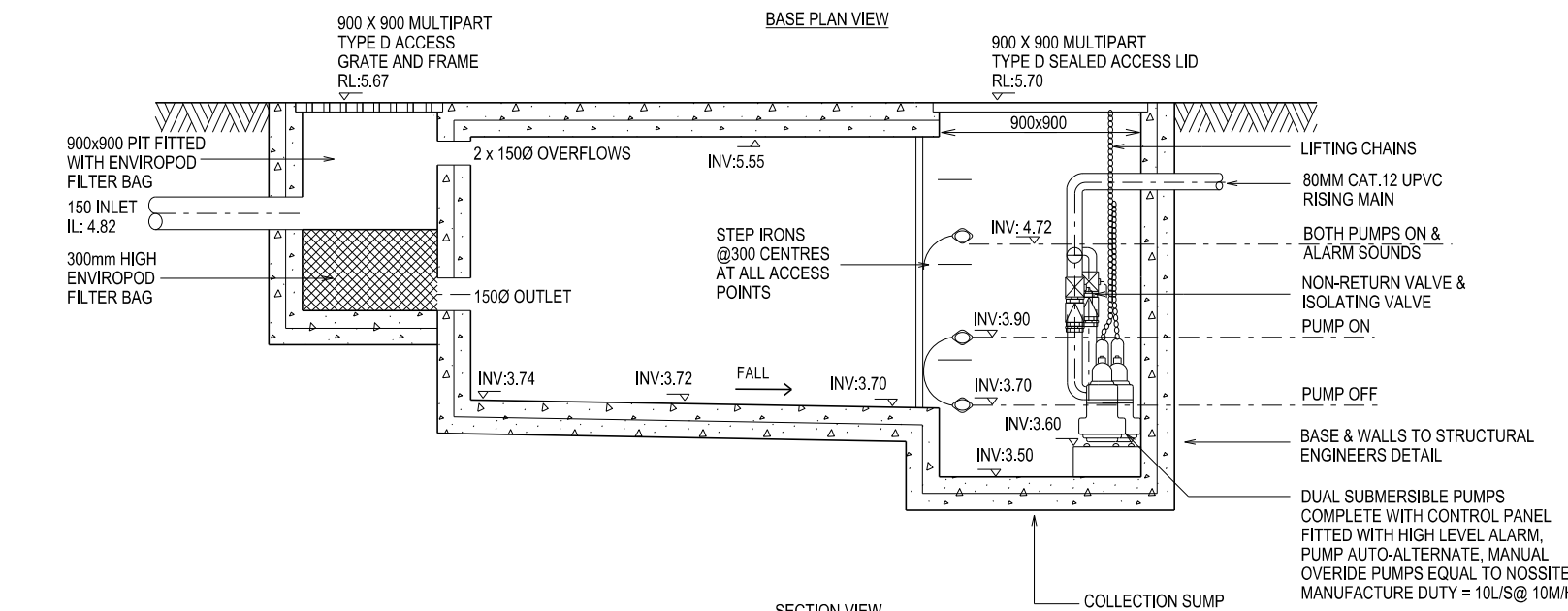
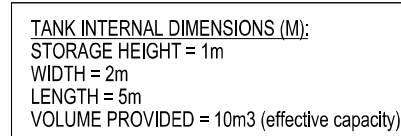


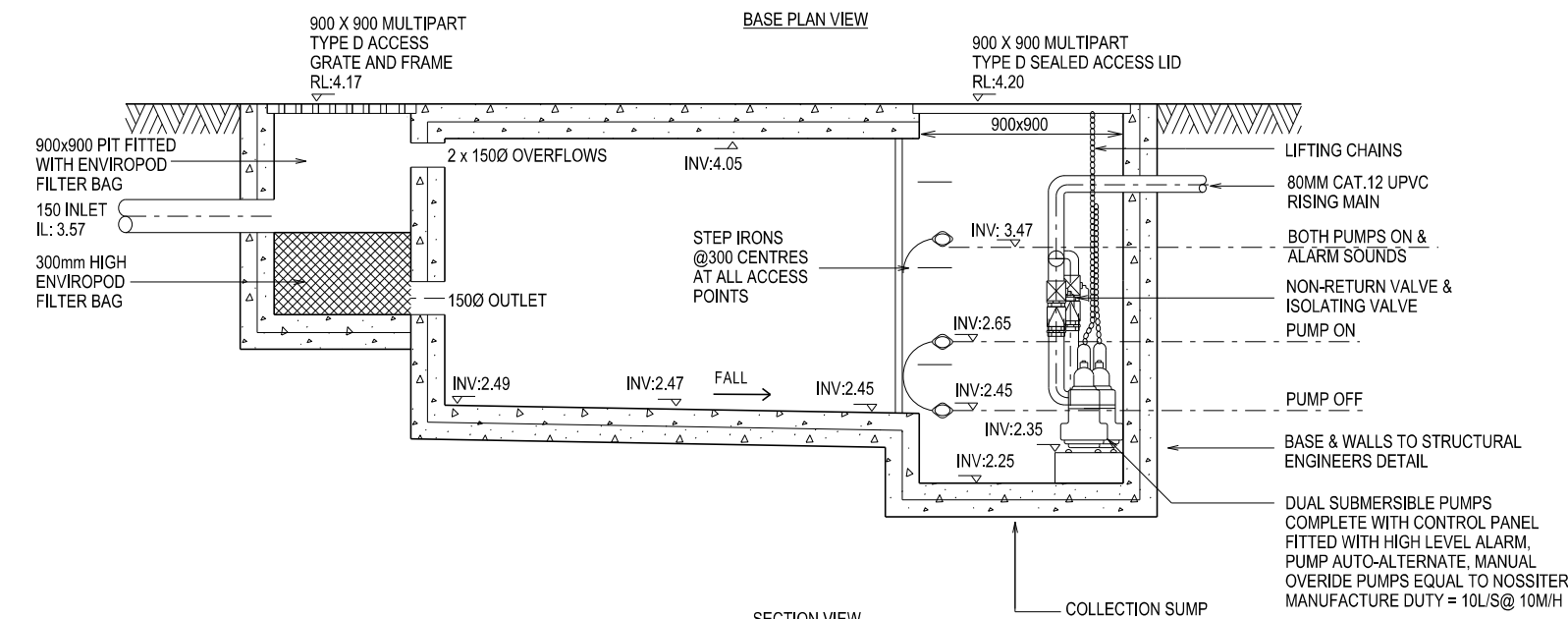
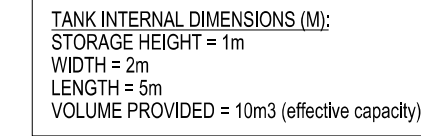




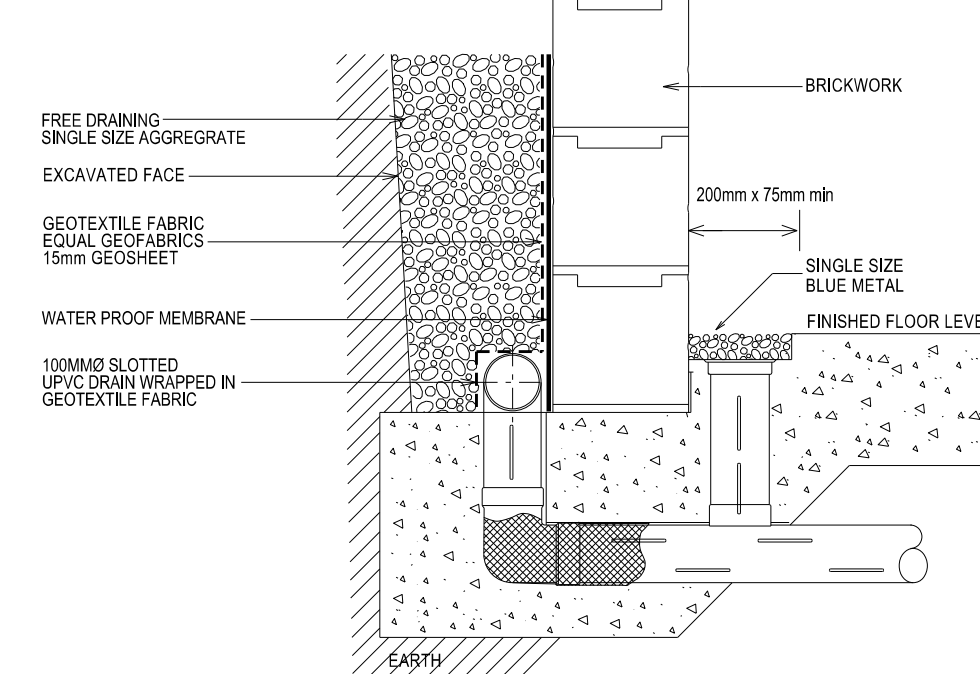
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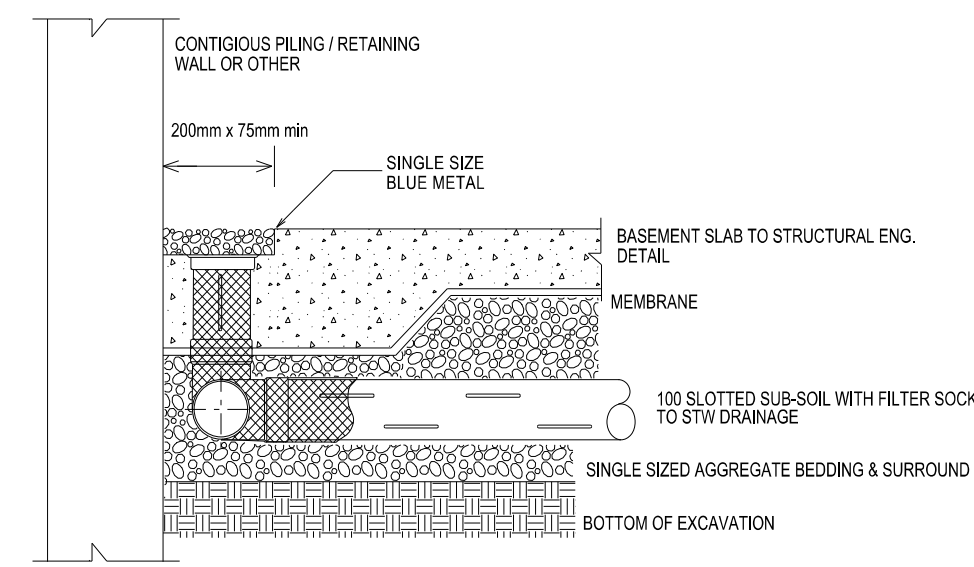
BASEMENT PUMP STORAGE TANK  
WITH ENVIPOD FILTER BAG  
DETAIL 2



BASEMENT PUMP STORAGE TANK  
WITH ENVIPOD FILTER BAG  
DETAIL 3



BASEMENT PERIMETER DRAINAGE  
DETAIL 4



### BASEMENT PERIMETER DRAINAGE DETAIL 5

Issue	Amtdt Date	By	Revision
P1	11.06.2015	TC	PRELIMINARY ISSUE
A	23.06.2015	TC	DA SUBMISSION
B	18.01.2016	TC	DA SUBMISSION
C	07.04.2016	TC	REVISED DA SUBMISSION

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a po box 3353, liverpool westfield nsw 2170

**GLORY PROPERTY GROUP**

**215-1389 H-02**

**7 & 9 CASTLEREAGH STREET  
8, 10 & 12 COPELAND STREET,  
LIVERPOOL**

## BASEMENT 2

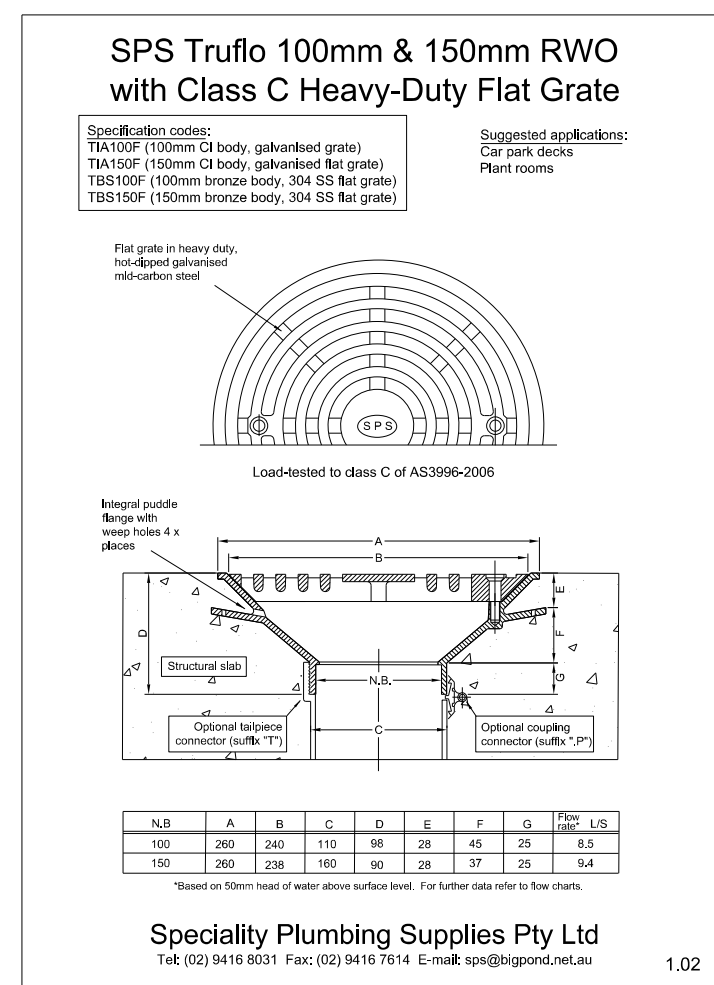


central  
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ACN 097 939 092

**CIVIL - STRUCTURAL - MECHANICAL - FIRE**

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Bankstown. NSW. 2200  
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RWO EQUAL TO  
'SPS TRUFLO TIA100F'  
DETAIL 6

1.02

Issue	Amdt Date	By	Revision
P1	11.06.2015	TC	PRELIMINARY ISSUE
A	23.06.2015	TC	DA SUBMISSION
B	18.01.2016	TC	DA SUBMISSION
C	07.04.2016	TC	REVISED DA SUBMISSION

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**GLORY PROPERTY GROUP**

Drawing No:

**215-1389 H-03**

**7 & 9 CASTLEREAGH STREET  
8, 10 & 12 COPELAND STREET,  
LIVERPOOL**

## BASEMENT 1



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**CIL - STRUCTURAL - MECHANICAL - FIRE**

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## IMPORTANT NOTICE:

SERVICES IDENTIFIED HERE HAVE BEEN TAKEN FROM UTILITY PROVIDERS SERVICE MAPS WHICH HAVE BEEN PREPARED FOR THEIR OWN USE AND MAY NOT BE ACCURATE.

PRIOR TO THE COMMENCEMENT OF ANY WORK THE CONTRACTOR MUST LOCATE, IDENTIFY AND CONFIRM ALL EXISTING SERVICES INCLUDING THEIR DEPTH PARTICULARLY WHERE ANY NEW SERVICES MAY CROSS OVER EXISTING SERVICES. THIS SHALL APPLY TO ALL SERVICES IE. TELSTRA, GAS, WATER, FIBRE OPTIC, SEWER ETC.

IN THE EVENT A CLASH IS APPARENT OR NOMINATED CONNECTION LEVELS ARE UNOBTAINABLE NOTIFY THE DESIGN ENGINEER IMMEDIATELY.

THE CONTRACTOR SHALL ALLOW TO CARRY OUT ALL NECESSARY SEARCHES AND INVESTIGATIONS INCLUDING A DIAL-BEFORE-YOU-DIG APPLICATION, ALLOW TO POT HOLE WHERE NECESSARY.

DANGER

NO ENTRY WITHOUT  
CONFINED SPACE  
TRAINING

SIZE: 200MM X 160MM  
CORNER: SQUARE  
COLOUR: ETCHED AND FILLED BLACK LEGEND ON  
MATERIAL: ALUMINIUM LAMP  
LOCATION: ALL ACCESS POINTS TO OSD TANK

MINIMUM SIZE: 150MM X 60MM  
MATERIAL: NON-CORROSIVE METAL OR 6MM THICK LAMINATED PLASTIC  
LOCATION: SCHEDULE TO THE TIGHTEST COMPLETE OR PERMANENT SURFACE AND BE ABOVE THE  
EXPECTED WATER SURFACE LEVEL IN THE BASIN IF IN CONTACT WITH CONTACT COULCE.  
WORKING: MINIMUM LETTER HEIGHT OF 60MM WORKING TO COMET 02

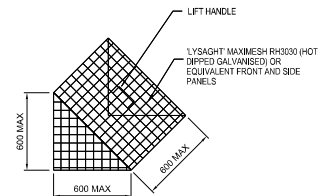
THIS IS AN ON-SITE DETENTION STRUCTURE.  
DO NOT TAMPER WITH.  
CONTACT LIVERPOOL CITY COUNCIL PRIOR  
TO ANY PROPOSED WORKS IN THIS AREA.

## OSD SIGNAGE

SIGNS TO BE DISPLAYED AT ENTRANCE OF OSD TANK

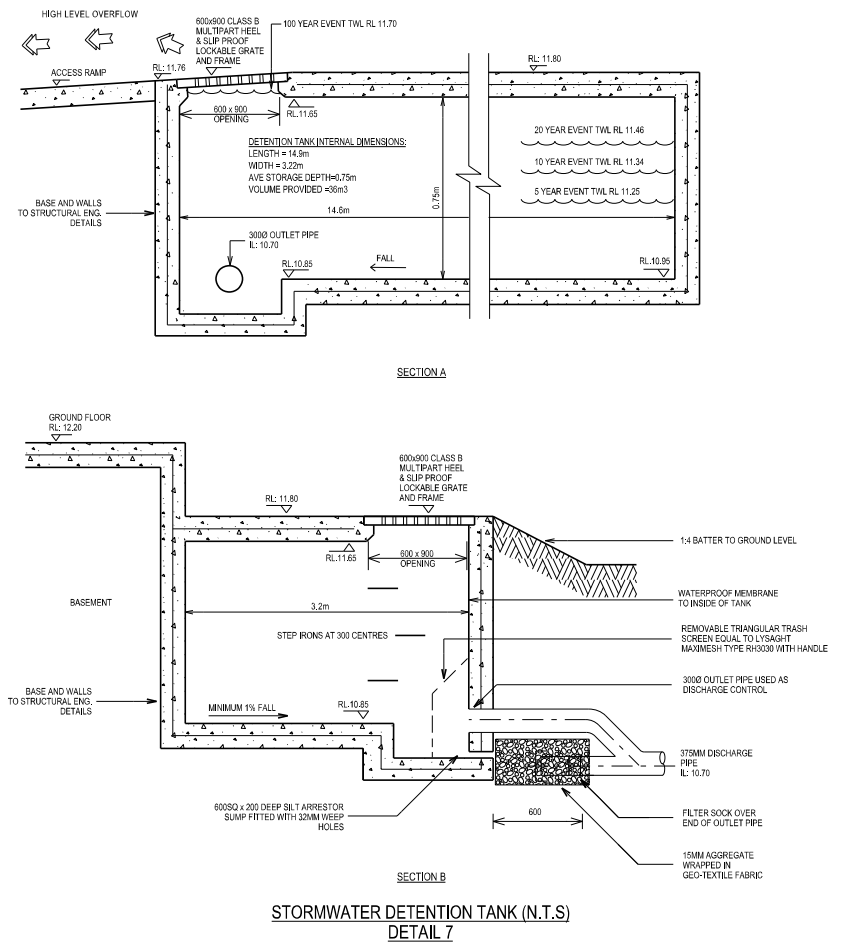
## TRASH SCREEN NOTES:

1. MAXMESH SCREENS MUST BE PLACED SUCH THAT THE LONGWAYS OF THE OVAL SHAPED HOLES ARE ORIENTATED HORIZONTALLY WITH THE PORTULUING UP ANGLED UPWARDS AND FACING TOWARDS THE OUTLET.
2. THE SCREEN IS TO BE FORMED BY WELDING TWO TRIANGULAR MAXMESH (OR EQUIVALENT) PANELS TO A RECTANGULAR FRONT MAXMESH PANEL (OR EQUIVALENT).



## TRASH SCREEN DETAIL

NOT TO SCALE

STORMWATER DETENTION TANK (N.T.S)  
DETAIL 7

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C	18.01.2016	TC	DA SUBMISSION
D	07.04.2016	TC	REVISED DA SUBMISSION
E	08.06.2016	CC	GPT INCLUSION

Architect:

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a po box 3353, liverpool westfield new 2170

Client:

GLORY PROPERTY GROUP

Approved:

AU

Drawn:

TC

Designed:

MG

Job No:

Drawing No:

215-1389 H-04

Project:

7 & 9 CASTLEREAGH STREET  
8, 10 & 12 COPELAND STREET,  
LIVERPOOL

Drawing Title:

GROUND FLOOR

Consultant Engineers

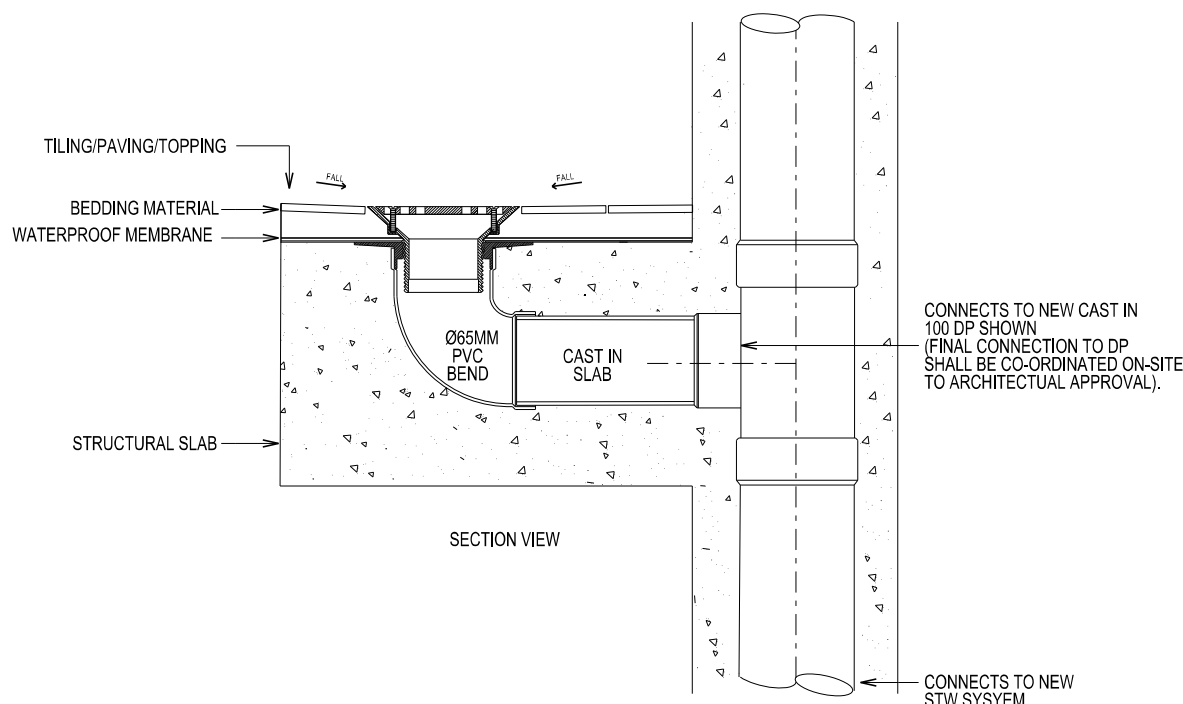
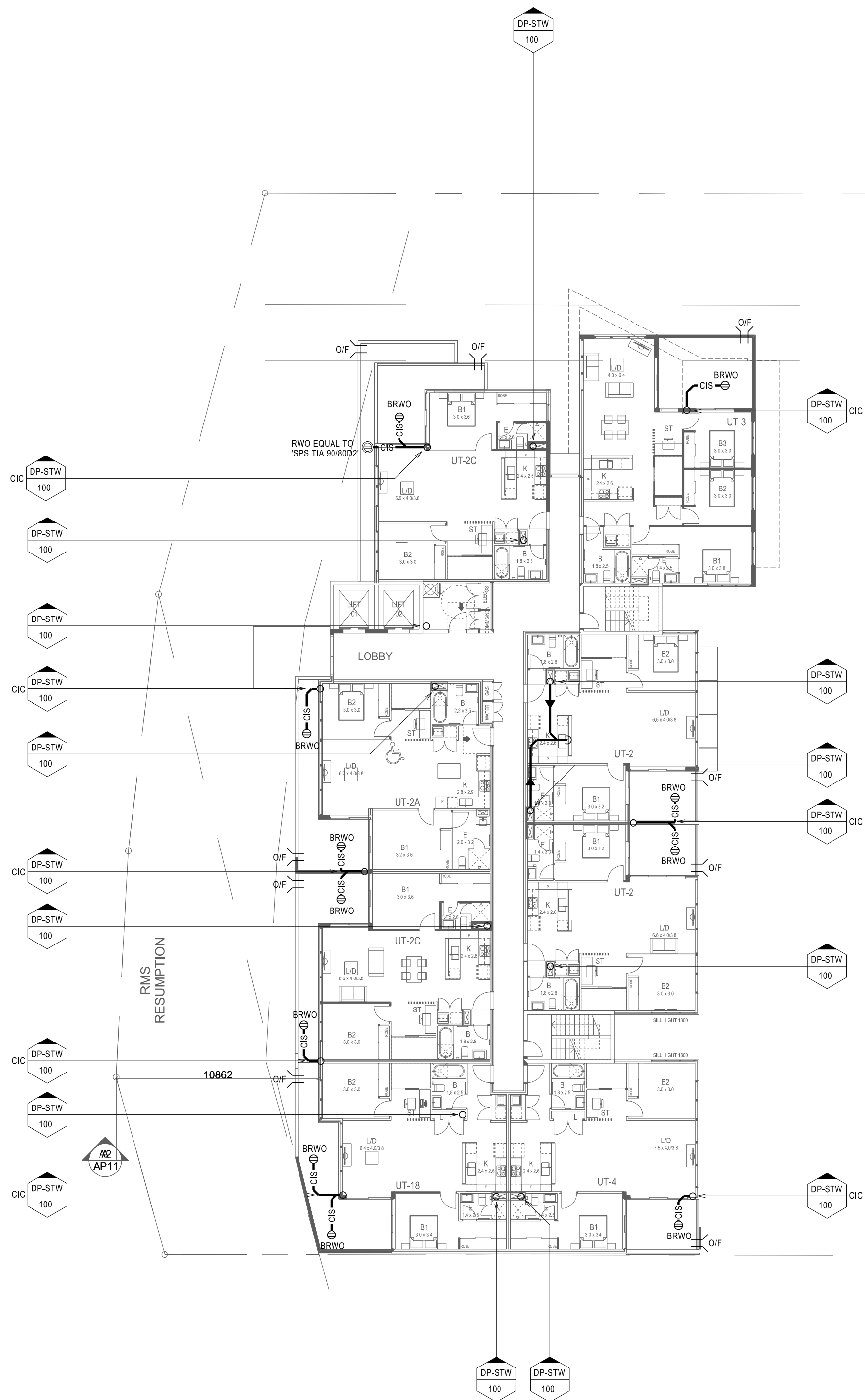
**central**  
**ENGINEERS**  
ACN 097 939 092

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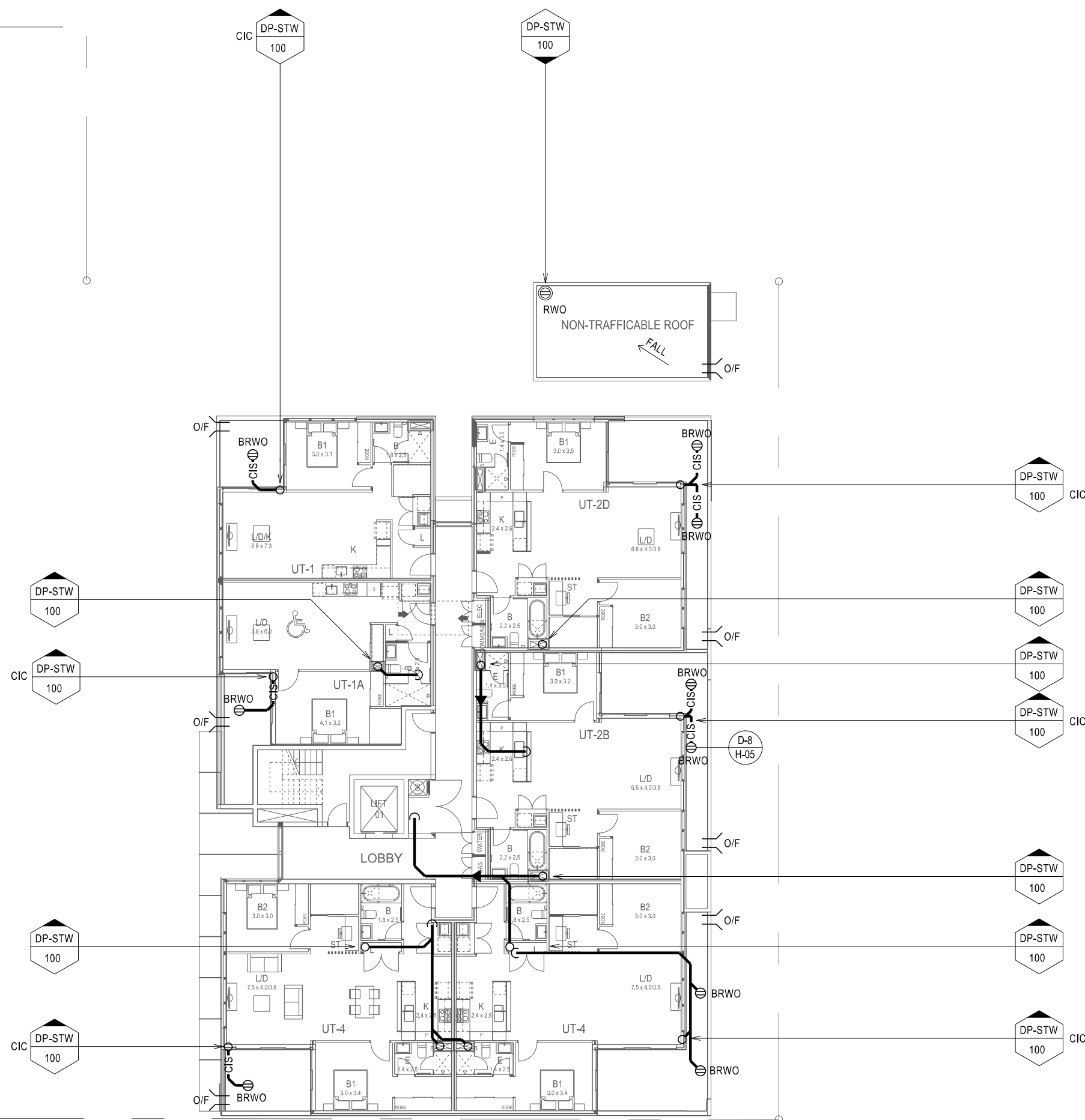
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E-mail: admin@centraleng.com.au

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CAST-IN BRWO  
DETAIL 8



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Client:

**GLORY PROPERTY GROUP**

Approved:

AU

Drawn:

TC

Designed:

MG

Job No:

Drawing No:

**215-1389 H-05**

Project:

**7 & 9 CASTLEREAGH STREET  
8, 10 & 12 COPELAND STREET,  
LIVERPOOL**

Drawing Title:

**LEVEL 1**

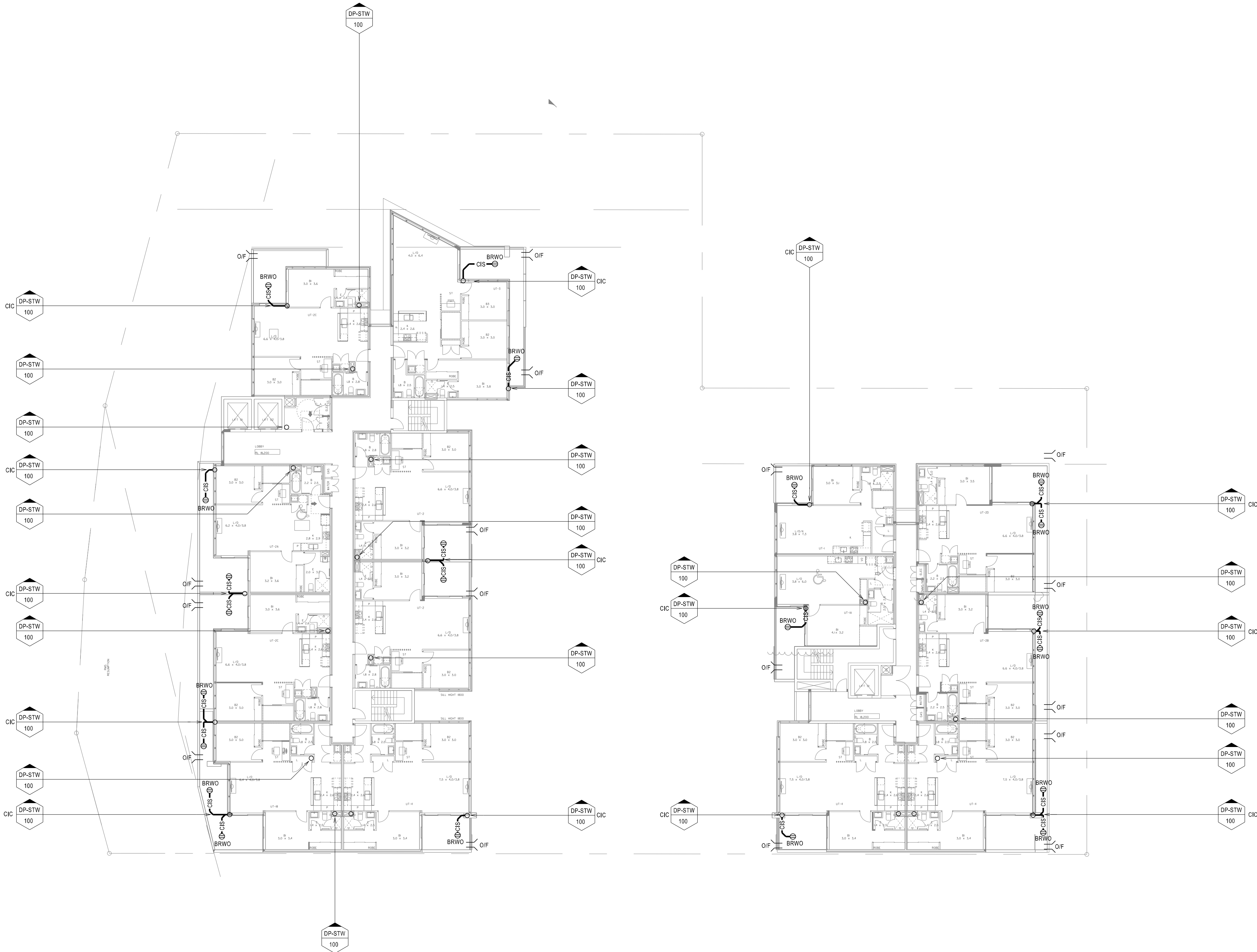
Consultant Engineers

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ENGINEERS**  
ACN 097 939 092

CIVIL - STRUCTURAL - MECHANICAL - FIRE

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A	23.06.2015	TC	DA SUBMISSION
B	07.04.2016	TC	REVISED DA SUBMISSION

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a po box 3353, liverpool westfield nsw 2170

Client:

**GLORY PROPERTY GROUP**

Approved:

AU

Drawn:

TC

Designed:

MG

Job No:

Drawing No:

**215-1389 H-06**

Project:

**7 & 9 CASTLEREAGH STREET  
8, 10 & 12 COPELAND STREET,  
LIVERPOOL**

Drawing Title:

**LEVEL 2 - 7**

Consultant Engineers

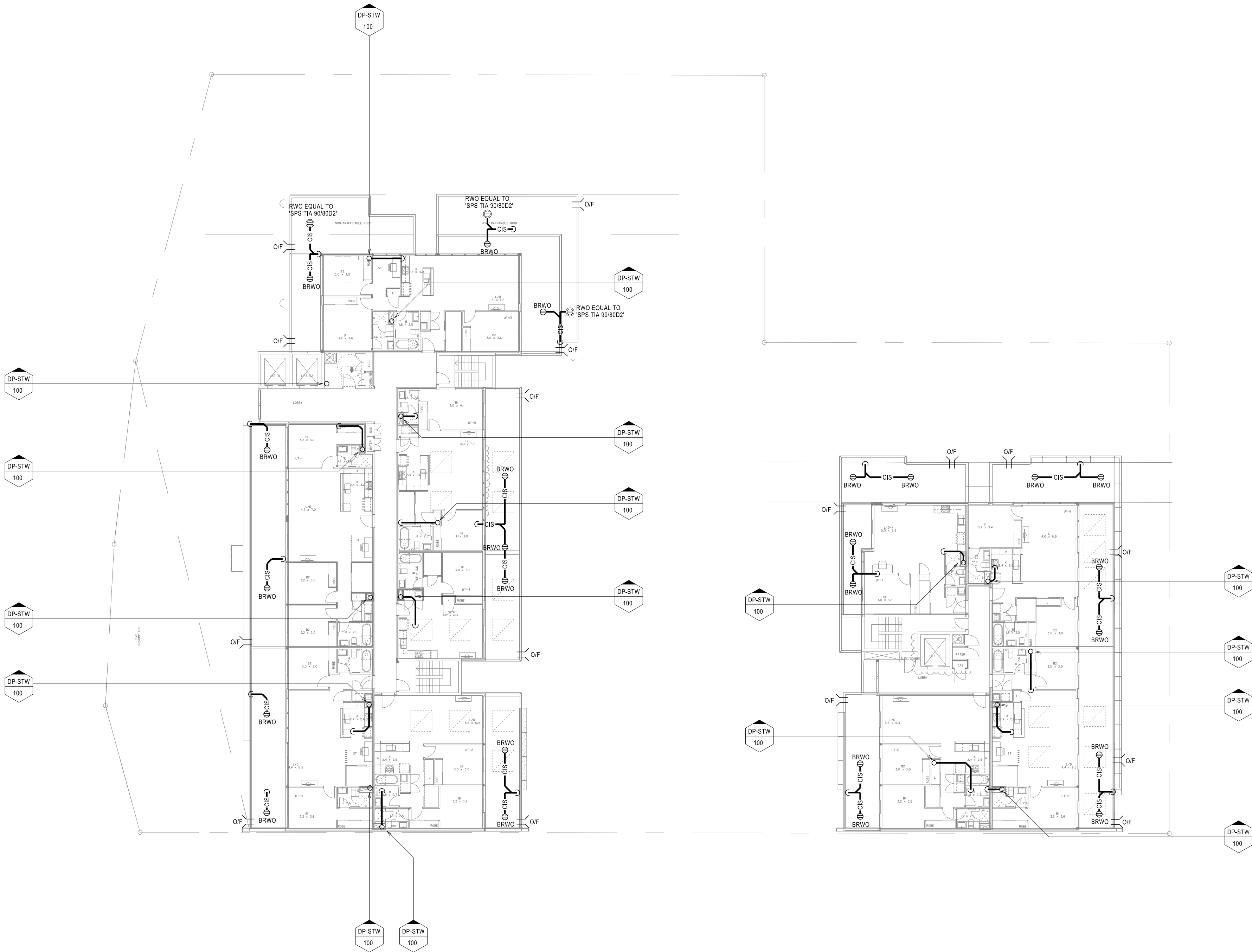
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ENGINEERS**  
ACN 097 939 092

CIVIL - STRUCTURAL - MECHANICAL - FIRE

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Fax: (02) 9790 1425  
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A	23.06.2015	TC	DA SUBMISSION
B	07.04.2016	TC	REVISED DA SUBMISSION

Architect:



Client:

GLORY PROPERTY GROUP

Approved:

AU

Drawn:

TC

Designed:

MG

Job No:

Drawing No:

215-1389 H-07

Project:

7 & 9 CASTLEREAGH STREET  
8, 10 & 12 COPELAND STREET,  
LIVERPOOL

Drawing Title:

LEVEL 8

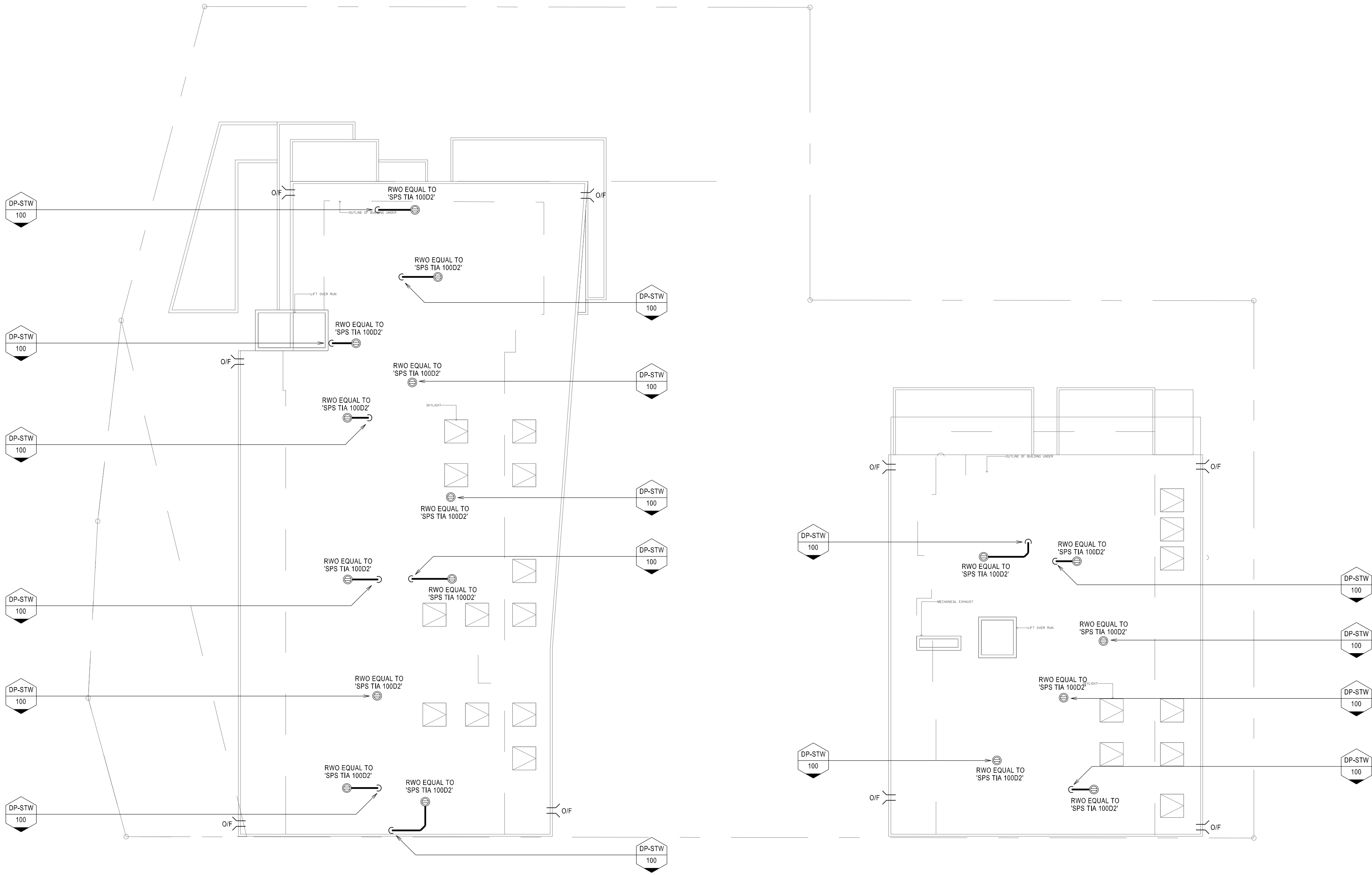
Consultant Engineers



CIVIL - STRUCTURAL - MECHANICAL - FIRE

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**SPS Truflo 100mm & 150mm RWO with Dome Grate & Membrane Clamp**

**Specification codes:**  
TIA10002 (CI body, aluminium dome grate & membrane ring)  
TIB10002 (CI body, bronze dome grate & membrane ring)  
TBA10002 (aluminium assembly)  
- for 150mm outlet, use "T150" instead of "T100"

**Suggested application:**  
Roof drains

Membrane ring fastens to body independently of grate to allow access to pump without breaking membrane seal.

Optional 100mm high 300 BS gasket used for sealed joints for code "SG100"

Integral puddle flange with series holes 4 x 4mm

Structural steel

Optional isolation connector (profile "I")

Optional coupling connector (profile "C")

N.B.	A	B	C	D	E	F	G	H	I	J
100	260	240	110	60	28	40	25	25	3.8	
150	260	238	160	90	28	57	25	25	10.5	

Speciality Plumbing Supplies Pty Ltd  
Tel: (02) 9416 8531 Fax: (02) 9416 7814 E-mail: sps@spplumbing.com.au

RWO EQUAL  
TO 'SPS TIA10002'  
DETAIL 8

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**GLORY PROPERTY GROUP**

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AU

Drawn:

TC

Designed:

MG

Job No:

Drawing No:

**215-1389 H-08**

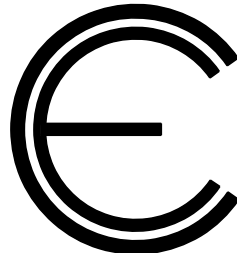
Project:

**7 & 9 CASTLEREAGH STREET  
8, 10 & 12 COPELAND STREET,  
LIVERPOOL**

Drawing Title:

**ROOF PLAN**

Consultant Engineers



**central  
ENGINEERS**

ACN 097 939 092

CIVIL - STRUCTURAL - MECHANICAL - FIRE

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8<sup>th</sup> June 2016

**The General Manager**  
Liverpool City Council  
Locked Bag 7064  
Liverpool BC NSW 1871

**RE: STORMWATER QUALITY ASSESSMENT**

**SUBJECT PREMISES:** 7 & 9 Castlereagh Street & 8, 10 & 12 Copeland Street,  
Liverpool NSW

**DEVELOPMENT APPLICATION: DA-631/2015**

**Introduction**

Central Engineers Pty Ltd have been commissioned at the request of Liverpool City Council to prepare this Stormwater Quality Assessment (SQA) for the proposed development at 7 & 9 Castlereagh Street and 8, 10 & 12 Copeland Street, Liverpool.

This SQA has been prepared on request of Liverpool City Council. The proposed development is for multi-unit residential use. The site area is 3,602.9m<sup>2</sup>.

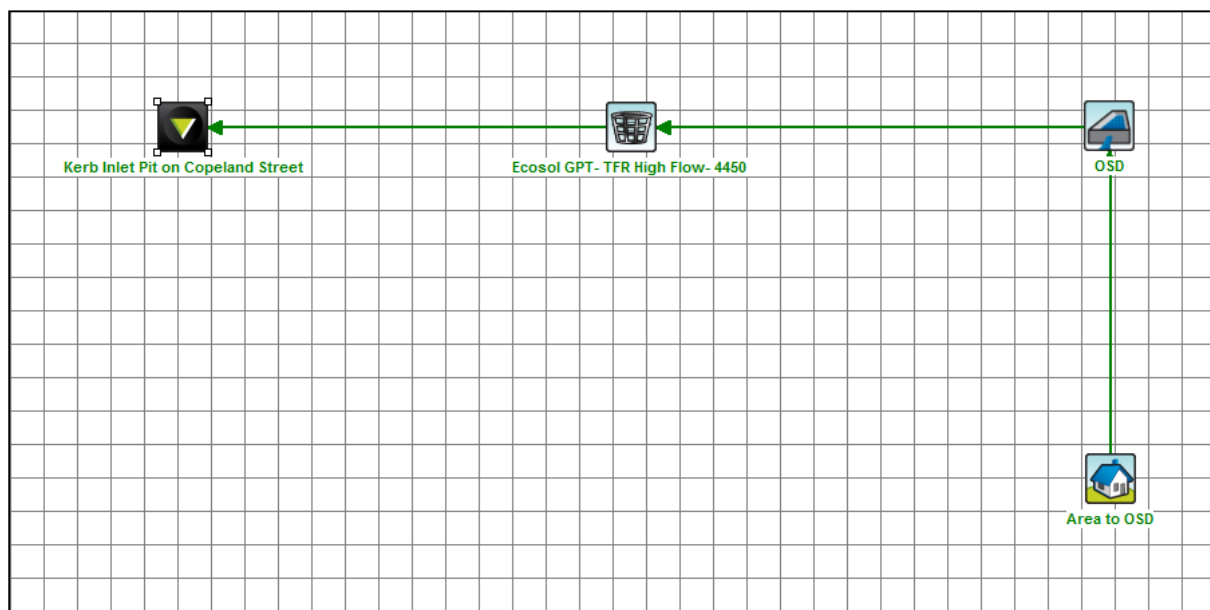
The Purpose of this SQA is to evaluate the quality of stormwater associated with the proposed development plan so as to demonstrate to Liverpool City Council that the following criteria has been adhered to:

- 80% reduction in the mean annual load of total suspended solids;
- 45% reduction in the mean annual load of total nitrogen;
- 45% reduction in the mean annual load of total phosphorus.

## Stormwater Quality

An assessment of water quality has been carried out using a MUSIC model, based on the completion of the final stage of development. This model allows for the inclusion of an on-site detention tank of 36m<sup>3</sup> as sized by using the Drains Model software, as well as an Ecosol 4450 Gross Pollutant Trap.

Output from the MUSIC model is included below, demonstrating that the proposal complies with Council's requirements. An electronic copy of the model is also available for detailed assessment by Council if required.



## Indicative Site Model (Source: MUSIC model)

Treatment Train Effectiveness - Kerb Inlet Pit on Copeland Street			
	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.71	2.7	0.7
Total Suspended Solids (kg/yr)	558	65.1	88.3
Total Phosphorus (kg/yr)	1.12	0.332	70.5
Total Nitrogen (kg/yr)	7.88	4.34	45
Gross Pollutants (kg/yr)	79.9	0	100

## Water Quality Treatment Analysis (Source: MUSIC model)

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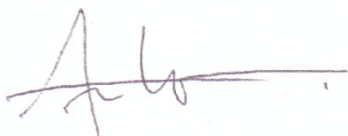
## Conclusion

The proposed stormwater management plans submitted with this assessment has provided 36,000L of on-site detention and an Ecosol 4450 Gross Pollutant Trap in order to ensure that councils required pollutant load reductions have been met.

As made evident by the results taken from the MUSIC model, these measures satisfy the requirements of Liverpool City Council

As such from a Stormwater management perspective, the SQA demonstrates that the design has been done in accordance with Liverpool City Council's guidelines and requirements and should be endorsed for approval.

Yours faithfully,

A handwritten signature in dark ink, appearing to read 'Anthony Uzelac', with a long horizontal stroke extending to the right.

Anthony Uzelac

REF: CE2304 CASTLEREAGH & COPELAND STS LIVERPOOL 080616

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