

Attachment 5

Flood Study

Report – Flood Study

Project	Mixed Use Development
Location	636 and 638 New South Head Road, Rose Bay NSW 2029
Lot and DP	SP 22533 (No 636) and Lot A DP 393087 (No 638)
Council	Woollahra Council

1.0 Introduction

This report has been prepared to support the Development Application. The sites (636 and 338 New South Head Road) will be subject to Estuary Planning Level (EPL) and Flood Planning Level (FPL) controls.

- No. 636 (the rear site with direct access to Rose Bay) is subject to coastal process (Estuary Planning Levels) with consideration to inundation, storm tides, wind and wave run-up, sea level rise and climate change etc.
- No. 638 (the front site, New South Head Road) is subject to flooding along New South Head Road (and therefore Flood Planning Levels) in large storm events (Q100 and PMF).

2.0 Proposed Development

The individual sites will be amalgamated to allow for the redevelopment. The proposal allows for the demolition of the existing buildings and construction of a multi level building (consisting of retail space and residential units) with basement carparking in 2 basement levels. Refer to architectural drawings by JPRA Architects for more details.

The site area is 791.2m² (by survey for No. 636) and 704.7m² (by survey for No. 638), therefore the total site area of the development is 1495.9m².

Development Proposed Levels

Ground Level Retail / Lift Lobby	FFL 5.22
Ground Level Electrical and Service Areas	FFL 5.65
Ground Level Residential Unit (rear)	FFL 5.75
Lower Ground Basement carparking	RL 2.75
Lower Ground Level Lift Lobby	RL 2.65
Lower Ground Level Residential Unit (rear)	FFL 2.65
Basement carparking	RL 0.25
Basement Level Lift Lobby	RL 0.25
Basement storage and Service Areas	RL 0.25

note - existing building level No 636 (rear site) FFL 2.92
 note - existing building level No 638 (front site) FFL 4.77

3.0 Reference Documents

- ◇ Rose Bay Flood Catchment Study (Final Report, Sept 2010)
- ◇ Rose Bay Floodplain Risk Management Study and Plan (January 2014)
- ◇ Estuary Planning Levels (Woollahra Coastal Zone Management Plan, Stage 1)
- ◇ Flood Contours - WMA water (New South Head Road)
- ◇ Architectural drawings prepared by JPRA Architects of East Sydney
- ◇ Detailed survey by Project Surveyors (03 February 2016)
- ◇ Council Flood Risk Management Development Control Plan (DCP 2015 chapter E2)
- ◇ Council Drainage Diagram (aerial laser survey)

Job 16014

4.0 Attachments

- ◇ WMA Flood Contours, New South Head Road
- ◇ Council ALS
- ◇ Detailed Site Survey
- ◇ AKY Drawings C01 to C03 inclusive
- ◇ Flood Door (Flooding Solutions)
- ◇ Vehicular Entry "push up ram" (Flooding Solutions)

5.0 Estuary Planning Levels

Council recently commissioned an Estuary Planning Levels study (August 2014) and the site is identified as follows;

site	636 New South Head Road Rose Bay 2029	
object ID	1049136 (100 year EPL Woollahra Council, property database)	
by Aerial Laser Survey	min. ground level 1.23m AHD	
note by detailed survey	min. ground level 1.61m AHD	
Critical Wave Source	Local Sea distance from DSLW 0m, "direct foreshore frontage"	
Design Still Water Level 2100 (Our Site)	2.38m AHD	allows 0.90m SLR
Allowance for Wave Run Up and Overtopping	2.91m AHD to 3.00m AHD (depends on edge treatment / crest level)	
Allowance for freeboard 0.50m	3.41m AHD to 3.50m AHD	

The Estuary Planning Level is therefore 3.41m AHD to 3.50m AHD (allowing 500mm freeboard + sea level rise+ wave run up and overtopping)

Note - It appears Council may allow a 0.3m freeboard, based on coastal inundation requirements outside DCP 2015 requirements.

6.0 Estuary Planning Levels - Historical Events

- ◇ Recent historical data has recorded a maximum harbor water level of 1.475m AHD in 1974. (Sydney Harbor Sea Level Rise Vulnerability Studies)
- ◇ Other high maximum recorded water levels (m AHD) are 1.425 (1990), 1.395 (1956), 1.345 (1984) and 2001.
- ◇ The same study adopts a 2008 design still water level (Sydney Harbor) of 1.435 (1 in 100)
- ◇ Allowing year 2100 sea level rise (SLR) of +0.90m to the recent maximum water level of 1.475 produces a maximum year 2100 sea level of 2.375m AHD.
- ◇ This figure matched closer with Council Design Still Water Level year 2100 of 2.38m AHD

7.0 Protection to Development - Estuary Planning Levels

Refer to drawings C01 (basement) and C02 (lower ground floor) for details.

At the basement level (0.25m AHD)

- ◇ A Structural solid walls to the Estuary Planning Level (EPL) of 3.50m AHD is provided all around the basement.
- ◇ A Flood Door (No 1) is provided to protect the basement underpass to the beach (note the entry threshold is 1.50m AHD).

Note - the communal basement underpass (0.25m AHD) to beach in front of the Flood Door is susceptible to flooding once harbor water level exceed 1.50m AHD.

- ◇ The basement level is "susceptible to flooding" must be constructed with "flood compatible materials".
- ◇ The threshold level of 1.50m AHD (prior to flooding - area "susceptible to flooding) is equal to the highest recent historical recorded a maximum harbor water level of 1.475m AHD and is considered a "rare event".

At the lower ground level (2.75m AHD)

- ◇ Structural solid walls to the Estuary Planning Level (EPL) of 3.50m AHD
- ◇ Structural solid walls and glazing to the EPL of 3.50m AHD around the terrace and grass area of the basement level private unit (FFL 2.65).
- ◇ A Flood Door (No 2) to protect the to the EPL of 3.50m AHD around the terrace and grass area of the basement level private unit (FFL 2.65). Flood Door is located at the lower landing level (1.50m AHD).
- ◇ A Flood Door (No. 3) to protect the to the EPL of 3.50m AHD at the western side (adjacent to No 624-634) external pedestrian access to the beach . Flood Door is located at the proposed finished ground level (1.80m AHD approx.).
- ◇ Structural sold balustrade to the EPL of 3.50m AHD around the terrace of the basement level private unit (FFL 2.65).

8.0 Overland Flows from New South Head Road

We have secured more detailed flood information from WMA Water an these are attached. The WMA flood information includes flood contours (100mm) and flood levels/ ground levels) in front of the site at the high and low side. Flood levels between have been interpolated.

The WMA plans indicate the Q100 flow depth in front of the site is in range of 540 to 690 deep. The LiDAR (ie laser) which the ground level was extracted from (and used to determine flood levels determined by WMA) has an accuracy of +/- 0.15m, however when compared to the actual field survey levels appears to be quite reasonable (refer to our dwg C03)

Note - the floodplain category for the Q100 is considered to be "high risk / hazard."

9.0 Flood Protection - DCP 2015 Requirements

To flood protect the building, freeboard requirements (as required under Council's Flood Risk Management Development Control Plan, Chapter E2, May 2015) are required as described below;

- ◇ Residential floor level (habitable) 0.50m above Q100 flood
- ◇ Residential floor level (non-habitable) 0.30m above Q100 flood
- ◇ Enclosed Car Parking (more than 3 cars) 0.30m above Q100 flood

We note Council may consider alternatives (where DCP compliance cannot be achieved) due to existing constraints (eg compatibility with existing building levels / surrounds etc). The alternatives area evaluated on an individual case using a "merits based" approach and may allow for mechanical devices (to achieve the freeboard) or a reduced freeboard requirement.

10.0 Flood Protection -New South Head Road Frontage

Based on the detailed survey, the approximate overland flow levels are shown in **Table 1.0**

Table 1.0 – Flood Protection for Development

Location	Street Frontage	top kerb (ex)	Q100 Flood Level	Entry threshold or FFL	Freeboard	Comments	Comply with current DCP 2015
A service gate service ramp	New South Head Rd	3.90 gutter approx.	4.49	RL 5.65	1.16m		yes
B1 vehicular basement ramp	New South Head Rd	3.91 gutter approx.	4.50	4.55 ramp crest 5.07 flood barrier	0.05m 0.50m	relies on mechanical flood barrier basement level carparking and habitable unit below road level	yes mechanical device
B2 vehicular basement ramp	New South Head Rd	3.96 gutter approx.	4.57	4.55 ramp crest 5.07 flood barrier	nil 0.50m	relies on mechanical flood barrier basement level carparking and habitable unit below road level	yes mechanical device
C1 stairs adjacent R2	New South Head Rd	approx 4.16	4.67	RL 5.22 (lift) external RL 5.65 (stairs) internal	0.55m 0.98m	access to basement level carparking and habitable unit (below road level) via lift at 5.22 stairway access at 5.65 to basement level	yes yes
C2 lift	New South Head Rd	approx 4.17	4.71	RL 5.22(lift) external RL 5.65 (stairs) internal	0.51m 0.94m	access to basement level carparking and habitable unit below road level via lift at 5.22 stairway access at 5.65 to basement level	yes yes
D stairs adjacent R1 / lift lobby	New South Head Rd	approx. 4.18	4.73	RL 5.22 retail RL 5.65	0.49m 0.92m	>0.30m	yes yes
E Retail R1	New South Head Rd	approx. 4.20	4.79	RL 5.22 retail RL 5.65	0.43m 0.86m	>0.30m	yes yes
F stairs / floor vent	New South Head Rd	approx. 4.22	4.88	RL 5.65	0.77m		yes

refer to dwg C03 for section locations

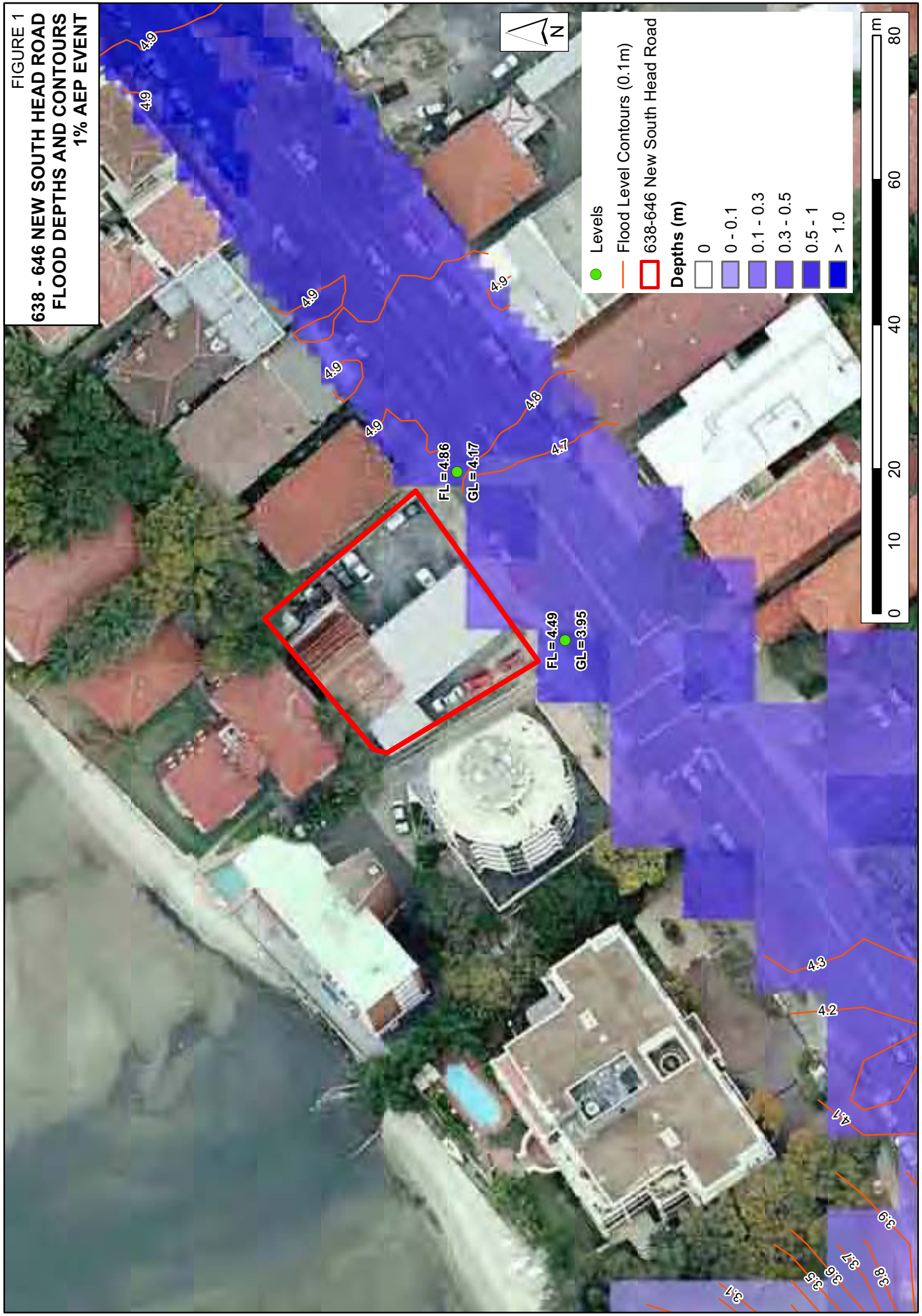
11.0 Comments

- ◇ We understand the architect has discussed the use of a mechanical flood protection device to protect the lower ground / basement carpark vehicular entry (carparking and habitable rear unit below street level) and Council has agreed to the use of such a device.
- ◇ A habitable unit (FFL 2.65) is provided with access and adjacent to the lower ground level basement carpark (RL 2.75), therefore the critical freeboard to any level below street level (New South Head Road) is 0.50m.

12.0 Conclusion

The proposed development has considered the impacts of both Estuary Planning Level (EPL) and Flood Planning Level (FPL) controls and has incorporate both permanent and mechanical flood protection devices (consisting of flood walls, barriers, raised building levels raised entry threshold levels, flood doors and automated flood barriers, to ensure the building offers the flood protection and manage the flood risk generally in accordance with Council's Development Control Plan.

FIGURE 1
638 - 646 NEW SOUTH HEAD ROAD
FLOOD DEPTHS AND CONTOURS
1% AEP EVENT



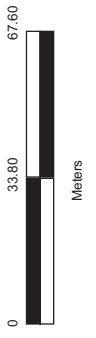
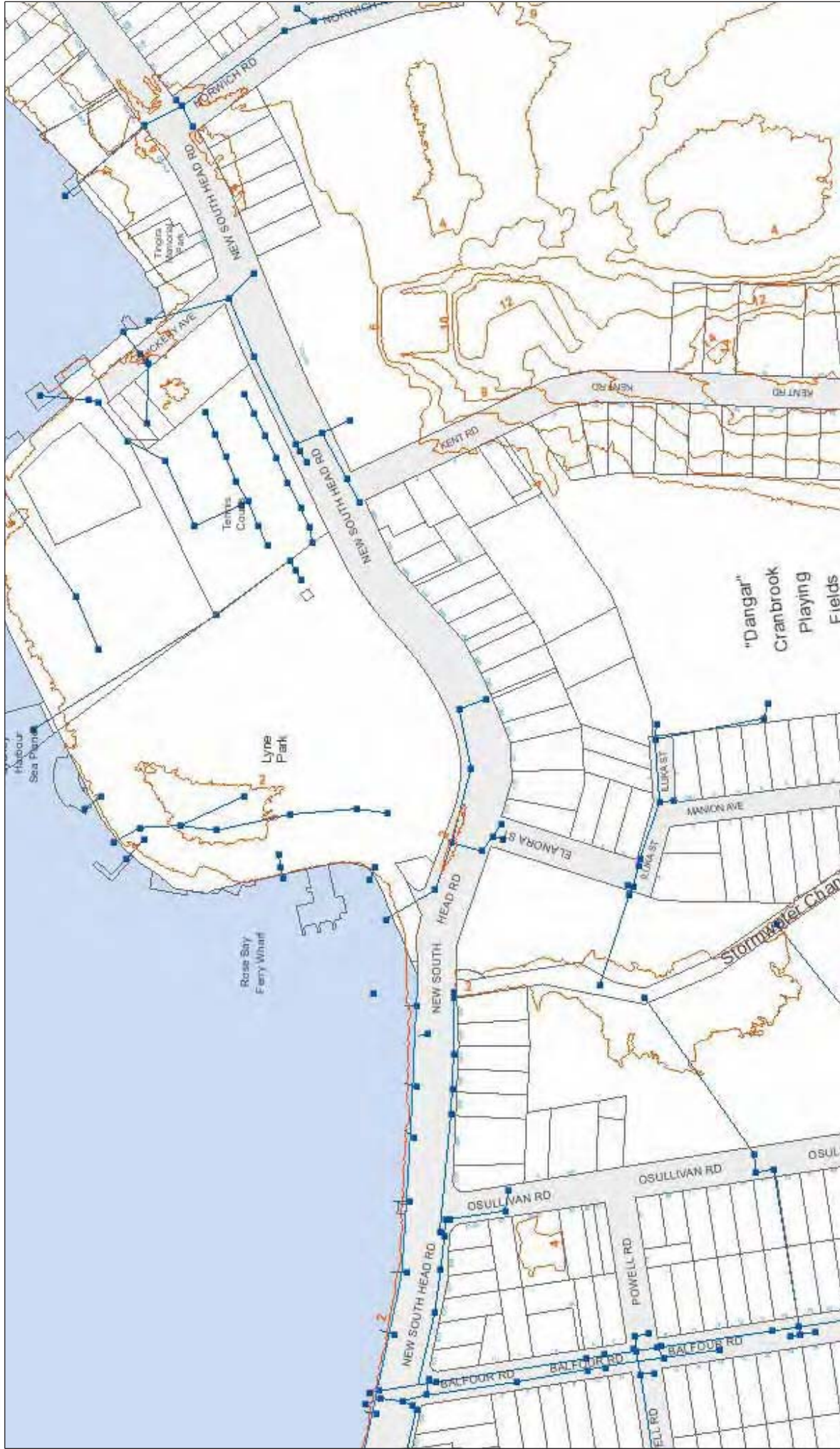
Levels

- Flood Level Contours (0.1m)
- ▭ 638-646 New South Head Road

Depths (m)

- 0
- 0 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 1
- > 1.0





Scale @ A4
1: 3,380

Date: 24/11/2015

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this under building area below EPL underpass area (0.25mAH) is not protected and below Estuary Planning Level (EPL) of 3.50m AH

Pedestrian Flood Door No. 1 Model PG-50 supplied by Flooding Solutions Advisory Group, tel 0411 333 971 (email info@floodingsolutions.com.au) Floods underpass level RL 0.25 full height door

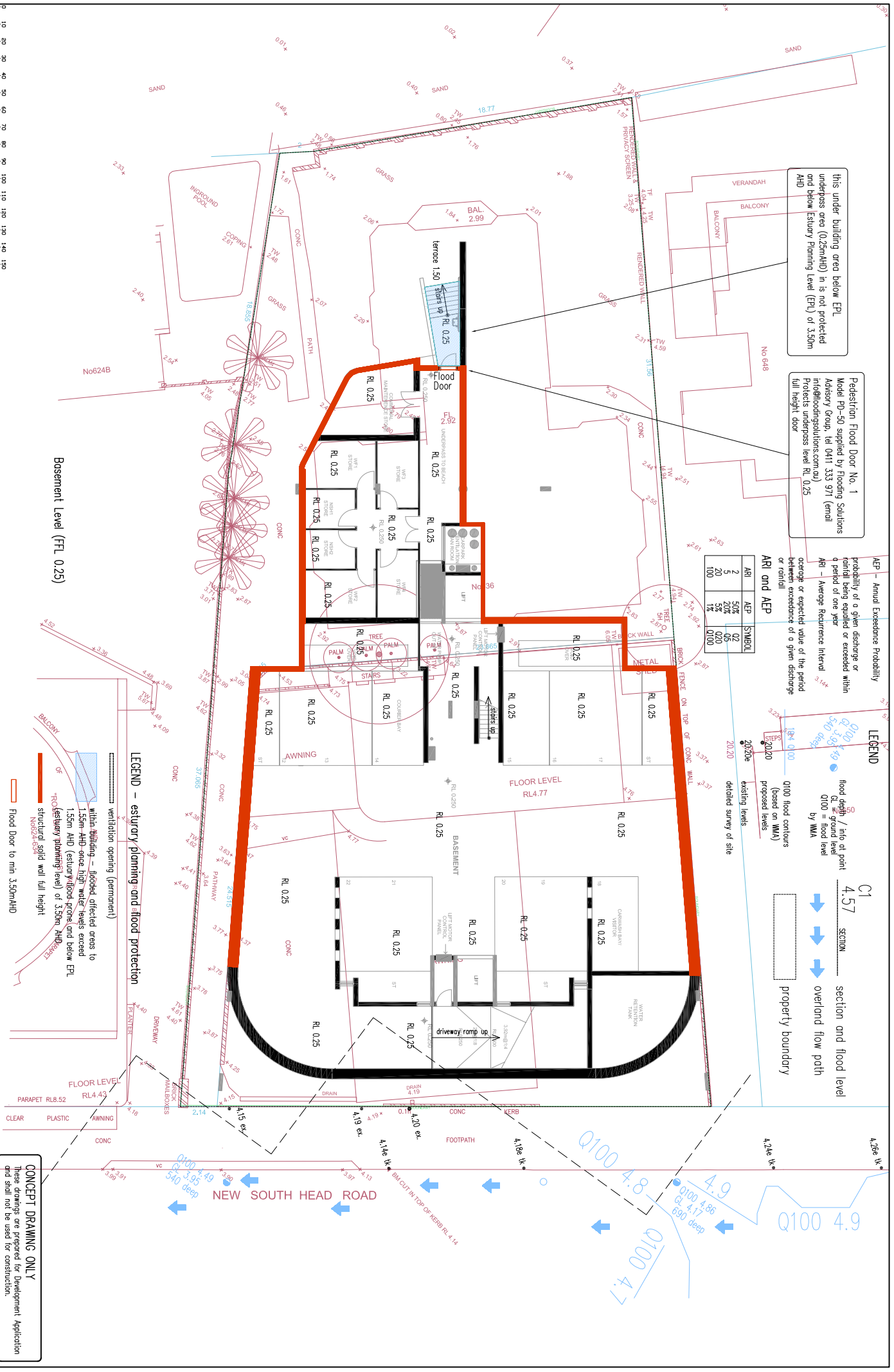
AR1 and AEP

ARI	AEP	SYMBOL
2	50%	02
5	20%	05
10	10%	10
20	5%	20
50	2%	50
100	1%	100

AR1 - Average Recurrence Interval
AEP - Annual Exceedance Probability
probability of a given discharge or rainfall being equaled or exceeded within a period of one year
AR1 - Average Recurrence Interval
average or expected value of the period between exceedance of a given discharge or rainfall

LEGEND

- 0100 flood contours (based on MGA)
- 0100 = ground level by WMA
- GL = ground level
- 0100 = flood level
- 0100 = m/a at point
- GL 4.57
- section and flood level
- section
- overland flow path
- property boundary



Basement level (FFL 0.25)

LEGEND - estuary planning and flood protection

- within building - flooded affected areas to 1.50m AH and once high water levels exceed 1.50m AH (estuary flood plane and below EPL (estuary planning level) of 3.50m AH)
- structural solid wall full height
- Flood Door to min 3.50mAH

CONCEPT DRAWING ONLY
These drawings are prepared for Development Application and shall not be used for construction.

DATE	DESCRIPTION	BY	CHECKED
2023/10/16	DEVELOPMENT APPLICATION - final	AKY	AKY
2023/10/16	DEVELOPMENT APPLICATION - final	AKY	AKY
2023/10/16	DEVELOPMENT APPLICATION - final	AKY	AKY

CLIENT: ROSE BAY JOINT VENTURE

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STORMWATER DRAINAGE CERTIFICATION

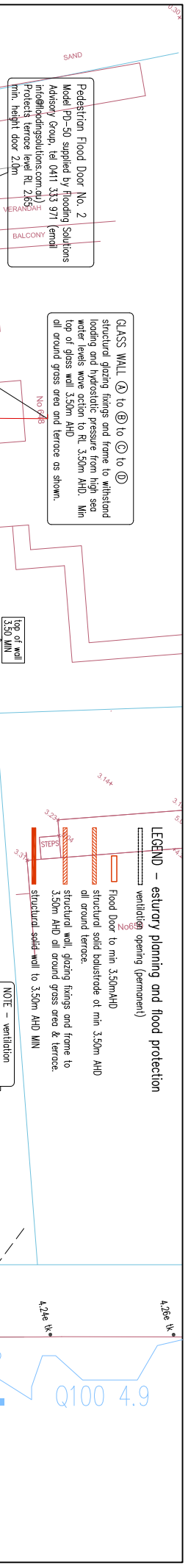
AKY Civil Engineering
Consulting Civil Engineers
Unit 11, 15 Bussell Road, Northfield NSW 2122
Phone (02) 9580 4400
email: akycivil@swiremail.com.au

PROPOSED MIXED DEVELOPMENT
636 - 636 NEW SOUTH HEAD ROAD
ROSE BAY NSW 2029

TITLE: 0100 FLOOD LEVELS (and contours) Basement level & survey overlay and PROPOSED LEVELS

SCALE: 1:100 of A1
DATE: 18.03.16
DRAWN BY: AKY
CHECKED BY: AKY

SHEET NO: 16014
TOTAL SHEETS: 16014
DRAWING NO: C-01
SCALE: C



Pedestrian Flood Door No. 2
 Model PD-50 supplied by Flooding Solutions
 Advisory Group, tel 0411 333 971 (email
 info@floodingsolutions.com.au)
 Protects terrace level RL 2.65
 min. height door 2.0m

GLASS WALL (A) to (C) to (D)
 structural glazing fixings and frame to withstand
 loading and hydrostatic pressure from high sea
 water levels wave action to RL 3.50m AHD. Min
 top of glass wall 3.50m AHD. Min
 all around gross area and terrace as shown.

NOTE - stairs down to
 basement underpins to beach
 (0.25) below Estuary Planning
 Level (EPL)
 refer to basement plan

this under building area below EPL
 underpins area (0.25m AHD) below
 Estuary Planning Level
 REFER TO BASEMENT LEVEL PLAN

BAULSTRADE (E) to (F) to (G)
 structural solid balustrade and fixings to
 withstand loading and hydrostatic pressure from
 high sea water levels wave action to RL 3.50m
 AHD. Min top of balustrade 3.50m AHD
 all around terrace as shown.

Pedestrian Flood Door No. 3
 Model PD-50 supplied by Flooding Solutions
 Advisory Group, tel 0411 333 971 (email
 info@floodingsolutions.com.au)
 Protects terrace level RL 2.65
 min. height door 2.0m

- LEGEND - estuary planning and flood protection**
- ventilation opening (perimeter)
 - Flood Door to min 3.50m AHD
 - structural solid balustrade of min 3.50m AHD
all around terrace.
 - structural glazing fixings and frame to
3.50m AHD all around gross area & terrace.
 - structural solid wall to 3.50m AHD MIN

NOTE - ventilation
 opening over

0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
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REVISION	DATE	DESCRIPTION
A	24.03.16	DEVELOPMENT APPLICATION - issue and
B	24.03.16	DEVELOPMENT APPLICATION - issue and
C	12.06.16	DEVELOPMENT APPLICATION - issue and

CLIENT	ROSE BAY JOINT VENTURE
ARCHITECT	JHRA ARCHITECTS LEVEL 4, 20 SMITHS ROAD, SYDNEY, NSW 2000

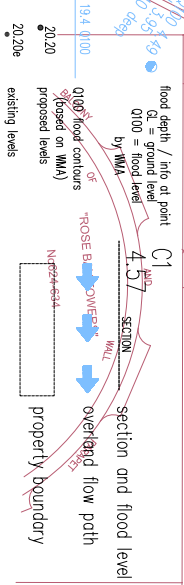
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ENGINEER	JHRA ARCHITECTS LEVEL 4, 20 SMITHS ROAD, SYDNEY, NSW 2000

STORMWATER DRAINAGE CERTIFICATION	Consulting Civil Engineers Unit 11, 15 Bussell Road, Northfield NSW 2122 Phone (02) 9500 0441 / (02) 9500 4534 email: dx@ecsworld.com.au
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PROPOSED MIXED DEVELOPMENT	0100 FLOOD LEVELS (and contours) Lower Ground Level & survey overlay and PROPOSED LEVELS
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DATE	18.03.16
SCALE	1:100 of A1
PROJECT NO.	16014
DEVELOPMENT APPLICATION	C-02

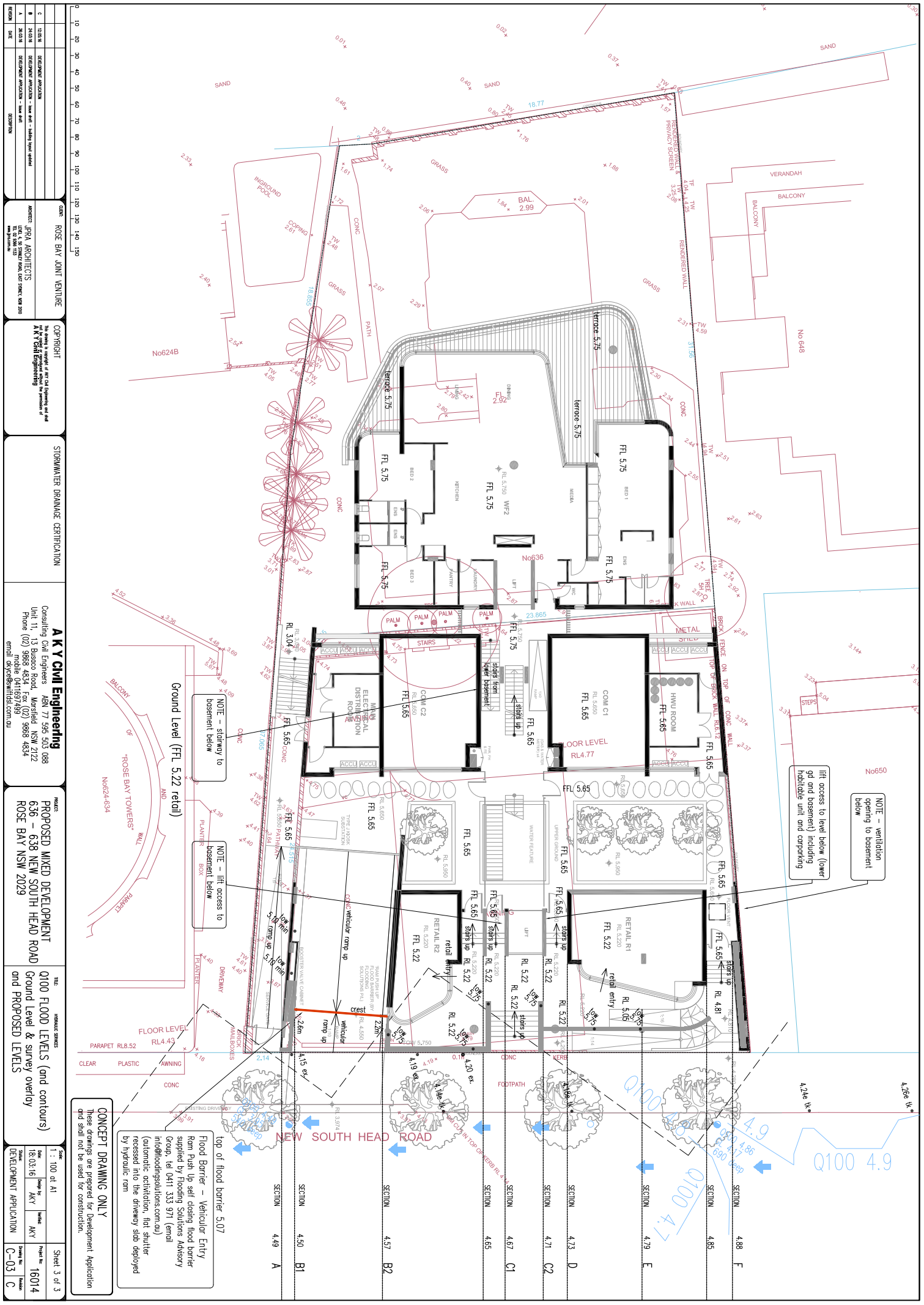
Lower Ground (FFL 2.75)



CONCEPT DRAWING ONLY
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 and shall not be used for construction.

top of flood barrier 5.07
 Flood Barrier - Vehicular Entry
 Ram Push Up seal design flood barrier
 supplied by Flooding Solutions Advisory
 Group, tel 0411 333 971 (email
 info@floodingsolutions.com.au)
 automatic activation, lift shutter
 recessed into the driveway slab deployed
 by hydraulic ram

DATE	18.03.16
SCALE	1:100 of A1
PROJECT NO.	16014
DEVELOPMENT APPLICATION	C-02



REVISION	DATE	DESCRIPTION
A	20.10.18	DEVELOPMENT APPLICATION - final
B	24.03.18	DEVELOPMENT APPLICATION - final
C	12.06.18	DEVELOPMENT APPLICATION - final

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PROPOSED MIXED DEVELOPMENT
 636 - 636 NEW SOUTH HEAD ROAD
 ROSE BAY NSW 2029

Q100 FLOOD LEVELS (and contours)
 Ground Level & survey overlay
 and PROPOSED LEVELS

CONCEPT DRAWING ONLY
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top of flood barrier 5.07
 Flood Barrier - Vehicular Entry
 Rem Push Up self sealing flood barrier
 supplied by Flooding Solutions Advisory
 Group, tel (0411) 333 971 (email
 info@floodingsolutions.com.au)
 (automatic activation, flat shutter
 recessed into the driveway slab deployed
 by hydraulic ram)

NOTE - stairway to basement below

NOTE - lift access to basement below

NOTE - ventilation opening to basement below

NOTE - access to level below (lower ground and basement) including habitable unit and carparking

SECTION	4.50	B1
SECTION	4.57	B2
SECTION	4.65	C1
SECTION	4.71	C2
SECTION	4.73	D
SECTION	4.79	E
SECTION	4.88	F



PEDESTRIAN FLOOD DOOR



PS DOORS

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PEDESTRIAN FLOOD DOOR

MODEL: PD-520

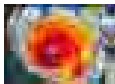


The PD-520 is one of the most progressive products in the flood door market today. The PD-520 is a specially designed pedestrian door that can withstand flooding conditions.

The PD-520 is always in place, giving you 24/7 flood protection, while still allowing access to your facility on a daily basis.

The PD-520 comes ready to install and can be fitted with standard door hardware, or utilize an electronic key pad or card reader for accessing the door.

Windows and other options are available depending on you needs and water protection heights.



FLOOD TIP:

Evaluate personnel available, flood warning notice, and response time when planning and choosing your flood protection methods.

Opening Applications

- Walk Doors - Normal Use.
- Freight Doors
- Emergency Exit Openings
- Interior or Exterior Doors
- Mechanical Rooms
- Critical Infrastructure

Benefits of Pedestrian Flood Door

- Flood protection is always in place.
- Door used as a normal pedestrian door.
- No personnel required to place flood protection barriers.

Quick Facts

- Mild Steel or Stainless Steel
- Typically 2:1 Design Safety Factor.
- Compression Seal - **NO** Compressed air for activation.
- Utilizes standard Door Hardware.

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PEDESTRIAN FLOOD DOOR

MODEL: PD-520



Single Swing Door with common lock and handle combination.

Flood Protection, always in place.

If you have openings that are larger than the PD-520 limitations be sure to look at one of our other products, such as the LO-510, HSS-550, HPS-555, or the HS-560.

Choosing the right flood barrier or door is important to your overall flood protection plan and affects your flood response time. **PS DOORS** and **Flooding Solutions Advisory Group** are able to work with you or your flood protection team to make significant improvements in both protection and response.



Paired Swing Door with common lock and handle combination, and windows.

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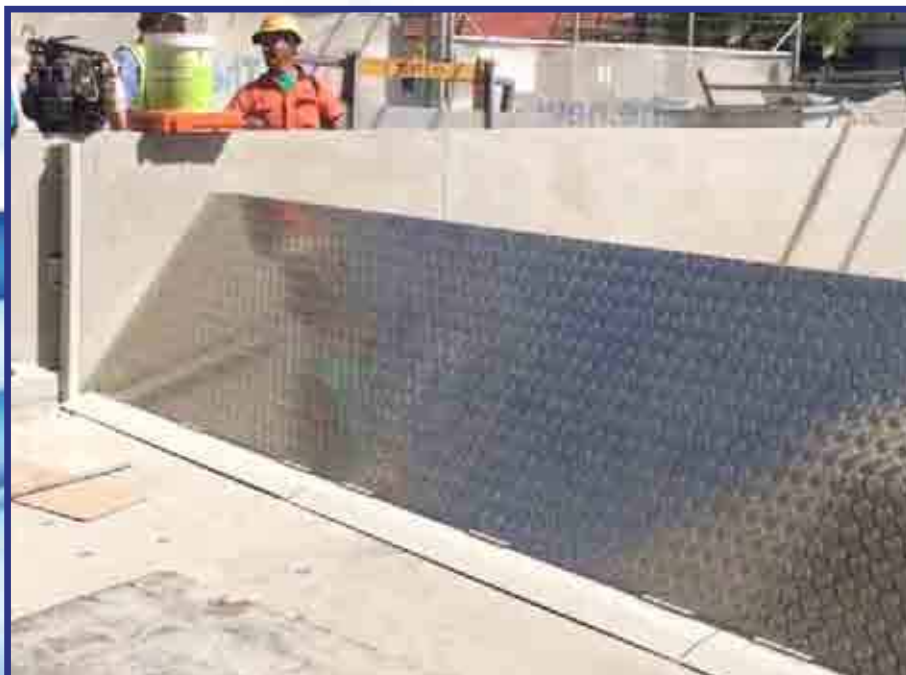
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SELF-CLOSING FLOOD BARRIER PRODUCT INFORMATION

MODEL: RAM PUSH UP



SELF-CLOSING FLOOD BARRIER PRODUCT INFORMATION TABLE OF CONTENTS:

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General Principles of Operation

- The RAM PUSH Self Closing Flood Barrier is designed to be activated automatically when floodwaters reach a pre-determined level.
- The concept is based on a flat shutter recessed into the driveway structural slab with operational auxiliary equipment located within a pit below the shutter.

System deployment from flat position to upright (closed) is achieved via hydraulic rams.

The system has an electronic control system that will activate barrier deployment ram motors, as well as audible and visual pending deployment alarms through a switchboard enclosed in a powder coated, locked control panel.

Permanent power supply is a design feature. The system operates on a 24 volt battery power pack with no dependence for operation on mains power. The 24 volt power pack is on permanent charge from site main power and typically remains in deployment standby mode for a minimum of 7 days without receiving charge power from sites main power supply. The 24 volt power pack also provides a minimum of 10 deployment functions without receiving a re-charge.

The main control panel is a state of art digital circuit type which significantly limits the possibility of a failure to function due to a short circuit.

The control panel is quality checked for design function prior to delivery. At completion of installation the control panel is commissioned. As part of this process the panel functions are checked with primary and secondary float switch sets for signal detection, alarm beacons and sirens. Ongoing maintenance includes a regime of testing of all system activation components.

1. System activation and trigger system.

The primary system deployment controls are activated via a floodwater collection control pit containing float switches that will activate deployment power source as well as the barrier alarm system at a pre-determined water level.

The control pit is typically located in a position to allow collection of floodwaters prior to flood water entering the protected area of building. This allows deployment of flood water defense barrier based on a pre-determined design time step.

In the event of failure of the primary system deployment a secondary activation/trigger system is incorporated into the flood barrier pit itself. This is a duplication of the primary systems float switches. The secondary float switches are set at the lowest possible position within the barrier pit to allow system deployment as soon as flood water enters the pit. Note also that a pump is positioned within a sump in the barrier pit to discharge water that may be collected due to normal rain or pavement washing; this avoids activation of secondary support system of float level switches when not receiving flood water.

2. Typical Deployment sequence schedule

Deployment signal from primary or secondary float switches will initiate the following sequence:

- Early flood warning followed by Barrier Deployment alarms will signal flood barrier will shortly be in operation.
- 30 seconds after Red alarms are activated a signal will be sent to the barrier ram motors and the barrier shutter will rise.
- Once floodwaters recede, the float switch will return to its vertical position and the control panel will send the "open" signal to the rams.
- The barrier rams will pull the barrier back to the open (flat) position.
- Alarms will cease.
- Alarm system is designed to continue until such time as the barrier shutter returns to open position; however a system mute switch is available to building manager (or Flood Response Officer) to reduce the volume of the audible alarm. This does NOT turn off the warning lights.
- The system operates off a permanently charged, fail safe, rechargeable battery power supply, which will guarantee deployment in the event of electrical power failure. This form of power supply is necessary as electricity is frequently lost during large storm events.
- A contingency manual deployment arrangement in the event of automatic system failure is achieved by the inclusion of a manual hydraulic pump. This pump is positioned adjacent the control panel and auto hydraulic pump. A simple interface connection to hydraulic lines allows the operator to fully raise the barrier within a 5 to 10 minute step.

3. Alarms

Typically two linked systems are installed:

- Early flood warning (AMBER)

Beacons and signage are located at the barrier and other locations as required.

Amber alarms warn occupants to move to higher ground and that flood barrier is preparing to deploy.

- Flood Barrier deployment imminent (RED)

Strobe light and audible bell are located on control panel.

Flashing beacons are positioned as required.

Red alarm alerts all occupants to the fact that the flood barriers are about to close and to stand well clear.

No vehicles should use the driveways after the RED alarms are activated, either to park in the garage or to leave the site, because of the risk of colliding with the closing barrier.

4. Flood Barrier Rise Times

The self-closing flood barrier operates under hydraulic pressure provided by the systems motor power pack and hydraulic rams.

The actual rate of rise may be regulated based on flood water flow or ponding-rate. Time sequence for barrier to fully deploy after the control panel receives a signal from the flood water control pit is typically 30 seconds maximum.

5. System Testing

Performance of the barrier can be checked at any time. This is achieved by activating the test function in control panel.

The control panel allows site management to also pre-deploy the barrier at any time to provide building protection from pending flood.

6. Maintenance

All flood barrier types used for property protection require a periodic maintenance regime and deployment test.

We recommend that the Ram Push system is checked for operation every month by the building owner, simply by operating the system from the control panel. Maintenance of the barrier is required to be completed annually by Flooding Solutions Advisory Group. The maintenance schedule includes the following:

- Testing battery pack for performance charge.
- Operating barrier and checking for correct time step function.
- Checking all alarm functions.
- Observing hydraulic system operation and checking for component fatigue or leaks.
- Checking seals and replacing if required.
- Checking all surfaces for quality of paint finish and repair if required.

PRODUCT SPECIFICATION

For RAM PUSH UP Automatic/Self Closing Flood Barriers

Note: Designed for self-contained operation and not dependant on mains site power

1. Barrier Support Frame

- Heavy duty duragal R.H.S – grade C450LO to AS 1163.

2. Barrier Blade/Cover

- One steel floor/coil plate, thickness to project design traffic/flood height loadings.

3. Barrier Hinge Bearings

- Selected heavy duty tapered roller bearings and high tensile steel axel shaft.

4. Operational Hydraulic Rams

- Bare-co welded cylinders with industrial type pin eyes, 50mm to 100mm DIA bore, stroke length as required. Operational force range (14 PSI to 125PSI – dependent on site-specific requirements).

5. Hydraulic Power Pack Unit

- Bucher hydraulics double acting 24 volt D.C model M – 3551.

6. Operational Control Float Level Switches

- Matelec 9006 series/cable length max 40m.

7. Operational Control Panel

- Australian made 240 volt / 24 volt D.C panel including 24 volt battery pack for system function and charger with powder coated cabinet.

- Controls include interface of level sensor float level switches with:

- Warning alarms, audible and visual
- Security gates (if required)
- Remote signal (if required)
- Adjustable time step to barrier deployment signal
- System testing function

8. Barrier Water Seals

- Durafoam series 6110 E.P.D.M selected profile

9. Barrier Surface Finish

- A & I Coatings vitrethane 630 two pack aliphatic polyurethane min. 50 micron thickness.

10. Barrier High Visible Markings

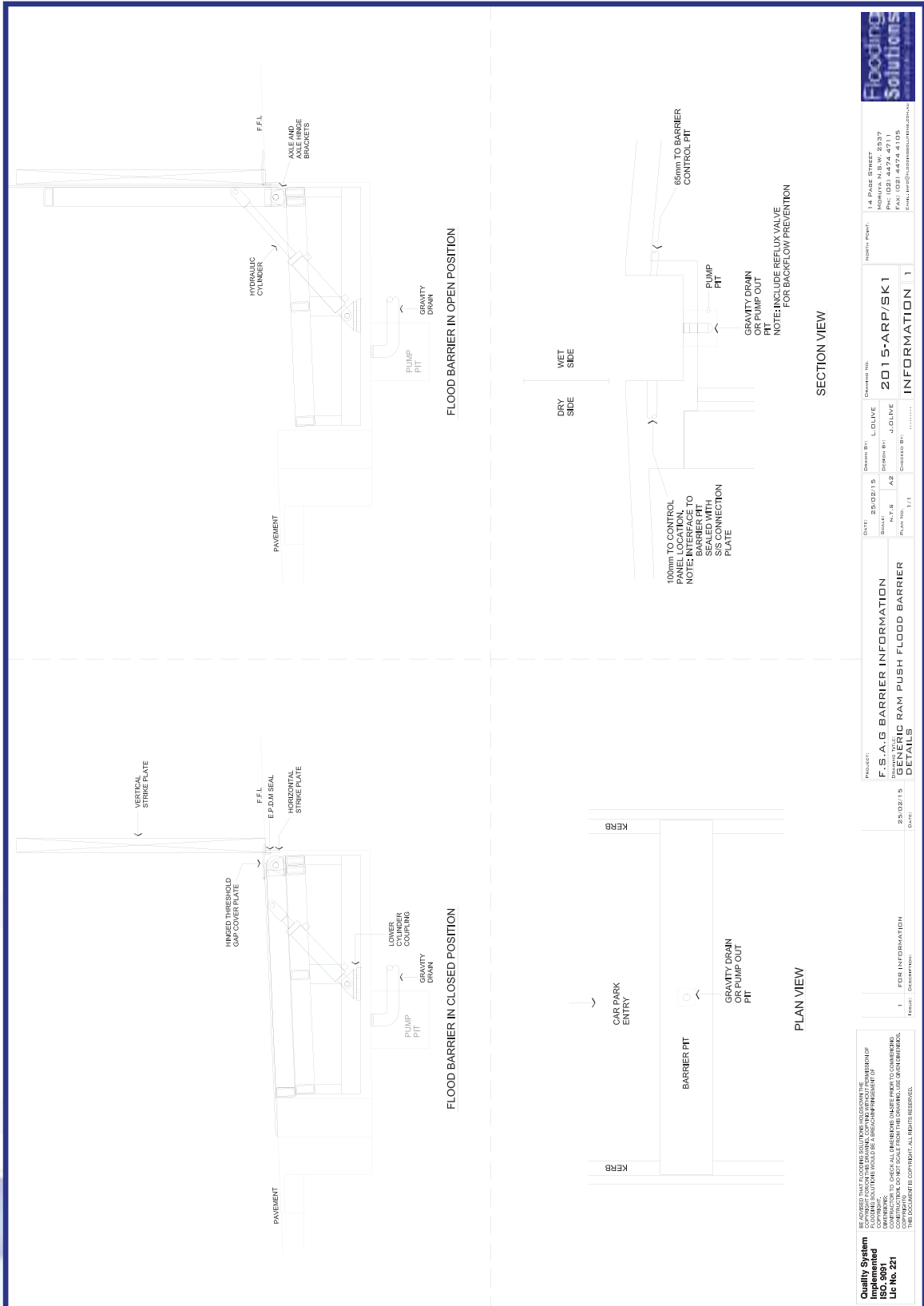
- Dulux Weathermax HBR polyurethane L.F line markings. Colour high-viz yellow.



James P. Olive HYD – P562
Director

Note: Flooding Solutions Advisory Group reserve the right to amend this product specification from time to time based on further and on-going product development. Flooding Solutions Advisory Group also undertake to promptly advise all committed clients of any proposed modification to design that may effect this product specification.

TYPICAL DRAWINGS



Quality System
 Certified to ISO 9001
 Lic No. 221

BE ADVISED THAT ALL COSTING SOLUTIONS INCLUDES THE COSTS OF THE SYSTEM INCLUDING THE COSTS OF THE COMPONENTS. THE COSTS OF THE COMPONENTS ARE NOT INCLUDED IN THE COSTING. THE COSTS OF THE COMPONENTS ARE NOT INCLUDED IN THE COSTING. THE COSTS OF THE COMPONENTS ARE NOT INCLUDED IN THE COSTING. THE COSTS OF THE COMPONENTS ARE NOT INCLUDED IN THE COSTING.

DATE: 25/02/15
 SCALE: N.T.S.
 PLAN NO.: 1/1

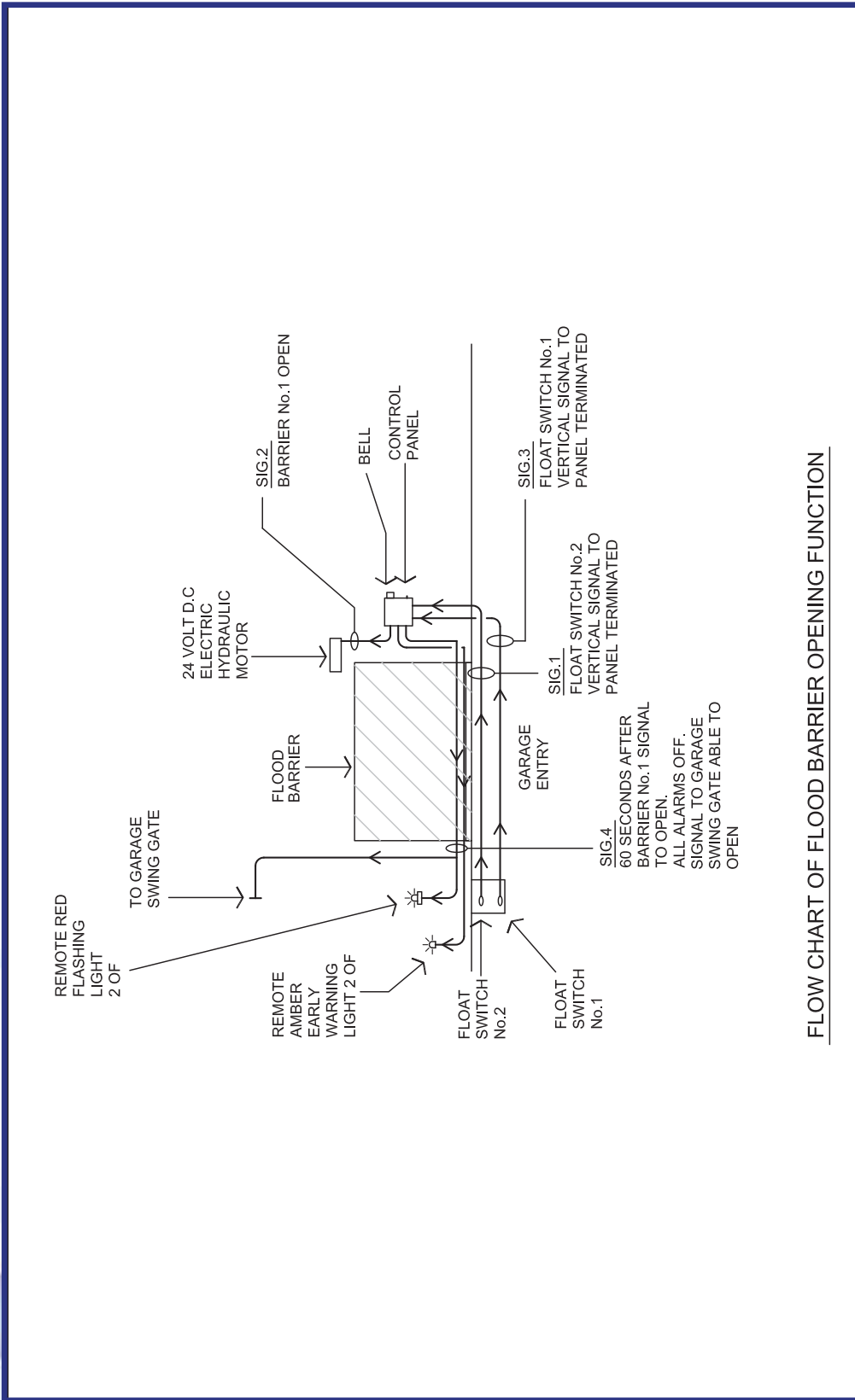
PROJECT: F.S.A.G. BARRIER INFORMATION
 DRAWING NO.: 2015-ARP/SK1
 INFORMATION 1

Drawn By: L. CLIVE
 Order By: J. CLIVE
 Checked By:

1. FOR INFORMATION
 Head:

1.4 PADE STREET
 MORIVA N.B.W. 2537
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FLOW CHART OF FLOOD BARRIER OPENING FUNCTION

Quality System Implemented SO. 9091 Jc No. 221	PROJECT: TYPICAL SYSTEM SINGLE BARRIER		DRAWN BY: L.O'LIVE	14 PAGE STREET MORUYA N.S.W. 2537
	DRAWING NO. ED4	REV. NO. 1	DESIGN BY: J.O'LIVE	PH: (02) 4474 4711 FAX: (02) 4474 4105 EMAIL: INFO@FLOODINGSOLUTIONS.COM.AU
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DATE: 24/02/15			DATE: 24/02/15	



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