUED FOR DEVELOPMENT APPLICATION	01.07.15	F	ISSUED FOR S96 MODIFICATION	13.02.17	K		ARCHITECT		CLIENT		PROJECT	 Costin Roe Consulting Pty Ltd. Consulting Engineers Level 1, 8 Windmill Street Wahia Bay, Sydney NSW 2000 Tel: (02) 8551-7889 Fax: (02) 9241-3721 email: mail@costinroe.com.au ©	 Costin Roe Consulting PRECISION   COMMUNICATION   ACCOUNTABILITY	DRAWING TITLE STORMWATER MANAGEMENT/ WATER QUALITY STRATEGY	DRAWING No C010529.34-DA46	ISSUE K	
ISSUED FOR DEVELOPMENT APPLICATION	20.03.15	E	ISSUED FOR S96 MODIFICATION	08.02.17	J												
BIO-RETENTION AREAS REVISED	16.03.15	D	ISSUED FOR S96 MODIFICATION	30.06.16	I												
REVISED AS CLOUDED	15.12.16	C	ISSUED FOR S96 MODIFICATION	29.04.16	H												
ISSUED FOR DEVELOPMENT APPLICATION	11.12.16	B	ISSUED FOR S96 MODIFICATION	22.04.16	G												
ISSUED FOR REVIEW	10.12.16	A	AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE