

STORMWATER MANAGEMENT PLAN

83-85 BOWER STREET MANLY

 **National
Engineering
Register**
ENGINEERS
AUSTRALIA
Con Katsoulas
BE (Civil), MIEAust, CPEng No. 449924

SHEET INDEX:

SHEET No.	TITLE	AMMENDMENT No.
1	INDEX SHEET	2
2	STORMWATER DETAIL PLAN	2
3	BASEMENT PLAN	2
4	FIRST FLOOR PLAN	2
5	ROOF PLAN	2
6	ON-SITE DETENTION DETAILS	2
7	DRAINS CALCULATIONS	2
8	EROSION AND SEDIMENT CONTROL PLAN	2

LEGEND

	FLOWPATH	IL 0.00	PIT/PIPE INVERT LEVEL
	FLOOR WASTE	TK 0.00	TOP OF KERB LEVEL
	FLOW SPREADER AND DOWNPIPE TYPE 1		GRATED DRAIN
	PROPOSED GRATED PIT	+ 00.00	EXISTING SURFACE LEVEL
	PROPOSED SEALED WATER TIGHT PIT	+ 	PROPOSED SURFACE LEVEL
	RAINHEAD	● IP	SEALED INSPECTION OPENING
	SUMP OVERFLOW	● DP-1	DOWNPIPE - TYPE 1
	PROPOSED STORMWATER PIPE - GRAVITY		HIP ROOF
	PROPOSED V-DRAIN		FLAT ROOF
	PROPOSED STORMWATER PIPE - CHARGED		TERRACE/BALCONY
	PROPOSED RISING MAIN (PRESSURE PIPE)		BASIX ROOF AREA DRAINING TO RAINWATER TANK
	PROPOSED SUBSOIL DRAIN		AREA BYPASSING ON-SITE DETENTION TANK
	PROPOSED BUILDING - GROUND FLOOR		
	PROPOSED BUILDING - FIRST FLOOR		
	PROPOSED CONTOURS		

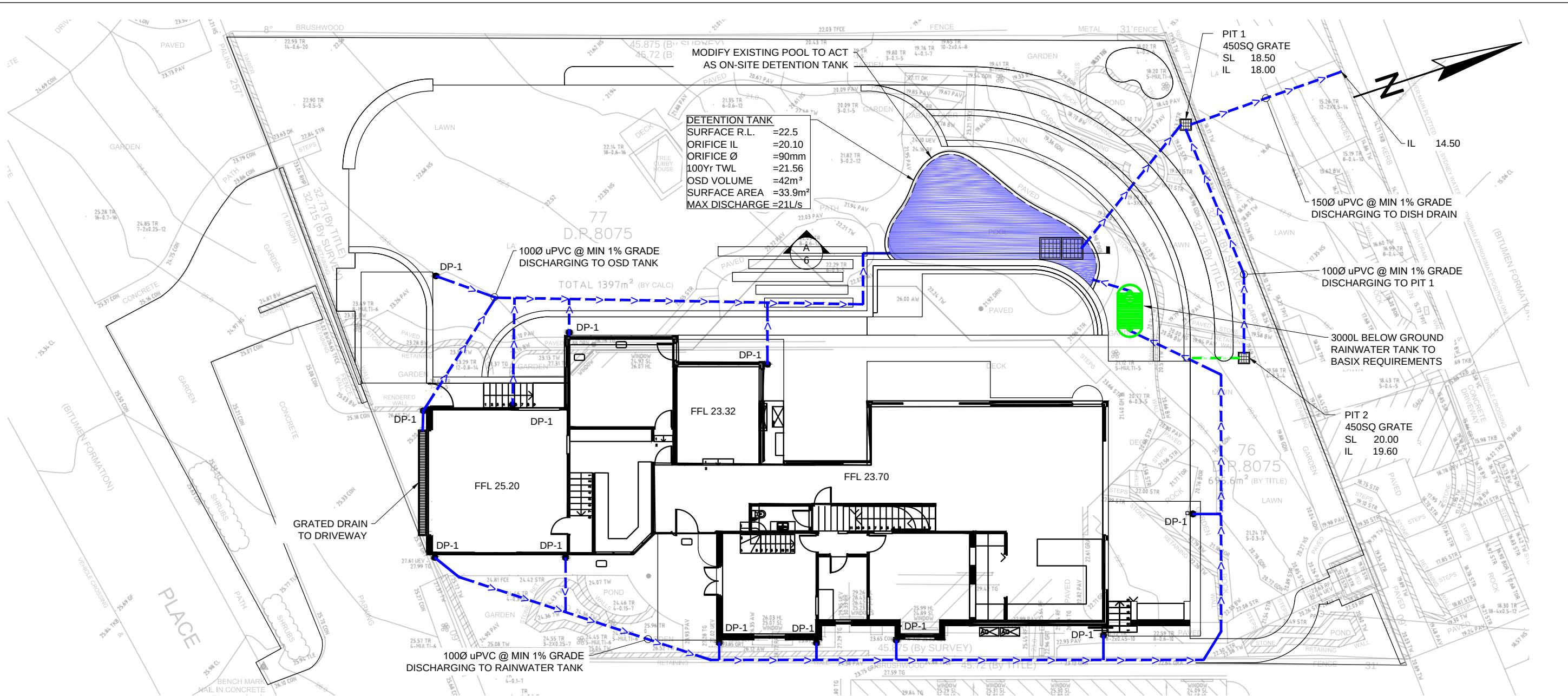
NOTES:

- ALL PROPOSED PITS TO BE 450 x 450 CAST IN-SITU OR PRECAST PITS UNLESS SHOWN OTHERWISE.
- ALL CHARGED LINE PIPES TO BE 100Ø uPVC SEWER CLASS UNLESS SHOWN OTHERWISE
- ALL DOWNPIPES TO BE 90Ø uPVC OR 100 x 50 UNLESS OTHERWISE SHOWN
- ALL NON-PRESSURE STORMWATER PIPES TO BE 100Ø uPVC UNLESS SHOWN OTHERWISE
- ALL GRATED DRAINS TO BE MINIMUM 150 WIDE GALVANIZED HEAVY DUTY GRATES.
- ALL NON-TRAFFICABLE PITS TO BE LIGHT DUTY. PITS IN TRAFFICABLE AREAS TO BE HEAVY DUTY.
- ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH COUNCILS SPECIFICATIONS.
- ALL PITS GREATER THAN 1.2m DEPTH SHALL INCLUDE STEP IRONS AND HAVE MINIMUM CLEAR DIMENSIONS OF 600 x 600.
- ALL PITS ARE TO BE BENCHED TO ALLOW SMOOTH FLOW OF WATER THROUGH PITS
- ALL DOWNPIPES SHALL CONFORM TO AS/NZS 1866 FOR ALUMINIUM PIPES AND AS 1254, AS/NZS 1260, AS 1273, AS/NZS 1477, AS/NZS 2179.2 AND AS 2032 FOR uPVC PIPES.
- ALL BOX GUTTERS SHALL COMPLY WITH AS/NZS 2179.1
- ALL BOX GUTTERS SHALL BE CONSTRUCTED WITH A MINIMUM 1:200 GRADE TO SUMP/DOWNPIPES
- ALL DRAINAGE WORKS SHALL BE IN ACCORDANCE WITH AS 3500.3.2

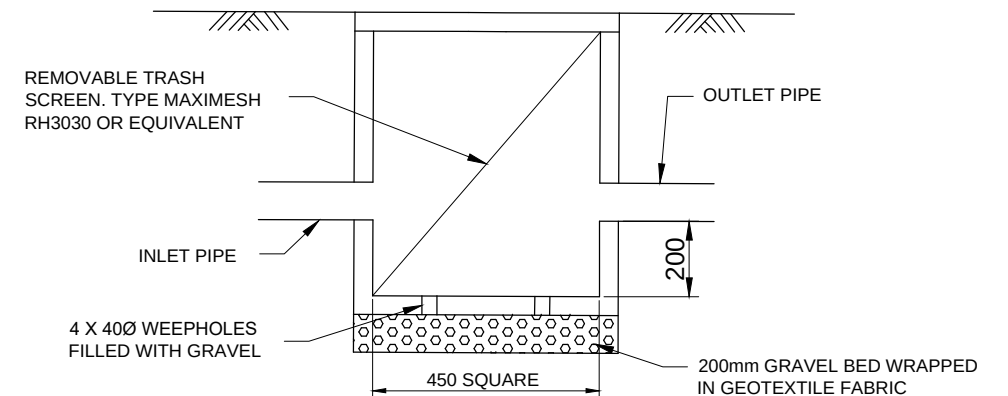
DOWNPIPE TYPE	DOWNPIPE SIZES	
	ROUND	RECTANGULAR
1	90Ø	100 X 75
2	100Ø	100 X 75
3	125Ø	100 X 100
4	150Ø	150 X 150

FOR DA APPROVAL

SURVEYOR C.M.S SURVEYORS	0	DA ISSUE	6/03/20				C.K. ENGINEERING SERVICES ABN 67 115 216 496 49 FLORA ST ROSELANDS, NSW 2196 MOB: 0403 329 327 EMAIL: ckatsoulas@gmail.com	CLIENT: RAY & JULIE BALCOMB	DRAWING TITLE: INDEX	DRAWN: M.P.		DATE: MARCH 2021	
ARCHITECT EVANS AND GREEN	1	DA ISSUE - AMENDED TO ARCH. DETAILS	20/06/20							DESIGNED: C.K.		SCALE: AS SHOWN	
	2	DA ISSUE - AMENDED TO ARCH. DETAILS	23/03/21							CHECKED: C.K.		DATUM: AHD	
CONSULTANT	No.	AMMENDMENT	DATE	No.	AMMENDMENT	DATE		PROJECT: 83-85 BOWER STREET MANLY		JOB & DRAWING No: 19987		No. IN SET: 1 OF 8	ISSUE: 2
-	DO NOT SCALE												



SITE PLAN
SCALE: 1:200



SILT ARRESTOR PIT 1 TYPICAL DETAIL
SCALE: 1:20

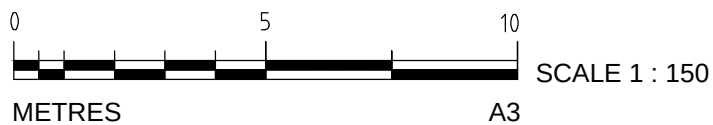
ALL PIPES TO BE 100Ø uPVC
UNLESS OTHERWISE SHOWN

ALL GUTTERS TO HAVE MIN.
8500mm² X-SECT AREA.



Con Katsoulas
BE (Civil), MIEAust, CPEng No. 449924

www.dialbeforeyoudig.com.au

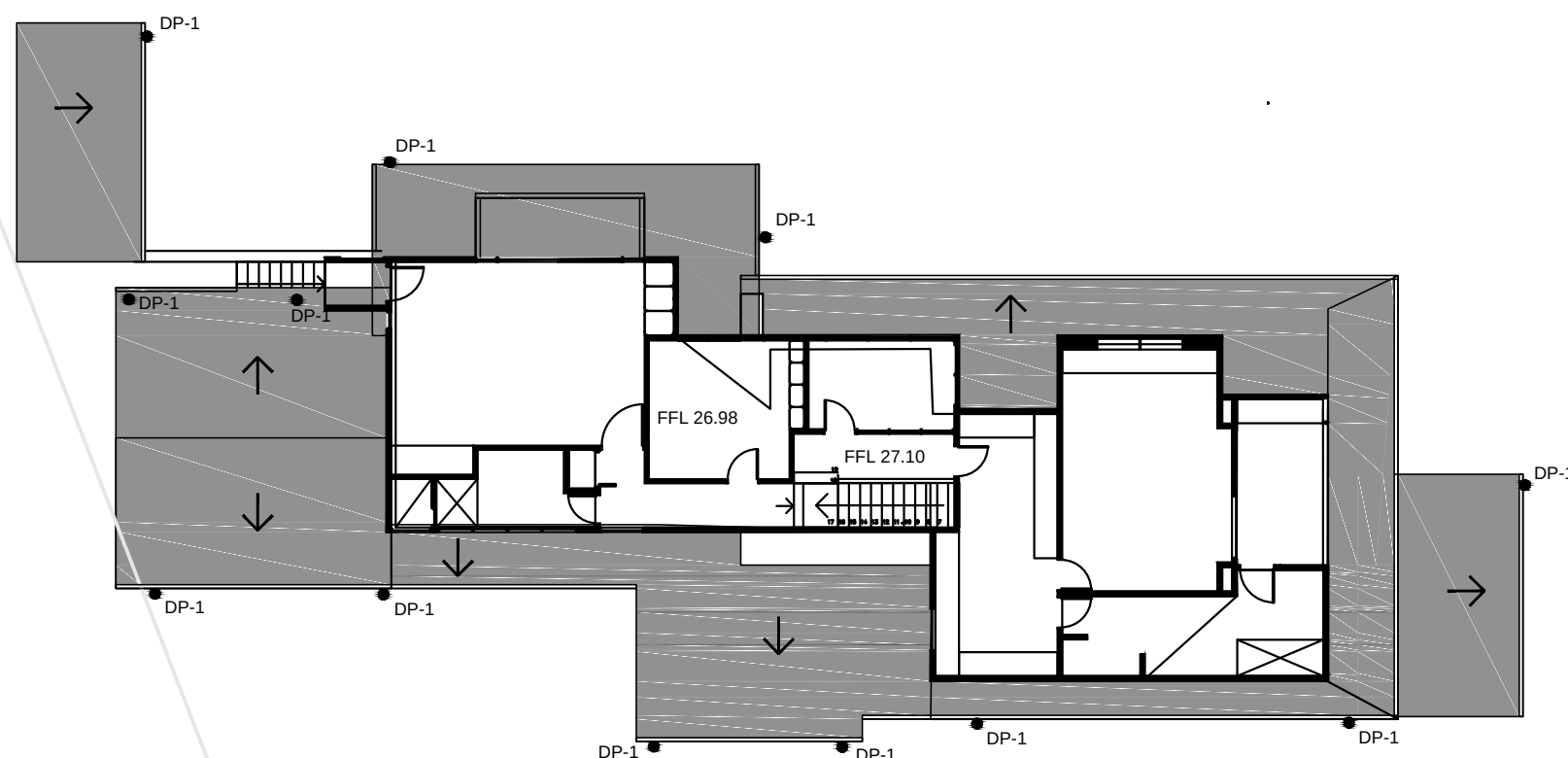


FOR DA APPROVAL

SURVEYOR C.M.S SURVEYORS ARCHITECT EVANS AND GREEN CONSULTANT	0	DA ISSUE	6/03/20			C.K. ENGINEERING SERVICES ABN 67 115 216 496 49 FLORA ST ROSELANDS, NSW 2196 MOB: 0403 329 327 EMAIL: ckatsoulas@gmail.com	CLIENT: RAY & JULIE BALCOMB PROJECT: 83-85 BOWER STREET MANLY	DRAWING TITLE: STORMWATER DETAIL PLAN	DRAWN: M.P. DESIGNED: C.K. CHECKED: C.K. JOB & DRAWING No: 19987	SIGNED:	DATE: MARCH 2021 SCALE: AS SHOWN DATUM: AHD No. IN SET: 2 OF 8 ISSUE: 2
	1	DA ISSUE - AMENDED TO ARCH. DETAILS	20/06/20								
	2	DA ISSUE - AMENDED TO ARCH. DETAILS	23/03/21								
	No.	AMMENDMENT	DATE	No.	AMMENDMENT	DATE					
DO NOT SCALE											



SURVEYOR C.M.S SURVEYORS	0	DA ISSUE	6/03/20				C.K. ENGINEERING SERVICES ABN 67 115 216 496 49 FLORA ST ROSELANDS, NSW 2196 MOB: 0403 329 327 EMAIL: ckatsooulas@gmail.com	CLIENT: RAY & JULIE BALCOMB	DRAWING TITLE: BASEMENT PLAN	DRAWN: M.P.	SIGNED: 	DATE: MARCH 2021
ARCHITECT EVANS AND GREEN	1	DA ISSUE - AMENDED TO ARCH. DETAILS	20/06/20							DESIGNED: C.K.		SCALE: AS SHOWN
	2	DA ISSUE - AMENDED TO ARCH. DETAILS	23/03/21					CHECKED: C.K.		DATUM: AHD		
CONSULTANT -	No.	AMMENDMENT	DATE	No.		DATE		PROJECT: 83-85 BOWER STREET MANLY		JOB & DRAWING No: 19987	No. IN SET: 3 OF 8	ISSUE: 2
						DO NOT SCALE						

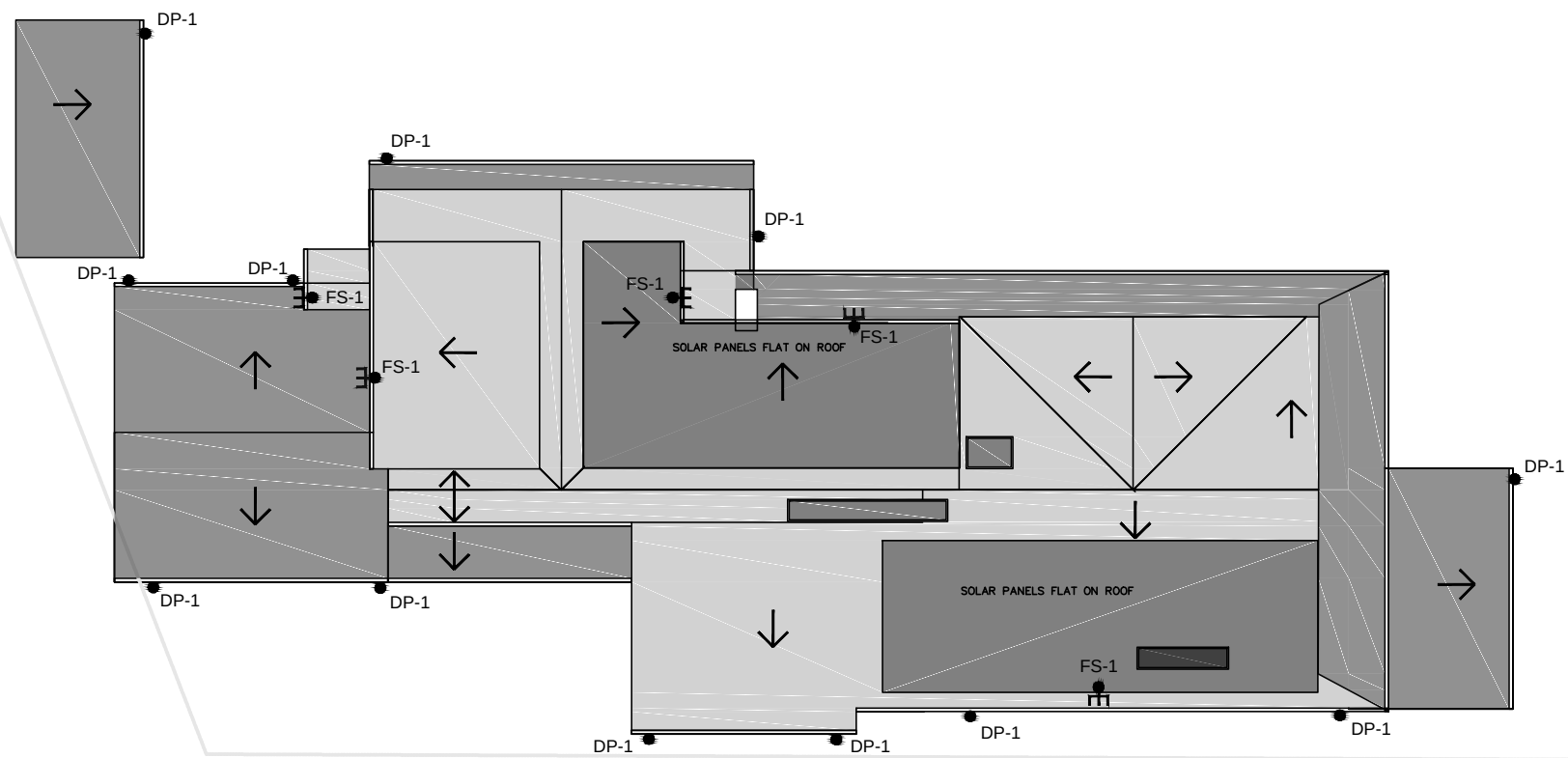
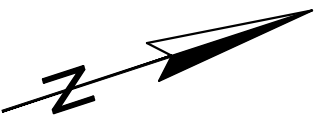


FIRST FLOOR PLAN
SCALE: 1:200



FOR DA APPROVAL

SURVEYOR C.M.S SURVEYORS	0	DA ISSUE	6/03/20			C.K. ENGINEERING SERVICES ABN 67 115 216 496 49 FLORA ST ROSELANDS, NSW 2196 MOB: 0403 329 327 EMAIL: ckatsoulas@gmail.com	CLIENT: RAY & JULIE BALCOMB	DRAWING TITLE: FIRST FLOOR PLAN	DRAWN: M.P.	SIGNED: 	DATE: MARCH 2021
	1	DA ISSUE - AMENDED TO ARCH. DETAILS	20/06/20						DESIGNED: C.K.		SCALE: AS SHOWN
ARCHITECT EVANS AND GREEN	2	DA ISSUE - AMENDED TO ARCH. DETAILS	23/03/21				PROJECT: 83-85 BOWER STREET MANLY		CHECKED: C.K.	DATUM: AHD	
CONSULTANT -	No.	AMMENDMENT	DATE	No.	AMMENDMENT		DATE		JOB & DRAWING No: 19987		No. IN SET: 4 OF 8
						DO NOT SCALE					



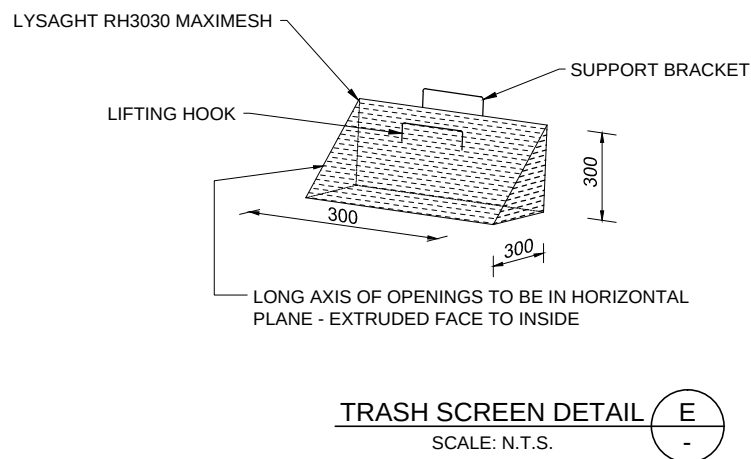
ROOF PLAN
SCALE: 1:200



Con Katsoulas
BE (Civil), MIEAust, CPEng No. 449924

FOR DA APPROVAL

SURVEYOR C.M.S SURVEYORS	0	DA ISSUE	6/03/20				C.K. ENGINEERING SERVICES ABN 67 115 216 496 49 FLORA ST ROSELANDS, NSW 2196 MOB: 0403 329 327 EMAIL: ckatsoulas@gmail.com	CLIENT: RAY & JULIE BALCOMB	DRAWING TITLE: ROOF PLAN	DRAWN: M.P.		DATE: MARCH 2021
	1	DA ISSUE - AMENDED TO ARCH. DETAILS	20/06/20							DESIGNED: C.K.		SCALE: AS SHOWN
ARCHITECT EVANS AND GREEN	2	DA ISSUE - AMENDED TO ARCH. DETAILS	23/03/21					CHECKED: C.K.		DATUM: AHD		
CONSULTANT -	No.	AMMENDMENT	DATE	No.	AMMENDMENT	DATE		JOB & DRAWING No: 19987		No. IN SET: 5 OF 8	ISSUE: 2	
					DO NOT SCALE							



SURVEYOR C.M.S SURVEYORS	0	DA ISSUE	6/03/20				C.K. ENGINEERING SERVICES ABN 67 115 216 496 49 FLORA ST ROSELANDS, NSW 2196 MOB: 0403 329 327 EMAIL: ckatsoulas@gmail.com	CLIENT: RAY & JULIE BALCOMB	DRAWING TITLE: ON-SITE DETENTION DETAILS	DRAWN: M.P.	SIGNED: 	DATE: MARCH 2021
ARCHITECT EVANS AND GREEN	1	DA ISSUE - AMENDED TO ARCH. DETAILS	20/06/20							DESIGNED: C.K.		SCALE: AS SHOWN
	2	DA ISSUE - AMENDED TO ARCH. DETAILS	23/03/21					CHECKED: C.K.		DATUM: AHD		
CONSULTANT -	No.	AMMENDMENT	DATE	No.	AMMENDMENT	DATE		PROJECT: 83-85 BOWER STREET MANLY		JOB & DRAWING No: 19987	No. IN SET: 6 OF 8	ISSUE: 2
					DO NOT SCALE							

Input Data

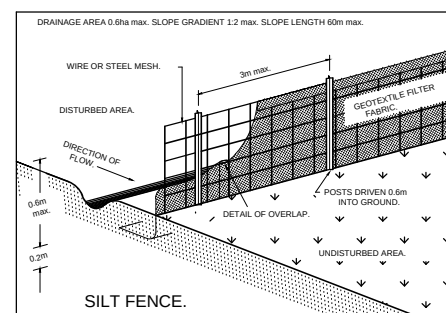
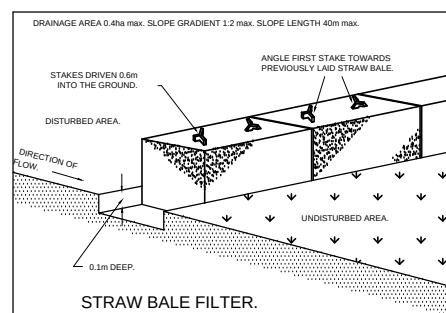
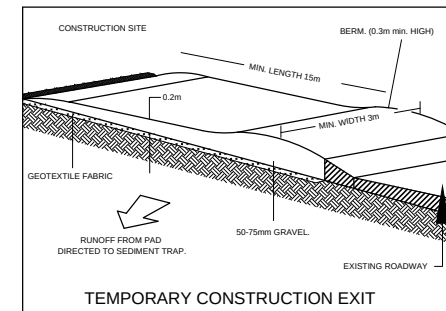
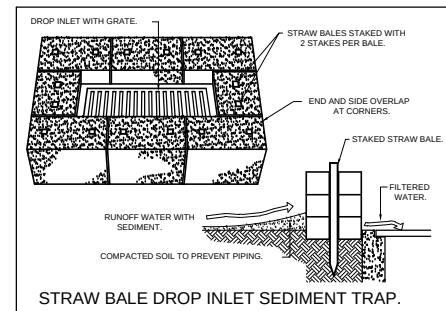
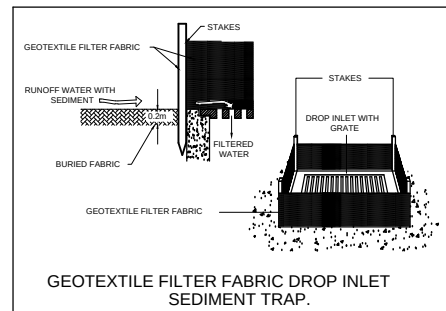
A map of the Manly area in Sydney, Australia. The map shows the coastline of North Harbour and the surrounding suburbs of Balgowlah, Clontarf, and Manly. A blue location pin is placed on the eastern shore of North Harbour, near the intersection of North Steyne and Manly. The map includes street names like Griffiths St, Sydney Rd, and Woodland St. A legend at the bottom indicates map data is from OpenStreetMap contributors.

©2020 MapData Services Pty Ltd (MDS), PSMA

Table Chart Unit: mm/h

C
B

SURVEYOR C.M.S SURVEYORS	0	DA ISSUE	6/03/20				C.K. ENGINEERING SERVICES ABN 67 115 216 496 49 FLORA ST ROSELANDS, NSW 2196 MOB: 0403 329 327 EMAIL: ckatsoulas@gmail.com	CLIENT: RAY & JULIE BALCOMB	DRAWING TITLE: DRAINS CALCULATIONS	DRAWN: M.P. DESIGNED: C.K. CHECKED: C.K.	SIGNED: 	DATE: MARCH 2021
ARCHITECT EVANS AND GREEN	1	DA ISSUE - AMENDED TO ARCH. DETAILS	20/06/20									SCALE: AS SHOWN
	2	DA ISSUE - AMENDED TO ARCH. DETAILS	23/03/21									DATUM: AHD
CONSULTANT -	No.	AMMENDMENT	DATE	No.	AMMENDMENT	DATE						
					DO NOT SCALE							



EROSION CONTROL NOTES:

1. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH COUNCIL'S STANDARD SPECIFICATIONS AND TO THE SATISFACTION OF COUNCIL'S ENGINEER.
2. EROSION AND SEDIMENTATION CONTROLS SHALL BE CONSTRUCTED AS SHOWN ON SHEET 2 AND 3 OF THIS PLAN AND/OR WHERE DIRECTED BY COUNCIL'S ENGINEER.
3. SEDIMENTATION AND EROSION CONTROL DEVICES SHALL BE IMPLEMENTED PRIOR TO OR IN CONJUNCTION WITH THE FIRST PHASE OF EARTHWORKS AND SHALL BE REMOVED ONLY WHEN THE AREAS ABOVE IT HAVE BEEN STABILISED. EACH SEDIMENTATION AND EROSION CONTROL DEVICE SHALL BE INSPECTED AFTER EACH STORM FOR STRUCTURAL DAMAGE OR CLOGGING BY SILT AND OTHER DEBRIS AND PROMPTLY DESILTED, REPAIRED OR REPLACED IF REQUIRED.
4. TOPSOIL STOCKPILES SHALL BE LOCATED OUTSIDE HAZARD AREAS SUCH AS DRAINAGE DEPRESSIONS.
5. ALL AREAS NOT SUBJECT TO CONSTRUCTION WORKS SHALL BE RETAINED FREE FROM DISTURBANCE OR DAMAGE FOR THE DURATION OF THE WORKS.
6. TREES TO BE RETAINED SHALL BE PROTECTED DURING SITE WORKS AND CONSTRUCTION BY THE ERECTION OF SOLID BARRICADES AT THE DRIP LINE OR AS SPECIFIED BY COUNCIL'S ENGINEER.
7. THE DEVELOPER OR CONTRACTOR WILL TAKE ALL MEASURES TO PREVENT DAMAGE TO TREES AND ROOT SYSTEMS DURING SITE WORKS AND CONSTRUCTION ACTIVITIES INCLUDING THE PROVISION OF WATER, SEWERAGE AND STORMWATER DRAINAGE SERVICES. IN PARTICULAR, WORKS, ERECTION OF STRUCTURES, EXCAVATION OR CHANGES TO SOIL LEVELS WITHIN 4 METRES OF THE TRUNKS OF TREES TO BE RETAINED ARE NOT PERMITTED UNLESS PART OF THE DEVELOPMENT AS APPROVED, AND THE STORAGE OF SPOIL, BUILDING MATERIALS, SOILS OR THE DRIVING OR PARKING OF ANY VEHICLE OR MACHINERY WITHIN 4 METRES OF THE TRUNK OF A TREE TO BE RETAINED, IS NOT PERMITTED.
8. WETTING OF THE SITE SHOULD BE CARRIED OUT AS OFTEN AS NECESSARY AS A FORM OF DUST CONTROL.
9. SILT FENCES TO BE CONSTRUCTED WHERE EVER NATURAL SURFACE SLOPES AWAY FROM DISTURBED AREAS OR WHERE DIRECTED BY THE ENGINEER.



Con Katsoulas
BE (Civil), MIEAust, CPEng No. 449924

FOR DA APPROVAL

SURVEYOR C.M.S SURVEYORS	0	DA ISSUE	6/03/20				C.K. ENGINEERING SERVICES ABN 67 115 216 496 49 FLORA ST ROSELANDS, NSW 2196 MOB: 0403 329 327 EMAIL: ckatsoulas@gmail.com	CLIENT: RAY & JULIE BALCOMB	DRAWING TITLE: EROSION AND SEDIMENT CONTROL PLAN	DRAWN: M.P.	SIGNED: 	DATE: MARCH 2021	
ARCHITECT EVANS AND GREEN	1	DA ISSUE - AMENDED TO ARCH. DETAILS	20/06/20							DESIGNED: C.K.		SCALE: AS SHOWN	
CONSULTANT -	2	DA ISSUE - AMENDED TO ARCH. DETAILS	23/03/21					CHECKED: C.K.		DATUM: AHD			
No.	AMMENDMENT		DATE	No.	AMMENDMENT			DATE		JOB & DRAWING No:	19987	No. IN SET: 8 OF 8	ISSUE: 2
DO NOT SCALE													



A B N 6 7 1 1 5 2 1 6 4 9 6

49 Flora Street,
Roselands NSW 2196
Mob: 0403 329 327
e-mail: ckatsoulas@gmail.com

Mr & Mrs R Balcolmb
c/- Evans + Green
43 McKell St,
Birchgrove NSW 2041

23 March 2021

RE: 83-85 BOWER STREET MANLY – HYDRAULIC SERVICES FOR PROPOSED NEW DWELLING

Dear Anthony,

I hereby certify that the stormwater drainage design prepared by C.K.Engineering Services Drawing No 19987 Revision 2 dated 23 March 2021 is in accordance with:

- Northern Beaches Council's Guidelines and Specifications
- AS/NZS 3500.3 – 2018 - Plumbing and Drainage – Stormwater Drainage

I hold appropriate qualifications and relevant experience to issue this certification.

Should you require any further information regarding the above, please contact me on 0403 329 327.

Sincerely,

A handwritten signature in blue ink, appearing to be 'Con Katsoulas', written over a faint circular stamp.

Con Katsoulas
BE (Civil) MIEAust CPEng NER