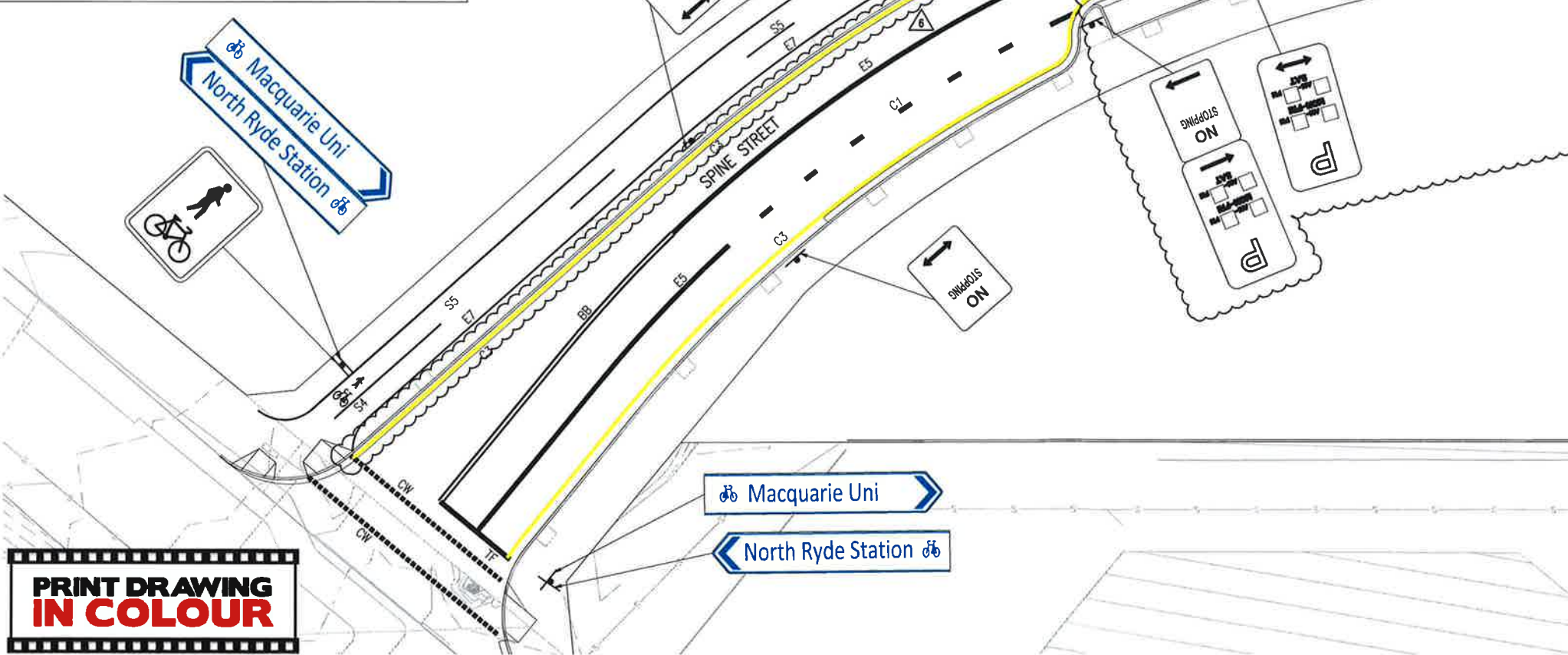
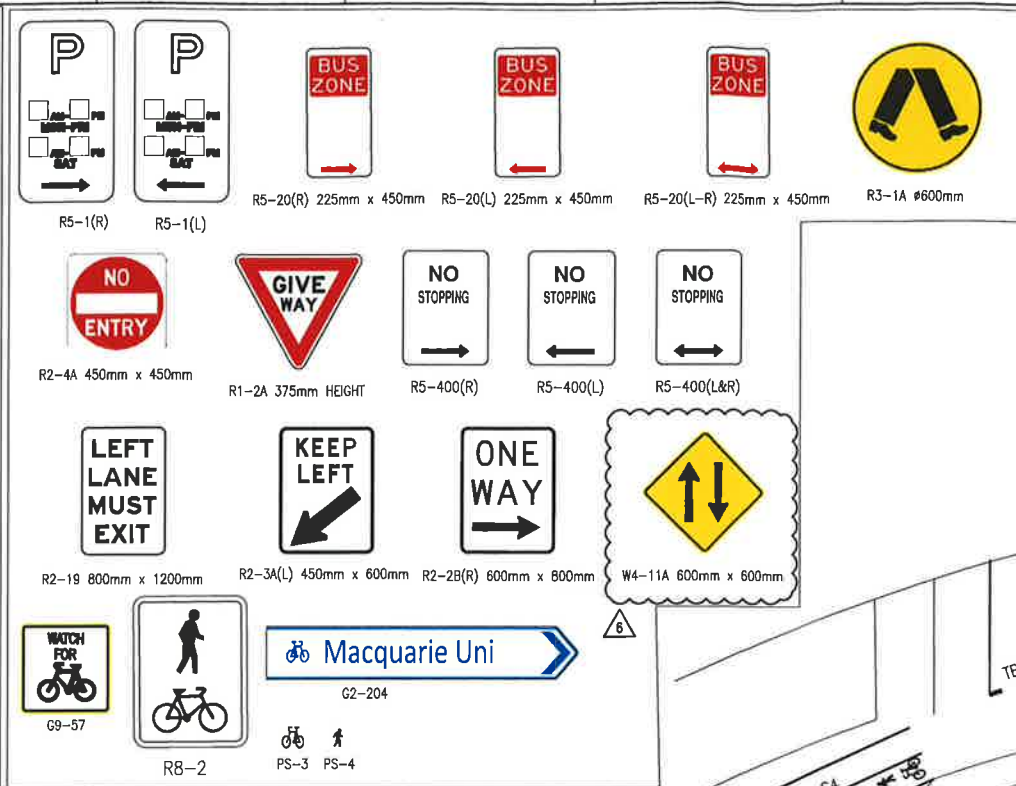
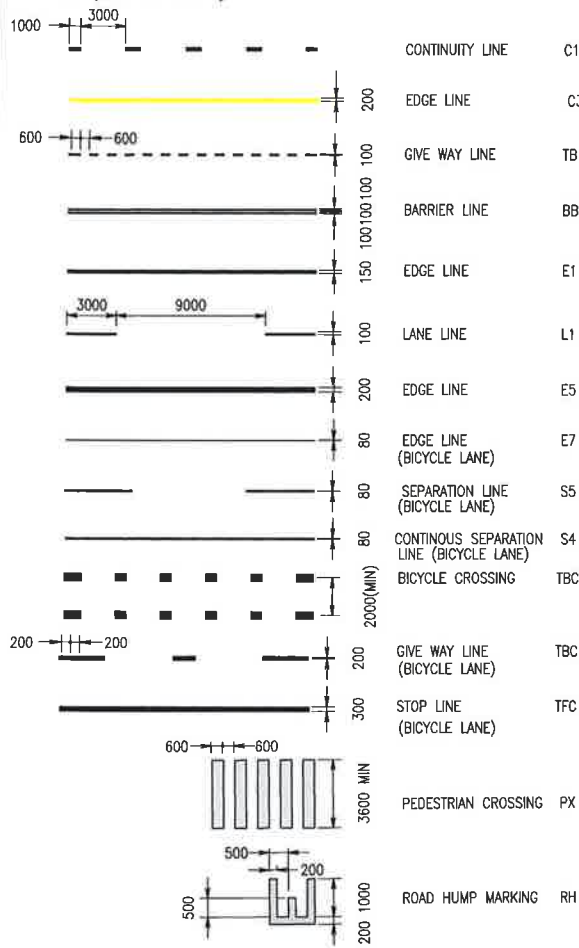


LEGEND (LINE MARKING)



NSW GOVERNMENT
Planning

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD5093

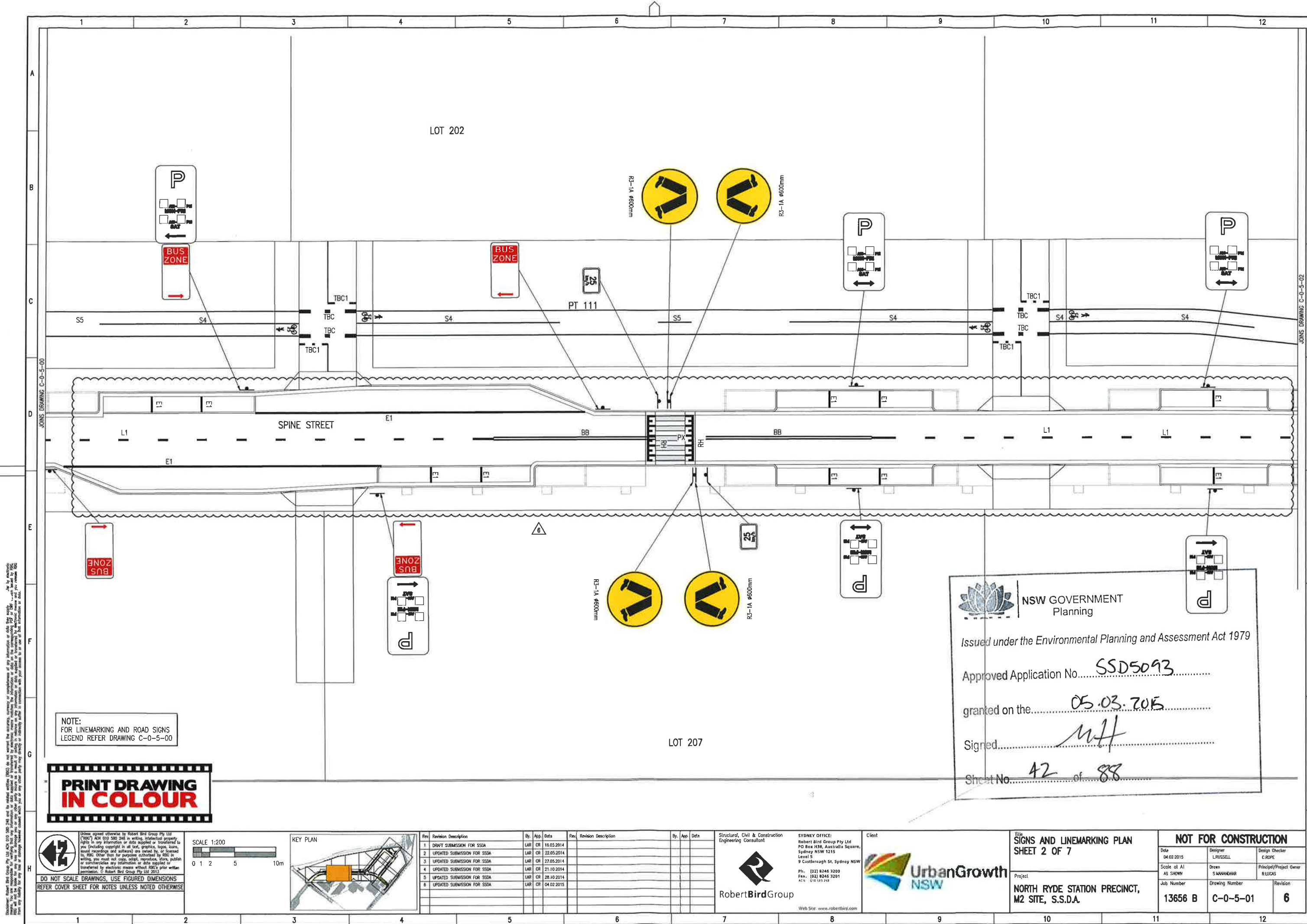
granted on the 05.03.2015

Signed [Signature]

Sheet No. 41 of 88

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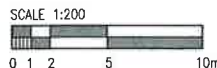
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FOR LINEMARKING AND ROAD SIGNS
LEGEND REFER DRAWING C-0-5-00

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IN COLOUR**

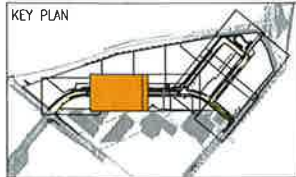


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KEY PLAN



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5	UPDATED SUBMISSION FOR SSDA	LAR	CR	28.10.2014					
6	UPDATED SUBMISSION FOR SSDA	LAR	CR	04.02.2015					

Structural, Civil & Construction
Engineering Consultant



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Client

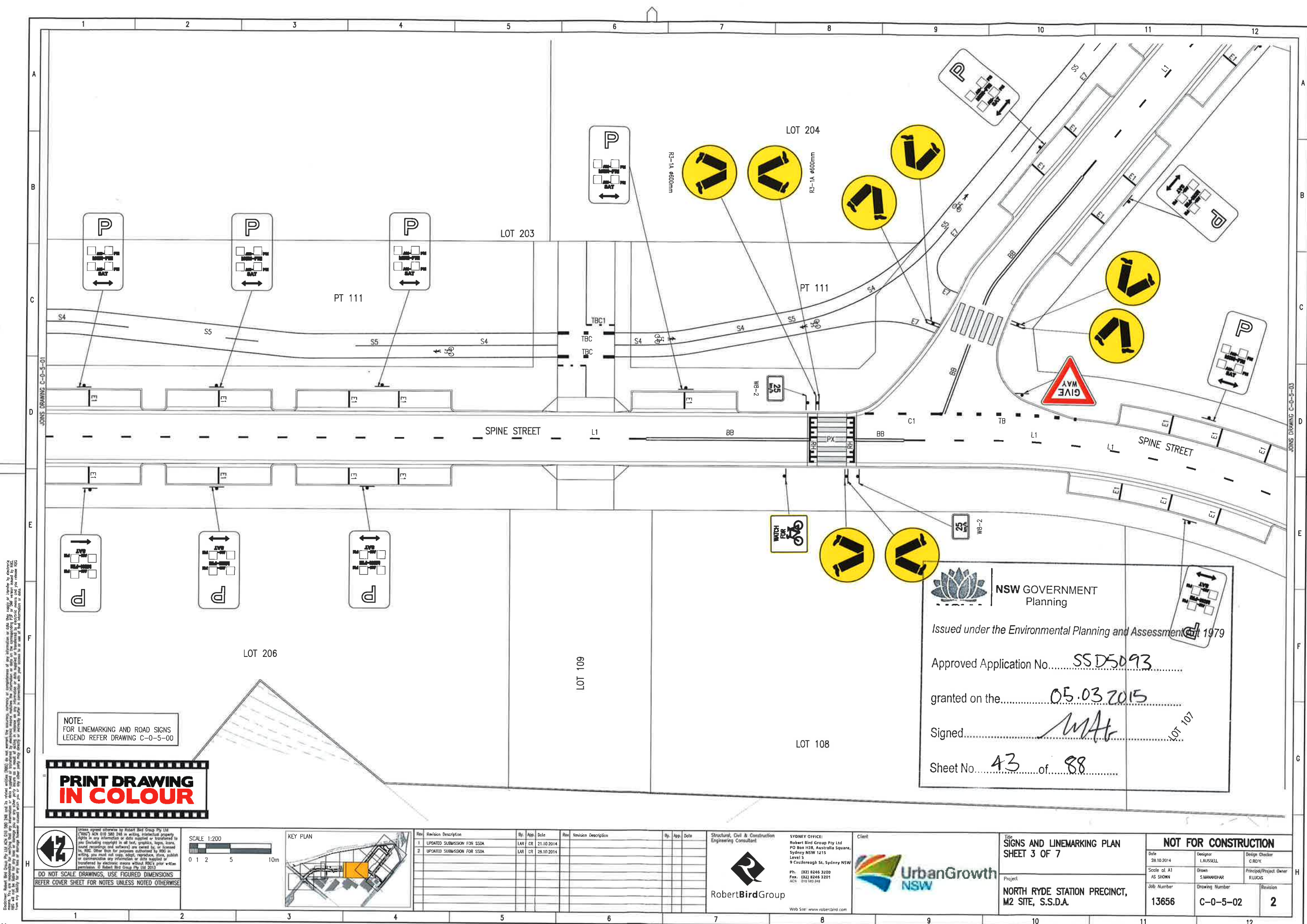


**SIGNS AND LINEMARKING PLAN
SHEET 2 OF 7**

Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

NOT FOR CONSTRUCTION

Date 04.02.2015	Designer L.RUSSELL	Design Checker C.ROPE
Scale of All AS SHOWN	Drawn S.MANANDHAR	Principal/Project Owner R.LUCAS
Job Number 13656 B	Drawing Number C-0-5-01	Revision 6

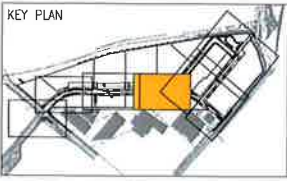


NOTE:
FOR LINEMARKING AND ROAD SIGNS
LEGEND REFER DRAWING C-0-5-00

**PRINT DRAWING
IN COLOUR**

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REFER COVER SHEET FOR NOTES UNLESS NOTED OTHERWISE

SCALE 1:200
0 1 2 5 10m



Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	UPDATED SUBMISSION FOR SSDA	LAR	CR	21.10.2014					
2	UPDATED SUBMISSION FOR SSDA	LAR	CR	28.10.2014					

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Web Site: www.robertbird.com

Client
**UrbanGrowth
NSW**

Title
**SIGNS AND LINEMARKING PLAN
SHEET 3 OF 7**
Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

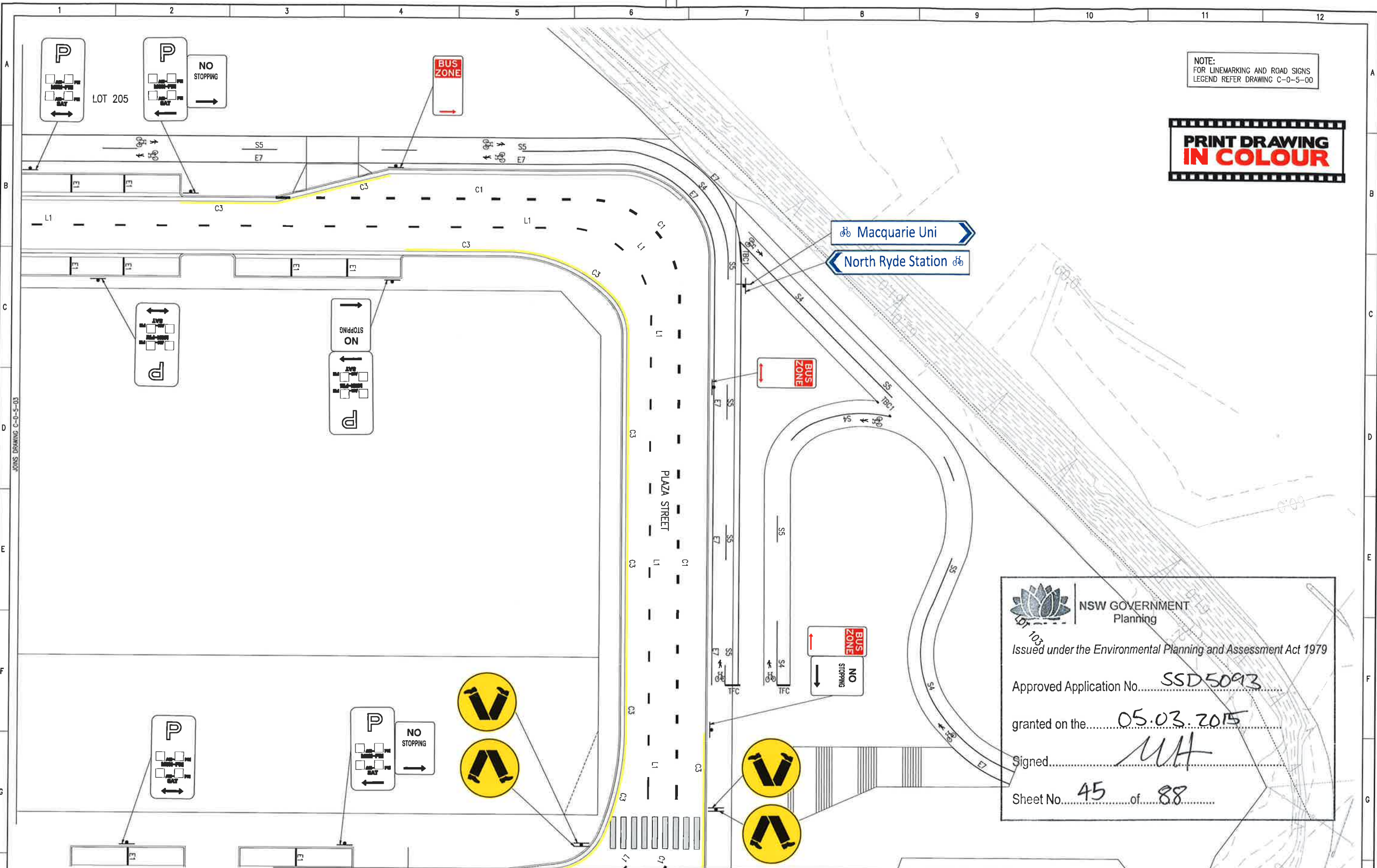
NOT FOR CONSTRUCTION			
Date 28.10.2014	Designer LIRUSSELL	Design Checker CROPE	
Scale of A1 AS SHOWN	Drawn S MANANDHAR	Principal/Project Owner R.LUCAS	
Job Number 13656	Drawing Number C-0-5-02	Revision 2	

NOTE:
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Macquarie Uni
North Ryde Station

 **NSW GOVERNMENT
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Approved Application No. SSD5093
granted on the 05.03.2015
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Sheet No. 45 of 88



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0 1 2 5 10m

KEY PLAN

Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	UPDATED SUBMISSION FOR SSDA	LAR	CR	21.10.2014					
2	UPDATED SUBMISSION FOR SSDA	LAR	CR	28.10.2014					

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NSW**

NOT FOR CONSTRUCTION

Date	Designer	Design Checker
28.10.2014	LARUSSELL	C.ROPE

Scale of AT	Drawn	Principal/Project Owner
AS SHOWN	S. MANANATHAR	R. LUCAS

Job Number	Drawing Number	Revisions
13656	C-0-5-04	2

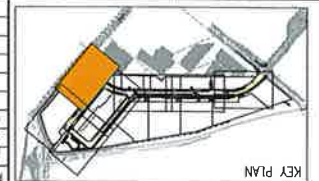
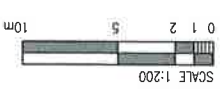
**SIGNS AND LINEMARKING PLAN
SHEET 5 OF 7**

Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

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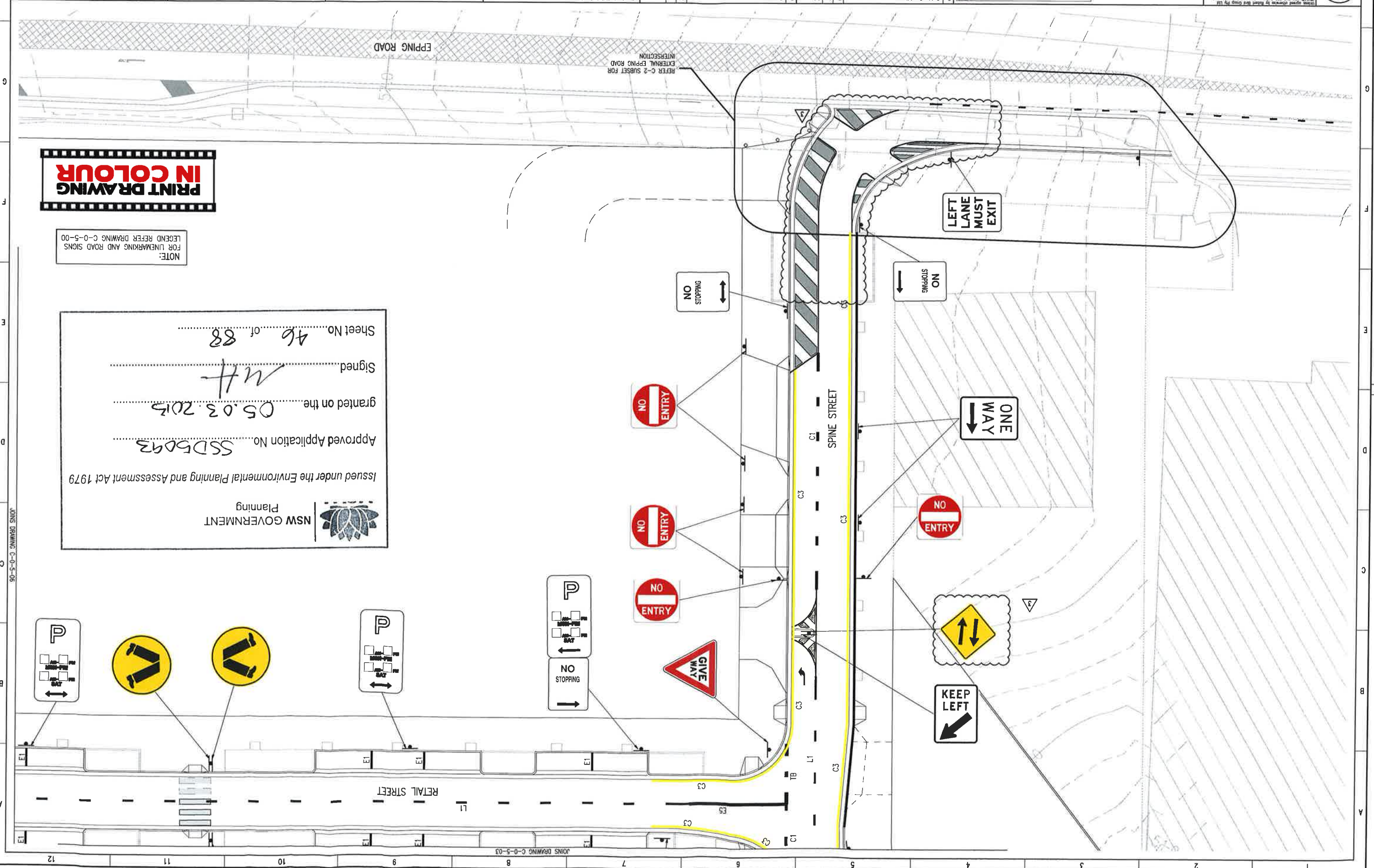
Rev	Revision Description	By	App	Date
1	UPDATED SUBMISSION FROM SSQA	UAB	CR	21.10.2014
2	UPDATED SUBMISSION FROM SSQA	UAB	CR	28.10.2014
3	UPDATED SUBMISSION FROM SSQA	UAB	CR	04.02.2015

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UrbanGrowth
NSW
Project:
NORTH RYDE STATION PRECINCT,
M2 SFT, S.S.D.A.

Job Number	13656 B
Drawing Number	C-0-5-05
Scale of A1	AS SHOWN
Drawn	S. WAWCHER
Checked	L. RUSSELL
Design Checker	C. ROPE
Revision	3

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IN COLOUR**

NOTE:
LEGEND REFER DRAWING C-0-5-00

NSW GOVERNMENT Planning

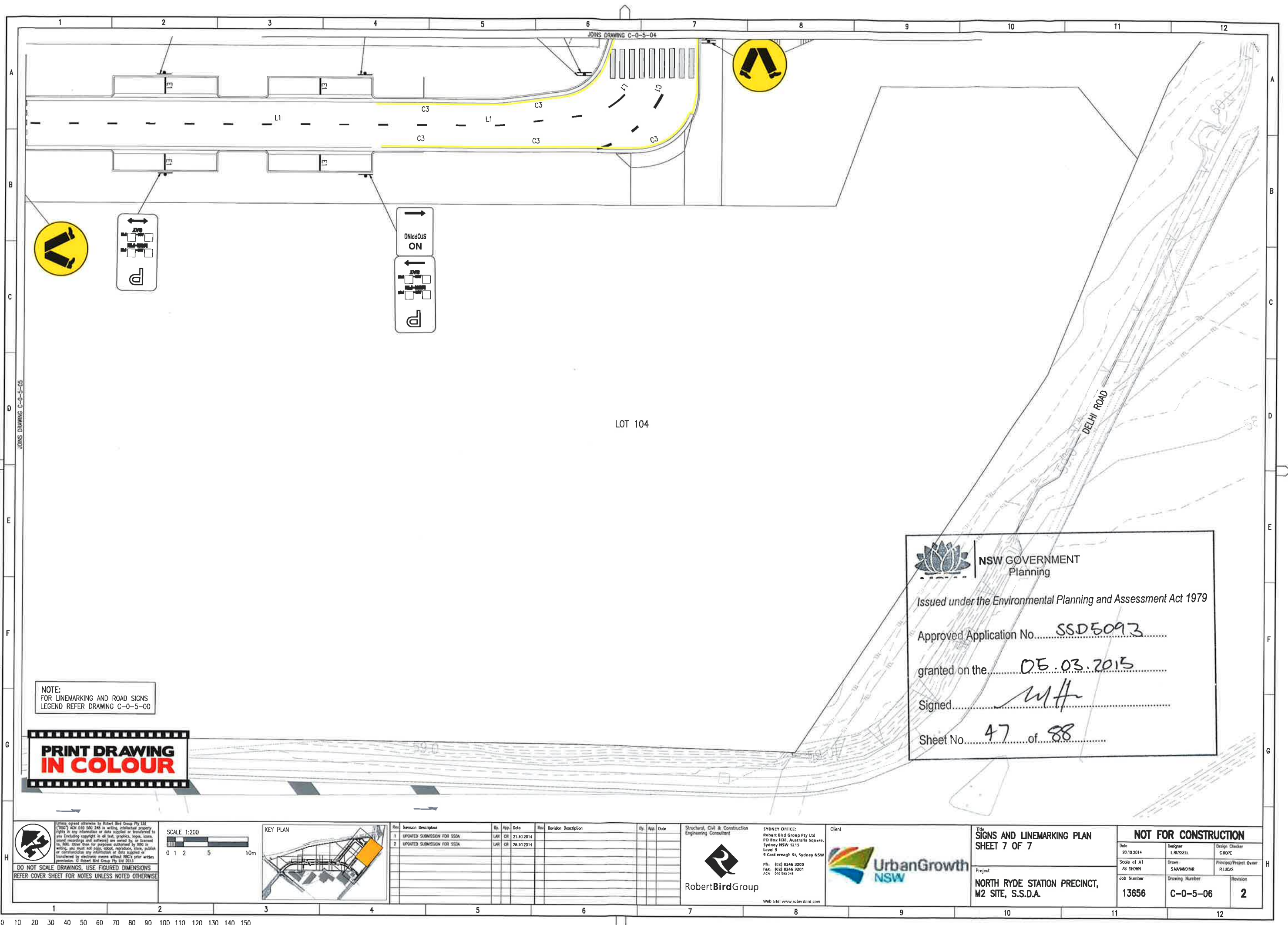
Issued under the Environmental Planning and Assessment Act 1979

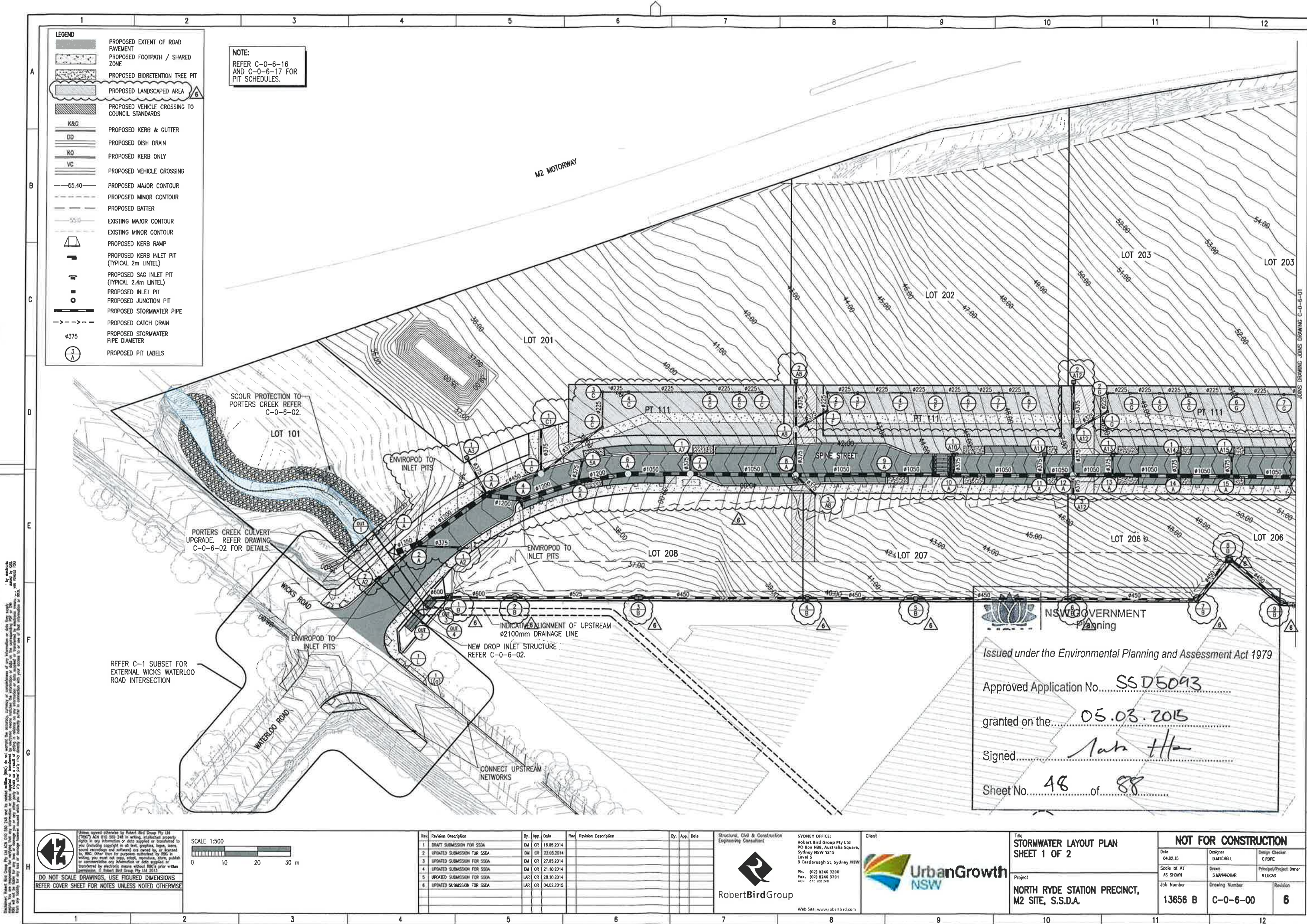
Approved Application No. **SSD5043**

granted on the **05.03.2015**

Signed **MH**

Sheet No. **46** of **88**





NOTE:
REFER C-0-6-16
AND C-0-6-17 FOR
PIT SCHEDULES.

SCOUR PROTECTION TO
PORTERS CREEK REFER
C-0-6-02.

PORTERS CREEK CULVERT
UPGRADE. REFER DRAWING
C-0-6-02 FOR DETAILS.

REFER C-1 SUBSET FOR
EXTERNAL WICKS WATERLOO
ROAD INTERSECTION

INDICATIVE ALIGNMENT OF UPSTREAM
Ø2100mm DRAINAGE LINE

NEW DROP INLET STRUCTURE
REFER C-0-6-02.

CONNECT UPSTREAM
NETWORKS

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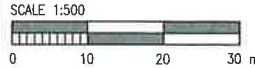
Approved Application No. SS D5093

granted on the 05.03.2015

Signed [Signature]

Sheet No. 48 of 88

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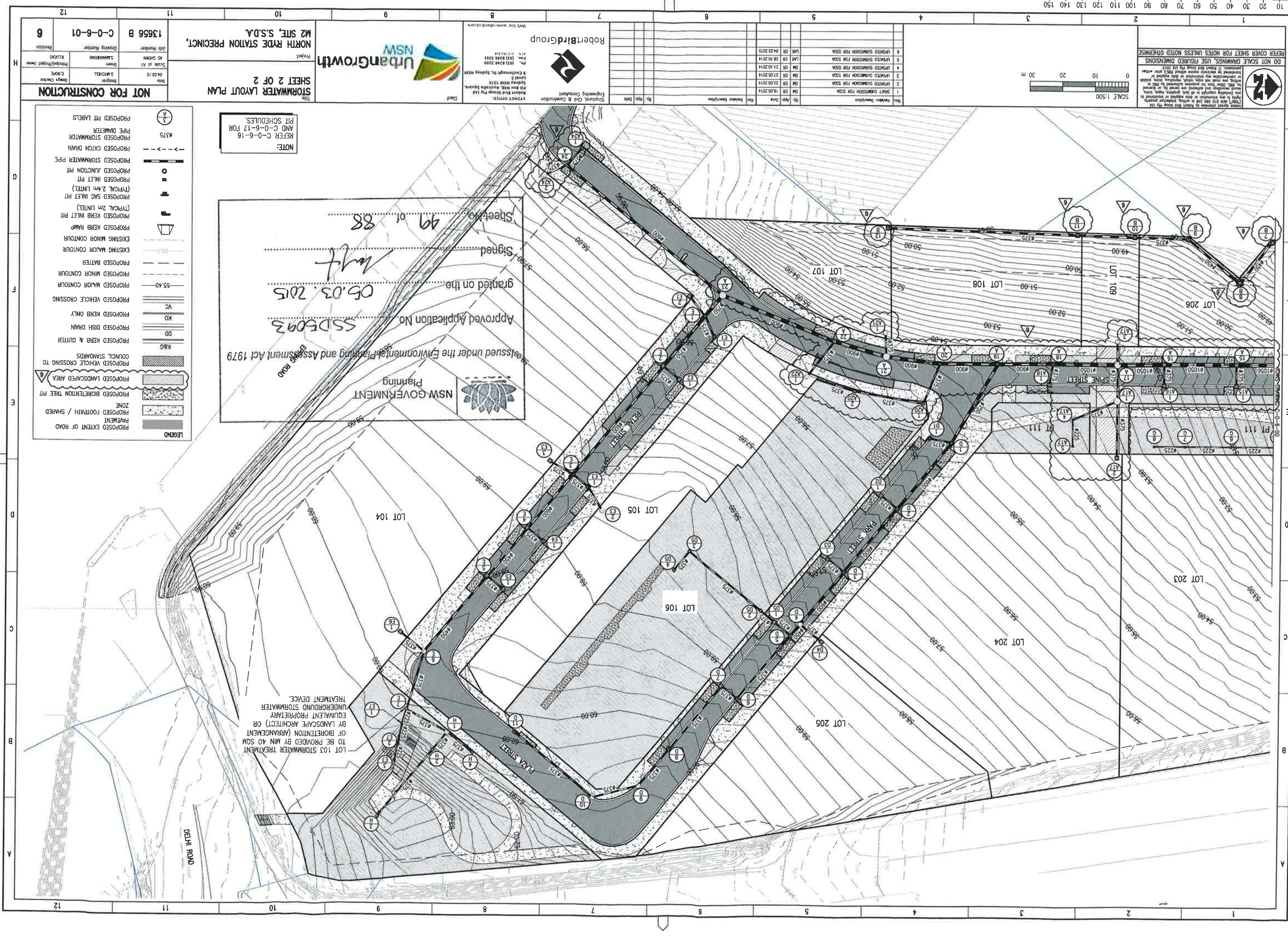
Rev.	Revision Description	By	App.	Date	Rev.	Revision Description	By	App.	Date
1	DRAWING SUBMISSION FOR SSDA	DM	CR	18.05.2014					
2	UPDATED SUBMISSION FOR SSDA	DM	CR	22.05.2014					
3	UPDATED SUBMISSION FOR SSDA	DM	CR	27.05.2014					
4	UPDATED SUBMISSION FOR SSDA	DM	CR	21.10.2014					
5	UPDATED SUBMISSION FOR SSDA	LAR	CR	28.10.2014					
6	UPDATED SUBMISSION FOR SSDA	LAR	CR	04.02.2015					

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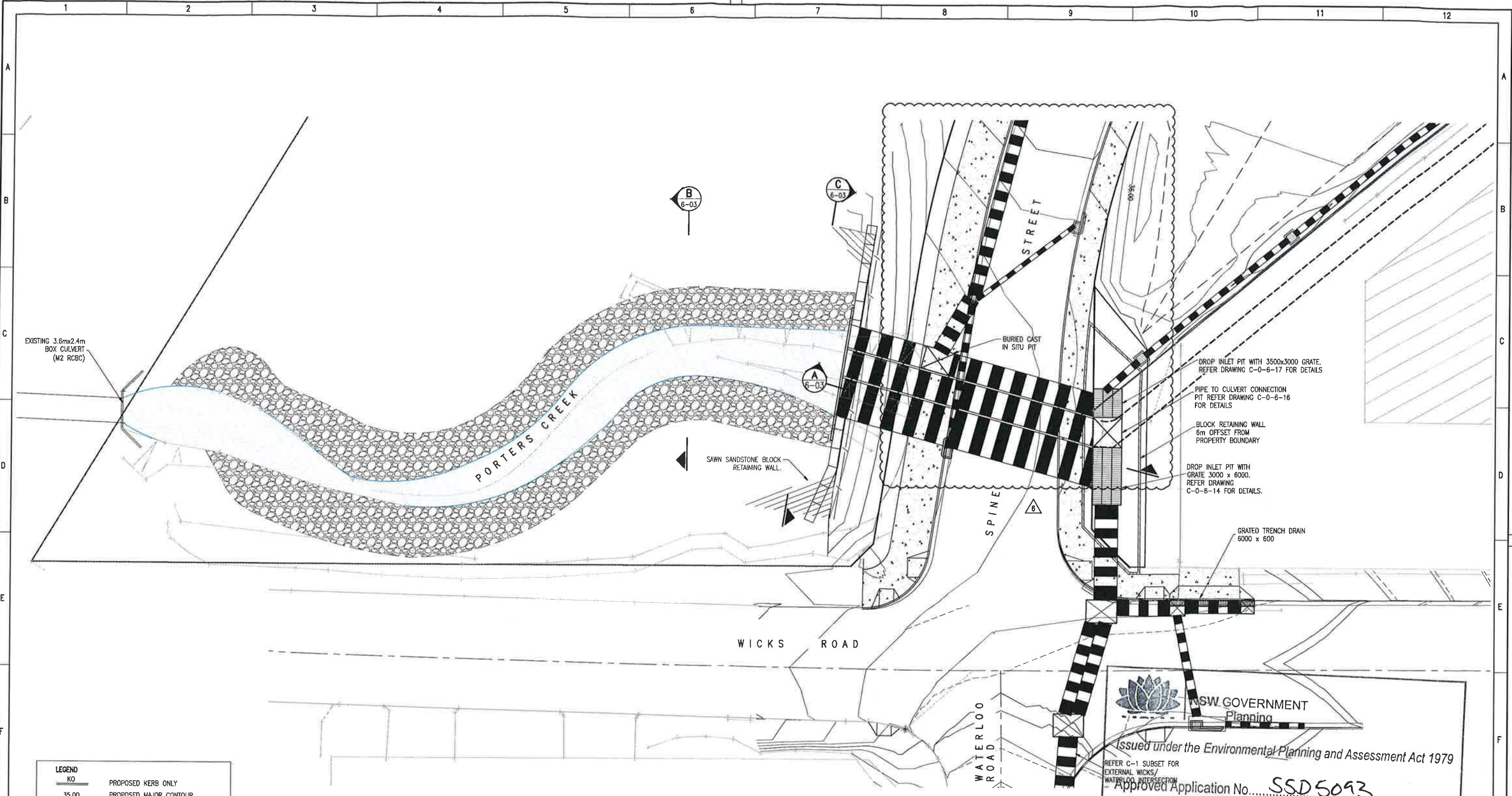
Client
**UrbanGrowth
NSW**

Title
**STORMWATER LAYOUT PLAN
SHEET 1 OF 2**
Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

NOT FOR CONSTRUCTION
Date 04.02.15
Scale at A1 AS SHOWN
Job Number 13656 B
Designer DMITCHELL
Drawn S MANAWAR
Drawing Number C-0-6-00
Design Checker CROPE
Principal/Project Owner R LUCKS
Revision 6



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LEGEND

- KO — PROPOSED KERB ONLY
- 35.00 PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED FOOTPATH
- PROPOSED FLOOD PROTECTION WALL
- PROPOSED RETAINING WALL
- PROPOSED STORMWATER PIPE
- PROPOSED SAG INLET PIT
- PROPOSED KERB INLET PIT
- PROPOSED JUNCTION PIT

NSW GOVERNMENT Planning

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Approved Application No. **SSD5093**

granted on the **05.03.2015**

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Sheet No. **50** of **88**

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SCALE 1:200

SCALE 1:50

Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	DRAFT SUBMISSION FOR SSDA	DM	CR	19.05.2014					
2	UPDATED SUBMISSION FOR SSDA	DM	CR	22.05.2014					
3	UPDATED SUBMISSION FOR SSDA	DM	CR	27.05.2014					
4	UPDATED SUBMISSION FOR SSDA	DM	CR	21.10.2014					
5	UPDATED SUBMISSION FOR SSDA	LAR	CR	28.10.2014					
6	UPDATED SUBMISSION FOR SSDA	LAR	CR	04.02.2015					

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Client

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NOT FOR CONSTRUCTION

Date	Designer	Design Checker
04.02.15	D MITCHELL	C ROPE

Scale of A1	Drawn	Principal/Project Owner
AS SHOWN	S MAHANEWAR	R LUCAS

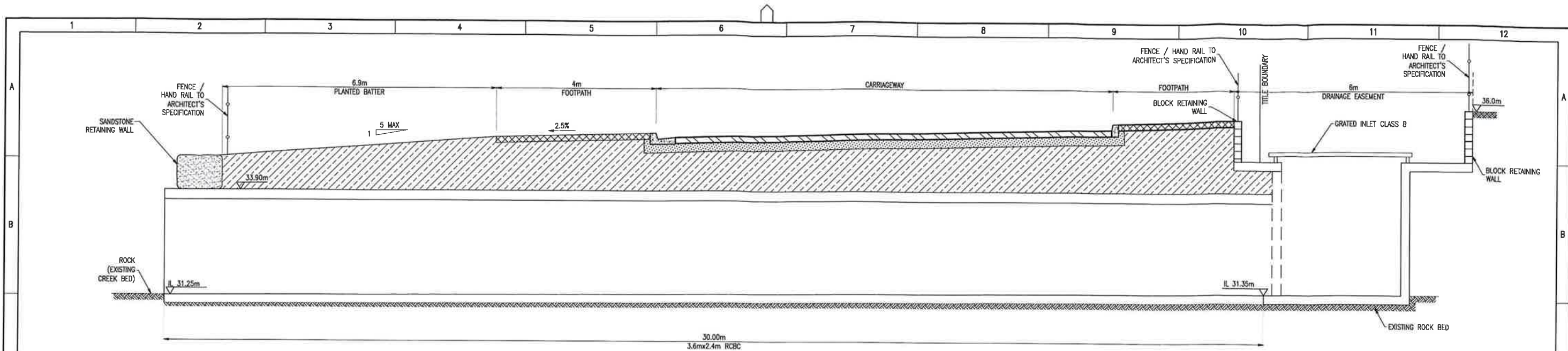
Job Number	Drawing Number	Revision
13656 B	C-0-6-02	6

Title

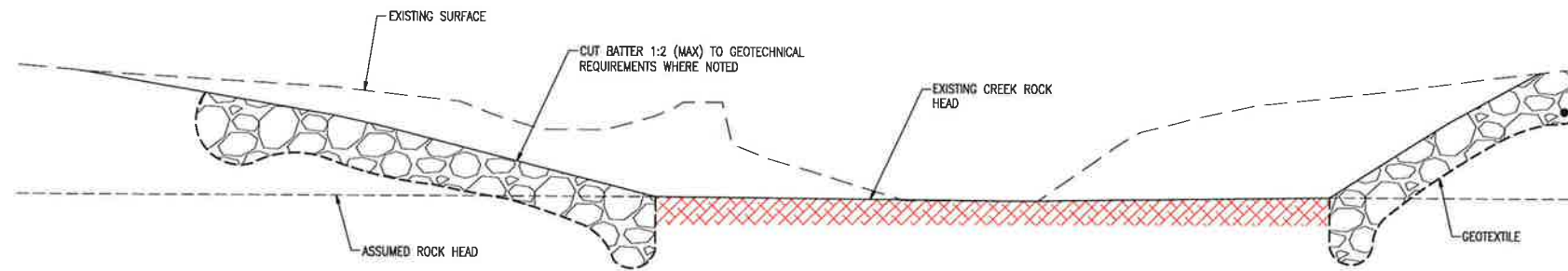
PORTERS CREEK CULVERT UPGRADE LAYOUT PLAN

Project

NORTH RYDE STATION PRECINCT, M2 SITE, S.S.D.A.

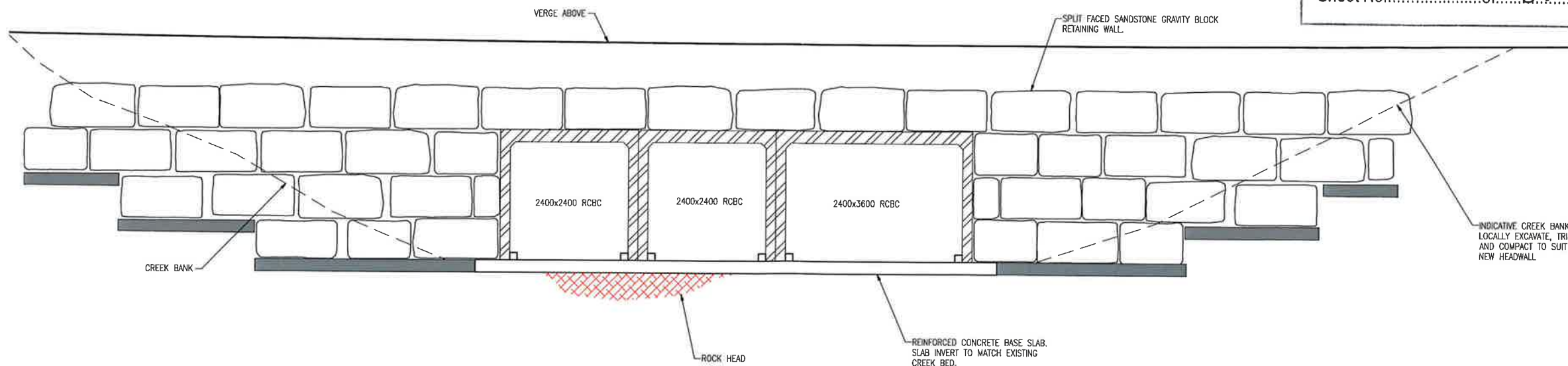


A SECTION - PORTERS CREEK RCBC
SCALE 1:50



B TYPICAL SECTION - PORTERS CREEK SCOUR PROTECTION
SCALE 1:50

NOTE:
1. SCOUR PROTECTION EXTENTS BASED ON VELOCITY MODELING.



C TYPICAL SECTION - PORTERS CREEK BOX CULVERT OUTLET AND RETAINING WALL
SCALE 1:50

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Planning

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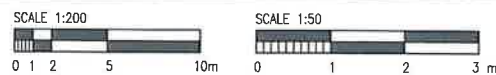
Approved Application No. **SSD 6093**

granted on the **05.03.2015**

Signed *[Signature]*

Sheet No. **51** of **88**

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Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	UPDATED SUBMISSION FOR SDA	DM	CR	21.10.2014					
2	UPDATED SUBMISSION FOR SDA	LAR	CR	28.10.2014					

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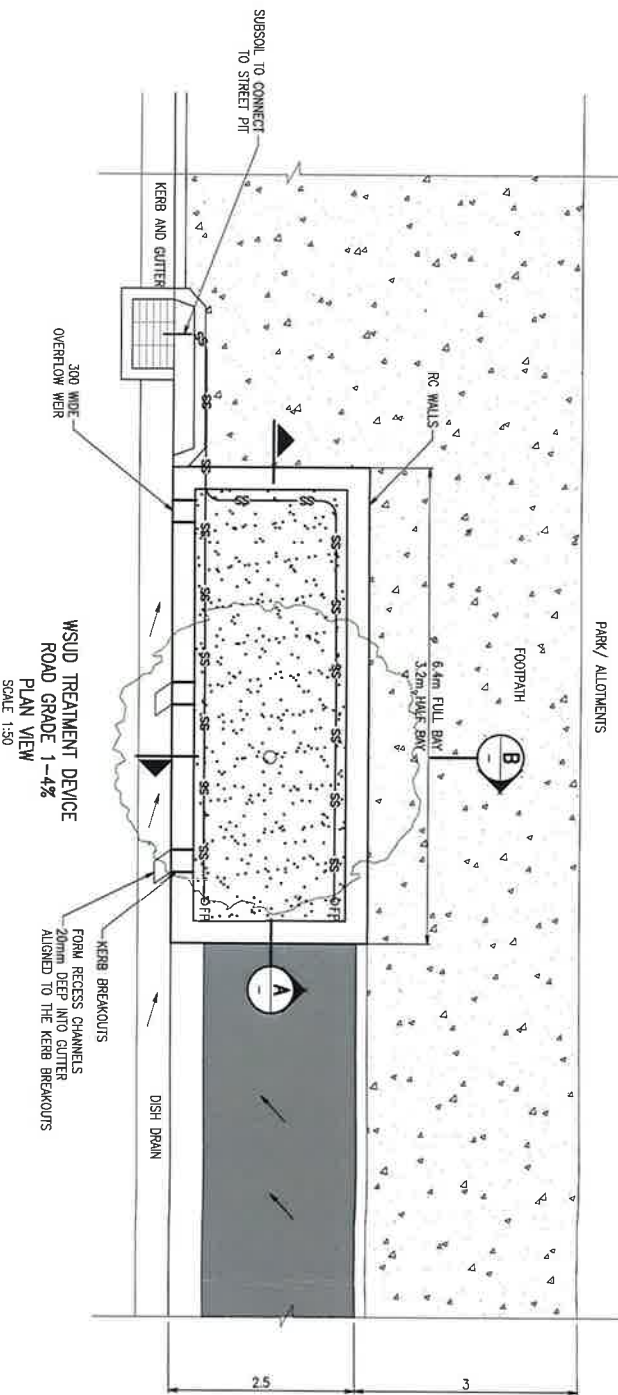
UrbanGrowth NSW

**PORTERS CREEK CULVERT
UPGRADE SECTIONS PLAN**

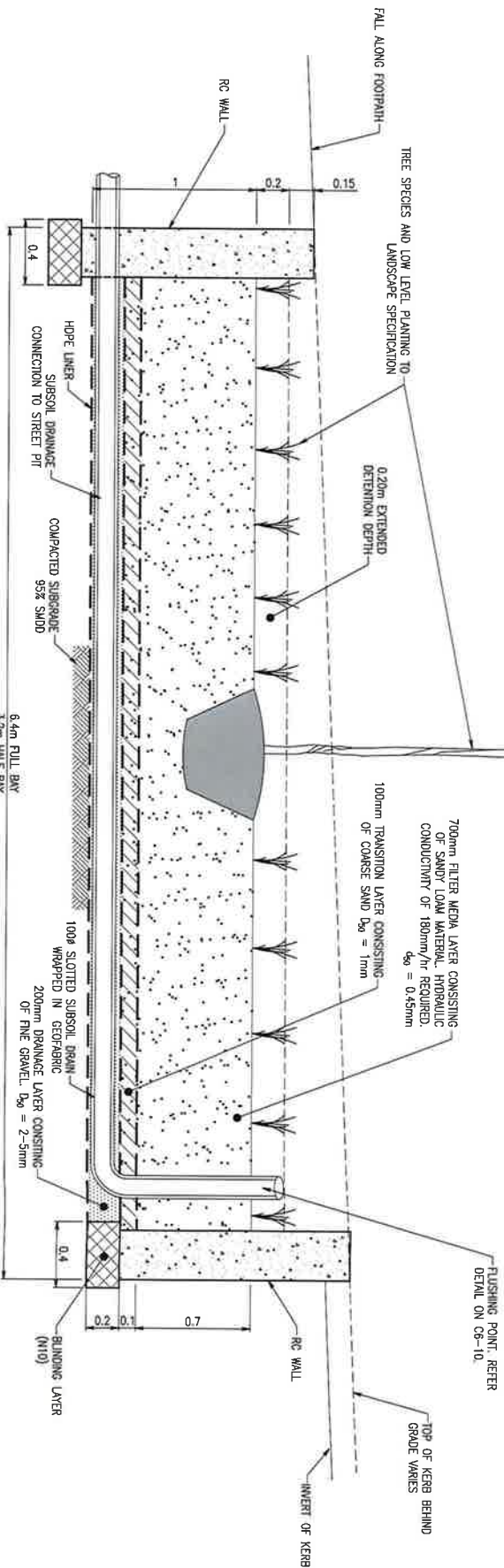
Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

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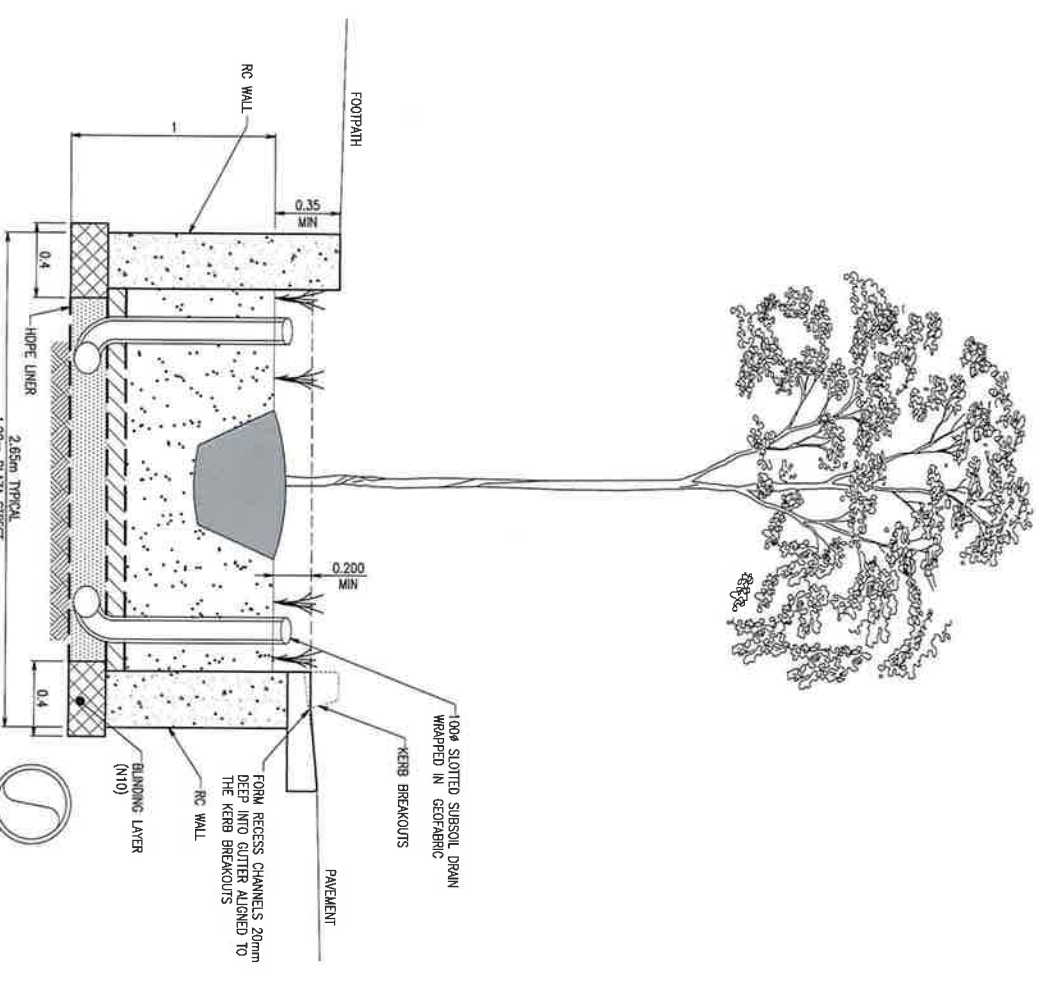
Date 28.10.14	Designer D MITCHELL	Design Checker C ROPE
Scale at A1 AS SHOWN	Drawn S MANANDHAR	Principal/Project Owner R LUJAS
Job Number 13656	Drawing Number C-0-6-03	Revision 2



WSUD TREATMENT DEVICE
ROAD GRADE 1-4%
PLAN VIEW
SCALE 1:30



WSUD TREATMENT DEVICE
ROAD GRADE 1-4%
SECTION A
SCALE 1:20



WSUD TREATMENT DEVICE
ROAD GRADE 1-4%
SECTION B
SCALE 1:20

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Approved Application No. **SSD5063**

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Signed **WH**

Sheet No. **52** of **88**

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SCALE 1:50
0 1 2 3 m

SCALE 1:20
0 200 400 600 800 1000mm

Rev	Revision Description	By	App	Date
1	DESIGN SUBMISSION FOR SDA	UAM	CR	18.05.2014
2	UPDATED SUBMISSION FOR SDA	UAM	CR	22.05.2014
3	UPDATED SUBMISSION FOR SDA	UAM	CR	27.05.2014
4	UPDATED SUBMISSION FOR SDA	UAM	CR	21.10.2014
5	UPDATED SUBMISSION FOR SDA	UAM	CR	28.10.2014

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Date: 28.10.14
Scale: As Shown
Job Number: 13656
Drawing Number: C-0-6-10
Revision: 5

Project: NORTH RIDE STATION PRECINCT, M2 SITE, S.S.D.A.

Sheet: 52 OF 88



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Planning

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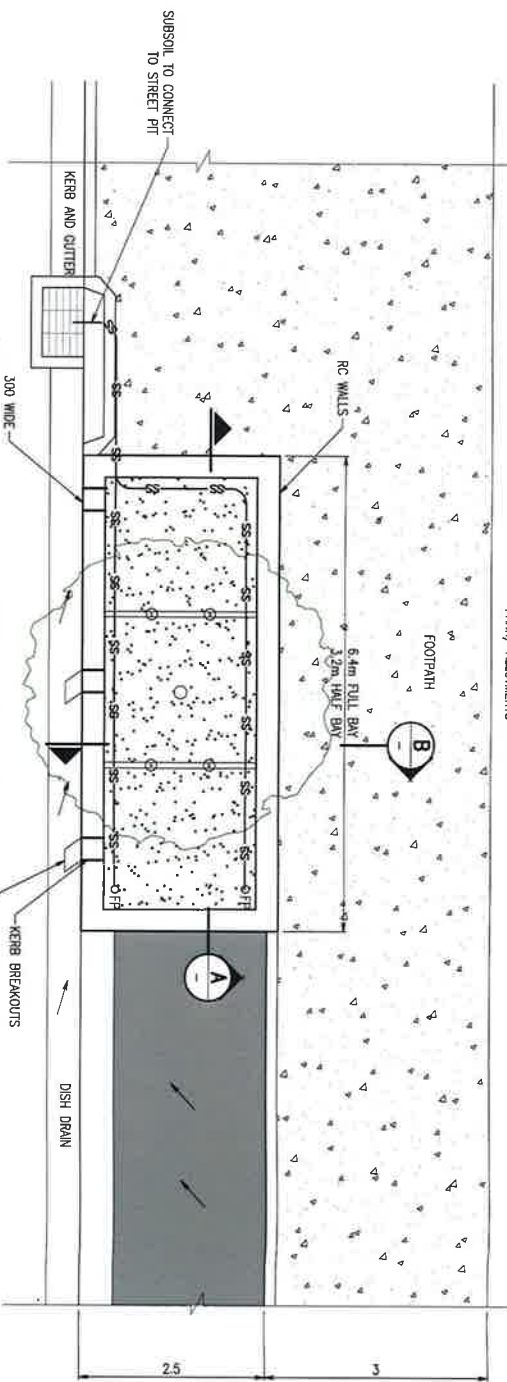
Approved Application No. **SSD5093**

granted on the **05.03.2015**

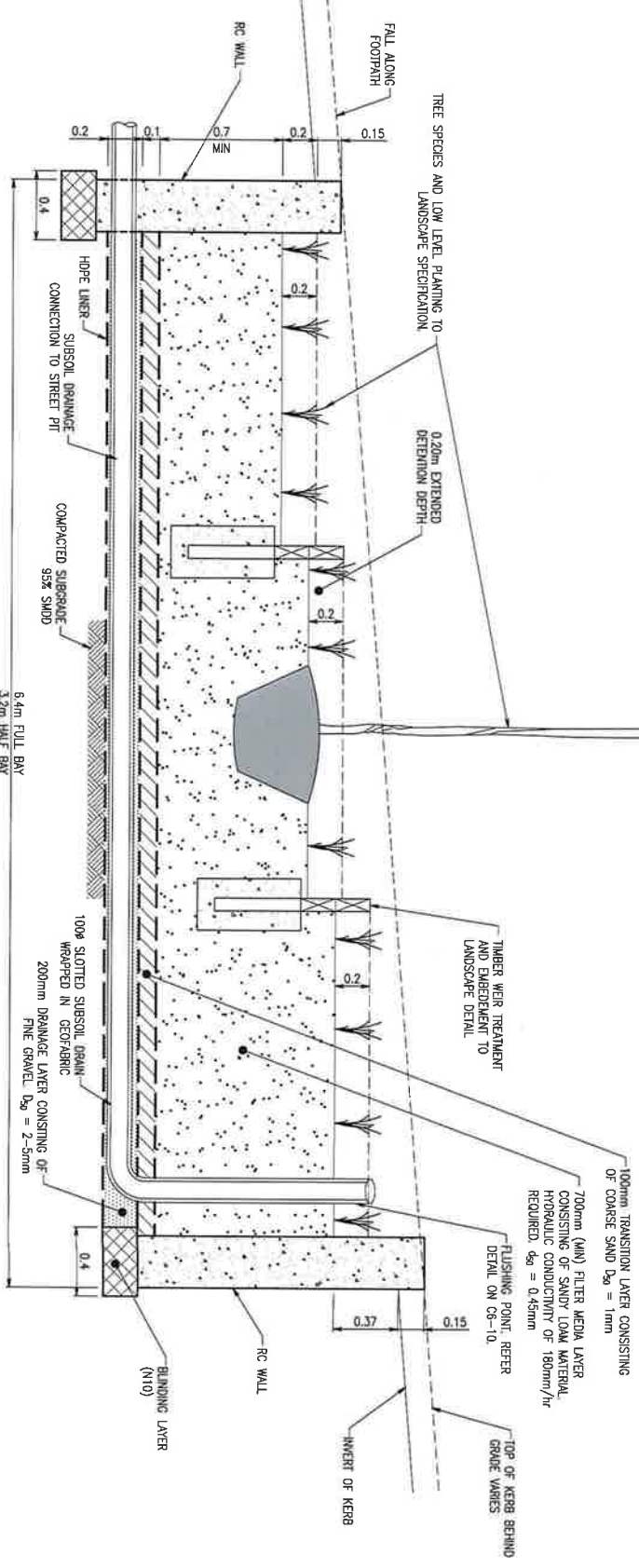
Signed **[Signature]**

Sheet No. **53** of **88**

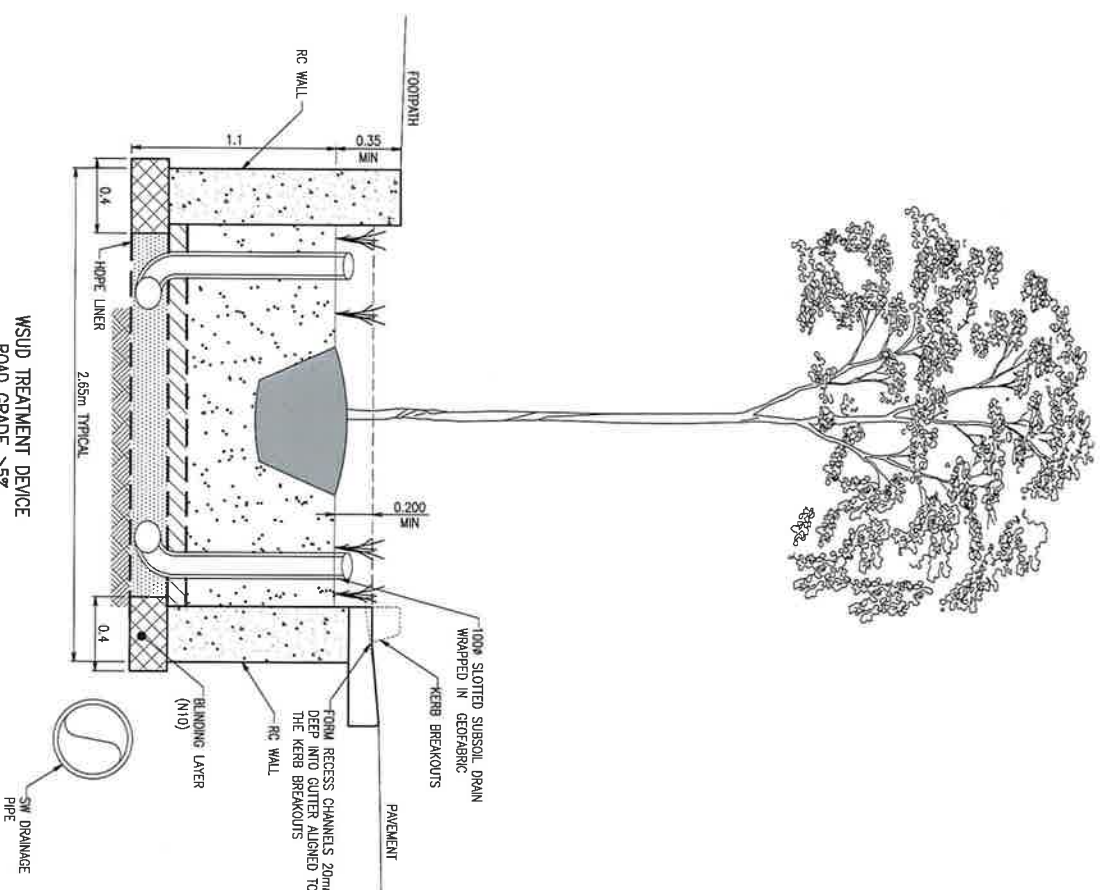
WSUD TREATMENT DEVICE
ROAD GRADE >5%
PLAN VIEW
SCALE 1:50



WSUD TREATMENT DEVICE
ROAD GRADE >5%
SECTION A
SCALE 1:20



WSUD TREATMENT DEVICE
ROAD GRADE >5%
SECTION B
SCALE 1:20



STORMWATER DETAILS
SHEET 2 OF 8

Project	North Rye Station Precinct, M2 Site, S.S.D.A.
Job Number	13656
Drawing Number	C-0-6-11
Revision	2

NOT FOR CONSTRUCTION

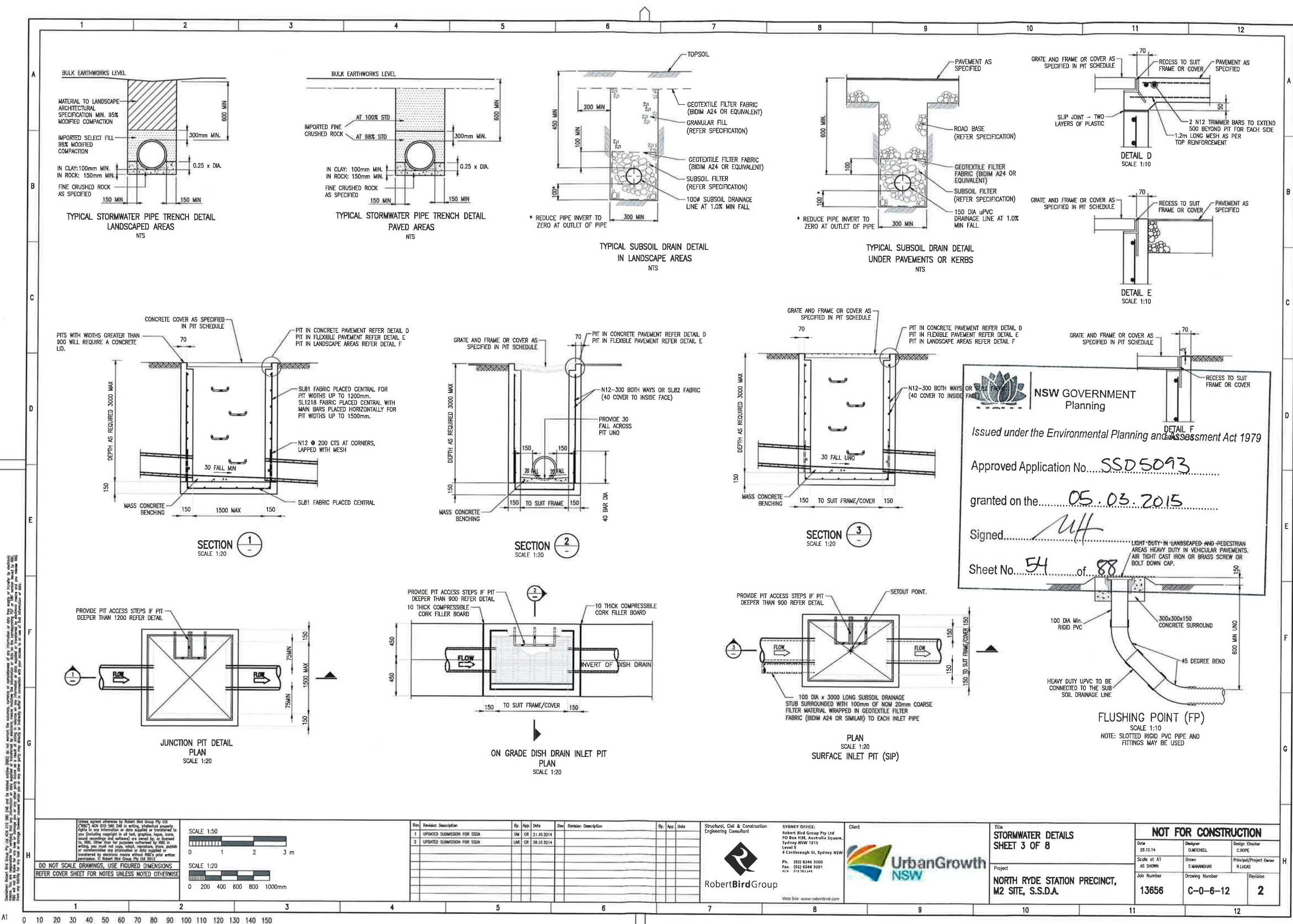
Robert Bird Group
Engineering Consultant
STONEY OFFICE:
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Sydney NSW 1570
9 Canterbury St, Sydney NSW
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SCALE 1:50
0 1 2 3 m

SCALE 1:20
0 200 400 600 800 1000mm

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Approved Application No. SSD5093

granted on the 05.03.2015

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Sheet No. 54 of 88

LIGHT DUTY IN LANDSCAPED AND PEDESTRIAN AREAS
HEAVY DUTY IN VEHICULAR PAVEMENTS.
AIR TIGHT CAST IRON OR BRASS SCREW OR BOLT DOWN CAP.

FLUSHING POINT (FP)
SCALE 1:10
NOTE: SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED

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SCALE 1:50



0 1 2 3 m

SCALE 1:20



0 200 400 600 800 1000mm

Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	UPDATED SUBMISSION FOR SSDA	DM	CR	21.10.2014					
2	UPDATED SUBMISSION FOR SSDA	DM	CR	28.10.2014					

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**UrbanGrowth NSW**

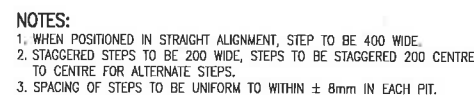
Client

Title
**STORMWATER DETAILS
SHEET 3 OF 8**

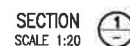
Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

NOT FOR CONSTRUCTION

Date 28.10.14	Designer D.MITCHELL	Design Checker C.ROPE
Scale at A1 AS SHOWN	Drawn S.MANAWAR	Principal/Project Owner R.LUCAS
Job Number 13656	Drawing Number C-0-6-12	Revision 2



PIT STEP IRON DETAILS
NTS



PROVIDE AND INSTALL WELDLOC GRATE
TO MANUFACTURERS SPECIFICATIONS

HINGE GRATING 90°
TO FLOW ON
UPSTREAM SIDE



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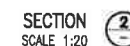
FIELD INLET PIT (FIP)
SCALE 1:50

Approved Application No. SSD 5093

granted on the 05.03.2015

Signed.....*MF*.....

Sheet No. 55 of 88

Structural, Civil & Construction
Engineering ConsultantRobert **Bird** Group

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Fax. (02) 8246 3201
ACN 010 387 248

Web Site: www.roberthd.com



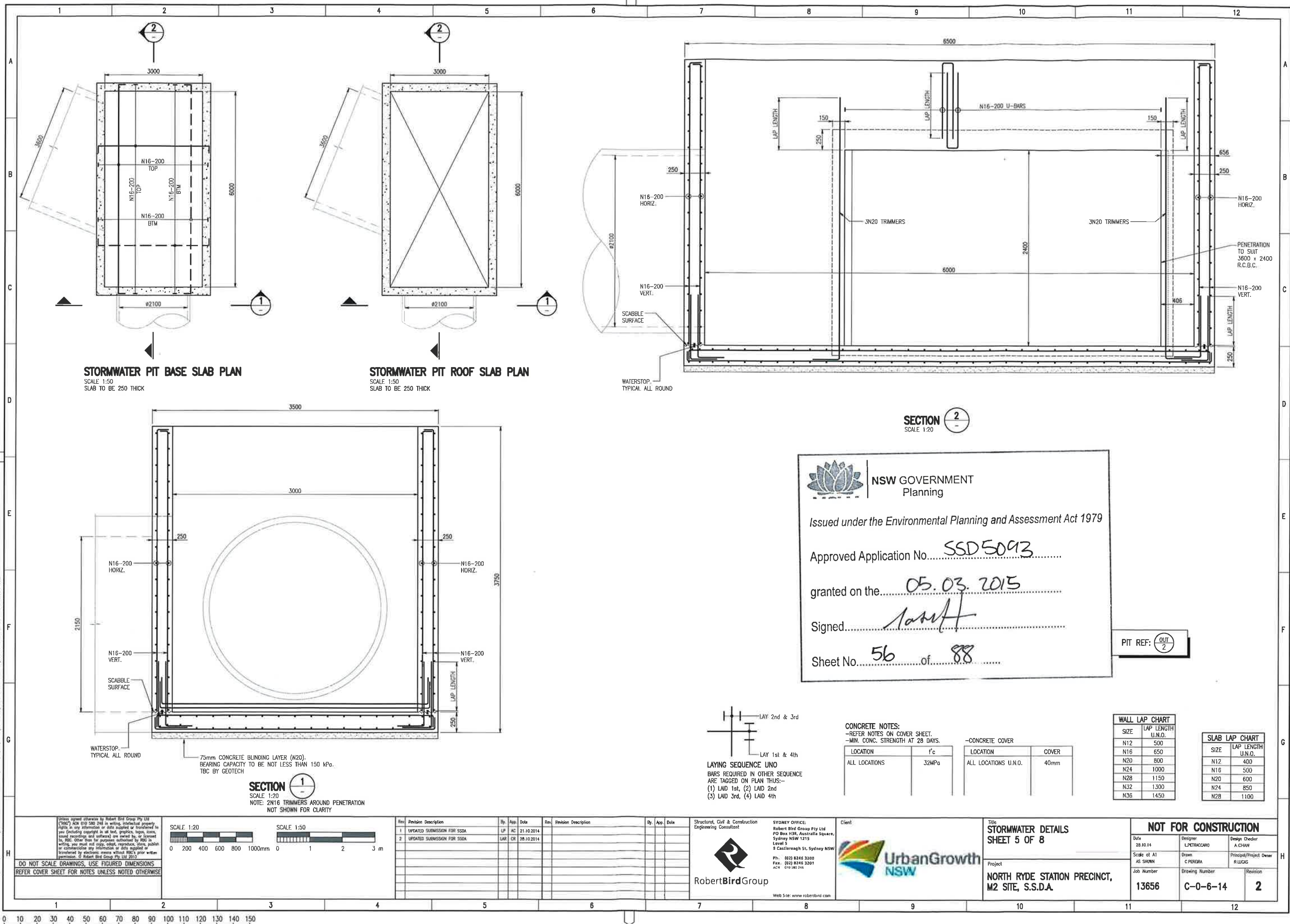
Title
STORMWATER DETAILS
SHEET 4 OF 8

Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

NOT FOR CONSTRUCTION

Date 28.10.14	Designer D.MITCHELL	Design Checker C.ROPE
Scale at All AS SHOWN	Drawn S.MANUWAR	Principal/Project Designer R.LUCAS
Job Number 13656	Drawing Number C-0-6-13	Revision 2

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note 04.02.15	Designer L.PETRACCARO	Design Checker A.CHAN
scale at A1 AS SHOWN	Drawn C.PEREIRA	Principal/Project R.LUCAS
Job Number 13656 B	Drawing Number C-0-6-15	Revision 3

STORMWATER PIT BASE SLAB PLAN

SCALE 1:50
SLAB TO BE 250 THICK

STORMWATER PIT ROOF SLAB PLAN

SCALE 1:50
SLAB TO BE 250 THICK

SECTION 2

SCALE 1:20
NOTE: 2N16 TRIMMERS AROUND PENETRATION
NOT SHOWN FOR CLARITY

NSW GOVERNMENT
Planning

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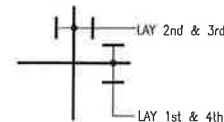
Approved Application No. **SSD5093**

granted on the **05.03.2015**

Signed **[Signature]**

Sheet No. **58** of **88**

PIT REF: **OUT 4**



LAYING SEQUENCE UNO
BARS REQUIRED IN OTHER SEQUENCE
ARE TAGGED ON PLAN THUS:-
(1) LAID 1st, (2) LAID 2nd
(3) LAID 3rd, (4) LAID 4th

CONCRETE NOTES:

-REFER NOTES ON COVER SHEET.
-MIN. CONC. STRENGTH AT 28 DAYS.

LOCATION	f'c
ALL LOCATIONS	32MPa

-CONCRETE COVER

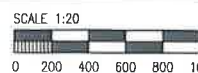
LOCATION	COVER
ALL LOCATIONS U.N.O.	40mm

SIZE	LAP LENGTH U.N.O.
N12	500
N16	650
N20	800
N24	1000
N28	1150
N32	1300
N36	1450

SIZE	LAP LENGTH U.N.O.
N12	400
N16	500
N20	600
N24	850
N28	1100

SECTION 1

SCALE 1:20
NOTE: 2N16 TRIMMERS AROUND PENETRATION
NOT SHOWN FOR CLARITY



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REFER COVER SHEET FOR NOTES UNLESS NOTED OTHERWISE

Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	UPDATED SUBMISSION FOR SSDA	LP	AC	21.10.2014					
2	UPDATED SUBMISSION FOR SSDA	LAR	OK	28.10.2014					



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Web Site: www.robertbird.com

Client:

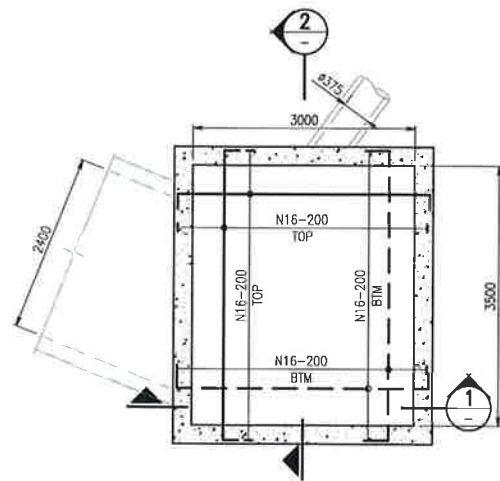


Title
**STORMWATER DETAILS
SHEET 7 OF 8**

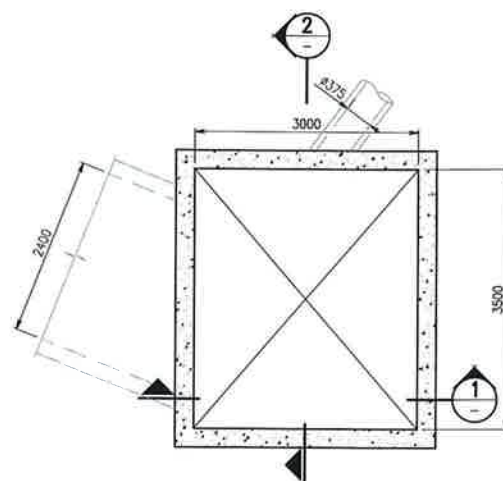
Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

NOT FOR CONSTRUCTION

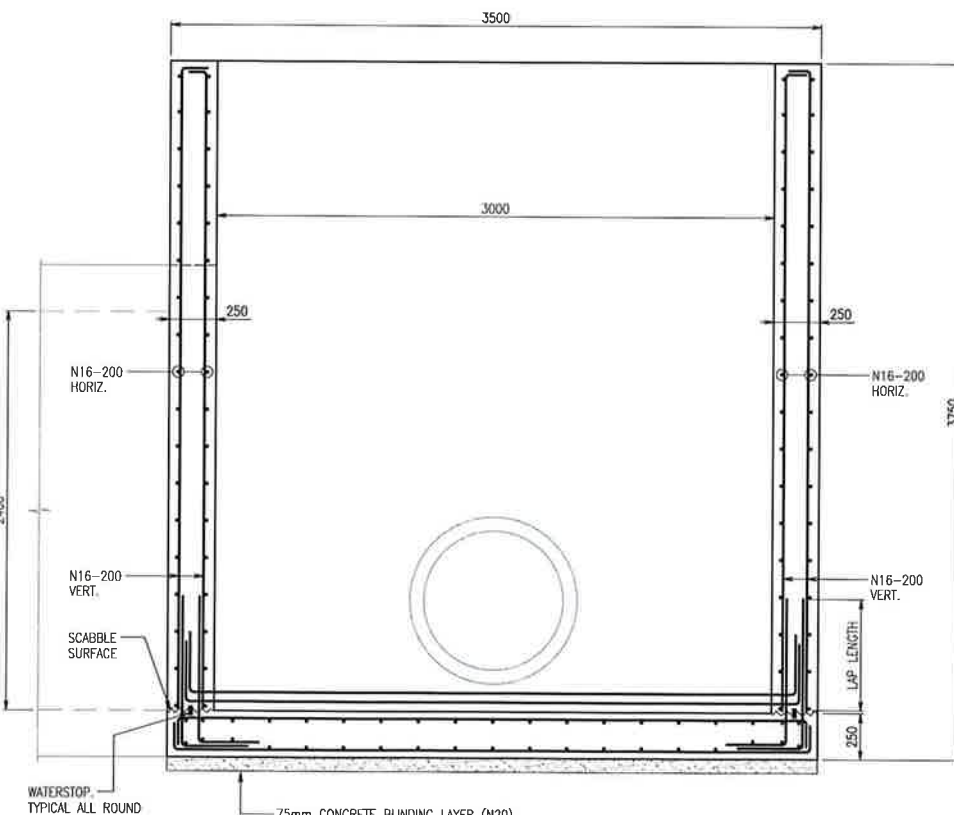
Date 28.10.14	Designer L.PETRACARO	Design Checker A.CHAN
Scale at All AS SHOWN	Drawn C.PEREIRA	Principal/Project Owner R.LUCAS
Job Number 13656	Drawing Number C-0-6-16	Revision 2



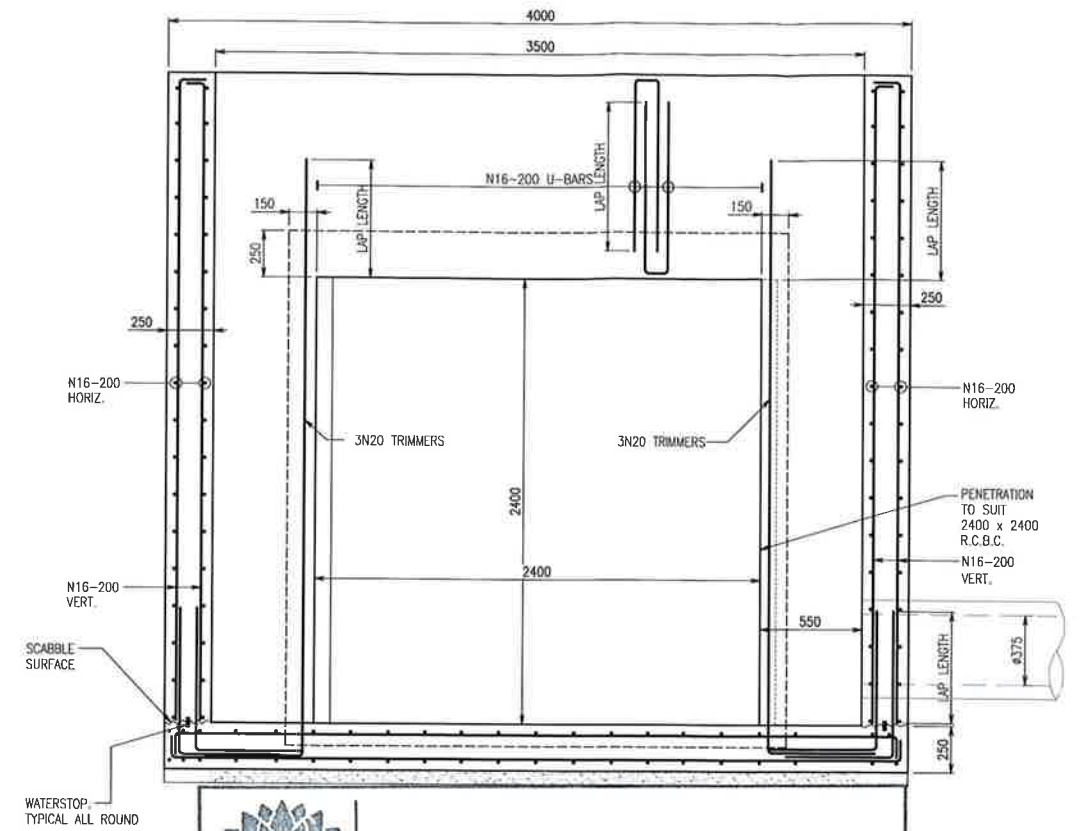
STORMWATER PIT BASE SLAB PLAN
SCALE 1:50
SLAB TO BE 250 THICK



STORMWATER PIT ROOF SLAB PLAN
SLAB TO BE 250 THICK
SCALE 1:50



SECTION 1
SCALE 1:20
NOTE: 2N16 TRIMMERS AROUND PENETRATION
NOT SHOWN FOR CLARITY



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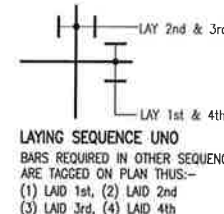
Approved Application No. SSD 5093

granted on the 05.03.2015

Signed [Signature]

Sheet No. 59 of 88

PIT REF: OUT 3



CONCRETE NOTES:

- REFER NOTES ON COVER SHEET.
- MIN. CONC. STRENGTH AT 28 DAYS.

LOCATION	f'c
ALL LOCATIONS	32MPa

CONCRETE COVER

LOCATION	COVER
ALL LOCATIONS U.N.O.	40mm

WALL LAP CHART

SIZE	LAP LENGTH U.N.O.
N12	500
N16	650
N20	800
N24	1000
N28	1150
N32	1300
N36	1450

SLAB LAP CHART

SIZE	LAP LENGTH U.N.O.
N12	400
N16	500
N20	600
N24	850
N28	1100

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Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	UPDATED SUBMISSION FOR SSDA	LAR	CR	28.10.2014					

Structural, Civil & Construction
Engineering Consultant

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Web Site: www.robertbird.com

Client

UrbanGrowth NSW

Title
**STORMWATER DETAILS
SHEET 8 OF 8**

Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

NOT FOR CONSTRUCTION

Date	Designer	Design Checker
28.10.14	LPETRACCARO	A.CHAN

Scale of A1	Drawn	Principal/Project Owner
AS SHOWN	C.PERERA	R.LUCAS

Job Number	Drawing Number	Revision
13656	C-0-6-17	1

6

225 38.38 40.10 GRATE CLASS B 1.22

Approved Application No. L.D. GLASS D. 230 5505013

granted on the.....05.03.2015.....

Signed.....

Sheet No. 60 of 88

with Title PIT SCHEDULE SHEET 1 OF 2	NOT FOR CONSTRUCTION		
	Date	Designer	Design Checker
	Scale of All AS SHOWN	Drawn	Principal/Project Owner
	Job Number	Drawing Number	Revision
with Project NORTH RYDE STATION PRECINCT, M2 SITE, S.S.D.A.	04.02.15	D MITCHELL	C.ROPE
	AS SHOWN	S.MANANDHAR	RUDAS
	13656 B	C-0-6-18	6

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[illegible]

Structural, Civil & Construction
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Title	PIT SCHEDULE SHEET 1 OF 2
Project	NORTH RYDE STATION PRECINCT, M2 SITE, S.S.D.A.

STORMWATER PIT SCHEDULE													
PIT No.	TYPE	INTERNAL DIMENSIONS	COORDINATES		INLET DETAILS		OUTLET DETAILS		COVER LEVEL	COVER TYPE	COVER CLASS	DEPTH	NOTES
			EASTING	NORTHING	DIAMETER	INVERT LEVEL	DIAMETER	INVERT LEVEL					
1/D	ON GRADE PIT WITH LINTEL	1200 x 1200			600	52.15	900	52.10	54.70	GRATE	CLASS D	2.60	MULTIPLE INLET PIPES
2/D	ON GRADE DISH DRAIN INLET PIT	900 x 900			600	53.25	600	53.20	55.70	GRATE	CLASS D	2.50	MULTIPLE INLET PIPES
3/D	ON GRADE DISH DRAIN INLET PIT	900 x 900			600	54.50	600	54.45	56.75	GRATE	CLASS D	2.35	MULTIPLE INLET PIPES
4/D	JUNCTION PIT	900 x 900			450	55.85	600	55.50	57.70	CLOSED LID	CLASS D	2.20	MULTIPLE INLET PIPES
5/D	ON GRADE DISH DRAIN INLET PIT	900 x 900			375	56.05	450	56.00	57.90	GRATE	CLASS D	1.90	
6/D	ON GRADE DISH DRAIN INLET PIT	900 x 900			375	57.15	375	57.10	58.95	GRATE	CLASS D	1.85	
7/D	ON GRADE DISH DRAIN INLET PIT	900 x 900			375	57.30	375	57.25	58.95	GRATE	CLASS D	1.70	
8/D	ON GRADE DISH DRAIN INLET PIT	900 x 900			375	58.10	375	58.05	60.00	GRATE	CLASS D	1.95	
9/D	JUNCTION PIT	900 x 900			375	58.25	375	58.20	60.35	GRATE	CLASS D	2.15	
10/D	JUNCTION PIT	900 x 900			375	58.40	375	58.35	60.35	GRATE	CLASS D	2.00	
11/D	ON GRADE PIT WITH LINTEL	900 x 900			-	-	375	58.65	59.85	GRATE	CLASS D	1.20	
1/D1	SURFACE INLET PIT	900 x 900			-	-	375	52.70	54.75	GRATE	CLASS D	2.05	
1/D2	ON GRADE PIT WITH NO LINTEL	900 x 900			-	-	375	54.10	55.70	GRATE	CLASS D	1.60	
1/D3	ON GRADE PIT WITH NO LINTEL	900 x 900			-	-	375	55.15	56.75	GRATE	CLASS D	1.60	
1/D4	SURFACE INLET PIT	900 x 900			-	-	375	56.43	58.03	GRATE	CLASS D	1.60	
1/D5	ON GRADE PIT WITH NO LINTEL	900 x 900			375	55.90	375	55.85	57.85	GRATE	CLASS D	2.00	
2/D5	SURFACE INLET PIT	900 x 900			375	56.75	375	56.10	58.30	GRATE	CLASS D	2.20	
3/D5	SURFACE INLET PIT	900 x 900			375	57.10	375	57.05	58.55	GRATE	CLASS D	1.50	
4/D5	SURFACE INLET PIT	900 x 900			-	-	375	57.20	58.55	GRATE	CLASS D	1.35	
1/E	ON GRADE PIT WITH LINTEL	900 x 900			750	53.20	750	53.10	55.60	GRATE	CLASS D	2.50	MULTIPLE INLET PIPES
2/E	ON GRADE DISH DRAIN INLET PIT	900 x 900			600	54.80	750	53.95	56.45	GRATE	CLASS D	2.50	MULTIPLE INLET PIPES
3/E	ON GRADE PIT WITH LINTEL	900 x 900			600	55.85	600	55.70	58.25	GRATE	CLASS D	2.55	MULTIPLE INLET PIPES
4/E	ON GRADE DISH DRAIN INLET PIT	900 x 900			450	56.50	600	56.45	58.70	GRATE	CLASS D	2.25	MULTIPLE INLET PIPES
5/E	ON GRADE DISH DRAIN INLET PIT	900 x 900			450	57.00	450	56.95	59.00	GRATE	CLASS D	2.05	MULTIPLE INLET PIPES
6/E	JUNCTION PIT	900 X 900			375	57.75	450	57.70	59.70	CLOSED LID	CLASS D	2.00	MULTIPLE INLET PIPES
7/E	SURFACE INLET PIT	900 x 900			375	58.35	450	58.30	60.10	GRATE	CLASS D	1.80	MULTIPLE INLET PIPES

STORMWATER PIT SCHEDULE													
PIT No.	TYPE	INTERNAL DIMENSIONS	COORDINATES		INLET DETAILS		OUTLET DETAILS		COVER LEVEL	COVER TYPE	COVER CLASS	DEPTH	NOTES
			EASTING	NORTHING	DIAMETER	INVERT LEVEL	DIAMETER	INVERT LEVEL					
1/E1	ON GRADE PIT WITH LINTEL	900 x 900			—	—	375	53.90	55.70	GRATE	CLASS D	1.80	
2/E1	SURFACE INLET PIT	900 x 900			—	—	375	54.00	55.85	GRATE	CLASS D	1.85	
1/E2	ON GRADE DISH DRAIN INLET PIT	900 x 900			—	—	375	54.70	56.45	GRATE	CLASS D	1.75	
1/E3	ON GRADE PIT WITH LINTEL	900 x 900			—	—	375	56.45	58.25	GRATE	CLASS D	1.80	
2/E3	JUNCTION PIT	900 x 900			—	—	375	56.75	58.65	CLOSED LID	CLASS D	1.90	
3/E3	SURFACE INLET PIT	900 x 900			—	—	375	56.65	58.65	CLOSED LID	CLASS D	2.00	
1/E4	ON GRADE DISH DRAIN INLET PIT	900 x 900			—	—	375	56.85	58.75	GRATE	CLASS D	1.90	
1/E5	ON GRADE DISH DRAIN INLET PIT	900 x 900			—	—	375	57.25	59.05	GRATE	CLASS D	1.80	
1/E6	SURFACE INLET PIT	900 x 900			—	—	375	58.00	59.95	CLOSED LID	CLASS D	1.95	
1/E7	SURFACE INLET PIT	450 X 450			225	59.40	225	59.05	60.45	GRATE	CLASS B	1.40	
2/E7	SURFACE INLET PIT	450 X 450			225	60.60	225	59.50	61.65	GRATE	CLASS B	2.15	
3/E7	SURFACE INLET PIT	450 X 450			—	—	225	60.70	62.70	GRATE	CLASS B	2.00	
1/F	SURFACE INLET PIT	450 X 450			225	40.98	375	40.33	42.23	GRATE	CLASS B	1.25	
2/F	SURFACE INLET PIT	450 X 450			225	41.10	225	41.05	42.18	GRATE	CLASS B	1.08	
3/F	SURFACE INLET PIT	450 X 450			225	41.70	225	41.20	42.80	GRATE	CLASS B	1.10	
4/F	SURFACE INLET PIT	450 X 450			225	42.65	225	41.88	43.76	GRATE	CLASS B	1.11	
5/F	SURFACE INLET PIT	450 X 450			225	43.60	225	42.80	44.70	GRATE	CLASS B	1.10	
6/F	SURFACE INLET PIT	450 X 450			225	44.20	225	43.67	45.30	GRATE	CLASS B	1.10	
7/F	SURFACE INLET PIT	450 X 450			225	44.80	225	44.30	45.80	GRATE	CLASS B	1.00	
8/F	SURFACE INLET PIT	450 X 450			—	—	225	44.90	46.60	GRATE	CLASS B	1.70	
1/G	SURFACE INLET PIT	450 X 450			225	46.95	375	46.40	48.30	GRATE	CLASS B	1.35	
2/G	SURFACE INLET PIT	450 X 450			225	47.20	225	47.00	48.25	GRATE	CLASS B	1.05	
3/G	SURFACE INLET PIT	450 X 450			225	47.80	225	47.30	48.85	GRATE	CLASS B	1.05	
4/G	SURFACE INLET PIT	450 X 450			225	48.55	225	47.90	49.50	GRATE	CLASS B	0.95	
5/G	SURFACE INLET PIT	450 X 450			225	49.20	225	48.55	50.15	GRATE	CLASS B	0.95	
6/G	SURFACE INLET PIT	450 X 450			225	50.00	225	49.30	50.95	GRATE	CLASS B	0.95	
7/G	SURFACE INLET PIT	450 X 450			225	51.10	225	50.20	52.05	GRATE	CLASS B	0.95	
8/G	SURFACE INLET PIT	450 X 450			—	—	225	51.22	52.55	GRATE	CLASS B	1.33	
1/H	JUNCTION PIT	900 x 900			225	58.55	375	58.50	60.00	GRATE	CLASS D	1.50	MULTIPLE INLET PIPES
2/H	SURFACE INLET PIT	600 x 600			225	59.00	375	58.95	60.45	GRATE	CLASS D	1.45	
3/H	SURFACE INLET PIT	900 x 900			—	—	375	61.50	63.00	GRATE	CLASS D	2.50	
4/H	SURFACE INLET PIT	900 x 900			—	—	375	58.85	60.6	GRATE	CLASS D	1.75	

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Approved Application No. SS05013

granted on the 05.03.2015

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Sheet No. 61 of 88

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Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	UPDATED SUBMISSION FOR SSDA	DM	CR	21.10.2014					
2	UPDATED SUBMISSION FOR SSDA	LAR	CR	28.10.2014					
3	UPDATED SUBMISSION FOR SSDA	LAR	CR	04.02.2015					

Structural, Civil & Construction Engineering Consultant

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Client

UrbanGrowth NSW

Title
PIT SCHEDULE SHEET 2 OF 2

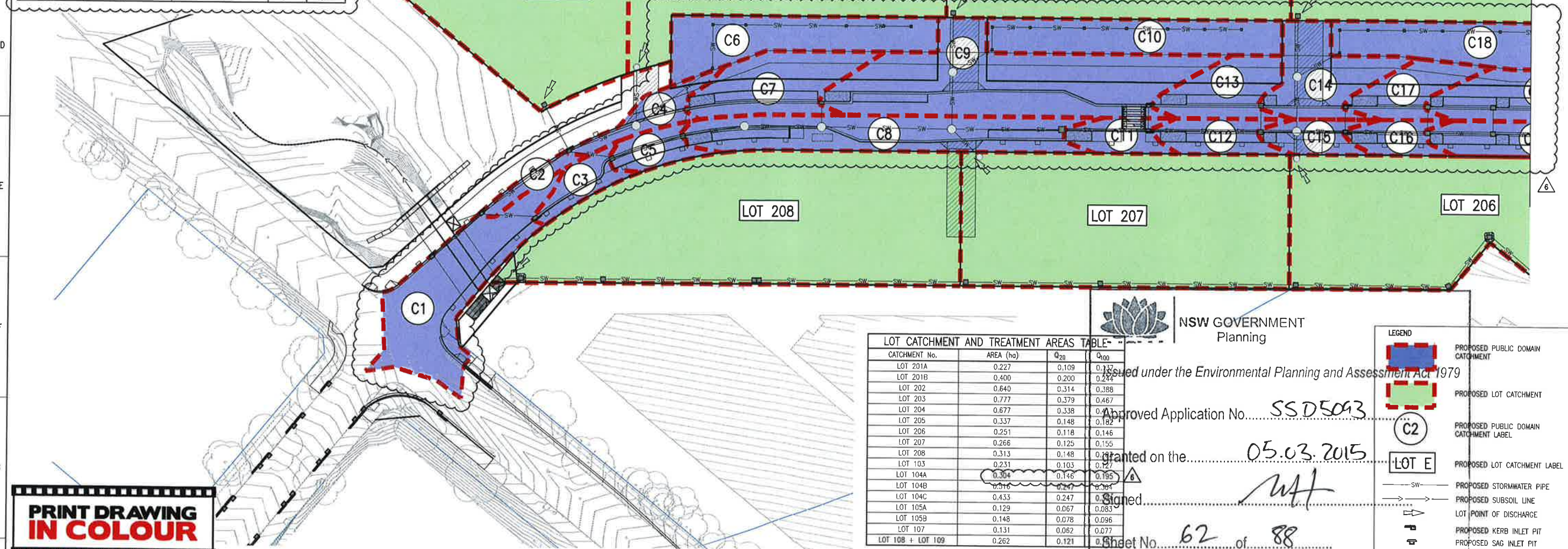
Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

NOT FOR CONSTRUCTION

Date 04.02.15	Designer DMITCHELL	Design Checker C.ROPE
Scale at A1 AS SHOWN	Drawn S.MANWIKAR	Principal/Project Owner R.LUCAS
Job Number 13656 B	Drawing Number C-0-6-19	Revision 3

CATCHMENT AND TREATMENT AREAS TABLE				
CATCHMENT No.	AREA (ha)	BIORETENTION TREATMENT AREA (m ²)	Q ₂₀ (m ³ /s)	Q ₁₀₀ (m ³ /s)
C1	0.085	—	0.044	0.054
C2	0.009	—	0.005	0.006
C3	0.018	—	0.009	0.011
C4	0.021	—	0.011	0.013
C5	0.017	—	0.009	0.011
C6	0.067	—	0.025	0.036
C7	0.052	13	0.027	0.033
C8	0.083	13	0.040	0.049
C9	0.141	13	0.073	0.090
C10	0.062	—	0.027	0.034
C11	0.019	13	0.010	0.012
C12	0.023	13	0.012	0.015
C13	0.036	13	0.019	0.023
C14	0.048	5.5	0.025	0.031
C15	0.018	5.5	0.009	0.012
C16	0.017	13	0.009	0.011
C17	0.028	13	0.015	0.018
C18	0.074	—	0.032	0.041
C19	0.035	11	0.018	0.022
C20	0.050	11	0.026	0.031
C21	0.028	13	0.015	0.018
C22	0.048	13	0.025	0.031
C23	0.048	—	0.021	0.026
C24	0.067	26	0.035	0.043
C25	0.090	26	0.047	0.058
C26	0.061	13	0.032	0.039
C27	0.115	26	0.060	0.074
C28	0.130	70.50	0.068	0.083
C29	0.136	65	0.071	0.087
C30	0.244	MIN 50	0.110	0.138
C31	0.340	MIN 50	0.154	0.192
C32	0.076	5.5	0.040	0.049
C33	0.119	26	0.062	0.076
C34	0.062	MIN 40	0.038	0.047
C35	0.079	52	0.041	0.051
C36	0.120	44.50	0.062	0.077

MUSIC OUTPUT RESULTS		
POLLUTANT	TARGET REDUCTION	ANALYSIS REDUCTION RESULT
TOTAL SUSPENDED SOLIDS	85%	85.6%
TOTAL PHOSPHORUS	65%	68.0%
TOTAL NITROGEN	45%	55.4%
GROSS POLLUTANTS	90%	100%



LOT CATCHMENT AND TREATMENT AREAS TABLE				
CATCHMENT No.	AREA (ha)	Q ₂₀	Q ₁₀₀	
LOT 201A	0.227	0.109	0.137	
LOT 201B	0.400	0.200	0.254	
LOT 202	0.640	0.314	0.388	
LOT 203	0.777	0.379	0.467	
LOT 204	0.677	0.338	0.417	
LOT 205	0.337	0.148	0.182	
LOT 206	0.251	0.118	0.146	
LOT 207	0.266	0.125	0.155	
LOT 208	0.313	0.148	0.182	
LOT 103	0.231	0.103	0.127	
LOT 104A	0.304	0.146	0.185	
LOT 104B	0.316	0.147	0.184	
LOT 104C	0.433	0.247	0.304	
LOT 105A	0.129	0.067	0.083	
LOT 105B	0.148	0.078	0.096	
LOT 107	0.131	0.062	0.077	
LOT 108 + LOT 109	0.262	0.121	0.150	



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Approved Application No. SSD5093

granted on the 05.03.2015

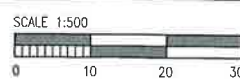
Signed [Signature]

Sheet No. 62 of 88

LEGEND		
[Red dashed line]	PROPOSED PUBLIC DOMAIN CATCHMENT	
[Green dashed line]	PROPOSED LOT CATCHMENT	
[Circle with C2]	PROPOSED PUBLIC DOMAIN CATCHMENT LABEL	
[Circle with LOT E]	PROPOSED LOT CATCHMENT LABEL	
[Line with SW]	PROPOSED STORMWATER PIPE	
[Line with arrow]	PROPOSED SUBSOIL LINE	
[Arrow]	LOT POINT OF DISCHARGE	
[Circle with P]	PROPOSED KERB INLET PIT	
[Circle with S]	PROPOSED SAG INLET PIT	
[Circle with I]	PROPOSED INLET PIT	
[Circle with J]	PROPOSED JUNCTION PIT	

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IN COLOUR**

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Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	FOR DEVELOPMENT APPROVAL	DM	CR	19.05.2014					
2	UPDATED SUBMISSION FOR SSDA	DM	CR	22.05.2014					
3	UPDATED SUBMISSION FOR SSDA	DM	CR	27.05.2014					
4	UPDATED SUBMISSION FOR SSDA	DM	CR	21.10.2014					
5	UPDATED SUBMISSION FOR SSDA	LAT	CR	28.10.2014					
6	UPDATED SUBMISSION FOR SSDA	LAT	CR	04.02.2015					

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AEN: 010 333 212

Client
**UrbanGrowth
NSW**

Title
**STORMWATER CATCHMENT PLAN
SHEET 1 OF 2**

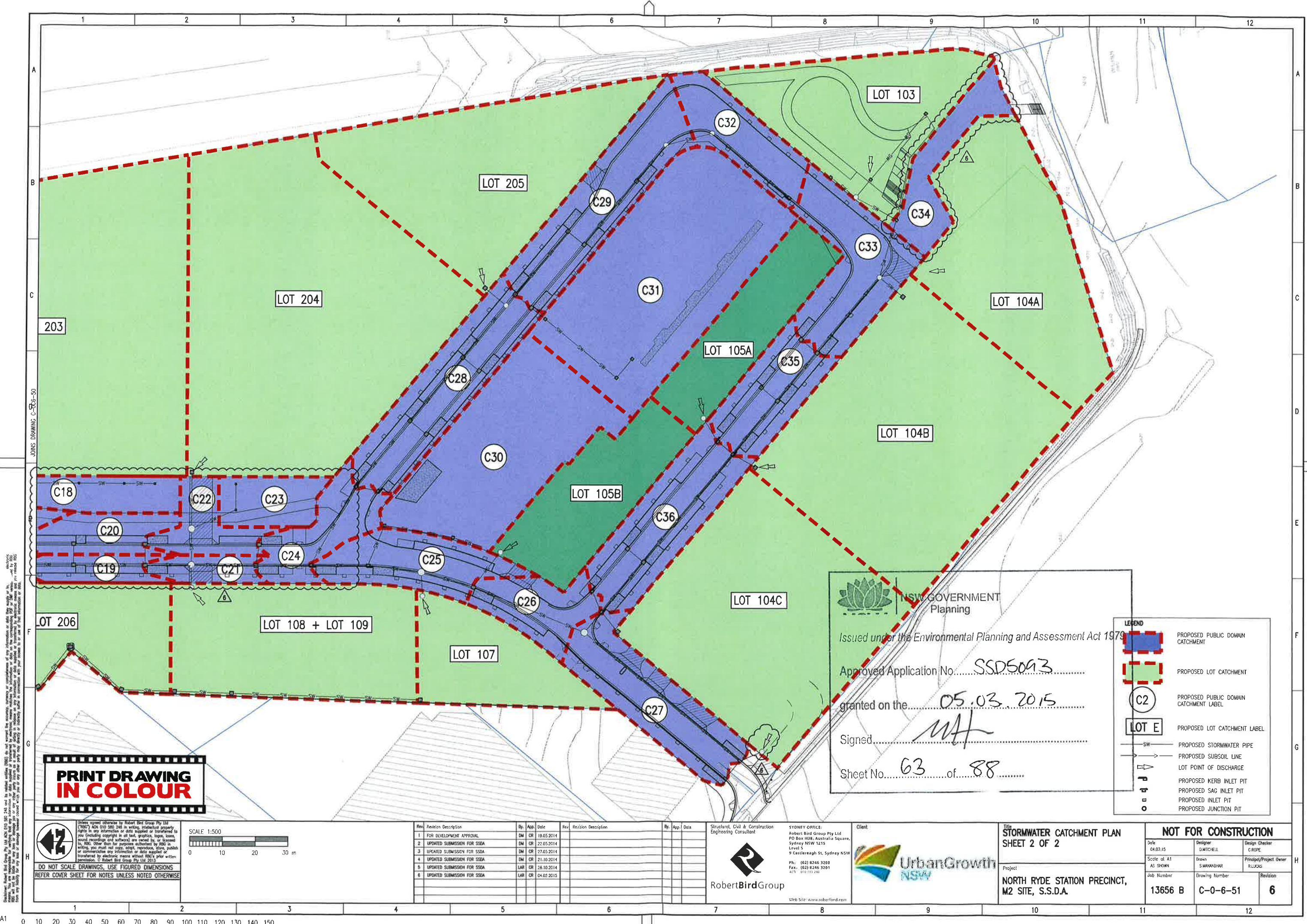
Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

Job Number
13656 B

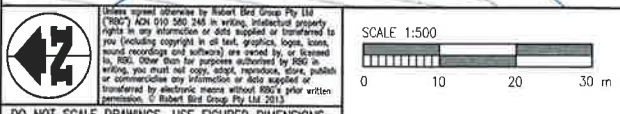
Drawing Number
C-0-6-50

Revision
6

NOT FOR CONSTRUCTION



**PRINT DRAWING
IN COLOUR**



Rev.	Revision Description	By	App.	Date	Rev.	Revision Description	By	App.	Date
1	FOR DEVELOPMENT APPROVAL	DN	CR	19.05.2014					
2	UPDATED SUBMISSION FOR SSDA	DN	CR	22.05.2014					
3	UPDATED SUBMISSION FOR SSDA	DN	CR	27.05.2014					
4	UPDATED SUBMISSION FOR SSDA	DN	CR	21.10.2014					
5	UPDATED SUBMISSION FOR SSDA	LAR	CR	26.10.2014					
6	UPDATED SUBMISSION FOR SSDA	LAR	CR	04.02.2015					

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**STORMWATER CATCHMENT PLAN
SHEET 2 OF 2**
Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

NOT FOR CONSTRUCTION			
Date 04.02.15	Designer DMITCHELL	Design Checker CROPE	
Scale at A1 AS SHOWN	Drawn S MANANDHAR	Principal/Project Owner RLUKAS	
Job Number 13656 B	Drawing Number C-0-6-51	Revision 6	

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Approved Application No. SSD5093
granted on the 05.03.2015
Signed NA
Sheet No. 63 of 88

LEGEND	
	PROPOSED PUBLIC DOMAIN CATCHMENT
	PROPOSED LOT CATCHMENT
	PROPOSED PUBLIC DOMAIN CATCHMENT LABEL
	PROPOSED LOT CATCHMENT LABEL
	PROPOSED STORMWATER PIPE
	PROPOSED SUBSOIL LINE
	LOT POINT OF DISCHARGE
	PROPOSED KERB INLET PIT
	PROPOSED SAG INLET PIT
	PROPOSED INLET PIT
	PROPOSED JUNCTION PIT

LEGEND (PROPOSED)	
	PROPOSED STREET LIGHT
	PROPOSED ELECTRICITY
	PROPOSED GAS
	PROPOSED NBN
	PROPOSED WATER
	PROPOSED SEWER
	PROPOSED STORMWATER
	PROPOSED SEWER MANHOLE
	PROPOSED STORMWATER INLET PITS
	PROPOSED JUNCTION PIT

LEGEND (EXISTING)	
	EXISTING ELECTRICITY
	EXISTING COMMUNICATIONS
	EXISTING GAS
	EXISTING WATER
	EXISTING SEWER
	EXISTING OPTUS
	EXISTING TELSTRA
	EXISTING AARNET
	EXISTING NEXTGEN

NOTES:

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- SERVICES AND SURVEY INFORMATION COMPILED FROM SURVEY INFORMATION BY PROJECT SURVEYORS, MAY 2014. ROBERT BIRD GROUP DOES NOT GUARANTEE THAT THE SURVEY INFORMATION IS ACCURATE, AND ACCEPTS NO LIABILITY FOR INACCURACIES.
- WATER AND ELECTRICAL SERVICES TO PUBLIC RESERVES TO BE PROVIDED IN DETAIL DESIGN.

**PRINT DRAWING
IN COLOUR**

EXISTING GAS MAIN TO BE DISCONNECTED AND REMOVED. REFER C-0-3-00 FOR RELOCATION.

EXISTING WATER MAIN TO BE DISCONNECTED AND REMOVED.

PT 111

SPINE STREET

LOT 208

WICKS ROAD

NSW GOVERNMENT Planning

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Approved Application No. **SSD5093**

granted on the **05.03.2015**

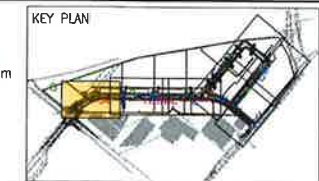
Signed

Sheet No. **64** of **88**

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SCALE 1:200

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Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	DRAFT SUBMISSION FOR SSDA	LAR	CR	16.05.2014					
2	UPDATED SUBMISSION FOR SSDA	LAR	CR	22.05.2014					
3	UPDATED SUBMISSION FOR SSDA	LAR	CR	27.05.2014					
4	UPDATED SUBMISSION FOR SSDA	LAR	CR	21.10.2014					
5	UPDATED SUBMISSION FOR SSDA	LAR	CR	28.10.2014					
6	UPDATED SUBMISSION FOR SSDA	LAR	CR	04.02.2015					

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Web Site: www.robertbird.com



Title
**COMBINED SERVICES PLAN
SHEET 1 OF 7**

Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

NOT FOR CONSTRUCTION			
Date 04.02.15	Designer L.RUSSELL	Design Checker C.ROPE	
Scale at A1 AS SHOWN	Drawn S.MANANDHAR	Principal/Project Owner RLUCAS	
Job Number 13656 B	Drawing Number C-0-9-01	Revision 6	

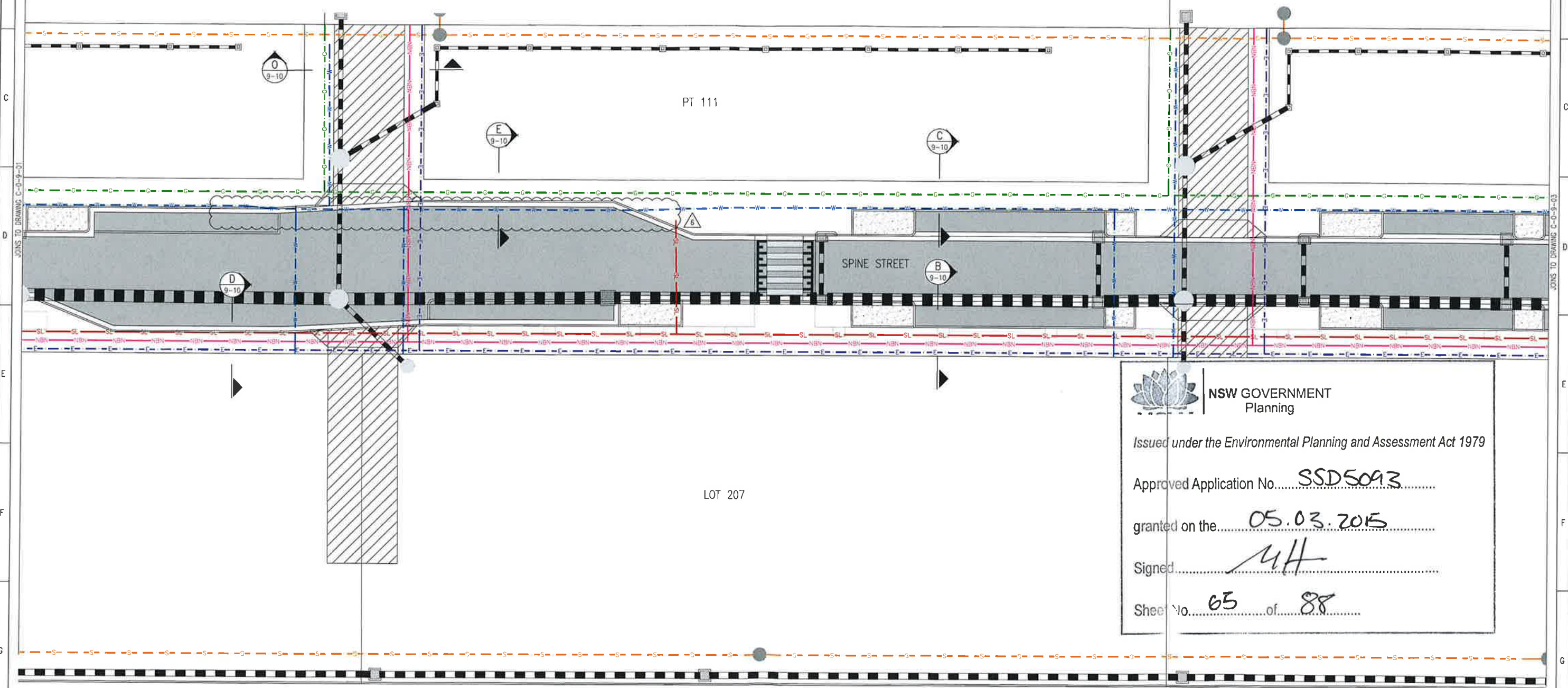
- LEGEND (PROPOSED)**
- SL SL SL PROPOSED STREET LIGHT
 - E E E PROPOSED ELECTRICITY
 - G G G PROPOSED GAS
 - NBN NBN NBN PROPOSED NBN
 - W W W PROPOSED WATER
 - S S S PROPOSED SEWER
 - SW SW SW SW PROPOSED STORMWATER
 - PROPOSED SEWER MANHOLE
 - PROPOSED STORMWATER INLET PITS
 - PROPOSED JUNCTION PIT

- LEGEND (EXISTING)**
- E E E EXISTING ELECTRICITY
 - T T T EXISTING COMMUNICATIONS
 - G G G EXISTING GAS
 - W W W EXISTING WATER
 - S S S EXISTING SEWER
 - OPT OPT OPT EXISTING OPTUS
 - TEL TEL TEL EXISTING TELSTRA
 - AAR AAR AAR EXISTING AARNET
 - NXT NXT NXT EXISTING NEXTGEN

NOTES:

- SERVICING STRATEGY AND UTILITY CONFIGURATIONS ARE INDICATIVE ONLY AND SUBJECT TO UTILITY PROVIDER APPROVALS.
- SURVEY INFORMATION BY PROJECT SURVEYORS, MAY 2014. ROBERT BIRD GROUP DOES NOT GUARANTEE THAT THE SURVEY INFORMATION IS ACCURATE, AND ACCEPTS NO LIABILITY FOR INACCURACIES.
- WATER AND ELECTRICAL SERVICES TO PUBLIC RESERVES TO BE PROVIDED IN DETAIL DESIGN.

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IN COLOUR**



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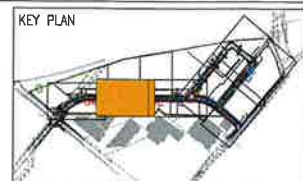
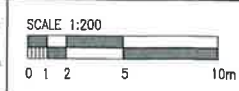
granted on the **05.03.2015**

Signed **44**

Sheet No. **65** of **88**

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Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	DRAFT SUBMISSION FOR SSDA	LAR	CR	15.05.2014					
2	UPDATED SUBMISSION FOR SSDA	LAR	CR	22.05.2014					
3	UPDATED SUBMISSION FOR SSDA	LAR	CR	27.05.2014					
4	UPDATED SUBMISSION FOR SSDA	LAR	CR	31.10.2014					
5	UPDATED SUBMISSION FOR SSDA	LAR	CR	26.10.2014					
6	UPDATED SUBMISSION FOR SSDA	LAR	CR	04.02.2015					

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Title
**COMBINED SERVICES PLAN
SHEET 2 OF 7**

Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

NOT FOR CONSTRUCTION			
Date 04.02.15	Designer L.RUSSELL	Design Checker C.ROPE	
Scale at A1 AS SHOWN	Drawn S.MAHANVAR	Principal/Project Owner RLUOS	
Job Number 13656 B	Drawing Number C-0-9-02	Revision 6	

LEGEND (PROPOSED)

- PROPOSED STREET LIGHT
- PROPOSED ELECTRICITY
- PROPOSED GAS
- PROPOSED NBN
- PROPOSED WATER
- PROPOSED SEWER
- PROPOSED STORMWATER
- PROPOSED SEWER MANHOLE
- PROPOSED STORMWATER INLET PITS
- PROPOSED JUNCTION PIT

LEGEND (EXISTING)

- EXISTING ELECTRICITY
- EXISTING COMMUNICATIONS
- EXISTING GAS
- EXISTING WATER
- EXISTING SEWER
- EXISTING OPTUS
- EXISTING TELSTRA
- EXISTING AARNET
- EXISTING NEXTGEN

- NOTES:
- SERVICING STRATEGY AND UTILITY CONFIGURATIONS ARE INDICATIVE ONLY AND SUBJECT TO UTILITY PROVIDER APPROVALS.
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 - WATER AND ELECTRICAL SERVICES TO PUBLIC RESERVES TO BE PROVIDED IN DETAIL DESIGN.

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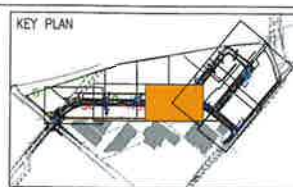
Signed [Signature]

Sheet No. 66 of 88



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SCALE 1:200
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Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	UPDATED SUBMISSION FOR SDA	LAR	CR	21.10.2014					
2	UPDATED SUBMISSION FOR SDA	LAR	CR	28.10.2014					
3	UPDATED SUBMISSION FOR SDA	LAR	CR	04.02.2015					

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Client

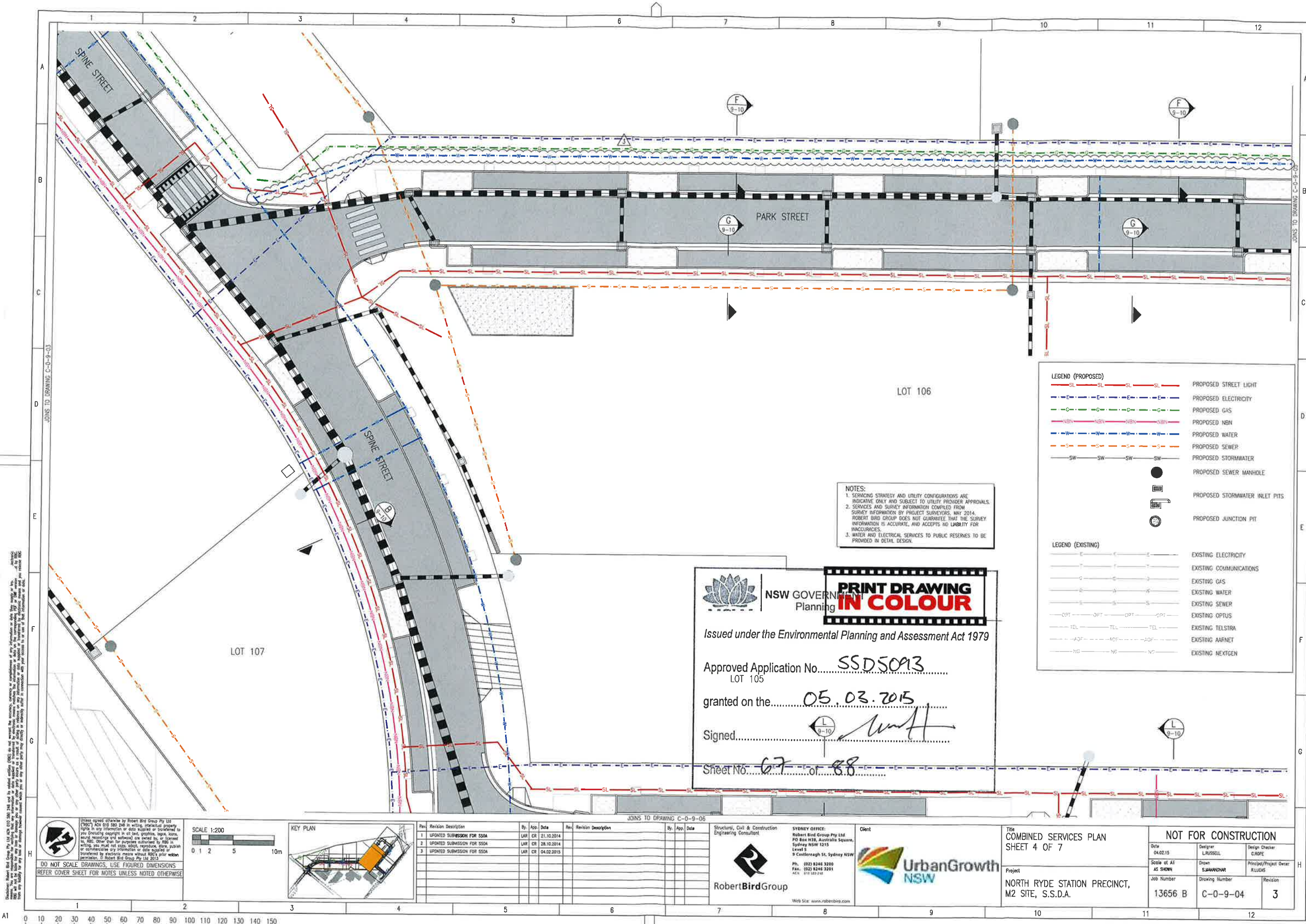


Title
COMBINED SERVICES PLAN
SHEET 3 OF 7

Project
NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.

NOT FOR CONSTRUCTION

Date 04.02.15	Designer L. RUSSELL	Design Checker C. ROPE
Scale at A1 AS SHOWN	Drawn S. MANOCHAR	Principal/Project Owner R. LUCAS
Job Number 13656 B	Drawing Number C-0-9-03	Revision 3



NOTES:
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2. SERVICES AND SURVEY INFORMATION COMPILED FROM SURVEY INFORMATION BY PROJECT SURVEYORS, MAY 2014. ROBERT BIRD GROUP DOES NOT GUARANTEE THAT THE SURVEY INFORMATION IS ACCURATE, AND ACCEPTS NO LIABILITY FOR INACCURACIES.
3. WATER AND ELECTRICAL SERVICES TO PUBLIC RESERVES TO BE PROVIDED IN DETAIL DESIGN.

- LEGEND (PROPOSED)

 - SL SL SL SL SL PROPOSED STREET LIGHT
 - E E E E E PROPOSED ELECTRICITY
 - G G G G G PROPOSED GAS
 - NBN NBN NBN NBN PROPOSED NBN
 - W W W W W PROPOSED WATER
 - S S S S S PROPOSED SEWER
 - SW SW SW SW SW PROPOSED STORMWATER
 - PROPOSED SEWER MANHOLE
 - PROPOSED STORMWATER INLET PITS
 - PROPOSED JUNCTION PIT
- LEGEND (EXISTING)

 - E E E E E EXISTING ELECTRICITY
 - G G G G G EXISTING GAS
 - W W W W W EXISTING WATER
 - S S S S S EXISTING SEWER
 - OPT OPT OPT OPT OPT EXISTING OPTUS
 - TEL TEL TEL TEL TEL EXISTING TELSTRA
 - AFN AFN AFN AFN EXISTING AFN
 - NEXT NEXT NEXT NEXT NEXT EXISTING NEXTGEN

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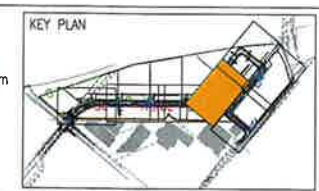
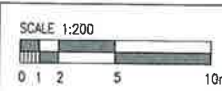
Approved Application No. **SSD5093**
LOT 105

granted on the **05.03.2015**

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Sheet No. **67** of **88**

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Rev.	Revision Description	By	App.	Date	Rev.	Revision Description	By	App.	Date
1	UPDATED SUBMISSION FOR SSDA	LAM	CR	21.10.2014					
2	UPDATED SUBMISSION FOR SSDA	LAM	CR	28.10.2014					
3	UPDATED SUBMISSION FOR SSDA	LAM	CR	04.02.2015					

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UrbanGrowth
NSW

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Title
**COMBINED SERVICES PLAN
SHEET 4 OF 7**

Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

NOT FOR CONSTRUCTION			
Date 04.02.15	Designer L. RUSSELL	Design Checker C. ROPE	
Scale at A1 AS SHOWN	Drawn S. JAWAHAR	Principal/Project Owner ILLUMAS	
Job Number 13656 B	Drawing Number C-0-9-04	Revision 3	

LEGEND (PROPOSED)

- PROPOSED STREET LIGHT
- PROPOSED ELECTRICITY
- PROPOSED GAS
- PROPOSED NBN
- PROPOSED WATER
- PROPOSED SEWER
- PROPOSED STORMWATER
- PROPOSED SEWER MANHOLE
- PROPOSED STORMWATER INLET PITS
- PROPOSED JUNCTION PIT

LEGEND (EXISTING)

- EXISTING ELECTRICITY
- EXISTING COMMUNICATIONS
- EXISTING GAS
- EXISTING WATER
- EXISTING SEWER
- EXISTING OPTUS
- EXISTING TELSTRA
- EXISTING AARNET
- EXISTING NEXTGEN

NOTES:

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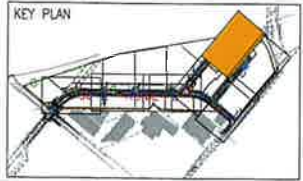
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Sheet No. 68 of 88

 SCALE 1:200
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KEY PLAN



Rev.	Revision Description	By	App.	Date	Rev.	Revision Description	By	App.	Date
1	UPDATED SUBMISSION FOR SSDA	LAR	CR	21.10.2014					
2	UPDATED SUBMISSION FOR SSDA	LAR	CR	28.10.2014					
3	UPDATED SUBMISSION FOR SSDA	LAR	CR	04.02.2015					

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Date	Designer	Design Checker
04.02.15	LAR/SELL	CR/PS

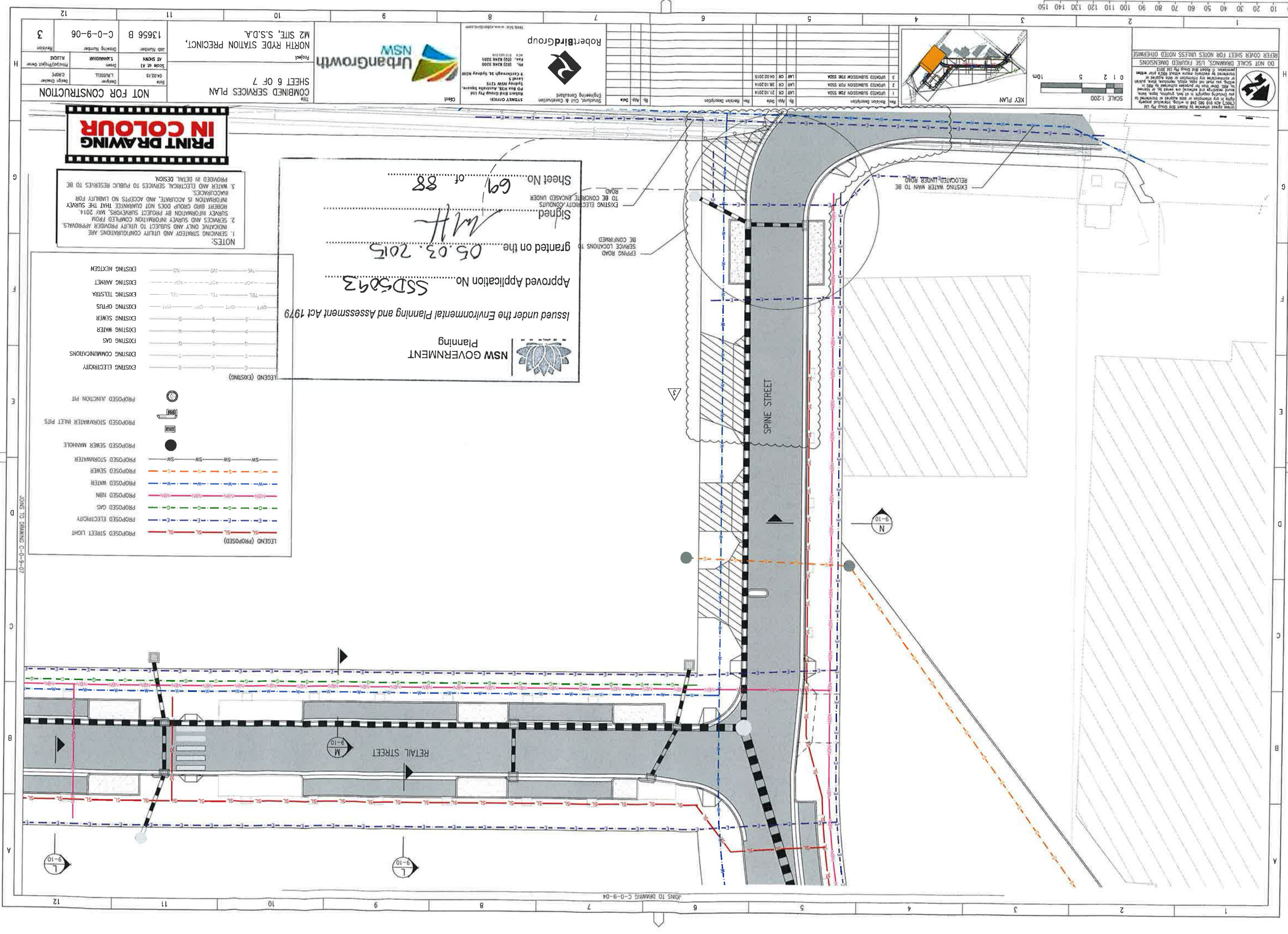
Scale of A1	Drawn	Principal/Project Owner
AS SHOWN	SJAWANDHAR	ILLUCAS

Job Number	Drawing Number	Revision
13656 B	C-0-9-05	3

**COMBINED SERVICES PLAN
SHEET 5 OF 7**

Project
NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.

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Project
NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.

NOT FOR CONSTRUCTION		Date 28 10 14		Designer L RUSSELL		Design Checker C ROPE		Approved/Project Director R LUCAS		Drawing Number 5 MAINS/04		Revision 2	
		Scale of A1 AS SHOWN		Job Number 13656		C-0-9-07							

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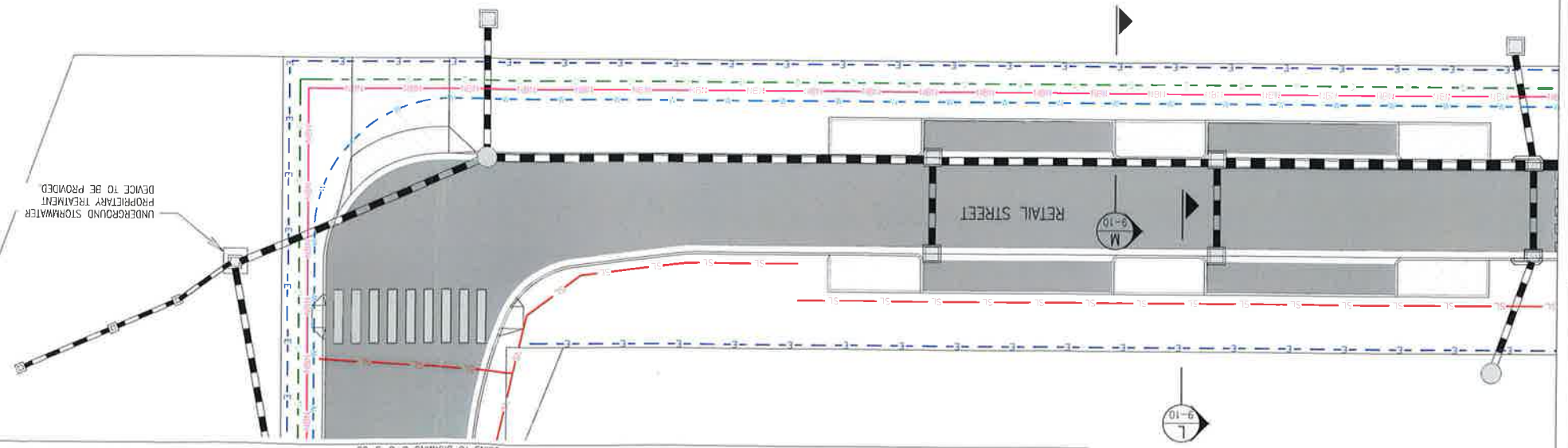
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Approved Application No. SSD5093

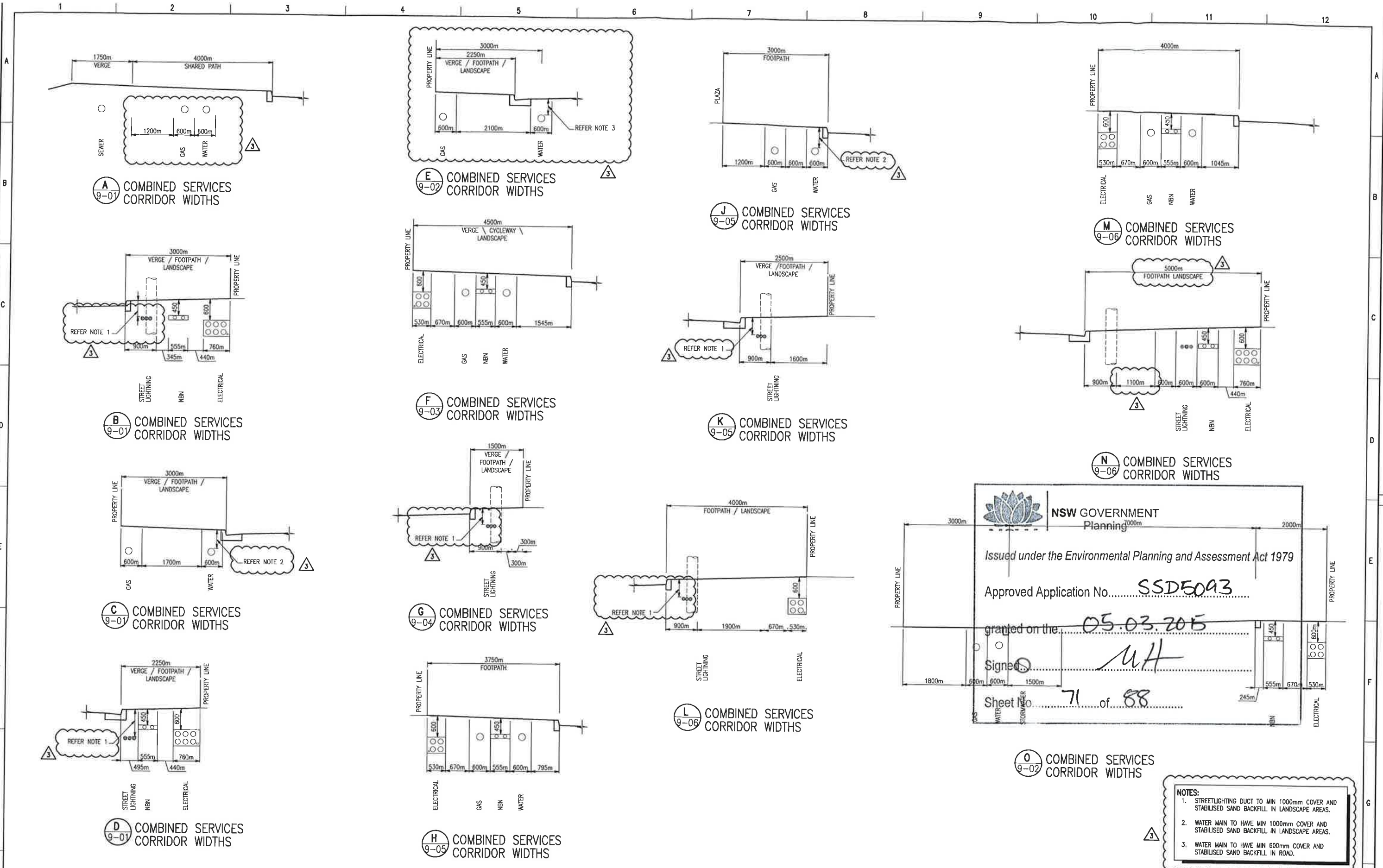
granted on the 05.03.2015

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Sheet No. 70 of 88



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granted on the **05.03.2015**

Signed **UH**

Sheet **71** of **88**

- NOTES:**
1. STREETLIGHTING DUCT TO MIN 1000mm COVER AND STABILISED SAND BACKFILL IN LANDSCAPE AREAS.
 2. WATER MAIN TO HAVE MIN 1000mm COVER AND STABILISED SAND BACKFILL IN LANDSCAPE AREAS.
 3. WATER MAIN TO HAVE MIN 600mm COVER AND STABILISED SAND BACKFILL IN ROAD.

DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS REFER COVER SHEET FOR NOTES UNLESS NOTED OTHERWISE		SCALE 1:200 0 1 2 5 10m		<table><tr><th>Rev</th><th>Revision Description</th><th>By</th><th>App</th><th>Date</th><th>Rev</th><th>Revision Description</th><th>By</th><th>App</th><th>Date</th></tr><tr><td>1</td><td>UPDATED SUBMISSION FOR SSDA</td><td>UAR</td><td>CR</td><td>21.10.2014</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2</td><td>UPDATED SUBMISSION FOR SSDA</td><td>UAR</td><td>CR</td><td>28.10.2014</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>3</td><td>UPDATED SUBMISSION FOR SSDA</td><td>UAR</td><td>CR</td><td>04.02.2015</td><td></td><td></td><td></td><td></td><td></td></tr></table>		Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date	1	UPDATED SUBMISSION FOR SSDA	UAR	CR	21.10.2014						2	UPDATED SUBMISSION FOR SSDA	UAR	CR	28.10.2014						3	UPDATED SUBMISSION FOR SSDA	UAR	CR	04.02.2015						Structural, Civil & Construction Engineering Consultant RobertBirdGroup SYDNEY OFFICE: Robert Bird Group Pty Ltd PO Box 1116, Australia Square, Sydney NSW 1215 Level 5 9 Castlereagh St, Sydney NSW Ph: (02) 8246 3209 Fax: (02) 8246 3201 ACN: 010 540 243 Client UrbanGrowth NSW		COMBINED SERVICES SECTIONS PLAN Project: NORTH RYDE STATION PRECINCT, M2 SITE, S.S.D.A. Drawing Number: 13656 B Revision: 3	
Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date																																								
1	UPDATED SUBMISSION FOR SSDA	UAR	CR	21.10.2014																																													
2	UPDATED SUBMISSION FOR SSDA	UAR	CR	28.10.2014																																													
3	UPDATED SUBMISSION FOR SSDA	UAR	CR	04.02.2015																																													

LEGEND

- PROPOSED EXTENT OF ROAD PAVEMENT CONSTRUCTION
- PROPOSED CONCRETE
- PROPOSED KERB & GUTTER
- PROPOSED DSH DRAW
- PROPOSED KERB ONLY
- PROPOSED VEHICLE CROSSING
- PROPOSED MAJOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED KERB RAMP
- PROPOSED STORMWATER PIPE
- PROPOSED BATTERY
- PEDESTRIAN SAFETY FENCE
- PROPOSED JUNCTION PIT
- PROPOSED SAG INLET PIT
- PROPOSED KERB INLET PIT
- PROPOSED HEAD WALL
- PROPOSED GRANTY BLOCK RETAINING WALL TO STABILISED BATTERS SURROUNDING WING WALL

NOTE:
EXISTING SERVICES AND RELOCATIONS
TO BE CONFIRMED.

PRINT DRAWING
IN COLOUR

DO NOT SCALE DRAWINGS. USE PROVIDED DIMENSIONS.
REFER COVER SHEET FOR NOTES UNLESS NOTED OTHERWISE.



Rev	Revision Description	By	App	Date
1	ISSUED SUBMISSION FOR SDA	LAM	CH	14.02.2014
2	ISSUED SUBMISSION FOR SDA	LAM	CH	22.05.2014
3	ISSUED SUBMISSION FOR SDA	LAM	CH	21.10.2014
4	ISSUED SUBMISSION FOR SDA	LAM	CH	21.10.2014
5	ISSUED SUBMISSION FOR SDA	LAM	CH	20.10.2014

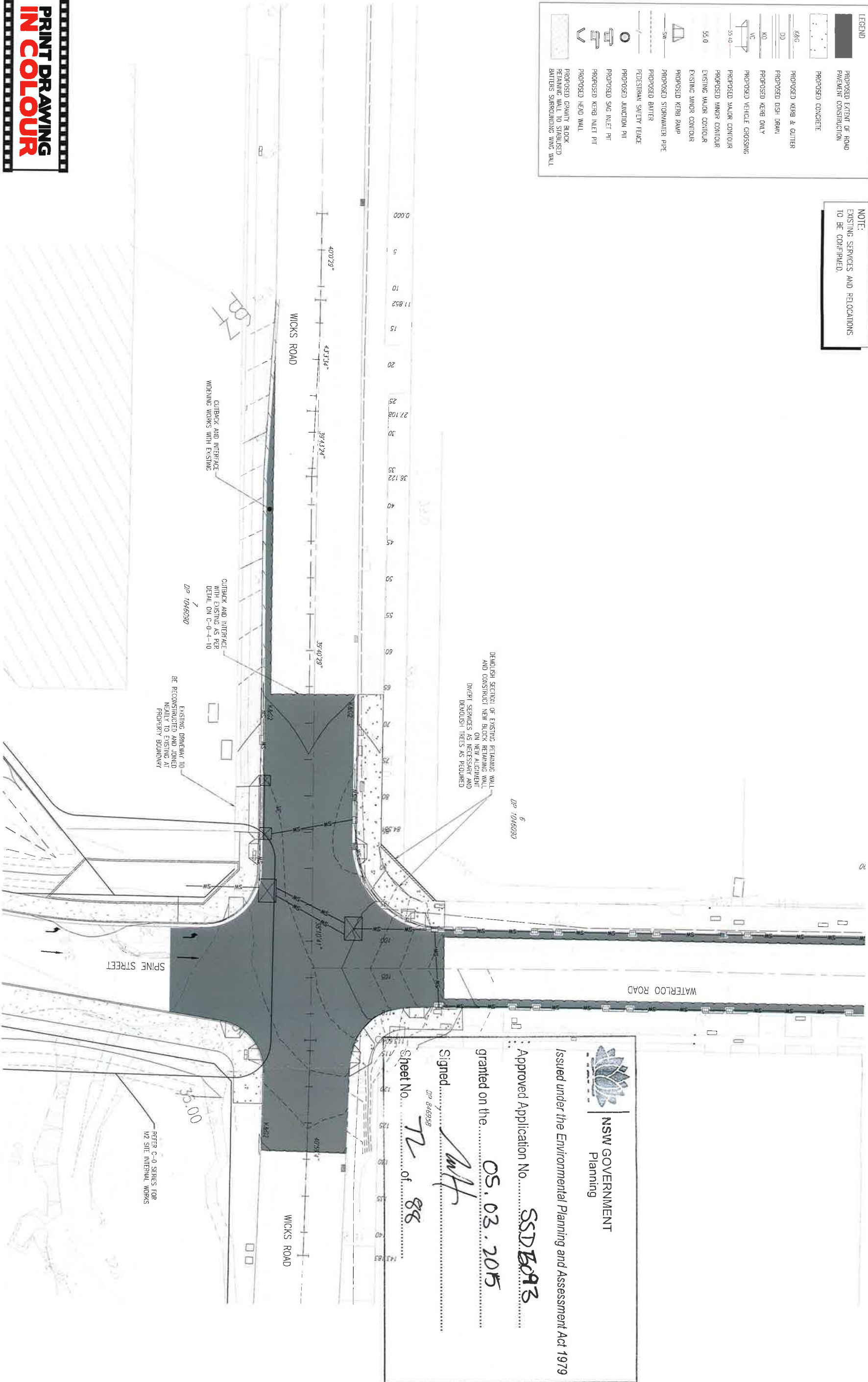
STONYHURST OFFICE:
PO Box 188, Stonyhurst Square,
Sydney NSW 1515
Ph: (02) 9446 3200
Fax: (02) 9446 3201
Mob: 9453 3244

STANDARD, GILL & CO. CONSULTANTS
Engineering Consultants
PO Box 188, Stonyhurst Square,
Sydney NSW 1515
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Fax: (02) 9446 3201
Mob: 9453 3244

RobertBirdGroup



THE WICKS & WATERLOO ROAD GENERAL ARRANGEMENT PLAN	NOT FOR CONSTRUCTION
Project: NORTH RYDE STATION PRECINCT, M2 SITE, S.S.D.A.	Job Number: 13656
Drawn: L. BISSILL	Design Checker: C. PAGE
Drawn: S. WARDER	Project/Design Owner: RUCOS
Drawn: C-1-3-00	Revision: 5



NSW GOVERNMENT
Planning

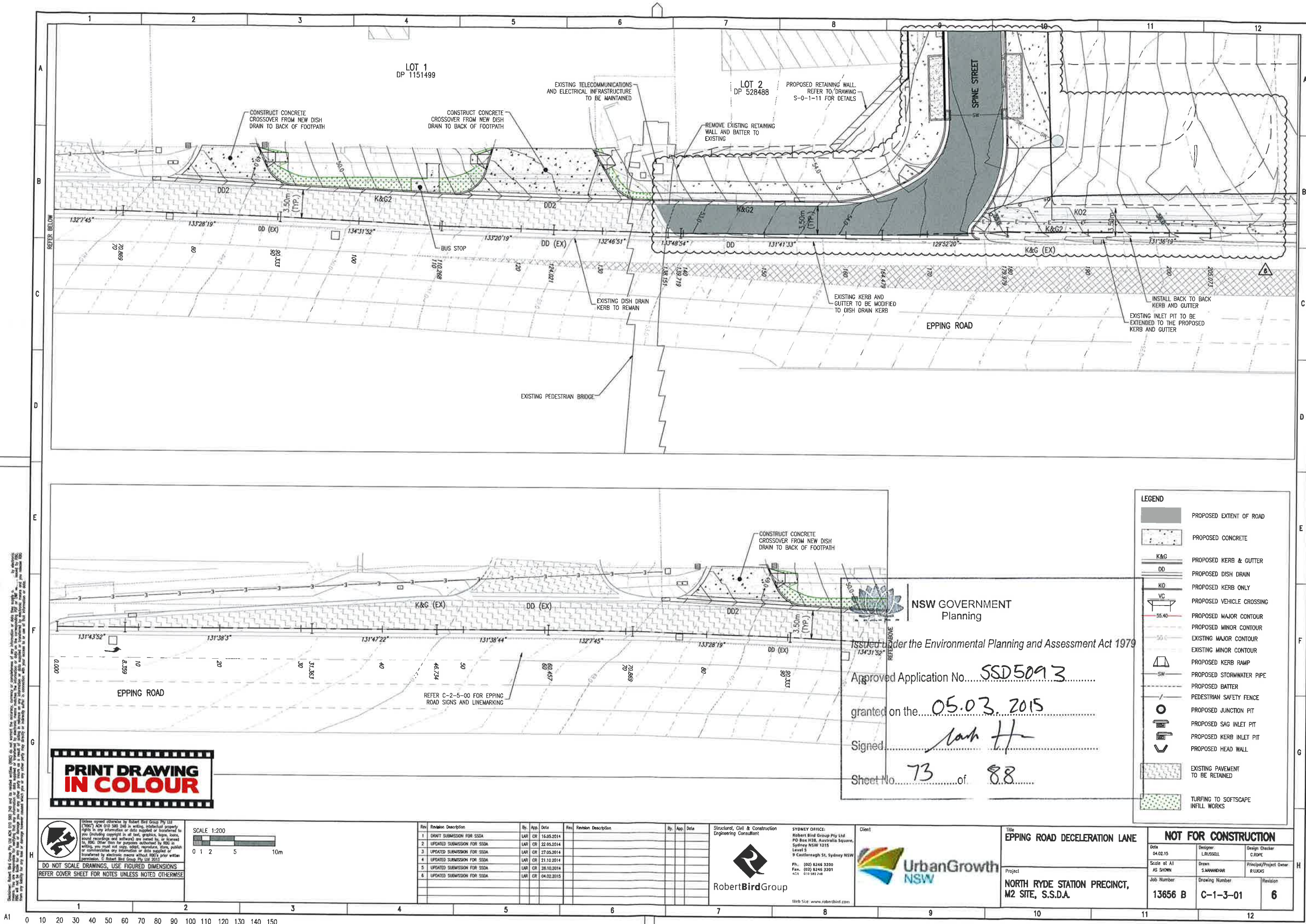
Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. **SSD/EA/93**

granted on the **05.03.2015**

Signed *[Signature]*
DP 846958

Sheet No. **72** of **88**



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Planning

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Approved Application No. SSD5093

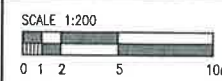
granted on the 05.03.2015

Signed [Signature]

Sheet No. 73 of 88

- LEGEND**
- PROPOSED EXTENT OF ROAD
 - PROPOSED CONCRETE
 - PROPOSED KERB & GUTTER
 - PROPOSED DISH DRAIN
 - PROPOSED KERB ONLY
 - PROPOSED VEHICLE CROSSING
 - PROPOSED MAJOR CONTOUR
 - PROPOSED MINOR CONTOUR
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - PROPOSED KERB RAMP
 - PROPOSED STORMWATER PIPE
 - PROPOSED BATTER
 - PEDESTRIAN SAFETY FENCE
 - PROPOSED JUNCTION PIT
 - PROPOSED SAG INLET PIT
 - PROPOSED KERB INLET PIT
 - PROPOSED HEAD WALL
 - EXISTING PAVEMENT TO BE RETAINED
 - TURFING TO SOFTSCAPE INFILL WORKS

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Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	DRAWING SUBMISSION FOR SSDA	LAR	CR	16.05.2014					
2	UPDATED SUBMISSION FOR SSDA	LAR	CR	22.05.2014					
3	UPDATED SUBMISSION FOR SSDA	LAR	CR	27.05.2014					
4	UPDATED SUBMISSION FOR SSDA	LAR	CR	21.10.2014					
5	UPDATED SUBMISSION FOR SSDA	LAR	CR	28.10.2014					
6	UPDATED SUBMISSION FOR SSDA	LAR	CR	04.02.2015					

Structural, Civil & Construction
Engineering Consultant

Robert Bird Group

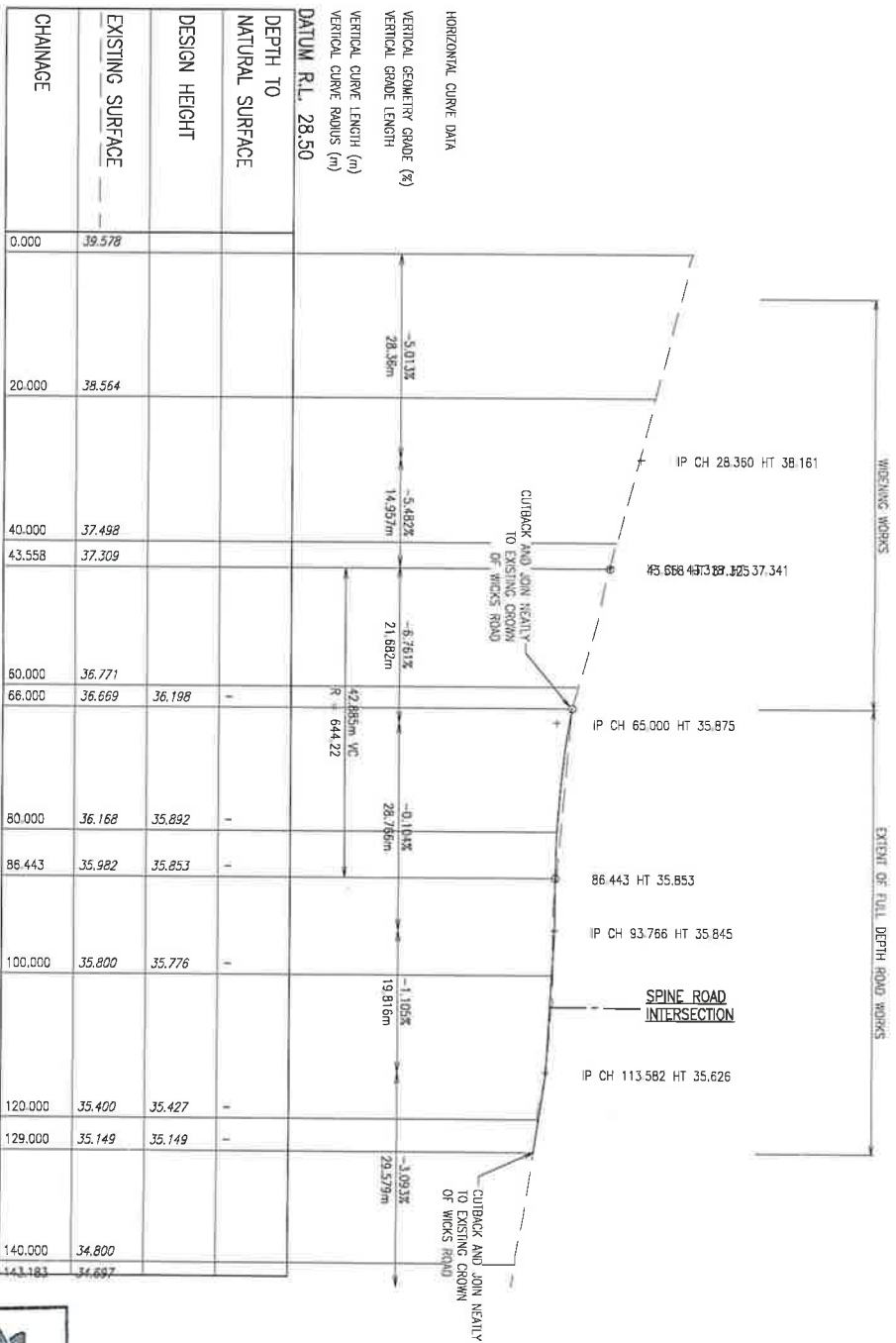
SYDNEY OFFICE:
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9 Castlereagh St, Sydney NSW

Ph: (02) 8246 3200
Fax: (02) 8246 3201
ACN: 010 580 248

Client

Web Site: www.robertbird.com

NOT FOR CONSTRUCTION		
Date 04.02.15	Designer L. RUSSELL	Design Checker C. ROPE
Scale at A1 AS SHOWN	Drawn SWANNHUR	Principal/Project Owner R. LUCAS
Job Number 13656 B	Drawing Number C-1-3-01	Revision 6



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Approved Application No. S50093

granted on the 05.03.2015

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Sheet No. 74 of 88

Rev	Revision Description	By	Date	Rev	Revision Description	By	Date
1	ISSUED FOR CONSTRUCTION	LAN	05/03/2015				
2	ISSUED FOR CONSTRUCTION	LAN	05/03/2015				
3	ISSUED FOR CONSTRUCTION	LAN	05/03/2015				
4	ISSUED FOR CONSTRUCTION	LAN	05/03/2015				
5	ISSUED FOR CONSTRUCTION	LAN	05/03/2015				

SCALE 1:500

SCALE 1:100

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Sydney NSW 1511
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F. 02 9242 3201
A. 02 9242 3202

UrbanGrowth NSW

WICKS ROAD
LONGITUDINAL SECTION

Project: NORTH RIDE STATION PRECINCT, M2 SITE, S.S.D.A.

Job Number: 13656

Design Number: C-1-3-20

Revision: 5

CHAINAGE 30.000CHAINAGE 60.000CHAINAGE 80.000CHAINAGE 20.000CHAINAGE 50.000CHAINAGE 70.000CHAINAGE 12.153CHAINAGE 40.000CHAINAGE 66.000

37,523	37,575	37,598	37,618	37,645	37,668	37,695	37,722	NSG	GOVERNMENT Planning
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CHAINAGE 40.000 Approved Application No. SSD5093

granted on the 05.03.2015

Signed.....

Structural Engineering

Sheet No. **75**

RobertBirdGroup

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 PO Box 1131, Australia Square,
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 ACN: 610 582 518

06 and **88**

UrbanGrowIt
NSW

Web Site: www.robertbird.com

Title
WICKS ROAD CROSS SECTIONS
SHEET 1 OF 2

Project
NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.

NOT FOR CONSTRUCTION

Date 28.10.2014	Designer L. RUSSELL	Design Checker C. ROPE
Scale of All AS SHOWN	DRAWN S. MANANDHAR	Principal/Project Dr R. LUCAS
Job Number 13656	Drawing Number C-1-3-21	Revision 5

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SCALE 1:100



0 1 2 3 4 5 m

[illegible]

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 Sydney NSW 1215
 Australia
 9 Castlereagh St, Sydney NSW
 Ph.: (02) 8246 3200
 Fax: (02) 8246 3201
 ACN: 010 582 218


UrbanGrowth
 NSW

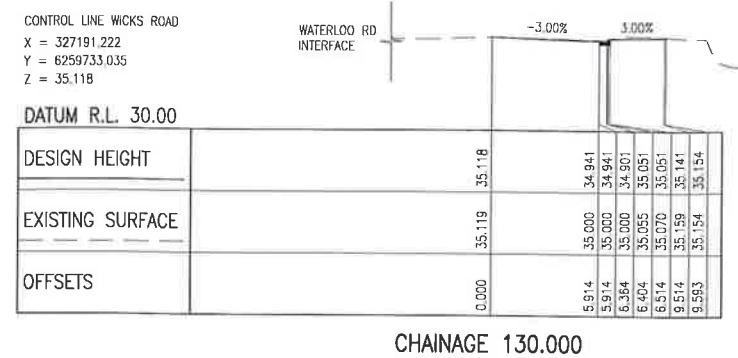
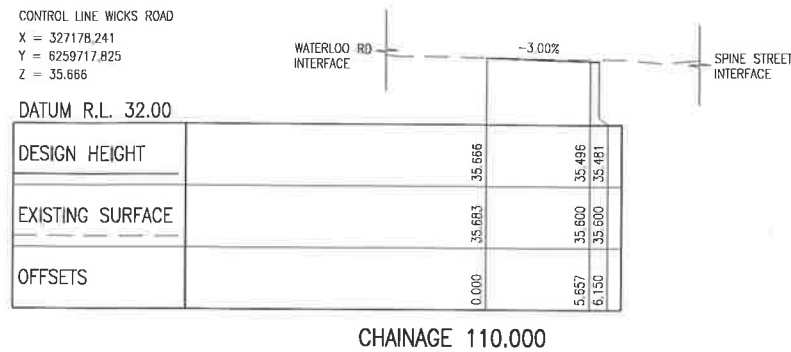
Web Site: www.robertbird.com

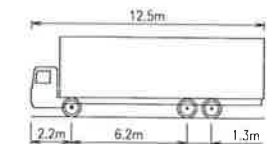
Title
WICKS ROAD CROSS SECTIONS
SHEET 1 OF 2

Project
NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.

NOT FOR CONSTRUCTION

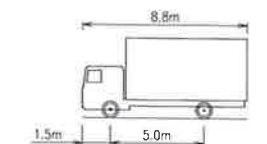
Date 28.10.2014	Designer L. RUSSELL	Design Checker C. ROPE
Scale of All AS SHOWN	DRAWN S. MANANDHAR	Principal/Project Ch. R. LUCAS
Job Number 13656	Drawing Number C-1-3-21	Revision 5





Single Unit Truck/Bus (12.5 m)

Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.490m
Track Width	2.500m
Lock to Lock Time	6.00s
Curb to Curb Turning Radius	12.500m



Service Vehicle (8.8 m)

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

VEHICLE SWEEP PATHS - VIEW 1
WICKS, WATERLOO AND SPINE STREET INTERSECTION



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granted on the 05.03.2015

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Sheet No. 77 of 88

**PRINT DRAWING
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SCALE 1:250
0 5 10 15 m

Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	INITIAL SUBMISSION FOR SSDA	LAV	CH	18.05.2014					
2	UPDATED SUBMISSION FOR SSDA	LAV	CH	22.05.2014					
3	UPDATED SUBMISSION FOR SSDA	LAV	CH	27.05.2014					
4	UPDATED SUBMISSION FOR SSDA	LAV	CH	21.10.2014					
5	UPDATED SUBMISSION FOR SSDA	LAV	CH	28.10.2014					

Structural, Civil & Construction
Engineering Consultant



RobertBirdGroup

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ACH: 010 593 246

Web Site: www.robertbird.com

Client:



Title
WICKS & WATERLOO ROAD SWEEP
PATH ANALYSIS PLAN

Project
NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.

NOT FOR CONSTRUCTION

Date 28.10.2014	Designer L. RUSSELL	Design Checker C. ROPE
Scale at A1 AS SHOWN	Drawn S. MANANDHAR	Principal/Project Owner R. LUCAS
Job Number 13656	Drawing Number C-1-3-40	Revision 5

LEGEND

-  KERB ONLY
-  KERB AND GUTTER
-  DISH DRAIN
-  TURFING
-  TYPE 2 - ROAD PAVEMENT
-  TYPE P4 - INSITU CONCRETE
-  TYPE P1 & P3 - FOOTPATH
-  EXISTING PAVEMENT TO BE RETAINED
-  BIORETENTION TREE PIT

NOTES:
1. REFER GENERAL NOTES ON DWG. C-0-0-02.
2. REFER PAVEMENT DETAILS ON DWG. C-1-4-10



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Sheet No. 78 of 88

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TYPICAL PAVEMENT
CUTBACK, REFER
DETAIL C-1-4-10

EXISTING DRIVEWAY TO
BE RECONSTRUCTED AND JOINED
NEATLY TO EXISTING AT
PROPERTY BOUNDARY

TYPICAL PAVEMENT
CUTBACK, REFER
DETAIL C-1-4-10

INTERFACE WITH
INTERNAL WORKS



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1	DRAFT SUBMISSION FOR SSDA	LAR	CH	18.05.2014					
2	UPDATED SUBMISSION FOR SSDA	LAR	CH	22.05.2014					
3	UPDATED SUBMISSION FOR SSDA	LAR	CH	27.05.2014					
4	UPDATED SUBMISSION FOR SSDA	LAR	CH	21.10.2014					
5	UPDATED SUBMISSION FOR SSDA	LAR	CH	26.10.2014					

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Engineering Consultant



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Ph: (02) 9246 3300
Fax: (02) 9246 3201
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Web Site: www.robertbird.com

Civil



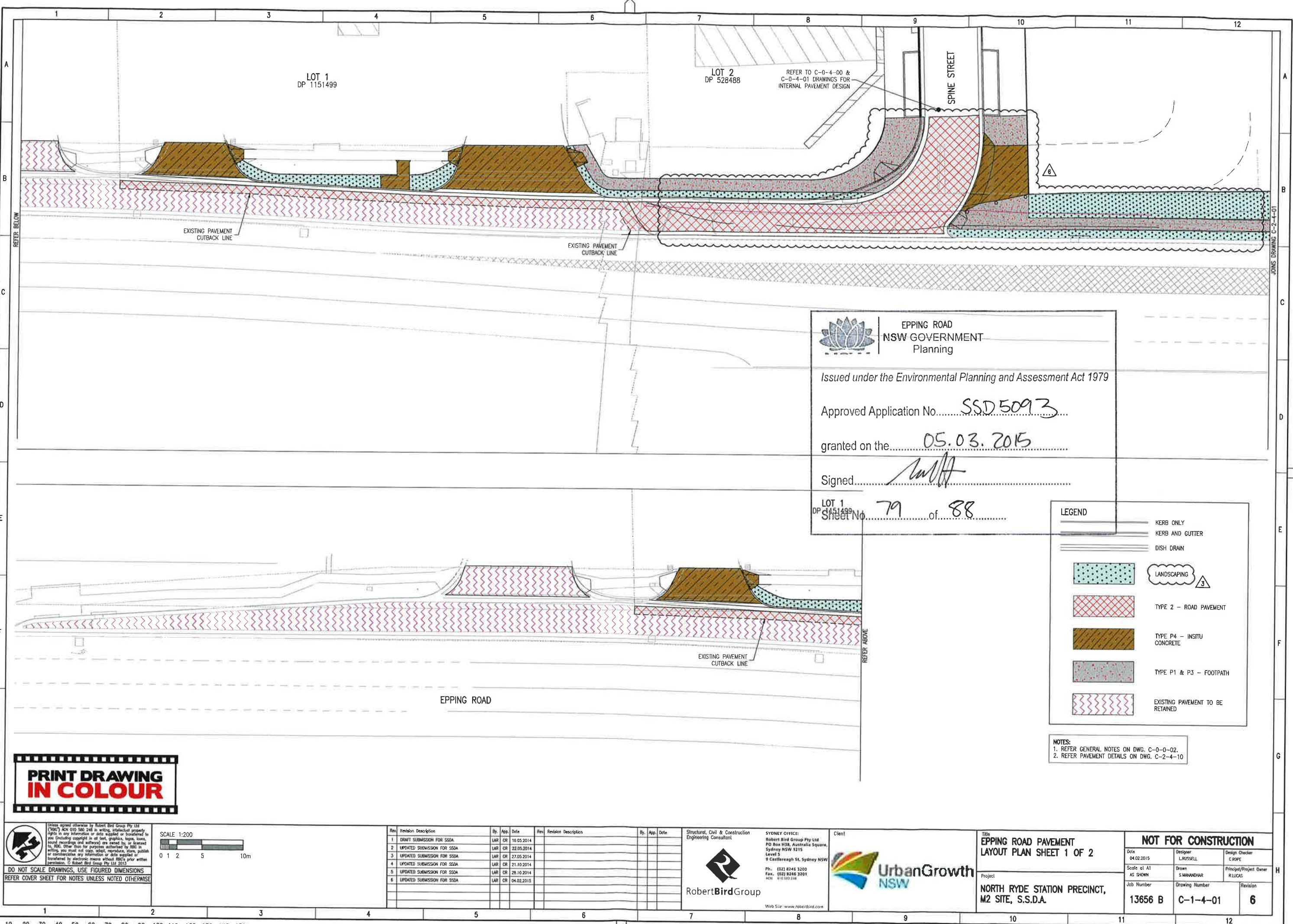
Title
WICKS & WATERLOO ROAD
PAVEMENT LAYOUT PLAN

Project
NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.

NOT FOR CONSTRUCTION

Date 28.10.2014	Designer LJUSSELL	Design Checker C.ROPE
Scale: as AS SHOWN	Drawn S. MANANDHAR	Principal/Project Designer RLUCAS
Job Number 13656	Drawing Number C-1-4-00	Revision 5

Robert Bird Group Pty Ltd (RBG) is a registered provider (RPP) of the National Training Framework (NTF) for the construction industry. RBG is a member of the Australian Construction Training Foundation (ACTF) and is committed to providing high quality training and assessment services to the construction industry. RBG is a member of the Australian Construction Training Foundation (ACTF) and is committed to providing high quality training and assessment services to the construction industry.



 **EPPING ROAD**
NSW GOVERNMENT
Planning

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Approved Application No. SSD 5093

granted on the 05.03.2015

Signed [Signature]

LOT 1 DP 1151499
Sheet No. 79 of 88

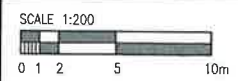
LEGEND

- KERB ONLY
- KERB AND GUTTER
- DISH DRAIN
- LANDSCAPING 
- TYPE 2 - ROAD PAVEMENT
- TYPE P4 - INSITU CONCRETE
- TYPE P1 & P3 - FOOTPATH
- EXISTING PAVEMENT TO BE RETAINED

NOTES:
1. REFER GENERAL NOTES ON DWG. C-0-0-02.
2. REFER PAVEMENT DETAILS ON DWG. C-2-4-10

**PRINT DRAWING
IN COLOUR**

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REFER COVER SHEET FOR NOTES UNLESS NOTED OTHERWISE



Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	DRAFT SUBMISSION FOR SSDA	LAR	CR	16.03.2014					
2	UPDATED SUBMISSION FOR SSDA	LAR	CR	22.05.2014					
3	UPDATED SUBMISSION FOR SSDA	LAR	CR	27.05.2014					
4	UPDATED SUBMISSION FOR SSDA	LAR	CR	21.10.2014					
5	UPDATED SUBMISSION FOR SSDA	LAR	CR	28.10.2014					
6	UPDATED SUBMISSION FOR SSDA	LAR	CR	04.02.2015					

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Client

 **UrbanGrowth
NSW**

Title
**EPPING ROAD PAVEMENT
LAYOUT PLAN SHEET 1 OF 2**

Project
**NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.**

NOT FOR CONSTRUCTION			
Date 04.02.2015	Designer L. RUSSELL	Design Checker C. ROPE	
Scale at A1 AS SHOWN	Drawn S. MANNING	Principal/Project Owner R. LUCAS	
Job Number 13656 B	Drawing Number C-1-4-01	Revision 6	

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LOT L & M

EPPING ROAD



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granted on the 05.03.2015

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Sheet No. 80 of 88

LEGEND

- KERB ONLY
- KERB AND GUTTER
- DISH DRAIN
- LANDSCAPING
- TYPE 2 - ROAD PAVEMENT
- TYPE P4 - INSITU CONCRETE
- TYPE P1 & P3 - FOOTPATH
- EXISTING PAVEMENT TO BE RETAINED

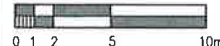
NOTES:
1. REFER GENERAL NOTES ON DWG. C-0-0-02.
2. REFER PAVEMENT DETAILS ON DWG. C-2-4-10

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IN COLOUR



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Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	UPDATED SUBMISSION FOR SSDA	LAR	CR	21.10.2014					
2	UPDATED SUBMISSION FOR SSDA	LAR	CR	28.10.2014					
3	UPDATED SUBMISSION FOR SSDA	LAR	CR	04.02.2015					

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Engineering Consultant



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A/CN: 010 552 218

Client



Title
EPPING ROAD PAVEMENT
LAYOUT PLAN SHEET 2 OF 2

Project
NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.

NOT FOR CONSTRUCTION

Date 04.02.2015	Designer L. RUSSELL	Design Checker C. ROPE
Scale at A1 AS SHOWN	Drawn S. MANOHAR	Principal/Project Owner R. LUCAS
Job Number 13656 B	Drawing Number C-1-4-02	Revision 3

1 2 3 4 5 6 7 8 9 10 11 12

EXISTING 0.30m 0.50m D + 0.300m 0.50m 0.30m EXISTING

PAVEMENT TYPE 2

PROVIDE PAVEMENT REINFORCEMENT GEOGRID "GLASGRID" OR EQUIVALENT TO PREVENT REFLECTIVE CRACKING FROM THE BASE LAYER THROUGH THE ASPHALT

PROVIDE PAVEMENT REINFORCEMENT GEOGRID "GLASGRID" OR EQUIVALENT TO PREVENT REFLECTIVE CRACKING FROM THE BASE LAYER THROUGH THE ASPHALT

SUBSOIL DRAINAGE TO BE PLACED ON LOW SIDE OF TRENCH EXCAVATION

BACKFILL SERVICE TO SPECIFICATION

SERVICE TRENCHING
RECONSTRUCTION DETAIL
SCALE 1:20

40mm WEARING COURSE AC14 (AR450)

240mm FULL DEPTH ASPHALT AC20 (3x80mm LAYERS)

200mm SAND CEMENT MIX (8:1) GEOTEXTILE OVER EXISTING SUBGRADE

COMPACTED SUBGRADE

TYPE 2 - ROAD PAVEMENT
TYPICAL DETAIL
NOTE: DESIGN MATCHES EXISTING
RMS APPROVED EPPING ROAD
PAVEMENT DESIGN
SCALE 1:10

GRANITE PAVING TO LANDSCAPE ARCHITECTS' SPECIFICATION

30mm THICK MORTAR BEDDING

100mm CONCRETE 32MPa WITH SL72 MESH CENTRALLY PLACED

150mm SUBBASE

COMPACTED SUBGRADE

TYPE P1 & P3 - FOOTPATH PAVEMENT
TYPICAL DETAIL
SCALE 1:10

EXPOSED AGGREGATE FINISH

100mm CONCRETE 32MPa WITH SL82 MESH CENTRALLY PLACED (175mm IN TRAFFICKED AREAS)

100mm SUBBASE (150mm IN TRAFFICKED AREAS)

COMPACTED SUBGRADE

TYPE P4 - INSITU CONCRETE
TYPICAL DETAIL
SCALE 1:10

PROVIDE PAVEMENT REINFORCEMENT GEOGRID "GLASGRID" OR EQUIVALENT TO PREVENT REFLECTIVE CRACKING FROM THE BASE LAYER THROUGH THE ASPHALT

EXISTING EDGE OF PAVEMENT

SAWCUT AND JOIN TO EXISTING PAVEMENT IN 300mm WIDE STEPS

PAVEMENT TYPE 2 (REFER DETAIL)

600 MIN

TYPICAL EXISTING PAVEMENT
CUTBACK DETAIL
SCALE 1:10

PROVIDE PAVEMENT REINFORCEMENT GEOGRID "GLASGRID" OR EQUIVALENT TO PREVENT REFLECTIVE CRACKING FROM THE BASE LAYER THROUGH THE ASPHALT

SAWCUT AND JOIN TO EXISTING PAVEMENT IN 500mm WIDE STEPS

EXISTING ROADWAY

PAVEMENT TYPE 2 (REFER DETAIL)

600 MIN

KERB PROFILE AS SPECIFIED

TYPICAL EXISTING PAVEMENT
EDGE CUTBACK DETAIL
SCALE 1:10



NSW GOVERNMENT
Planning

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Approved Application No. **SSD5093**

granted on the **05.03.2015**

Signed *[Signature]*

Sheet No. **81** of **88**



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Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	DRAFT SUBMISSION FOR SSDA	LAN	CH	18.05.2014					
2	UPDATED SUBMISSION FOR SSDA	LAN	CH	22.05.2014					
3	UPDATED SUBMISSION FOR SSDA	LAN	CH	27.05.2014					
4	UPDATED SUBMISSION FOR SSDA	LAN	CH	21.10.2014					
5	UPDATED SUBMISSION FOR SSDA	LAN	CH	28.10.2014					

Structural, Civil & Construction
Engineering Consultant



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Fax: (02) 8246 3201
ACH: 010 150 248

Web Site: www.robertbird.com

Client:



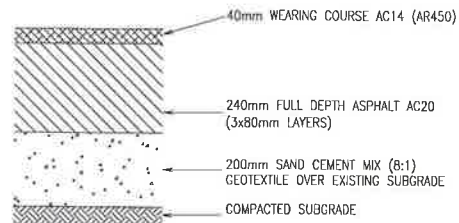
Title
WICKS & WATERLOO ROAD
PAVEMENT DETAILS

Project
NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.

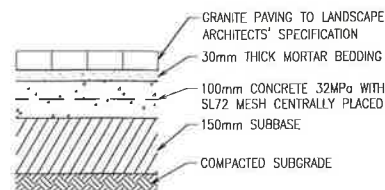
NOT FOR CONSTRUCTION

Date 28.10.2014	Designer L. RUSSELL	Design Checker C. ROPE
Scale at A1 AS SHOWN	Drawn S. MANANDHAR	Principal/Project Engineer R. LUCAS
Job Number 13656	Drawing Number C-1-4-10	Revision 5

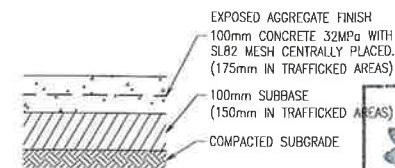
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TYPE 2 - ROAD PAVEMENT
TYPICAL DETAIL
NOTE: DESIGN MATCHES EXISTING RMS
APPROVED EPPING ROAD PAVEMENT
DESIGN
SCALE 1:10



TYPE P1 & P3 - FOOTPATH PAVEMENT
TYPICAL DETAIL
SCALE 1:10



TYPE P4 - INSITU CONCRETE
TYPICAL DETAIL
SCALE 1:10



NSW GOVERNMENT
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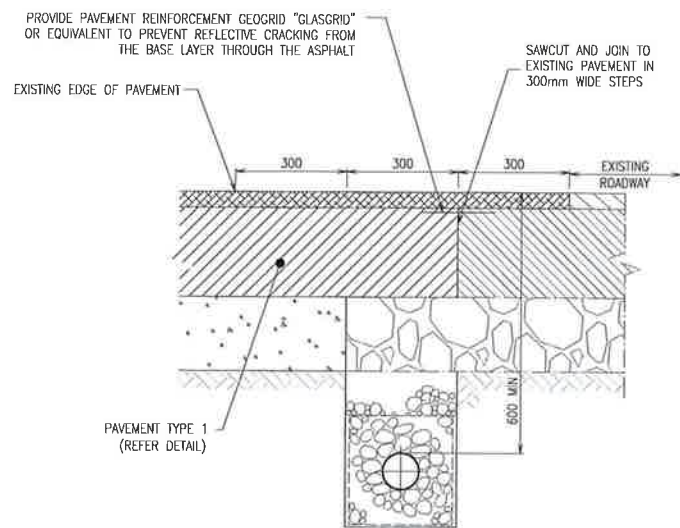
Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD5093

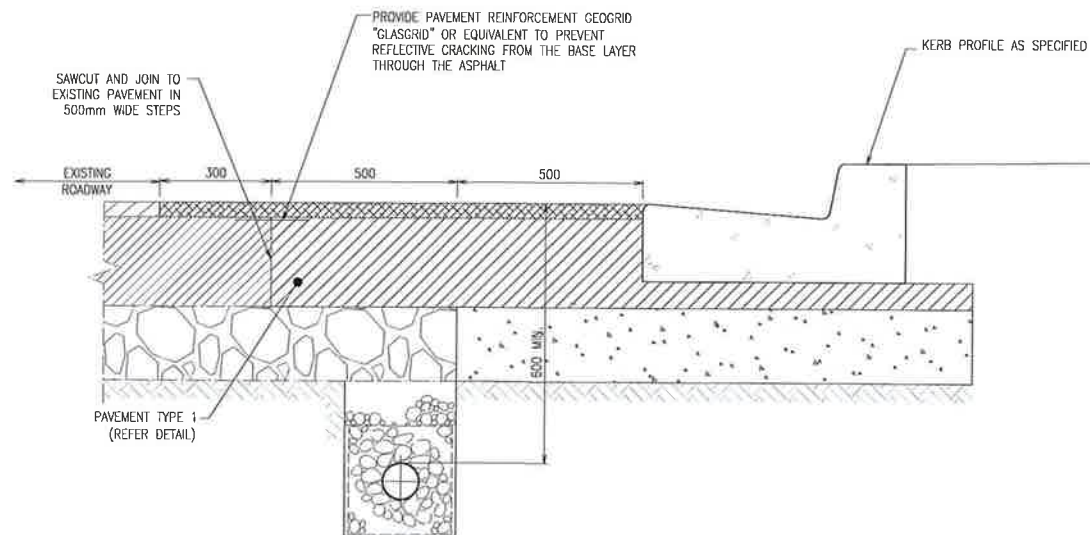
granted on the 05.03.2015

Signed. *[Signature]*

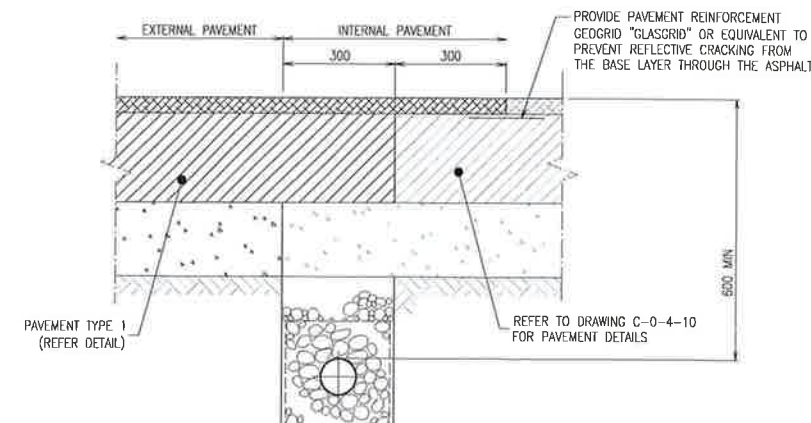
Sheet No. 82 of 88



TYPICAL EXISTING PAVEMENT
CUTBACK DETAIL
SCALE 1:10

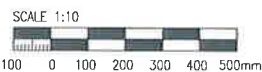


TYPICAL EXISTING PAVEMENT
EDGE CUTBACK DETAIL
SCALE 1:10



TYPICAL PAVEMENT
JOINT DETAIL
SCALE 1:10

DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS
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Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	UPDATED SUBMISSION FOR SSDA	LAV	CR	21.10.2014					
2	UPDATED SUBMISSION FOR SSDA	LAV	CR	28.10.2014					

Structural, Civil & Construction
Engineering Consultant



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Client



Title
EPPING ROAD PAVEMENT
DETAILS

Project
NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.

NOT FOR CONSTRUCTION

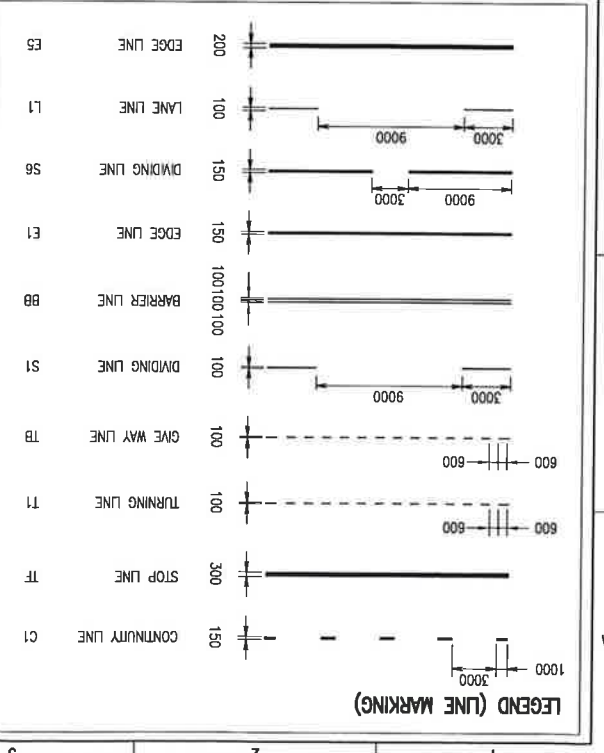
Date 28.10.2014	Designer L. RUSSELL	Design Checker C. ROPE
Scale: all A1 AS SHOWN	Drawn S. MANANDHAR	Principal/Project Owner R. LUCAS
Job Number 13656	Drawing Number C-1-4-11	Revision 2

[illegible]

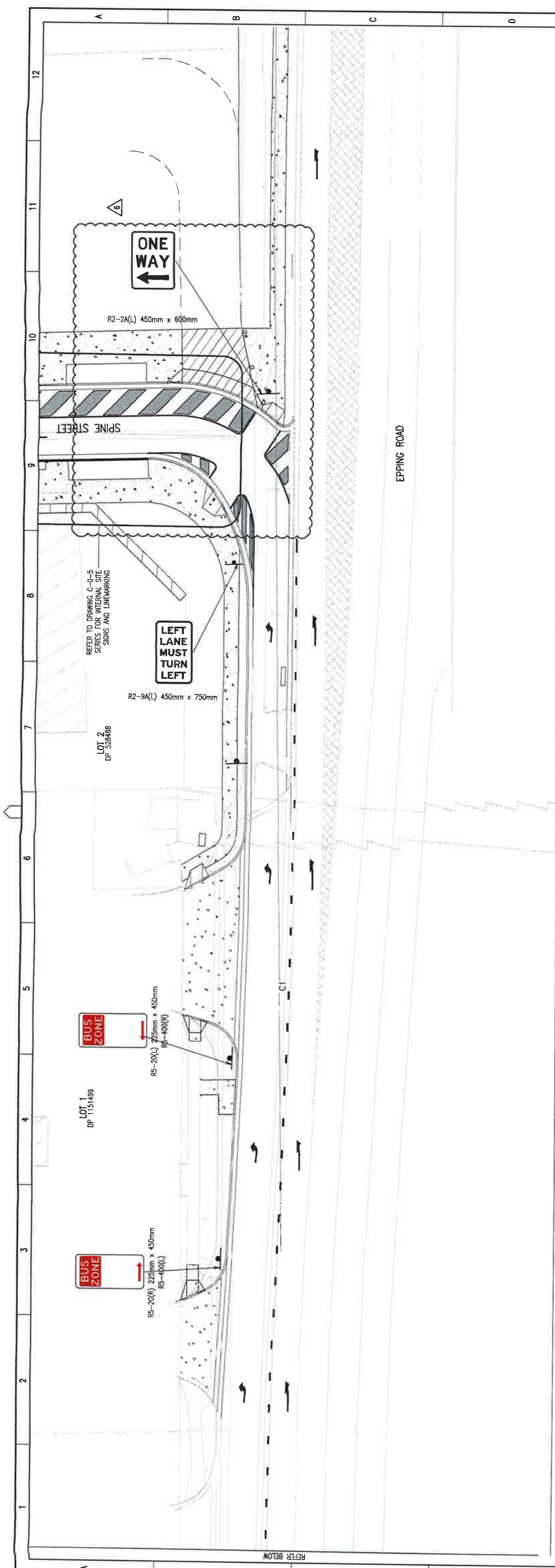

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NOT FOR CONSTRUCTION		Date	29 10 2014	Inspector	LUNSEL	Design Checker	C ROPE	Witness/Inspector	AS SHOWN	Job Number	13656	Drawing Number	C-1-5-00	Revised	
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RS-400(R)	RS-400(L)	RS-400(U)	RS-400(T)
RS-400(R)	RS-400(L)	RS-400(U)	RS-400(T)



LEGEND (LINE MARKING)

1000	3000	150	C1	CONTINUITY LINE
600	300	300	TF	STOP LINE
600	100	100	T1	TURNING LINE
600	100	100	TB	GIVE WAY LINE
3000	9000	100	S1	DIVIDING LINE
100	100	100	BB	BARRIER LINE
150	150	150	E1	EDGE LINE
9000	3000	150	S6	DIVIDING LINE
3000	9000	100	L1	LANE LINE
200			E5	EDGE LINE

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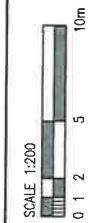
Approved Application No. **SSD5093**

granted on the **05.03.2015**

Signed *[Signature]*

Street No. **84** of **88**

**PRINT DRAWING
IN COLOUR**



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Rev	Revision Description	By	App	Date
1	DRAFT SUBMISSION FOR SSDA	UAT	CR	18.05.2014
2	UPDATED SUBMISSION FOR SSDA	UAT	CR	22.05.2014
3	UPDATED SUBMISSION FOR SSDA	UAT	CR	27.05.2014
4	UPDATED SUBMISSION FOR SSDA	UAT	CR	21.10.2014
5	UPDATED SUBMISSION FOR SSDA	UAT	CR	28.10.2014
6	UPDATED SUBMISSION FOR SSDA	UAT	CR	04.02.2015

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Client

UrbanGrowth
NSW

Title EPPING ROAD DECELERATION LANE SIGNS AND LINEMARKING PLAN		NOT FOR CONSTRUCTION	
Date 04.02.2015	Designer L. RUSSELL	Checker C. RIFE	Project Owner RUCOS
Scale at A1 AS SHOWN	Drawn S. MUMFORD	Principal/Project Owner RUCOS	Revision Drawing Number 13656 B
Project NORTH RYDE STATION PRECINCT, M2 SITE, S.S.D.A.			Revision C-1-5-01
			6

REFER RIGHT



NSW GOVERNMENT
Planning

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No. SSD5093

granted on the 05.03.2015
CONNECT TO EXISTING STORMWATER

Signed [Signature]

Sheet No. 85 of 88

CONNECT TO EXISTING STORMWATER

LEGEND

	PROPOSED KERB & GUTTER
	PROPOSED DISH DRAIN
	PROPOSED VEHICLE CROSSING
	EXISTING CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED KERB RAMP
	PROPOSED TWIN 3.3m INLET PITS WITH CHAMBER BENEATH
	PROPOSED JUNCTION PIT
	PROPOSED STORMWATER PIPE
	PROPOSED PIT LABELS
	PROPOSED GRATED INLET DRAIN

REFER LEFT

CONNECT TO EXISTING STORMWATER

GRATED TRENCH DRAIN
6000 x 600.

INDICATIVE ALIGNMENT OF
UPSTREAM 2.1m DIA
DRAINAGE LINE

Do not scale drawings, use figured dimensions
REFER COVER SHEET FOR NOTES UNLESS NOTED OTHERWISE



Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
1	DRWT SUBMISSION FOR SSDA	LAR	CR	16.05.2014					
2	UPDATED SUBMISSION FOR SSDA	LAR	CR	22.05.2014					
3	UPDATED SUBMISSION FOR SSDA	LAR	CR	27.05.2014					
4	UPDATED SUBMISSION FOR SSDA	LAR	CR	21.10.2014					
5	UPDATED SUBMISSION FOR SSDA	LAR	CR	28.10.2014					

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Title
WICKS & WATERLOO ROAD
STORMWATER LAYOUT PLAN

Project
NORTH RYDE STATION PRECINCT,
M2 SITE, S.S.D.A.

NOT FOR CONSTRUCTION

Date 28.10.14	Designer L. RUSSELL	Design Checker C. ROPE
Scale of A1 AS SHOWN	Drawn S. MANWIKAR	Principal/Project Owner R. LUCAS
Job Number 13656	Drawing Number C-1-6-00	Revision 5

General

- G1. Structural drawings shall be read in conjunction with all architectural and other consultants drawings and specifications.
- G2. Any discrepancies shall be referred to the architect for a decision before proceeding with the work.
- G3. For setting out dimensions refer to architectural drawings. No dimensions shall be obtained by scaling from drawings. If in doubt, ask.
- G4. Unless otherwise noted, all levels are given in metres and all dimensions are in millimetres.

G5. All materials and workmanship shall be in accordance with Australian standards and codes of practice except where varied by the specification and/or drawings. The applicable Standards shall be the referenced Standards current at commencement of construction. These Standards for this project shall be determined by reference to the document history on the Standards Australia website. This determination of applicable Standards shall be carried out during the Tender period and any queries relating to the appropriate Standard shall be raised with Arup during this period.

G6. The builder shall be responsible for maintaining the stability of the structure until its completion and shall ensure that no part of the structure is overstressed by excessive construction loading or contains "Locked-in" stresses from temporary conditions.

G7. Each aspect of structural work shall be checked by the engineer after the builder has satisfied themselves that it is correct, and before it is concealed. The engineer shall be given 48 hours' notice of inspection being required.

G8. Unless shown otherwise, members shall be detailed to intersect at the centroid lines of sections used.

G9. Refer to Architects drawings for details of all grooves, fillets, hobs drip grooves & the like.

G10. Abbreviations:
c/c - centres

col - column
cls - centres
FFL - finished floor level
gal - hot dip galvanised
EF - each face
NF - near face

NSOP - not shown on plan
NSOE - not shown on elevation
SSL - structural slab level
typ - typical
UNO - unless noted otherwise
EW - each way
FF - far face

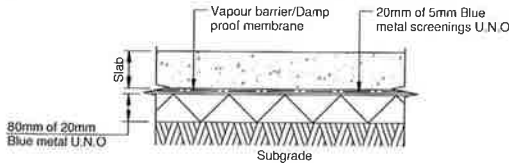
NTS - Not to scale
PT - Pile cap top
PB - Pile cap bottom

Subgrade

F10.1 Natural subgrades shall be proof-rolled with a roller of 70kN minimum static weight, unless otherwise stated in the geotechnical investigation report, detect soft or loose areas. Such areas should be treated in accordance with the Geotechnical Engineer's recommendations.

F10.2 Unless otherwise specified the subgrade below base courses for slabs shall be suitable material compacted to 100% std as determined by test AS 1289.5.1.1, or 70% minimum density index for cohesionless soils.

F11. Base shall be approved well graded natural gravel or crushed rock (max. size 40mm) spread and compacted to 98% mod as determined by test AS 1289.5.2.1, or 80% minimum density index for cohesion less soils.



Typical Slab on Grade

Foundations - cohesive (loamy and clayey) soils

FC1. Foundation material shall be approved by the engineer for allowable bearing capacity before construction of footings.

FC2. Underside of footings in loamy and clayey soils shall be a minimum of 600mm below natural ground level.

FC3. Excavate to firm, dry ground and maintain the excavation in a dry condition. Remove any soft ground as directed by the engineer.

FC4. Where over-excavation in soft ground is required, filling to the correct level shall be with concrete of f'c = 20 MPa U.N.O.

FC5. Footings have been designed for an allowable working load bearing pressure of Noted on the drawings for a 20mm settlement, but not less than 150kPa

FC6. All walls and columns shall be concentric with supporting foundations unless otherwise shown.

FC7. Blinding of 50mm concrete (f'c = 15 MPa) shall be placed as soon as the footing excavations have been inspected by the engineer.

FC8. Unless otherwise approved by the engineer, no excavation shall be carried out closer to footings than a line extending down from their edge at 45° as per note F9.

Foundations - Non Cohesive (sandy) Soils

F1. Refer to the Geotechnical Site Investigation prepared by Arup Geotechnics.

F2. Foundation material shall be approved by the Geotechnical engineer for allowable bearing capacity before construction of footings. This shall be based on the results of tests carried out under item.

F3. Compaction shall be measured using a penetrometer in accordance with AS1289 3.3.

F4. Penetrometer compaction results required:

- Under Footings:
8 blows per 300mm measured from 150mm to 750mm deep;
- Under slabs:
8 blows per 300mm measured from 150mm to 750mm deep.

F5. The contractor shall arrange for all penetrometer testing to be carried out by an approved testing laboratory with all costs being borne by the contractor. The tests shall be carried out in accordance with the following schedule:

- Under pad footings: one test/10m2 with min. 1 test/pad
- Under strip footings: one test/5m length
- Under slabs: one test/20m2

F6. Footings have been designed for an allowable working load bearing pressure noted on drawings but no less than 150kPa

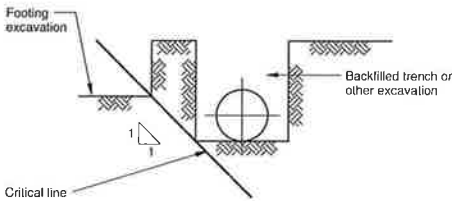
F7. All walls and columns shall be concentric with supporting foundations unless otherwise shown.

F8. Unless otherwise approved by the engineer, no excavation shall be carried out closer to footings than a line extending down from their edge at 45°

F9. All free draining granular fill material behind retaining walls shall be of strong durable particles confirming to the following gradings:

A.S. Sieve size
26.50mm
9.50mm
2.36mm
600 microns
75 microns

F10. Refer Civil works specification & drawings for general fill & compaction requirements if not listed.



Reinforcement

R1. All reinforcement shall be as follows:

Symbol	Type	Designation to AS/ NZS 4671
R	Normal ductility plain bars	R250N
N	Normal ductility deformed bars	D500N
SN/ RN	Normal ductility welded mesh square or rectangular	D500SN/ D500RN
SL/ RL	Low ductility welded mesh square or rectangular	D500SL/ D500RL
T	"Tempore" bars or equivalent	D500SL/ D500RL

Note 1: The number following R, N or T is the bar diameter in mm.
Note 2: T bars shall be used for all rebend of pull-out applications

Steel reinforcement for concrete MUST comply with AS/NZS 4671 or AS/NZS 4672. It MUST be cut and bent in accordance with AS 3600, AS 5100 or AS 2870.

R2. Clear cover to reinforcement (including filaments) shall be as noted on the drawings. Where cover is not specifically designated, an RFI is to be raised with the engineer.

R3. Where top and bottom reinforcement is shown on the same plan, Top reinforcement is shown thus: Bottom reinforcement is shown thus:

R4. Distribution bars to main reinforcement in slabs shall be: N12 @ 300 c/c U.N.O. for slabs upto 200 thick N16 @ 300 c/c U.N.O. for slabs upto 300 thick Contact engineer for thicker slabs.

R5. No Reinforcement splices shall be made, other than those shown on the structural drawings, without the prior approval of the engineer. Minimum lap for fabric shall be one mesh plus 25mm.

R6. Welding of reinforcement is not permitted unless shown on the drawings or approved by the engineer.

R7. Top and bottom reinforcement in slabs shall be supported in both directions at maximum centres of 1000mm.

R8. Reinforcement to be checked by the engineer prior to pouring. Give engineer 48 hours notice of check being required and allow sufficient time for any remedial work required after checking prior to concrete pour.

R9. The minimum clear spacing between conduits, cables, pipes and bars to be as required by AS 3600 but not less than three diameters. Conduits in slabs to be placed above bottom reinforcement and below top reinforcement.

R10. All re-entrant corners and service holes are to have trimmer bars placed diagonally at corners using two bars (1600 long), one tied to the underside of top reinforcement and the other tied to the top of the bottom reinforcement. Trimmer bars to be N12 for slab not thicker than 120, N16 for slabs not thicker than 180, N20 otherwise. U.N.O.

R11. All hooks, laps and bends shall be in accordance with AS 3600 unless shown otherwise. Laps in mesh shall be made so that the overlap measured between the outermost transverse wires of each sheet is not less than the spacing of the wires plus 25mm.

R12. Abbreviations used for reinforcement location.

BB - Bottom Bottom
TT - Top Top
EF - Each Face
NF - Near Face
LV - Bar Length Varies
AP - Alternately Placed

B - Bottom
T - Top
EW - Each Way
FF - Far Face
AS - Alternately Slagged

Piling

P1. All piling shall comply with AS2159 & the specification. The Piling specification shall take precedence where conflict exists.

P2. The contractor shall obtain all the necessary approvals from the relevant authorities, and adjacent property owners prior to commencement of work.

P3. Unless shown otherwise, bored piles / barrettes shall have a minimum socket length of 2 x pile diameter in rock.

P4. The plan set-out dimensions are at pile trim level. If piling and driving of piles takes place from a different level, appropriate adjustments to the set-out of raking piles, if any, must be made.

P5. If any pile needs to be trimmed by the piling or excavation contractor for reasons of access etc, such trimming shall be at a level not less than 100mm above the final trimmed level. No such trimming shall take place without the prior agreement of the engineer.

P6. Top section of bored pier / barrette to be lined if necessary to retain loose material and ground water, and sealed into rock to prevent significant inflow of ground water.

P7. Unless noted otherwise, centreline of bored pier / barrette shall coincide with centreline of column/wall above. Refer architect's drawings.

P8. Bored piers / barrettes shall be designed for a maximum eccentricity of 50mm. All bored pier / barrette centrelines shall be checked prior to concrete being poured. If eccentricity greater than 50mm is measured, the engineer shall be notified immediately.

P9. The contractor is responsible for interpretation of the geotechnical information and for designing a piling system to suit the site.

P10. Pile groups shall be designed to carry the working loads given in the pile group schedule and to account for negative skin friction due to settlement of the ground. Pile joints shall have structural properties not less than those of the balance of the pile section.

P11. All piles shall be designed and constructed in accordance with AS2159. Steel piles are not acceptable. Pile durability shall be in accordance with AS2159, section 6 non aggressive conditions. The design of the pile alternatives shall be carried out by a chartered engineer and independently checked by another chartered engineer. A statement signed by both engineers, shall be provided to certify that the design of the piles meets all the requirements of this specification.

P12. The tender shall include full details of the types of alternative pile proposed. This information shall include, but is not limited to:

- the geotechnical design criteria used in the pile design
- the structural design criteria used in the pile design.

P13. Concrete for the piles shall be tested by project control testing as specified in AS3600 with a minimum rate of testing of one sample per batch of concrete.

P14. The maximum permissible deviation at cut off level of the center of each completed pile from the correct centre point is 50mm in any direction. The maximum permissible deviation from the vertical at any level of a finished pile is 1 in 75. Allowable tolerance in cut off level is 20mm.

P15. Pile shall be driven in an order and in such manner that no damage is sustained by previously driven piles or structure.

P16. The contractor shall record in a manner approved by the engineer, details of the construction of each pile and submit all details to the engineer within 48 hours of the pile being constructed.

P17. The pile set out positions will be available prior to the commencement of the site work.

P18. The contractor shall engage the services of a licensed surveyor to setout the piles from the building grid lines setout by the proprietor's surveyors. The contractor shall engage the services of a licensed surveyor to check setout of completed piles. A schedule of survey results shall be forwarded to the engineer on a progressive basis. Any existing setout reference and/or datum which are lost or disturbed during the course of the work shall be established by the contractor at his own cost.

P19. The contractor shall ensure that the pile driving technique employed does not cause the propagation of damage inducing waves.

P20. The contractor shall produce a report to demonstrate that the piles have been installed in accordance with these notes and the design requirements.

Pin Notes

PN1. All materials for pin plates, clevis plates rods & rod connectors is to be AS1204 grade 350. Proposed identification procedure & material certificates for this material shall be submitted to the engineer for approval prior to fabrication.

PN2. Pins to be grade 4140 or equivalent with a minimum yield strength of 640MPa. Before fabrication provide for approval material certificates for pin material. Tolerance on pin to be such that resulting clearance between pin & holes between 0.2mm making due allowance for surface treatment.

PN3. Screw threads to be as AS1275.

PN4. Length of threaded portion of rod to be:

Rod diameter	16	24	30	36	42
Rod diameter	80	100	120	125	150

PN5. Rods to have a minimum of rod dia. +6mm engagement in connectors.

PN6. All edges of plates and rods that will be galvanised are to be smoothly rounded prior to galvanising.

PN7. Holes in pin & clevis plates to be drilled not punched.

PN8. Stiffeners where shown are to be provided on both sides of the member unless noted otherwise.

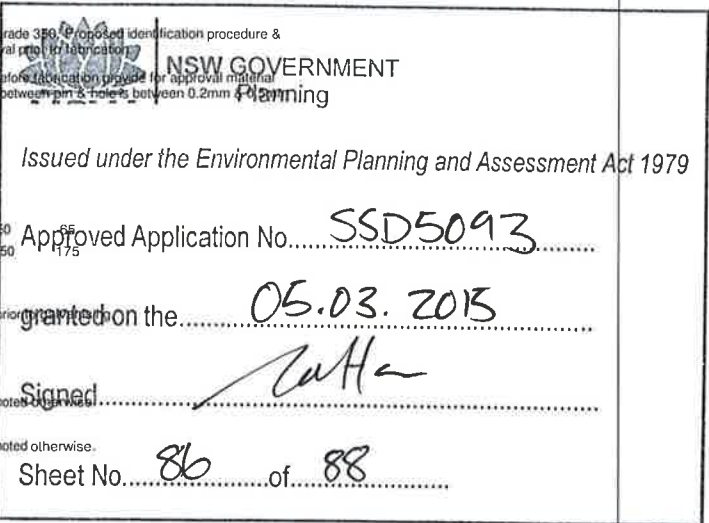
PN9. Stiffeners where shown are to be provided on both sides of the member unless noted otherwise.

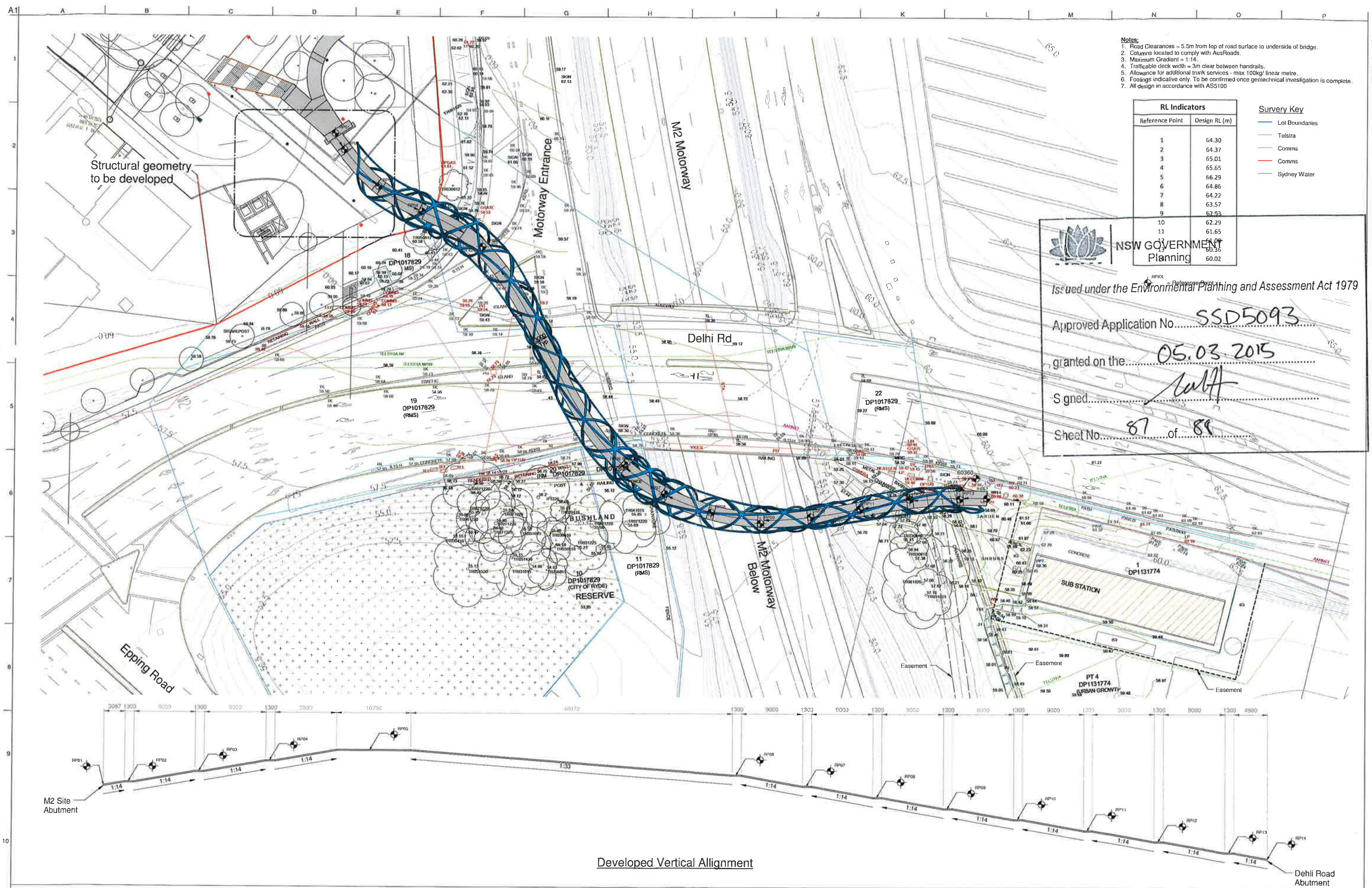
PN10. Member centrelines at nodes are to coincide unless noted otherwise.

PN11. All member splices are to be subjected to non-destructive weld testing as specified. Any variations in member splices from those shown on the drawings are to be submitted to the engineer for approval.

PN12. The engineers written approval shall be obtained for any penetrations in structural members not shown on structural drawings.

PN13. After galvanising, items with internal threads shall be tapped & oiled for corrosion protection. Those with external threads shall be wiped or the coating otherwise controlled to enable hand assembly all this work to be in accordance with AS1214. Prior to assembly galvanised threads shall be lubricated with an appropriate material.





- Notes:**
1. Road Clearances = 5.5m from top of road surface to underside of bridge.
 2. Columns located to comply with AusRoads.
 3. Maximum Gradient = 1:14.
 4. Trafficable deck width = 3m clear between handrails.
 5. Allowance for additional trunk services - max 100kg/ linear metre.
 6. Footings indicative only. To be confirmed once geotechnical investigation is complete.
 7. All design in accordance with AS5100

RL Indicators	
Reference Point	Design RL (m)
1	64.30
2	64.37
3	65.01
4	65.65
5	66.29
6	64.86
7	64.22
8	63.57
9	62.93
10	62.29
11	61.65
12	61.00
13	60.36
14	60.02

- Survey Key**
- Lot Boundaries
 - Telstra
 - Comms
 - Sydney Water

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Planning

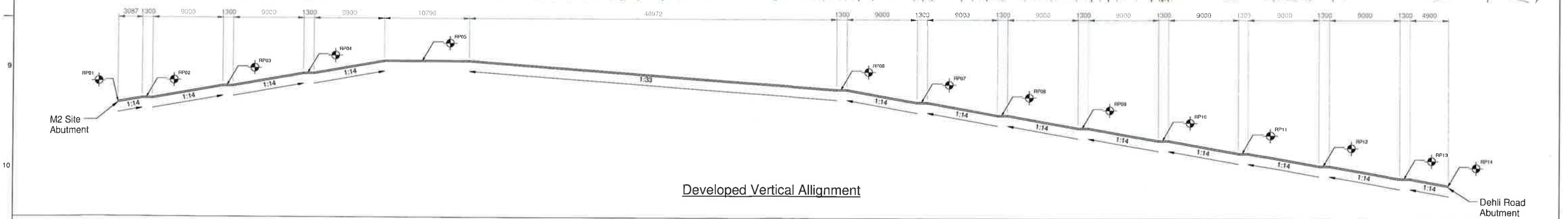
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Approved Application No. **SSD5093**

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Signed *[Signature]*

Sheet No. **87** of **88**



Scale at A1: 1:350

Discipline: Structural

Job No: 234008

Drawing Status: Preliminary Concept

Drawing No: S-310

Issue: P4

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Sydney NSW, 2000
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Fax: +61 (0)2 9330 9331
www.arup.com.au

LACHLAN'S LINE
MACQUARIE PARK

Job Title:
Lachlan's Line
Pedestrian and Cycle
Bridge, Macquarie Park

UrbanGrowth NSW

Level 14, 60 Station Street
Parramatta NSW 2150
Tel: (02) 9941 8600
Fax: (02) 9941 8688

kr studio
ARCHITECTURAL
ENVIRONMENTAL
DESIGN

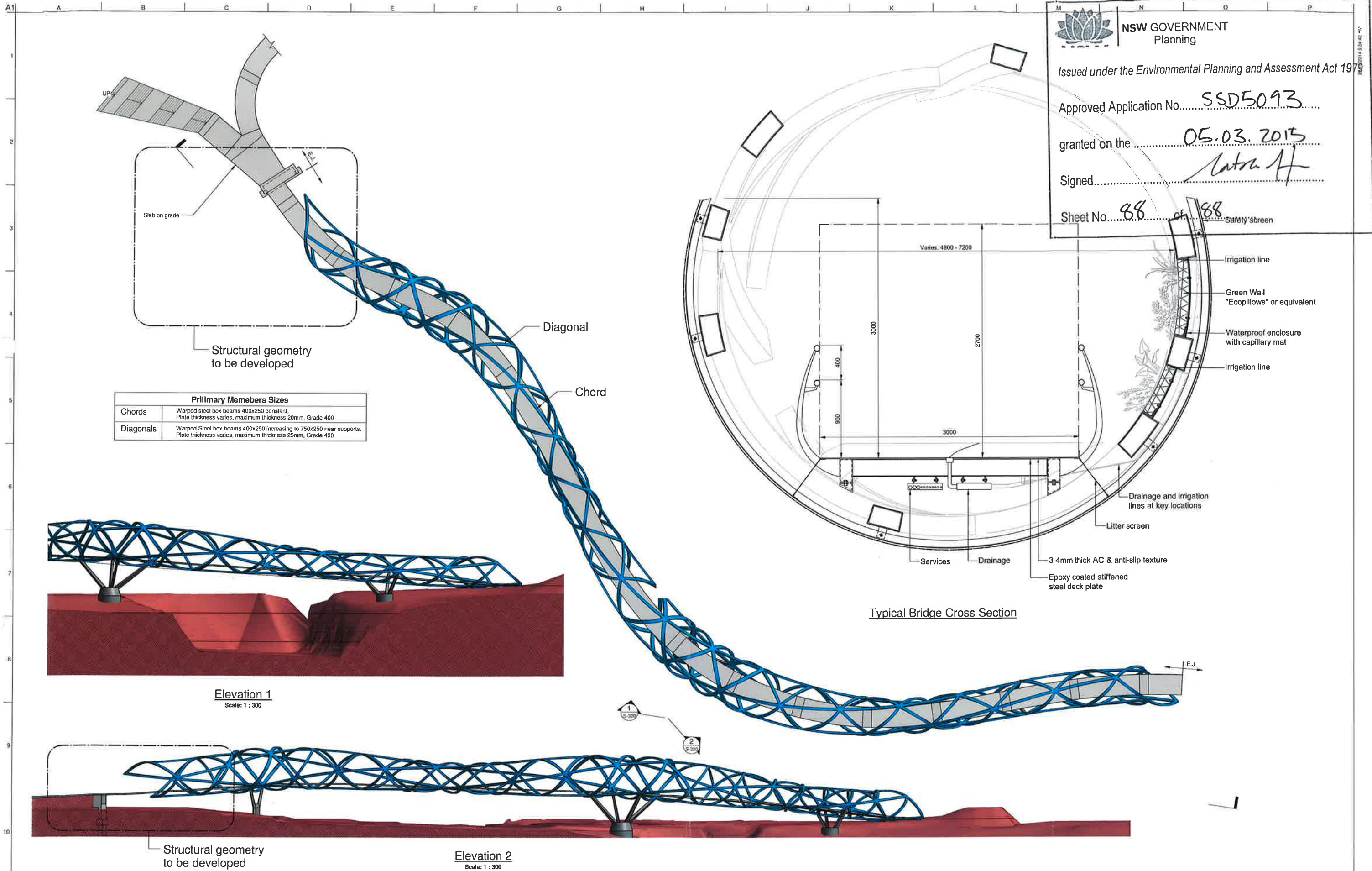
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npc
structural
facilities
engineering

Level 4 10 1/2 Clarke Street
Crows Nest NSW 2055
Tel: (02) 9605 9611
Fax: (02) 9605 7319

Site Plan

P1	28/10/14	ML	XN	AJ
Preliminary Concept				
Issued	Date	By	Check	Appd



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Planning

Issued under the Environmental Planning and Assessment Act 1979

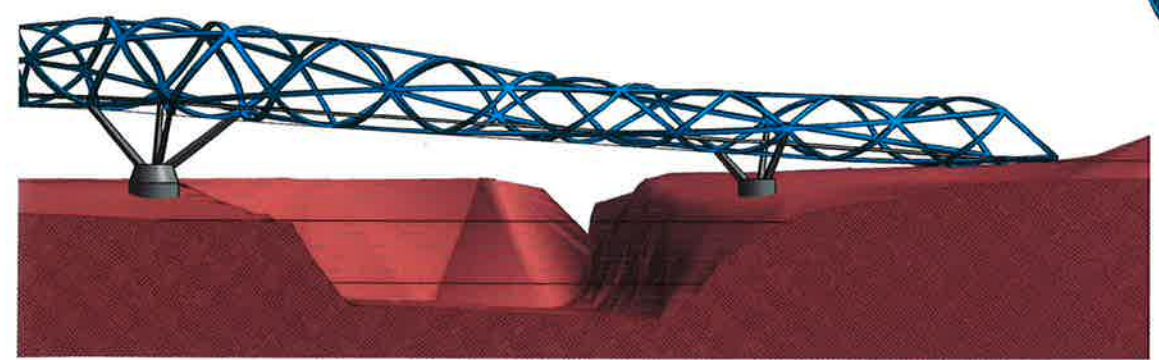
Approved Application No. **SSD5093**

granted on the **05.03.2015**

Signed *[Signature]*

Sheet No. **88** of **88**

Primary Members Sizes	
Chords	Warped steel box beams 400x250 constant. Plate thickness varies, maximum thickness 20mm, Grade 400
Diagonals	Warped Steel box beams 400x250 increasing to 750x250 near supports. Plate thickness varies, maximum thickness 25mm, Grade 400



P1	28/10/14	ML	XN	AJ
Preliminary Concept				
Issue	Date	By	Chkd	Appd

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focused
responsibility
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Crows Nest
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Sydney, NSW, 2000
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www.arup.com.au

Job Title
Lachlan's Line
Pedestrian and Cycle
Bridge, Macquarie Park

General Arrangement
& Elevations

Scale at A1 As indicated

Discipline Structural

Job No 234008

Drawing Status Preliminary Concept

Drawing No S-320

Issue P1