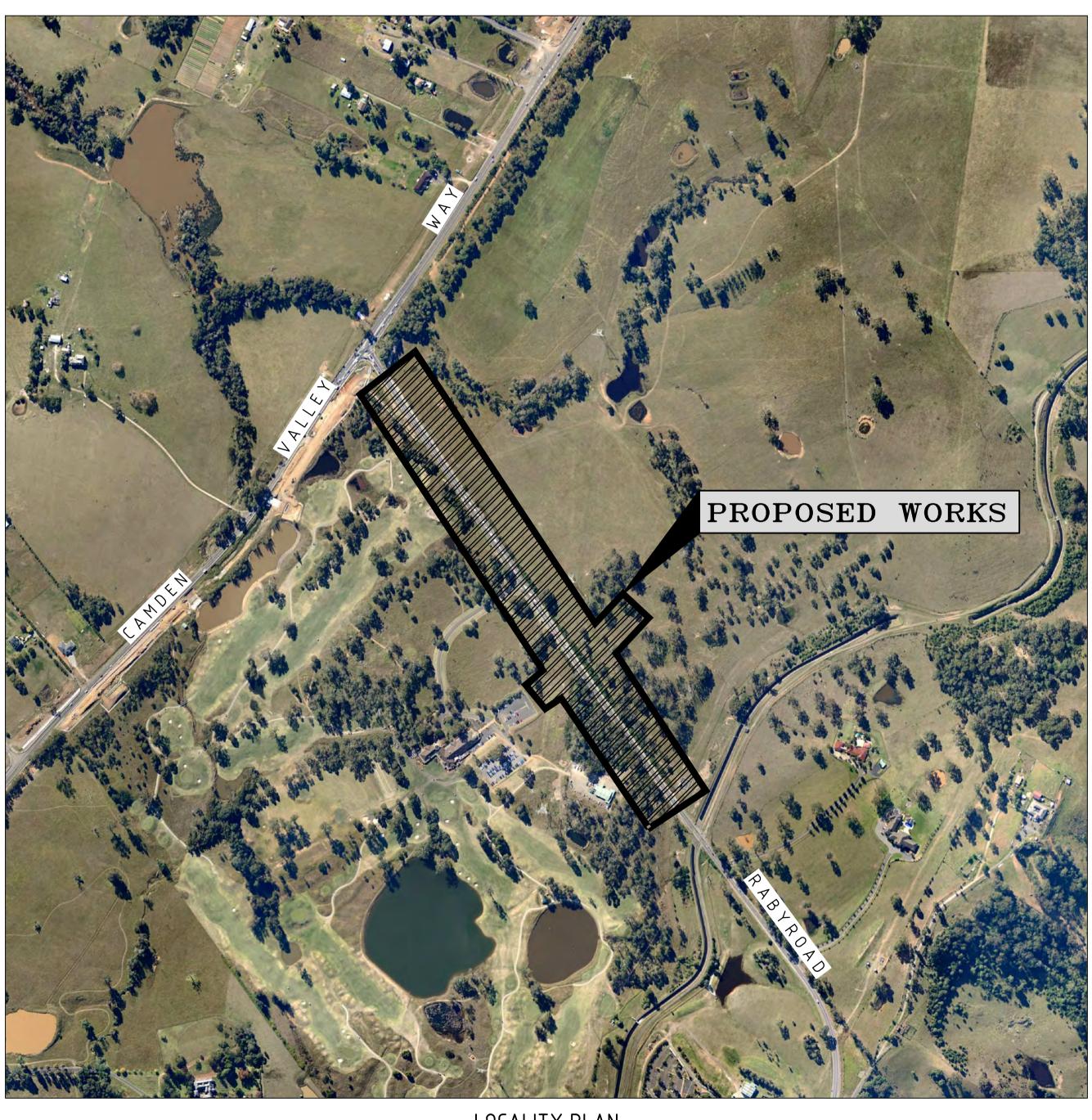
# EMERALD HILLS ESTATE RABY ROAD UPGRADE

# DEVELOPMENT APPLICATION









<u>CIVIL DRAW</u>	ING LIST
NA50613004-DA-000	TITLE SHEET & DRAWING LIST
NA50613004-DA-001	NOTES & LEGEND SHEET
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NA50613004-DA-021	EROSION & SEDIMENT CONTROL PLAN SHEET 2
NA50613004-DA-022	EROSION & SEDIMENT CONTROL PLAN SHEET 3
NA50613004-DA-030	ROADWORKS & STORMWATER DRAINAGE PLAN SHEET 1
NA50613004-DA-031	ROADWORKS & STORMWATER DRAINAGE PLAN SHEET 2
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NA50613004-DA-080 NA50613004-DA-090	PAVEMENT PLAN SHEET 1
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MA30013004-DA-032	FAVELLENT FLAN SHEET 3

TRAFFIC CONTROL PLAN - CONCEPT CONSTRUCTION STAGING

EASEMENTS PLAN WITH JEMENA ADJUSTMENTS

LOCALITY PLAN

ı						
١	5	07.08.14	RE-ISSUED FOR DEVELOPMENT APPLICATION	CP	CO	AD
	4	01.08.14	RE-ISSUED FOR DEVELOPMENT APPLICATION	CP	CO	AD
ı	3	01.04.14	RE-ISSUED FOR DEVELOPMENT APPLICATION	RH	RL	RL
ı	2	21.02.14	ISSUED FOR DEVELOPMENT APPLICATION (NOT ISSUED)	RH	RL	RL
ı	1	15.10.13	ISSUED FOR CLIENT REVIEW	RH		
ı	Ray	Date	Description	Des	\/erif	Annd

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Drawn <b>RT</b>	Date OCT'13
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$\begin{array}{c} \text{Designed} \\ RH \end{array}$	Date OCT'13
Verified RL	Date OCT'13
Approved $\operatorname{RL}$	Date OCT'13

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EMERALD HILL ESTATE	Ī

NA50613004-DA-100

NA50613004-DA-110

EMERALD HILL ESTATE RABY ROAD

TITLE SHEET & DRAWING LIST

FOR APPROVAL  NOT TO BE USED FOR CONSTRUCTION PURPOSES						
Datum <b>A.H.D.</b>	Register OCT'13	Scale AS SHOWN	Size	A1		
Drawing Number				Revision		
NA50613004-DA-000						

XREF's: GRP-SHT-A1; BU-LOGO-A1; CID-SHT-A1; DRGLIST CAD FILE: N:\Projects\506\FY13\NA50613004 Emerald Hills Esta

#### GENERAL NOTES

1. ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH CAMDEN COUNCIL SPECIFICATIONS.

GENERALLY THE MORE STRINGENT REQUIREMENT WILL APPLY.

2. CAMDEN COUNCIL STANDARD DETAILS TO BE USED WHERE POSSIBLE 3. DISCREPANCIES BETWEEN CAMDEN COUNCIL SPECIFICATIONS AND CARDNO SPECIFICATIONS ARE TO BE REFERRED TO CARDNO.

#### STORMWATER DRAINAGE NOTES

1. STORMWATER DESIGN CRITERIA:

(A) AVERAGE RECURRENCE INTERVAL:

1:10 YEAR ARI ROADS 1:100 YEAR ARI OVERLAND FLOWPATHS

(B) RAINFALL INTENSITIES: TIME OF CONCENTRATION:

5 MINUTES

1:10 YEAR ARI= 145.3 mm/hr 1:100 YEAR ARI= 218.9 mm/hr

2. PIPES 375 DIA. AND LARGER TO BE REINFORCED CONCRETE CLASS '2' APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS. U.N.O.

3. PIPES UP TO 300 DIA SHALL BE SEWER GRADE uPVC WITH SOLVENT WELDED JOINTS.

4. EQUIVALENT STRENGTH FRC PIPES MAY BE USED.

5. ALL PIPES ARE TO BE UNIFORMLY SUPPORTED ALONG THE LENGTH OF THE BARREL BY SUITABLE FILL MATERIAL. REFER TO BEDDING SUPPORT TYPE.

6. PIPES WITH SOCKETS SHALL BE LAID IN BEDDING WHERE SUITABLE RECESSES HAVE BEEN PROVIDED TO ENSURE PIPES DO NOT BEAR ON THEIR SOCKETS.

7. PIPES TO BE INSTALLED TO TYPE HS1 SUPPORT IN ACCORDANCE WITH AS 3725 (2007) IN ALL CASES BACKFILL TRENCH WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO MINIMUM 98% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75).

8. REFER TO AS/NRS 3725:2007 TABLE B1 FOR REQUIRED FILL DEPTHS ABOVE PIPE BARREL PRIOR TO USE OF COMPACTION MACHINERY OR TRAVERSING OF PIPES BY GENERAL SITE EQUIPMENT.

9. WHERE WORKING METHODS REQUIRE HIGHER CLASS PIPE, THE CONTRACTOR SHALL REFER TO AS 3725 (2007) TO DETERMINE THE APPROPRIATE PIPE CLASS. PROPOSED PIPE CLASS SHALL BE REVIEWED BY CARDNO PRIOR TO INSTALLATION.

10. ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.

11. WHERE SUBSOIL DRAINS PASS UNDER VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.

12. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.

13. GRATES AND COVERS SHALL CONFORM TO AS 3996.

14. ALL BOX CULVERTS SHALL BE STRUCTURALLY DESIGNED BY THE MANUFACTURER AND DELIVERED TO SITE AS FIT FOR PURPOSE.

15. AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.

16. ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.

#### KERBING NOTES

1. ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa U.N.O IN REINFORCED CONCRETE NOTES.

2. ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON 175mm GRANULAR BASECOURSE COMPACTED TO MINIMUM 95% MODIFIED DRY DENSITY (AS 1289 5.2.1).

3. EXPANSION JOINTS (E.J) TO BE FORMED FROM 10mm COMPRESSIBLE CORK FILLER BOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, ON TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX 12m CENTERS EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.

4. WEAKENED PLANE JOINTS TO BE MIN 3mm WIDE AND LOCATED AT 3m CENTERS EXCEPT FOR INTEGRAL KERBS WHERE THE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLABS.

5. BROOMED FINISH TO ALL RAMPED AND VEHICULAR CROSSINGS. ALL

OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.

6. IN THE REPLACEMENT OF KERB AND GUTTER :-EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm U.N.O FROM THE LIP OF GUTTER. UPON COMPLETION OF THE NEW KERB AND GUTTER NEW BASECOURSE AND SURFACE TO BE LAID 900mm WIDE U.N.O.

EXISTING ALLOTMENT DRAINAGE PIPES ARE TO BE BUILT INTO THE NEW KERB AND GUTTER WITH 100mm DIA HOLE.

EXISTING KERB AND GUTTER IS TO BE COMPLETELY REMOVED WHERE NEW KERB AND GUTTER IS SHOWN.

#### **EROSION AND SEDIMENT CONTROL** NOTES

#### GENERAL INSTRUCTIONS

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONTROL OF EROSION AND SEDIMENTATION TO THE SATISFACTION OF COUNCIL, OFFICE OF WATER, SYDNEY WATER, THE DEPARTMENT OF ENVIRONMENT AND OFFICE OF ENVIRONMENT. TO THIS END. THE EROSION AND SEDIMENTATION CONTROLS SHOWN ON THE DRAWINGS SHALL ONLY BE USED AS A GUIDE BY THE CONTRACTOR, AND SHALL REPRESENT THE MINIMUM REQUIREMENT ONLY.

2. THE CONTRACTOR SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED AS DOCUMENTED OR AS OTHERWISE DIRECTED BY THE SUPERINTENDENT.

3. ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH a. LOCAL AUTHORITY REQUIREMENTS Ь. EPA REQUIREMENTS c. NSW DEPARTMENT OF HOUSING MANUAL "MANAGING URBAN

STORMWATER, SOILS AND CONSTRUCTION", 4th EDITION, MARCH 2004.

4. MAINTAIN THE EROSION CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY.

5. WHEN STORMWATER PITS ARE CONSTRUCTED, PREVENT SITE RUNOFF ENTERING UNLESS SEDIMENT FENCES ARE ERECTED AROUND PITS.

6. CONTRACTOR IS TO ENSURE ALL EROSION & SEDIMENT CONTROL DEVICES ARE MAINTAINED IN GOOD WORKING ORDER AND OPERATE EFFECTIVELY. REPAIRS AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED, PARTICULARLY FOLLOWING STORM EVENTS.

#### LAND DISTURBANCE

7. TEST STORED WATER AND FLOCCULATE AS REQUIRED TO ENSURE WATER QUALITY MEETS THE REQUIREMENTS OF THE 'BLUE BOOK' AND LOCAL AUTHORITY PRIOR TO PUMPING FOR DUST CONTROL OR DISCHARGE

8. WHERE PRACTICAL. THE SOIL EROSION HAZARD ON THE SITE WILL BE KEPT AS LOW AS POSSIBLE. TO THIS END. WORKS SHOULD BE UNDERTAKEN IN THE FOLLOWING SEQUENCE:

(A) INSTALL A SEDIMENT FENCE ALONG THE BOUNDARIES AS SHOWN ON PLAN. REFER DETAIL.

(B) CONSTRUCT STABILISED SITE ACCESS TO LOCATION AS DETERMINED BY SUPERINTENDENT/ENGINEER. REFER DETAIL.

(C) INSTALL SEDIMENT BASIN AS SHOWN ON PLAN

(D) INSTALL SEDIMENT TRAPS AS SHOWN ON PLAN.

(E) UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. WHERE POSSIBLE, PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.

#### **EROSION CONTROL**

9. DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER

10. FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF

#### SEDIMENT CONTROL

11. STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT

12. ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.

13. WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.

14. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.

#### OTHER MATTERS

15. ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.

16. ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY: (A) PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE (B) ENSURING THAT NOTHING IS NAILED TO THEM (C) PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE

FOLLOWING CONDITIONS. (I) ENCROACHMENT ONLY OCCURS ON ONE SIDE AND NO CLOSER TO THE TRUNK THAN EITHER 1.5 METRES OR HALF THE DISTANCE BETWEEN THE OUTER EDGE OF THE DRIP LINE AND THE TRUNK, WHICH EVER IS THE

(II) A DRAINAGE SYSTEM THAT ALLOWS AIR AND WATER TO CIRCULATE THROUGH THE ROOT ZONE (E.G. A GRAVEL BED) IS PLACED UNDER ALL FILL LAYERS OF MORE THAN 300 MILLIMETRES DEPTH (III) CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY NOR TO COMPACT THE SOIL AROUND THEM.

## BULK EARTHWORKS NOTES

1. ORIGIN OF LEVELS: REFER SURVEY NOTES

2. STRIP ALL TOPSOIL/ORGANIC MATERIAL FROM CONSTRUCTION AREA AND REMOVE FROM SITE OR STOCK PILE AS DIRECTED BY SUPERINTENDENT.

3. EXCAVATED MATERIAL TO BE USED AS STRUCTURAL FILL PROVIDED THE PLACEMENT MOISTURE CONTENT OF THE MATERIAL IS +/- 2% OF THE OPTIMUM MOISTURE CONTENT.

4. COMPACT FILL AREAS AND SUBGRADE TO NOT LESS THAN: LOCATION

STANDARD DRY DENSITY (AS 1289 E 5.1.1.)

UNDER ROADS LANDSCAPED AREAS UNLESS NOTED OTHERWISE 95%

5. FOR NON COHESIVE MATERIAL, COMPACT TO 75% DENSITY INDEX.

6. BEFORE PLACING FILL, PROOF ROLL EXPOSED SUBGRADE WITH AN 8 TONNE (MIN) DEADWEIGHT SMOOTH DRUM VIBRATORY ROLLER TO DETECT THEN REMOVE SOFT SPOTS (AREAS WITH MORE THAN 2mm MOVEMENT UNDER ROLLER).

7. FREQUENCY OF COMPACTION TESTING SHALL BE NOT LESS THAN :-(A) 1 TEST PER 200m³ OF FILL PLACED PER 300 LAYER OF FILL. (B) 3 TESTS PER VISIT

(C) 1 TEST PER 1000m<sup>2</sup> OF EXPOSED SUBGRADE TESTING SHALL BE "LEVEL 1" TESTING IN ACCORDANCE WITH AS 3798

COMPACTED AS SPECIFIED 9. NO FILLING SHALL TAKE PLACE TO EXPOSED SUBGRADE UNTIL THE AREA HAS BEEN PROOF ROLLED IN THE PRESENCE OF CARDNO AND APPROVAL

8. FILLING TO BE PLACED IN MAXIMUM 250mm - LOOSE LAYERS AND

#### SITEWORKS NOTES

1. ORIGIN OF LEVELS:- REFER SURVEY NOTES

GIVEN IN WRITING THAT FILLING CAN PROCEED.

2. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES TO BE REPORTED TO CARDNO.

3. MAKE SMOOTH CONNECTION WITH EXISTING WORKS.

4. ALL TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL.

5. ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACKFILLED WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO MINIMUM 98% MAXIMUM MODIFIED DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN

6. ASPHALTIC CONCRETE SHALL CONFORM TO R.M.S. SPECIFICATION R116.

7. ALL BASECOURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH R.M.S. FORM 3051, COMPACTED TO MINIMUM 98% MAXIMUM MODIFIED DENSITY IN ACCORDANCE WITH AS 1289 5.2.1 FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m3 OF BASECOURSE MATERIAL PLACED.

8. ALL SUB-BASE COURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH R.M.S. FORM 3051, AND COMPACTED TO MINIMUM 98% MODIFIED DENSITY IN ACCORDANCE WITH A.S 1289 5.2.1 FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m³ OF SUB-BASE COURSE MATERIAL PLACED.

9. AS AN ALTERNATIVE TO THE USE OF IGNEOUS ROCK AS A SUB-BASE MATERIAL IN (8) A CERTIFIED RECYCLED CONCRETE MATERIAL COMPLYING WITH R.M.S. FORM 3051 WILL BE CONSIDERED. SUBJECT TO MATERIAL SAMPLES AND APPROPRIATE CERTIFICATIONS BEING PROVIDED TO THE SATISFACTION OF CARDNO AND CAMDEN COUNCIL.

10. SHOULD THE CONTRACTOR WISH TO USE A RECYCLED PRODUCT THIS SHALL BE CLEARLY INDICATED IN THEIR TENDER AND THE PRICE DIFFERENCE BETWEEN AN IGNEOUS PRODUCT AND A RECYCLED PRODUCT SHALL BE CLEARLY INDICATED.

1. WHERE NOTED ON THE DRAWINGS THAT WORKS ARE TO BE CARRIED BY OTHERS, (eq. ADJUSTMENT OF SERVICES), THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CO-ORDINATION OF THESE WORKS.

#### SURVEY NOTES

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY LEAN LACKENBY & HAYWARD, BEING REGISTERED SURVEYORS. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. CARDNO DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAWINGS.

SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT CARDNO.

#### EXISTING UNDERGROUND SERVICES NOTES

THE LOCATIONS OF UNDERGROUND SERVICES SHOWN IN THIS SET OF DRAWINGS HAVE BEEN PLOTTED FROM SURVEY INFORMATION AND SERVICE AUTHORITY INFORMATION. THE SERVICE INFORMATION HAS BEEN PREPARED ONLY TO SHOW THE APPROXIMATE POSITIONS OF ANY KNOWN SERVICES AND MAY NOT BE AS CONSTRUCTED OR ACCURATE.CARDNO CAN NOT GUARANTEE THAT THE SERVICES INFORMATION SHOWN ON THESE DRAWINGS ACCURATELY INDICATES THE PRESENCE OR ABSENCE OF SERVICES OR THEIR LOCATION AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN FROM ANY CAUSE WHATSOEVER.

CONTRACTORS SHALL TAKE DUE CARE WHEN EXCAVATING ONSITE INCLUDING HAND EXCAVATION WHERE NECESSARY. CONTRACTORS ARE TO CONTACT THE RELEVANT SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF EXCAVATION WORKS. CONTRACTORS ARE TO UNDERTAKE A SERVICES SEARCH, PRIOR TO COMMENCEMENT OF WORKS ON SITE. SEARCH RESULTS ARE TO BE KEPT ON SITE AT ALL TIMES.

#### **CONCRETE NOTES**

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 CURRENT EDITION WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

ALL REQUIREMENTS OF THE CURRENT ACSE CONCRETE SPECIFICATION DOCUMENT 1 SHALL APPLY TO THE FORMWORK, REINFORCEMENT AND CONCRETE UNLESS NOTED OTHERWISE

ELEMENT	AS 3600 F'c MPa	SPECIFIED	NOMINAL
	AT 28 DAYS	SLUMP	AGG. SIZE
VEHICULAR BASE KERBS, PATHS, AND PITS	32 25	60 80	20 20

- CEMENT TYPE SHALL BE (ACSE SPECIFICATION) TYPE SL - PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 1379.

3. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING BY CARDNO.

4. CLEAR CONCRETE COVER TO ALL REINFORCEMENT FOR DURABILITY SHALL BE 40mm TOP AND 70mm FOR EXTERNAL EDGES UNLESS NOTED OTHERWISE.

5. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON MILD STEEL PLASTIC TIPPED CHAIRS, PLASTIC CHAIRS OR CONCRETE CHAIRS AT NOT GREATER THAN 1m CENTRES BOTH WAYS. BARS SHALL BE TIED AT ALTERNATE INTERSECTIONS.

6. THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK, THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. ALL CONCRETE INCLUDING SLABS ON GROUND AND FOOTINGS SHALL BE COMPACTED AND CURED IN ACCORDANCE WITH R.T.A. SPECIFICATION R83.

7. REINFORCEMENT SYMBOLS:

N DENOTES GRADE 450 N BARS TO AS 1302 GRADE N R DENOTES 230 R HOT ROLLED PLAIN BARS TO AS 1302

SL DENOTES HARD-DRAWN WIRE REINFORCING FABRIC TO AS 1304 NUMBER OF BARS IN GROUP ─BAR GRADE AND TYPE

17 N 20 250 ── SPACING IN mm THE FIGURE NOMINAL BAR SIZE IN mm -----

FOLLOWING THE FABRIC SYMBOL SL IS THE REFERANCE NUMBER

FOR FABRIC TO AS 1304. 8. FABRIC SHALL BE LAPPED IN ACCORDANCE WITH THE FOLLOWING DETAIL:



#### JOINT NOTES

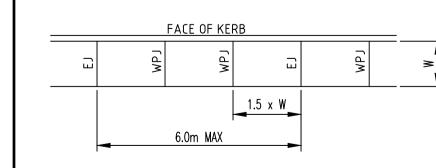
PEDESTRIAN PAVEMENT JOINTS

1. ALL PEDESTRIAN PAVEMENTS ARE TO BE JOINTED AS FOLLOWS. (U.N.O) 2. EXPANSION JOINTS ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX. 6.0m CENTRES.

3. WEAKENED PLANE JOINTS ARE TO BE LOCATED AT A MAX. SPACING OF 1.5 x WIDTH OF THE PAVEMENT.

4. WHERE POSSIBLE JOINTS SHOULD BE LOCATED TO MATCH KERBING AND OR ADJACENT PAVEMENT JOINTS.

5. PEDESTRIAN PAVEMENT JOINT DETAIL.



NB: CHECK RELEVANT COUNCIL REQUIREMENTS IF IN PUBLIC ROAD.

# PAVEMENT MARKING SCHEDULE

LONGITUDINAL LINES EDGE LINES

..LINE APPLIED TO INCLINE FACE OF MEDIAN KERB TURN LINES SEPARATION LINES S3 

BARRIER LINES

L3

TRANSVERSE LINES GIVEWAY LINE

PAVEMENT ARROWS

UA3(L) UA3(R) UA5(R)

1. ALL SIGNAGE TO BE IN ACCORDANCE WITH THE CURRENT VERSION OF THE R.M.S. REGULATORY SIGNS MANUAL

2. ALL PAVEMENT MARKING TO BE IN ACCORDANCE WITH R.M.S. REQUIREMENTS.

3. TRANSITION LINEMARKING TO SUIT EXISTING WHERE REQUIRED.

4. RELOCATE/ REMOVE EXISTING SIGNS AS REQUIRED.

COUNCIL AND R.M.S. REQUIREMENTS.

8. ALL LINEMARKING TO BE WHITE IN COLOUR.

5. REMOVE ALL REDUNDANT PAVEMENT MARKING AS REQUIRED.

6. PROVIDE ADEQUATE APPROACH WARNING SIGNS DURING AND AFTER CONSTRUCTION. 7. PROVIDE RETRO-REFLECTORISED PAVEMENT MARKERS TO

PROPOSED WORKS LEGEND CONCRETE KERB AND GUTTER MOUNTABLE KERB RMS KERB AND GUTTER RMS MOUNTABLE KERB NEW CONCRETE KERB RAMP PROPOSED CONTOUR STORMWATER KERB INLET PIT STORMWATER GRATED PIT **-**− −Ø375 PROPOSED STORMWATER PIPE TREE TO BE REMOVED

07.08.14 | RE-ISSUED FOR DEVELOPMENT APPLICATION CP | CO | AD 01.08.14 RE-ISSUED FOR DEVELOPMENT APPLICATION CP CO AD 01.04.14 RE-ISSUED FOR DEVELOPMENT APPLICATION RH RL RL ISSUED FOR DEVELOPMENT APPLICATION (NOT ISSUED) 21.02.14 RH RL RL ISSUED FOR CLIENT REVIEW RH 15.10.13 Des. Verif. Appd. Date

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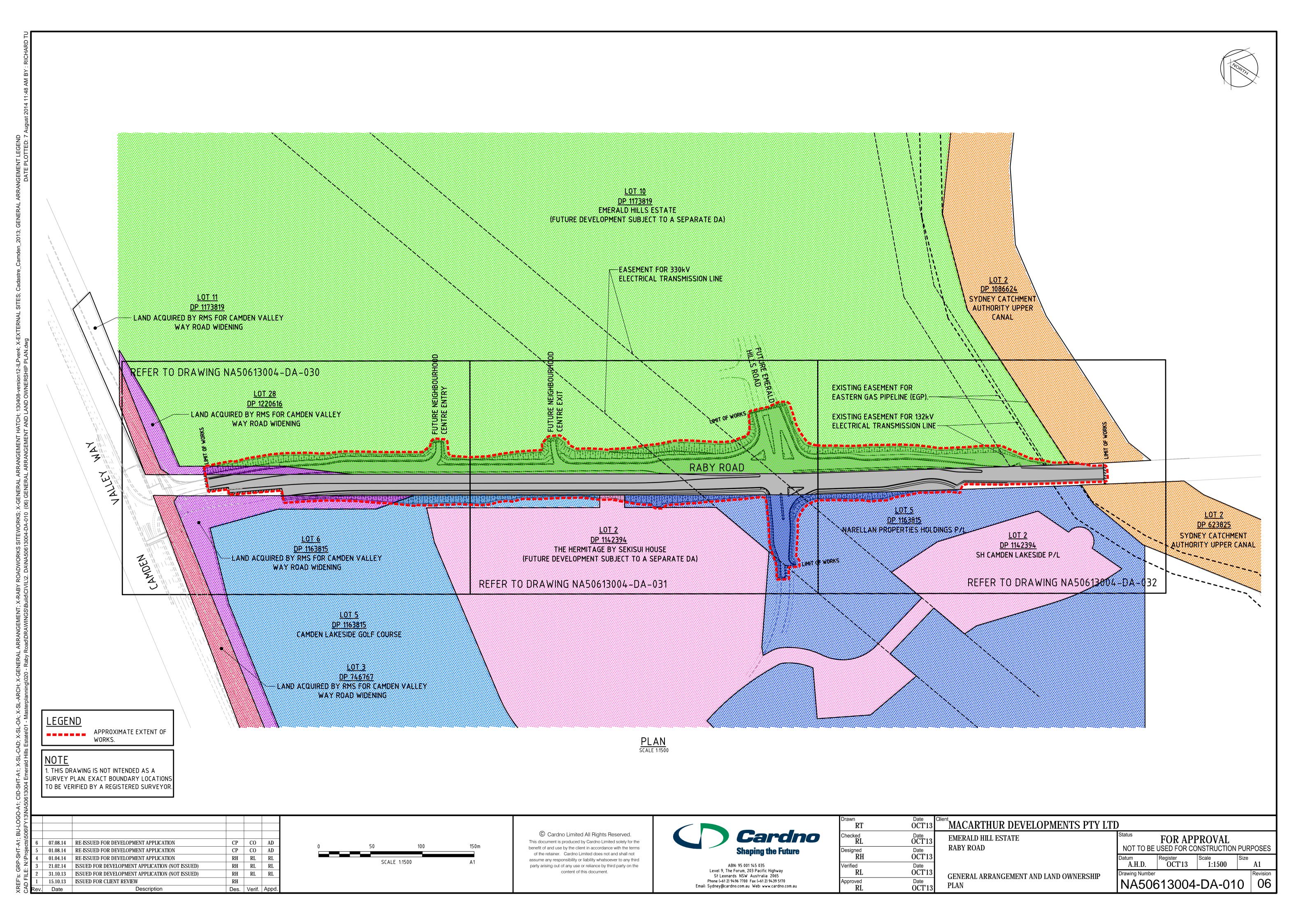


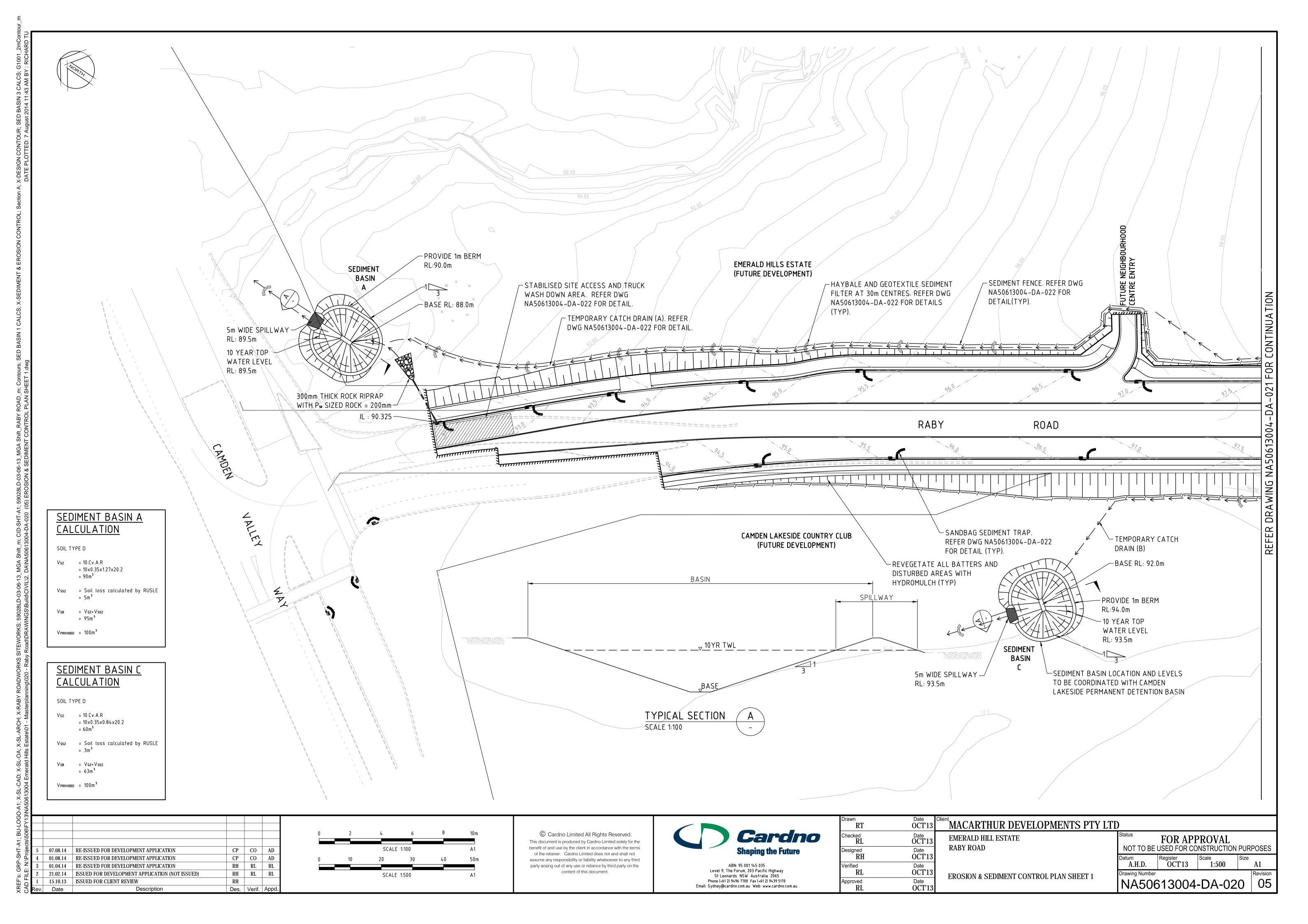
ABN: 95 001 145 035 Level 9, The Forum, 203 Pacific Highway St Leonards NSW Australia 2065 Phone (+61 2) 9496 7700 Fax (+61 2) 9439 5170 Email: Sydney@cardno.com.au Web: www.cardno.com.au

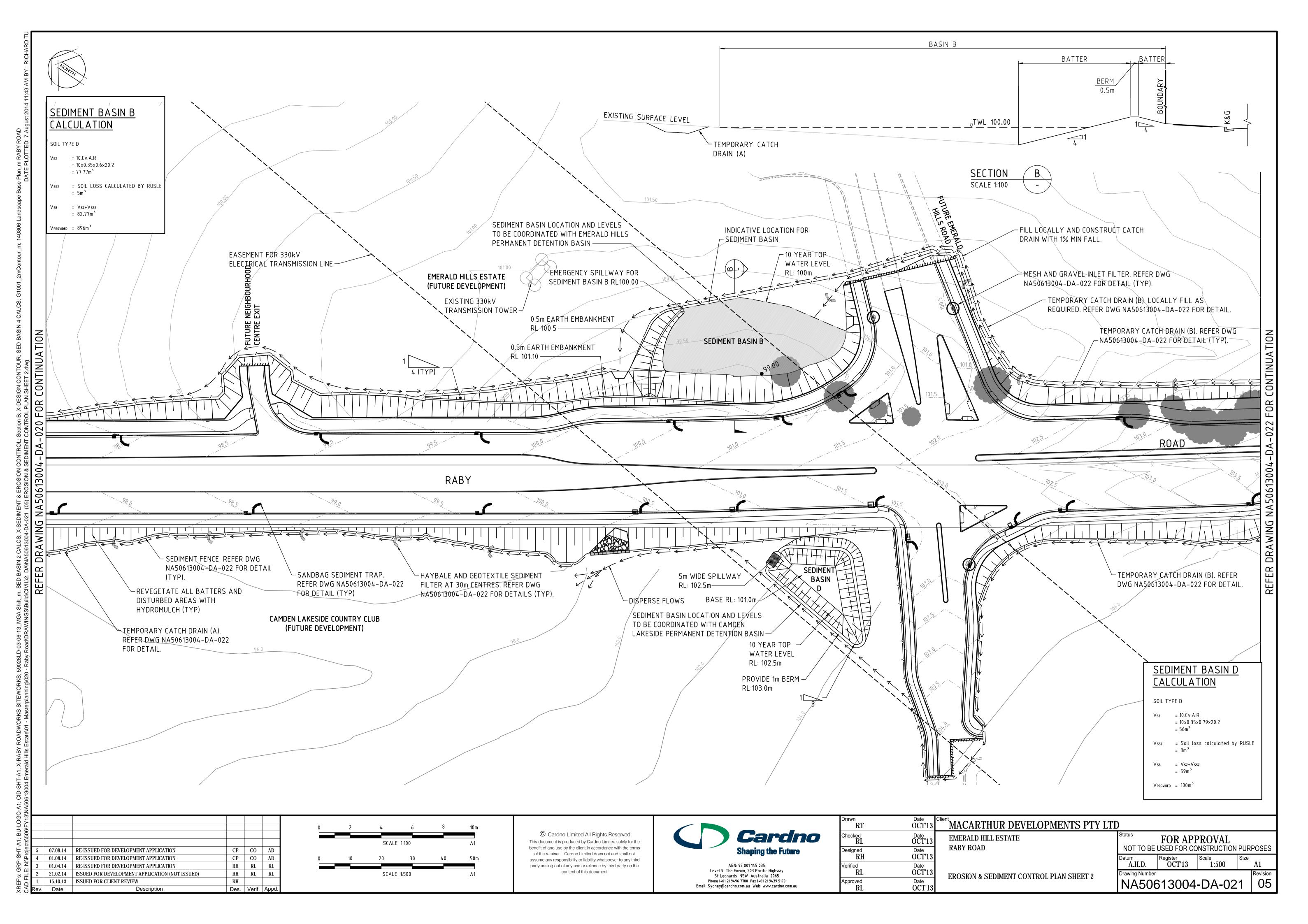
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Designed RH	Date OCT'13
Verified $\operatorname{RL}$	Date OCT'13
Approved RL	Date OCT'13

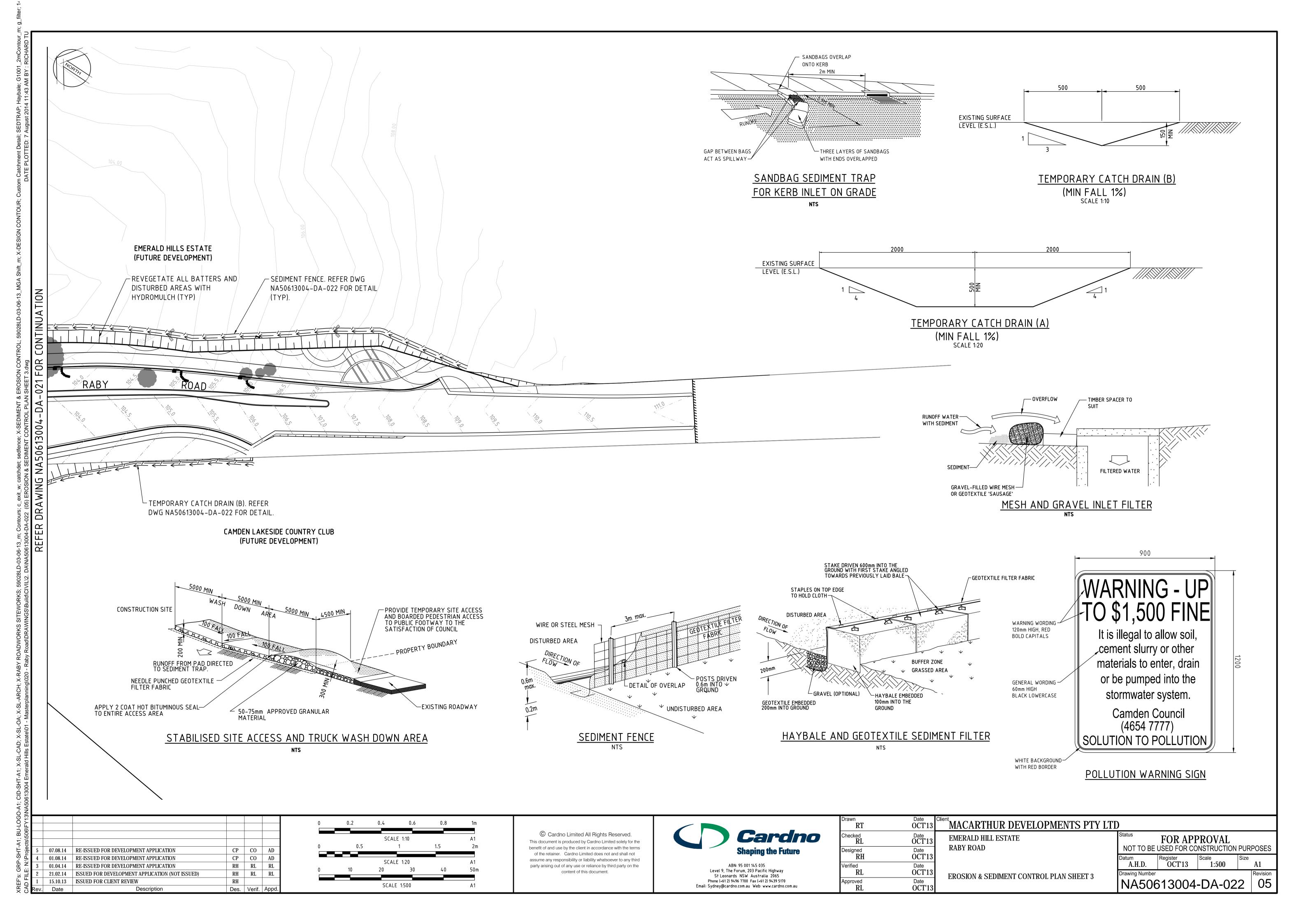
MACARTHUR DEVELOPMENTS PTY LTD EMERALD HILL ESTATE RABY ROAD NOTES & LEGEND SHEET

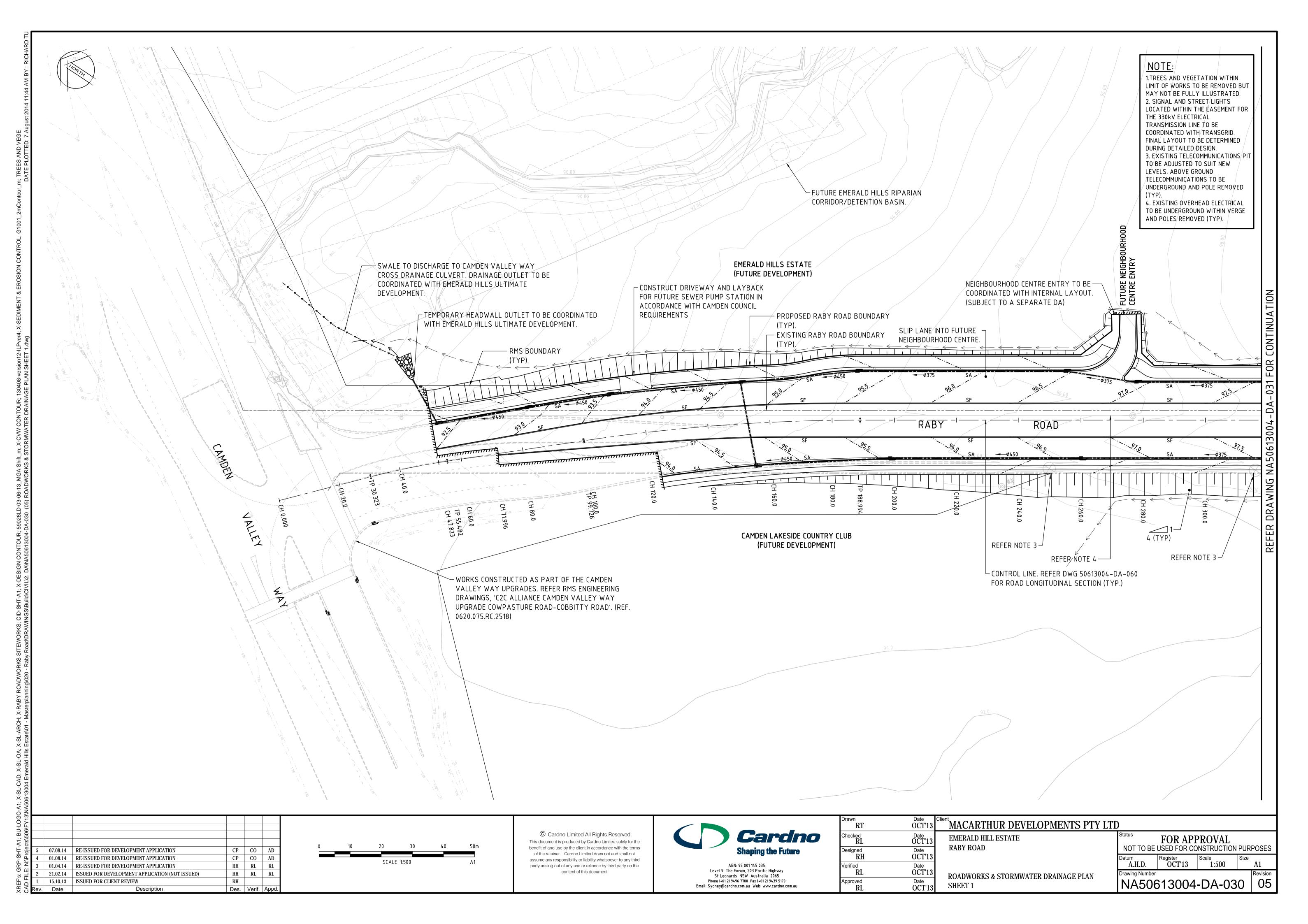
FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES OCT'13 N/A NA50613004-DA-001

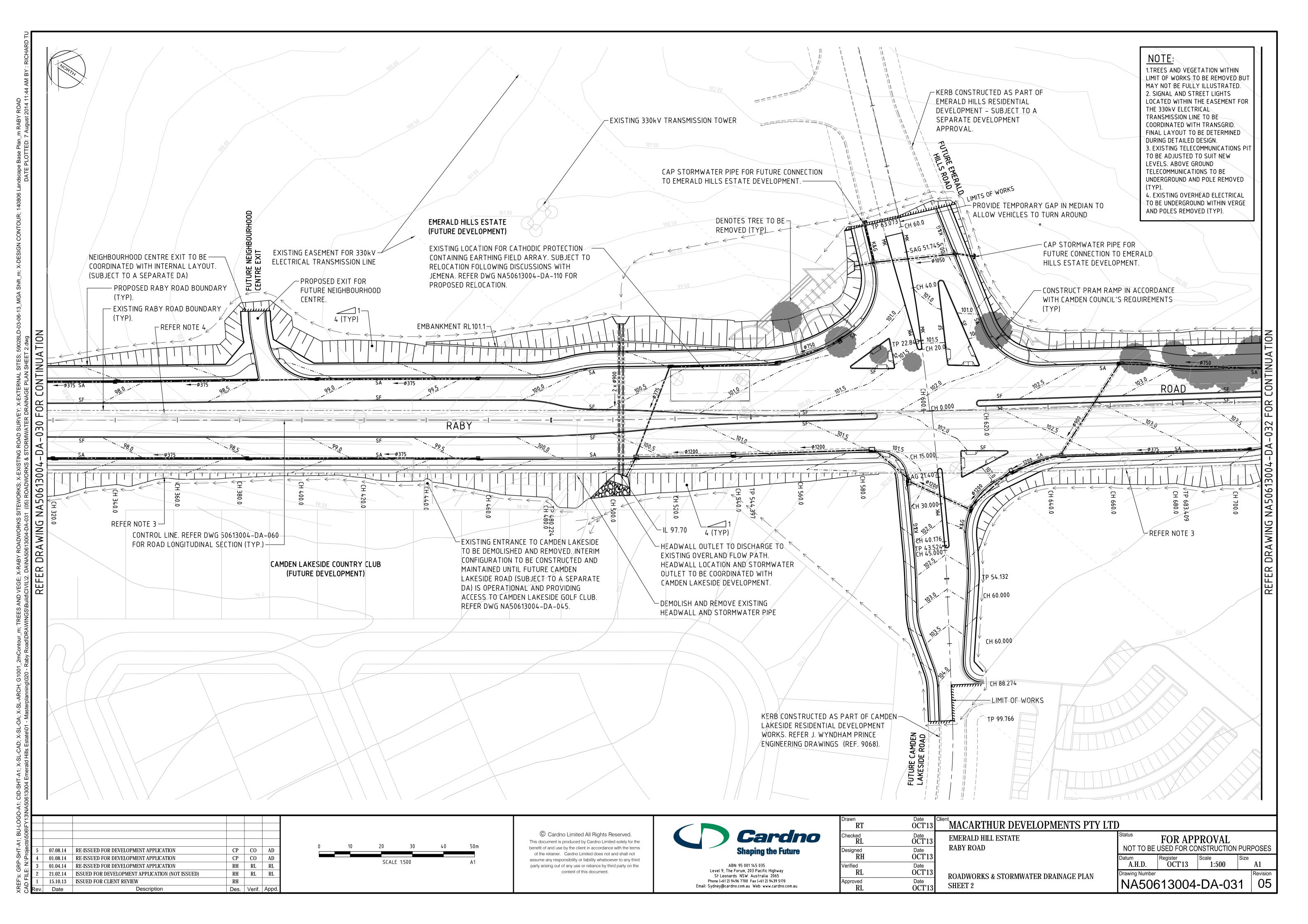


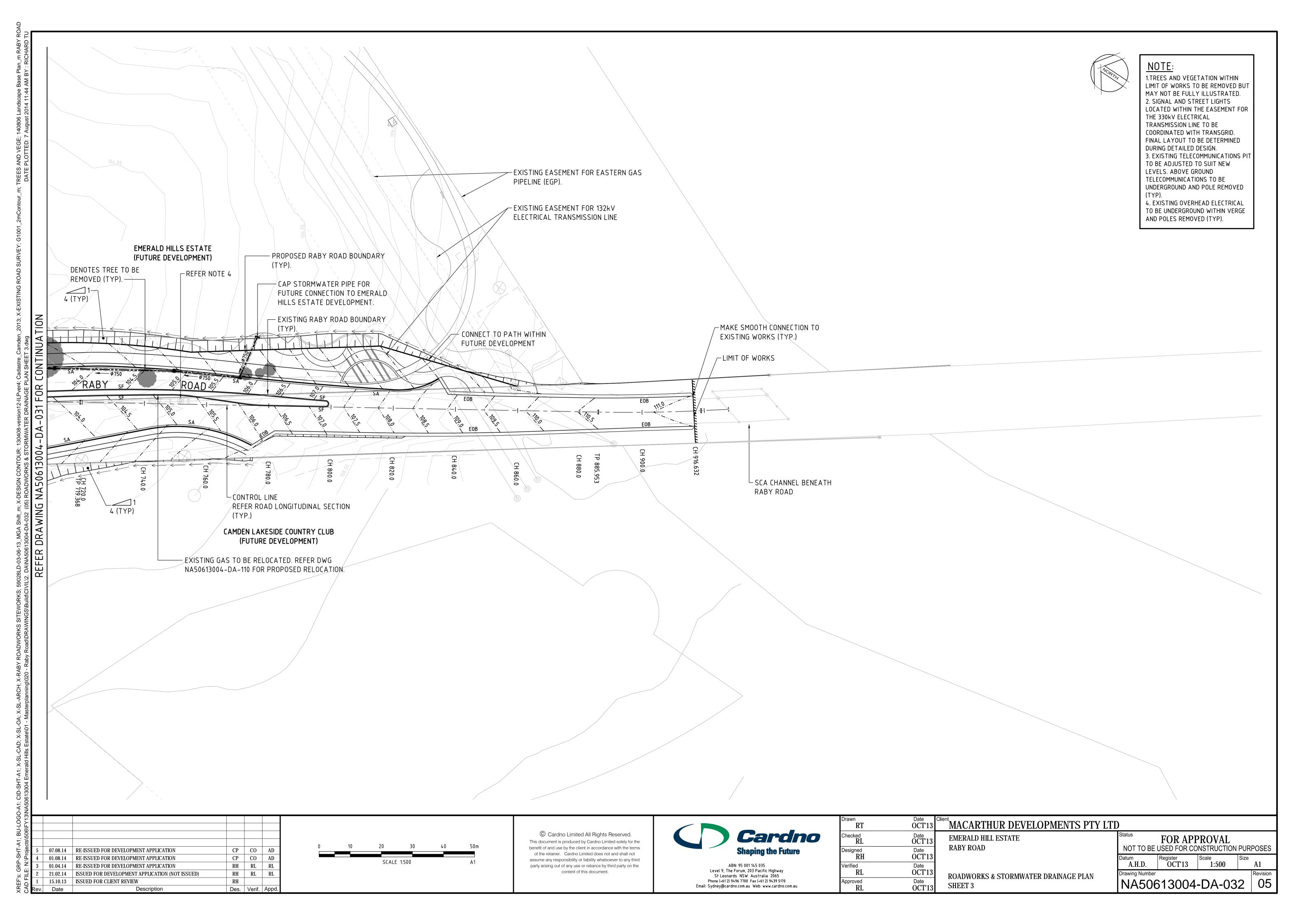


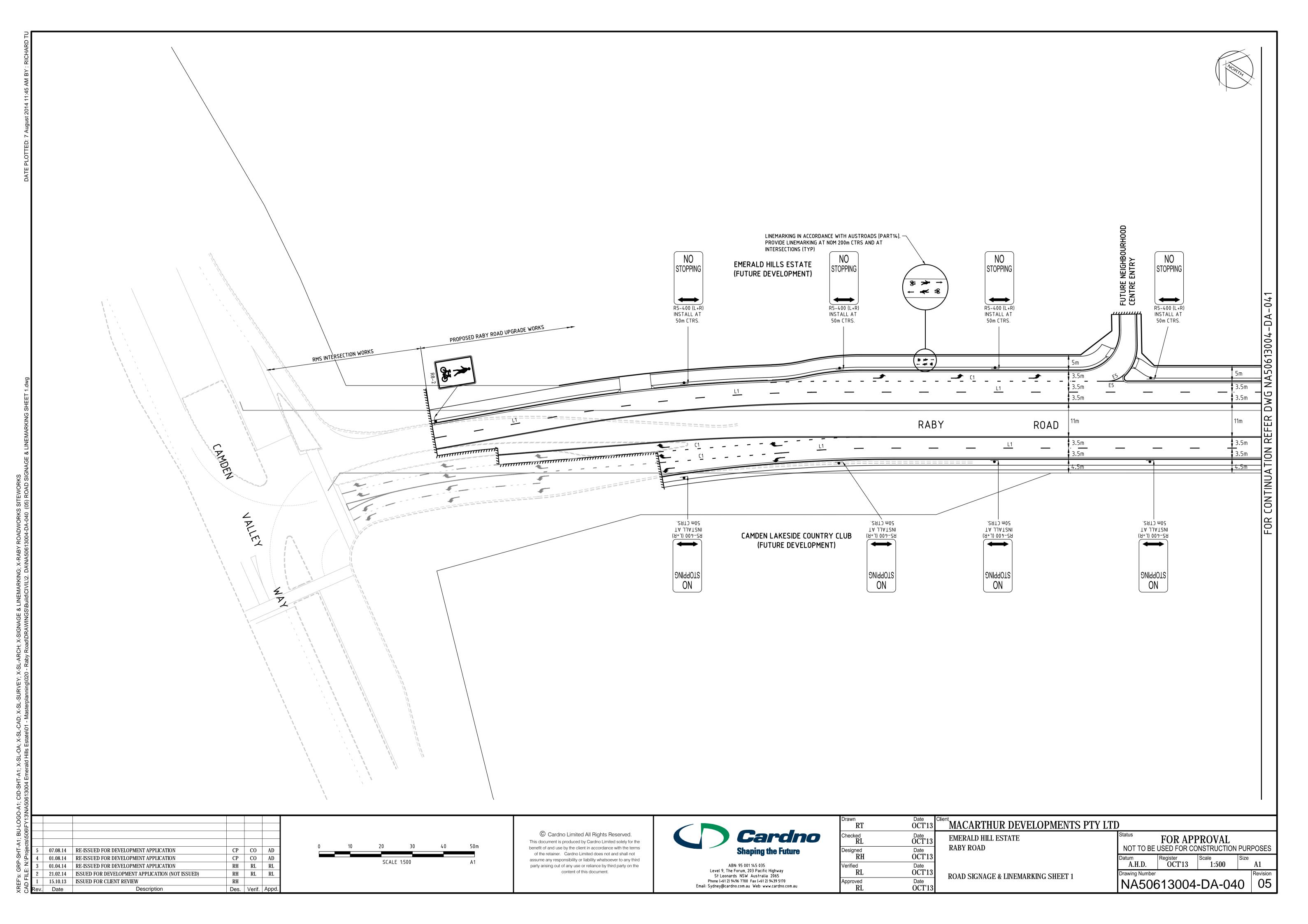


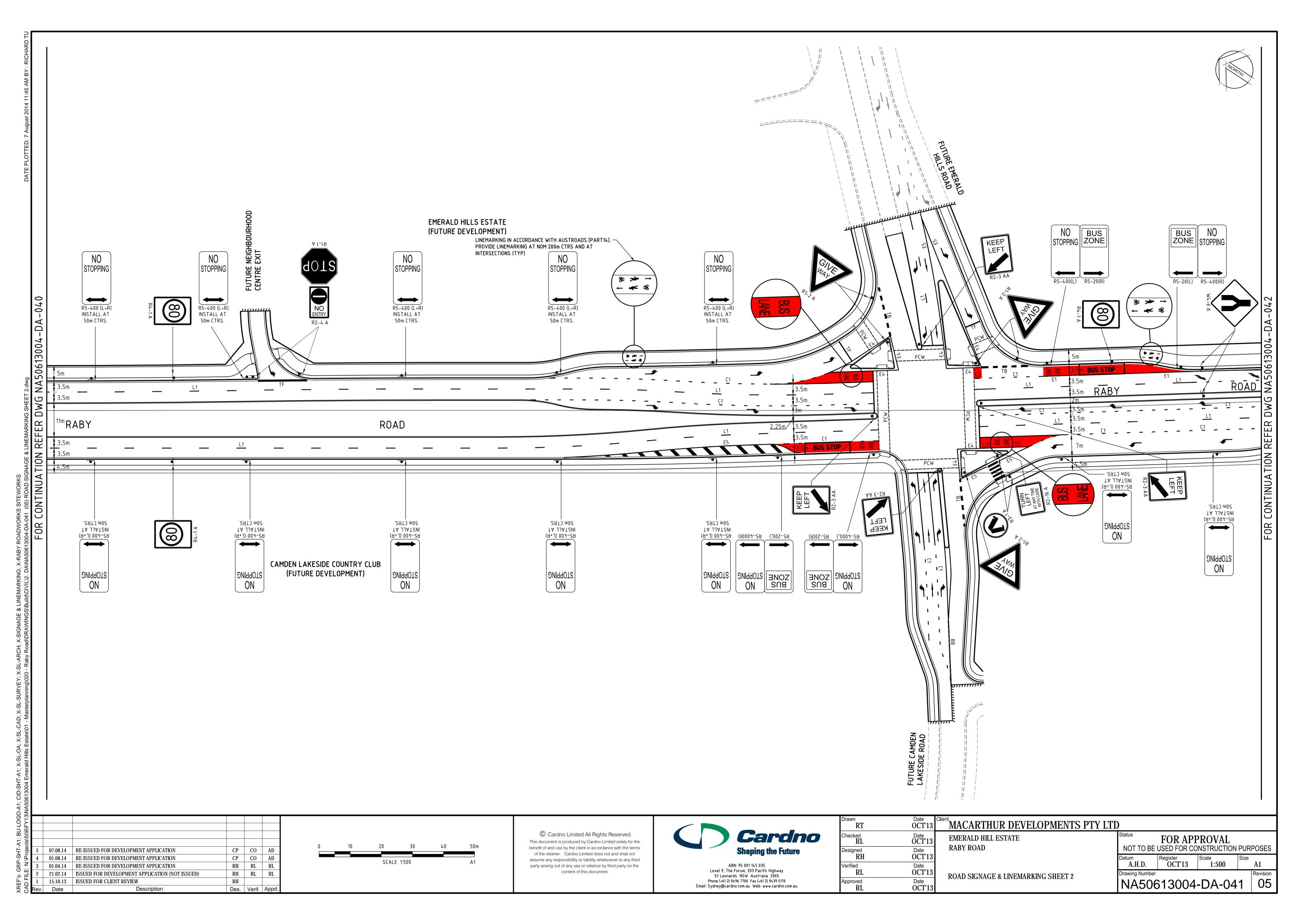




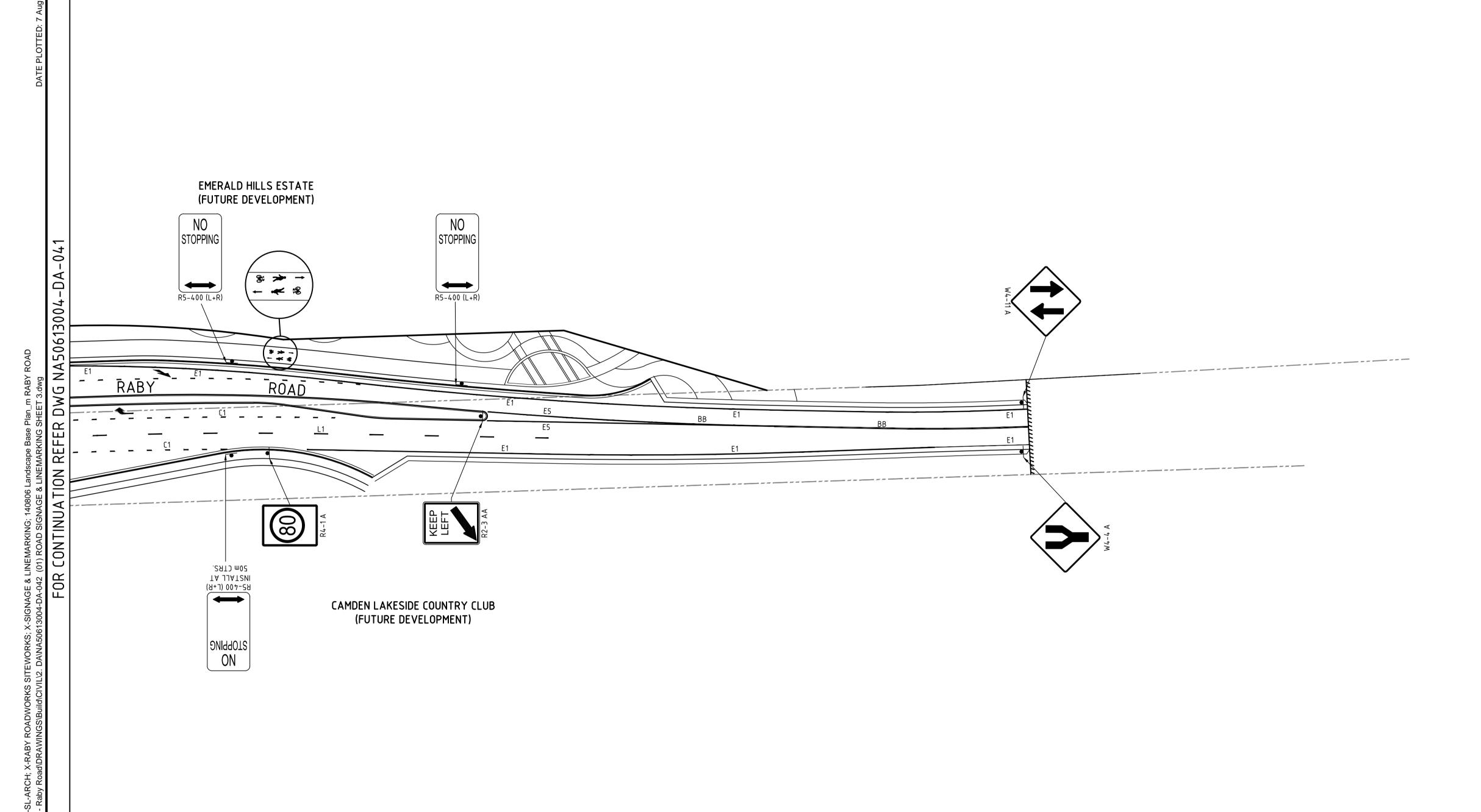




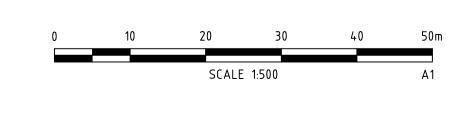








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1	07.08.14	ISSUED FOR DEVELOPMENT APPLICATION	CP	СО	AD	
Rev.	Date	Description	Des.	Verif.	Appd.	



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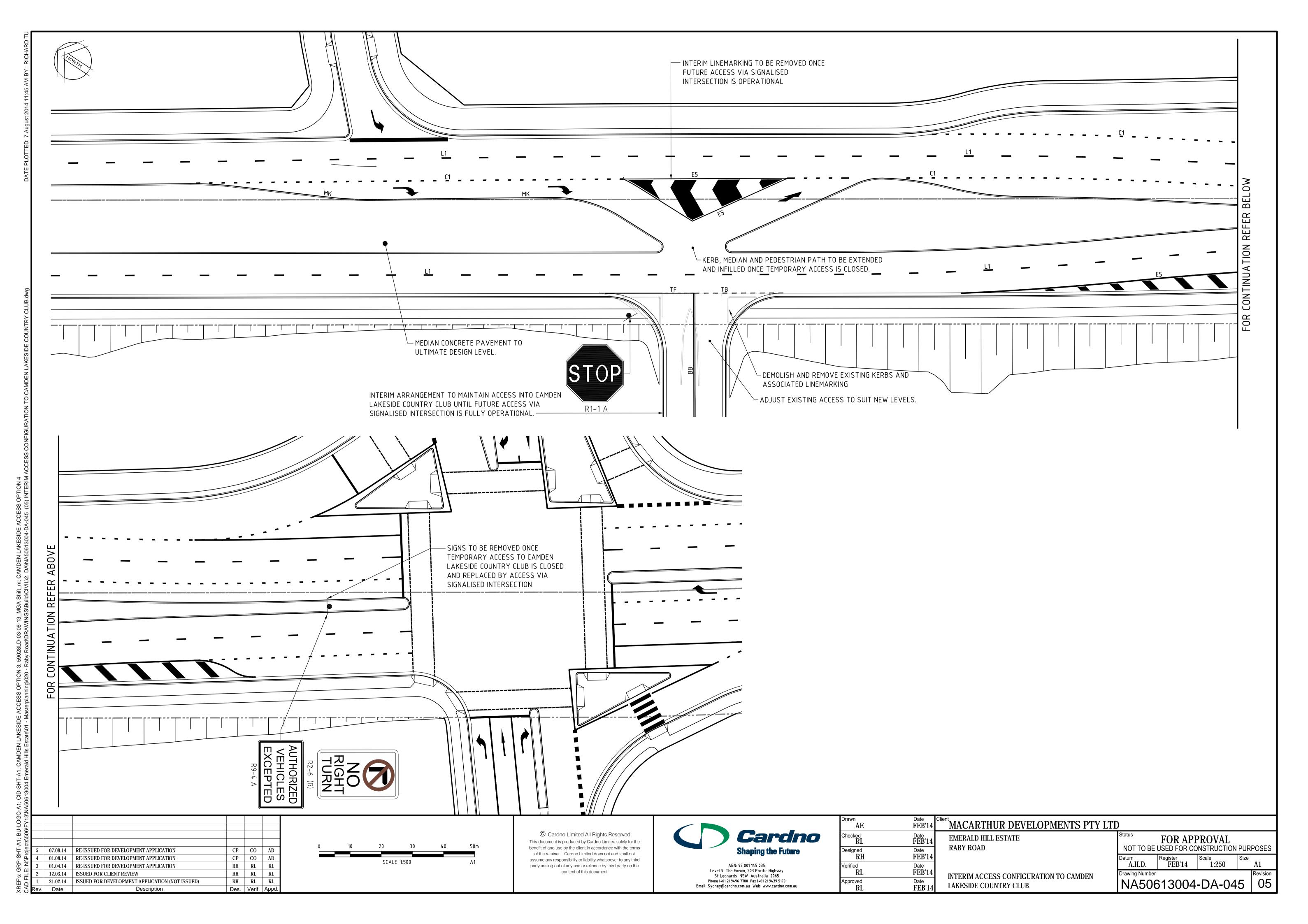


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St Leonards NSW Aust	ralia 2065
Phone (+61 2) 9496 7700 Fax (-	+61 2) 9439 5170
Fmail: Sydney@cardno.com.au. Web	n: www.cardno.com

Drawn <b>RT</b>	AUG'14
Checked CO	Date AUG'14
Designed CP	Date AUG'14
Verified AD	Date AUG'14
Approved AD	Date AUG'14

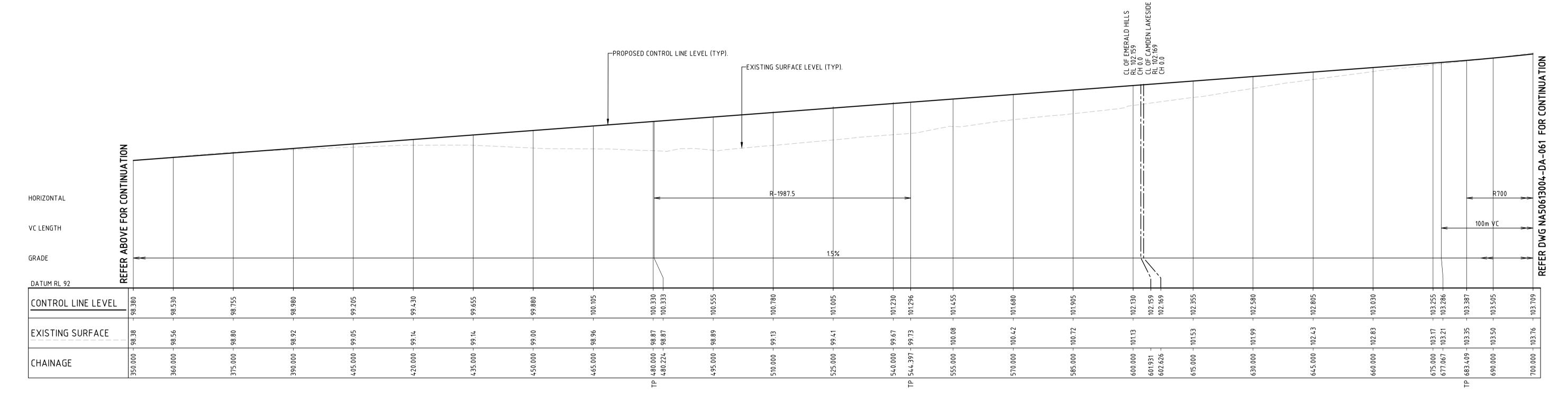
MACARTHUR DEVELOPMENTS PTY LTD	)	
EMERALD HILL ESTATE	Status	F
RABY ROAD	NOT TO BE I	US
	Datum <b>A.H.D</b> .	Re

EMERALD HILL ESTATE RABY ROAD	Status  NOT TO BE	FOR APPROVAL  NOT TO BE USED FOR CONSTRUCTION PURPOSES			
	Datum A.H.D.	Register AUG'14	Scale 1:500	Size A1	
ROAD SIGNAGE & LINEMARKING SHEET 3	Drawing Number	r		Revision	
ROAD SIGNAGE & LINEWARKING SHEET 3	NA50	613004	-DA-04	2 01	



# RABY ROAD CL LONGITUDINAL SECTION

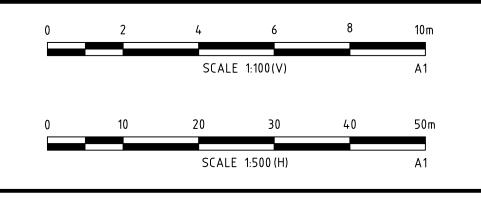
1:500 HORI. 1:100 VERT.



#### RABY ROAD CL LONGITUDINAL SECTION

1:500 HORI. 1:100 VERT.

5					
5	07.08.14	RE-ISSUED FOR DEVELOPMENT APPLICATION	CP	CO	AD
4	01.08.14	RE-ISSUED FOR DEVELOPMENT APPLICATION	CP	CO	AD
3	01.04.14	RE-ISSUED FOR DEVELOPMENT APPLICATION	RH	RL	RL
2	21.02.14	ISSUED FOR DEVELOPMENT APPLICATION (NOT ISSUED)	RH	RL	RL
1	15.10.13	ISSUED FOR CLIENT REVIEW	RH		
Rev.	Date	Description	Des.	Verif.	Appd.



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Drawn <b>RT</b>	Date OCT'13	Cli
$ \overset{\text{Checked}}{RL} $	OCT'13	
Designed RH	Date OCT'13	
Verified RL	Date OCT'13	
Approved $\operatorname{RL}$	Date OCT'13	

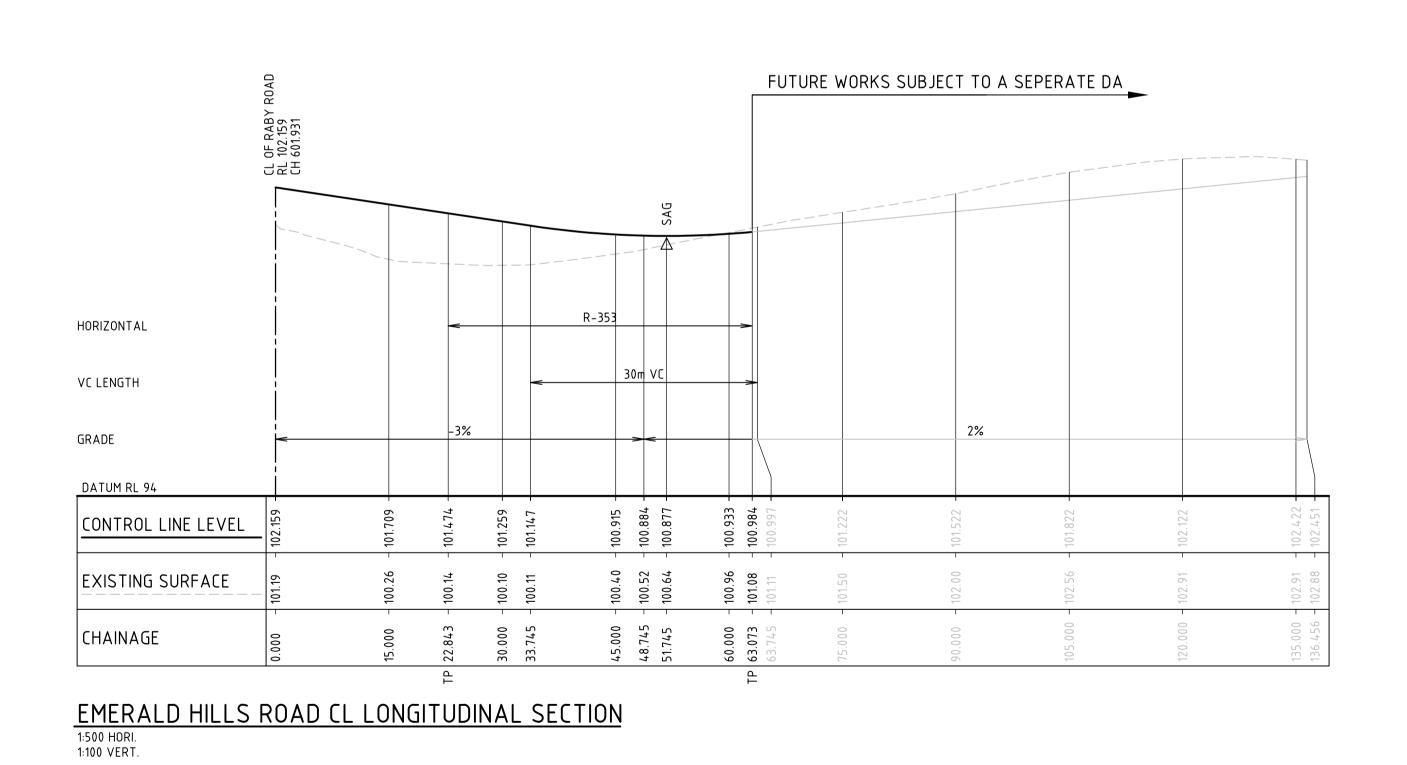
MACARTHUR DEVELOPMENTS PTY L	ΓD
EMERALD HILL ESTATE	

EMERALD HILL ESTATE	
RABY ROAD	

ROAD LONGITUDINAL SECTIONS SHEET 1	

Status NOT TO BE	FOR APP USED FOR CO	PROVAL NSTRUCTION	PUR	POSES
Datum <b>A.H.D.</b>	Register OCT'13	Scale 1:500H-1:100V	Size	<b>A1</b>
Drawing Number NA506	613004	-DA-05	0	Revisio

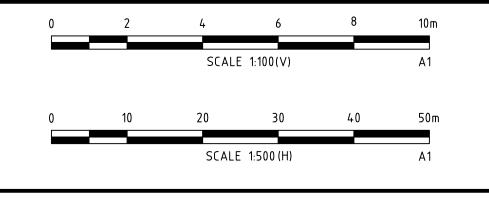
RABY ROAD CL LONGITUDINAL SECTION
1:500 HORI.
1:100 VERT.



CL OF RABY RL 102.169 CH 602.626

				<b>-</b>
CAMDEN	LAKESIDE	ROAD	CL	LONGITUDINAL SECTION
1:500 HORI.				
1:100 VERT.				

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·	5	07.08.14	RE-ISSUED FOR DEVELOPMENT APPLICATION	CP	CO	AD
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ŀ	3	01.04.14	RE-ISSUED FOR DEVELOPMENT APPLICATION	RH	RL	RL
I	2	21.02.14	ISSUED FOR DEVELOPMENT APPLICATION (NOT ISSUED)	RH	RL	RL
ı	1	15.10.13	ISSUED FOR CLIENT REVIEW	RH		
ı	Rev.	Date	Description	Des.	Verif.	Appd.



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HORIZONTAL

VC LENGTH

GRADE

DATUM RL 95

CHAINAGE

CONTROL LINE LEVEL

EXISTING SURFACE

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St Leonards NSW Australia 2065	
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RT	OCT'13
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Designed RH	Date OCT'13
Verified RL	Date OCT'13
Approved <b>RL</b>	Date OCT'13

MACARTHUR DEVELOPMENTS PTY LT	D
EMERALD HILL ESTATE	Sta
ΡΔΡΥ ΡΟΔΤ	L

40m VC

1.3%

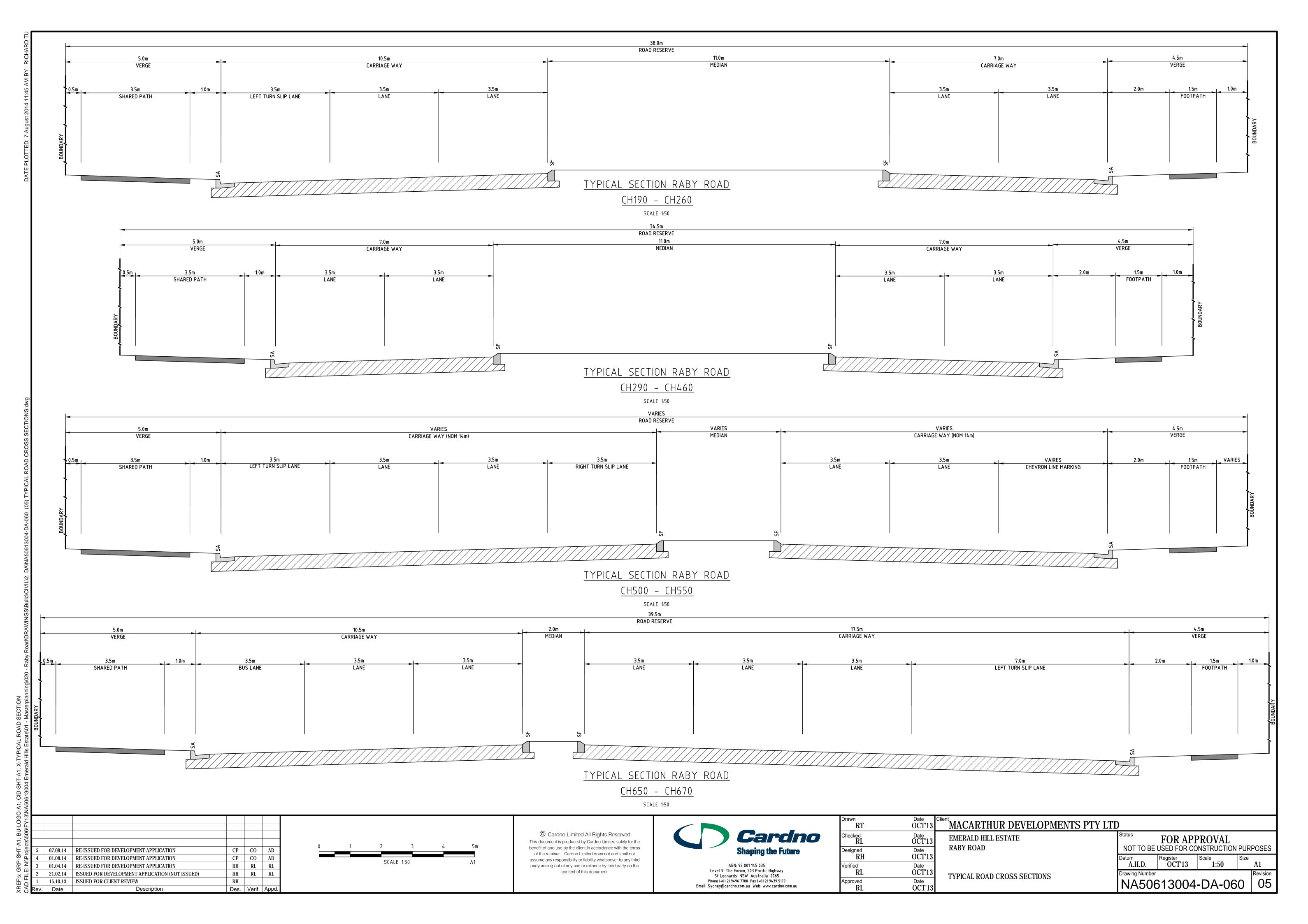
EMERALD HILL ESTATE	
RABY ROAD	

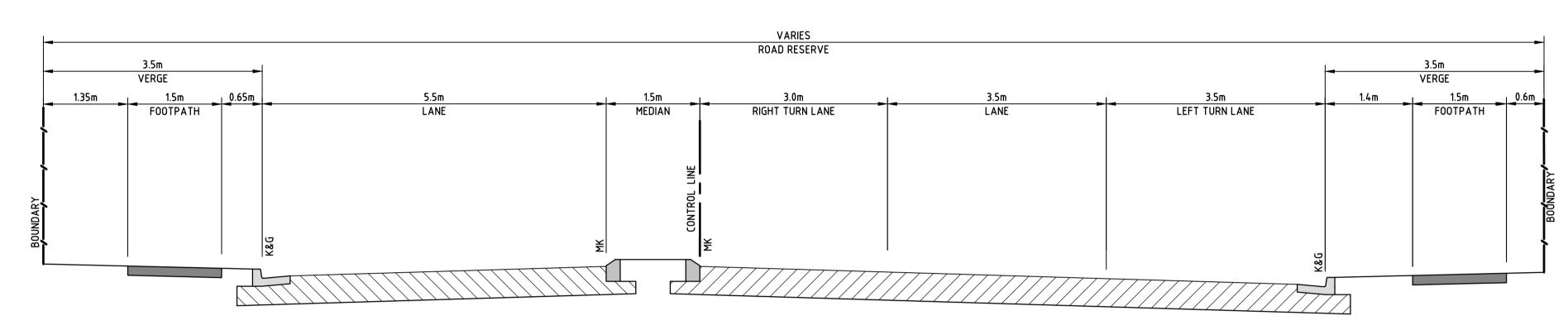
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ROAD LONGITUDINAL SECTIONS SHEET 2	

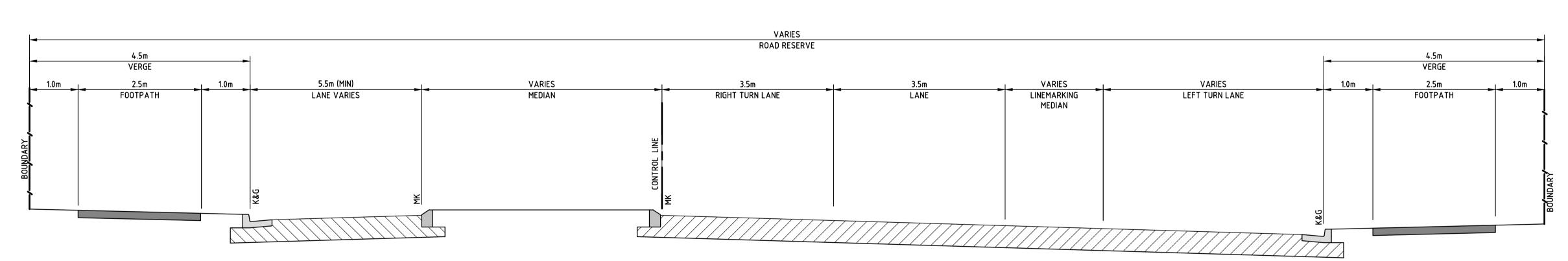
<u> </u>					
	Status  NOT TO BE		PROVAL ONSTRUCTION		POSES
	Datum <b>A.H.D.</b>	Register OCT'13	Scale 1:500H-1:100V	Size	A1
	Drawing Number				Revision
	NA506	613004	-DA-05	1	05

FUTURE WORKS BY OTHERS





TYPICAL SECTION - CAMDEN LAKESIDE ROAD SCALE 1:50



TYPICAL SECTION - EMERALD HILLS ROAD

SCALE 1:50



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Drawn RT	Date OCT'13	ent MACARTHUR DEVELOPMENTS PTY L	TD			
$\overset{\text{Checked}}{RL}$	OCT'13	EMERALD HILL ESTATE	Status	FOR API		
Designed	Date	RABY ROAD	NOT TO BE	USED FOR CO	NSTRUCTION	PURP
RH	OCT'13		Datum	Register	Scale	Size
Verified	Date		A.H.D.	OCT'13	1:50	
RL	OCT'13	INTERSECTION SECTIONS	Drawing Number			F
Approved RL	Date OCT'13	INTERSECTION SECTIONS	NA506	613004	-DA-06	<b>31</b>

07.08.14 RE-ISSUED FOR DEVELOPMENT APPLICATION 01.08.14 RE-ISSUED FOR DEVELOPMENT APPLICATION

01.04.14 RE-ISSUED FOR DEVELOPMENT APPLICATION

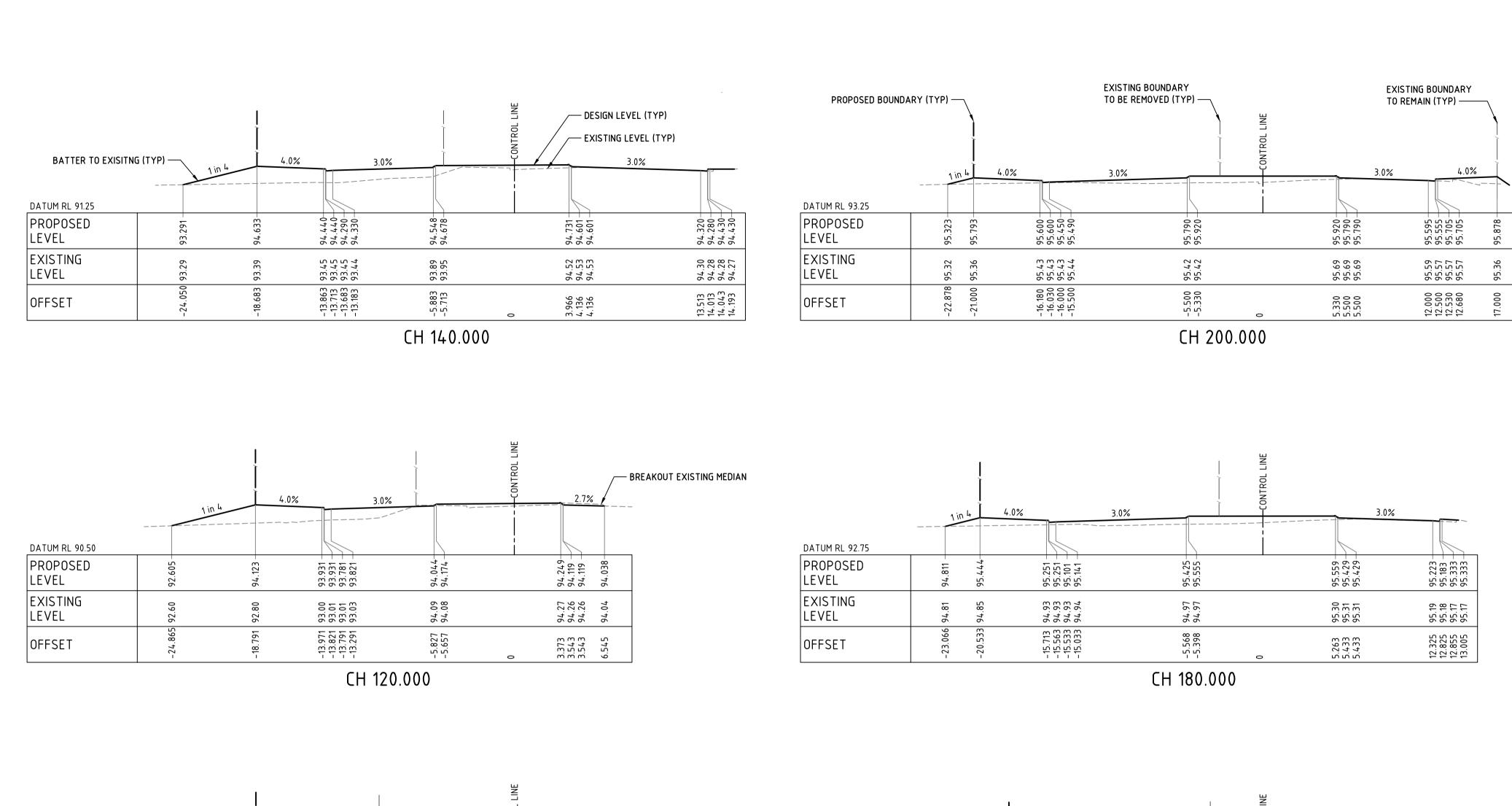
21.02.14 ISSUED FOR DEVELOPMENT APPLICATION (NOT ISSUED)

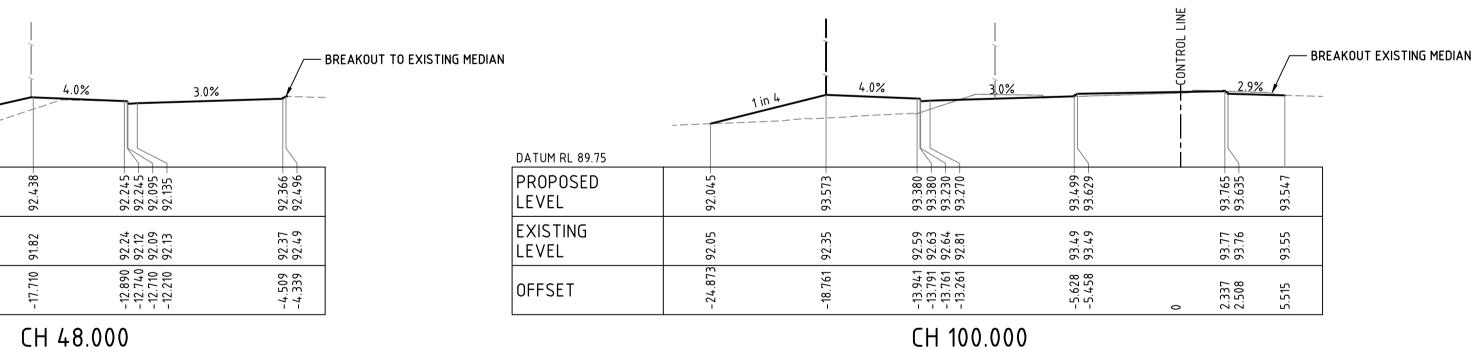
Description

CP CO AD
CP CO AD
RH RL RL

RH RL RL

Des. Verif. Appd.





1.4%

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-5.174 -5.004

92.692

92.68 92.68

-4.686 -4.516 93.246 93.116 93.116

93.24 93.11 93.11

0 0.953 1.123 1.123

4.0%

92.911 92.911 92.761 92.801

93.11 93.10 93.10 93.10

-13.556 -13.406 -13.376 -12.876

CH 80.000

92.57 92.57 92.57 92.42

.069 .919 .889 .389

-13. -12. -12.

CH 60.000

3.0%

DATUM RL 89.50

PROPOSED

LEVEL

LEVEL

OFFSET

DATUM RL 89.00

PROPOSED

EXISTING

LEVEL

LEVEL

OFFSET

**DATUM RL 88.75** 

PROPOSED

EXISTING

LEVEL

LEVEL

**OFFSET** 

EXISTING

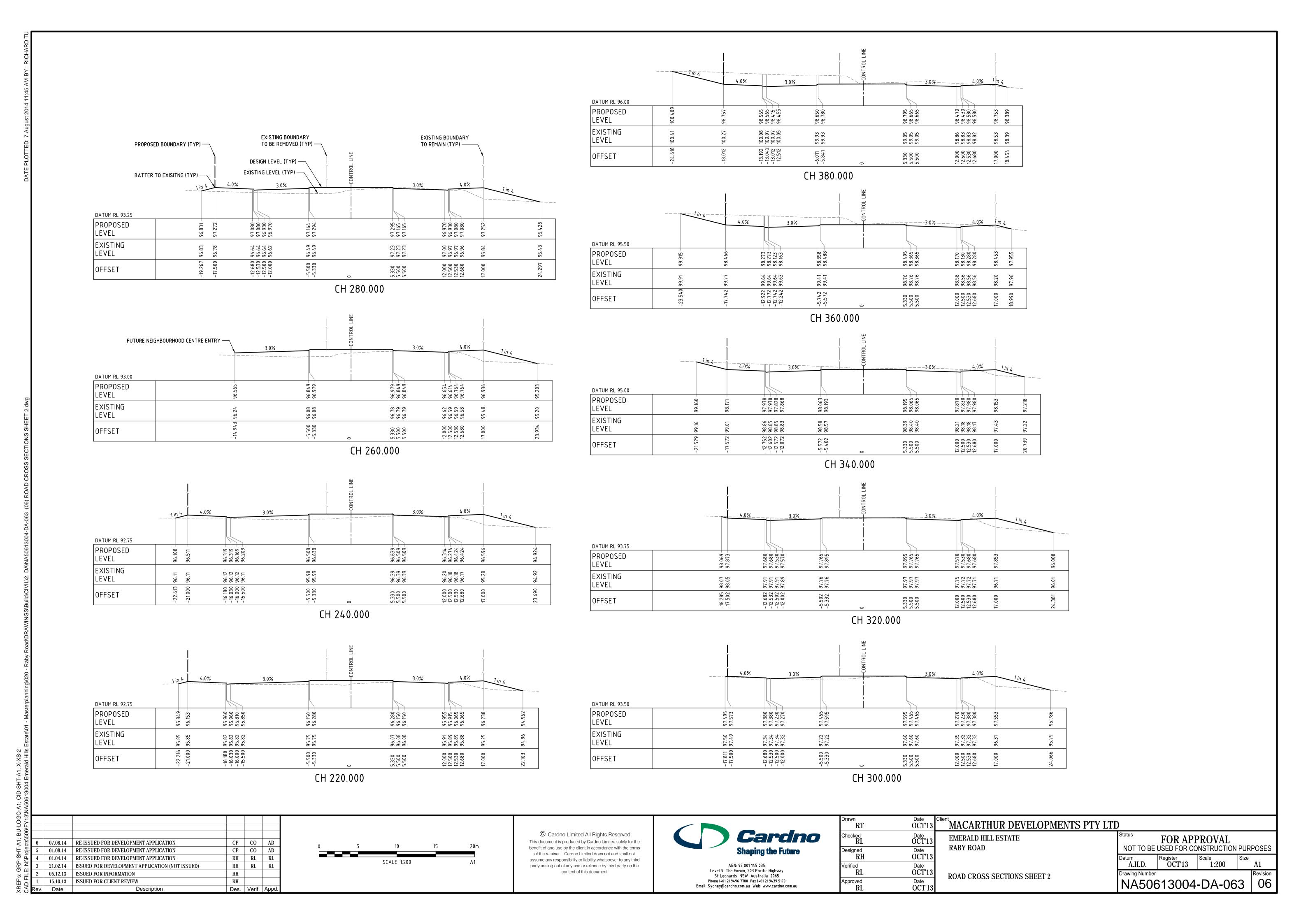
4.0% 3.0% DATUM RL 92.00 PROPOSED .909-.909-.759-.799-95.013 -95.143 -801 761 911 911 LEVEL 94. 94. 94. 95. 95. 76 76 76 EXISTING 94.49 94.50 76 75 75 74 36 38 91 LEVEL 94. 94. 94. 94. 94. 94. 94. 94. -13.618 -13.468 -13.438 -12.938 -5.797 -5.627 863 363 393 543 OFFSET 5; ti; ti; ti; CH 160.000

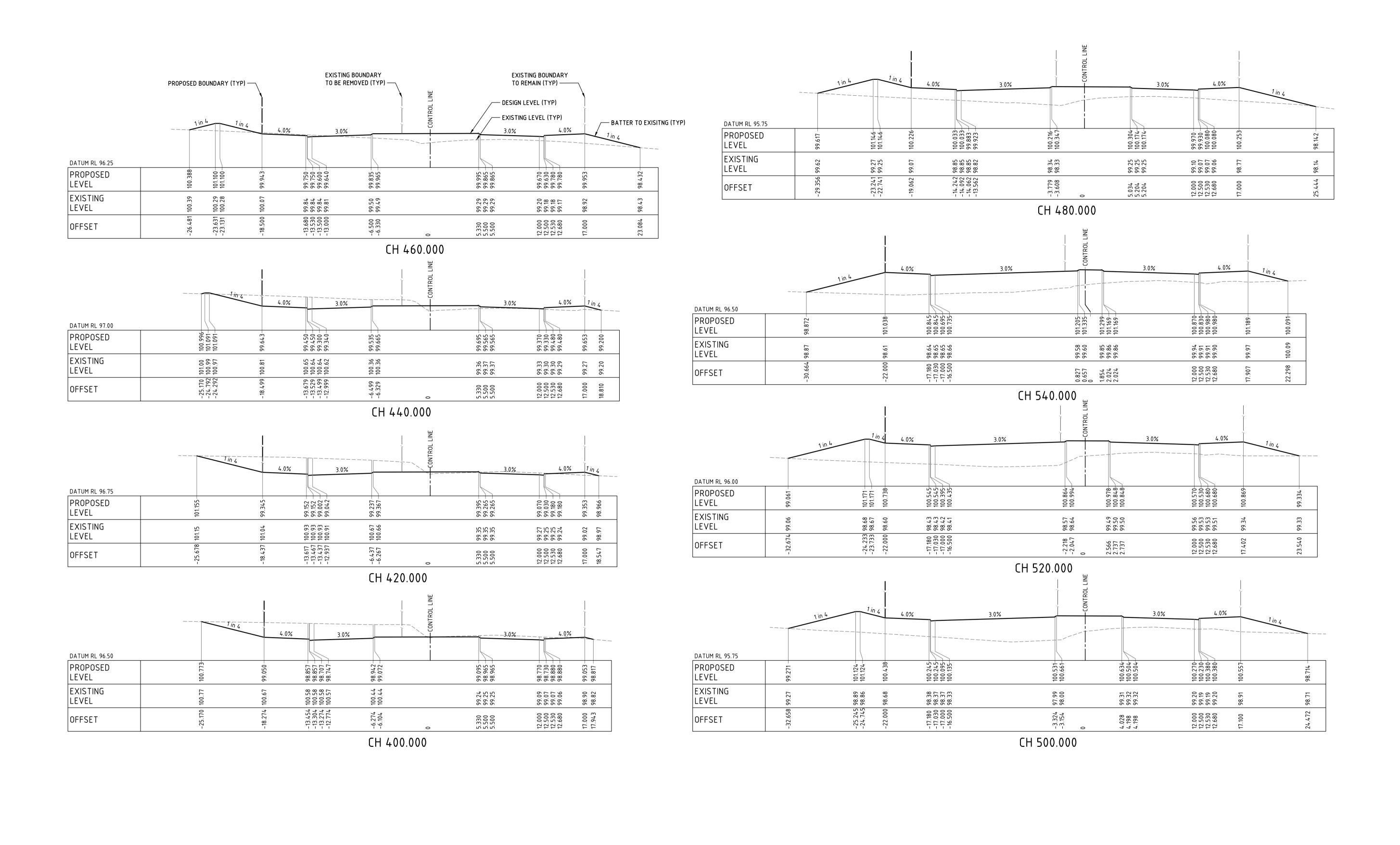
<u>NOTES</u>

BATTER EXTENT ON NORTH WEST SIDE OF RABY ROAD TO BE CONFIRMED FROM CH80-CH180. TYPICAL BATTER TO EXISTING SURFACE SHOWN.

								Drawn RT	Date OCT'13	MACARTHUR DEVELOPMENTS	PTY LTD
6	07.08.14 RE-ISSUED	FOR DEVELOPMENT APPLICATION	CP CO AD	0 5 10 1	15 20m	© Cardno Limited All Rights Reserved.  This document is produced by Cardno Limited solely for the	( ) Cardno	Checked RL	OCT'13	EMERALD HILL ESTATE	FOR APPROVAL
5 - 4		O FOR DEVELOPMENT APPLICATION O FOR DEVELOPMENT APPLICATION	CP CO AD RH RL RL	SCALE 1:200		benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third	Shaping the Future	$\begin{array}{c} \text{Designed} \\ RH \end{array}$	Date OCT'13	RABY ROAD	NOT TO BE USED FOR CONSTRUCTION PURPOSES  Datum Register Scale Size
	21.02.14 ISSUED FO 05.12.13 ISSUED FO	OR DEVELOPMENT APPLICATION (NOT ISSUED) OR INFORMATION	RH RL RL RH	SCALE 1:200	AT	party arising out of any use or reliance by third party on the content of this document.	ABN: 95 001 145 035 Level 9, The Forum, 203 Pacific Highway St Leonards NSW Australia 2065	$\begin{array}{c} \text{Verified} \\ RL \end{array}$	Date OCT'13	ROAD CROSS SECTIONS SHEET 1	A.H.D. OCT'13 1:200 A1  Drawing Number Revision
_	15.10.13 ISSUED FO v. Date	PR CLIENT REVIEW  Description	RH Des. Verif. Appo				Phone (+612) 9496 7700 Fax (+612) 9439 5170 Email: Sydney@cardno.com.au Web: www.cardno.com.au	Approved $\operatorname{RL}$	Date OCT'13	NOTE CHOOS SECTIONS SHEET 1	NA50613004-DA-062 06

CAD FILE: N:\Projects\506\FY13\NA50613004 Emerald Hills Estate\01 - N





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