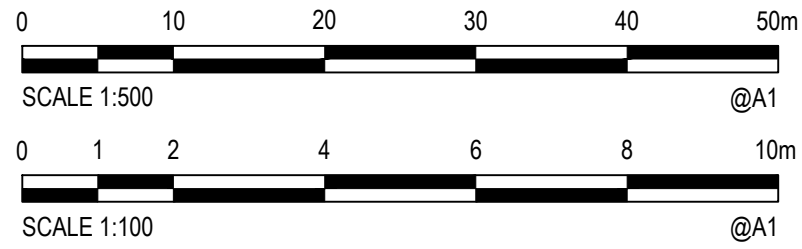


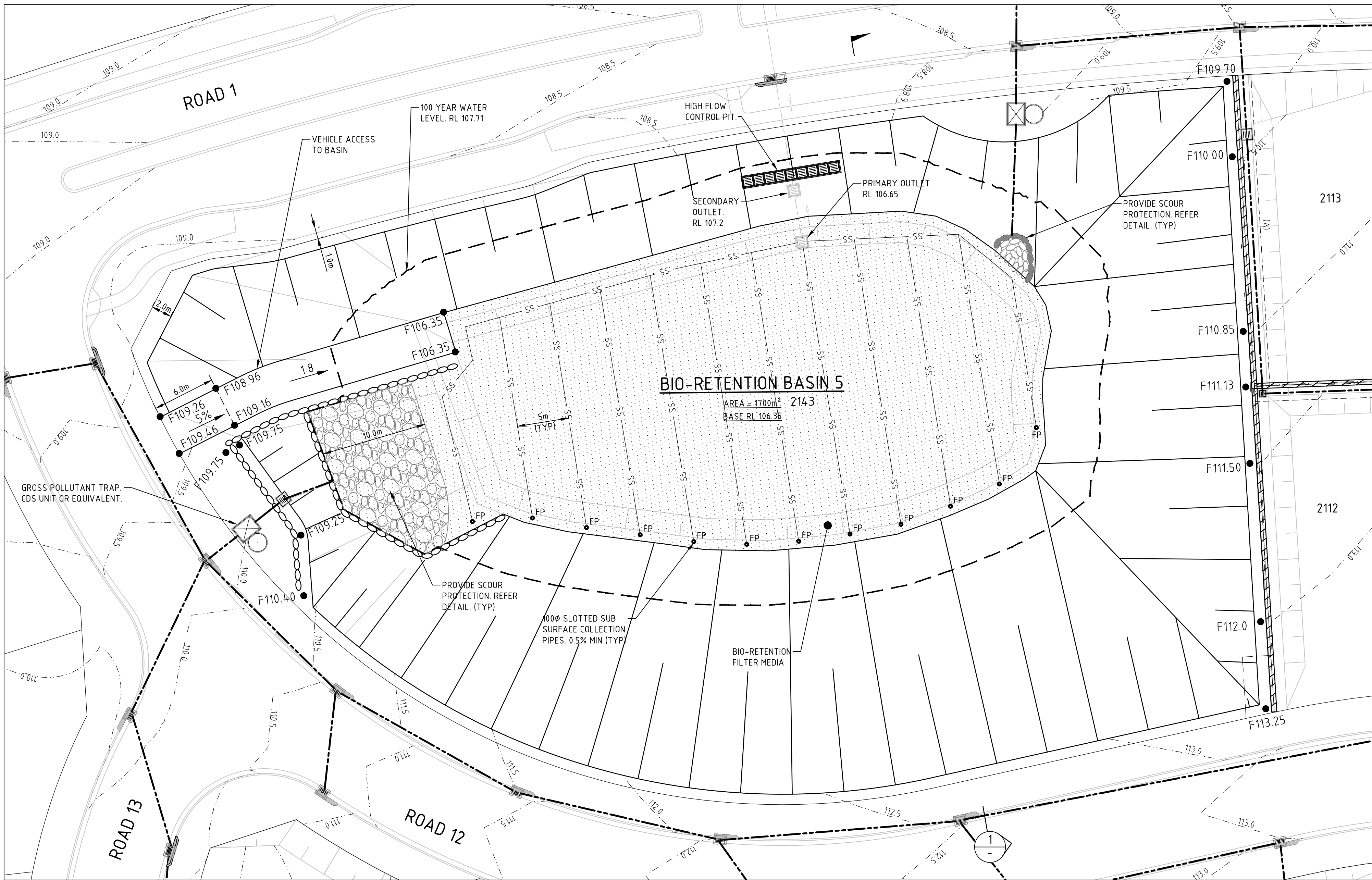
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3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
2	29/05/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
1	13/03/2015	ISSUED FOR CLIENT REVIEW	CP		
Rev.	Date	Description	Des.	Verif.	Appd.



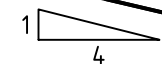
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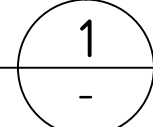
Drawn DB	Date 09/10/2014	Client EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS
Checked MKH	Date	Project EMERALD HILLS ESTATE
Designed CP	Date 06/01/2015	STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
Verified	Date	Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES
Approved		Datum AHD
		Scale AS SHOWN
		Size A1
		Drawing Number NA50613004-027-CI-DA-2361
		Revision 4
		Title STAGE 2-3 ROAD LONGITUDINAL SECTIONS SHEET 11 OF 11



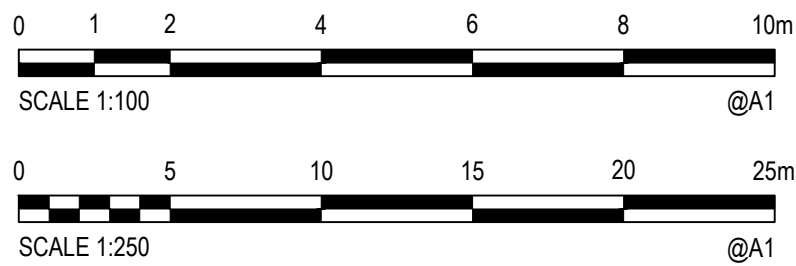
PLAN
SCALE 1:250



SECTION
SCALE 1:100



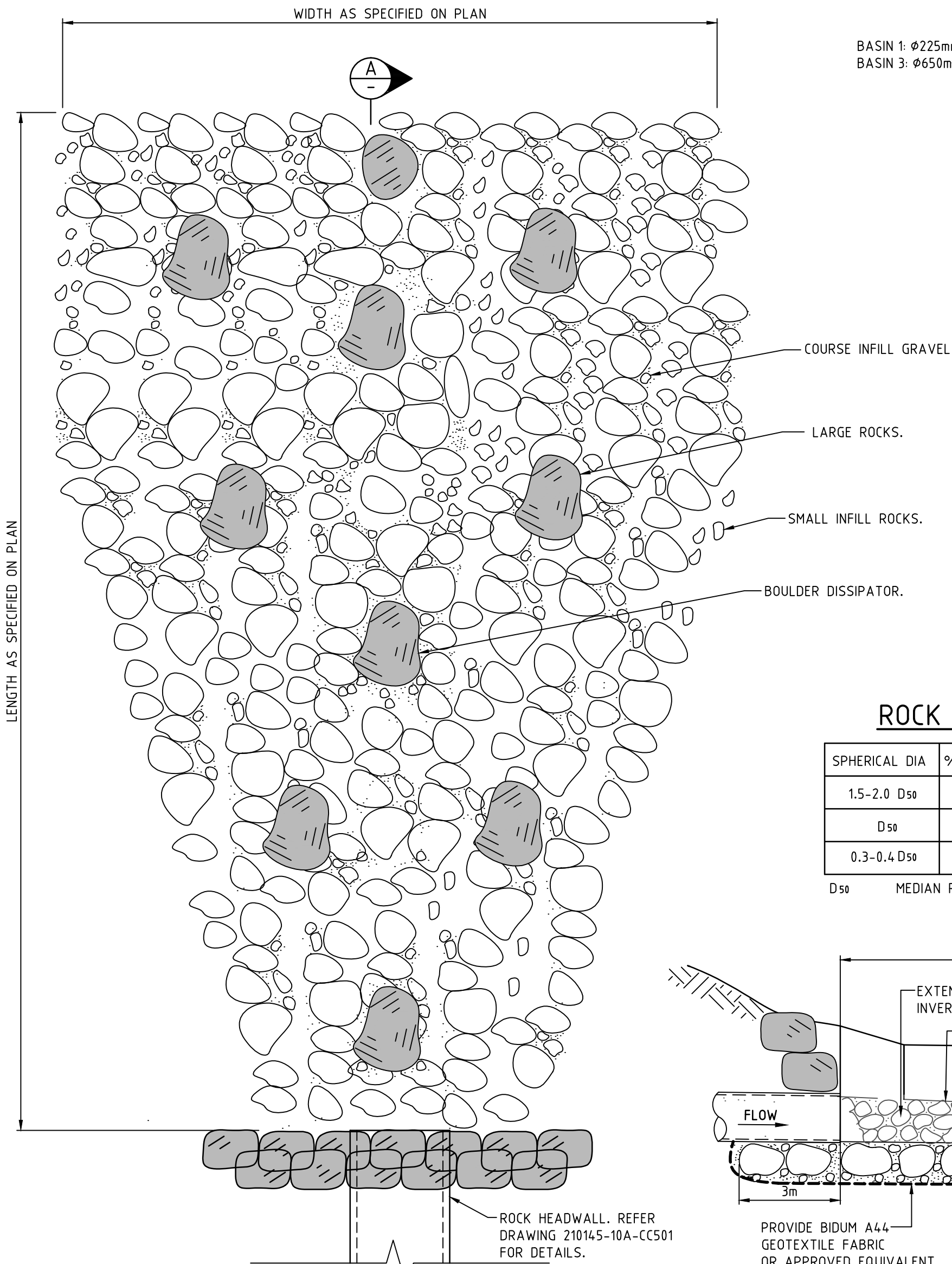
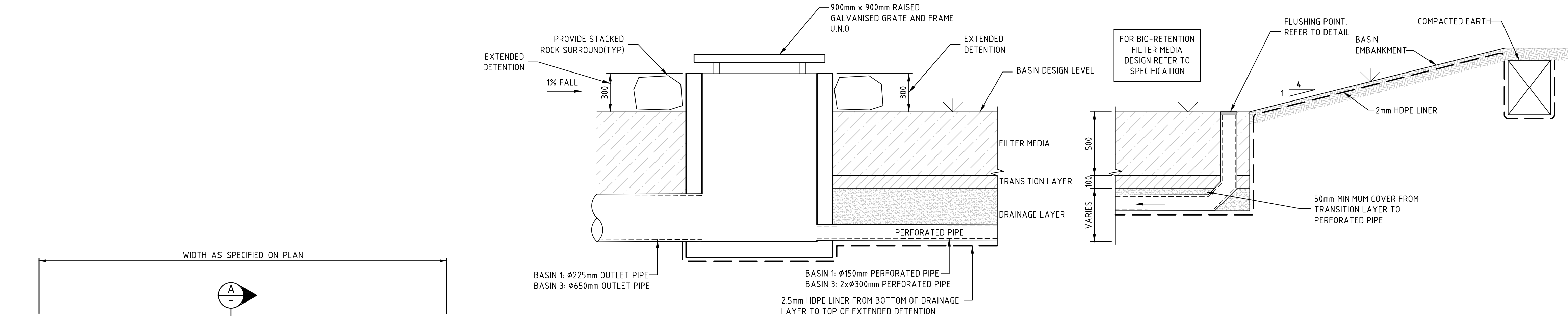
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3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
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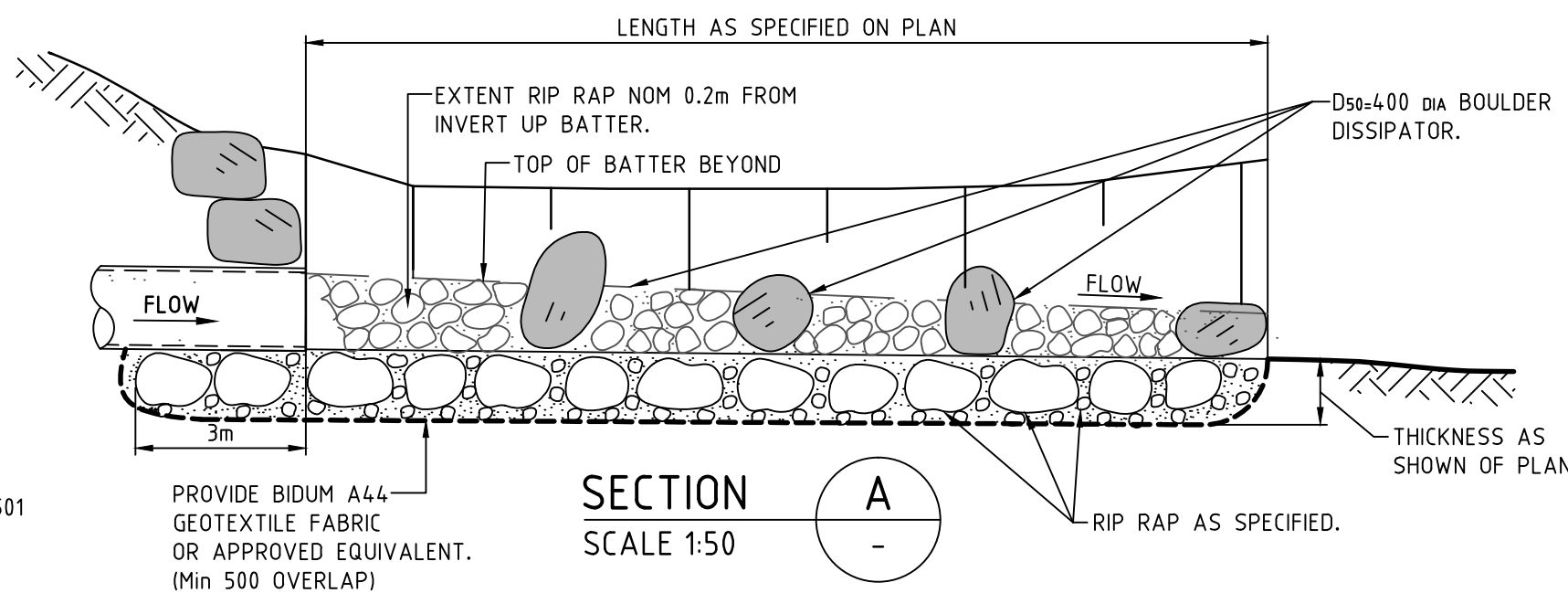
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Checked MKH	Date	Project EMERALD HILLS ESTATE
Designed CP	Date 06/01/2015	STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
Verified	Date	Title STAGE 2-3 BIORETENTION - DETENTION BASIN 5 PLAN
Approved		Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES
		Datum AHD
		Scale 1:250
		Size A1
		Drawing Number NA50613004-027-CI-DA-2702
		Revision 5



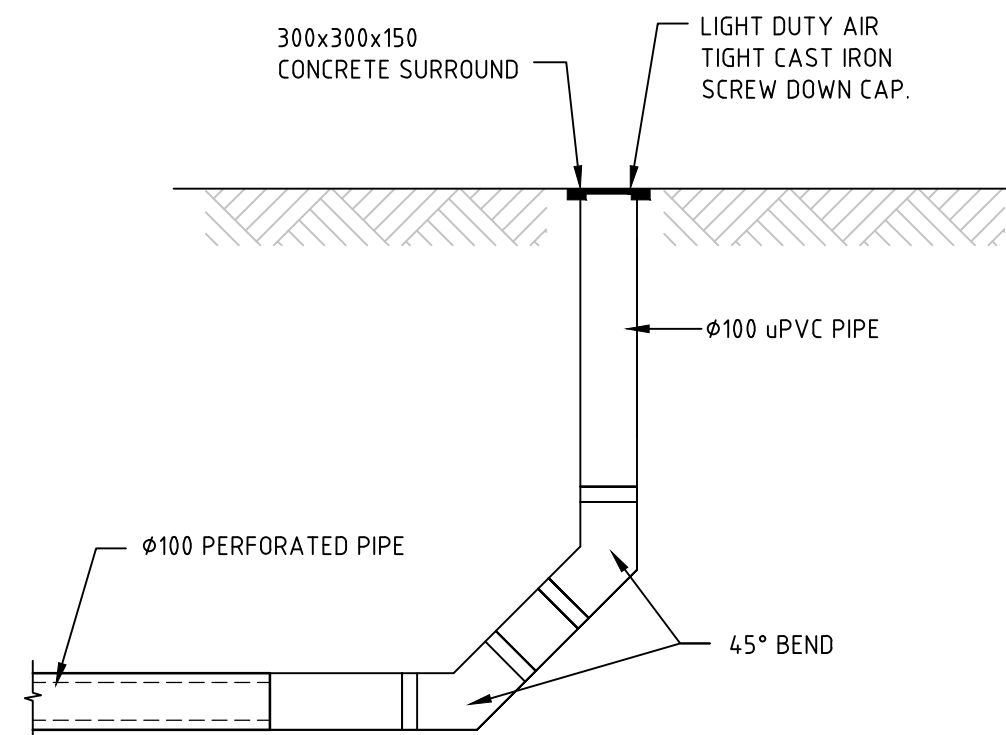
ROCK RIP RAP GRADUATION SIZE

SPHERICAL DIA	% OF RIP RAP SMALLER (ie RIP RAP PASSING THROUGH SIEVE)
1.5-2.0 D ₅₀	100%
D ₅₀	50%
0.3-0.4 D ₅₀	10-20%

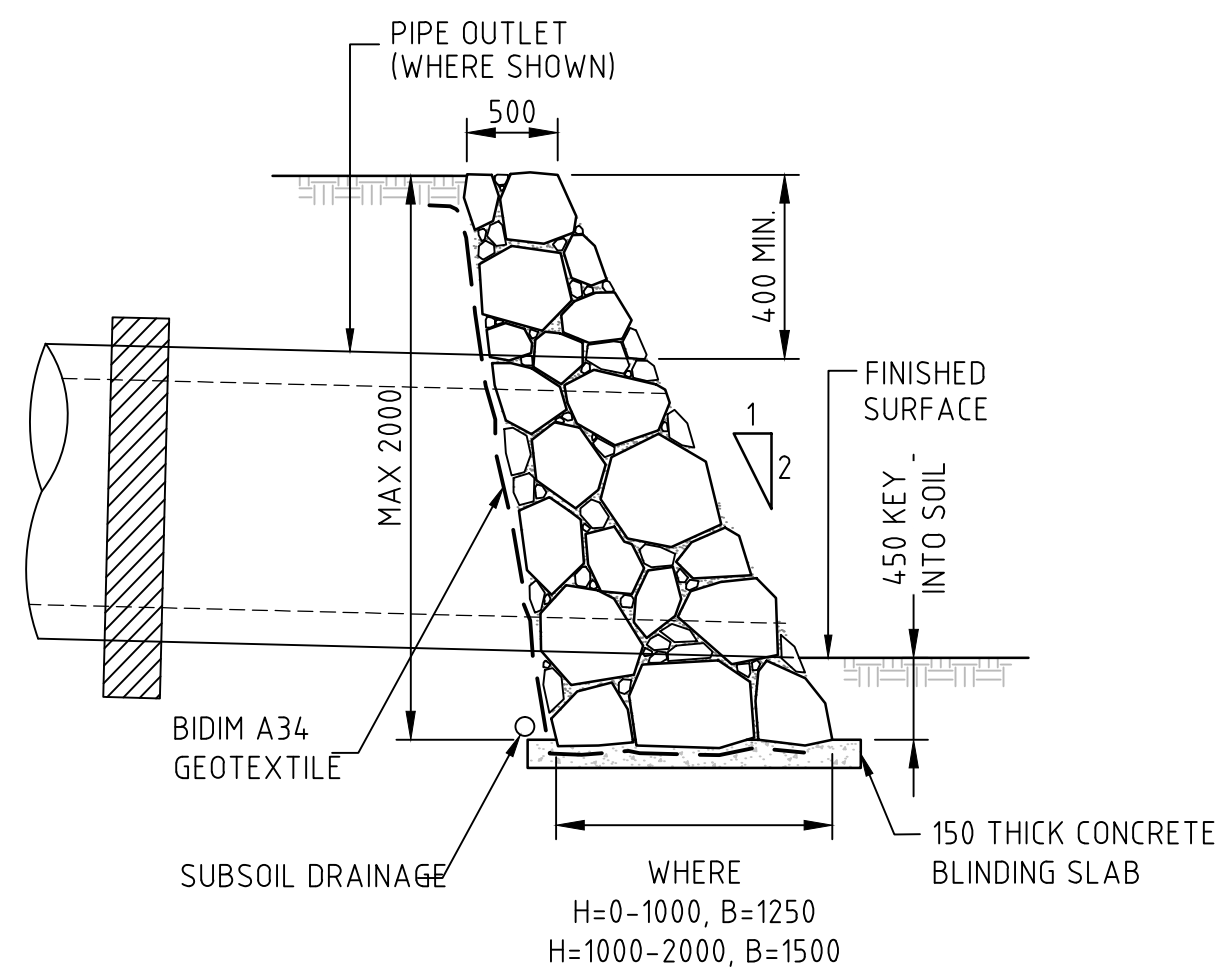
D₅₀ MEDIAN ROCK SIZE



TYPICAL SCOUR PROTECTION DETAIL



FLUSHING POINT DETAIL



ROCK STACKED RETAINING WALL OVER 0.5m

BIO-RETENTION FILTER MEDIA SPECIFICATION

MATERIALS:

BIO-RETENTION FILTER MEDIA, TRANSITION LAYER AND DRAINAGE LAYERS TO BE IN ACCORDANCE WITH CURRENT VERSION OF FAWB DOCUMENT "STORMWATER BIO-FILTRATION SYSTEMS ADOPTION GUIDELINES" AND THE FOLLOWING:

A) BIO-RETENTION FILTER MEDIA

1. BIO-RETENTION MEDIA IS TO BE FREE OF RUBBISH AND DELETERIOUS MATERIAL.

2. BIO-RETENTION FILTER MEDIA SATURATED HYDRAULIC CONDUCTIVITY TO BE 200mm/hr USING TEST METHOD ASTM F1815-06.

3. BIO-RETENTION FILTER MEDIA PARTICLE SIZE DISTRIBUTION IS TO BE AS FOLLOWS:

CLAY & SILT	<3%	(<0.05mm)
VERY FINE SAND	5-30%	(0.05-0.15mm)
FINE SAND	10-30%	(0.15-0.25mm)
MEDIUM TO COARSE SAND	40-60%	(0.25-1.0mm)
COARSE SAND	7-10%	(1.0-2.0mm)
FIN GRAVEL	<3%	(2.0-3.4mm)

THE COMBINED PERCENTAGE OF CLAY AND SILT MUST NOT EXCEED 3% (W/W) UNDER ANY CIRCUMSTANCES.

4. BIO-RETENTION FILTER MEDIA IS TO BE TESTED AND COMPLY WITH THE FOLLOWING REQUIREMENTS:

- ORGANIC MATTER CONTENT IN ACCORDANCE WITH AS 4419 AT LEAST 3% (W/W)
- TOTAL NITROGEN (TN) CONTENT <1000mg/kg
- ORTHOPHOSPHATE (PO₄) CONTENT <20mg/kg
- AS SPECIFIED FOR "NATURAL SOILS AND SOIL BLENDS" AS4419 - pH 5.5-7.5 (pH 1.5 IN WATER)
- ELECTRICAL CONDUCTIVITY (EC) AS SPECIFIED FOR "NATURAL SOILS AND SOILS BLENDS" AS4419 <12ds/m
- DISPERSABILITY - AS SPECIFIED FOR "NATURAL SOILS AND SOIL BLENDS" AS4419 CATEGORY 1 OR 2
- TEXTURE - LOAMY SAND AS PER AS4419

5. TESTS CONFIRMING TO THE REQUIREMENTS OF ITEMS 1 TO 4 ARE TO BE SUBMITTED FOR APPROVAL PRIOR TO PLACEMENT OF FILTER MEDIA.

6. PRIOR TO PLACEMENT OF THE FILTER MEDIA A STATEMENT IS TO BE SUBMITTED FROM A QUALIFIED HORTICULTURIST CONFIRMING THAT THE SOIL IS CAPABLE OF SUPPORTING A HEALTHY VEGETATION COMMUNITY.

B) TRANSITION LAYER

- TRANSITION LAYER MATERIAL SHALL BE A CLEAN, WELL GRADED SAND MATERIAL CONTAINING <2% FINES.
- THE PARTICLE SIZE DISTRIBUTION OF THE SAND TO BE ASSESSED TO ENSURE:

D₁₅ (TRANSITION LAYER) < 5 x D₈₅ (FILTER MEDIA)

WHERE: D₁₅ (TRANSITION LAYER) IS THE 15th PERCENTILE PARTICLE SIZE IN THE TRANSITION LAYER MATERIAL (i.e. 15% OF THE SAND IS SMALLER THAN D₁₅ mm), AND D₈₅ (FILTER MEDIA) IS THE 85th PERCENTILE PARTICLE SIZE IN THE FILTER MEDIA.

C) DRAINAGE LAYER

DRAINAGE LAYER MATERIAL IS TO BE CLEAN, FINE GRAVEL, SUCH AS A 2 - 5mm WASHED SCREENING. THE PARTICLE SIZE DISTRIBUTION TO BE:

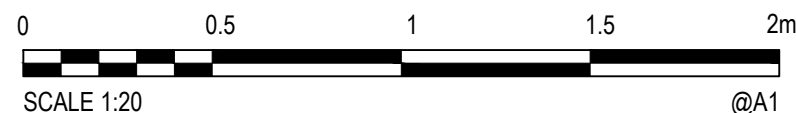
D₁₅ (DRAINAGE LAYER) < 5 x D₈₅ (TRANSITION LAYER)

WHERE: D₁₅ (DRAINAGE LAYER) IS THE 15th PERCENTILE PARTICLE SIZE IN THE TRANSITION LAYER MATERIAL (i.e. 15% OF THE SAND IS SMALLER THAN D₁₅ mm), AND D₈₅ (TRANSITION LAYER) IS THE 85th PERCENTILE PARTICLE SIZE IN THE FILTER MEDIA.

INSTALLATION:

FILTER MATERIAL IS TO BE LIGHTLY COMPACTED EG. A SINGLE PASS WITH A DRUM LAWN ROLLER. UNDER NO CIRCUMSTANCES SHOULD HEAVY EQUIPMENT OR MULTIPLE PASSES BE MADE. FILTER MEDIA SHOULD BE INSTALLED IN LIFTS NOT EXCEEDING 500mm. UNDER NO CIRCUMSTANCES SHALL VEHICLES TRACK OVER PREVIOUSLY PLACED MATERIAL.

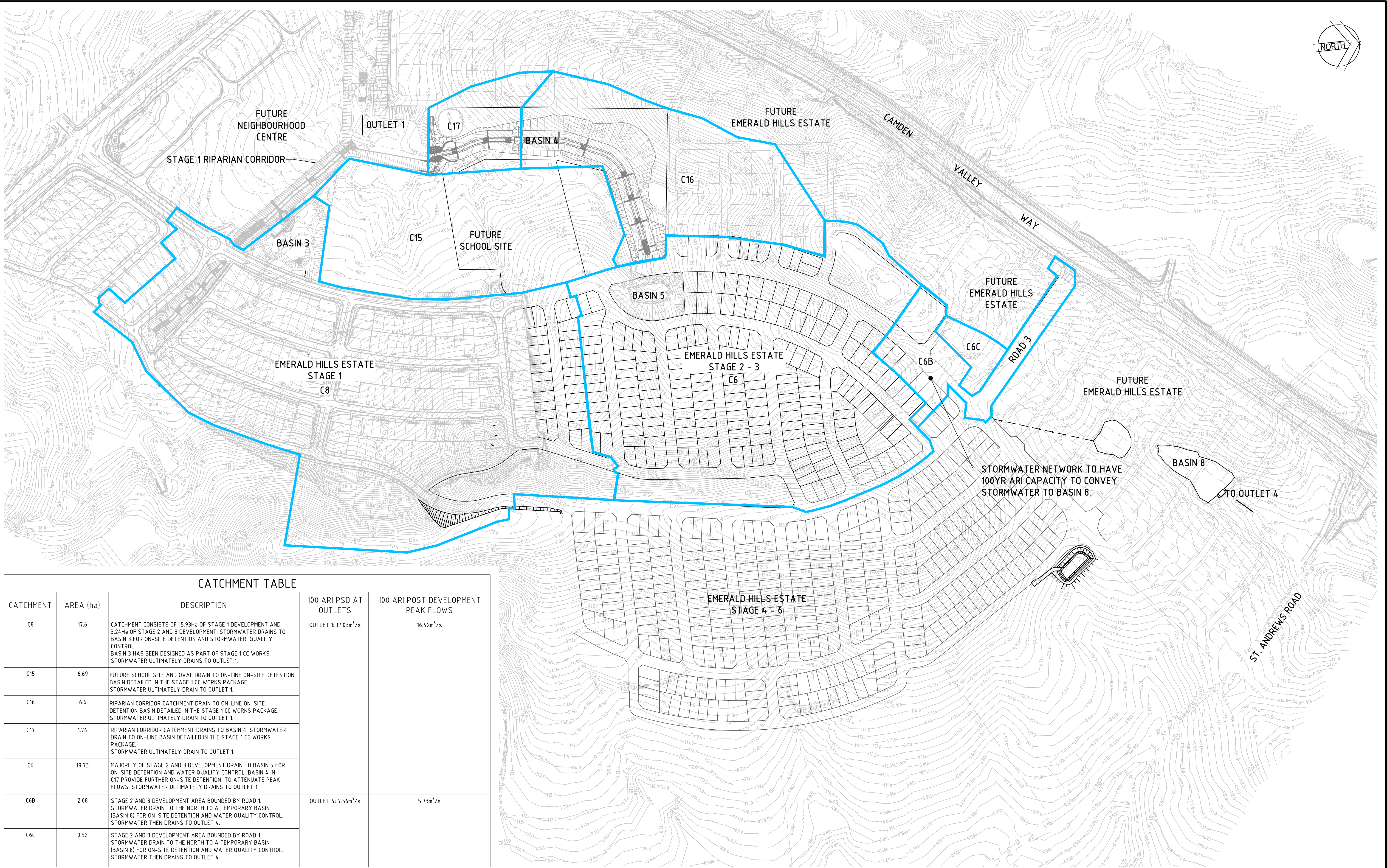
Rev.	Date	Description	Des.	Verif.	Appd.
4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
2	29/05/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
1	13/03/2015	ISSUED FOR CLIENT REVIEW	CP		



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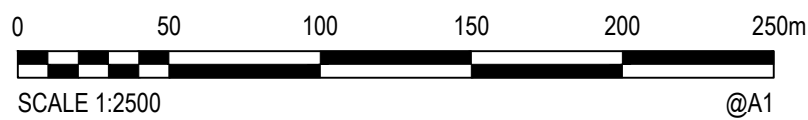


Drawn DB	Date 09/10/2014	Client EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS
Checked MKH	Date	Project EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
Designed CP	Date 06/01/2015	Status FOR APPROVAL
Verified	Date	Datum AHD
Approved		Scale AS SHOWN
		Size A1
		Drawing Number NA50613004-027-CI-DA-2704
		Revision 4



CATCHMENT TABLE				
CATCHMENT	AREA (ha)	DESCRIPTION	100 ARI PSD AT OUTLETS	100 ARI POST DEVELOPMENT PEAK FLOWS
C8	17.6	CATCHMENT CONSISTS OF 15.93ha OF STAGE 1 DEVELOPMENT AND 3.24ha OF STAGE 2 AND 3 DEVELOPMENT. STORMWATER DRAINS TO BASIN 3 FOR ON-SITE DETENTION AND STORMWATER QUALITY CONTROL. BASIN 3 HAS BEEN DESIGNED AS PART OF STAGE 1 CC WORKS. STORMWATER ULTIMATELY DRAINS TO OUTLET 1.	OUTLET 1: 17.03m ³ /s	16.42m ³ /s
C15	6.69	FUTURE SCHOOL SITE AND OVAL DRAIN TO ON-LINE ON-SITE DETENTION BASIN DETAILED IN THE STAGE 1 CC WORKS PACKAGE. STORMWATER ULTIMATELY DRAIN TO OUTLET 1.		
C16	6.6	RIPARIAN CORRIDOR CATCHMENT DRAIN TO ON-LINE ON-SITE DETENTION BASIN DETAILED IN THE STAGE 1 CC WORKS PACKAGE. STORMWATER ULTIMATELY DRAIN TO OUTLET 1.		
C17	1.74	RIPARIAN CORRIDOR CATCHMENT DRAINS TO BASIN 4. STORMWATER DRAIN TO ON-LINE BASIN DETAILED IN THE STAGE 1 CC WORKS PACKAGE. STORMWATER ULTIMATELY DRAIN TO OUTLET 1.		
C6	19.73	MAJORITY OF STAGE 2 AND 3 DEVELOPMENT DRAIN TO BASIN 5 FOR ON-SITE DETENTION AND WATER QUALITY CONTROL. BASIN 4 IN C17 PROVIDE FURTHER ON-SITE DETENTION TO ATTENUATE PEAK FLOWS. STORMWATER ULTIMATELY DRAINS TO OUTLET 1.		
C6B	2.08	STAGE 2 AND 3 DEVELOPMENT AREA BOUNDED BY ROAD 1. STORMWATER DRAIN TO THE NORTH TO A TEMPORARY BASIN (BASIN 8) FOR ON-SITE DETENTION AND WATER QUALITY CONTROL. STORMWATER THEN DRAINS TO OUTLET 4.	OUTLET 4: 7.56m ³ /s	5.73m ³ /s
C6C	0.52	STAGE 2 AND 3 DEVELOPMENT AREA BOUNDED BY ROAD 1. STORMWATER DRAIN TO THE NORTH TO A TEMPORARY BASIN (BASIN 8) FOR ON-SITE DETENTION AND WATER QUALITY CONTROL. STORMWATER THEN DRAINS TO OUTLET 4.		

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4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
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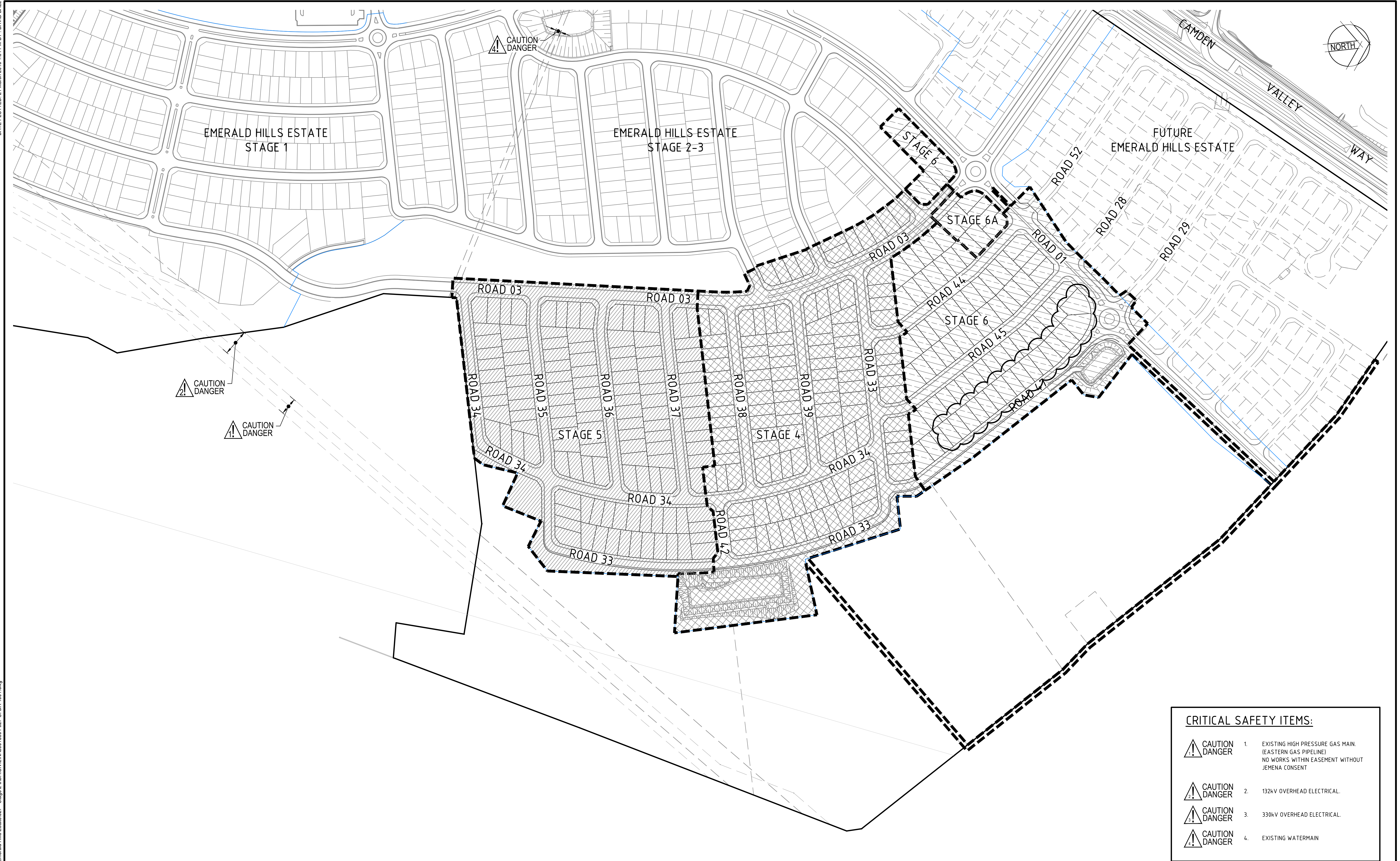
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Checked MKH	Date	Project EMERALD HILLS ESTATE
Designed CP	Date 06/01/2015	STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
Verified	Date	Status FOR APPROVAL
Approved		Datum AHD
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		Revision 4

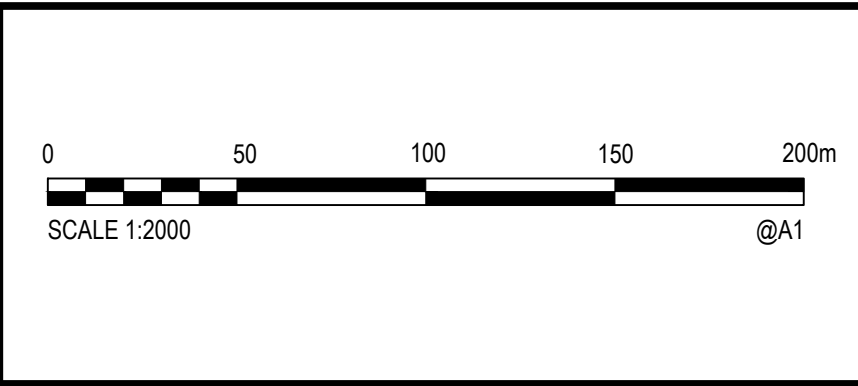
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CRITICAL SAFETY ITEMS:			
	CAUTION DANGER	1.	EXISTING HIGH PRESSURE GAS MAIN. (EASTERN GAS PIPELINE) NO WORKS WITHIN EASEMENT WITHOUT JEMENA CONSENT
	CAUTION DANGER	2.	132kV OVERHEAD ELECTRICAL.
	CAUTION DANGER	3.	330kV OVERHEAD ELECTRICAL.
	CAUTION DANGER	4.	EXISTING WATERMAIN

Rev.	Date	Description	Des.	Verif.	Appd.
5	21/03/2016	LOT BOUNDARIES AMENDED	CP		
4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
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1	18/03/2015	ISSUED FOR CLIENT REVIEW	KW		



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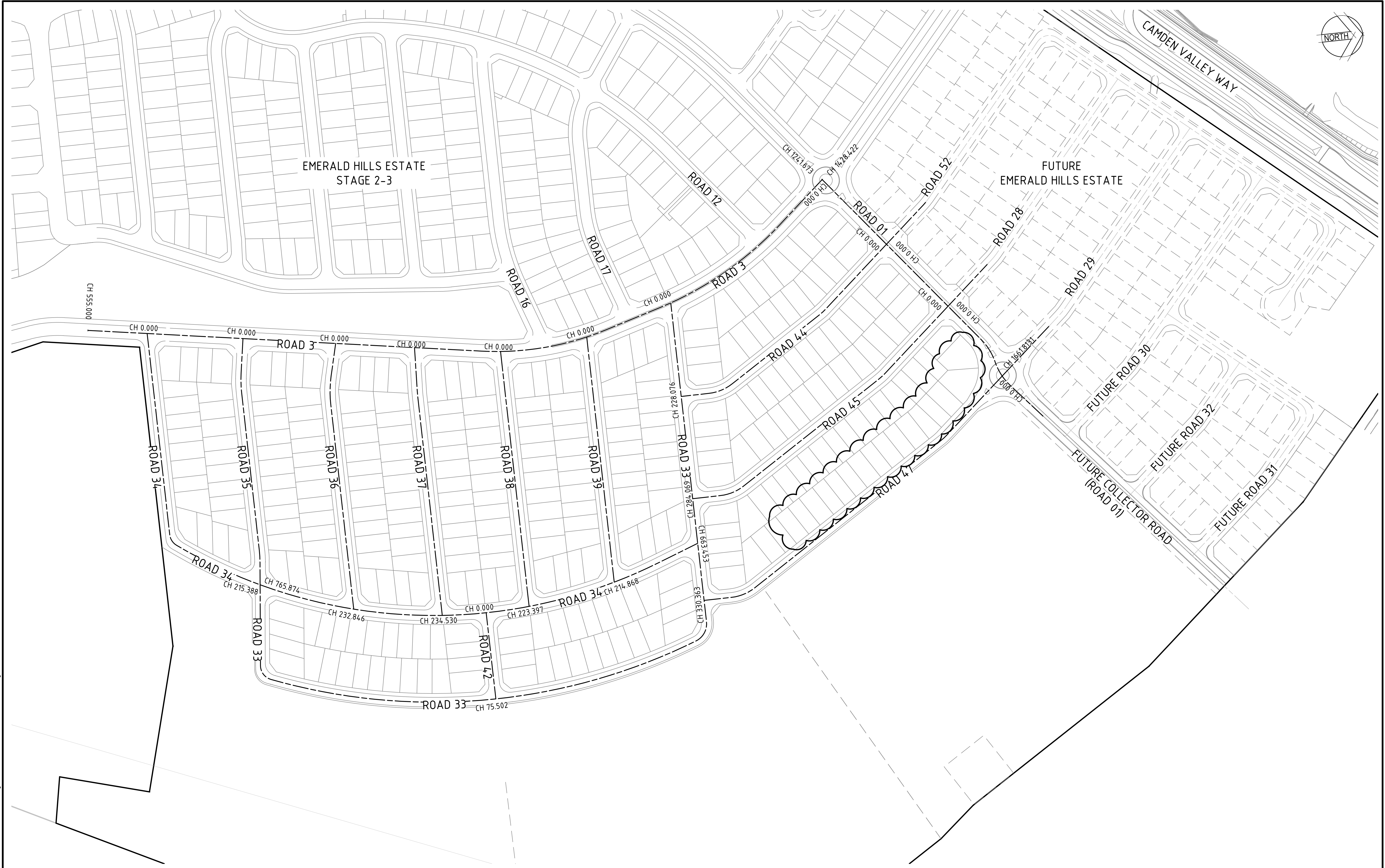
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Checked MKH	Date
Designed KW	Date 06/01/2015
Verified	Date
Approved	

Client	EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS
Project	EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
Title	STAGE 4-6 STAGING PLAN

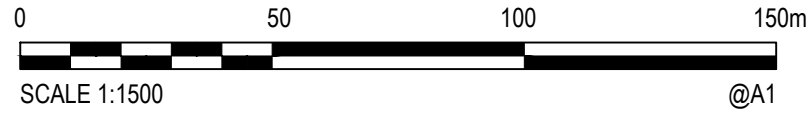
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Status		FOR APPROVAL	
NOT TO BE USED FOR CONSTRUCTION PURPOSES			
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NA50613004-027-CI-DA-4001			5

DATE PLOTTED: 21 March 2016 1:46 PM BY: DAVID BALL

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5	21/03/2016	LOT BOUNDARIES AMENDED	CP		
4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
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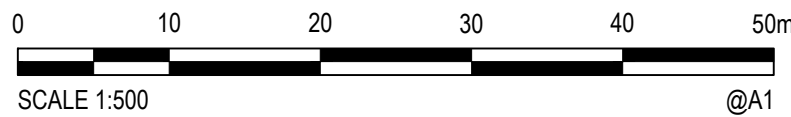
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Checked MKH	Date	Project EMERALD HILLS ESTATE
Designed KW	Date 06/01/2015	STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
Verified	Date	Title STAGE 4-6 ALIGNMENT CONTROL PLAN STAGE 4-6
Approved		Status FOR APPROVAL
		NOT TO BE USED FOR CONSTRUCTION PURPOSES
		Datum AHD
		Scale 1:1500
		Size A1
		Drawing Number NA50613004-027-CI-DA-4010
		Revision 5



REFER DRG NA50613004-029-CI-DA-4204 FOR CONTINUATION

REFER DRG NA50613004-029-CI-DA-4202 FOR CONTINUATION

Rev.	Date	Description	Des.	Verif.	Appd.
4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
2	29/05/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
1	18/03/2015	ISSUED FOR CLIENT REVIEW	KW		

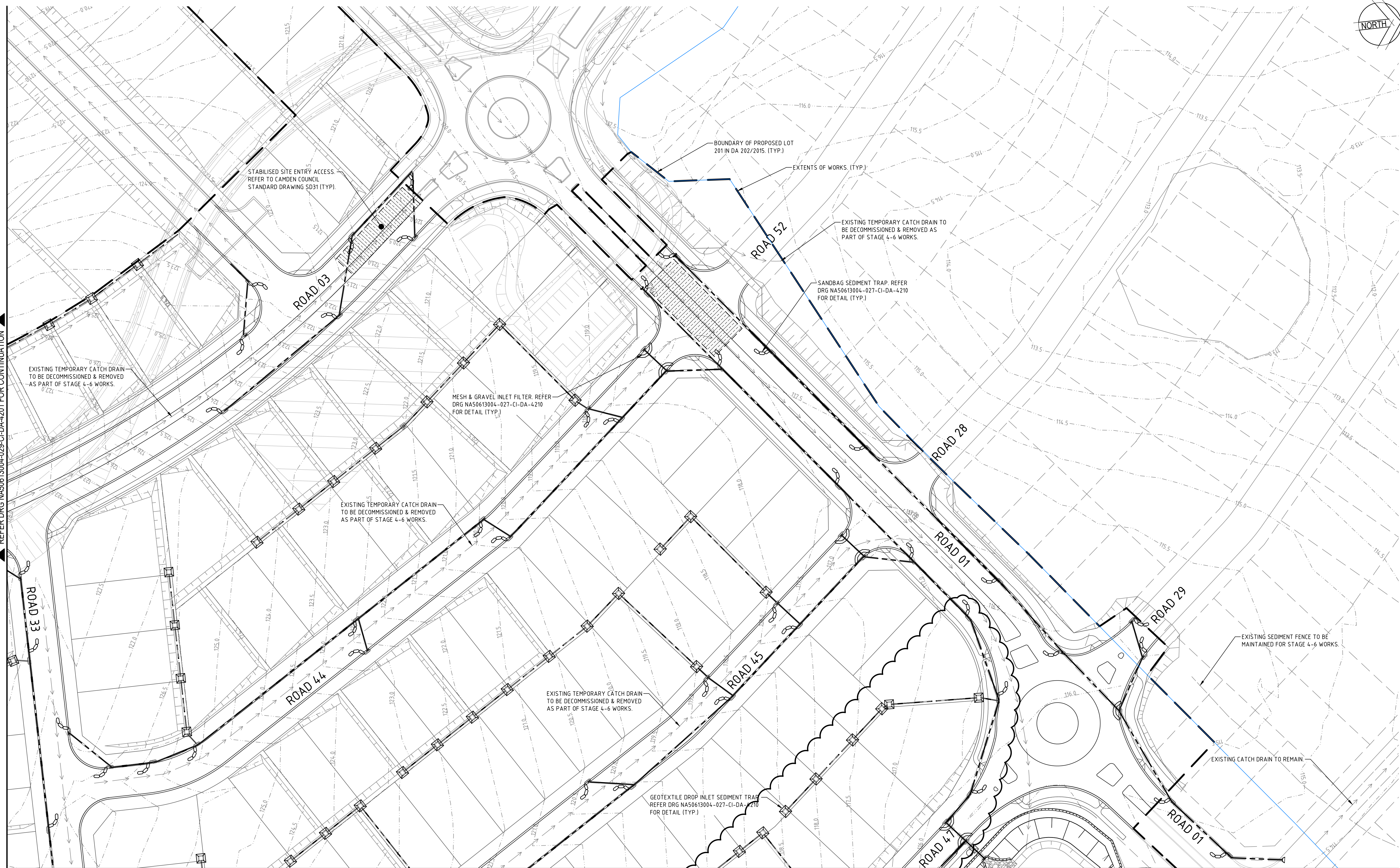


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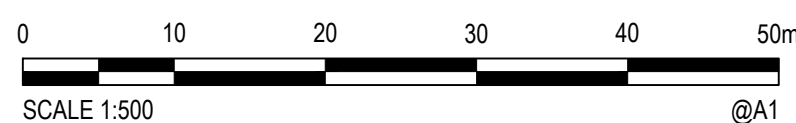
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Checked	MKH	Date	
Designed	KW	Date	06/01/2015
Verified		Date	
Approved			

Client EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS				
Project EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION		Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES		
		Datum AHD	Scale 1:500	Size A1
Title STAGE 4-6 SEDIMENT AND EROSION CONTROL PLAN SHEET 1 OF 6		Drawing Number NA50613004-027-CI-DA-4201		Revision 4



REFER DRG NA50613004 029-CI-DA-4205 FOR CONTINUATION.

5	21/03/2016	LOT BOUNDARIES AND STORMWATER AMENDED		CP	
4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION		CP	
3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION		CP	
2	29/05/2015	ISSUE FOR DEVELOPMENT APPLICATION		CP	
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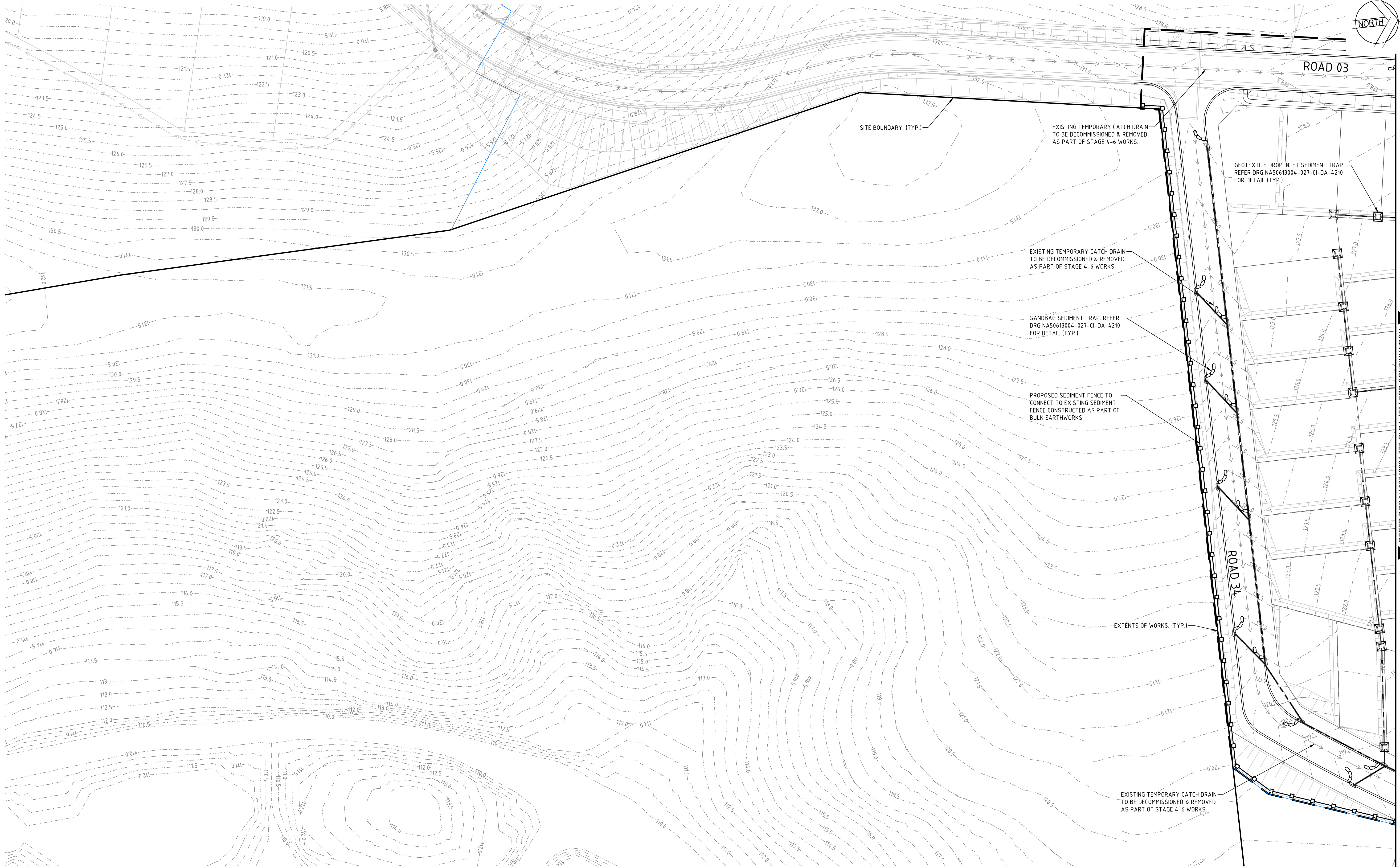


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Checked MKH	Date	Project	EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION		Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES
Designed KW	Date 06/01/2015	Title	Datum		
Verified	Date		AHD		
Approved		STAGE 4-6 SEDIMENT AND EROSION CONTROL PLAN SHEET 2 OF 6	Scale		Size
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			Drawing Number		Revision
			NA50613004-027-CI-DA-4202		5

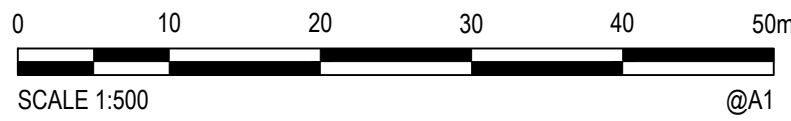
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3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
2	29/05/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
1	18/03/2015	ISSUED FOR CLIENT REVIEW	KW		



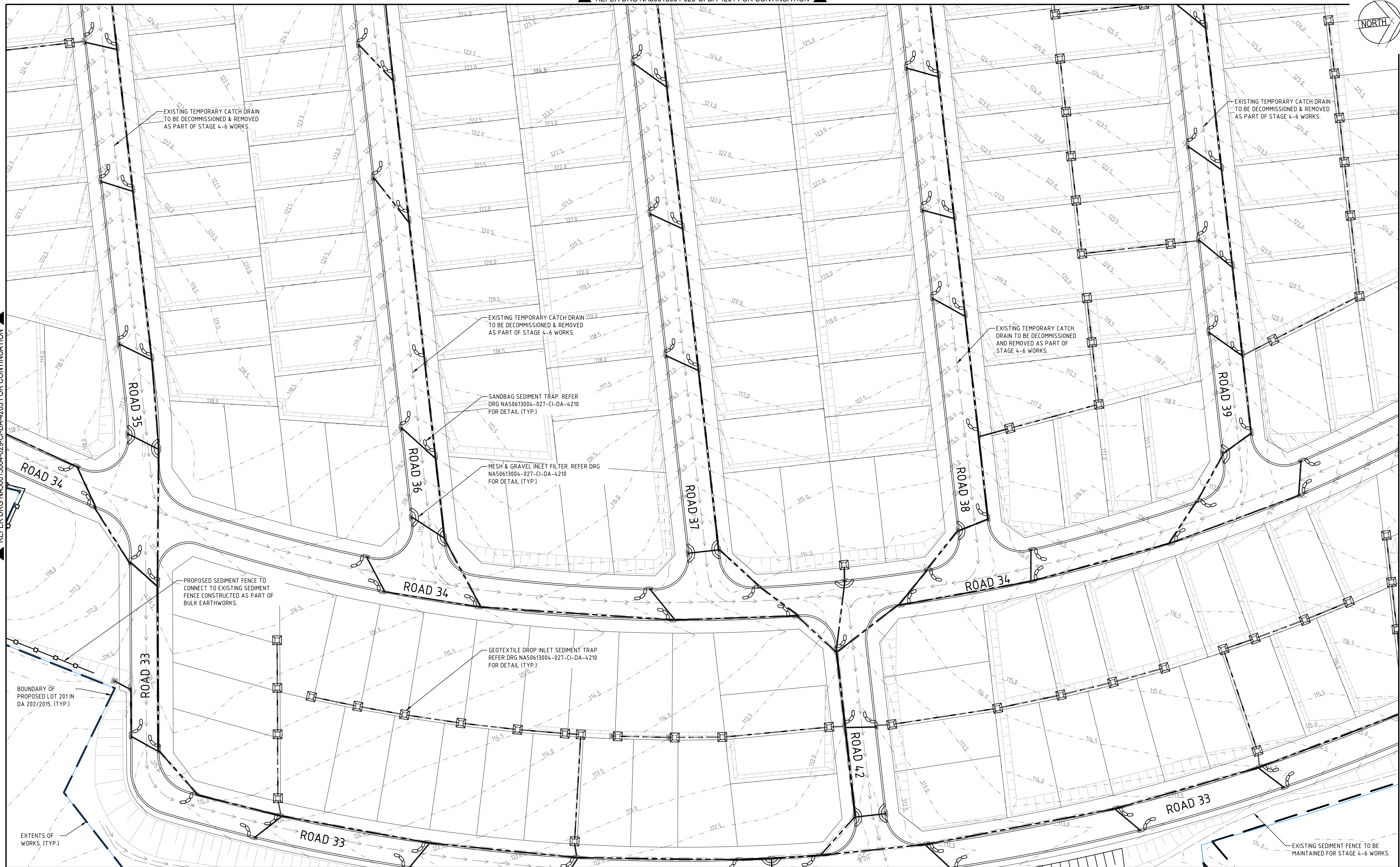
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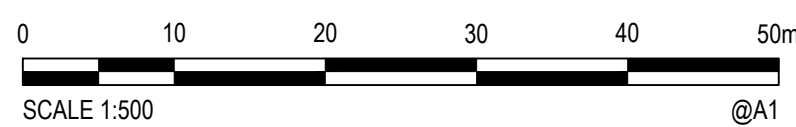
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Drawn MF	Date 09/10/2014	Client EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS
Checked MKH	Date	Project EMERALD HILLS ESTATE
Designed KW	Date 06/01/2015	STAGE 2-6 CIVIL WORKS
Verified	Date	DEVELOPMENT APPLICATION
Approved		Title STAGE 4-6
		SEDIMENT AND EROSION
		CONTROL PLAN SHEET 3 OF 6
		Status FOR APPROVAL
		NOT TO BE USED FOR CONSTRUCTION PURPOSES
	Datum AHD	Scale 1:500
		Size A1
	Drawing Number NA50613004-027-CI-DA-4203	Revision 4



4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION		CP	
3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION		CP	
2	29/05/2015	ISSUE FOR DEVELOPMENT APPLICATION		CP	
1	18/03/2015	ISSUED FOR CLIENT REVIEW		KW	
Rev.	Date	Description		Dw.	Verif. Appd.



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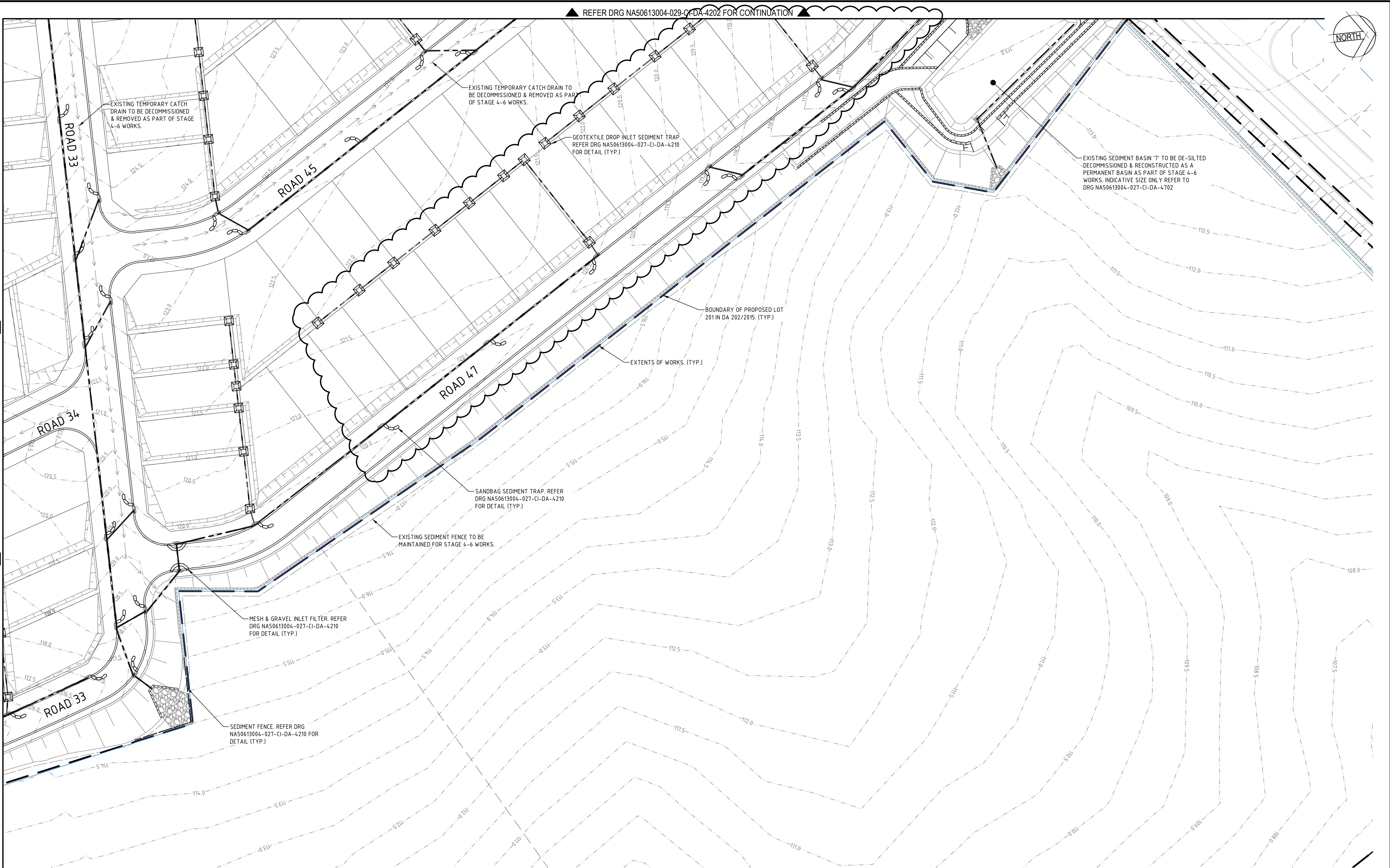
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Drawn MF	Date 09/10/2014	Client EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS						
Checked MKH	Date	Project EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION						
Designed KW	Date 06/01/2015	Status NOT TO BE USED FOR CONSTRUCTION PURPOSES FOR APPROVAL						
Verified	Date	<table border="1"> <tr> <td>Datum AHD</td> <td>Scale 1:500</td> <td>Size A1</td> </tr> <tr> <td>Drawing Number NA50613004-027-CI-DA-4204</td> <td colspan="2">Revision 4</td> </tr> </table>	Datum AHD	Scale 1:500	Size A1	Drawing Number NA50613004-027-CI-DA-4204	Revision 4	
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Drawing Number NA50613004-027-CI-DA-4204	Revision 4							
Approved	Title STAGE 4-6 SEDIMENT AND EROSION CONTROL PLAN SHEET 4 OF 6							

DATE PLOTTED 21 March 2016 10:01 PM BY: DAVID BALL

REFER DRG NA50613004-029-CI-DA-4204 FOR CONTINUATION

REFER DRG NA50613004-029-CI-DA-4202 FOR CONTINUATION



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4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
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1	18/03/2015	ISSUED FOR CLIENT REVIEW	KW		



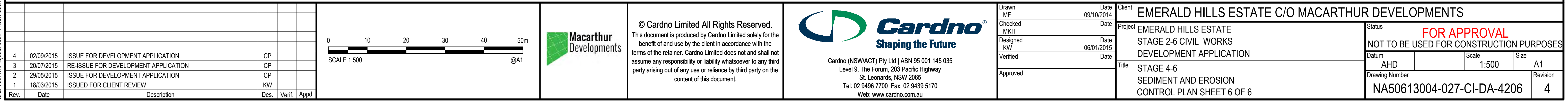
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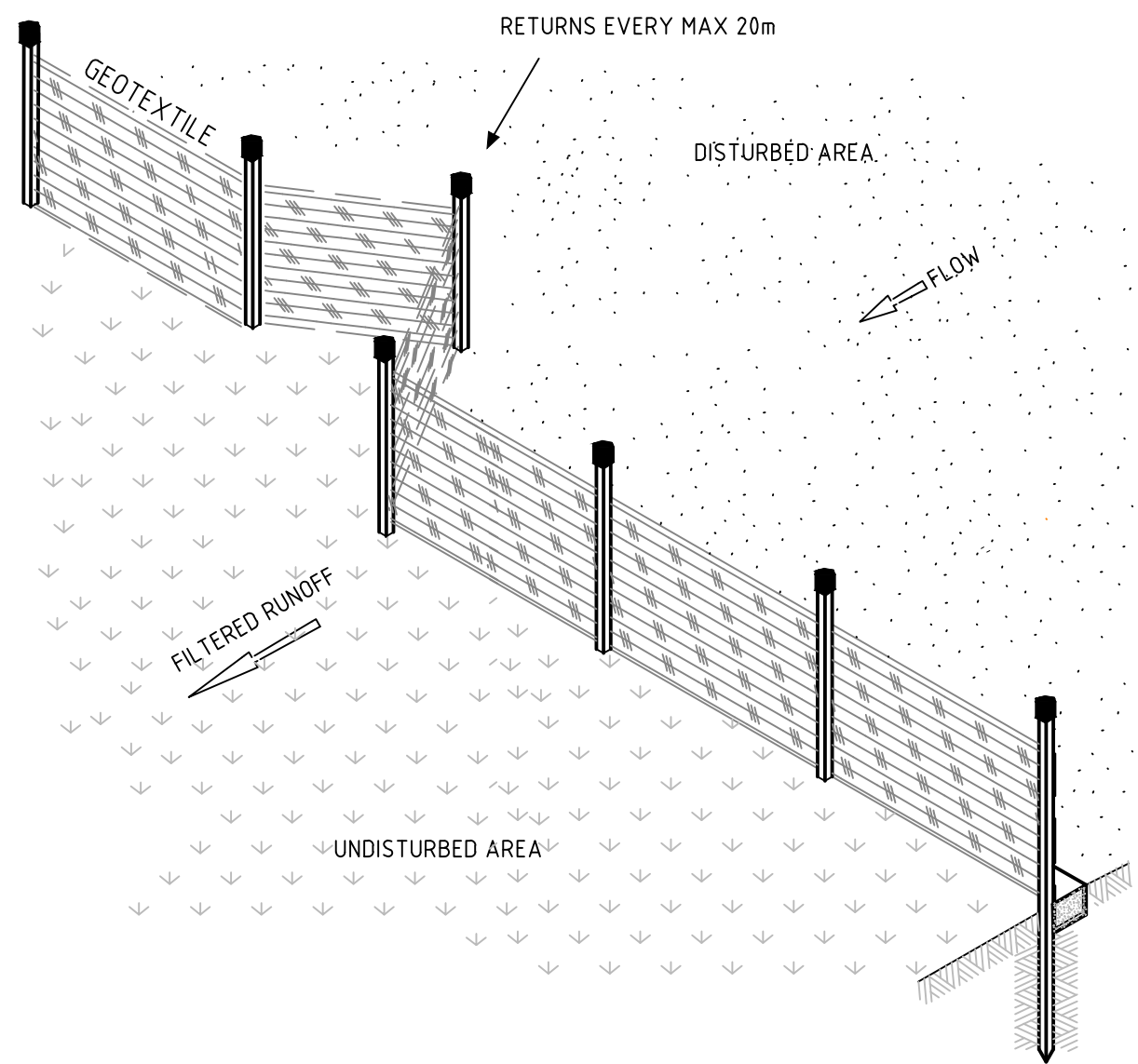
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Checked	MKH	Date	
Designed	KW	Date	06/01/2015
Verified		Date	
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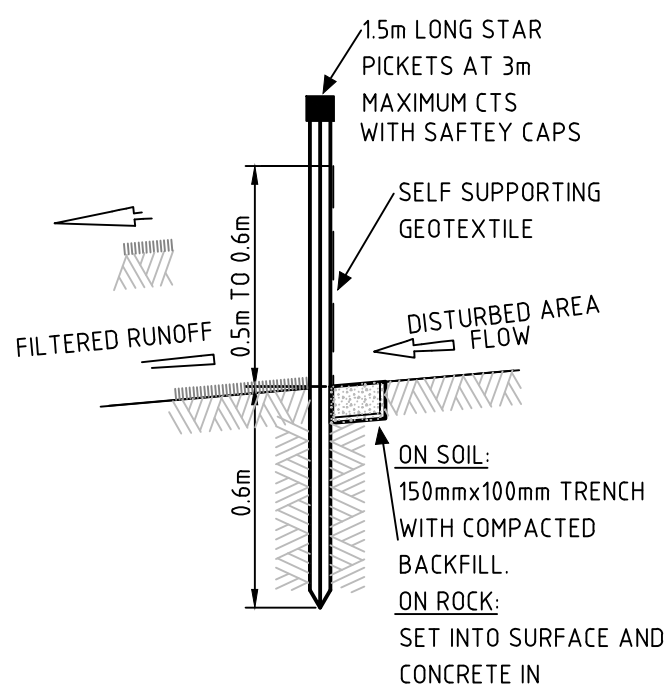
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Project EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION		Status FOR APPROVAL	
Title STAGE 4-6 SEDIMENT AND EROSION CONTROL PLAN SHEET 5 OF 6		Datum AHD	Scale 1:500
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		Revision	5



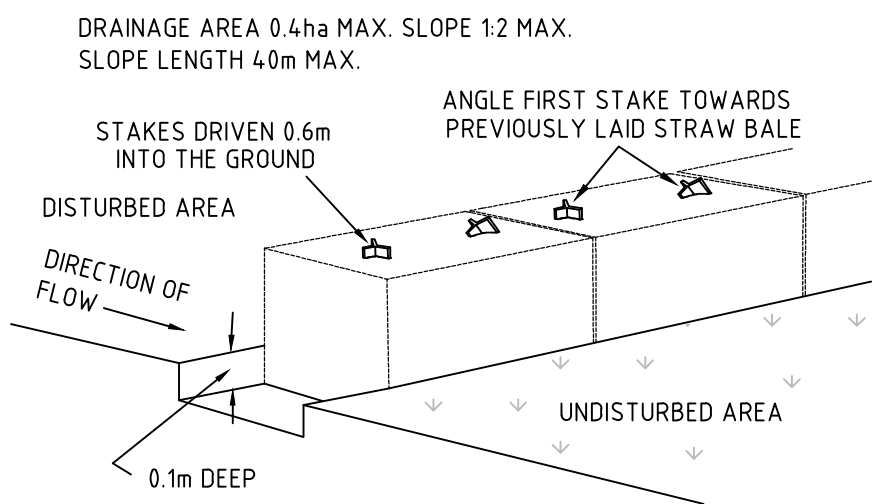
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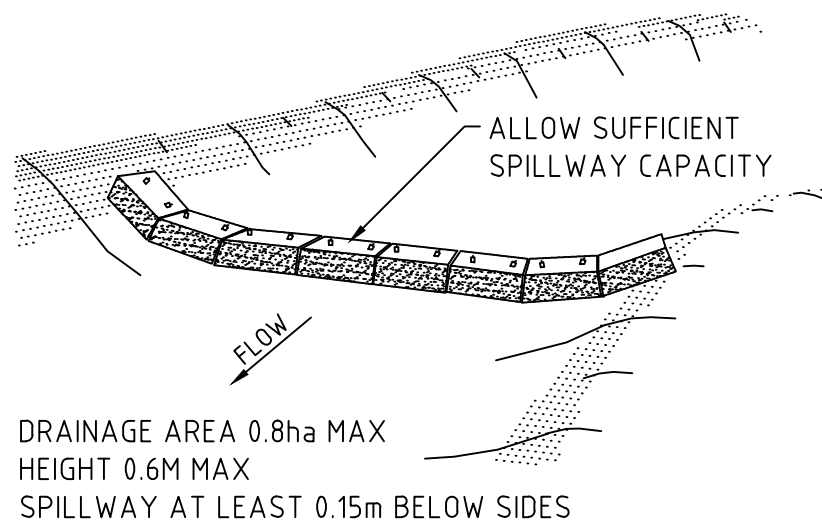
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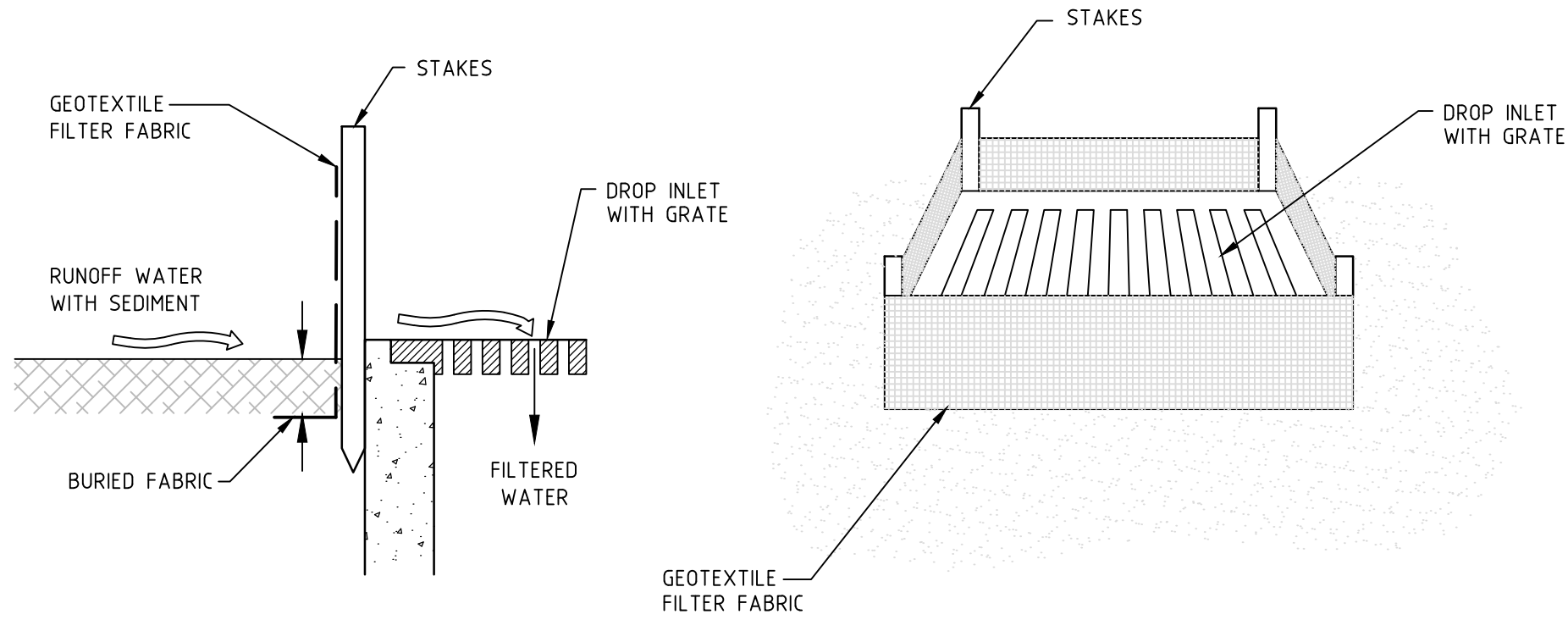
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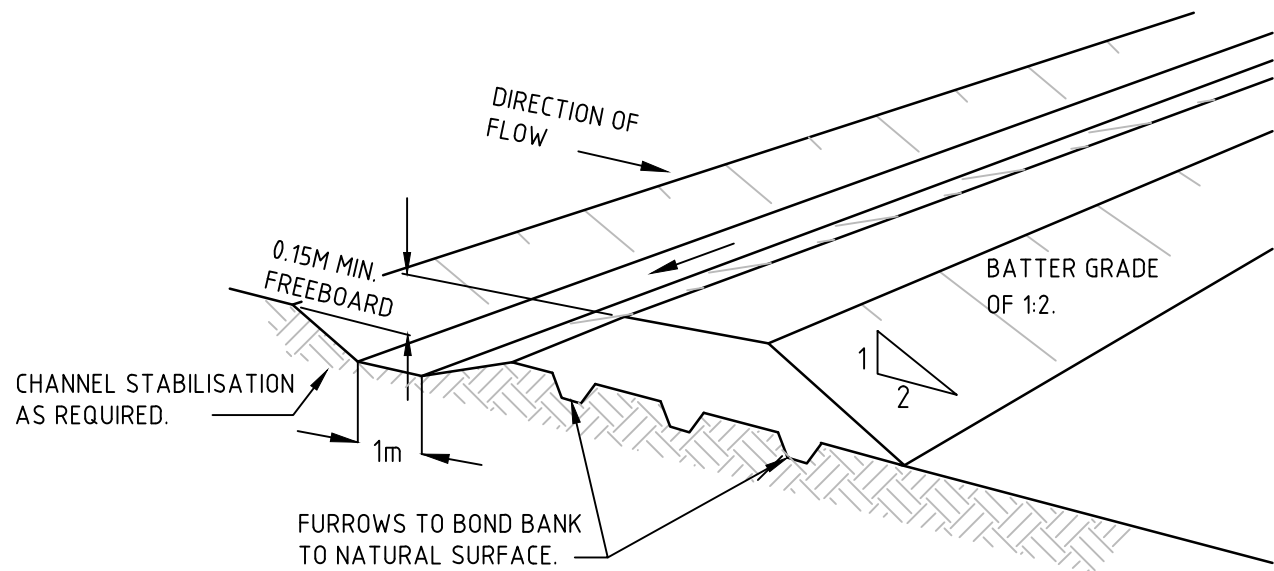
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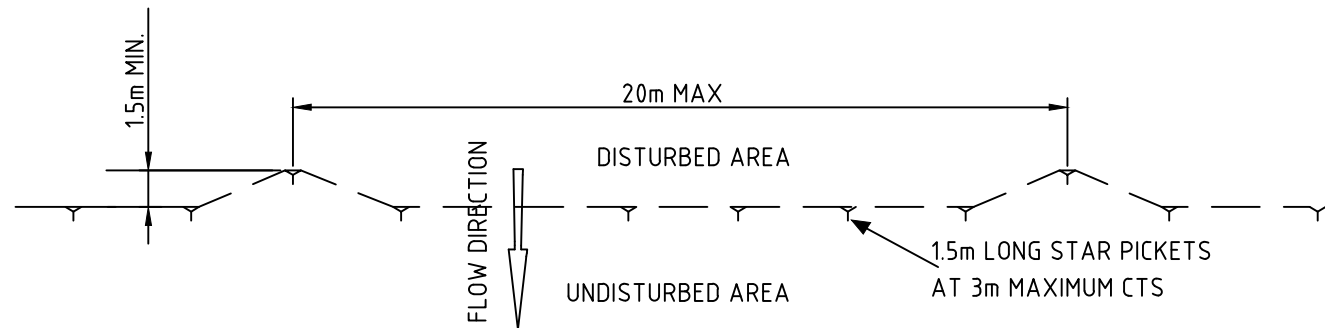
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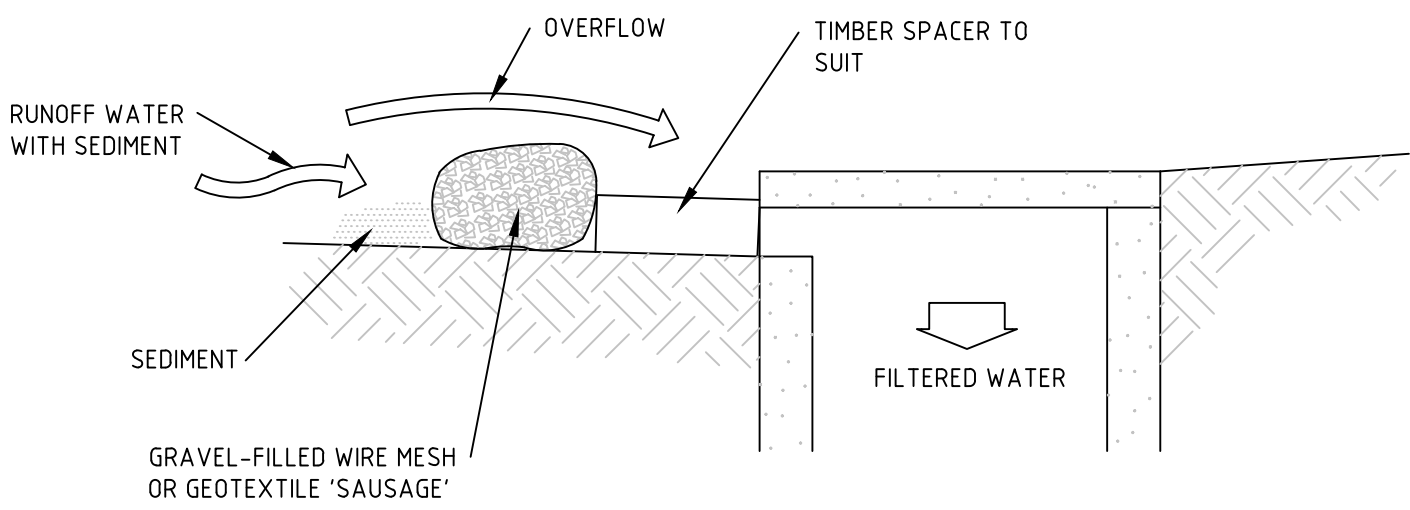
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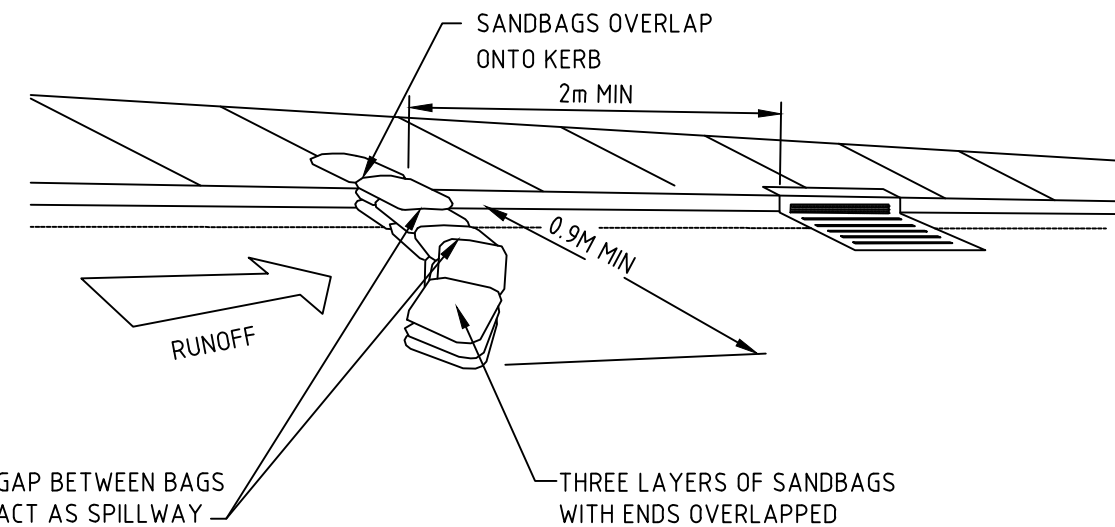
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3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
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1	18/03/2015	ISSUED FOR CLIENT REVIEW	KW		



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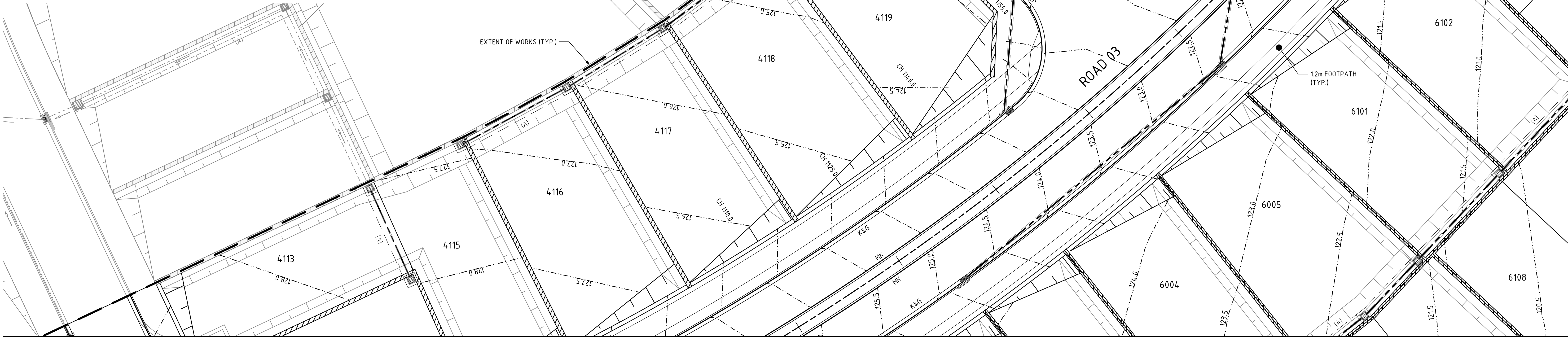
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Checked MKH	Date	Project EMERALD HILLS ESTATE
Designed KW	Date 06/01/2015	STAGE 2-6 CIVIL WORKS
Verified	Date	DEVELOPMENT APPLICATION
Approved		Title STAGE 4-6
		SEDIMENT AND EROSION DETAILS
		Status FOR APPROVAL
		NOT TO BE USED FOR CONSTRUCTION PURPOSES
		Datum AHD
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		Drawing Number NA50613004-027-CI-DA-4210
		Revision 4

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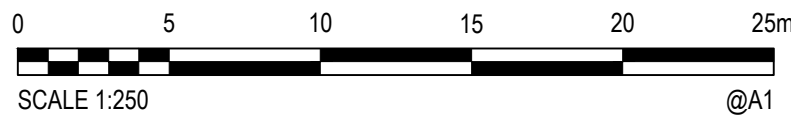
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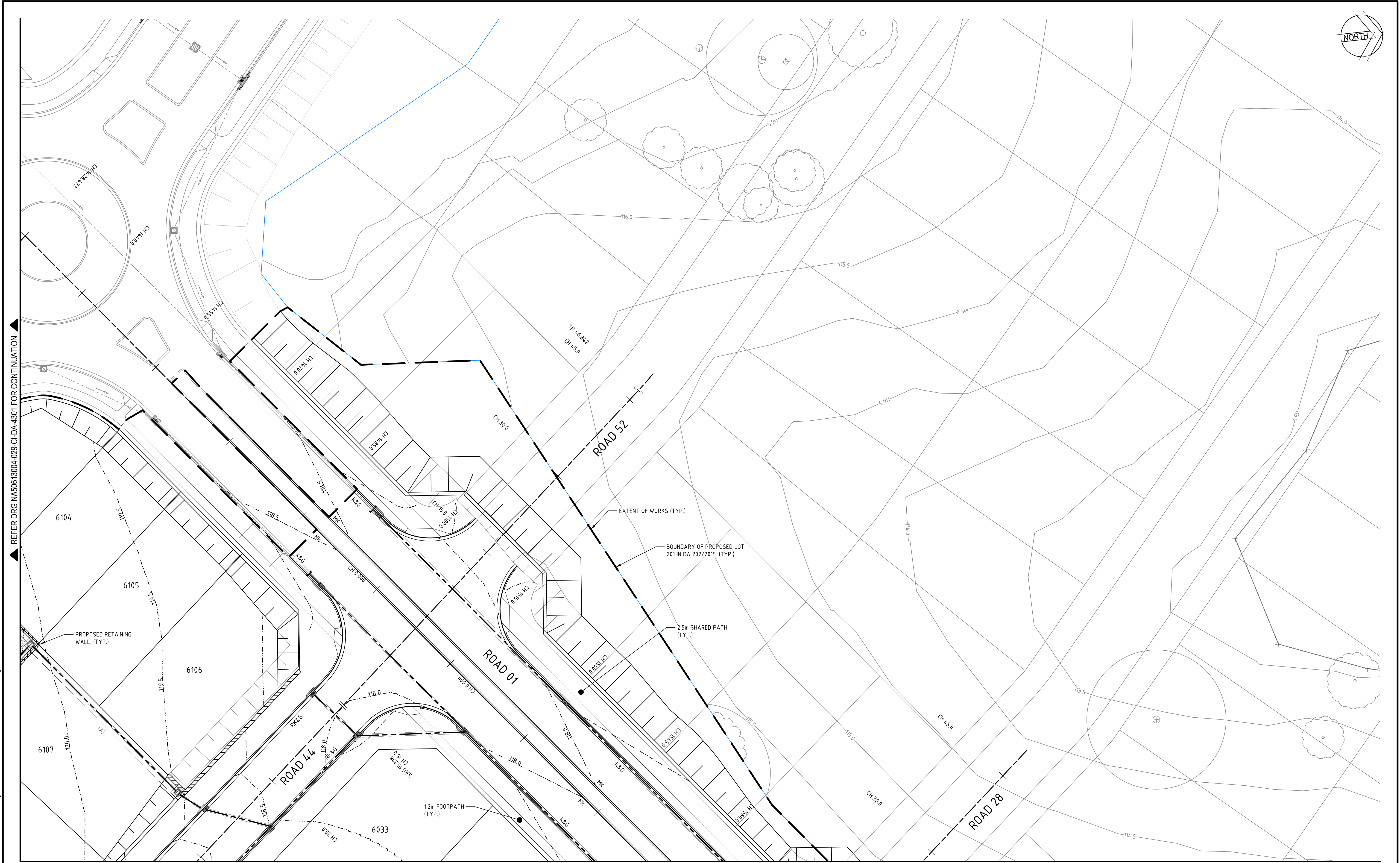
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3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
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1	18/03/2015	ISSUED FOR CLIENT REVIEW	KW		



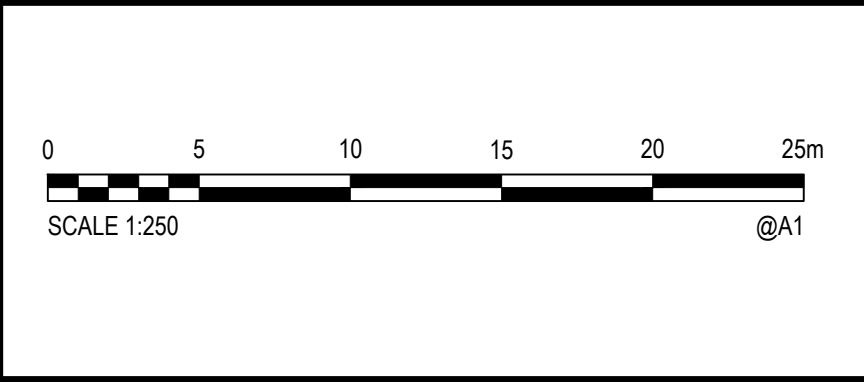
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Drawn MF Checked MKH Designed KW Verified Approved	Date 09/10/2014 Date 06/01/2015 Date	Client EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS Project EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION Title STAGE 4-6 ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 1 OF 16	Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES Datum AHD Scale 1:250 Size A1 Drawing Number NA50613004-027-CI-DA-4301 Revision 4
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3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
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1	18/03/2015	ISSUED FOR CLIENT REVIEW	KW		



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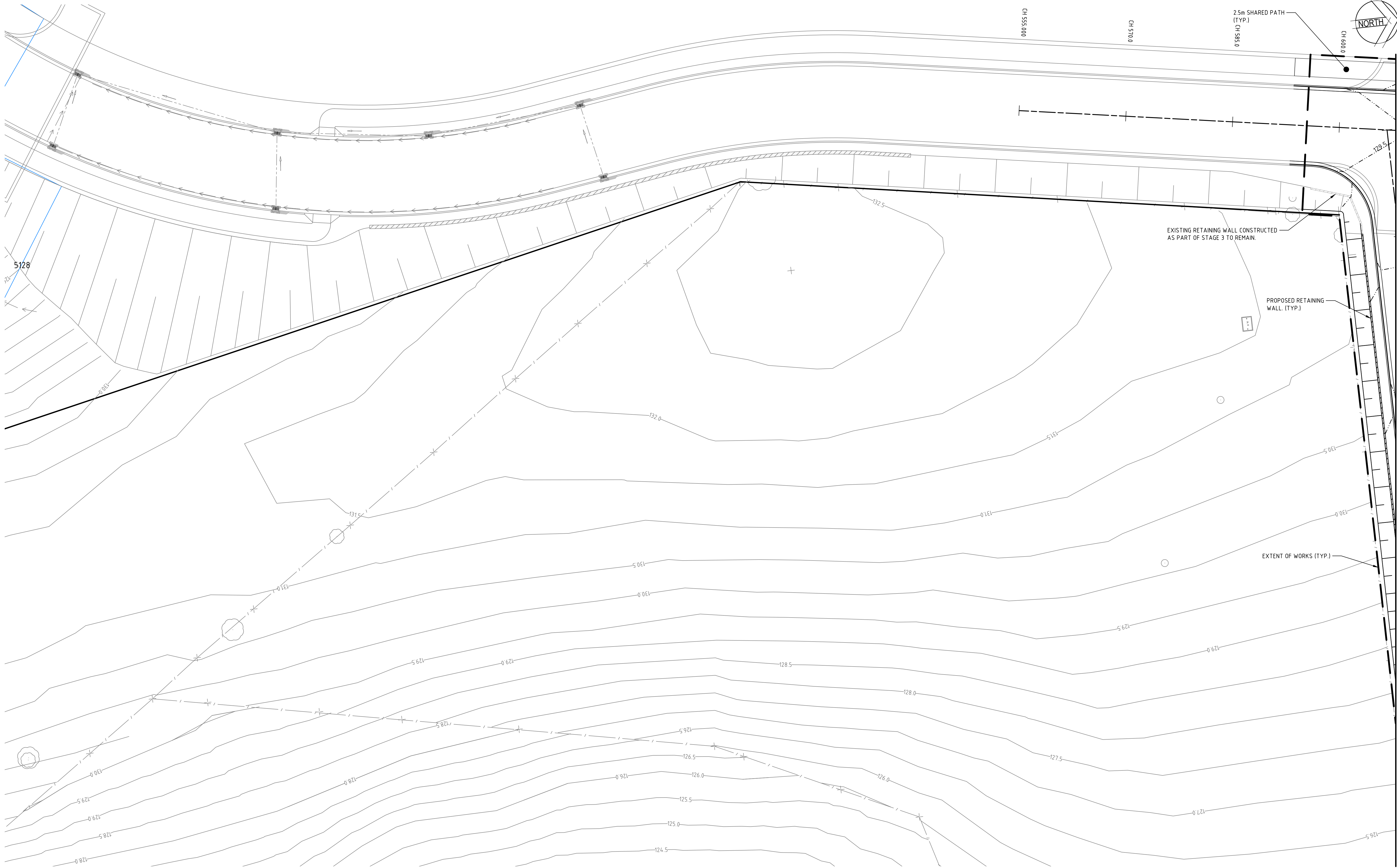
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Drawn MF	Date 09/10/2014	Client EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS
Checked MKH	Date	Project EMERALD HILLS ESTATE
Designed KW	Date 06/01/2015	STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
Verified	Date	STAGE 4-6 ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 2 OF 16
Approved		Title
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		NOT TO BE USED FOR CONSTRUCTION PURPOSES
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		Drawing Number NA50613004-027-CI-DA-4302
		Revision 4

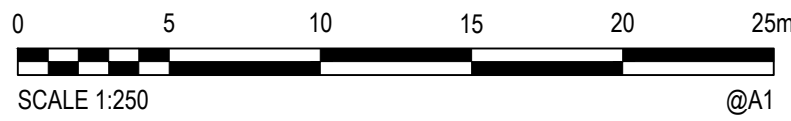
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REFER DRG NAS0613004-029-CI-DA-4304 FOR CONTINUATION

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3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
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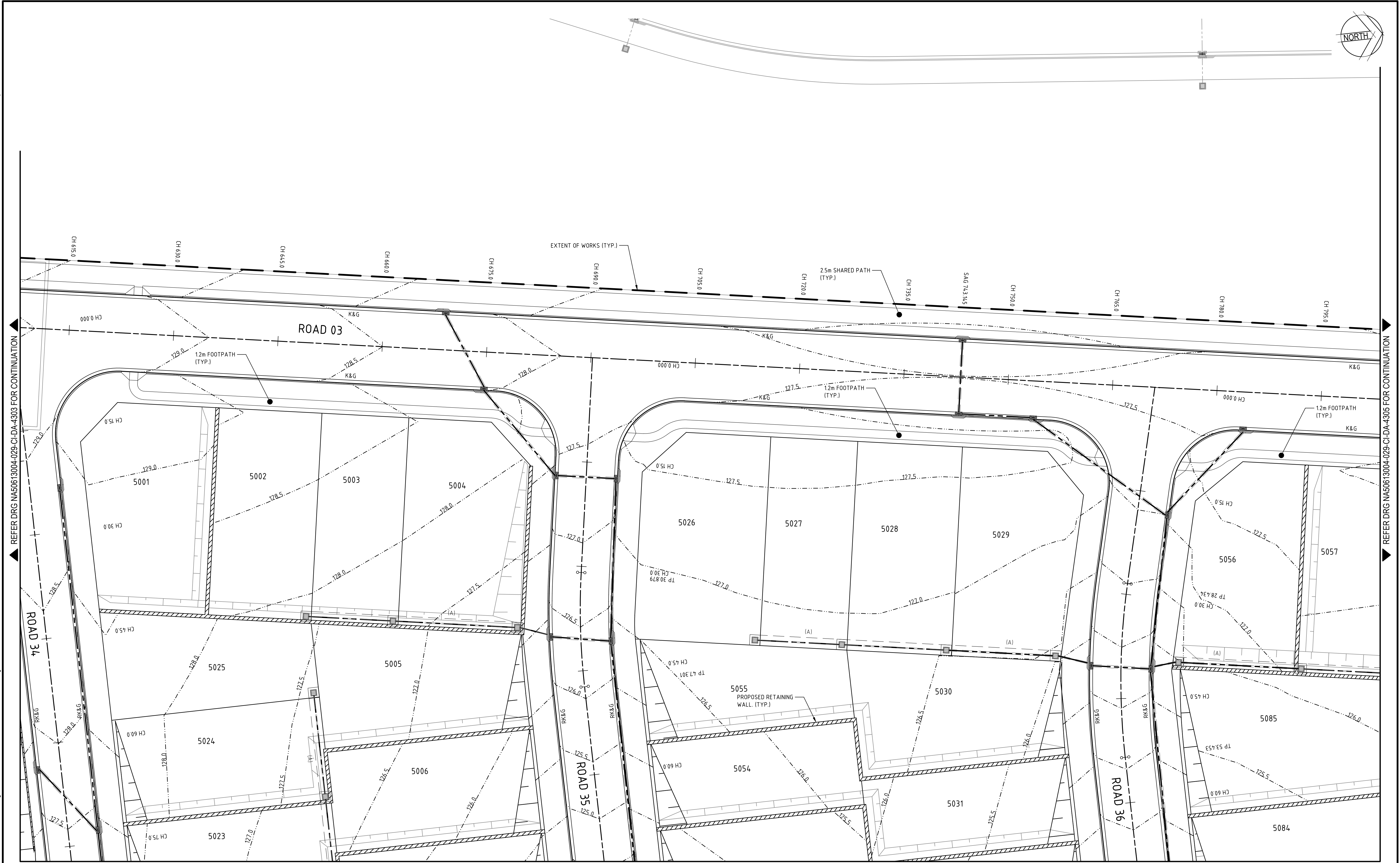


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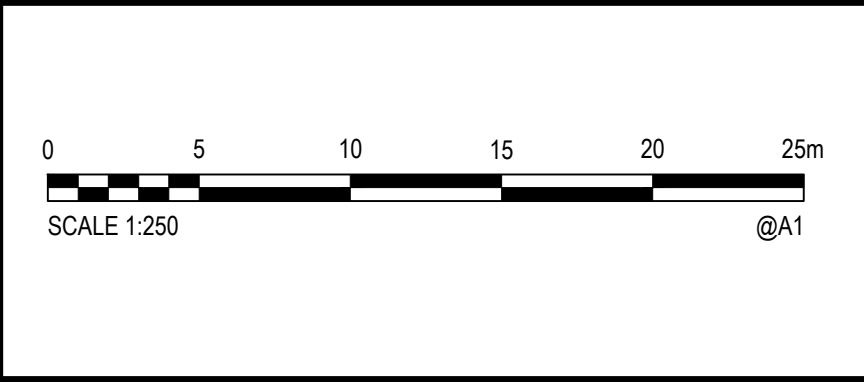
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Drawn MF	Date 09/10/2014	Client EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS
Checked MKH	Date	Project EMERALD HILLS ESTATE
Designed KW	Date 06/01/2015	STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
Verified	Date	Title STAGE 4-6 ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 3 OF 16
Approved		Status FOR APPROVAL
		NOT TO BE USED FOR CONSTRUCTION PURPOSES
		Datum AHD
		Scale 1:250
		Size A1
		Drawing Number NA50613004-027-CI-DA-4303
		Revision 4



Rev.	Date	Description	Des.	Verif.	Appd.
4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION			CP
3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION			CP
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1	18/03/2015	ISSUED FOR CLIENT REVIEW			KW



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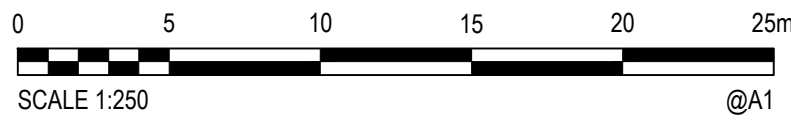


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Verified	Date
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Client	EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS		
Project	EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION		
Datum	AHD	Scale 1:250	Size A1
Drawing Number	NA50613004-027-CI-DA-4304		
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4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
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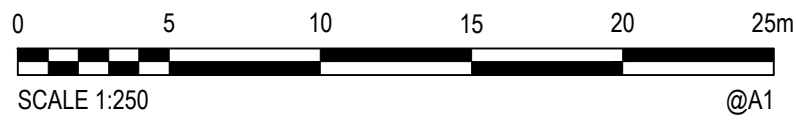
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Designed KW	Date 06/01/2015	STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
Verified	Date	Title STAGE 4-6 ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 5 OF 16
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3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
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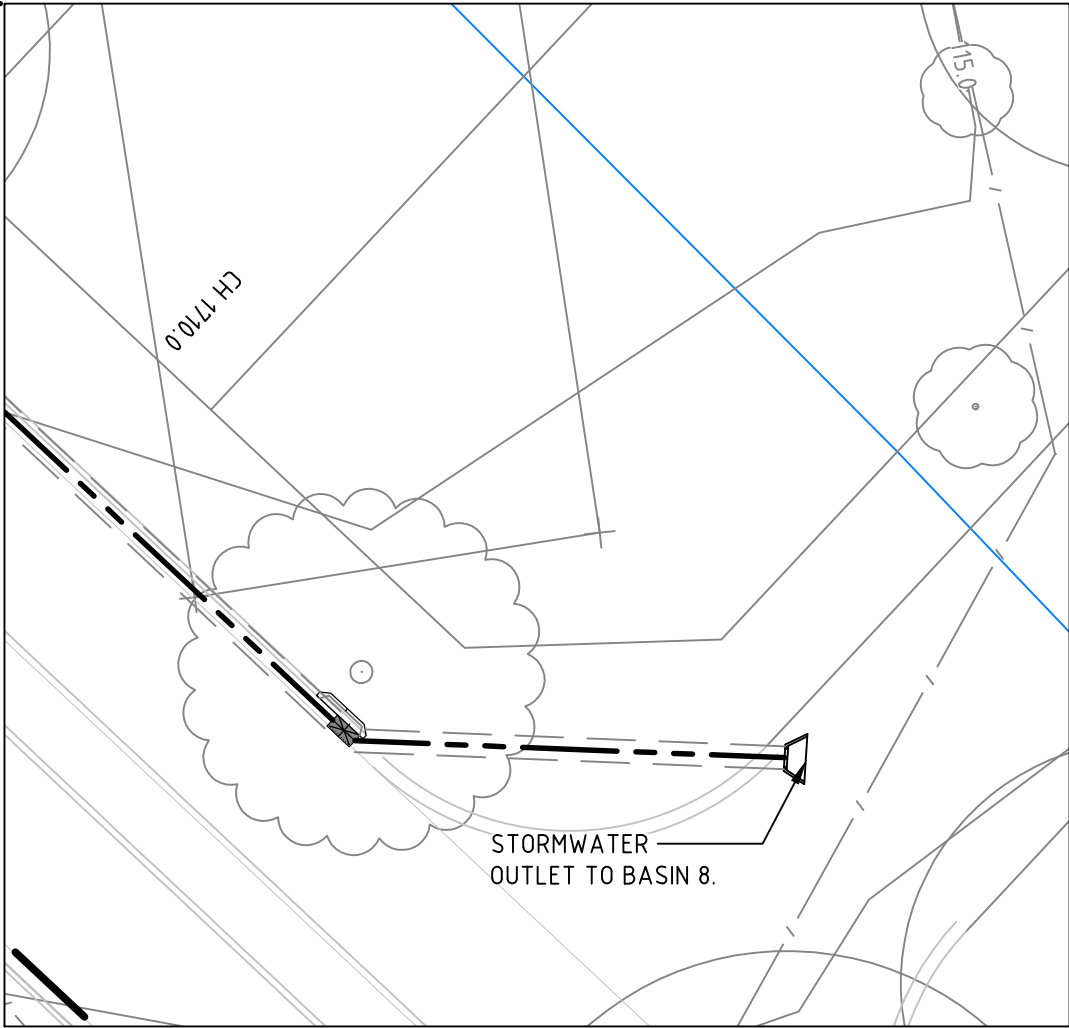
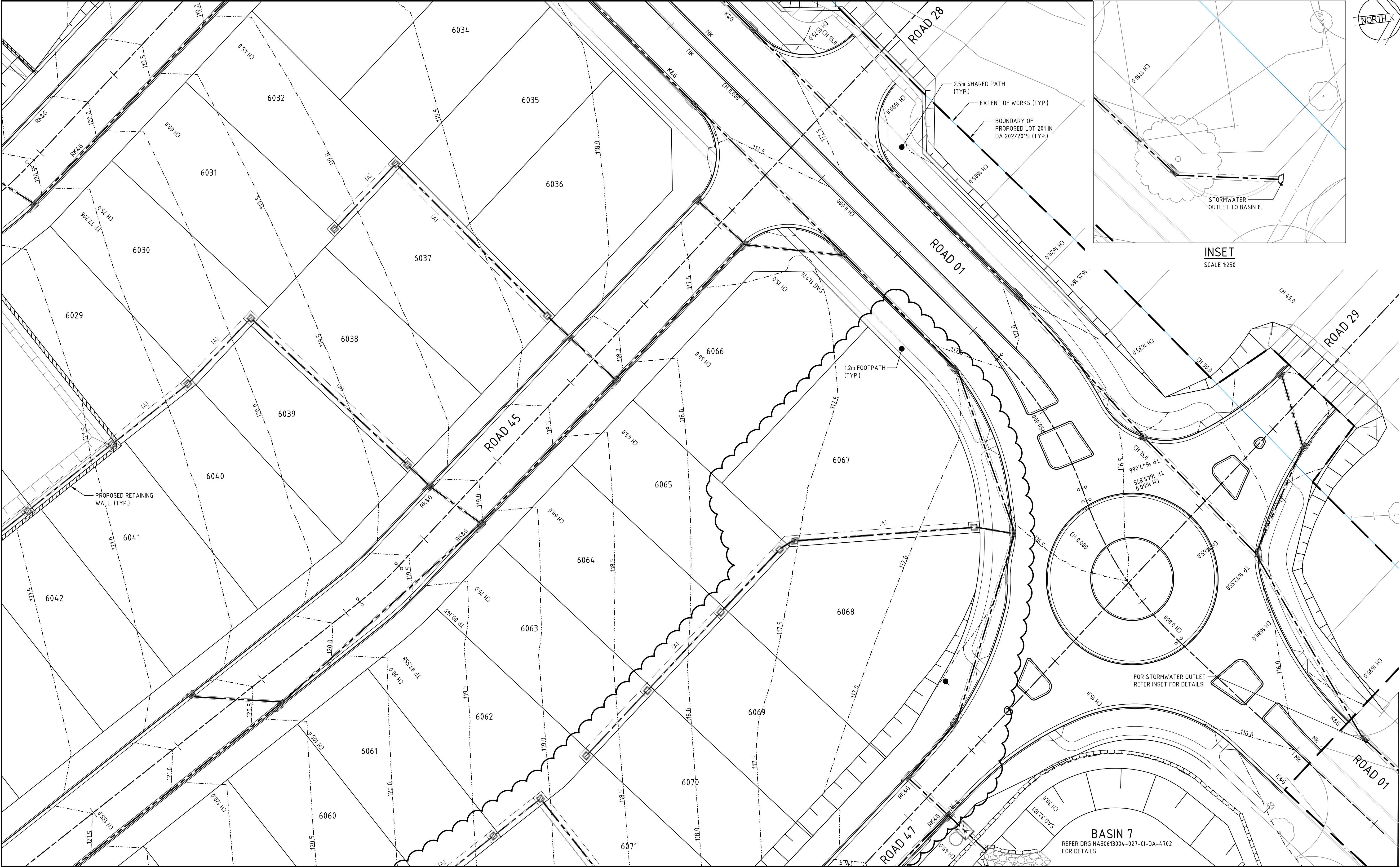
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Drawn MF	Date 09/10/2014	Client EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS
Checked MKH	Date	Project EMERALD HILLS ESTATE
Designed KW	Date 06/01/2015	STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
Verified	Date	STAGE 4-6 ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 6 OF 16
Approved		Title
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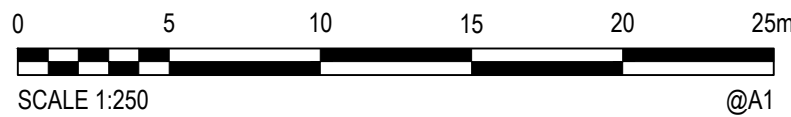
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3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
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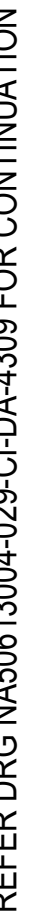


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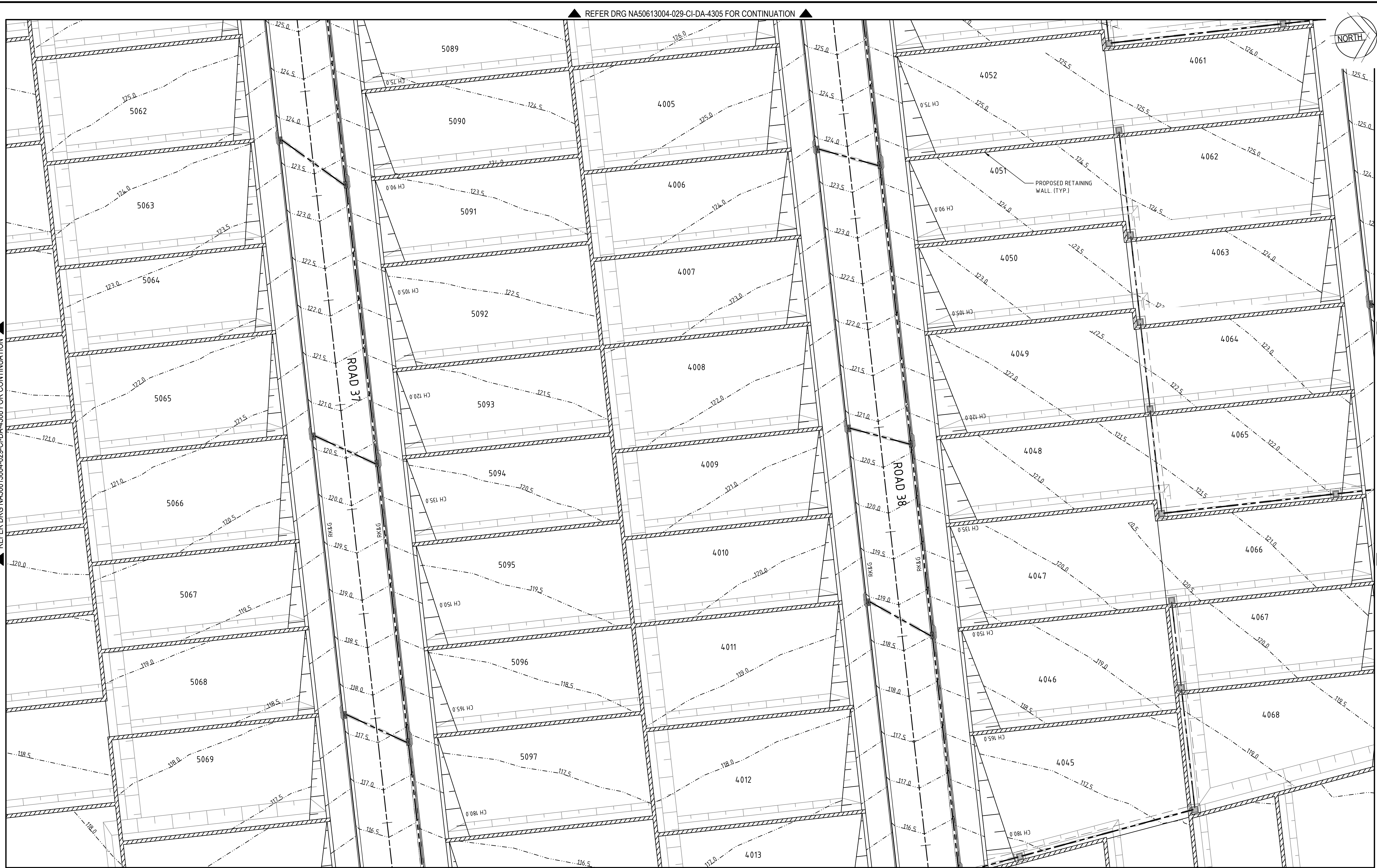
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Drawn MF Checked MKH Designed KW Verified Approved	Date 09/10/2014 Date 06/01/2015 Date	Client EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS Project EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION Title STAGE 4-6 ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 7 OF 16	Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES Datum AHD Scale 1:250 Size A1 Drawing Number NA50613004-027-CI-DA-4307 Revision 5
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Designed KW	Date 06/01/2015	Title	STAGE 4-6 ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 8 OF 16		Datum AHD	Scale 1:250	Size A1
Verified	Date				Drawing Number NA50613004-027-CI-DA-4308	Revision 4	
Approved							

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Drawn MF	Date 09/10/2014	Client EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS			
Checked MKH	Date	Project EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION	Status FOR APPROVAL	NOT TO BE USED FOR CONSTRUCTION PURPOSES	
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Approved		Title STAGE 4-6 ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 9 OF 16	AHD Drawing Number NA50613004-027-CI-DA-4309	Revision 4	

DATE PLOTTED: 21 March 2016 12:51 PM BY: DAVID BALL



Rev.	Date	Description	Des.	Verif.	Appd.
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4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
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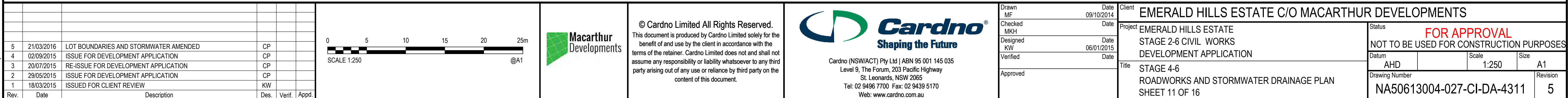


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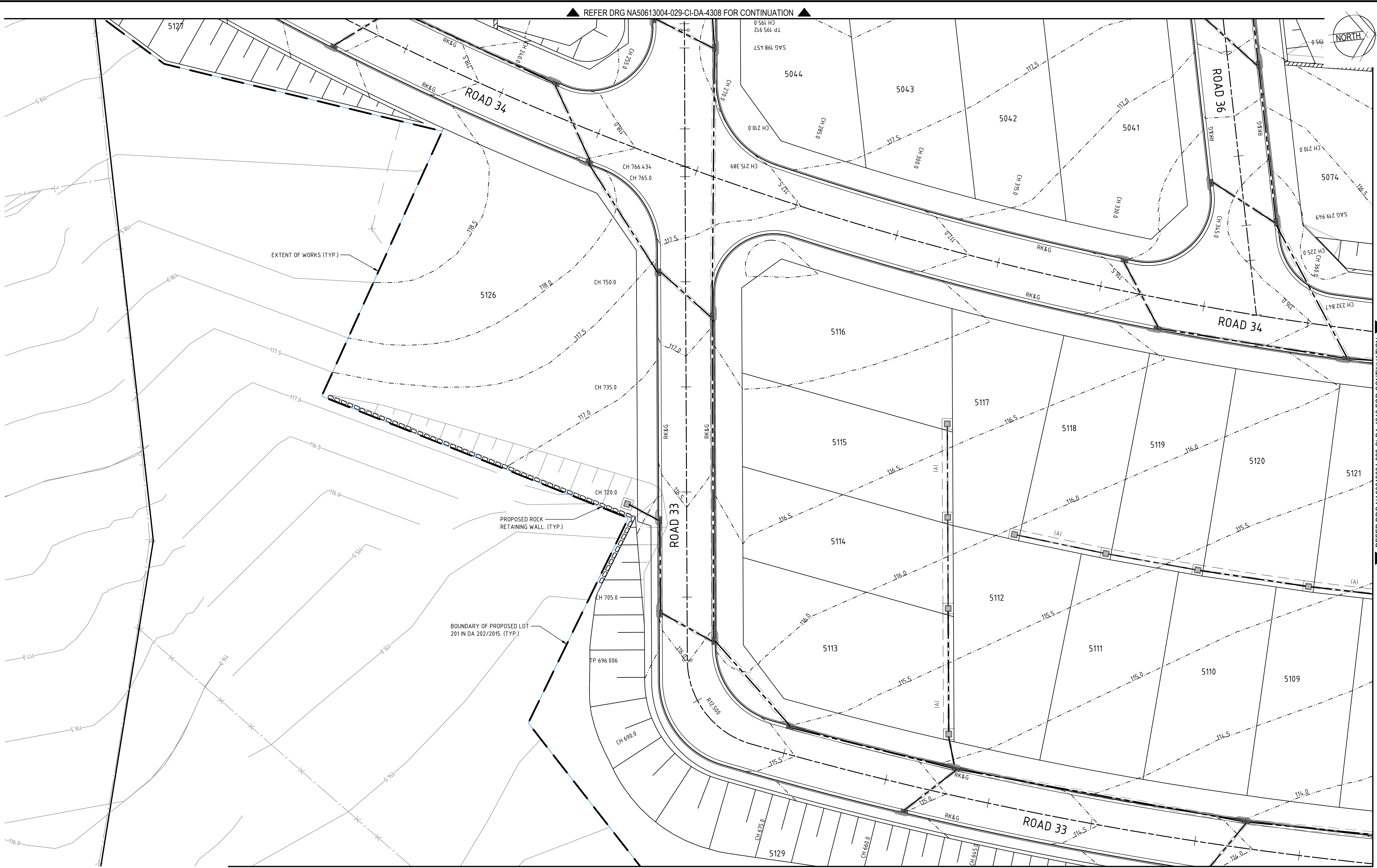
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Checked MKH	Date	Project EMERALD HILLS ESTATE
Designed KW	Date 06/01/2015	STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
Verified	Date	Title STAGE 4-6 ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 10 OF 16
Approved		Status FOR APPROVAL
		NOT TO BE USED FOR CONSTRUCTION PURPOSES
		Datum AHD
		Scale 1:250
		Size A1
		Drawing Number NA50613004-027-CI-DA-4310
		Revision 5

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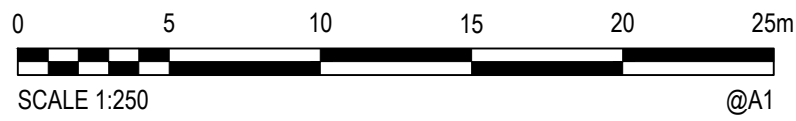


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REFER DRG NA50613004-029-CI-DA-4313 FOR CONTINUATION

REFER DRG NA50613004-029-CI-DA-4315 FOR CONTINUATION

Rev.	Date	Description	Des.	Verif.	Appd.
4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
2	29/05/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
1	18/03/2015	ISSUED FOR CLIENT REVIEW	KW		



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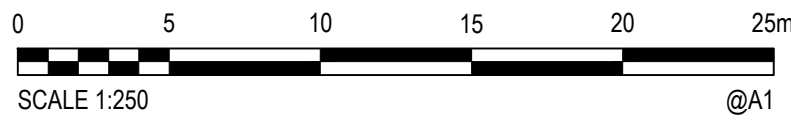
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Checked MKH	Date	Project EMERALD HILLS ESTATE
Designed KW	Date 06/01/2015	STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
Verified	Date	STAGE 4-6 ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 12 OF 16
Approved		Title
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		Drawing Number NA50613004-027-CI-DA-4312
		Revision 4

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3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
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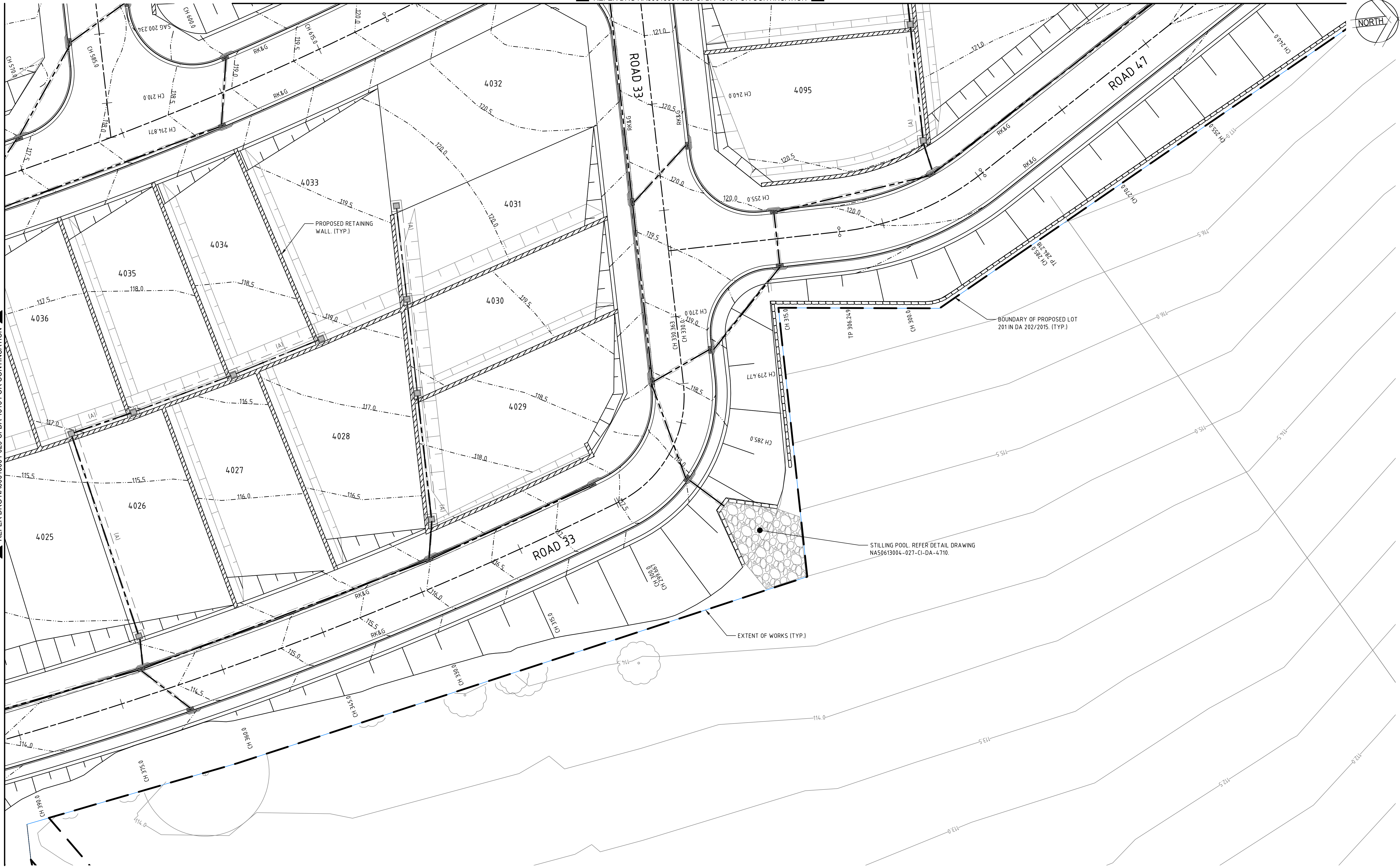
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Checked MKH	Date	Project EMERALD HILLS ESTATE
Designed KW	Date 06/01/2015	STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
Verified	Date	Title STAGE 4-6 ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 13 OF 16
Approved		Status FOR APPROVAL
		NOT TO BE USED FOR CONSTRUCTION PURPOSES
		Datum AHD
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		Revision 4

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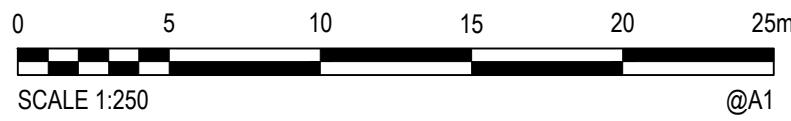
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Rev.	Date	Description	Des.	Verif.	Appd.
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3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
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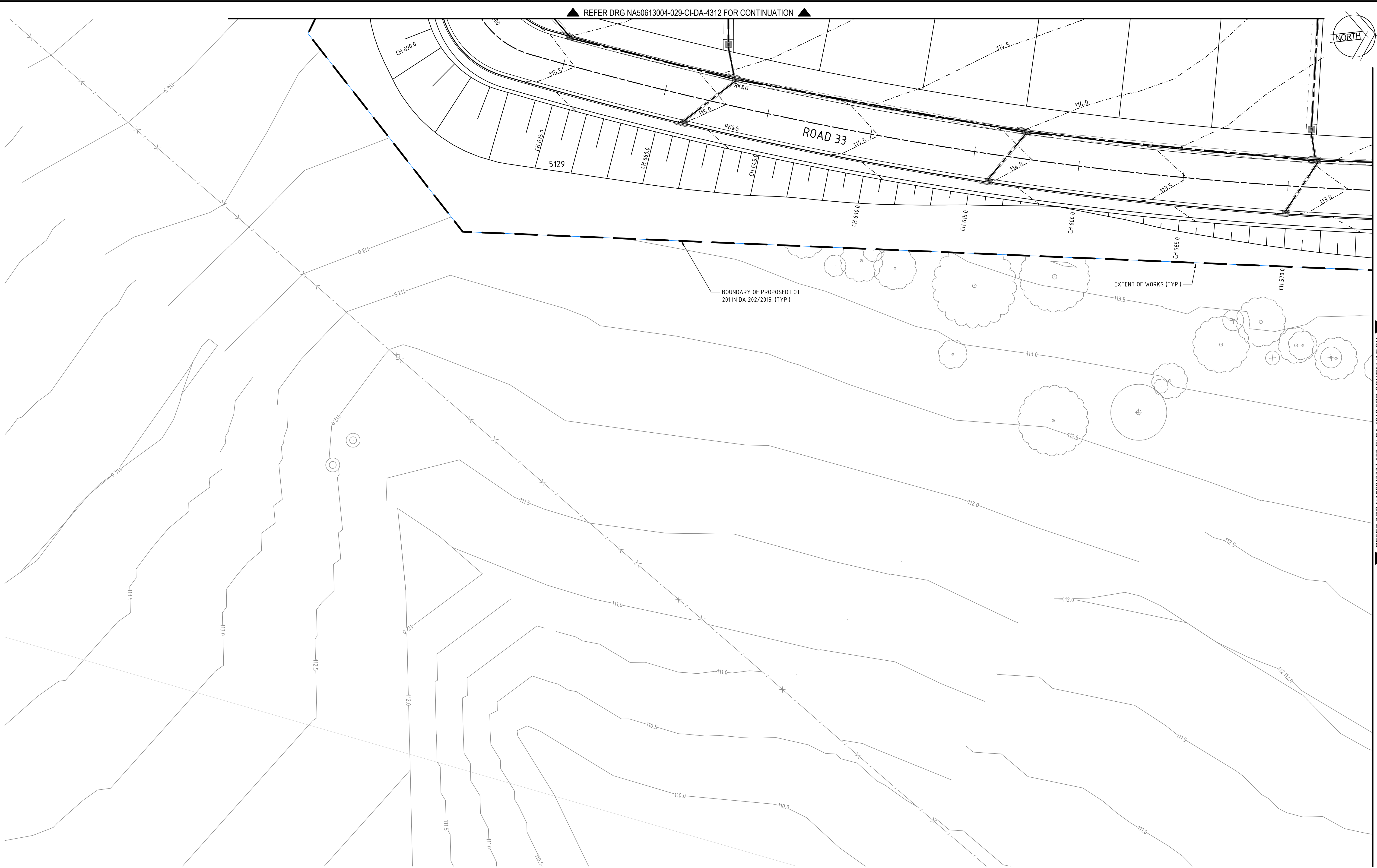
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Checked MKH	Date	Project EMERALD HILLS ESTATE
Designed KW	Date 06/01/2015	STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
Verified	Date	Title STAGE 4-6 ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 14 OF 16
Approved		Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES
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		Revision 4

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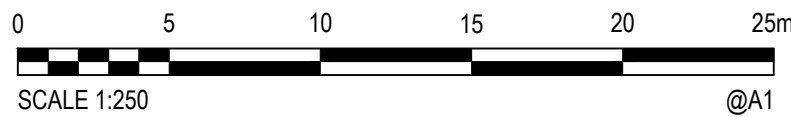


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Rev.	Date	Description	Des.	Verif.	Appd.
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3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
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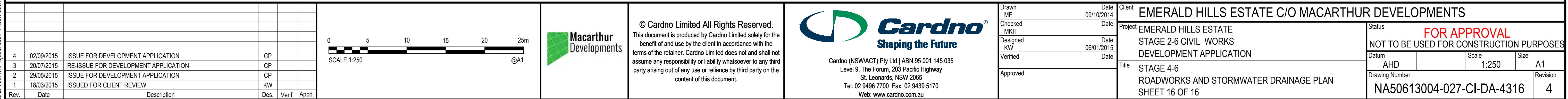
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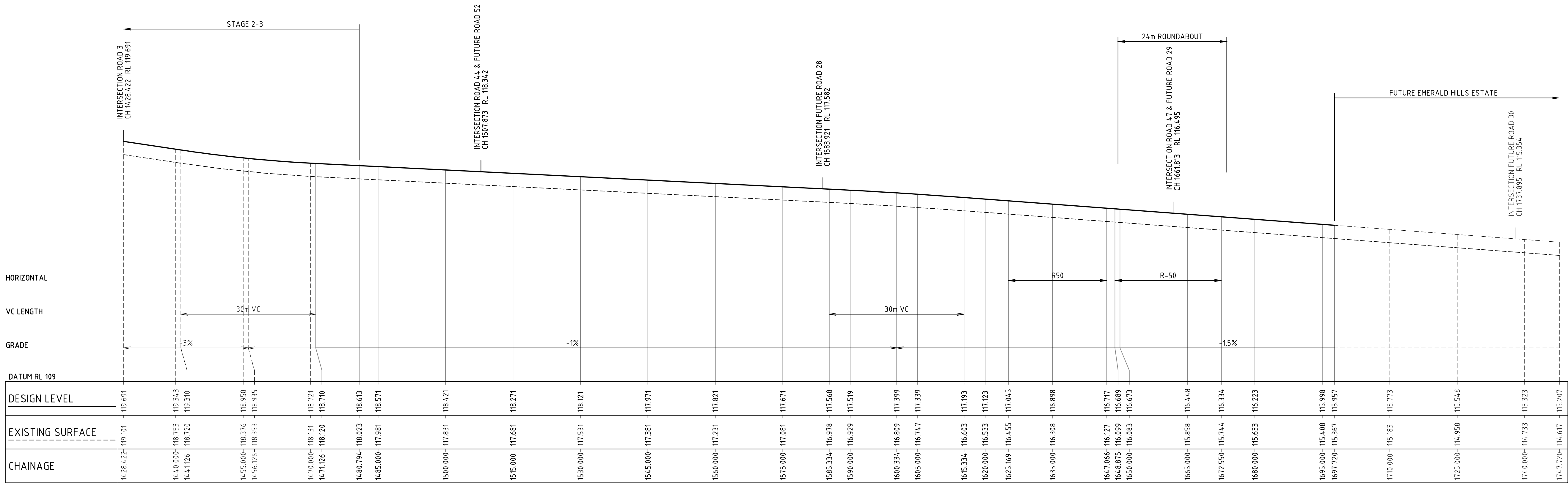


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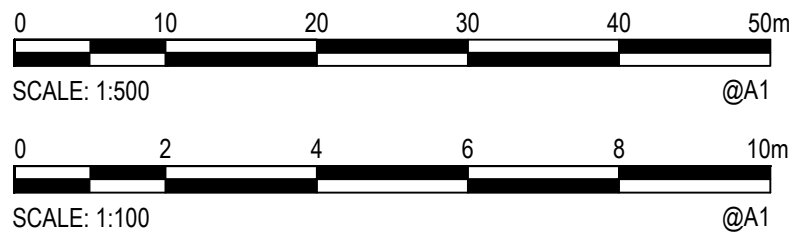
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Checked MKH	Date	Project EMERALD HILLS ESTATE
Designed KW 06/01/2015	Date 06/01/2015	STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
Verified	Date	Title STAGE 4-6 ROADWORKS AND STORMWATER DRAINAGE PLAN SHEET 15 OF 16
Approved		Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES
		Datum AHD
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		Drawing Number NA50613004-027-CI-DA-4315
		Revision 4





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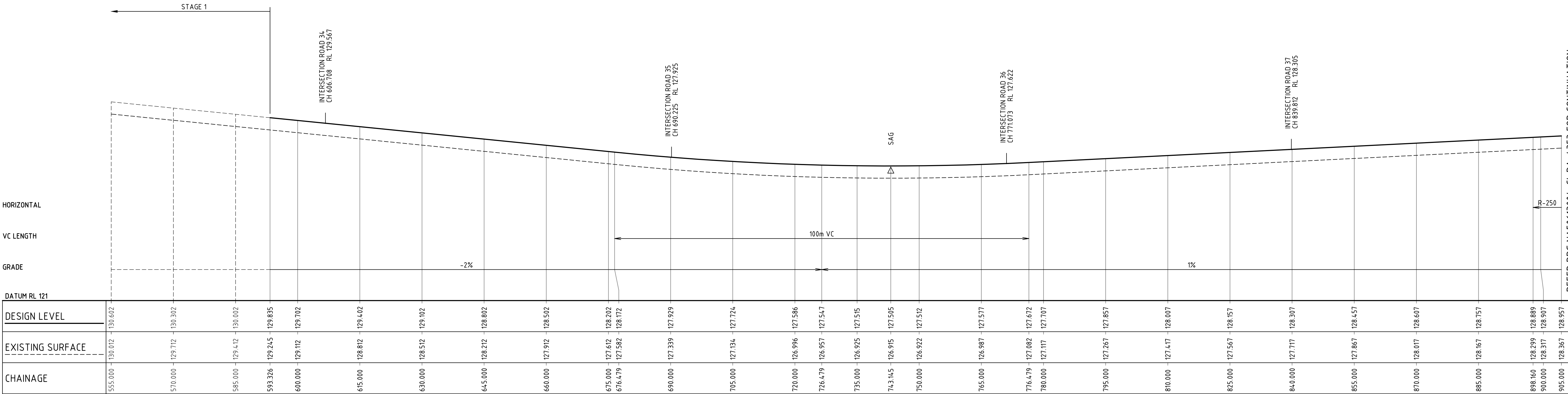
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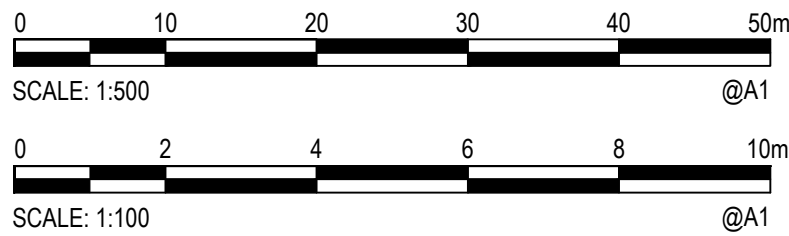
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Designed KW	Date 06/01/2015	Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES
Verified	Date	Datum AHD
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		Revision 4
		Title STAGE 4-6 ROAD LONGITUDINAL SECTIONS SHEET 1 OF 16



ROAD 3 LONGITUDINAL SECTION

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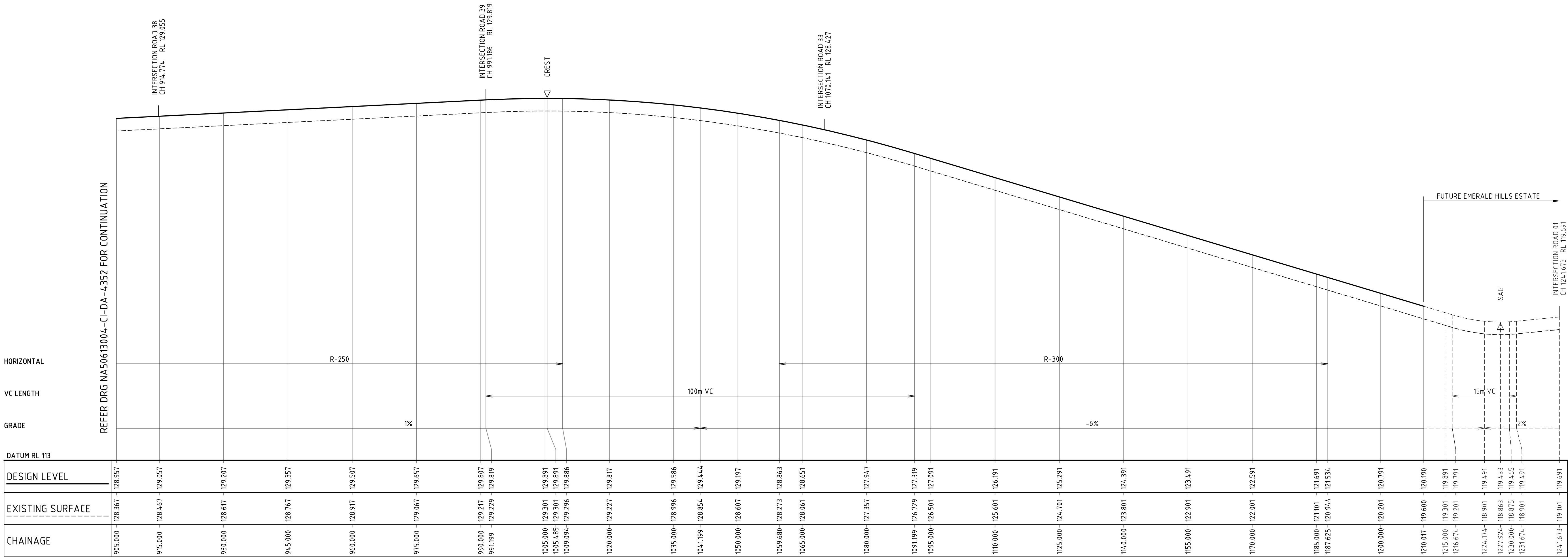
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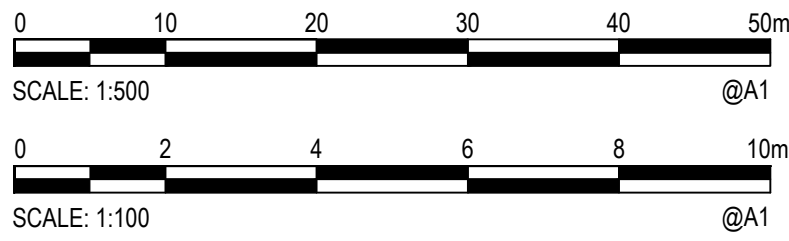
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Designed KW	Date 06/01/2015	Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES
Verified	Date	Datum AHD
Approved		Scale AS SHOWN
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1	18/03/2015	ISSUED FOR CLIENT REVIEW	KW		
Rev.	Date	Description	Des.	Verif.	Appd.



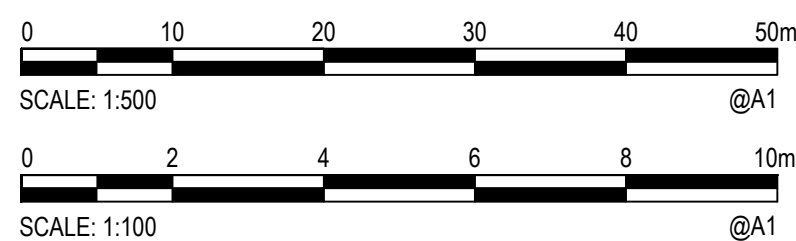
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Designed KW	Date 06/01/2015	Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES
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		Revision 4



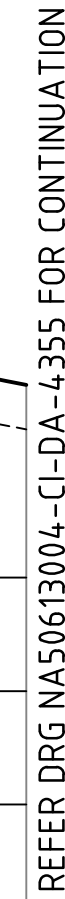
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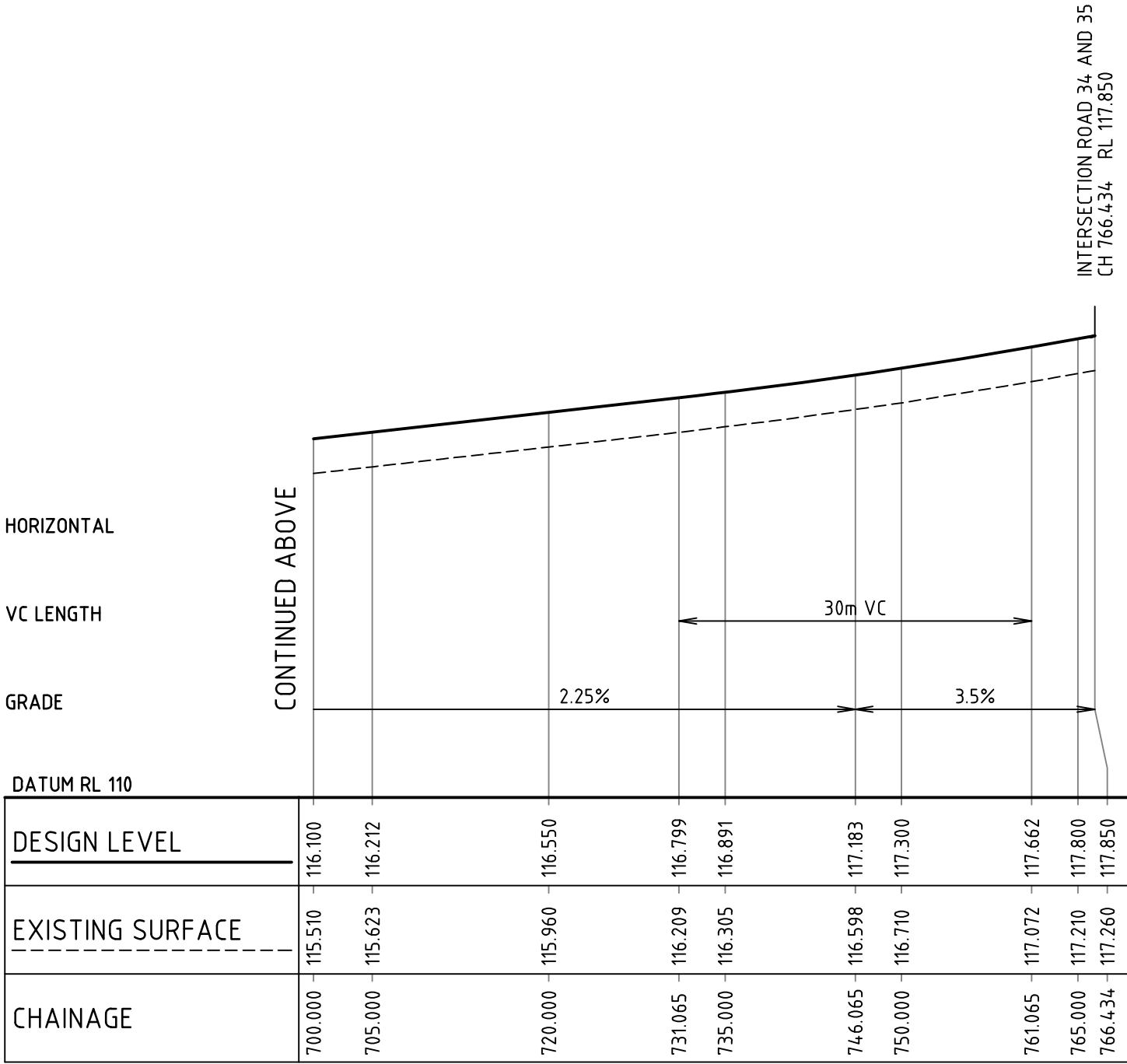
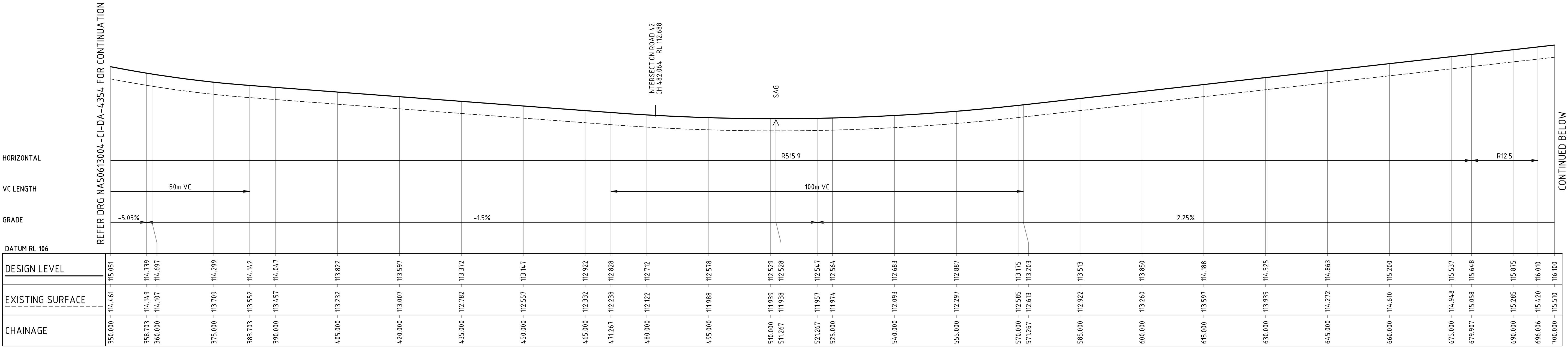
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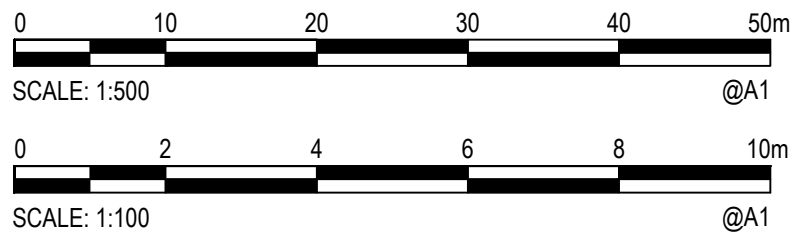
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Checked MKH	Date	Project EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION	Status FOR APPROVAL			
Designed KW	Date 06/01/2015		NOT TO BE USED FOR CONSTRUCTION PURPOSES			
Verified	Date					
Approved		Title STAGE 4-6 ROAD LONGITUDINAL SECTIONS SHEET 5 OF 16	Datum AHD		Scale AS SHOWN	Size A1
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3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
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Rev.	Date	Description	Des.	Verif.	Appd.

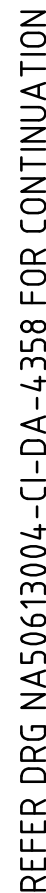


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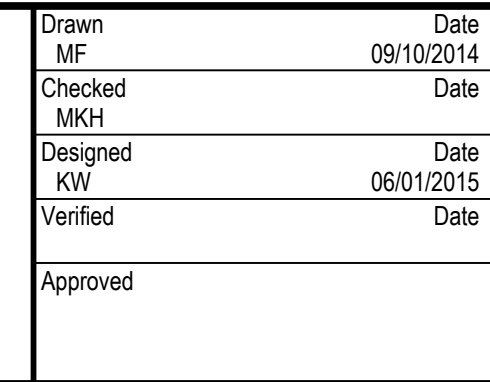
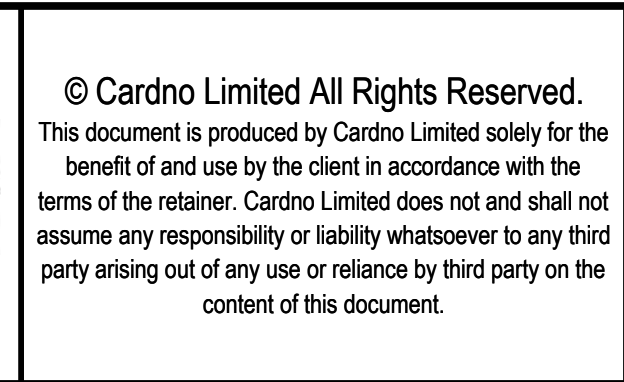


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Designed	KW	Date	06/01/2015
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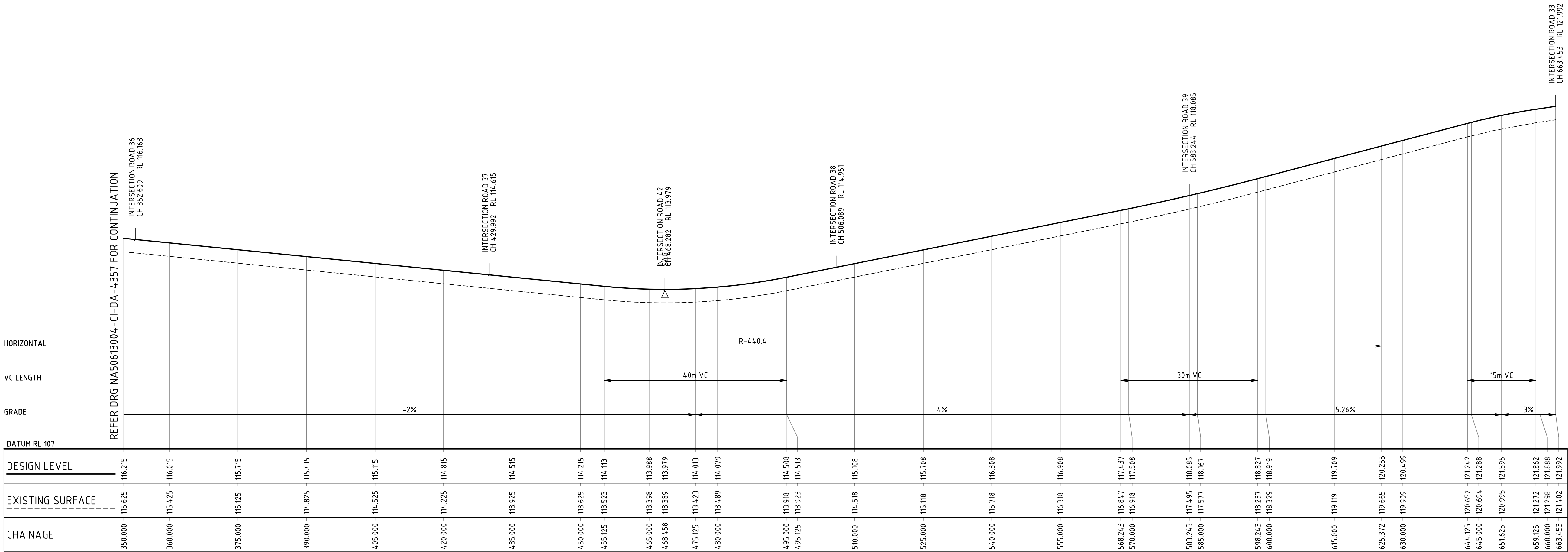
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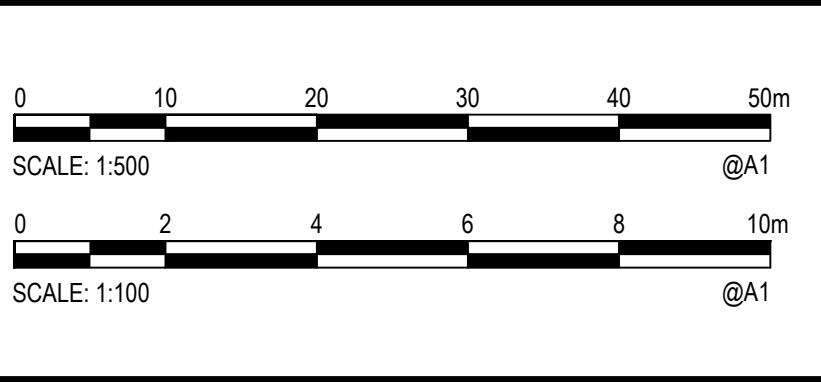
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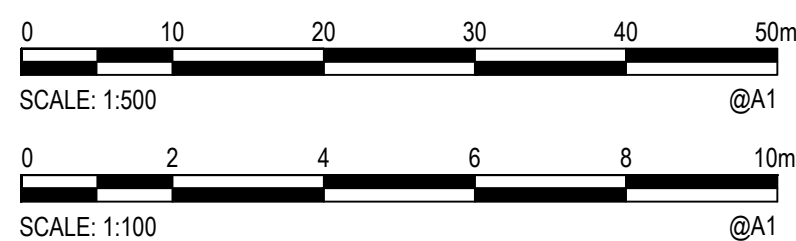
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Designed KW	Date 06/01/2015	STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION
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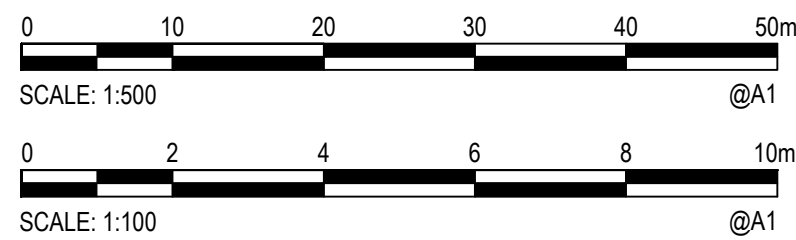


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1	18/03/2015	ISSUED FOR CLIENT REVIEW					KW		
Rev.	Date	Description					Des.	Verif.	Appd.

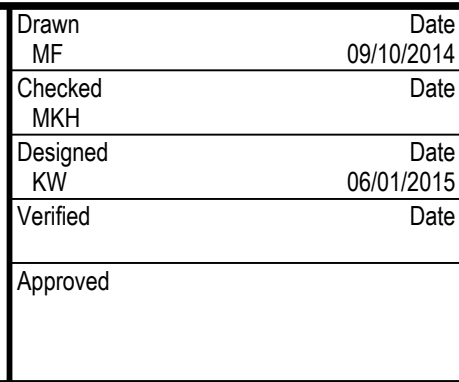
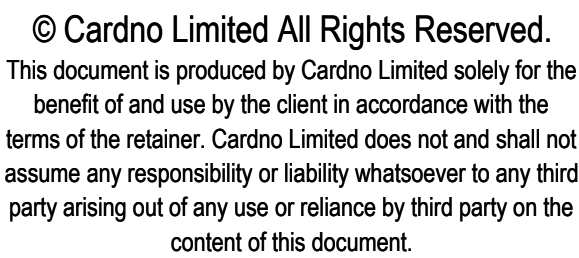


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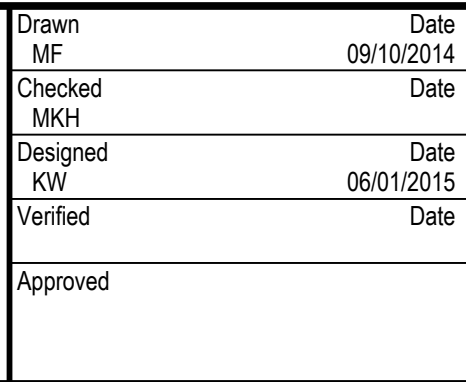
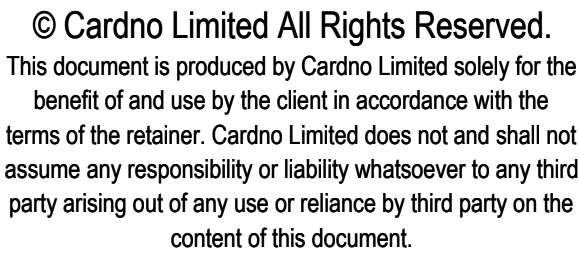


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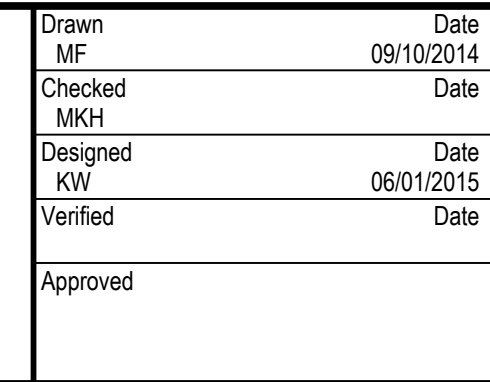
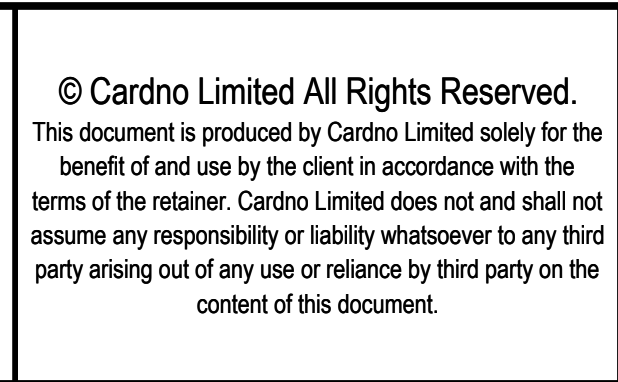
Drawn MF	Date 09/10/2014	Client	EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS				
Checked MKH	Date	Project	EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION		Status	FOR APPROVAL	
Designed KW	Date 06/01/2015				NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Verified	Date	Title	STAGE 4-6 ROAD LONGITUDINAL SECTIONS SHEET 10 OF 16		Datum AHD	Scale AS SHOWN	Size A1
Approved					Drawing Number NA50613004-027-CI-DA-4360		Revision 4



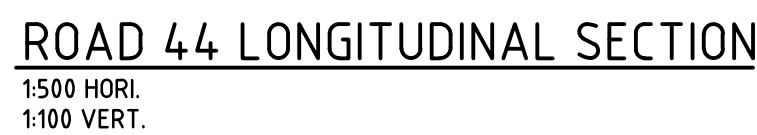
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ProjectEMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION			Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES		
			Date	Scale AHD	Size AS SHOWN
TitleSTAGE 4-6 ROAD LONGITUDINAL SECTIONS SHEET 11 OF 16			Drawing Number NA50613004-027-CI-DA-4361		Revision 4



Client	EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS			
Project	EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION		Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES	
Title	STAGE 4-6 ROAD LONGITUDINAL SECTIONS SHEET 12 OF 16		Datum AHD	Scale AS SHOWN
	Drawing Number			Revision
	NA50613004-027-CI-DA-4362			4



Client	EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS		
Project	EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION	Status	FOR APPROVAL
Title	STAGE 4-6 ROAD LONGITUDINAL SECTIONS SHEET 13 OF 16	NOT TO BE USED FOR CONSTRUCTION PURPOSES	
		Datum	Scale
		AHD	AS SHOWN
		Size	A1
		Drawing Number	Revision
		NA50613004-027-CI-DA-4363	4



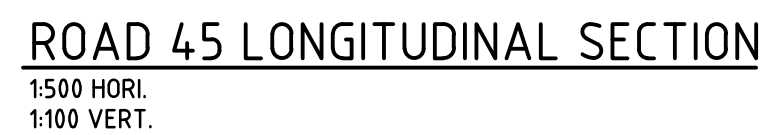
4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION		CP		
3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION		CP		
2	29/05/2015	ISSUE FOR DEVELOPMENT APPLICATION		CP		
1	18/03/2015	ISSUED FOR CLIENT REVIEW		KW		
Rev.	Date	Description		Des.	Verif.	Appd.



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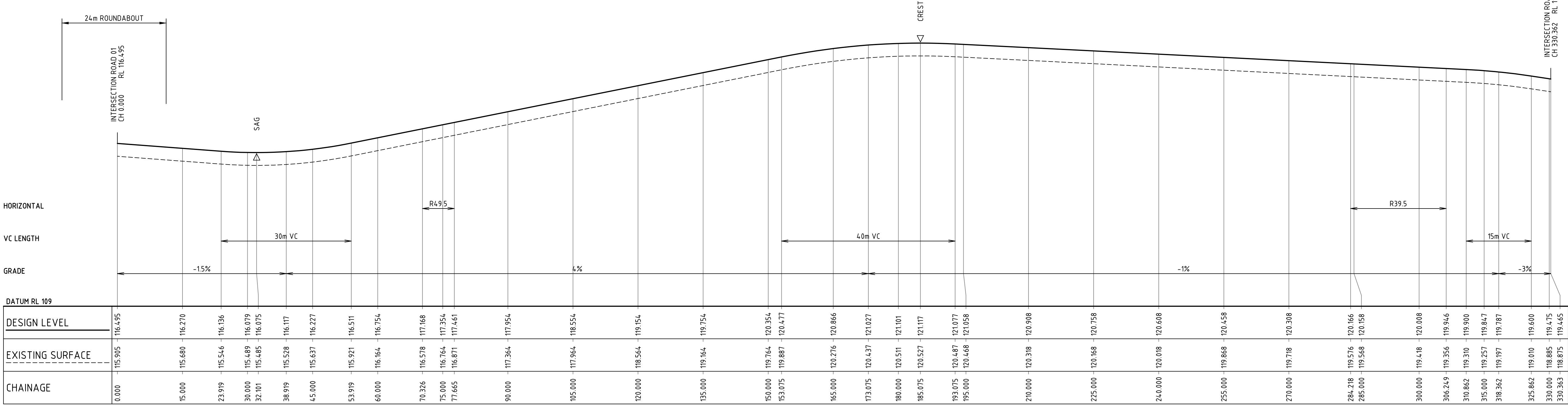
Drawn MF	Date 09/10/2014	Client EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS			
Checked MKH	Date	Project EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION	Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Designed KW	Date 06/01/2015		Datum AHD	Scale AS SHOWN	Size A1
Verified	Date		Drawing Number NA50613004-027-CI-DA-4364		Revision 4
Approved		Title STAGE 4-6 ROAD LONGITUDINAL SECTIONS SHEET 14 OF 16			



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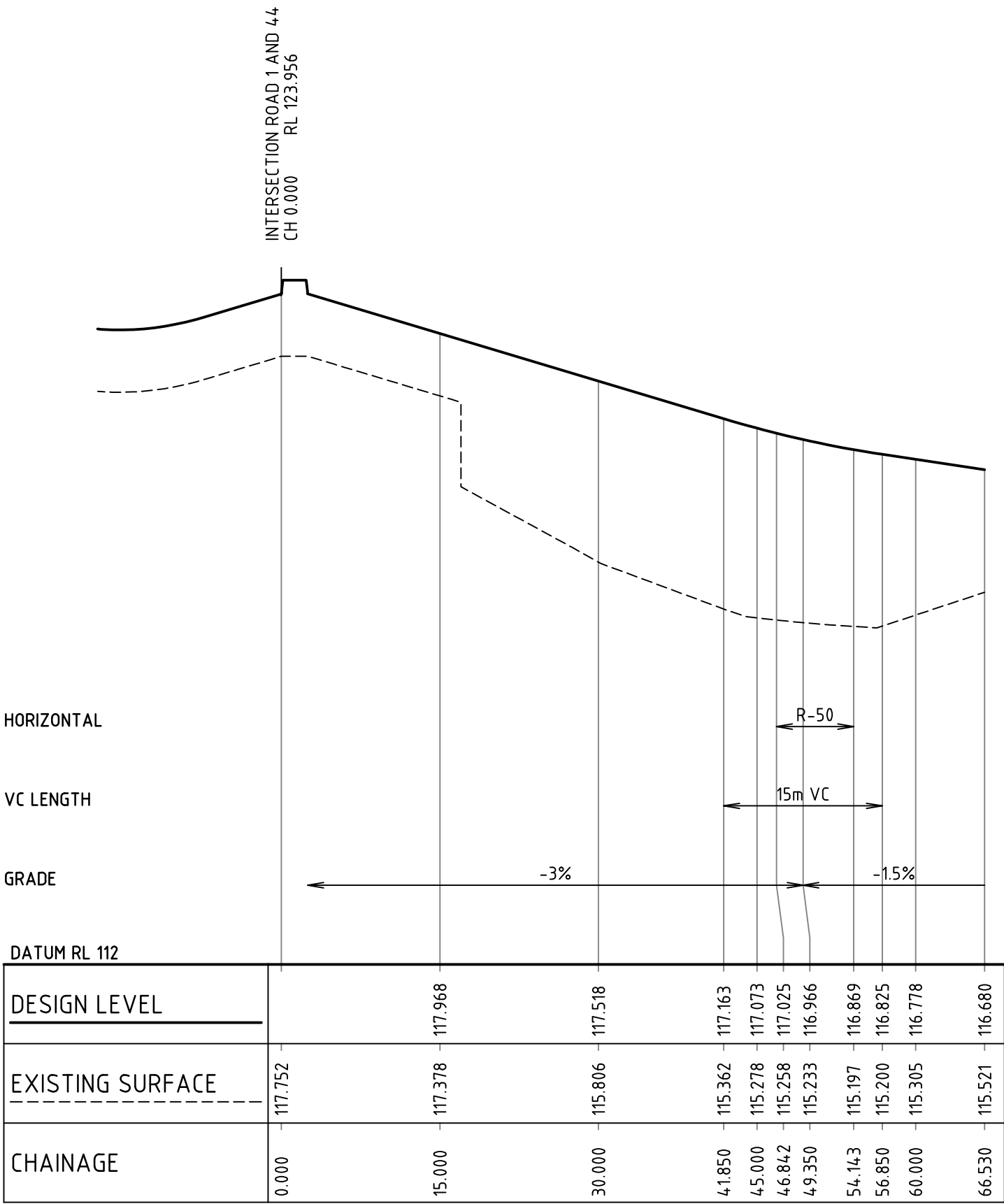
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Designed KW	Date 06/01/2015		NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Verified	Date		Datum Scale Size		
Approved	Date		AHD AS SHOWN A1		
Title		Revision			
STAGE 4-6 ROAD LONGITUDINAL SECTIONS SHEET 15 OF 16		Drawing Number NA50613004-027-CI-DA-4365		Revision 4	



ROAD 47 LONGITUDINAL SECTION

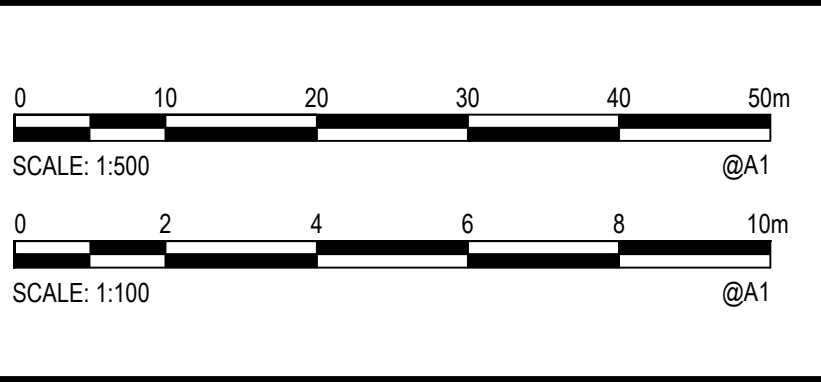
1:500 HORL.
1:100 VERT.



FUTURE ROAD 52 LONGITUDINAL SECTION

1:500 HORL.
1:50 VERT.

Rev.	Date	Description	Des.	Verif.	Appd.
4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
2	29/05/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
1	18/03/2015	ISSUED FOR CLIENT REVIEW	KW		



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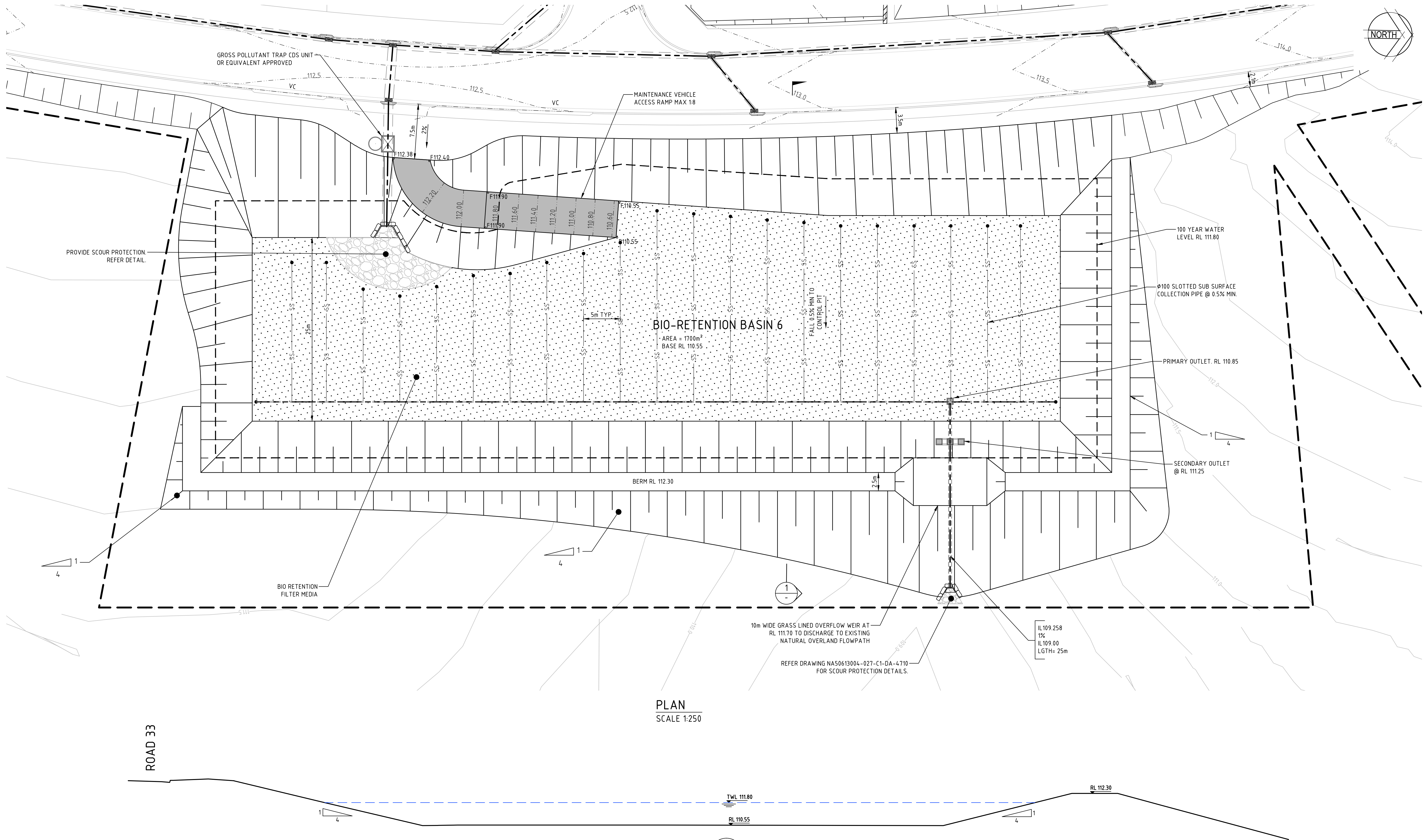


Drawn MF	Date 09/10/2014
Checked MKH	Date
Designed KW	Date 06/01/2015
Verified	Date
Approved	

Client EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS	Project EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION	Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES
Title STAGE 4-6 ROAD LONGITUDINAL SECTIONS SHEET 16 OF 16		Drawing Number NA50613004-027-CI-DA-4366
Revision 4		

DATE PLOTTED: 21 March 2016 3:11 PM BY: LAUREN CONNORS

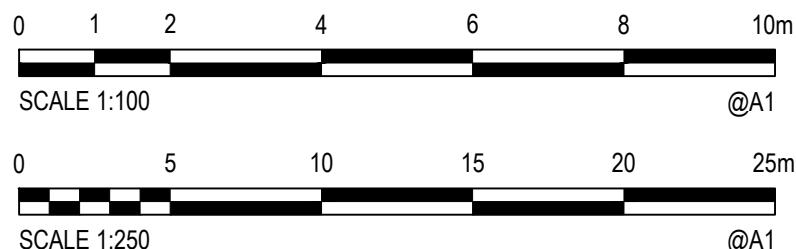
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PLAN
SCALE 1:250

SECTION
SCALE 1:100

Rev.	Date	Description	Des.	Verif.	Appd.
5	25/02/2016	ISSUE FOR DEVELOPMENT APPLICATION	CP		
4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION	CP		
2	29/05/2015	ISSUE FOR DEVELOPMENT APPLICATION	CP		
1	18/03/2015	ISSUED FOR CLIENT REVIEW	KW		



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Drawn	MF	Date	09/10/2014
Checked	MKH	Date	
Designed	KW	Date	06/01/2015
Verified		Date	
Approved			

Client	EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS		
Project	EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION		
Title	STAGE 4-6 BIORETENTION - DETENTION BASIN 6 PLAN		
Status	FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Datum	AHD	Scale	1:250
Drawing Number	NA50613004-027-CI-DA-4701		Revision
			5



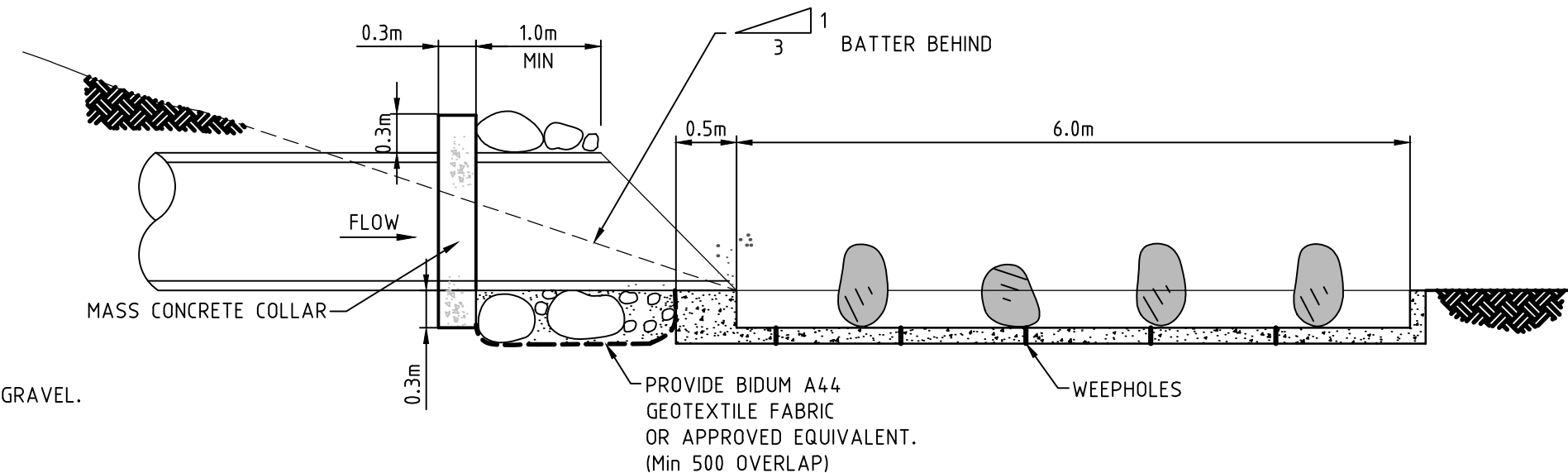
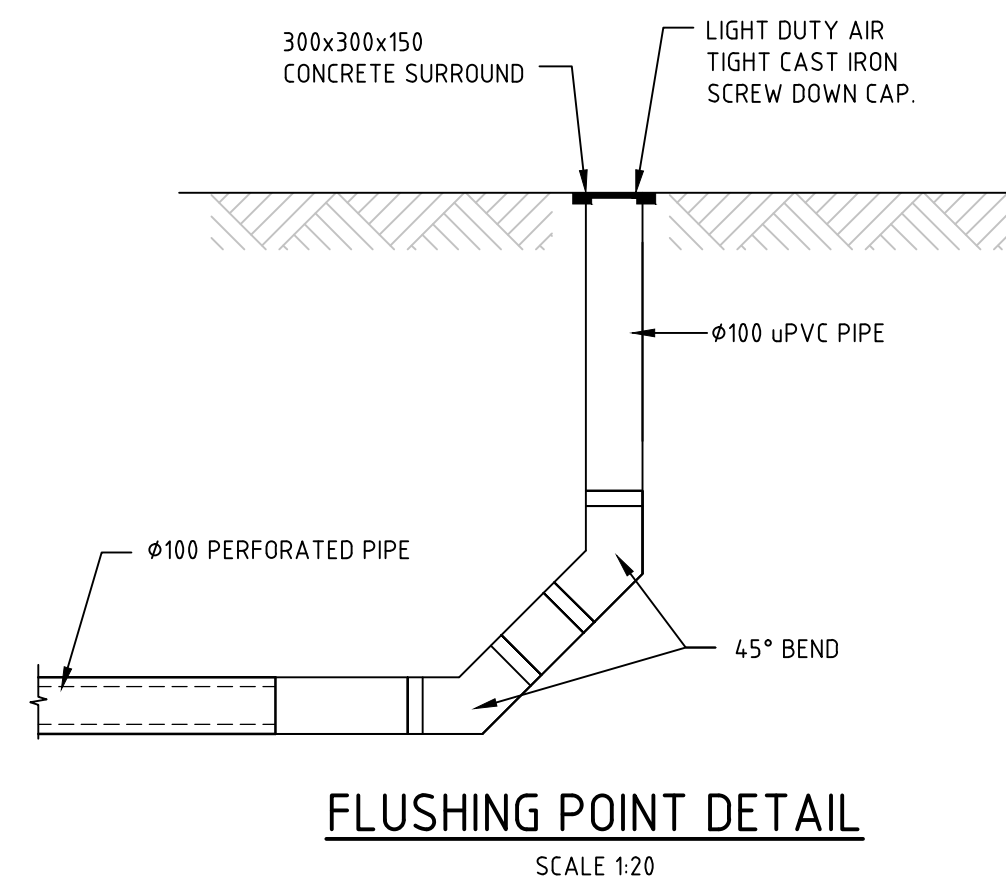
4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION		CP		
3	20/07/2015	RE-ISSUE FOR DEVELOPMENT APPLICATION		CP		
2	29/05/2015	ISSUE FOR DEVELOPMENT APPLICATION		CP		
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Checked MKH	Date	Project EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION	Status FOR APPROVAL		
Designed KW	Date 06/01/2015		NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Verified	Date		Datum	Scale 1:200	Size A1
Approved		Title STAGE 4-6 BIORETENTION - DETENTION BASIN 7 PLAN	Drawing Number NA50613004-027-CI-DA-4702		Revision 4



LENGTH AS SPECIFIED ON PLAN

EXTENT RIP RAP NOM 0.2m FROM INVERT UP BATTER.

TOP OF BATTER BEYOND

D50-400 DIA BOULDER DISSIPATOR.

FLOW

3m

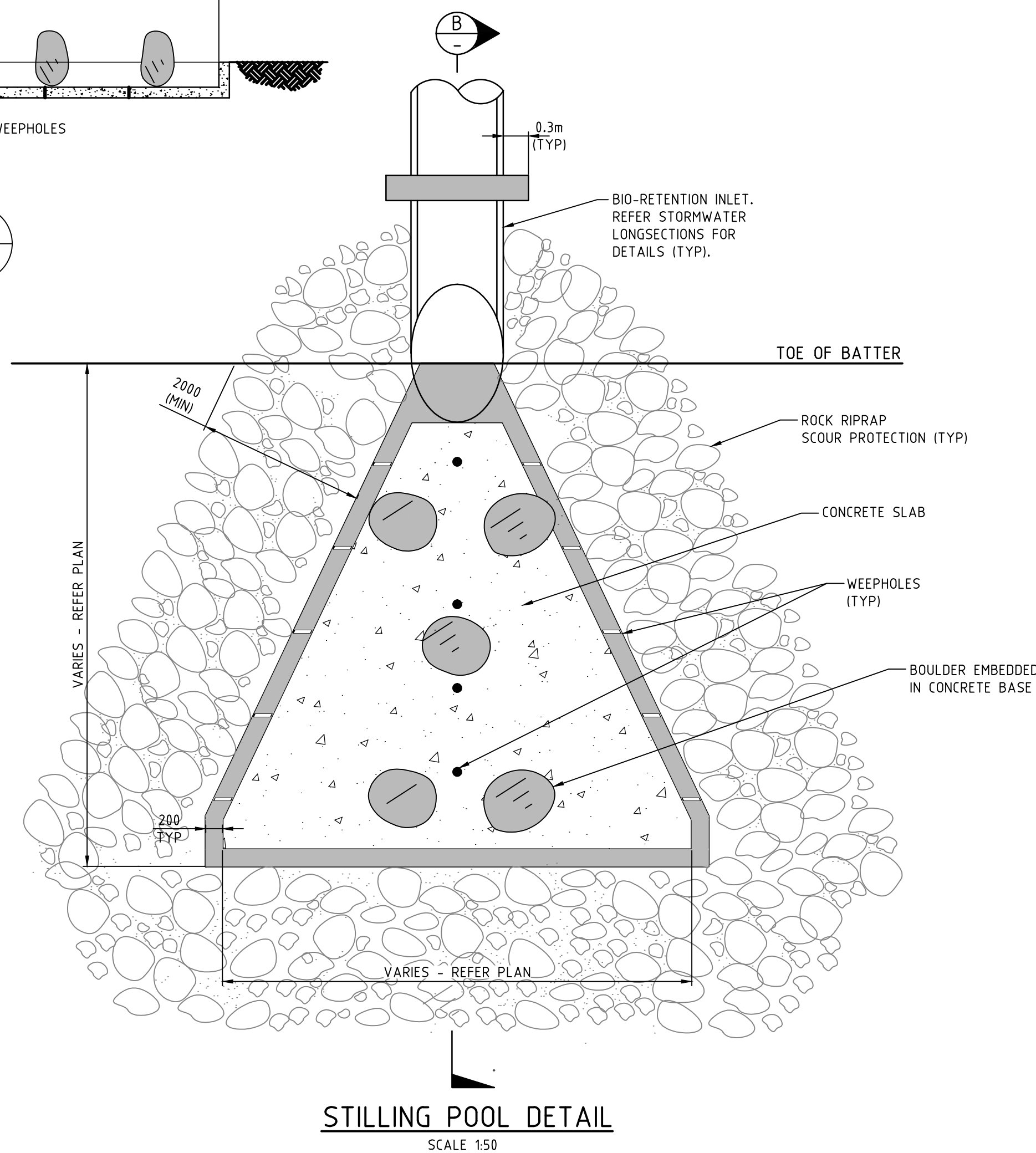
PROVIDE BIDUM A44 GEOTEXTILE FABRIC OR APPROVED EQUIVALENT. (Min 500 OVERLAP)

THICKNESS AS SHOWN OF PLAN

SECTION A

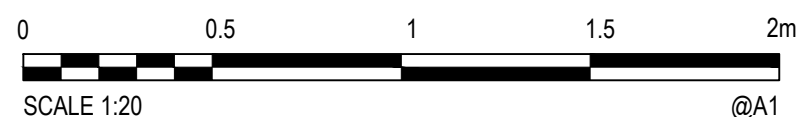
SCALE 1:50

RIP RAP AS SPECIFIED.



INSTALLATION:
FILTER MATERIAL IS TO BE LIGHTLY COMPACTED EG. A SINGLE PASS WITH A DRUM LAWN ROLLER. UNDER NO CIRCUMSTANCES SHOULD HEAVY EQUIPMENT OR MULTIPLE PASSES BE MADE. FILTER MEDIA SHOULD BE INSTALLED IN LIFTS NOT EXCEEDING 500mm. UNDER NO CIRCUMSTANCES SHALL VEHICLES TRACK OVER PREVIOUSLY PLACED MATERIAL.

4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION		CP	
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2	29/05/2015	ISSUE FOR DEVELOPMENT APPLICATION		CP	
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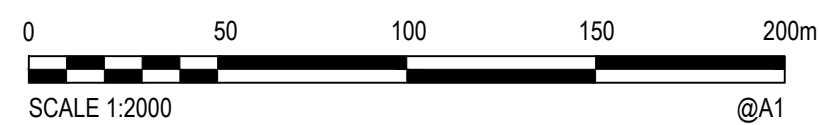


Drawn MF	Date 09/10/2014	Client EMERALD HILLS ESTATE C/O MACARTHUR DEVELOPMENTS			
Checked MKH	Date	Project EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION	Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES		
Designed KW	Date 06/01/2015		Datum	Scale AS SHOWN	Size A1
Verified	Date		Drawing Number NA50613004-027-CI-DA-4710		
Approved	Title STAGE 4-6 TYPICAL BIORETENTION - DETENTION BASIN DETAILS		Revision 4		



CATCHMENT TABLE				
CATCHMENT	AREA (ha)	DESCRIPTION	100 ARI PSD AT OUTLETS	100 ARI POST DEVELOPMENT PEAK FLOWS
C2	10.5900	ENVIRONMENT CONSERVATION AREA DRAIN TO OUTLET 7	OUTLET 7: 3.92m³/s	3.92m³/s
C10	13.6000	STAGE 4-6 DEVELOPMENT AREA DRAIN TO BASIN 6a FOR ON SITE DETENTION AND WATER QUALITY CONTROL. STORMWATER ULTIMATELY FLOW TO OUTLET 7		
C3A	5.3400	ENVIRONMENT CONSERVATION AREA DRAIN TO OUTLET 5	OUTLET 5: 1.59m³/s	1.48m³/s
C3	5.5400	STAGE 4-6 DEVELOPMENT AREA DRAIN TO BASIN 7 FOR OSD AND WQ CONTROL. STW ULTIMATELY FLOWS TO OUTLET 5.		
C9	1.6400	STAGE 4-6 DEVELOPMENT AREA DRAIN TO OUTLET 6.	OUTLET 6: 2.37m³/s	1.35m³/s
C18	6.9900	ENVIRONMENT CONSERVATION AREA DRAIN TO OUTLET 6.	OUTLET 6: 2.37m³/s	1.35m³/s

4	02/09/2015	ISSUE FOR DEVELOPMENT APPLICATION		CP	
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Checked MKH	Date	Status FOR APPROVAL NOT TO BE USED FOR CONSTRUCTION PURPOSES
Designed KW	Date 06/01/2015	
Verified	Date	
Approved	Date	Datum AHD
Project EMERALD HILLS ESTATE STAGE 2-6 CIVIL WORKS DEVELOPMENT APPLICATION		Scale 1:2500
Title STAGE 4-6 STORMWATER CATCHMENT PLAN		Size A1
		Drawing Number NA50613004-027-CI-DA-4801
		Revision 4