Flood Emergency Management Plan

Seniors Housing Development, 11 Spencer Street, Moruya, NSW

Final Report

P2510767JR02V01

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Director	Daniel Martens
Manager	Mo Shahrokian
Principal Author	Stephen Morrison

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Suite 201, 20 George St, Hornsby, NSW 2077, Australia
ACN 070 240 890 ABN 85 070 240 890
P +61-2-9476-9999 | mail@martens.com.au | www.martens.com.au

Executive Summary

Martens & Associates Pty Ltd (**MA**) have prepared this flood emergency management plan (**FEMP**) on behalf of Illawarra Retirement Trust (**IRT**) to support a State Significant Development Application (**SSDA**) proposing a seniors housing development at 11 Spencer Street, Moruya, NSW (the **site**).

This FEMP provides flood emergency management protocols to further mitigate flood risks beyond measures physically built into the design of the proposal. An occupational condition of consent is recommended which requires the development to be operated in accordance with the procedures of this FEMP. Key flood risk mitigation measures incorporated into the FEMP include:

1. The FEMP will be implemented by the centralised management body, this ensuring that all flood emergency management systems will be properly co-ordinated and funded in perpetuity.
2. The FEMP will provide for:
    a. The operator to appoint and train Flood Wardens in accordance with the FEMP.
    b. Flood Wardens to monitor floods, manage responses, and ensure safe evacuation and shelter in place procedures in co-ordination with SES.
    c. Flood risk awareness information routinely distributed to all occupants.
    d. Flood risk information provided to residents.
    e. Public address system and bulk SMS / Mobile App message system to co-ordinate site flood response.
    f. Centralised database of all site occupants and staff to enable co-ordinated communication.
    g. Resourced community buildings for additional SIP assistance.
3. The implementation, resourcing and long-term maintenance of the FEMP will be included within the operational plan of the site.

Contents

1 Introduction 7
1.1 Overview 7
1.2 Proposed Site Layout 7
1.3 Relevant Guidelines 8
2 Site Flood Characteristics 9
2.1 Previous Modelling 9
2.2 Flood Behaviour 9
2.3 Site Evacuation 11
2.3.1.1 Evacuation End Points 11
2.3.1.2 Evacuation Route Low Points and Trafficability 11
2.3.1.3 Evacuation Capability 12
2.4 Site Isolation 13
2.5 Flood Risk Mitigation 14
3 Flood Emergency Management Plan 16
3.1 Overview 16
3.2 Advice and Warnings 16
3.2.1 Contacts 16
3.2.2 Weather and Warnings 17
3.2.3 Gauges 18
3.3 Response Strategy 18
3.4 Response Triggers 19
3.5 Evacuation Details 20
3.6 Roles and Responsibilities 21
3.6.1 Site Operator / Management 21
3.6.2 Chief Flood Warden 22
3.6.3 Deputy Chief Flood Warden 23
3.6.4 Flood Wardens 23
3.6.5 Residents 23
3.6.6 Non-Residents (Contractors / Visitors) 23
3.7 Flood Response Phases 24
3.7.1 Overview 24
3.7.2 Prepared 24
3.7.3 Alert 24
3.7.4 Respond 25
3.7.5 Recovery 26
4 References 27
Attachment A - Site Survey 28
Attachment B - Proposed Masterplan 30

Attachment C - Flood Actions Checklist 32
Attachment D - Flood Response Phases and Triggers diagram..... 37

Tables

Table 1 Local event peak site flood levels. 10
Table 2 Peak water levels in regional Moruya River flood events. 10
Table 3 Local event evacuation route cut-off frequency. 12
Table 4 Regional event evacuation route cut-off frequency. 12
Table 5 Publicly available emergency resources. 16
Table 6 Evacuation Triggers. 19
Table 7 Australian Warning System (AWS) Warning Levels. 20

Figures

Figure 1 ARR (2019) Flood Hazard Curves. 11
Figure 2 Designated evacuation routes (aerial from Google Earth 2025). 21

Glossary of Terms

AEP	Annual exceedance probability: the probability of a flood event occurring within a year. A 1% AEP flood has a 1% chance of occurring in any given year.
ARI	Average recurrence interval: the average time between flood events occurring. A 1 in 100 year ARI flood occurs on average once every 100 years.
ARR	Australian Rainfall & Runoff
BoM	Bureau of Meteorology
Council	Eurobodalla Shire Council (Council)
DA	Development application
FEMP	Flood emergency management plan
FIRA	Flood impact and risk assessment
FRMM	Flood Risk Management Manual
IRT	Illawarra Retirement Trust
MA	Martens & Associates Pty Ltd
PMF	Probable maximum flood: the most extreme flood event possible for a certain location, with an approximate ARI of 100,000 to 10,000,000 years.
SES	NSW State Emergency Service
SIP	Shelter-in-place
SSDA	State significant development application
WP	Worley Parsons

1 Introduction

1.1 Overview

Martens & Associates Pty Ltd (**MA**) have prepared this flood emergency management plan (**FEMP**) on behalf of Illawarra Retirement Trust (**IRT**) to support a State Significant Development Application (**SSDA**) for a seniors housing development on Lot 11, DP1008755 at 11 Spencer Street, Moruya, NSW (the **site**). Refer to Attachment A for site survey and Attachment B for the proposed masterplan.

This report is supplemental to, and should be read in conjunction with, the *Flood Impact and Risk Assessment* (**FIRA**) report prepared by MA on behalf of IRT (P2410767JR01V01, 2025), hereafter referred to as the **MA FIRA**.

1.2 Proposed Site Layout

The site is located directly south of the Moruya township. The site masterplan prepared by Marchese Partners International Pty Ltd, dated March 2026 is provided in Attachment B and indicates that the proposed site is comprised of the following:

- Site elevations range between approximately 9.6 mAHD to 31.2 mAHD. Site drainage is predominantly to the northwest via two unnamed watercourses traversing the western and northeastern portions of the property (the **Western Watercourse** and **Eastern Watercourse**). Both watercourses discharge into Racecourse Creek which flows to the Moruya River north of the site.
- The proposed site is bounded by Francis Street to the east, Spencer Street to the north, Dwyers Creek Road to the west and the proposed Maluka Avenue extension to Dwyers Creek Road to the south which includes a road crossing over the Western Watercourse. The proposed site will have road access to Vulcan Street to the north, Francis Street, and the Maluka Avenue extension.
- Several community buildings in the north of the site with ground finished floor levels (**FFL**s) between 19.50-20.40 mAHD.
- A 120 bed residential aged care facility (**RACF**) in the northeast of the site with ground FFLs between 22.25-22.35 mAHD. The RACF will include a 37 space on-grade carpark at 22.10 mAHD and will operate 24/7 with a maximum of 37 staff including 3 nurses, 20 care staff and 14 general staff on site.
- 252 independent living units (**ILU**s) between the Western Watercourse and eastern swale and in the northwest of the site including:
    - 152 apartments spread across 8 flat buildings with ground FFLs between 16.20-23.10 mAHD.
    - 86 villas and 14 mini manors with ground FFLs between 21.30-29.20 mAHD.

- 36 short stay cabins in the southwest of the site to the west of the Western Watercourse (the **cabins**) with ground floor levels at 12.39-15.40 mAHD and driveway connection to the Maluka Avenue extension. We understand the cabins are to be used for short tourist stay or similar and will not be used for seniors living.
- A flood protection bund wall along the western side of the Western Watercourse set to the peak probable maximum flood (**PMF**) level adjacent to the proposed cabins.
- We understand that the maximum site population will be 550 with an expected occupancy rate of 1.3 per ILU, including 120 RACF residents, 37 staff, and 47 Cabin occupants.
- All ILUs, community buildings and the RACF are connected via an internal site road network. Cabins can access the rest of the site is via a foot bridge (at 13.00 mAHD) over the Western Watercourse or via the Maluka Avenue extension.

1.3 Relevant Guidelines

This report has been prepared in consideration with the following guidelines and policies:

1. Commonwealth of Australia (2019), *Australian Rainfall and Runoff – A Guide to Flood Estimation*.
2. Department of Planning, Housing and Infrastructure (2025), *Shelter in place guideline for flash flooding*.
3. NSW Department of Planning and Environment (2023), *Flood risk management manual* (FRMM).
4. NSW SES (2023), *Eurobodalla Shire Flood Emergency Sub Plan*.

2 Site Flood Characteristics

2.1 Previous Modelling

The site is located within the Racecourse Creek catchment which drains north to the Moruya River and forms part of the broader Deua/Moruya River catchment which flows east to the Pacific Ocean. Flood modelling of the Racecourse Creek and Moruya River catchments was undertaken as part of the MA FIRA which included:

- A local Racecourse Creek flood model developed using RAFTS for hydrologic modelling and TUFLOW for hydraulic modelling. The modelling drew on relevant hydrologic and hydraulic parameters from the Eurobodalla Shire Council (**Council**) adopted WorleyParsons (**WP**) *Moruya Flooding – Climate Change Assessment* (2010, **WP flood study**), and was used to assess offsite impacts and site emergency management constraints for local flood events.
- A regional Moruya River flood model based on the Rhelm (2024) *Moruya Flood Study Draft Report* (the **Rhelm flood study**) TUFLOW hydraulic model provided by Council under a Data License Agreement. Model results were validated against the WP flood study due to not yet being adopted by Council and used to assess site evacuation constraints.

Full details of the upstream catchment, site flood mechanisms, and flood modelling results for the site under existing and proposed conditions are provided in the MA FIRA (P2510767JR01V01).

2.2 Flood Behaviour

We note the following regarding local Racecourse Creek catchment and regional Moruya River flooding at the site based on the MA FIRA.

1. The regional Deua/Moruya River catchment covers an area of approximately 1,500 km^2 with the river located approximately 2.8 km north of the site.
2. The Racecourse Creek catchment covers an area of 10.15 km^2, of which approximately 159 ha drains to the site.
3. The floodplain surrounding the site is influenced by two types of flooding:
    a. Short duration flash flooding associated with heavy rainfall over the local upstream catchment.
    b. Longer duration Moruya River overbank flooding resulting from large scale regional storm events over the Deua/Mourya River catchment.
4. While in local events the site itself remains largely dry, during very rare extreme local events greater than the 0.02% (1 in 5,000) AEP flood the site may become isolated by short duration flash flooding with little warning time (5 – 45 minutes). Isolation from flash flooding is short (less than 2 hours). Therefore, shelter in

place (**SIP**) is considered the preferred response for local events (refer to Section 2.4).

5. Local event flooding at the site is largely confined to within the two watercourses, with some minor low hazard (H1, refer to Figure 1) overland flows in the east and southwest of the site. Site flood levels within the two watercourses for a range of local catchment events, from the 1% AEP to the PMF, are provided in Table 9.

6. While the site does not become flooded in regional Mourya River events being located above the peak regional PMF level of 9.4 mAHD, low points along the local road network can become inundated in extreme events potentially isolating the site. Sufficient warning time is available for evacuation in all regional flood events up to and including the PMF. Evacuation is therefore the preferred emergency response for regional flood events (refer to Sections 2.3 and 3.5).

7. Regional event flood levels at the Moruya Bridge gauge (#217410 and adjacent to the Princes Highway crossing over Racecourse Creek are provided in Table 2.

Table 1 Local event peak site flood levels.

Flood Event	Average Event Return Period (years)	Western Watercourse Flood Levels (mAHD) [2]	Eastern Watercourse Flood Levels (mAHD) [2]
1% AEP	100	10.2 - 14.7	15.2 – 20.0
0.2% AEP [1]	500	10.2 - 14.9	15.2 – 20.0
0.05% AEP	2,000	10.3 – 15.0	15.3 - 20.0
0.02% AEP	5,000	10.3 – 15.1	15.3 - 20.0
PMF	10,000,000 [3]	10.8 - 15.6	15.5 - 20.1

[1] 0.2% AEP flood event adopted as surrogate for the 1% AEP climate change event in line with FRM Guide FB01.

[2] Water level ranges from the watercourse downstream site boundary to the watercourse upstream site boundary.

[3] For the Racecourse Creek catchment the probability of a PMF occurring in any given year is extremely small, in the order of 1 in 10 million based on ARR Book 8 Chapter 3.4.

Table 2 Peak water levels in regional Moruya River flood events.

Flood Event	Average Event Return Period (years)	Peak Water Level (mAHD)	
		Racecourse Creek	Moruya Bridge Gauge
1% AEP	100	5.1	5.2
0.5% AEP	200	5.7	5.8
0.2% AEP	500	6.4	6.5
PMF	600,000 [1]	9.39	9.45

[1] For the Deua/Moruya River catchment the probability of a PMF occurring in any given year is extremely small, in the order of 1 in 600,000 based on ARR Book 8 Chapter 3.4.

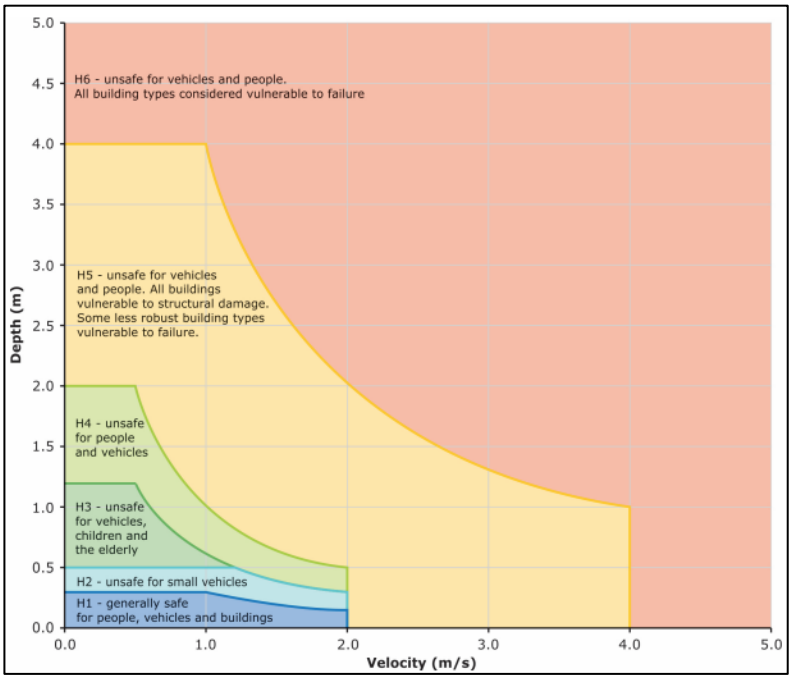

Figure 1 ARR (2019) Flood Hazard Curves.

2.3 Site Evacuation

2.3.1.1 Evacuation End Points

Proposed offsite evacuation routes are shown in Figure 2 with details provided in Section 3.5. The expected evacuation route from the site is to friends and family outside of the floodplain or to SES nominated evacuation centres. The SES (2023) *Eurobodalla Shire Flood Emergency Sub Plan* (**SES Sub Plan**) identifies the following potential evacuation centres:

1. Moruya Golf Club (28A Evans St, Moruya).
2. Moruya High School (97 Albert St, Moruya).
3. Moruya Public School (16-28 Evans St, Moruya).

In addition, the new Eurobodalla Regional Hospital, which is expected to be completed in 2027 prior to completion of this SSDA, is anticipated to be available for residents prior to or during evacuation. Evacuation to the Moruya Golf Club, Moruya Public School or town centre is unlikely to be available during large scale local and regional flood events due to inundation of Albert Street and the Evans Street and Princes Highway crossings over Racecourse Creek.

2.3.1.2 Evacuation Route Low Points and Trafficability

Critical evacuation route low points (shown in Figure 2), which are the first to become inundated during a flood, include:

1. Princes Highway North (7.14 mAHD): to Moruya High School, 170 m south of Albert Street over a piped watercourse.

2. Princes Highway Southeast (5.63 mAHD): towards the new hospital, 60 m west of the new hospital site adjacent to highway crossing over an unnamed watercourse.

The adopted threshold for evacuation route trafficability is a flood hazard equal to or greater than H2 (considered unsafe for small vehicles. Evacuation route cut-off for local and regional events is provided in Table 3 and Table 4 respectively.

Table 3 Local event evacuation route cut-off frequency.

		Egress Route Trafficability		
Flood Event	**ARI (years)**	**To Princes Highway [1]**	**To Moruya High School**	**To New Eurobodalla Hospital / Outside of the Floodplain**
1% AEP	100	Trafficable	Trafficable	Trafficable
0.2% AEP	500	Trafficable	Trafficable	Trafficable
0.05% AEP	2,000	Trafficable	Trafficable	Cut-off
0.02% AEP	5,000	Trafficable	Trafficable	Cut-off
PMF	10,000,000 [3]	Trafficable	Cut-off	Cut-off

[1] Offsite egress to Princes Highway remains trafficable in events up and including the PMF despite low hazard (H1), shallow (< 150 mm) flooding on Francis Street and Bergalia Street in local events as frequent as the 1% and 0.05% AEP floods respectively.

[3] For the Racecourse Creek catchment the probability of a PMF occurring in any given year is extremely small, in the order of 1 in 10 million based on ARR Book 8 Chapter 3.4.

Table 4 Regional event evacuation route cut-off frequency.

		Egress Route Trafficability [1]		
Flood Event	**ARI (years)**	**To Princes Highway [2]**	**To Moruya High School**	**To New Eurobodalla Hospital / Outside of the Floodplain**
1% AEP	100	Trafficable	Trafficable	Trafficable
0.5% AEP	200	Trafficable	Trafficable	Trafficable
0.2% AEP	500	Trafficable	Trafficable	Cut-off
PMF	600,000 [2]	Trafficable	Cut-off	Cut-off

[1] While evacuation routes can be cut off in extreme regional events, there is sufficient time (8+ hours) for evacuation of the site in all regional events up to and including the PMF.

[2] Offsite egress to Princes Highway remains trafficable in all events up and including the PMF.

[2] For the Deua/Moruya River catchment the probability of a PMF occurring in any given year is extremely small, in the order of 1 in 600,000 based on ARR Book 8 Chapter 3.4.

2.3.1.3 Evacuation Capability

A detailed site evacuation capability assessment is provided in the MA FIRA at Section 5.1. We note the follow regarding offsite evacuation capability for regional Moruya River flood events:

1. Site evacuation is triggered by a Bureau of Meteorology (**BoM**) flood warning for the Moruya River with a predicted river level exceeding 5.23 mAHD at the Moruya Bridge gauge (Station No. 217410).

2. The minimum evacuation warning time before evacuation route cut off was determined to be 8.5 hours in the worst case regional PMF event.

3. Time required for full evacuation of the site was determined to be 4 hours for both evacuation routes based on the SES Timeline Evacuation Model (Molino et al, 2013).

4. On this basis, sufficient time is available for all site occupants, including vulnerable residents with mobility requirements, to evacuate in all regional flood events up to and including the PMF.

5. In practice, warning times will be significantly longer given the availability of a range of weather forecasting services that would provide 1 or more days warning of large scale weather events that could lead to flooding likely to affect the site.

2.4 Site Isolation

The site isolation is very rare with offsite evacuation available in events up to and including the 0.2% (1 in 500) AEP regional and 0.02% (1 in 5,000) AEP local floods:

- In local events, isolation is typical short (around 30 minutes), with a maximum duration of less than 2 hours in the worst case PMF event, which is acceptable for SIP.

- Regional flooding may isolate the site for up to 14.2 hours in the PMF event, exceeding the recommended maximum SIP duration of 12 hours.[1] Evacuation is therefore the preferred response for regional events.

- The proposed cabins may become isolated from the rest of the site in local events as frequent as the 0.05% (1 in 2,000) AEP flood due to Western Watercourse flood flows overtopping the Maluka Avenue extension and creating H2 hazard conditions (unsafe for small vehicles). Pedestrian, large vehicle, and emergency services access would remain available however.

- While the proposed cabins can become isolated from the rest of the site in local PMF events, the isolation is expected to be short (less than 6 hours).

- Isolation from the new hospital during local flood events is extremely rare and brief (less than 20 minutes in the 0.05% (1 in 2,000) and 0.02% (1 in 5,000) AEP events, and no more than 2 hours in the PMF event. Regional events will trigger offsite evacuation with sufficient warning time for occupants to access the new hospital if needed.

[1] 12 hours is the maximum SIP duration recommended for flash flooding in the NSW Department of Planning and Housing and Infrastructure (**DPHI**, 2025) *Shelter-in-Place guideline for flash flooding* (**SIP guide**).

2.5 Flood Risk Mitigation

Flood risk mitigation measures have been incorporated into the proposed site to ensure risk to life is reduced to acceptable levels. Flood risk mitigation measures include the following:

1. All cabins, villas, apartments, communal village green buildings, and RACF will have habitable FFLs above both the local and regional PMF levels. All areas of the site remain accessible during local events up to the 0.02% (1 in 5,000) AEP flood and all regional floods up to and including the PMF.
2. A flood protection bund wall along the western side of the Western Watercourse set to the peak probable maximum flood (**PMF**) level adjacent to the proposed cabins to protect cabins from Western Watercourse overbank flows.
3. Apartment basement carpark entrances are sited above the PMF level and/or protected via raised driveway crests.
4. An eastern culvert under the Maluka Avenue extension which directs flows to the eastern swale preventing road overflows from inundating ILU lots.
5. Internal road and stormwater networks maintain flood-free access between all seniors living buildings, the RACF, and community buildings during all events up to and including the PMF.
6. The following has been provided to enable safe SIP:
    a. All habitable floor levels set to above the PMF level.
    b. Sufficient floor space is available for all site occupants to safely SIP as residents, workers, and visitors will be able to shelter within their own dwellings / accommodation and at the communal buildings.
    c. Proposed dwellings, cabins, RACF and community buildings should be designed to maintain water supply and backup power in all flood events.
    d. Medical support provided via the RACF, with a minimum of 2 registered nurses rostered at all times and staff trained in first aid within the RACF and community buildings.
    e. Sufficient provisions within the aged care centre for all aged care residents and backup provisions at the community buildings for other site occupants for up to 2 days SIP. These provisions will include:
        i. Non-perishable food.
        ii. Water.
        iii. Emergency medical supplies.
        iv. A defibrillator.

v. Cleaning and sanitary products.

vi. Fire extinguishers

vii. Backup power (e.g. solar panels and battery backup).

viii. Flood kits (first aid kit, portable radio, spare batteries, megaphone, torch and spare batteries, hi-vis vests).

ix. Satellite internet connection.

3 Flood Emergency Management Plan

3.1 Overview

This FEMP makes recommendations to ensure that in the event of a flood at the site, risk to personal safety and the environment is appropriately managed. The plan provides strategic level advice and assumes that detailed design of various site controls will be undertaken prior to issue of construction certificate and implemented as part of the site's construction and ongoing operation.

3.2 Advice and Warnings

3.2.1 Contacts

Relevant contact details of various agencies and services are provided Table 5.

Table 5 Publicly available emergency resources.

Contact	Details
Bureau of Meteorology (BoM)	**1300 659 218** – NSW weather warning services Rainfall maps: https://www.bom.gov.au/jsp/watl/rainfall/pme.jsp Rainfall Radar: https://www.bom.gov.au/weather-and-climate/rain-radar-and-weather-maps NSW weather and flood warnings: https://www.bom.gov.au/nsw/warnings/ River height data: https://www.bom.gov.au/cgi-bin/wrap_fwo.pl?IDN60144.html#Moruya_River Daily rainfall data: https://www.bom.gov.au/climate/data/
Manly Hydraulic Laboratory (MHL)	Moruya Bridge Gauge: https://mhl.nsw.gov.au/Station-217410
NSW State Emergency Services (SES)	**000** – Life threatening emergencies **132 500** – emergency assistance for floods or storms Local Headquarters - 10 Yarragee Rd, Moruya NSW 2537 SES Facebook: https://www.facebook.com/NSWSESMOU/ SES warnings: https://www.ses.nsw.gov.au/
HazardWatch	Active NSW hazards: https://hazardwatch.gov.au/
Eurobodalla Council	**02 4474 1000** Disaster dashboard: http://eurobodalla.disasterdashboards.com/dashboard/overview Facebook : https://www.facebook.com/EurobodallaCouncil/
Road closures	Live traffic NSW: https://www.livetraffic.com/
Police	**000** – Emergencies **(02) 6450 3430** – Moruya Police Station (48 Queen St, Moruya)
NSW Fire and Rescue	**(02) 4478 4984** – Moruya Fire Station (15 Church Street, Moruya) https://www.fire.nsw.gov.au/page.php?id=9210&station=206

Contact	Details
NSW Rural Fire Service	**000** – Life threatening emergencies **1800 679 737** - RFS direct **(02) 4474 2855** – NSW Rural Fire Service Moruya (30 Campbell St, Moruya) Facebook: https://www.facebook.com/moruyaRFS/ Warnings: https://www.rfs.nsw.gov.au/
Ambulance	**000** – Life threatening emergencies
Hazards Near Me	https://www.nsw.gov.au/emergency/hazards-near-me-app

3.2.2 Weather and Warnings

Further details in respect of the contact information in Table 5 are provided below.

The Bureau of Meteorology (**BoM**) generates a number of information sources useful for monitoring the weather forecast and conditions near the site:

1. **NSW Weather warnings** (http://www.bom.gov.au/nsw/warnings/). These warnings provide both general warnings across NSW and warnings for more specific locations. There are two types of warnings that may indicate that flooding is imminent for the site: severe weather warnings and severe thunderstorm warnings. Specifically, these warnings should be monitored for references to flooding and flash flooding in the Moruya area. Warnings are generally issued with up to 60 minutes notice, however for very large events (e.g. east coast lows), warnings may be issued with 24 hours' notice or more.

1. **Flood Watch** via BoM website (http://www.bom.gov.au/nsw/warnings/) and media outlets. The Bureau will issue flood watches when the combination of forecast rainfall and catchment conditions indicates flooding is possible. Flood watches are issued to provide early advice to communities and emergency services about a potential flood threat from a developing weather situation. A flood watch is typically issued within 1 to 4 days before an anticipated flood event depending on the confidence in rainfall forecasts.

2. **Flood Warning** via BoM website (http://www.bom.gov.au/nsw/warnings/) and media. Flood warnings are issued for specific locations such as the Moruya River and will normally include predictions on the expected flood class (minor, moderate or major) with specific information on the height and time of water levels at that location. Flood warnings typically start with more generalised information with more specific quantitative (flood level and time) and qualitative (flood level or class) information provided as data becomes available. The target lead time for flood warnings to be issued for the Moruya Bridge gauge is 6 hours for flood levels expected to exceed 2.6 mAHD.

3. **Rainfall maps** (http://www.bom.gov.au/jsp/watl/rainfall/pme.jsp) can be used to estimate the daily rainfall expected to occur over the next 24, 48, 72, and 96 hours as well as the total rainfall for the next 4 and 8 days.

4. **Recent weather data** for weather stations in the South Coast region can be observed on the BoM website (http://www.bom.gov.au/nsw/observations/nswall.shtml#NR). Rainfall over the last 72 hours at hourly intervals can be observed by clicking on individual weather stations.

5. **Observed daily rainfall totals** can be obtained from the BoM website for weather stations across the upstream Moruya River catchment (https://www.bom.gov.au/climate/data/#mapoption). Rainfall data is typically updated once a day at 9am and includes the total rainfall over the previous 24 hour period (from 9am to 9am). Recorded rainfall for individual weather stations can be obtained by selecting a location within the upstream catchment and selecting a nearby weather station.

6. **Radar** shows current rainfall location and intensity for Australia. (https://www.bom.gov.au/weather-and-climate/rain-radar-and-weather-maps).

3.2.3 Gauges

The Moruya Bridge gauge (Station No. 217410) located on the Moruya River approximately 2 km north of the site, is the primary gauge used by the BoM and SES for monitoring flood levels in the Moruya River. BoM indicates flood level alert classifications of Minor (2.0 mAHD), Moderate (2.6 mAHD) and Major (3.2 mAHD) for the Mourya Bridge gauge and advises a 6 hour target warning lead time for water levels predicted to exceed 2.6 mAHD at the gauge.[2] Live river water level gauge data can be accessed via the Manly Hydraulics Laboratory (**MHL**) website (https://mhl.nsw.gov.au/Station-217410) which is updated approximately every 15-30 minutes.

3.3 Response Strategy

Whilst the proposed development is located above both the local and regional PMF events, the site can become isolated due to inundation of offsite egress routes during extreme local and regional events. The flood response strategy includes the following:

- **Evacuation** (Regional Events) - Site occupants to evacuate to SES's nominated evacuation centre (Moruya High School), the Eurobodalla Hospital (if needed) or to friends and family outside of flood affected areas (Refer to Section 3.5).

- **Shelter in Place** (Local Flash Flooding Events) - Residents and any other persons on site should not attempt to evacuate during local flash flooding events unless directed otherwise due to the potential for hazardous waters to inundate offsite evacuation route within 5-45 minutes of a rainfall event.

[2] BoM (2025) Service Level Specification for Flood Forecasting and Warning Services for New South Wales and the Australian Captial Territory - Version 3.16.

3.4 Response Triggers

Evacuation triggers for flood emergencies are given in Table 6, noting that implementation depends on individual requirements and specific circumstances before or during the event. Each action is categorised by a warning level based on the Australian Warning System (**AWS**) described in Table 7.

Table 6 Evacuation Triggers.

Trigger	Action	Warning Level
Any of following: **T1** – BoM issues a severe weather warning for heavy rainfall / flash flooding in the Moruya area. **T2** – BoM issues a flood watch for the Moruya River. **T3** – BoM issues a Minor, Moderate or Major warning at the Moruya Bridge gauge (2.0, 2.6, & 3.2 mAHD respectively).	• Chief Flood Warden / Flood Warden in charge to communicate with SES to discuss developing conditions. • Site occupants to be notified by Chief Flood Warden / Flood Warden in charge that Princes Highway to the north of Moruya is likely to be cut off by flooding. • Residents can stay up to date on warnings via the resources described in Section 3.2. • Flood Warden in charge to increase monitoring of flood warnings, media alerts and gauges levels. • If the Moruya Bridge gauge level exceeds 2.3 mAHD advise residents that Princes Highway to the north of Moruya is likely cut off by flooding.	**Advice**
Any of following: **T4** – BoM issues a flood warning at the Moruya Bridge gauge predicting river levels to exceed 5.23 mAHD.	• Chief Flood Warden / Flood Warden in charge to discuss developing flood conditions and appropriate actions with SES. • Evacuation of the site to be actuated if SES advises, for site occupants by Chief Flood Warden / Flood Warden in charge (8.5+ hours available).	**Watch and Act**
Any of following: **T5** – The Moruya Bridge gauge reaches a level of 5.23 mAHD.	• Chief Flood Warden / Flood Warden in charge to discuss developing flood conditions and appropriate actions with SES including any requirement to evacuate. • Site occupants to be notified by Chief Flood Warden / Flood Warden in charge as last chance to evacuate to new Eurobodalla Hospital / out of the catchment (approx. 1 hour available).	**Emergency Warning**
T6 – Flooding observed on the Princes Highway east of the site, or advice received that the Princes Highway in this direction has been closed. **T7** – The Moruya Bridge gauge reaches a level of 6.0 mAHD.	• Chief Flood Warden / Flood Warden in charge to discuss developing flood conditions and appropriate actions with SES. • Advise site occupants that evacuation east along the Princes Highway towards the new Eurobodalla Hospital / out of the catchment no longer possible. • Site occupants to be notified by Chief Flood Warden / Flood Warden in charge as last chance to evacuate to Moruya High School (approx. 1.8 hours available).	**Emergency Warning**
T8 – Flood waters identified over Princes Highway traveling north towards Moruya High School or advice received	• Chief Flood Warden / Flood Warden in charge to discuss developing flood conditions and appropriate actions with SES and advise that there are people SIP on site. • Site occupants must cease evacuating the site.	**Emergency Warning**

Trigger	Action	Warning Level
that evacuation routes are closed. **T9** – The Moruya Bridge gauge reaches a level of 7.7 mAHD.	• Chief Flood Warden / Flood Warden in charge to open the community buildings and provide assistance to those seeking refuge. • Site occupants may choose to SIP within their own residents or move to the community buildings.	

Table 7 Australian Warning System (AWS) Warning Levels.

Warning Level	Description
	**Advice** An incident has started. There is no immediate danger. Stay up to date in case the situation changes.
	**Watch and Act** There is a heightened level of threat. Conditions are changing and you need to start taking action now to protect you and your family.
	**Emergency Warning** An Emergency Warning is the highest level of warning. You may be in danger and need to take action immediately. Any delay now puts your life at risk.

3.5 Evacuation Details

MA FIRA flood results (refer to Section 2) indicate the Moruya Golf Club, Moruya Public School and Moruya town centre are unlikely to be accessible during large scale flood events which may affect the site. As such the designated evacuation routes are to friends and family outside of the floodplain, to Moruya High School (97 Albert St, Moruya), or the new Eurobodalla Regional Hospital east of the NSW TAFE Moruya campus on the Princes Highway (expected to be completed in 2027).

The Chief Flood Warden or Warden in charge should consult with SES to identify nominated SES evacuation centres in the event of flood.

Evacuation routes from the site are shown in Figure 2 and described as follows:

- Evacuation from the site is north via Francis Street, then east on Bergalia Street to the Princes Highway.
- For evacuation to Moruya High school, evacuees should travel north on the Princes Highway then west on Albert Street turning left into the school.
- For evacuation to new Eurobodalla Regional Hospital or to outside of the catchment, residents should travel east on the Princes Highway turning left into the hospital or continuing south on the Princes Highway to outside the catchment.

Both evacuation routes have a total length of approximately 1.3 km, with an anticipated travel time of roughly 3 minutes under typical traffic conditions.

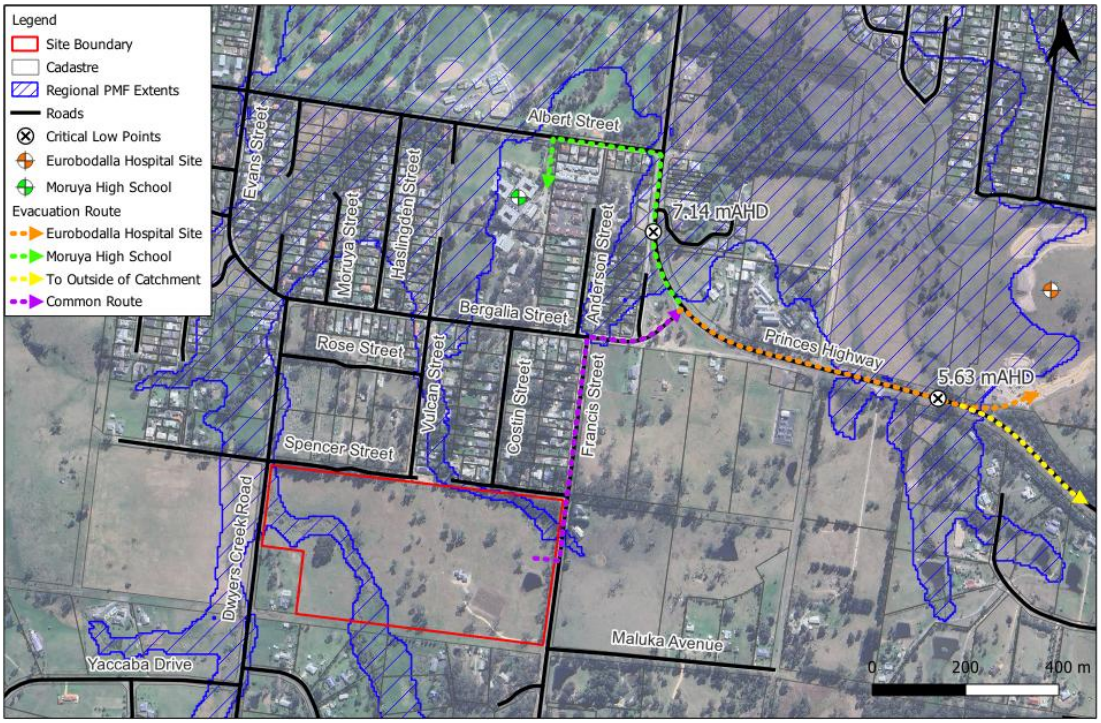

Figure 2 Designated evacuation routes (aerial from Google Earth 2025).

3.6 Roles and Responsibilities

3.6.1 Site Operator / Management

The managers of the site have the responsibility to implement and maintain the requirements of this FEMP. Specifically, they are to ensure that:

- A Chief Flood Warden is appointed.
- The Chief and Deputy Chief Flood Wardens are trained in the application of the FEMP and the interpretation of rainfall and weather warning information published by BoM.
- Provide a communication system (hardware and software) to the Chief and Deputy Chief Flood Wardens capable of sending bulk SMS messages to residents and contractors.
- The aged care centre is appropriately stocked to accommodate all aged care residents for up to 2 days, including food and water, beds and bedding, suitable amenities, medical supplies, and onsite medical staff.
- The community buildings are appropriately stocked for all other site occupants for up to 2 days, including food, water, suitable amenities, medical supplies and backup power.

- A suitable number of flood kits are kept within the RACF and community buildings which are to include a first aid kit, defibrillator, portable radio and spare batteries, megaphone, torch and spare batteries, hi-vis vests.
- The FEMP is kept up to date.
- The FEMP is reviewed a minimum of every 5 years or following flood events which trigger an emergency response.
- The site is cleaned and checked following a flood event.
- Sufficient financial resources are provided for the above.

Site management, at its discretion may delegate some of the above tasks to the Chief Flood Warden or others. Site management will however remain legally responsible to ensure that these tasks are occurring.

3.6.2 Chief Flood Warden

The Chief Flood Warden will report to site management. It is anticipated that the site manager or similar will be the Chief Flood Warden. The Chief Flood Warden will:

- Familiarise themselves with the FEMP procedures.
- Appoint a Deputy Chief Flood Warden(s) such that the Chief or a Deputy Chief Flood Warden is always on duty (but not necessarily on site).
- Appoint a number of Flood Wardens such that a Chief, Deputy Chief, or Flood Warden is on site during all hours and there are sufficient flood wardens to carry out doorknocking and other flood emergency procedures in the event of a flood.
- Organise training for themselves, the Deputy Chief Flood Warden, and Flood Wardens in the ongoing implementation of the procedures detailed in this FEMP as well as first aid training.
- Ensure residents are educated in the flood risks and procedures associated with the site.
- A communication log including contact details for site occupants, emergency and other services is kept up to date and available to flood wardens
- Ensure any alerts received from the Early Warning Network app, BoM, or otherwise are issued directly to the Chief Flood Warden, Deputy Chief Flood Wardens, and Flood Wardens.
- Ensure the flood response kits are equipped with all required equipment.
- Keep hard and soft copies of this FEMP on site and accessible to all Flood Wardens and staff.
- Implement the procedures in this FEMP in the event of a flood, including informing residents, workers, and visitors to the site.

- Liaise with site occupants and emergency services in the event of a flood.
- Direct the Deputy Flood Warden and other Flood Wardens to enact various aspects of this FEMP as required.
- Review the FEMP at a minimum every five years or following flood events which trigger an emergency response.

3.6.3 Deputy Chief Flood Warden

The Deputy Chief Flood Wardens will:

- Familiarise themselves with this FEMP and the procedures within it.
- Follow the procedure within this FEMP in the event of a flood.
- Fulfil the role of the Chief Flood Warden in their absence.
- Monitor weather forecasts, warnings, media alerts, and flood gauge levels in the absence of the Chief Flood Warden.

3.6.4 Flood Wardens

The Flood Wardens will:

- Familiarise themselves with this FEMP and the procedures within it.
- Follow the procedure within this FEMP in the event of a flood.
- Follow the directions of the Chief Flood Warden and Deputy Chief Flood Wardens.
- Monitor weather forecasts and flood levels on site during operational hours in the absence of the Chief Flood Warden or Deputy Chief Flood Wardens.

3.6.5 Residents

Residents should maintain their flood preparedness at all times by ideally keeping a battery-operated radio, torch, spare batteries, non-perishable food, bottled water, and a week's supply of any prescription medications in their household.

Residents are to follow the directions of Flood Wardens and signage related to flooding during a flood event.

During a flood which isolates the site, all residents should SIP in their residences or the community buildings and follow the directions of site management, Flood Wardens, and emergency services. Residents should only Shelter in place in flash floods or as an 'option of last resort' if evacuation could not be completed before road access from the site was cut in a regional flood event.

3.6.6 Non-Residents (Contractors / Visitors)

During a flood, all non-residents on the premises are to follow the directions of site management, the Flood Wardens and signage related to flooding during a flood event on

site. Non-residents should leave the site if Flood Wardens have indicated that it is safe to do so.

3.7 Flood Response Phases

3.7.1 Overview

There are four flood response phases for flooding on the site:

- **Prepared** – will apply at all times when the other phases do not apply.
- **Alert** – this is triggered when a severe weather warning is issued indicating heavy rainfall or flash flooding for Mourya area, or when a flood watch or flood warning is issued for the Moruya River / Moruya area.
- **Respond** – this occurs when a flood response is triggered by one of several means indicating a flood is occurring or is likely to occur in the Moruya area.
- **Recover** – this occurs following a flood response operation of any scale and lasts until operations have returned to normal.

Refer to Attachment C for the Flood Actions Checklist which details the four phases, actions and responsibilities, and refer to Attachment D for the Flood Response Phases and Triggers diagram.

3.7.2 Prepared

During the prepared phase, weather forecasts, warnings, media alerts, and Moruya River levels at the Moruya Bridge gauge are checked daily and the FEMP arrangements are maintained. The site bulk SMS system, and PA and alarm system should be tested annually.

3.7.3 Alert

The alert phase is triggered by any of the following:

1. BoM issues a severe weather warning for heavy rainfall / flash flooding in Moruya area (**T1**).
2. BoM issues a flood watch for Moruya River (**T2**).
3. BoM issues a Minor, Moderate or Major flood warning at the Moruya Bridge gauge (2.0 mAHD, 2.6 mAHD and 3.2 mAHD respectively) (**T3**).

In the alert phase, the Chief Flood Warden or Flood Warden in charge are to communicate with SES to discuss developing conditions and increase monitoring of flood warnings and gauge levels. Residents and visitors are to be notified by the Chief Flood Warden or Flood Warden in charge about developing flood conditions and can also stay informed via the resources outlined in Section 3.2.

If a flood warning for the Moruya River is received, residents to be advised that Princes Highway to the north of Moruya is likely to be cut off by flooding.

If the Moruya Bridge gauge level exceeds 2.3 mAHD advise residents that Princes Highway to the north of Moruya is likely cut off by flooding.

3.7.4 Respond

The respond phase is triggered by any of the following:

1. BoM issues a flood warning at the Moruya Bridge gauge predicting river levels to exceed 5.23 mAHD (**T4**).
2. The Moruya Bridge gauge reaches a level of 5.23 mAHD (**T5**).
3. Flooding observed on the Princes Highway east of the site towards the new Eurobodalla Hospital, or advice received that the Princes Highway in this direction has been closed (**T6**).
4. The Moruya Bridge gauge reaches a level of 6.0 mAHD (**T7**).
5. Flood waters identified over Princes Highway traveling north towards Moruya High School or advice received that evacuation routes are closed (**T8**).
6. The Moruya Bridge gauge reaches a level of 7.7 mAHD (**T9**).

In the respond phase, the Chief Flood Warden or Flood Warden in charge are to:

1. Liaise with SES to discuss developing flood conditions and appropriate actions including any requirement to evacuate.
2. Notify residents and visitors to evacuate by one or more of the following means: SMS, door knocking, telephone.
3. Provide on-going advice on evacuation routes and road closures.
4. Liaise with SES to identify nominated evacuation centres and confirm scheduled evacuation timeline.
5. Provide assistance as needed such as coordinating transportation or assistance to any vulnerable persons.
6. Continue to liaise with SES and other emergency services on the status of the flood emergency, and monitor road closures, warnings, media alerts, and Moruya River levels.
7. If the flood level at the Moruya Bridge gauge exceeds 5.23 mAHD (**T6**), advise residents that this is their last chance to evacuate and to evacuate immediately to the nominated SES evacuation centre or to friends / family (outside of flood affected areas) if advised to do so by the SES.
8. Monitor flood conditions around the site and on Princes Highway. If flood waters are observed on the Princes Highway towards the Moruya High School, or along the Maluka Avenue extension wardens will advise affected residents to undertake emergency SIP and notify the SES that people are sheltering at the site.

9. When an emergency shelter-in-place is triggered, the Chief or Deputy Chief flood warden will:

    a. Notify occupants via SMS, doorknocking, or telephone, that it is no longer possible to evacuate and to prepare to SIP in their homes.

    b. Take a head count of the persons remaining on site.

    c. Prepare the community buildings for SIP.

    d. Ensure site occupants are informed about SIP arrangements and that residents can safely SIP within their own residents or community buildings (as required).

    e. Notify the Police, SES and site management that there are occupants SIP on site.

    f. Continue to liaise with emergency services

3.7.5 Recovery

The recovery phases occurs once the flood situation has ended and is triggered by the following:

1. Flood waters have receded from the site and Princes Highway, and BoM, SES or other advise that the flood peak as passed.

2. SES or other emergency services gives the all clear.

In the recovery phases the Chief of Deputy chief flood warden will:

1. Notify site occupants that the flood event has passed, and it is now safe for them to return to their homes or leave the site when it becomes safe to do so.

2. Inspect the site and ensure utilities and services are restored and there are no immediate hazards.

3. If necessary, isolate hazardous areas and arrange for the site to be cleared and any repairs to roads and infrastructure undertaken.

4. Organise a debrief with site management and all Flood Wardens, to review the FEMP. If any changes or improvements are considered necessary, a suitably qualified flood engineer should be engaged to amend the FEMP as necessary.

In any flood event a debrief with site management and all Flood Wardens to review the FEMP should be held. If any changes or improvements are considered necessary, the FEMP should be updated and if necessary, a suitably qualified flood engineer should be engaged to assist with these amendments.

4 References

Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M, Testoni I, (Editors) (2019), *Australian Rainfall and Runoff: A Guide to Flood Estimation*, Commonwealth of Australia.

Bureau of Meteorology (2025), *Service Level Specification for Flood Forecasting and Warning Services for New South Wales and the Australian Captial Territory - Version 3.16*

Eurobodalla Shire Council (2010), *Moruya Flooding - Climate Change Assessment*.

Molino et al (2013) *A Technical Guideline for the use of the SES Timeline Evacuation Model in Flood Evacuation Planning.*

NSW Department of Planning and Environment (2023), *Flood Risk Management Manual* (FRMM).

NSW Department of Planning, Housing and Infrastructure (2025a), *Shelter in place guideline for flash flooding*.

NSW SES (2023), *Eurobodalla Shire Flood Emergency Sub Plan*.

Rhelm (2024), *Moruya Flood Study Draft Report.*

Attachment A - Site Survey

NOTE : THIS HARDCOPY OF THE PLAN IS TO VERIFY WORK DONE ONLY. THE PLAN HAS BEEN TRIMMED TO FIT ON AN A1 SHEET. TO READ THE FULL DETAILS REFER TO THE ACCOMPANYING DWG FILE.

NOTE : COUNCIL RECORDS INDICATE THE LAND IS WITHIN A FLOOD PLANNING AREA AND COUNCIL MAY REQUIRE A MINIMUM FLOOR LEVEL FOR HABITABLE ROOMS OF NEW RESIDENTIAL BUILDINGS IN THIS LOCALITY. WE RECOMMEND COUNCIL BE CONTACTED TO DETERMINE THE REQUIRED MINIMUM FLOOR LEVEL PRIOR TO ANY CONSTRUCTION.

E —— CENTRELINE OF OVERHEAD ELECTRICITY LINES
D —— CENTRELINE OF STORMWATER PIPE
(APPROXIMATE POSITION TAKEN FROM COUNCIL RECORDS)
W —— CENTRELINE OF UNDERGROUND WATER MAIN
S —— CENTRELINE OF SEWER PIPELINE
(APPROXIMATE POSITION TAKEN FROM TELSTRA & NBN RECORDS)
T —— CENTRELINE OF TELSTRA CABLE
T —— CENTRELINE OF NBN FIBRE OPTIC CABLE

NOTE : LOCATION OF UNDERGROUND SERVICES WERE SCALED IN FROM COUNCIL RECORDS OR FROM TELSTRA/NBN RECORDS ARE APPROXIMATE ONLY. PRIOR TO DESIGN & CONSTRUCTION, LOCATION OF ALL SERVICES SHOULD BE VERIFIED BY A CERTIFIED SERVICES LOCATOR. RYGATE & WEST TAKE NO RESPONSIBILITY FOR THE LOCATION OF SERVICES SHOWN OR NOT SHOWN ON THIS PLAN.

LIDAR DATA & AERIAL IMAGERY OBTAINED FROM A DRONE WAS PARTIALLY USED IN THE PRODUCTION OF THIS DETAIL SURVEY.

CONTOURS AND DTM MESH TRIANGLES SHOWN ON THIS PLAN WAS GENERATED FROM LIDAR DATA OBTAINED FROM A DRONE FLIGHT CARRIED OUT BY MEASURE AUSTRALIA. WHILE WE ESTIMATE THE ACCURACY OF THE LIDAR DATA IS ACCURATE TO +/- 0.05-0.1m FOR THE MAJORITY OF THE JOBSITE, LEVELS SHOULD BE VERIFIED BY TERRESTRIAL BASED SURVEYING METHODS IN LOCATIONS WHERE LEVELS IS CRITICAL TO DESIGN. IF THERE IS ANY INFRASTRUCTURE BEING CONSTRUCTED IN LOCATIONS WITH DENSE VEGETATION, ITS HIGHLY RECOMMENDED THAT LEVELS LEVELS ARE VERIFIED BY TERRESTRIAL BASED SURVEYING METHODS.

DWYERS CREEK ROAD
VULCAN STREET
SPENCER STREET
COSTIN STREET
FRANCIS STREET
MALUKA AVENUE
UNFORMED ROAD
UNF
DENSE CLUSTER OF TREES
11
DP1008755
10
DP1008755

PP 21.23 ~ POWER POLE
SV 21.23 ~ STOP VALVE
FH 21.23 ~ FIRE HYDRANT
TP 21.23 ~ TELECOMMUNICATION PIT
WM 21.23 ~ WATER METER
~ APPROXIMATE TOP OF ROAD BATTER
~ CENTRE OF CREEK
~ WATER - TOP OF BANK
~ DAM - EDGE OF WATER
~ APPROXIMATE CENTRELINE OF BROAD WATERCOURSE WITH NO CLEARLY DEFINED BANK OR BED
+21.23 ~ GROUND SURFACE
+RL 21.23 ~ ROOF RIDGE
+GR 21.23 ~ TOP OF ROOF GUTTER
+B 21.23 BANK
+FL 21.23 ~ FLOOR LEVEL
+CP 21.23 ~ TOP & EDGE OF CONCRETE
+TK 21.23 ~ TOP OF KERB
+IK 21.23 ~ INVERT OF KERB
+EB 21.23 ~ EDGE OF BITUMEN
+CL 21.23 ~ CENTRELINE OF BITUMEN
+GR 21.23 ~ GRAVEL
+DK 21.23 ~ DECK
+BW 21.23 ~ BOTTOM OF WALL
+TW 21.23 ~ TOP OF WALL
+IW 21.23 ~ INVERT OF PIPE
+SG 21.23 ~ STORMWATER GRATE
+DW 21.23 ~ DRIVEWAY
+HWC 21.23 ~ HEADWALL / CULVERT

GN MGA
T N
ANGLE OF CONVERGENCE IS APPROXIMATELY 1.7 DEGREES (1°42')

NOTE : BEARINGS SHOWN RELATE TO M.G.A. (MAPPING GRID OF AUSTRALIA) AND HAVE BEEN TAKEN FROM SCIMS.

THIS PLAN HAS BEEN PREPARED FOR THE PROJECT CO FROM A COMBINATION OF FIELD SURVEY AND EXISTING RECORDS FOR THE PURPOSE OF SHOWING THE PHYSICAL FEATURES OF THE LAND TO ASSIST IN DESIGNING FUTURE DEVELOPMENT AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.

THE TITLE BOUNDARIES SHOWN HEREON WERE NOT VERIFIED OR MARKED AT THE TIME OF SURVEY AND WERE DETERMINED BY EXISTING TITLE DIMENSIONS AND NOT BY FIELD MEASUREMENT. AS SUCH THESE DIMENSIONS COULD BE OUT OF DATE AND INCORRECT BY MODERN STANDARDS. THIS PLAN SHOULD NOT BE USED FOR BUILDING TO BOUNDARY OR TO PRESCRIBED SET-BACKS WITHOUT FURTHER BOUNDARY SURVEY.

SERVICES SHOWN HEREON WERE LOCATED WHERE POSSIBLE BY FIELD SURVEY COMPLETED ON JUNE 2023. IF NOT ABLE TO BE SO LOCATED KNOWN SERVICES HAVE BEEN SHOWN FROM THE RECORDS OF THE RELEVANT AUTHORITIES OR SERVICE PROVIDERS WHERE AVAILABLE AND HAVE BEEN NOTED ACCORDINGLY ON THIS PLAN. ALL SERVICES SHOWN FROM RECORDS ONLY WILL NEED VERIFICATION PRIOR TO OR DURING WORK ON SITE.

PRIOR TO ANY DEMOLITION OR EXCAVATION OR CONSTRUCTION ON SITE THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR -
* VERIFICATION OF ALL SERVICES PLOTTED FROM RECORDS ONLY AND
* POSSIBLE LOCATION OF ANY SERVICES ALTERED SINCE THIS SURVEY WAS COMPLETED OR ANY NEW SERVICES INSTALLED EITHER ON OR ADJACENT TO THE SITE.

BEFORE STARTING ANY DEMOLITION OR EXCAVATION OR CONSTRUCTION ON THE SITE THE RELEVANT PERSON SHOULD MAKE AN INDEPENDENT AND UPDATED INQUIRY OF TELSTRA 'DIAL BEFORE YOU DIG' (PH 1100) AND ANY RELEVANT SERVICE PROVIDERS TO ASCERTAIN THE EXISTENCE OF FURTHER SERVICES (IF ANY) AND THE ACCURATE LOCATION OF THOSE NOT ABLE TO BE SURVEYED AT THE TIME OF PREPARING THIS PLAN (OR DATA).

THIS NOTE IS AN INTEGRAL PART OF THIS PLAN / DATA. REPRODUCTION OF THIS PLAN OR ANY PART OF IT WITHOUT THIS NOTE BEING INCLUDED IN FULL WILL RENDER THE INFORMATION SHOWN ON SUCH REPRODUCTION INVALID AND NOT SUITABLE FOR USE.

0.5T10S20H ~ DENOTES TREE "TRUNK DIAMETER"D " "SPREAD DIAMETER"S "TREE HEIGHT"H

REDUCTION RATIO (AT 1:1000)
0 5 10 20 30 40 50 100

(W) ~ EASEMENT FOR WATER SUPPLY WIDE 2 WIDE (DP1008755).

NOTE : A SEARCH OF THE CERTIFICATE OF TITLE INDICATES THAT THERE ARE NO REGISTERED COVENANTS OR RESTRICTIONS AFFECTING THE SUBJECT LAND.

~ 33kV HV LINE EASEMENT (APPROXIMATE LOCATION) - SUPPLIED BY GARDNER WETHERILL

DIAL BEFORE YOU DIG www.1100.com.au The Essential First Step.

REDUCTION RATIO 1 : 1000 AT A1
DATUM : AUSTRALIAN HEIGHT DATUM
CONTOUR INTERVAL : 0.2
ORIGIN OF LEVELS : SSM 63941 RL 30.766
DATE OF PLAN : 15/06/2023

		AMENDMENTS	BY	DATE
SURVEYED	L.A.	APPROXIMATE CENTRELINE OF CREEK ADDED	T.C.	03.07.23
DESIGNED		TREE LOCATION AMENDED	T.C.	10.10.23
DRAWN	M.V. T.C.	AMENDMENTS TO WATER BANK & NOTES	T.C. P.S.	04.05.25
CHECKED	T.C. P.S.			

RYGATE & WEST
INCORPORATING BULLOCK & WALTERS
SINCE 1893
P.O. BOX 107, LG01/32 WASON STREET ULLADULLA NSW 2539
126 BEACH ROAD BATEMANS BAY NSW 2536
mail@rygateandwest.com.au
02 44542137

THE PROJECT CO.

PLAN
SHOWING BOUNDARIES, DETAIL, SPOT LEVELS AND CONTOURS OVER LOT 11 DP1008755 AND PARTS OF ADJOINING LANDS.

MORUYA | SHIRE OF EUROBODALLA

REFERENCE No. U21995
DRAWING No. U21995_DET.dwg
ISSUE D
SHEET 1 OF 32 SHEET

Attachment B - Proposed Masterplan

LEGEND

- Buffer Zone APZ
- Vegetation Riparian Zone
- Existing Retained Tree

NOTE:
ALL INDEPENDENT LIVING UNITS ARE PROVIDED WITH WHEELCHAIR ACCESS VIA A CONTINUOUS ACCESSIBLE PATH OF TRAVEL (WITHIN THE MEANING OF AS 1428.1) TO AN ADJOINING PUBLIC ROAD.

DATE STAMP: 13/03/2026 7:43:23 AM

IMPORTANT NOTES

Do not scale from drawings. All dimensions to be checked on site before commencement of work. All discrepancies to be brought to the attention of the Architect. Larger scale drawings and written dimensions take preference. This drawing is copyright and the property of the author, and must not be retained, copied or used without the express authority of MARCHESE PARTNERS INTERNATIONAL PTY. LTD.

FOR APPROVAL

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY
A	22/01/2026	ISSUED FOR APPROVAL	SM
B	04/02/2026	SSDA SUBMISSION	SM
C	12/03/2026	TOA - REVISED SUBMISSION	SM

TN

0 50

Deicke Richards · BREATHE · GW. · jila · REALM studios

marchesepartners | Life3A

Marchese Partners International Pty Ltd
Level 1, 53 Walker Street, North Sydney, NSW 2060 Australia
P +61 2 9922 4375 **E** info@marchesepartners.com **W** www.marchesepartners.com
Nominated Architects - Steve Zappia (6535), Geoffrey Shaw (9148)

CLIENT
IRT GROUP

PROJECT
IRT MORUYA MASTERPLAN
11 SPENCER STREET
MORUYA NSW 2537

DRAWING TITLE
MASTERPLAN - GROUND LEVEL

SCALE	DATE	DRAWN	CHECKED
1:1000 @A1 1:2000 @A3	12/03/2026	SM	GS
JOB	DRAWING		REVISION
25069	DA2.03		C

Attachment C - Flood Actions Checklist

Prepared – Before A Flood			
Trigger	**Action**	**Responsibility**	**Requirements**
Always	Ensure that the community buildings are cleaned, maintained, and is appropriately stocked to accommodate site occupants for up to 2 days, including food, water, suitable amenities, medical supplies, and backup power in case of power outage.	Site Management	Long life food, water, and other basic supplies, regular cleaning service, beds and bedding, medical supplies.
	Display A3 version of the nominated evacuation routes in the community buildings and other relevant public places.	Site Management	FEMP
	Appoint a Chief Flood Warden and ensure that there is always someone in this role.	Site Management	FEMP
	Appoint sufficient Flood Wardens for the implementation of this FEMP in any event.	Site Management and Chief Flood Warden	FEMP
	Subscribe Chief Flood Wardens to warning alert services so that they receive BoM severe weather warnings, flood watches, flood warnings, Early Warning Network warnings, SES and other alerts direct to their mobile phone.	Site Management	FEMP, subscription to service and mobile device, access to BoM website via mobile device or computer.
	Ensure the Chief Flood Warden and Flood Wardens are trained in the implementation of this FEMP including first aid training, and are trained in the interpretation of weather and warning information.	Site Management	FEMP, training resources.
	A database of Site Management, Chief Flood Warden, Deputy Chief Flood Warden, Flood Wardens will be maintained and kept up to date.	Site Management	Phone Numbers.
	Supply and maintain all of the equipment necessary to implement this FEMP.	Site Management	Flood response kits including first aid kits, portable radio and megaphone, sufficient torches and hi-vis vests for each Chief Flood Warden and Flood Warden, spare batteries for all of the above.
	Keep this FEMP up to date and review it every 5 years, or following major flood events which trigger an emergency response.	Site Management	FEMP
	Contact details of all staff and residents and access to a bulk messaging service (e.g. bulk SMS).	Chief Flood Warden	Emergency contact list.
	A list of emergency contacts will be maintained which will include emergency services, utility providers.	Chief Flood Warden	Emergency contact list.
	This FEMP and the list of emergency contacts will be kept on site in electronic and hard copy accessible to Flood Wardens.	Chief Flood Warden	Electronic and hard copy of FEMP and Emergency contact list.

	Test the bulk SMS communication system at a minimum annually.	Chief Flood Warden	Bulk SMS communication system, database of current residents' and workers' contact details.
	Monitor BoM weather forecasts, warnings, media alerts, Council disaster dashboard, and Moruya Bridge gauge water levels daily.	Chief Flood Warden or Flood Warden in charge	Mobile or computer with internet connection.
	Ensure residents and site workers are educated in site flood risks and procedures, and regularly promote subscription to the bulk SMS messaging system to site residents.	Site Management and Chief Flood Warden	This FEMP.
	Ensure residents are prepared for isolation during a flood.	Chief Flood Warden	Resident education.
Alert – When a Flood is Possible			
Trigger	**Action**	**Responsibility**	**Requirements**
Any of the following: **T1:** BoM issues a severe weather warning for heavy rainfall / flash flooding in the Moruya area. **T2:** BoM issues a flood watch for the Moruya River. **T3:** BoM issues a Minor, Moderate or Major warning at the Moruya Bridge gauge (2.0, 2.6, & 3.2 mAHD respectively).	Check warning services (BoM, SES, Early Warning Network, Council Disaster Dashboard, internet, TV, radio, MHL) for severe weather warnings, flood warnings and information on road conditions in the Moruya area every 2 hours.	Chief Flood Warden, or Warden in charge	Mobile or computer with internet connection, subscription service / app, radio, television.
	Monitor flood levels for the Moruya River via the Moruya Bridge gauge every 2 hours.	Chief Flood Warden, or Warden in charge	Mobile or computer with internet connection.
	Advise site occupants that Princes Highway to the north of Moruya is likely to be cut off by flooding.	Chief Flood Warden, or Warden in charge	Mobile phones, Flood Wardens, torches, megaphone, informative signs, FEMP.
	If the Moruya Bridge gauge exceeds 2.3 mAHD or if advice is received that flooding is affecting the Princes Highway north of Moruya, advise residents that Princes Highway to the north of Moruya is likely cut off by flooding.	Chief Flood Warden, or Warden in charge	Mobile phones, Flood Wardens, torches, megaphone, informative signs, FEMP.
Respond – During a Flood Event			
Trigger	**Action**	**Responsibility**	**Requirements**
T4 – BoM issues a flood warning at the Moruya Bridge gauge predicting river levels to exceed 5.23 mAHD.	Check warning services (BoM, SES, Early Warning Network, Council Disaster Dashboard, internet, TV, radio, MHL) for severe weather warnings, flood warnings and information on road conditions in the Moruya River, Racecourse Creek and Moruya areas every 2 hours.	Chief Flood Warden, or Warden in charge	Mobile or computer with internet connection, subscription service / app, radio, television.
	Chief Flood Warden / Flood Warden in charge to discuss developing flood conditions and appropriate actions with SES including any requirement to evacuate.	Chief Flood Warden, or Warden in charge	Mobile or computer with internet connection, subscription service / app, radio, television.
	On advisement from SES, issue evacuation advice via bulk SMS, doorknocking, and telephone to inform site occupants that the site may become isolated by flood waters and to leave the site immediately.	Chief Flood Warden, or Warden in charge	Mobile phones, Flood Wardens, torches, megaphone, informative signs, FEMP.

T5: The Moruya Bridge gauge reaches a level of 5.23 mAHD.	Monitor Council's disaster dashboard and liaise with SES and local businesses to monitor conditions on evacuation routes.	Chief Flood Warden, or Warden in charge	Mobile or computer with internet connection.
	Issue an evacuation warning to site occupants informing them that this is the last chance to evacuate to the new Eurobodalla Hospital and outside the catchment with approximately 1 hour time available after which site access to Eurobodalla Hospital and outside the catchment may become unavailable.	Chief Flood Warden, or Warden in charge	Mobile phones, Flood Wardens, torches, megaphone, informative signs, FEMP.
	Monitor Moruya bridge gauge levels, conditions around the site, and Princes Highway and provide updates every 30 minutes or when changes in flood and road conditions are observed.	Chief Flood Warden, or Warden in charge	Flood Wardens, walkie talkies and / or mobile phones with reception.
Any of the following: **T6:** Flooding observed on the Princes Highway east of the site, or advice received that the Princes Highway in this direction has been closed. **T7:** The Moruya Bridge gauge reaches a level of 6.0 mAHD.	Advise site occupants that evacuation east along the Princes Highway towards the new Eurobodalla Hospital / out of the catchment no longer possible.	Chief Flood Warden, or Warden in charge	Flood Wardens, walkie talkies and / or mobile phones with reception
	Issue an evacuation warning to site occupants informing them that this is the last chance to evacuate to the Moruya High School with approximately 1.8 hours available, at which point the site may become isolated by flood water along all evacuation routes from for up to several hours or days.	Chief Flood Warden, or Warden in charge	Mobile phones, Flood Wardens, torches, megaphone, informative signs, FEMP.
Any of the following: **T8:** Flood waters identified over Princes Highway traveling north towards Moruya High School or advice received that evacuation routes are closed. **T9:** The Moruya Bridge gauge reaches a level of 7.7 mAHD.	Issue shelter-in-place advice, inform site occupants that evacuation is no longer possible and to prepare to SIP in their homes or move to the community buildings to SIP.	Chief Flood Warden, or Warden in charge	Mobile phones, Flood Wardens, torches, megaphone, informative signs, FEMP.
	Inform residents of why and SIP arrangements.	Flood Wardens	This FEMP, megaphone, torches, informative signs, mobile phones.
	Contact the Site Management and advise that there are people sheltering on site.	Chief Flood Warden, or Warden in charge	Telephone and emergency contact list.
	Contact the Police and NSW SES (131 500) to advise that there are people sheltering on site.	Chief Flood Warden or Warden in charge	Telephone and emergency contact list.
	Prepare the community buildings and shelter-in-place procedures.	Flood Wardens	FEMP, Flood response kits, bed and bedding, food and water, medical supplies, towels.

Recover – After a Flood			
Trigger	**Action**	**Responsibility**	**Requirements**
All clear given by NSW SES, BoM, or Chief Flood Warden.	Notify site occupants that it is now safe to come and go from the site.	Chief Flood Warden or delegate	Computer with internet connection, database of residents' and workers' contact details, communication system with bulk SMS capability.
	Roads surrounding the site may need to be cleared of debris. This should only be undertaken under the direction of the NSW SES or Eurobodalla Council, due to risks from electricity, gas, debris, and venomous animals.	Council and emergency agencies, the Site Management and Chief Flood Warden	Telephone and emergency contact list.
	If floodwaters did not affect the site:		
	Normal site usage should be able to resume once the site has been checked to ensure that utilities are restored and no damage to infrastructure or facilities have occurred. These checks need to be undertaken by professionals qualified to do so. Although landscaping areas may need cleaning that would not prevent normal use of the premises if the site is in working order.	Site Management and Chief Flood Warden	Contact details for electricians and plumbers
	If floodwaters did affect the site:		
	There may be some repairs and cleaning needed before affected areas become functional again.	Site Management	Contact details for structural engineer, electricians and plumbers etc.
	For every flood event:		
	Before any cleaning or repair work is undertaken on site, a hazard assessment will be undertaken, safe work methods statements (SWMS) prepared and personal protective equipment supplied consistent with the known hazards which can be associated with floods: - Slips, trips and falls - Sharp debris - Venomous animals - Contaminated water and sediments	Site Management and Chief Flood Warden	Correct SWMS and PPE.
	A debrief will be held and may involve emergency services. The flood event and response, including the use of this FEMP and any emergency procedures will be reviewed.	Site Management, Flood Wardens	FEMP, a log of actions taken during the event. This check list can be used for that purpose with times and notes recorded against each action
	Changes may be made to the FEMP and the requirements for future emergency response should the review identify any improvements which may be made.	Site Management and Chief Flood Warden	FEMP

Attachment D - Flood Response Phases and Triggers diagram

Flood Response Phases and Triggers