From:	NSW Government
To:	Flood Inquiry
Subject:	Floods Inquiry
Date:	Friday, 20 May 2022 3:08:22 PM
Attachments:	Mullumimby Flood Analysis - J.Sturch.pdf Mullumimby Flood Cleanup - J.Sturch.pdf Mullumimby Flood Images - J.Sturch.pdf

Your details

Title	Mr
First name	James
Last name	Sturch
Email	
Postcode	2482

Submission details

I am making this submission as	A resident in a flood-affected area
Submission type	I am making a personal submission
Consent to make submission public	I give my consent for this submission to be made public

Share your experience or tell your story

Your story	I have lived in Mullumbimby for the past 15 years and my home was flooded by the 2017 flood. After this flood I submitted to Byron Shire council water height evidence and many images to show the direction of the water flow.

I met with stormwater and drainage officials from Byron Shire Council and showed them the poorly maintained draining and how the new buildings and their access within our laneway is changing the intended direction of stormwater which massively exacerbates flooding.

In the 5 years since submitting the evidence the council have not carried out any works in our area to improve drainage or mitigate flooding.

In 2020 the Council produced the 'North Byron Floodplain Risk Management Study and Plan' which detailed our area of Mullumbimby as the most flood prone within the town, but again have carried out no mitigation, warning or meaningful actions based on the findings of the report. Perversely they allowed developments which have exacerbated the affects from flooding.

The eastern region of Mullum sits very low in relation to the rest of the town and all stormwater runs out through a single channel towards Kings Creek and then into the Brunswick River.

There is no clear stormwater passage to Kings Creek, the channel is restricted in three locations and is blocked completely prior to meeting the creek.

SALTWATER CREEK FLOWS INTO WILSONS CREEK, AND THEN THE BRUNSWICK RIVER. HOWEVER, WHEN THE TOWN EXPERIENCES HEAVY RAIN AND THE RIVERS SWELL, SALTWATER CREEK FLOWS IN REVERSE. THEREFORE, ALL OF THE STORMWATER FLOWING DOWN WILSONS CREEK, THEN FLOWS INTO SALTWATER CREEK WHICH THEN TAKES THE MOST DIRECT ROUTE OVERLAND TOWARDS KINGS CREEK. THIS STORMWATER ROUTE FLOODS OUR REGIONS OF TOWN AS IT CANNOT REACH KINGS CREEK, THE EASTERN SIDE OF MULLUMBIMBY FLOODS

WELL BEFORE THE RIVERS BURST THEIR BANKS OR THE FLOOD HEIGHT INDICATOR ON FEDERATION BRIDGE REACHES THE FLOOD WARNING LEVEL.

WE ARE THE REGION OF TOWN THAT FLOODS THE FIRST AND THE DEEPEST.

The 'North Byron Flood Plain Risk Management Study and Plan' of 2020 states that 'Assessment shows that mitigation works to Saltwater Creek will have the potential to provide a reduction in flood levels and improved immunity to Mullumbimby properties'. However, no action has been taken.

In the floods of February 2022, we flooded again, the water depth was over 1 meter higher.

Having experienced the 2017 flood, and being told by Council that this was an unprecedented event, and not to worry we nevertheless decided to be proactive and prepared our property for flood levels that we previously experienced. As the water in the February floods were so much deeper we lost our entire ground floor, two electric cars, an office, laundry, photographic studio and an extensive Solar PV Battery storage system.

We had no warning from the Council, SES or the Bureau of Meteorology.

By the time we realized we were flooding (around 6am) the water was rising too fast to salvage any of our belongings or cars.
The water sat at around the full flood depth for over 24 hours.

After the storm event on March 30th which flooded Byron Bay, it was reported that Mullumbimby did not flood. However, in actuality our laneway was fully underwater and dangerously close to flooding properties again.

Terms of Reference (optional)

The Inquiry welcomes submissions that address the particular matters identified in its Terms of Reference

1.1 Causes and contributing factors	1. Saltwater Creek flowing backwards (being fed from Wilsons Creek) flows into my area of town (off King Street) as there is no clean passage to Kings Creek which is the next tributary to the Brunswick River. 2. Council have not adequately maintained any of the drainage in this region of Mullumbimby. 3. Council have allowed developments to build over and block in, storm drains and channels. Although these urgent matters may not have prevented all the flooding on February 29th, if these issue had been actioned they could have reduced the depth of the flooding (as identified in the North Byron Floodplain Risk Management Study and Plan) and would have given residents more time to save property and possessions.
1.2 Preparation and planning	Other than residents building upon their own experience from the 2017 floods, we were all unable to plan or prepare for this event as we had no warning or expectation that it could be so severe. There was no advice, support or input from Byron Shire Council or the SES. It is also worth stating that: 1. There were inaccurate reports from the Bureau of Meteorology with regards to potential flooding 2. We had no warnings from the SES. 3. We had no evacuation planning. 4. All of the regional resources went to Ocean Shores, New Brighton and Lismore.
1.3 Response to	We made our house as electrically safe as

floods	possible (Essential Energy didn't cut power of to the town even though switch boards etc. were fully submerged to many properties). We packed emergency bags ready to evacuate as my wife and son are insulin dependent diabetics and both on subcutaneous pumps which require a lot of medical supplies and are not waterproof. We awaited response from the SES but none came. As we were able to stay dry on the second level of our property, we watched the water levels and were prepared to leave on our kayaks if necessary.
1.4 Transition from incident response to recovery	The transition from response to recovery has been lengthy. The flood waters stayed at the full depth for more than 24hrs, meaning that water penetrated and saturated many areas of the home. Once the water has subsided the contaminated mud remained, the cleanup was extensive and took over a month. Drying out of the property required some internal wall to be completely removed, external Wall to have the inner faces peeled and everywhere had to be treated for mould which took hold extremely rapidly. All electrical circuits and outlets had to be re-wired, relocated to higher dryer positions. Immediately after we were flooded, we lost all 4G telephone / mobile communication as the Telstra network had failed. We had NBN for the first 24hrs but once Woodburn flooded the NBN node failed, and we then lost all internet communications. The M1 motorway was cut off in both directions so we lost food and fuel supplies within 24hrs.

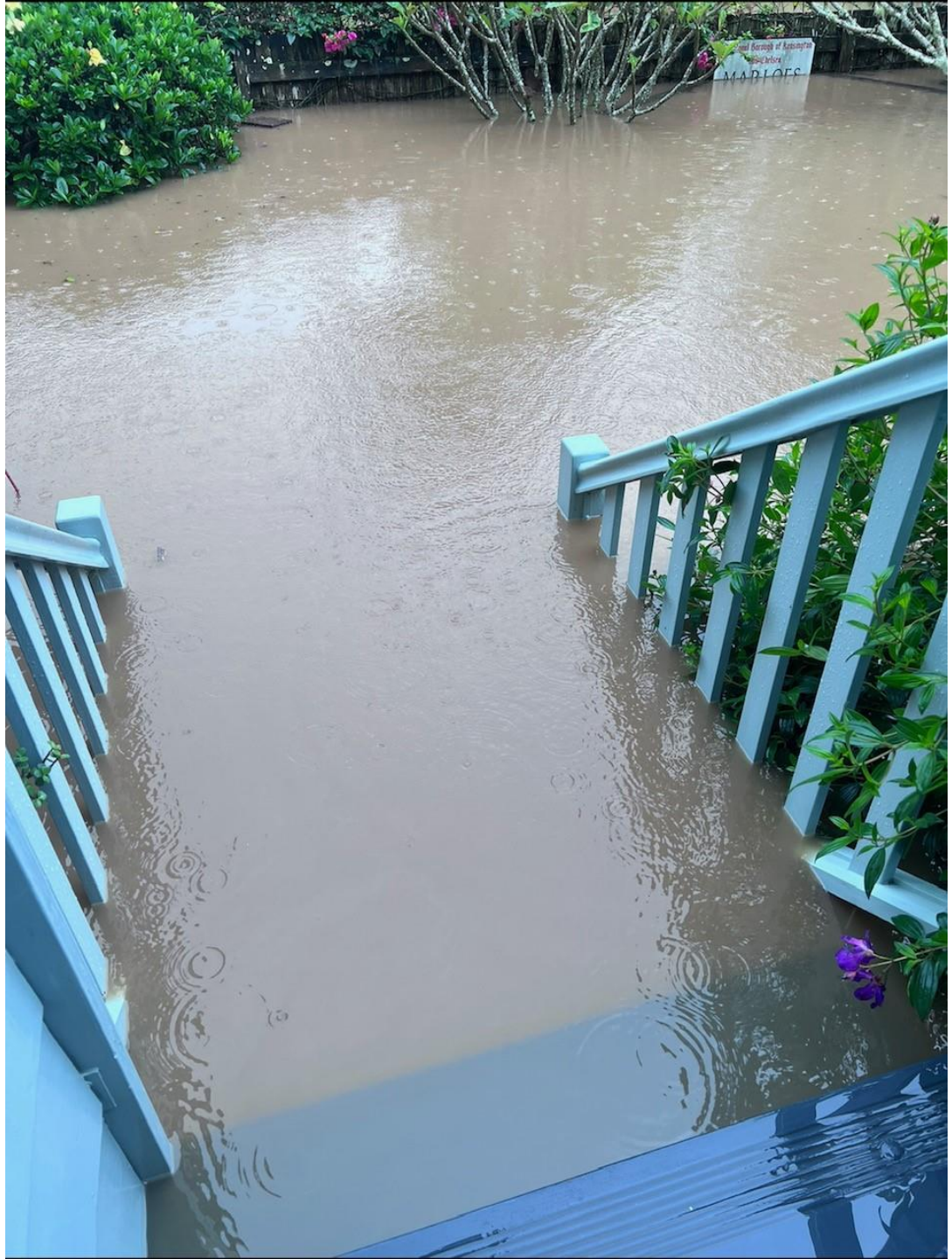
	The lack of internet / mobile communication meant that all shops would only take cash for purchases, but this was limited and banks ran out of cash. As we have a 2 story property we managed to stay living in our home, all of our neighbors however have been fully evacuated as the properties are no longer habitable. We had to make safe the electrical infrastructure ourselves and clean out our property ourselves too. All damaged items were piled at the end of the road and approximately two weeks after the event Byron Shire Council started to organize roadside pickups for enormous house sized piles of contaminated dumped items. Eventually, after around 3 weeks we had military assistance with the cleanup and moving heavy damaged items.
1.5 Recovery from floods	We are still in the process of the flood recovery almost 3 months on. We are still having insomnia, nightmares and experiencing PTSP symptoms this is particularly worrying for my son and wife that have chronic health conditions due to type 1 insulin dependent diabetes. We lost 2 electric cars and have just managed to replace one of them. All of the walls damaged as yet have still not been replaced / repaired as the insurance claim is still ongoing. There have still been no remedial works to our roads or drains by the Council since the flooding, if anything they are more blocked now than they were before the floods as they are clogged with debris. The road outside our property is so badly damaged that it's almost impossible to drive

	down.
1.6 Any other matters	The lack of response from the state government was shocking. The lack of funding to improve our infrastructure after the publication of the 'North Byron Floodplain Risk Management Study and Plan' and the 2017 floods is completely irresponsible and worthy of a Class Action by the residents of Mullumbimby. We are now in a position where we have zero faith in our local or state government to do anything meaningful to mitigate the affects of flooding in our region. We have lost a lot of hundreds of thousands of hard earned dollars invested into our property for the future has now been lost with the affects from the floods with little to no assurance that the Government will reimburse us or do anything to remedy it. We need: 1. Concrete actions to mitigate flooding or reduce water height or buyback flood prone properties at pre-flood market value. 2. Creation of an early warning system for flooding. 3. Creation of an evacuation plan for Mullumbimby. 4. Creation of an evacuation center that is not flood prone. 5. Telecommunications infrastructure that is resistant to floodwaters. 6. Compensation reflective of the loss to which people have suffered.

Supporting documents or images

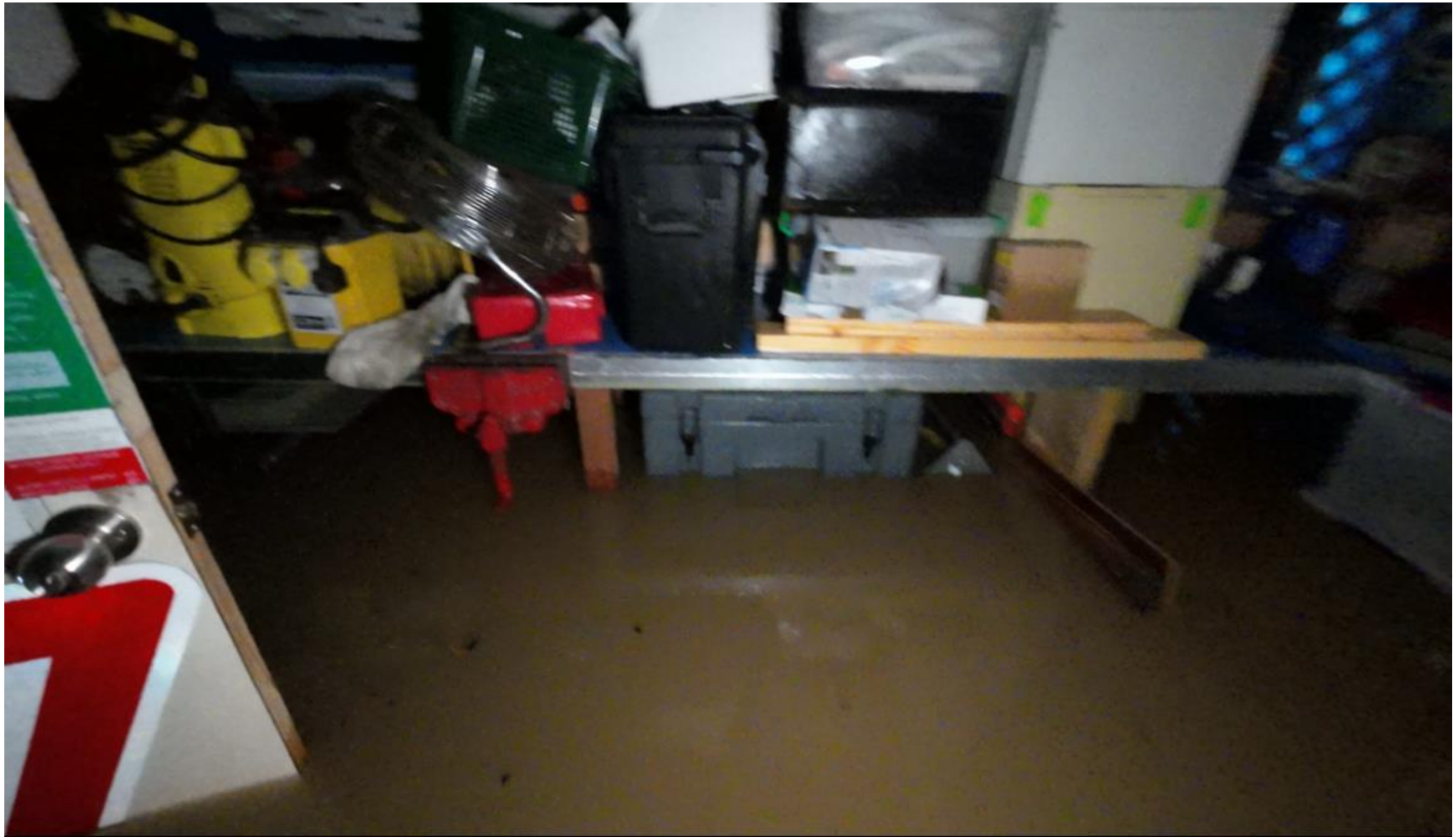
Attach files	• Mullumimby Flood Analysis - J.Sturch.pdf • Mullumimby Flood Cleanup - J.Sturch.pdf

- Mullumimby Flood Images - J.Sturch.pdf




MARLOES
ROAD. W.8


GORILLA
Rinnai
hotflo
electric storage
solaredge
solaredge

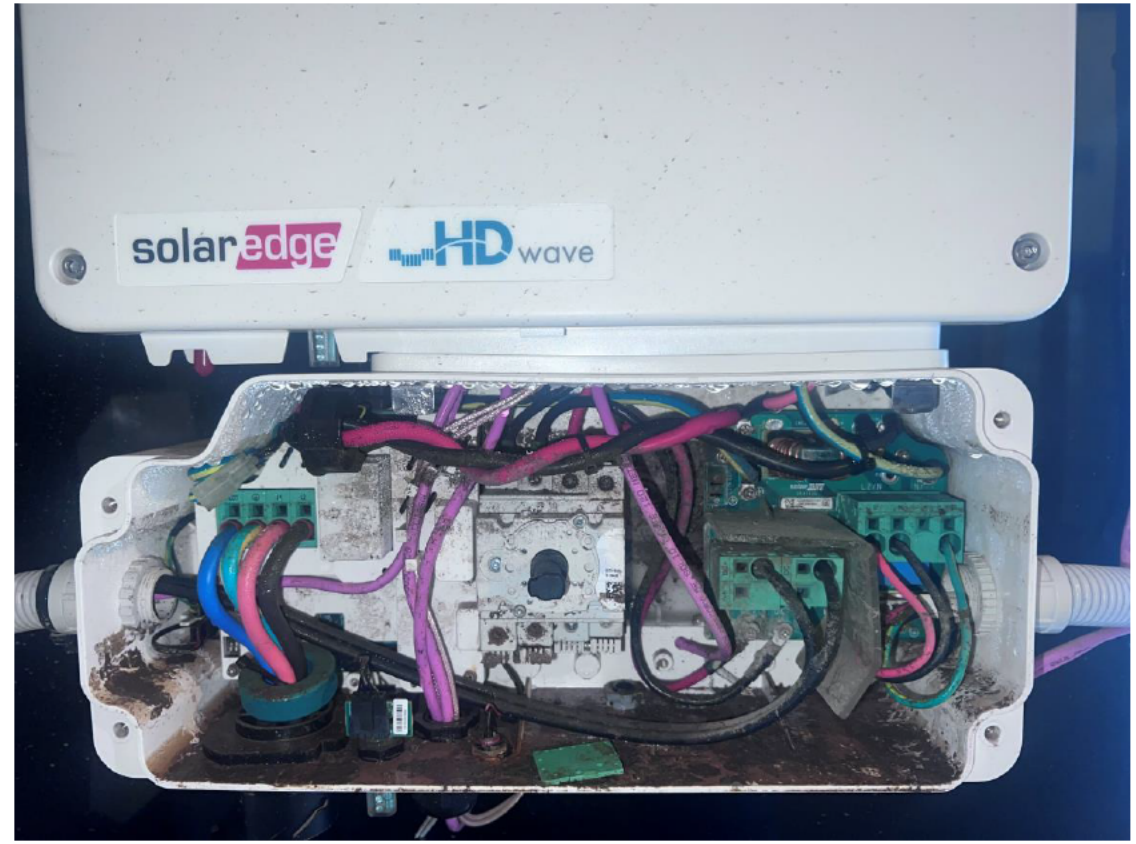


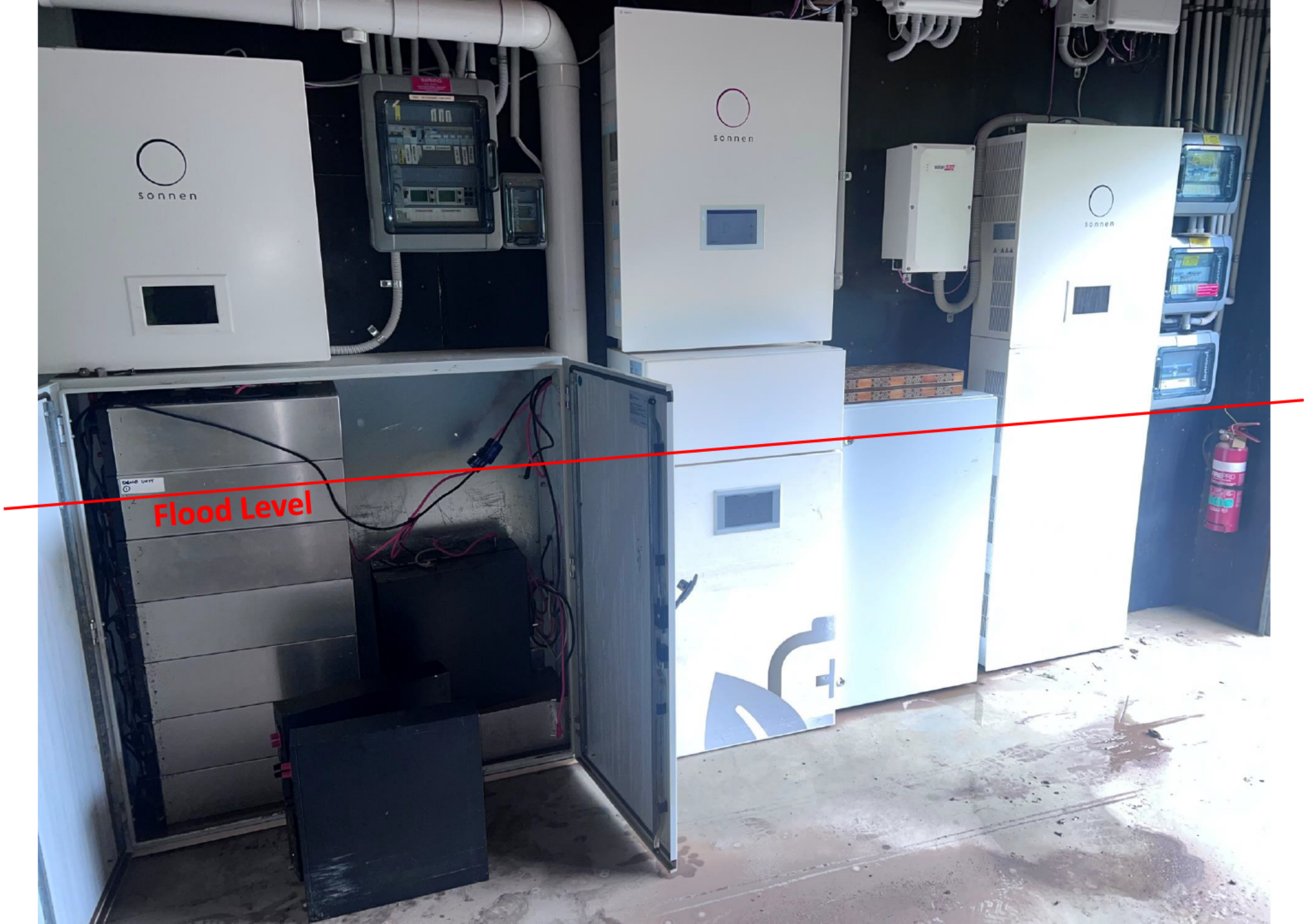

Panasonic


Flood Level
INVERTER


Flood Level


Flood Level
solaredge
HD wave
ON
OFF
solaredge


solaredge
HD wave


sonnen
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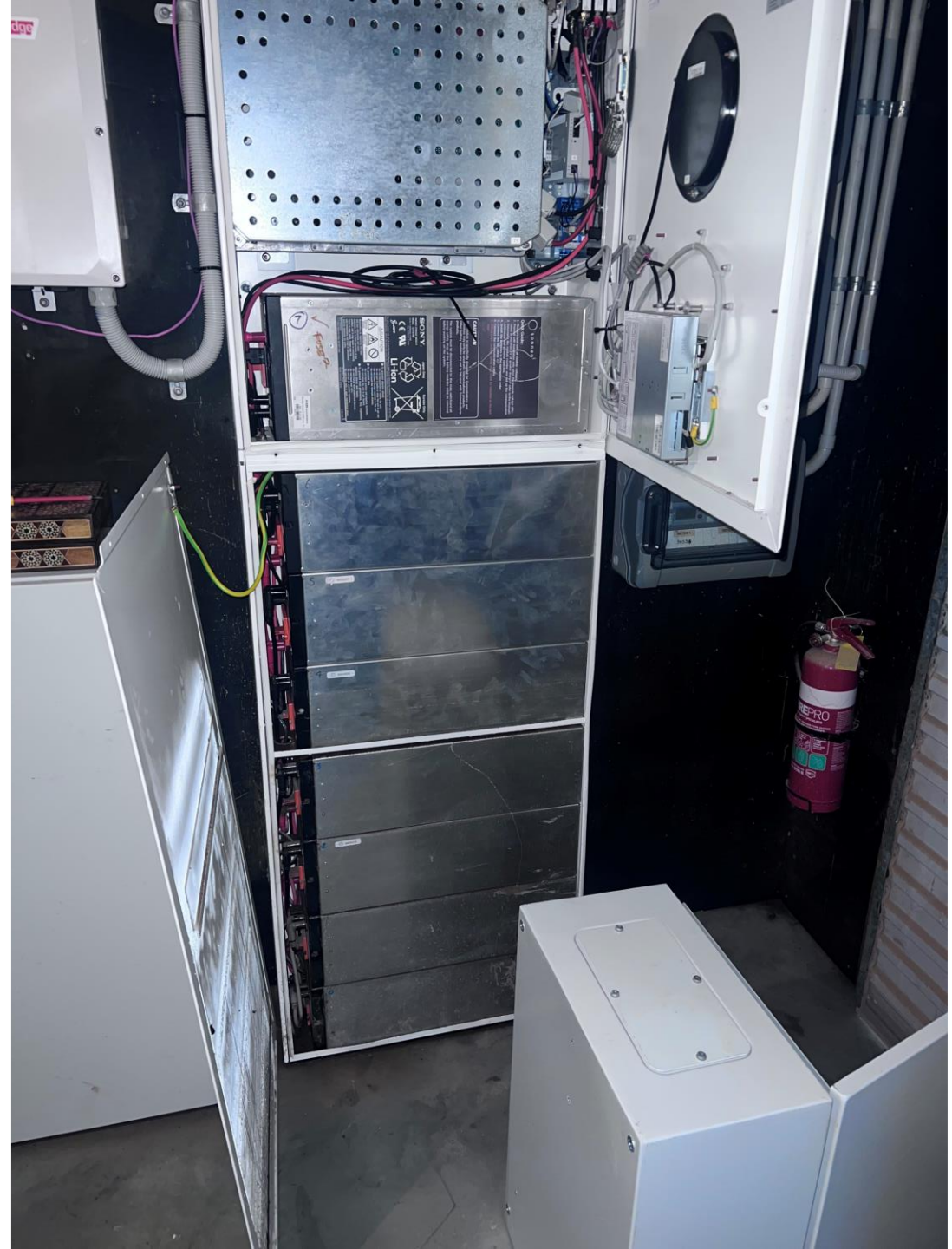
Flood Level


SONNEN
BATTERIE
eco


SONY
Li-ion


solaredge
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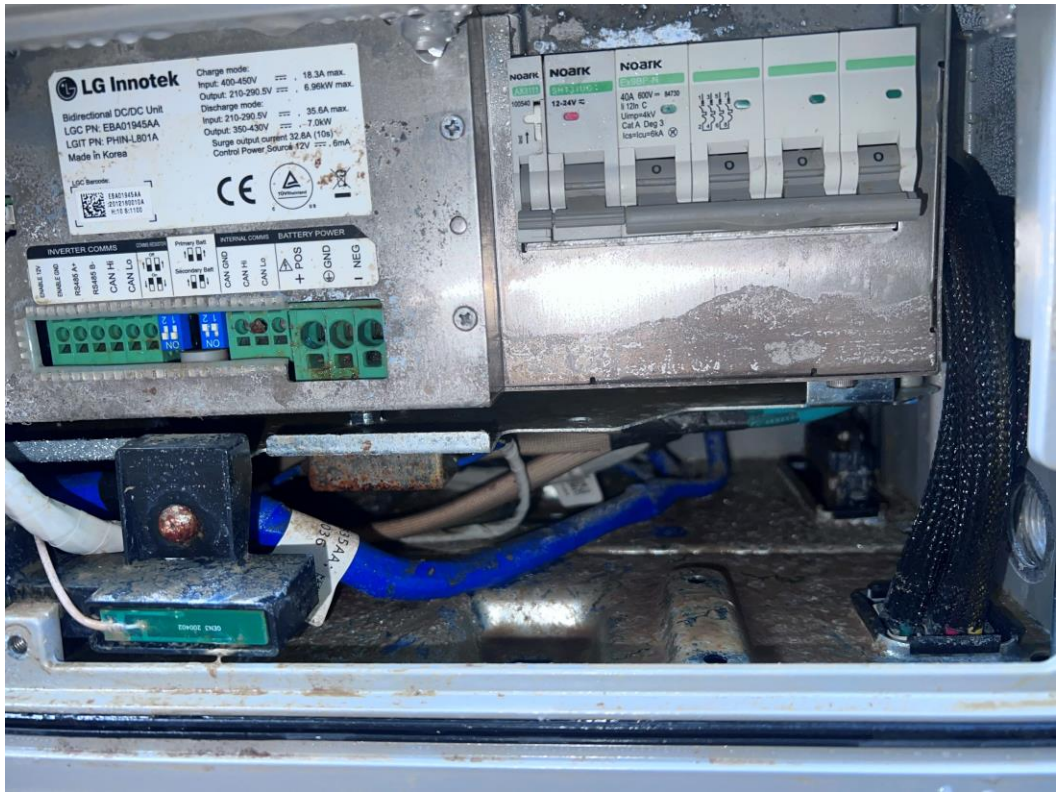
Power Optimizer


LG Innotek
Bidirectional DC/DC Unit
LGC PN: EBA01945AA
LGIT PN: PHIN-L801A
Made in Korea
Charge mode:
Input: 400-450V ⎓ , 18.3A max.
Output: 210-290.5V ⎓ , 6.96kW max.
Discharge mode:
Input: 210-290.5V ⎓ , 35.6A max.
Output: 350-430V ⎓ , 7.0kW
Surge output current 32.8A (10s)
Control Power Source 12V ⎓ , 6mA
INVERTER COMMS
BATTERY POWER
CAN Hi
CAN Lo
CAN GND
POS
GND
NEG
NOARK


solaredge

7.8.1. Mullumbimby

A large area of Mullumbimby has been identified as a hotspot due the proportion of frequently inundated residential property. Some residential properties are inundated as frequently as the 0.2EY and the 10% AEP flood event, and a large proportion inundated in the 5% AEP and 2% AEP

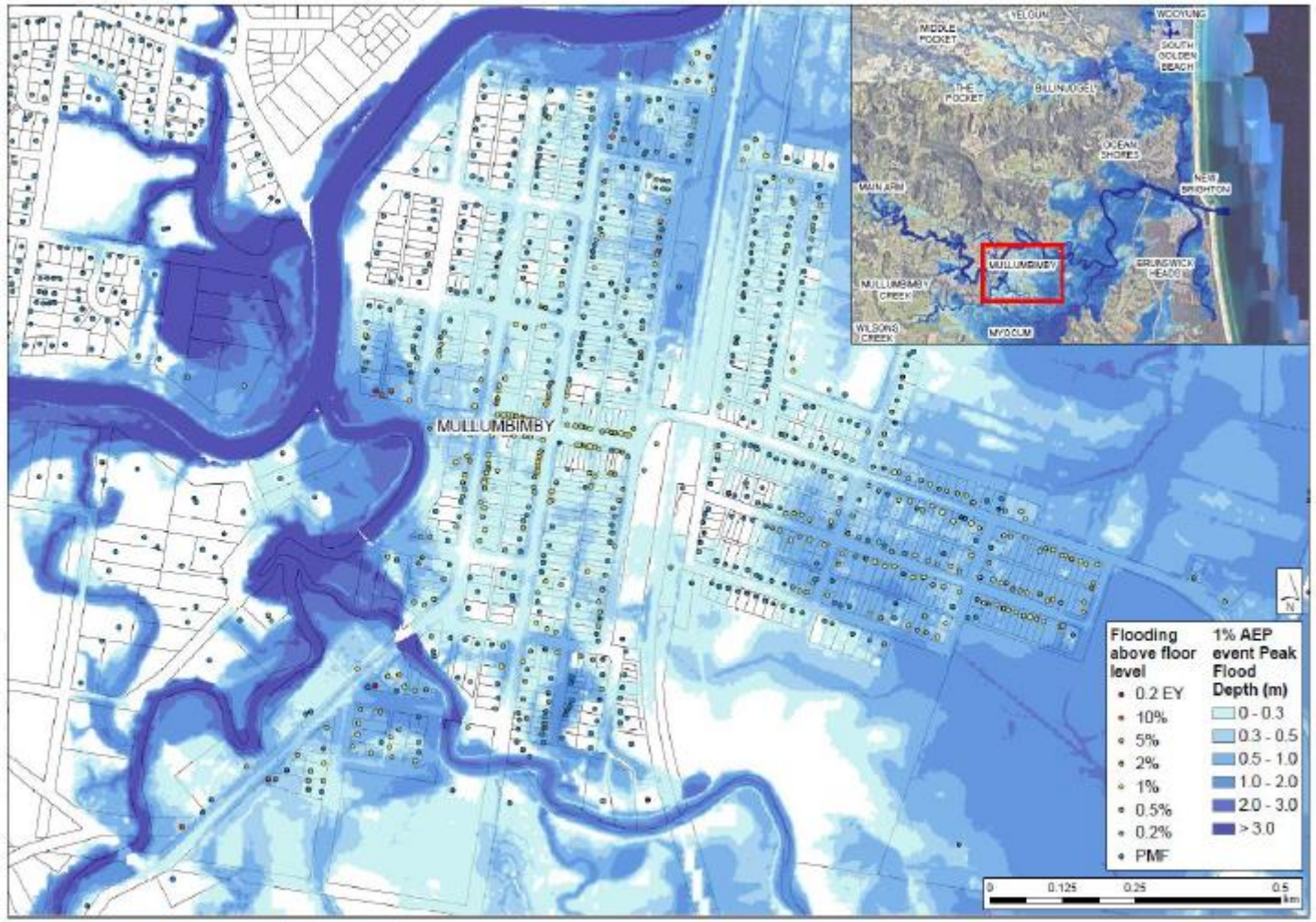


Diagram 6: Mullumbimby hotspot

Table 12: Flood Affected Evacuation routes Locations

ID	Road Location	Route locations with highest exposure
1	Brunswick Heads Evacuation Route	Old Pacific Hwy roundabout to Cnr Newberry Parade to Cnr Fingal street
2	Mullumbimby East Evacuation Route	Queen street
3	Mullumbimby West Evacuation Route	Riverside Drive
4	Mullumbimby South Evacuation Route	Near Mullumbimby High school
5	New Brighton Evacuation Route	River Street
6	Ocean Shores Evacuation Route	Cnr of Reka Way to Cnr of Wehlooga Way
7	South Golden Beach and Ocean Shores Evacuation Route	Rangal Road and Shara Boulevard
8	Billinudgel Evacuation Route	Wilfred Street

7.6. First Event Flooded

The property database (refer Section 2.5) developed for the North Byron floodplain provides useful information to better understand the flood risk at an individual property level and can inform both evacuation planning and other floodplain management measures.

41% of all flood affected residential properties are located in Mullumbimby, increasing 52% of those affected in the 1% AEP event. Mullumbimby also has 43% of the residential properties impacted above floor level (30% in the 1% AEP event), making it by far the most flood affected suburb in the catchment. Table 16 shows the breakdown of all properties, and Table 17 of properties impacted by the 1% AEP event.

Table 16: Total residential properties impacted by suburb for the PMF event

Suburb	Number of Residential Properties Flood Affected (% of catchment total)	Number of Residential Properties Flood Above Floor (% of catchment total)
Billinudgel	35 (1%)	23 (1%)
Brunswick Heads	531 (18%)	401 (15%)
Mullumbimby	1233 (41%)	1178 (43%)
New Brighton	196 (7%)	192 (7%)
Ocean Shores	650 (22%)	614 (22%)
South Golden Beach	358 (12%)	352 (13%)

Table 17: Residential properties impacted by suburb for the 1% AEP event

Suburb	Number of Residential Properties Flood Affected (% of catchment total)	Number of Residential Properties Flood Above Floor (% of catchment total)
Billinudgel	17 (2%)	5 (1%)
Brunswick Heads	94 (8%)	63 (13%)
Mullumbimby	581 (52%)	152 (30%)
New Brighton	156 (14%)	105 (21%)
Ocean Shores	69 (65)	38 (8%)
South Golden Beach	0	0

Table 19: Isolated houses for the full range of design flood events.

Suburb	0.2EY	10% AEP	5% AEP	2% AEP	1% AEP	0.5% AEP	0.2% AEP	PMF
Billinudgel	10	5	3	1	29	18	6	0
Brunswick Heads	0	3	0	0	13	3	0	51
Main arm	4	4	4	4	9	8	4	4
Middle pocket	0	0	1	1	1	6	1	1
Mullumbimby	9	110	639	390	296	255	161	2
Myocum	1	1	0	0	0	0	0	0
New Brighton	20	20	15	2	1	1	0	11
Ocean Shores	0	0	3	10	11	25	63	2
South Golden Beach	0	0	0	0	0	0	26	0
The Pocket	1	1	1	0	0	0	0	0
TOTAL	45	144	666	408	360	316	261	71

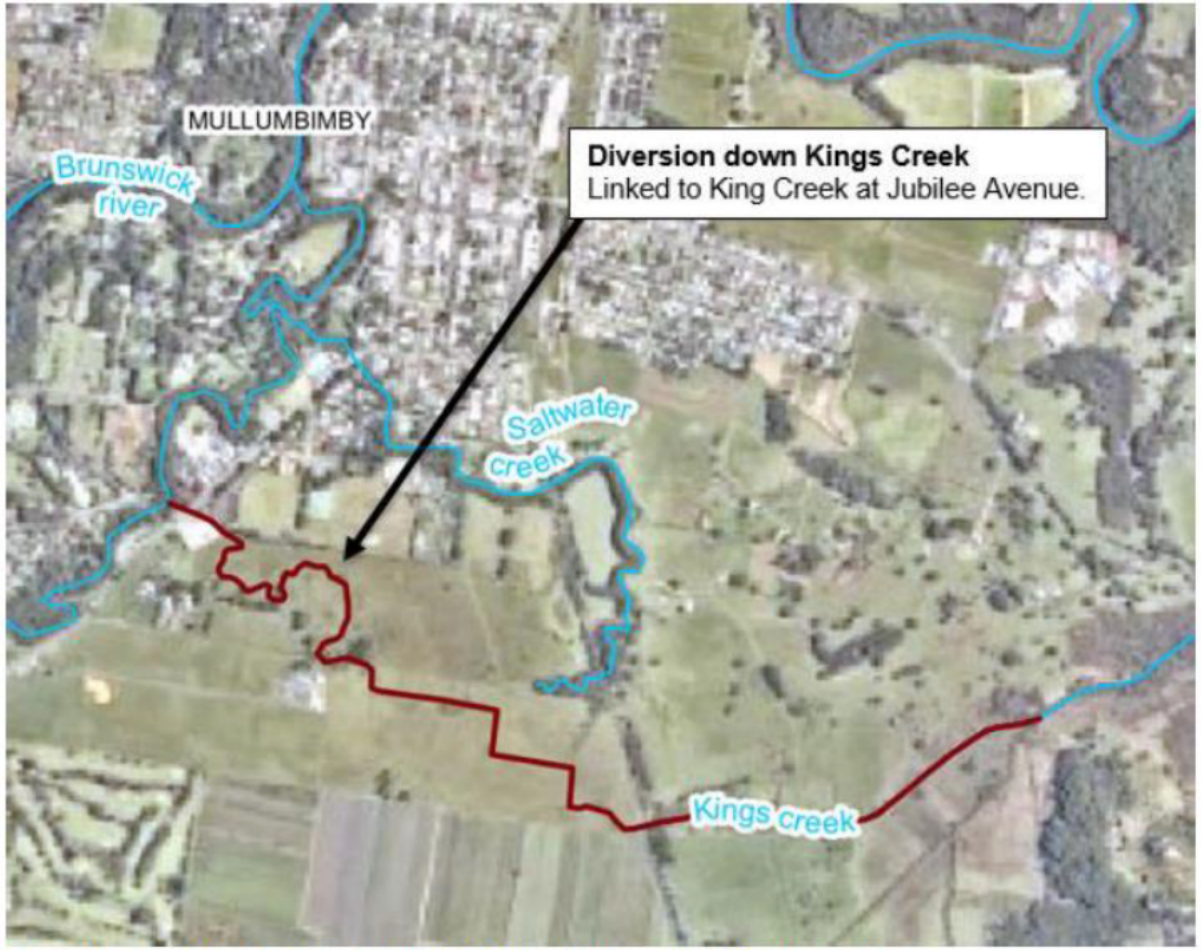


Diagram 25: Option BP01 - Diversion of floodwaters down Kings Creek.

ASSESSMENT

Option BP01 – Kings Creek Bypass Floodway

This option assessed the excavation of a new bypass channel from Mullumbimby to the east via Kings Creek. Modelling of this option looked at excavating a 5 m wide channel approximately 1 m deeper than the existing Kings Creek. This equates to the removal of approximately 15,000 m^3 of creek bed material.

9.3.6. Mullumbimby

Mullumbimby has been classified as either low flood island, overland escape route or rising road access. The majority of Mullumbimby with residential and commercial development has been classified as a low flood island as most roads in and out are cut. Evacuation for Mullumbimby is triggered when Federation Bridge reaches 3.5 mAHD. The primary evacuation centre is the Mullumbimby Ex-Servicemen's club and the alternate evacuation centre is the Mullumbimby Civic

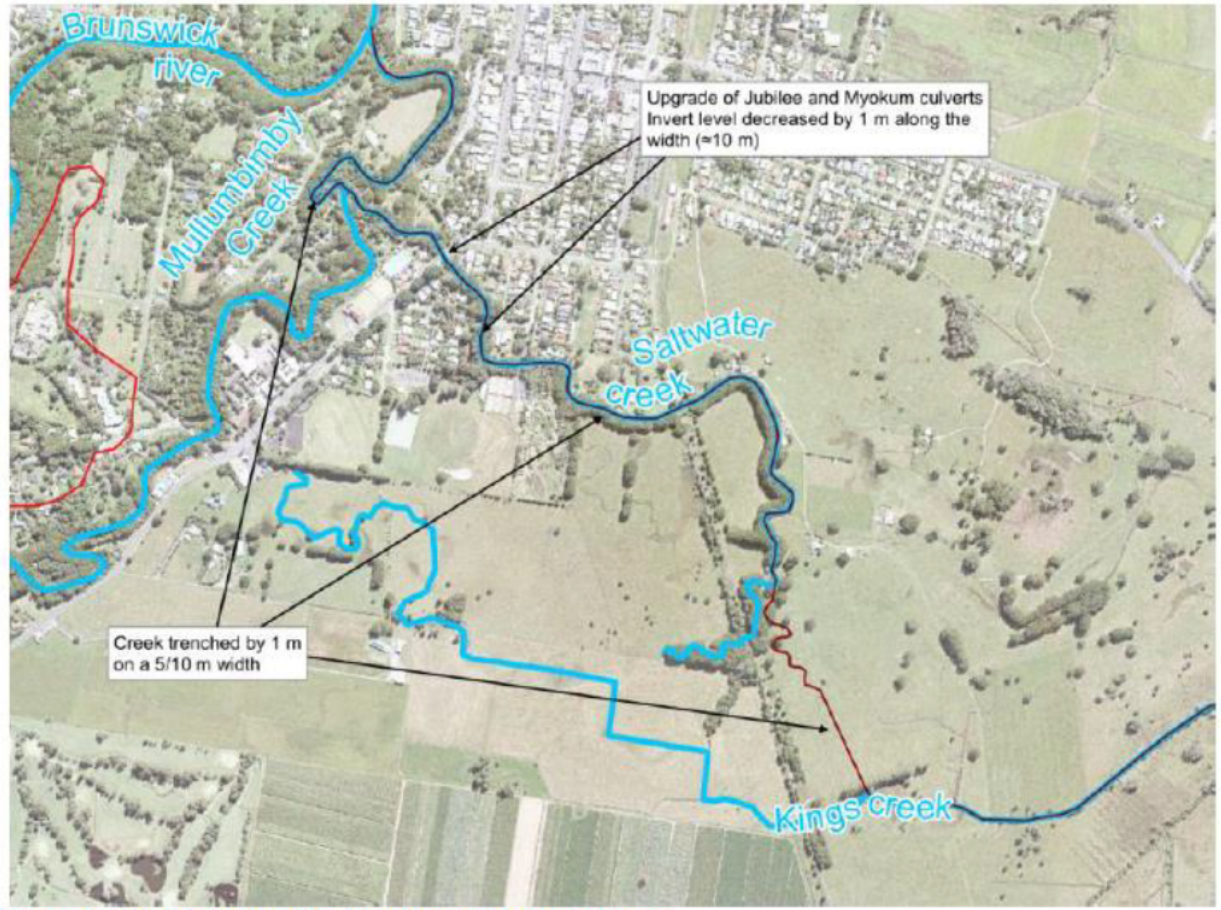
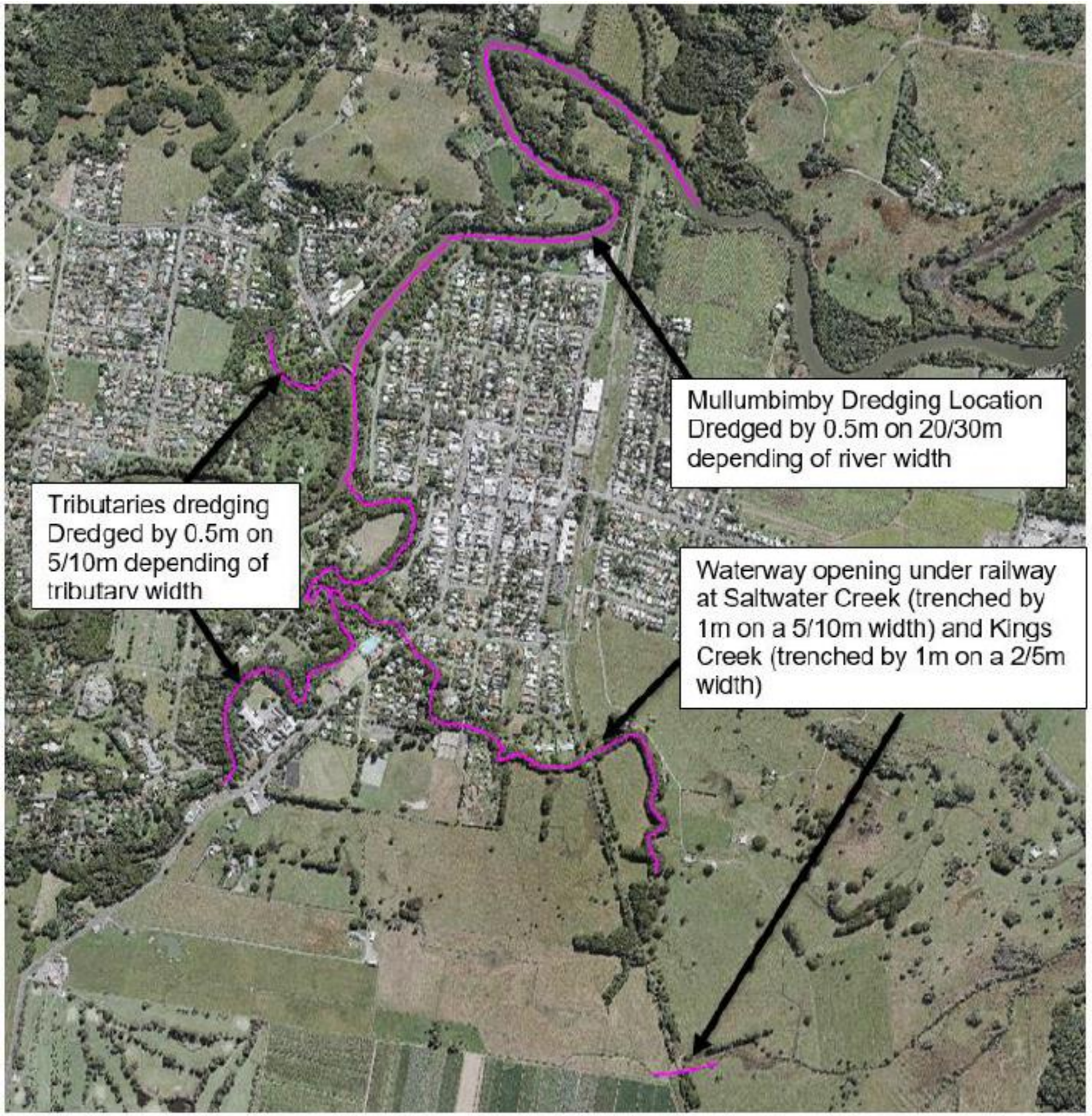


Diagram 26: Option BP02 - Saltwater Creek upgrade.



Option BP02 – Saltwater Creek Upgrade

This option examined the potential flood benefits that could be provided by increasing the capacity of Saltwater Creek. The option looked at excavating a 5 m – 10 m wide channel and dredging an additional 1 m along the existing Saltwater creek river bed. Option BP02 also includes the upgrade of Jubilee and Myokum culverts by lowering the invert level by 1 m. This option would require the removal of approximately 20,000 m^3 of creek bed material.

Option BP02 Preliminary Results

Results for the 1% AEP flood event for option BP02 show only a minor reduction in flood levels of up to 0.05 m along Jubilee Avenue. An increase in flood levels by up to 0.12 m is shown along Kings Creek immediately downstream of the railway.

Whilst this option showed limited flood mitigation benefit, it is recommended that the option is considered further to ensure all potential options of formalising Saltwater Creek as a flood relief channel are explored.

12.1.4.2. Option SC2b – Removal of Myokum Street embankment, increased Jubilee Avenue culvert capacity and increased capacity

Design

Diagram 43 shows an overview of the option configuration. The modifications to Myokum Street road embankment and Jubilee Avenue culvert were modelled as per Option SC2. In addition, Saltwater Creek was widened by 5 – 10 m and formally connected with Kings Creek (1500 m of channel length modified). The swale east of the railway line, running adjacent to Saltwater Creek was also widened by 5 -10m, for a length of 400 m.

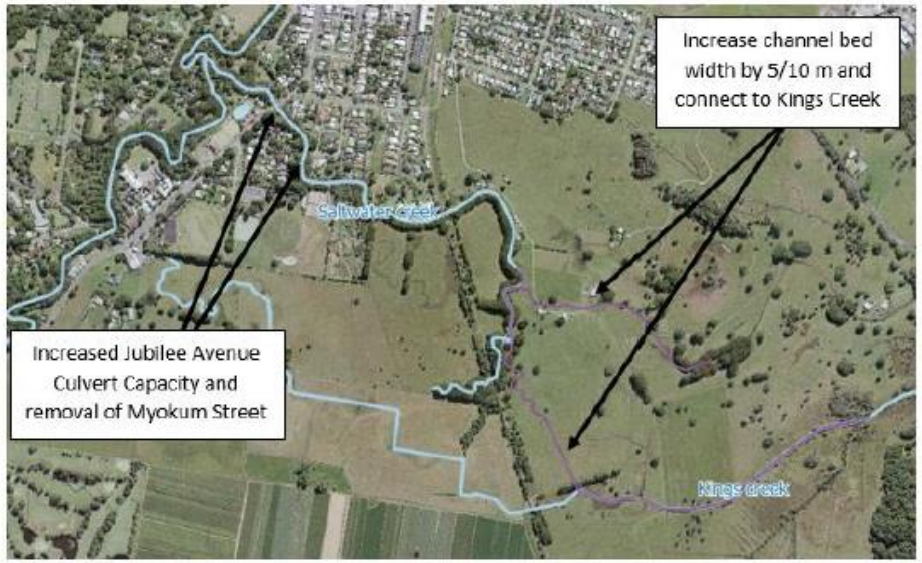


Diagram 43: Option SC2b - Removal of Myokum Street embankment, increased Jubilee Avenue culvert capacity and increased capacity

12.1.4.3. Option SC3 – Combination of BP02 and SC2

Design

Diagram 44 shows an overview of the option configuration. This option combined the channe modifications considered in BP02 (Saltwater Creek is widened and deepened for a total length o 3.5 km, connecting it with Kings Creek) with the structural modifications of Option SC (removal o Myokum Street road embankment and increase of Jubilee Avenue culvert capacity).

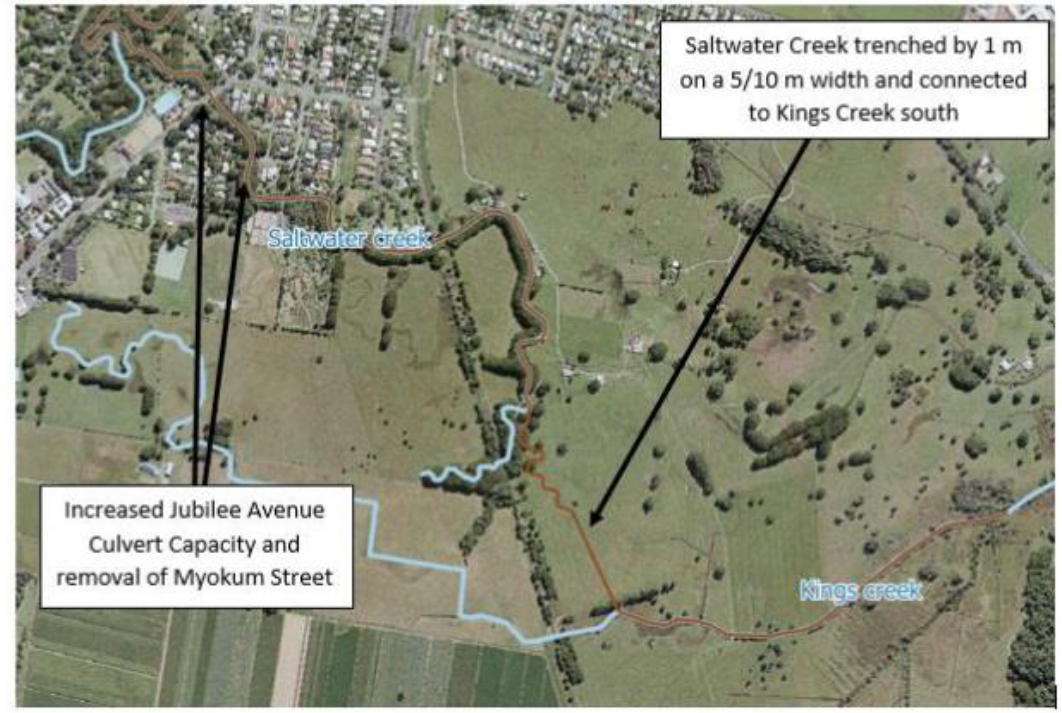
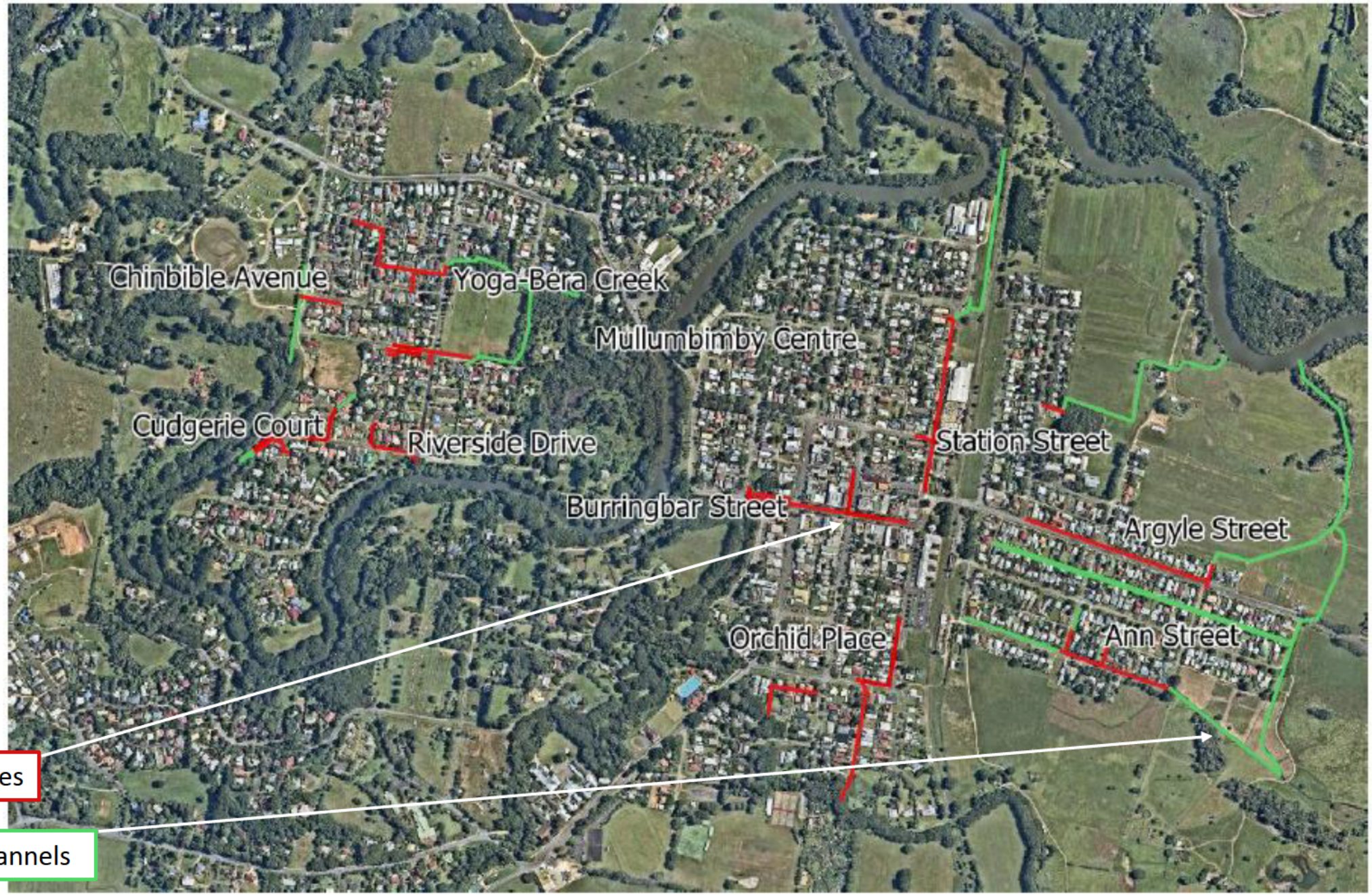
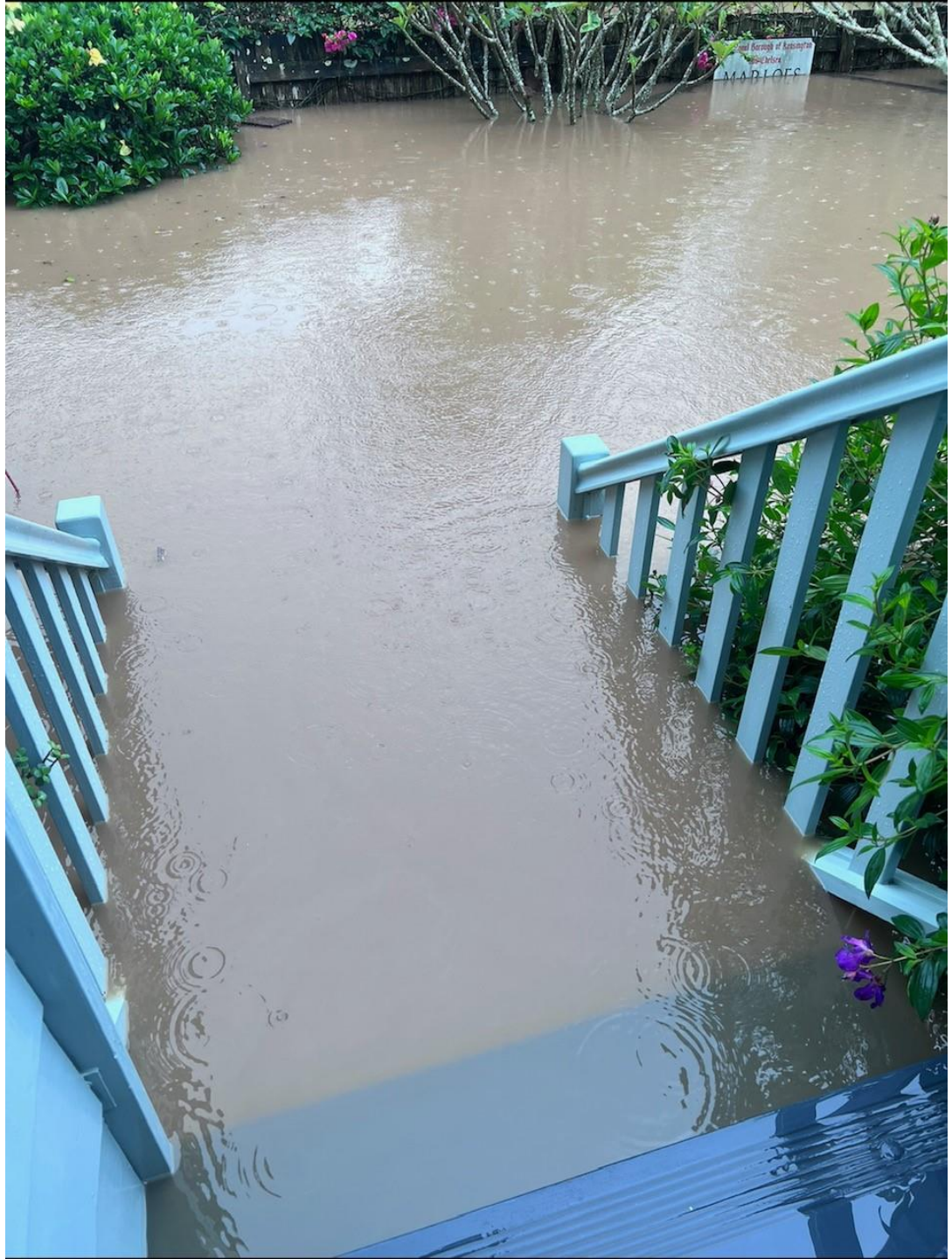


Diagram 44: Option SC3 - Combination of BP02 and SC2


First Flooding Point


Chinbible Avenue
Yoga-Bera Creek
Mullumbimby Centre
Cudgerie Court
Riverside Drive
Station Street
Burringbar Street
Argyle Street
Orchid Place
Ann Street
Drainage Pipes
Drainage Channels


Drainage Directions
First Flooding Point



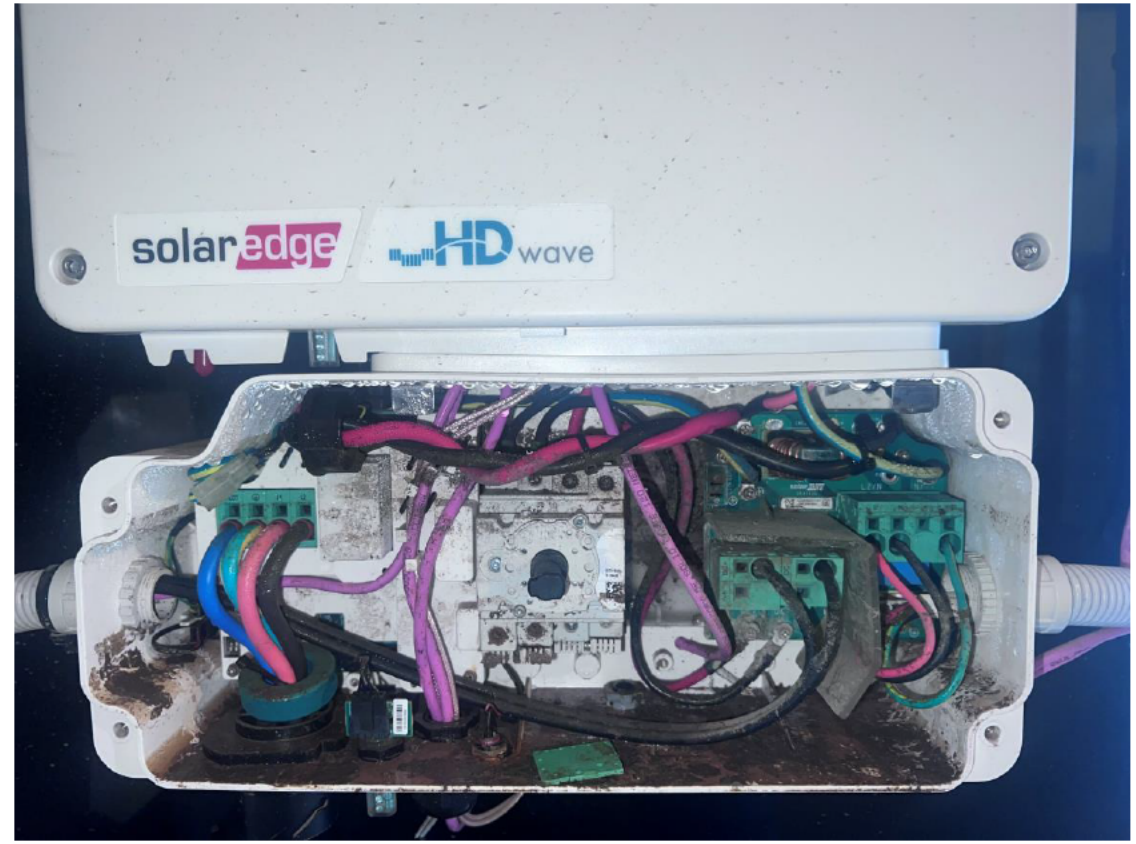

MARLOES
ROAD. W.8


Panasonic


Flood Level
INVERTER


Flood Level


Flood Level
solaredge
HD wave
ON
OFF
solaredge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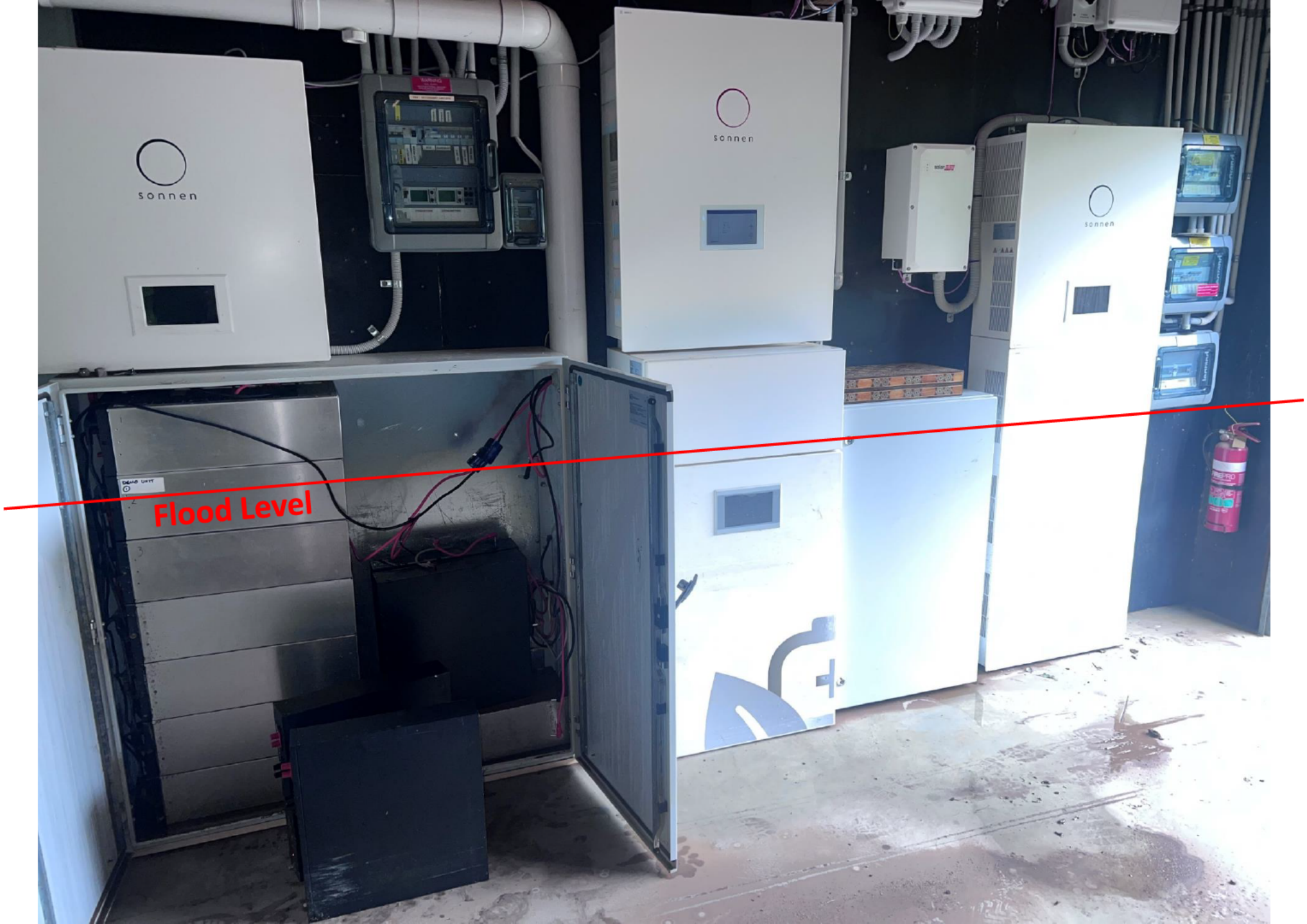
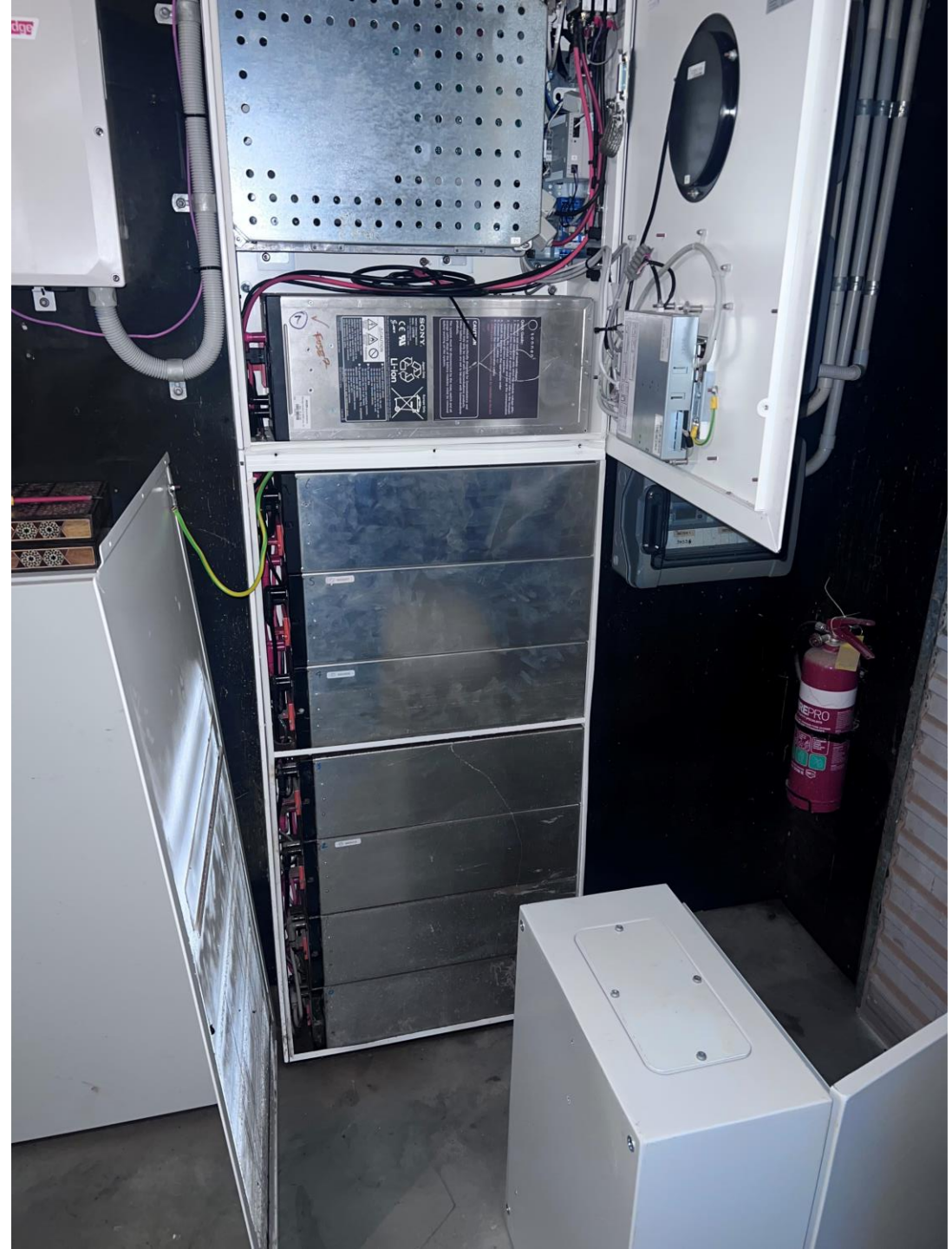

sonnen
sonnen
sonnen
Flood Level


SONNEN
BATTERIE
eco

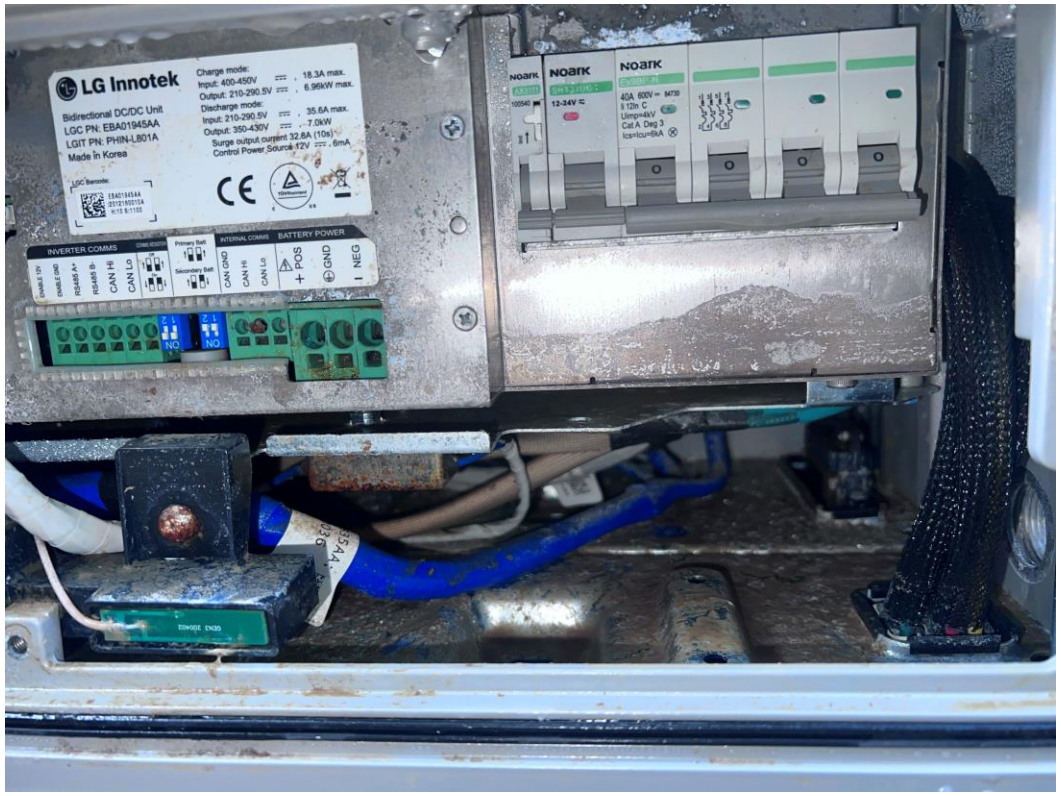

SONY
Li-ion


solaredge
solaredge


solar edge


Power Optimizer


RYOBI


LG Innotek
Bidirectional DC/DC Unit
LGC PN: EBA01945AA
LGIT PN: PHIN-L801A
Made in Korea
Charge mode:
Input: 400-450V ⎓ , 18.3A max.
Output: 210-290.5V ⎓ , 6.96kW max.
Discharge mode:
Input: 210-290.5V ⎓ , 35.6A max.
Output: 350-430V ⎓ , 7.0kW
Surge output current 32.8A (10s)
Control Power Source 12V ⎓ , 6mA
INVERTER COMMS
BATTERY POWER
CAN Hi
CAN Lo
CAN GND
POS
GND
NEG
NOARK


solaredge