

# 36 - 40 CULWORTH AVENUE KILLARA CONCEPT STORMWATER MANAGEMENT PLAN

## GENERAL NOTES

THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH OTHER SUCH WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

ALL DIMENSIONS ARE IN MILLIMETRES & ALL LEVELS ARE IN METRES, UNO (UNLESS NOTED OTHERWISE).

NO DIMENSION SHALL BE OBTAINED BY SCALING THE DRAWINGS.

ALL LEVELS AND SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF THE WORK.

DURING EXCAVATION WORK THE STRUCTURE SHALL BE MAINTAINED IN A STABLE AND NO PART SHALL BE OVERSTRESSED.

DETAIL SURVEY DATA WAS OBTAINED FROM **IAN SUTHERLAND** SURVEYORS, DRAWING DATED **JANUARY 2007**.

ALL WORK IS TO BE UNDERTAKEN IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS, THE SPECIFICATIONS AND THE SUPERINTENDENT.

EXISTING SERVICES WHERE SHOWN HAVE BEEN PLOTTED FROM SUPPLIED DATA AND SUCH THEIR ACCURACY CAN NOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF WORK.

ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACK FILLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE **KU-RING-GAI** COUNCIL.

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

ON COMPLETION OF STORMWATER INSTALLATION, ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL CONDITION, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL AND GRASSED AREAS AND ROAD PAVEMENTS, UNLESS DIRECTED OTHERWISE.

CONTRACTOR TO OBTAIN ALL AUTHORITY APPROVALS UNLESS DIRECTED OTHERWISE.

## DRAINAGE CALCULATIONS

SITE AREA = 4379m<sup>2</sup>

SITE AREA EXCLUDING FLOOD BASIN = 3541m<sup>2</sup>

RCI - ROCKY CREEK CATCHMENT  
CATCHMENT DISCHARGE RATE = 124L/sec/ha  
CATCHMENT STORAGE RATE = 345m/ha

TOTAL AREA DRAINING TO OSD = 2124 (60% OF SITE AREA)  
TOTAL IMPERVIOUS AREA DRAINING TO OSD = 1826m<sup>2</sup> (100% IMPERVIOUS SITE AREA)

PERMITTED SITE DISCHARGE = 26L/sec  
ADJUSTED PERMITTED SITE DISCHARGE = 22L/sec

SITE STORAGE REQUIREMENT = 73.3m<sup>3</sup>  
25% REDUCTION IN SSR = 55m<sup>3</sup>  
TOTAL OSD STORAGE REQUIRED IN LANDSCAPING = 55m<sup>3</sup> x 1.2 = 66m<sup>3</sup>  
TOTAL OSD STORAGE PROVIDED (APPROX) = 83m<sup>3</sup>

RAINWATER TANK VOLUME REQUIRED BY BASIX = 55000L

## DRAWING SCHEDULE

DA1.01 - COVER SHEET, GENERAL NOTES AND DRAWING SCHEDULE

DA3.01 - CONCEPT STORMWATER MANAGEMENT PLAN, BASEMENT CARPARK LEVEL 2

DA3.02 - CONCEPT STORMWATER MANAGEMENT PLAN, BASEMENT CARPARK LEVEL 1

DA3.03 - CONCEPT STORMWATER MANAGEMENT PLAN, GROUND LEVEL

DA4.01 - DETAILS SHEET - SHEET 1 OF 2

DA4.02 - DETAILS SHEET - SHEET 2 OF 2

ALL STORMWATER MANAGEMENT MEASURES SHOWN ON THIS DRAWING HAVE BEEN PREPARED FOR DEVELOPMENT APPLICATION PURPOSES TO DEMONSTRATE FEASIBILITY. ALL MEASURES WILL BE SUBJECT TO DETAIL DESIGN AT THE CONSTRUCTION CERTIFICATE STAGE AND MAY BE SUBJECT TO VARIATION PROVIDED THAT THE DESIGN INTENT IS MAINTAINED.

## STORMWATER DRAINAGE

- ALL DRAINAGE LINES SHALL BE UPVC (CLASS SN4) SEWER GRADE DRAINAGE PIPE, U.N.O.
- ALL DRAINAGE LINES SHALL BE Laid AT 1% MIN. FALL, UNO.
- ALL LEVELS ARE AUSTRALIAN HEIGHT DATUM (AHD).
- ALL DOWNPIPES TO EAVES GUTTERS TO BE 100 x 75 COLORBOND STEEL OR #100 PVC MIN. UNO.
- THE STORMWATER DRAINAGE DESIGN HAS BEEN CARRIED OUT IN ACCORDANCE WITH AS/NZS 3500.3.2-2003 "STORMWATER DRAINAGE". ANY VARIATIONS TO THE NOMINATED LEVELS SHALL BE REFERRED TO ENGINEER IMMEDIATELY.
- ANY VARIATIONS TO SPECIFIED PRODUCTS OR DETAILS SHALL BE REFERRED TO THE ENGINEER FOR APPROVAL.
- SUBSOIL DRAINAGE SHALL BE PROVIDED TO ALL RETAINING WALLS & EMBANKMENTS, WITH THE LINES FEEDING INTO THE STORMWATER DRAINAGE SYSTEM.
- THE STORMWATER DRAINAGE REQUIREMENTS HAVE BEEN CALCULATED IN ACCORDANCE WITH **KU-RING-GAI COUNCIL** STORMWATER DRAINAGE MANAGEMENT DOP.
- ALL PIT COVERS AND GRATES TO BE CLASS 'B'.
- ALL GRATES TO BE GALVANISED STEEL WITH HINGES AND CHILD PROOF LOCK.
- ALL PIT COVERS TO BE CONCRETE, UNO.

## RAINWATER RE-USE

- PROVIDE RAINWATER RE-USE SYSTEM TO SUPPLY WATER FOR TOILET FLUSHING AND IRRIGATION.
- GUTTER GUARD TO BE INSTALLED ON ALL EAVES GUTTERS.
- PRESSURE PUMP / TAP TO BE PROVIDED FOR RE-USE OF CAPTURED TANK WATER.
- A PERMANENT SIGN IS TO BE LOCATED IN THE VICINITY OF THE TANK STATING THE WATER IS NOT FOR POTABLE USE.
- ALL RAINWATER SERVICES SHALL BE CLEARLY LABELED "NON POTABLE WATER" WITH APPROPRIATE HAZARD IDENTIFICATION.
- PIPEWORK USED FOR RAINWATER SERVICES SHALL BE COLOURED LILAC IN ACCORDANCE WITH AS1345.
- ALL VALVES AND APERTURES SHALL BE CLEARLY AND PERMANENTLY LABELED WITH SAFETY SIGNS TO COMPLY WITH AS1319.
- AN AIR GAP OR A RP20 TO BE INSTALLED TO ENSURE BACKFLOW PREVENTION.
- RAINWATER TANK RETICULATION SYSTEM AND MAINS TOP ARRANGEMENT TO BE INSTALLED IN ACCORDANCE WITH AS/NZS 3500.1.2-2003 AND THE NSW CODE OF PRACTICE: PLUMBING AND DRAINING.
- A FIRST FLUSH DEVICE IS TO BE PROVIDED AT RAINWATER TANK.



LOCALITY SKETCH

Not to Scale

IMAGE COURTESY OF GOOGLE EARTH, 2009

09 MAY 2012

NOT FOR CONSTRUCTION

ISSUE	AMENDMENT	VERIFIED	APPROVED	DATE	ISSUE	AMENDMENT	VERIFIED	APPROVED	DATE
1	ISSUED FOR DEVELOPMENT APPLICATION								
2	NEW ARCH LAYOUT / SURVEY		S.R.F.	10.09.10					
			S.R.F.	20.04.12					

Client

RALAN

Architect

MAOKENZIE



PROJECT

36 - 40  
CULWORTH AVENUE  
KILLARA

DRAWING TITLE  
COVER SHEET,  
GENERAL NOTES AND  
DRAWING SCHEDULE

JOB NUMBER  
07618






DRAWING NUMBER  
DA1.01

REVISION  
2

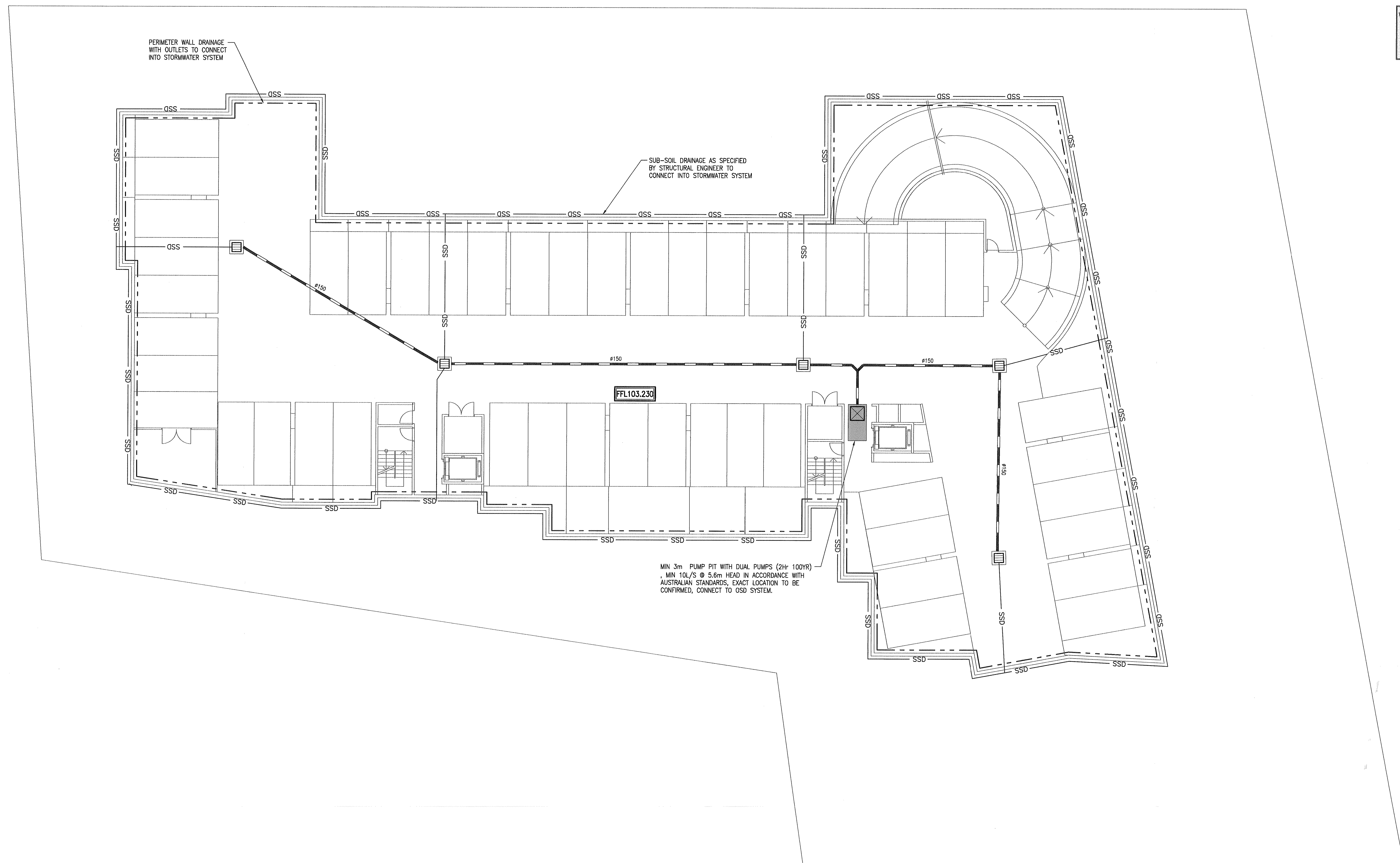
DRAWING SHEET SIZE = A0



# LEGEND

	FINISHED FLOOR LEVEL
	SUBSOIL DRAINAGE LINE
	HIGH END RISER
	STORMWATER DRAINAGE LINE
	STORMWATER DRAINAGE PIT WITH GRATED ACCESS LID

**PUMP PIT**  
CATCHMENT AREA = 100m<sup>2</sup>  
FLOW RATE = 7 L/S (2 Hr STORM - 100YR)



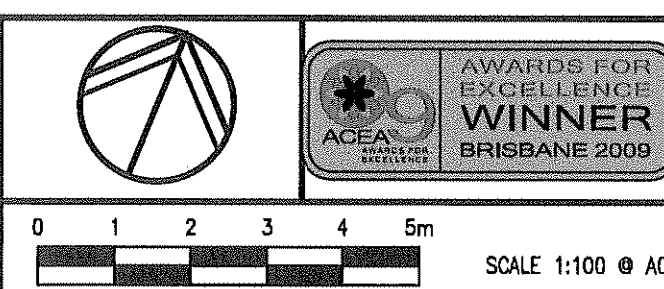
03 MAY 2012

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ISSUE	AMENDMENT	VERIFIED	APPROVED	DATE	ISSUE	AMENDMENT	VERIFIED	APPROVED	DATE
1	ISSUED FOR DEVELOPMENT APPLICATION			S.R.F. 10.09.10					
2	NEW ARCH LAYOUT / SURVEY			S.R.F. 20.04.12					

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Architect **MACKENZIE**



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PROJECT **38 - 40  
CULWORTH AVENUE  
KILLARA**

DRAWING TITLE **CONCEPT STORMWATER  
MANAGEMENT PLAN  
BASEMENT CARPARK LEVEL 2**

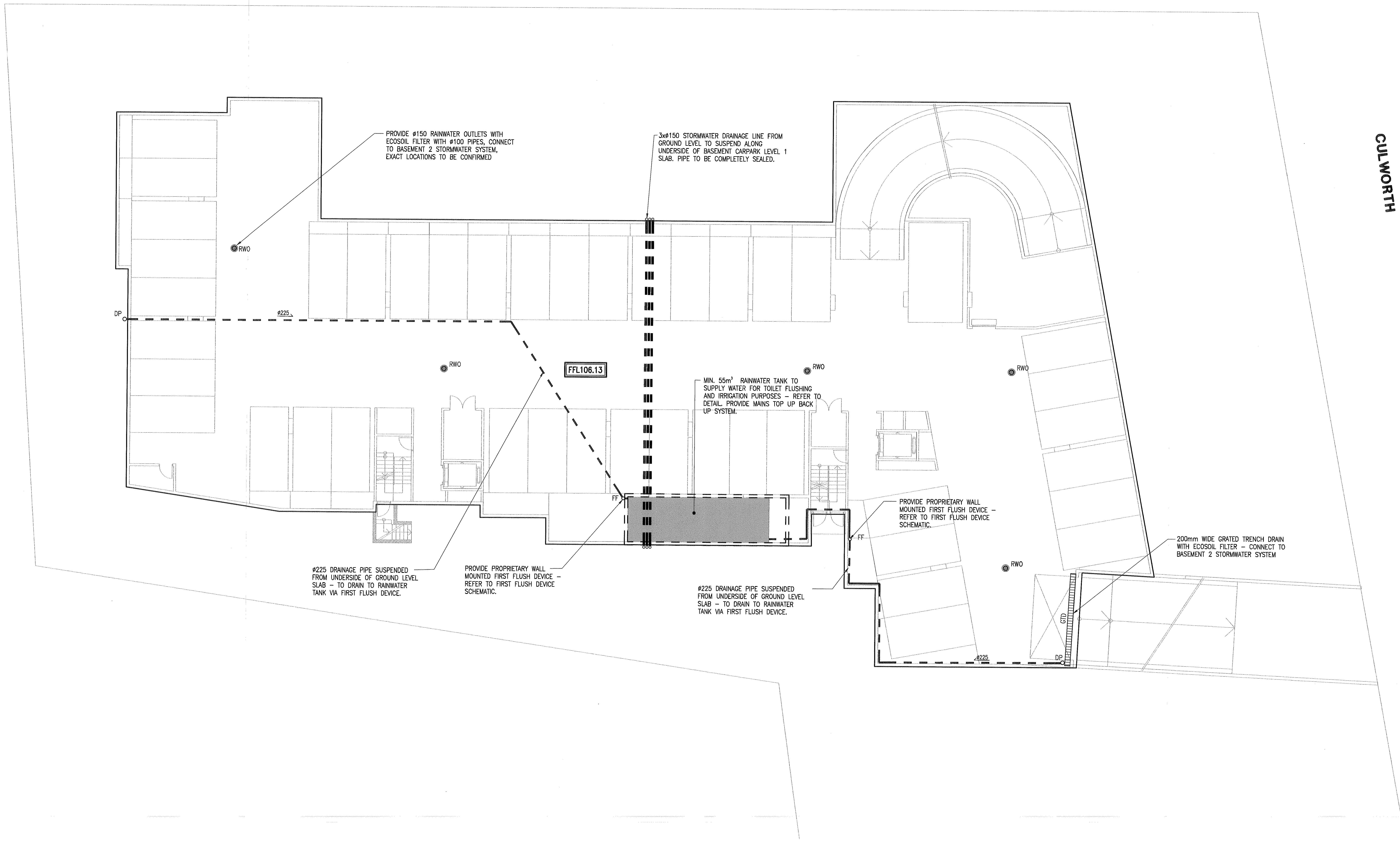
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DRAWING NUMBER **DA3.01**  
REVISION **2**  
DRAWING SHEET SIZE = A0

LEGEND

- FFL FINISHED FLOOR LEVEL
- RWO RAINWATER OUTLET
- CTD GRATED TRENCH DRAIN
- DP RAINWATER DOWNPIPE
- Rainwater Tank Footprint

NOTE

- WATER QUALITY IS PROVIDED BY THE FOLLOWING :
1. ALL ROOF COLLECTED & CONNECTED TO RAINWATER TANK
  2. FIRST FLUSH SYSTEMS PROVIDED
  3. ECOSOIL FILTERS TO BE PROVIDED ON BASEMENT STORMWATER GRATED DRAINS & RAINWATER OUTLETS



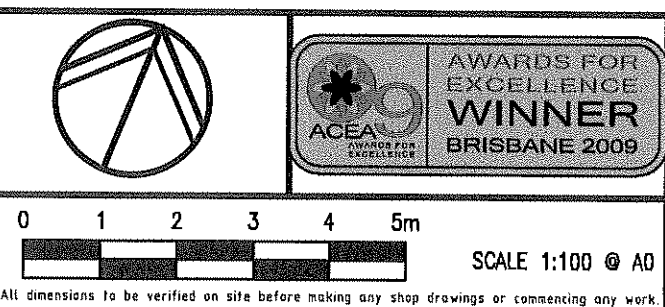
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ISSUE	AMENDMENT	VERIFIED	APPROVED	DATE	ISSUE	AMENDMENT	VERIFIED	APPROVED	DATE
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2	NEW ARCH LAYOUT / SURVEY			S.R.F. 20.04.12					

Client  
**RALAN**

Architect  
**MAOKENZIE**



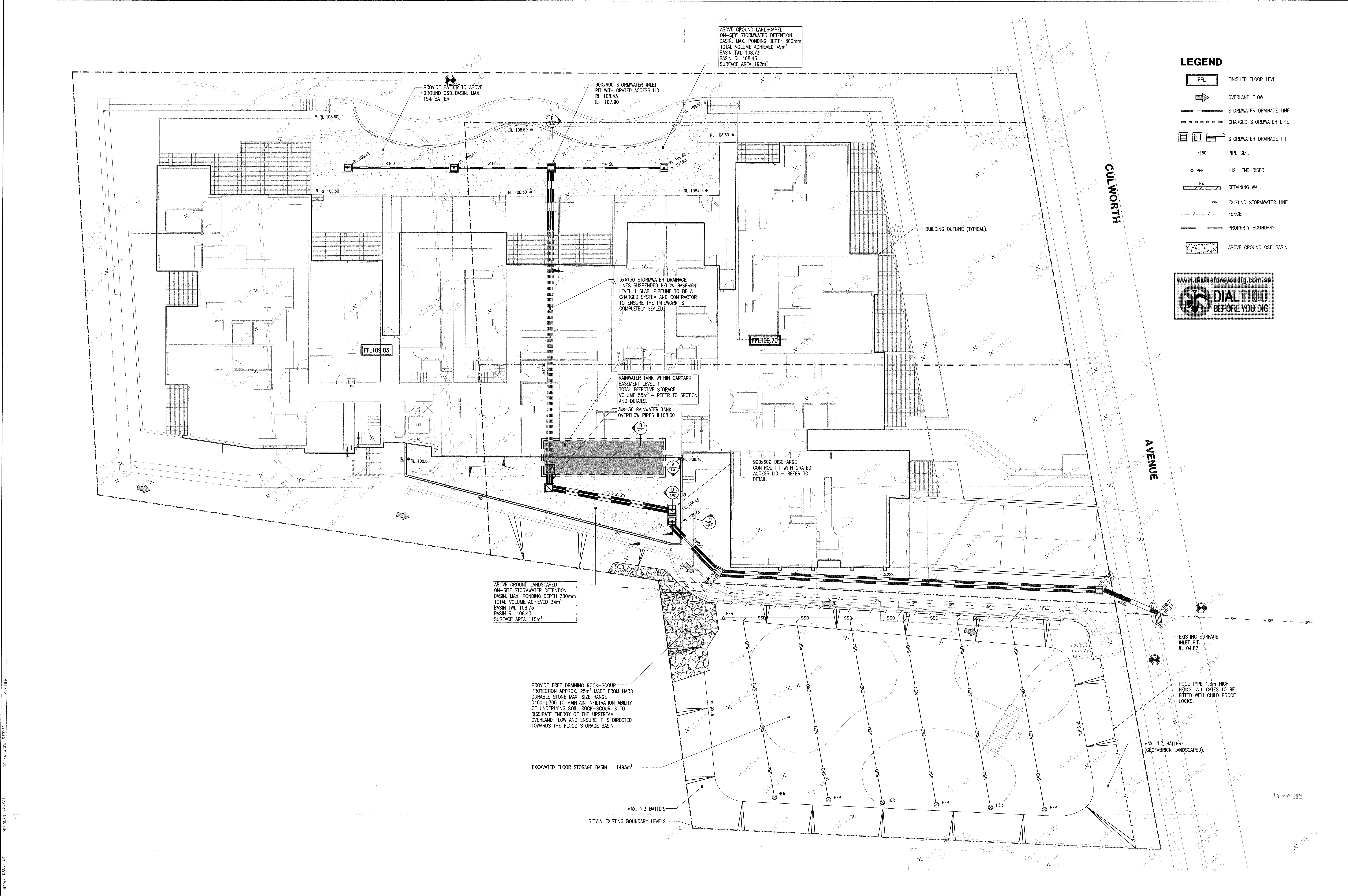
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PROJECT  
**36 - 40  
CULWORTH AVENUE  
KILLARA**

DRAWING TITLE  
**CONCEPT STORMWATER  
MANAGEMENT PLAN  
BASEMENT CARPARK LEVEL 1**

JOB NUMBER  
**07618**  
DRAWING NUMBER  
**DA3.02**  
REVISION  
**2**  
DRAWING SHEET SIZE = A0





**LEGEND**

- FFL FINISHED FLOOR LEVEL
- OVERLAND FLOW
- STORMWATER DRAINAGE LINE
- CHARGED STORMWATER LINE
- STORMWATER DRAINAGE PIT
- PIPE SIZE
- HER HIGH END RISER
- RETAINING WALL
- EXISTING STORMWATER LINE
- FENCE
- PROPERTY BOUNDARY
- ABOVE GROUND OSD BASIN




ISSUE	AMENDMENT	VERIFIED	APPROVED	DATE	ISSUE	AMENDMENT	VERIFIED	APPROVED	DATE
1	ISSUED FOR DEVELOPMENT APPLICATION			18.06.08					
2	CHANGE ON-SITE DETENTION LOCATION		SRF	06.08.10					
3	CHANGE ON-SITE DETENTION DIMENSION AND LOCATION		SRF	09.08.10					
4	CHANGE ON-SITE DETENTION DIMENSION AND LOCATION		SRF	31.08.10					
5	ISSUED FOR DEVELOPMENT APPLICATION		SRF	10.09.10					
6	ISSUED FOR DEVELOPMENT APPLICATION		SRF	13.09.10					
7	NEW ARCH LAYOUT / SURVEY		S.R.F	20.04.12					

Client


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PROJECT

36 - 40  
CULWORTH AVENUE  
KILLARA

DRAWING TITLE

CONCEPT STORMWATER  
MANAGEMENT PLAN  
GROUND LEVEL

JOB NUMBER

07618

DRAWING NUMBER

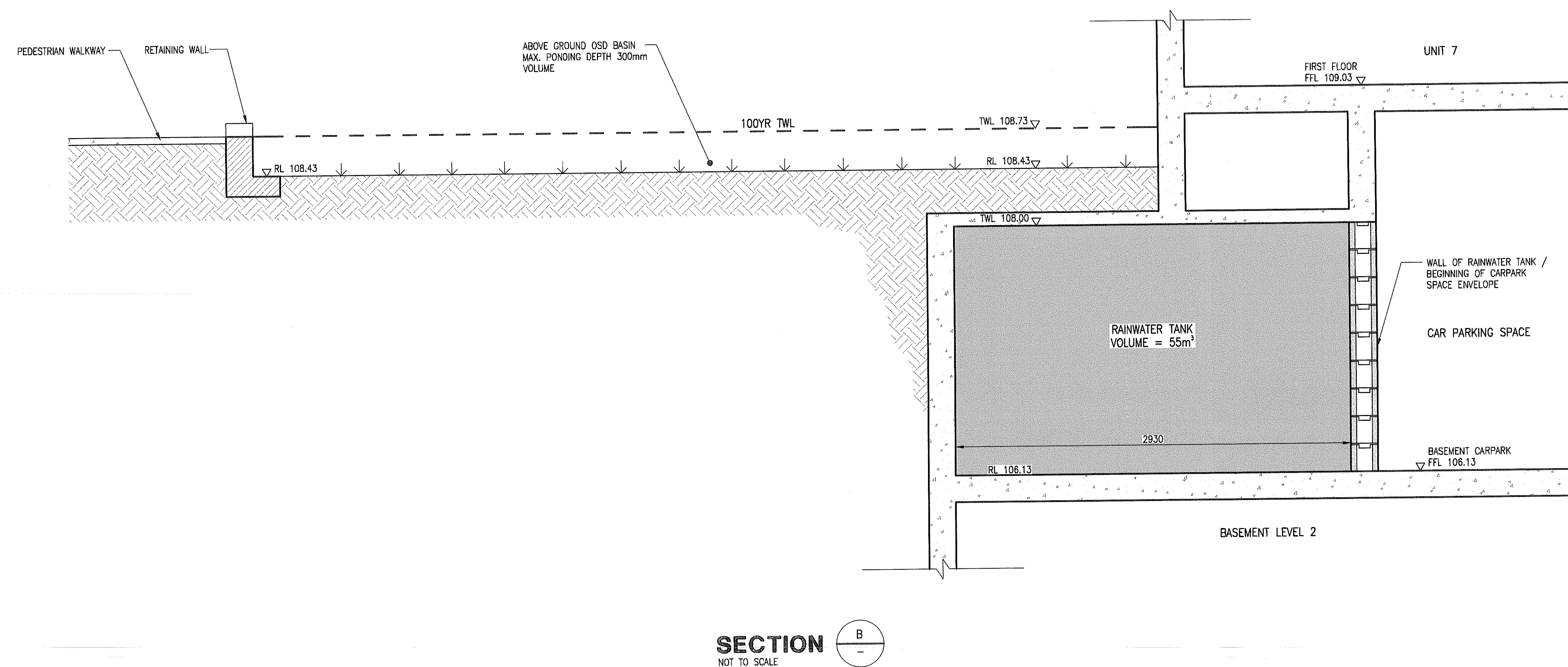
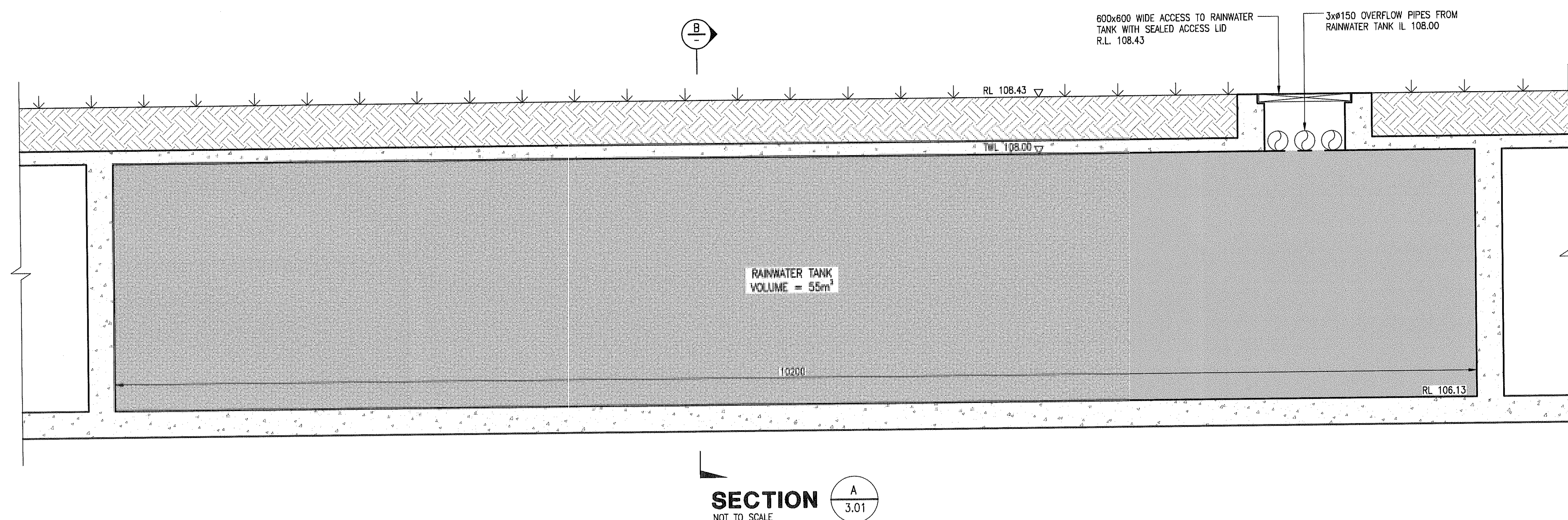
DA3.03

REVISION

7

DRAWING SHEET SIZE = A0





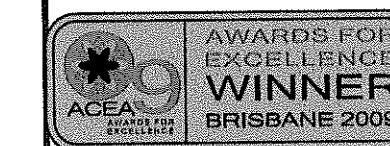
09 MAY 2012

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ISSUE	AMENDMENT	VERIFIED	APPROVED	DATE	ISSUE	AMENDMENT	VERIFIED	APPROVED	DATE
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Client **RALAN**

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PROJECT **36 - 40  
CULWORTH AVENUE  
KILLARA**

DRAWING TITLE **DETAIL SHEET  
SHEET 1 OF 2**

JOB NUMBER **07618**

DRAWING NUMBER **DA4.01**

REVISION **2**

DRAWING SHEET SIZE **A0**



DRAWN: CLAUDIO  
DESIGNED: CLAUDIO  
JOB NUMBER: 07618  
JOB MANAGER: SHARON  
VENUE

ISSUE	AMENDMENT	VERIFIED	APPROVED	DATE	ISSUE	AMENDMENT	VERIFIED	APPROVED	DATE
1	ISSUED FOR DEVELOPMENT APPLICATION		S.R.F.	10.09.10					
2	ISSUED FOR DEVELOPMENT APPLICATION		S.R.F.	13.09.10					
3	NEW ARCH LAYOUT / SURVEY		S.R.F.	23.04.12					

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PROJECT: 36 - 40 CULWORTH AVENUE KILLARA  
DRAWING TITLE: DETAIL SHEET SHEET 2 OF 2  
JOB NUMBER: 07618  
DRAWING NUMBER: DA4.02  
REVISION: 3  
DRAWING SHEET SIZE: A0

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09 MAY 2012

SECTION C  
3.01  
NOT TO SCALE

SECTION D  
3.01  
NOT TO SCALE

SECTION E  
3.01  
NOT TO SCALE

ORIFICE PLATE DETAIL  
NOT TO SCALE

TRASH SCREEN DETAIL  
NOT TO SCALE

FIRST FLUSH DEVICE SCHEMATIC  
NOT TO SCALE

3x150 OVERFLOW PIPES FROM RAINWATER TANK IL 107.99  
600x900 STORMWATER DISCHARGE CONTROL PIT  
PEDESTRIAN WALKWAY  
BASIN TWL 108.73  
100YR TWL  
RL 108.43  
3x150 STORMWATER PIPES FROM BASEMENT CARPARK  
900x900 STORMWATER JUNCTION PIT WITH SEALED ACCESS LID.  
600x900x300 DEEP SUMP  
PROVIDE 4x40 WEEP HOLES (IN BASE OF 300mm DEEP SUMP) TO DRAIN TO 200mm THICK CLEAN AGGREGATE WRAPPED IN NON-WOVEN GEOTEXTILE FILTER FABRIC SURROUND.

PEDESTRIAN WALKWAY  
800x900 EMERGENCY OVERFLOW PIT WITH GRATED ACCESS LID RL 108.73  
BASIN TWL 108.73  
100YR TWL  
RL 108.43  
2x225 EMERGENCY OVERFLOW PIPES IL 107.845  
CL 107.815  
IL 107.685  
600x900 STORMWATER DISCHARGE CONTROL PIT (DCP) WITH GRATED ACCESS LID  
#300 DRAINAGE INTO DCP PIPE IL 107.82  
REMOVABLE TRASH SCREEN - REFER TO DETAIL  
WALL MOUNTED ORIFICE PLATE - REFER TO DETAIL  
PROVIDE 4x40 WEEP HOLES (IN BASE OF 300mm DEEP SUMP) TO DRAIN TO 200mm THICK CLEAN AGGREGATE WRAPPED IN NON-WOVEN GEOTEXTILE FILTER FABRIC SURROUND.

PEDESTRIAN WALKWAY  
#225 INLET PIPE  
#225 FIRST FLUSH DEVICE TO DIVERGENT 1mm OF RAINWATER RUNOFF  
#10 HOLE DRILLED IN END CAP  
RAINWATER RE-USE TANK  
CARPARK BASEMENT  
CONNECT TO BASEMENT DRAINAGE  
90° BEND.

4 No. #10x100 DYNABOLT OR SIMILAR  
OUTLET PIPE  
#105mm  
3mm STAINLESS STEEL PLATE

HANDLE  
ORIFICE PLATE BEYOND  
STEEL PLATE CLIP WELDED TO BASKET GALV. TYPICAL EITHER SIDE  
GALV. STEEL PLATE BRACKET FIXED TO PIT WALL WITH 2 LOKINS TO SEAT CLIPS INTO  
R13030 MAXIMESH OR APPROVED EQUIVALENT