



Flood Emergency Response Plan

New Primary School in Worrige

NSW Department of Education

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ACKNOWLEDGEMENT OF COUNTRY

The Board and employees of Water Technology acknowledge and respect the Aboriginal and Torres Strait Islander Peoples as the Traditional Custodians of Country throughout Australia. We specifically acknowledge the Traditional Custodians of the land on which our offices reside and where we undertake our work.

We respect the knowledge, skills and lived experiences of Aboriginal and Torres Strait Islander Peoples, who we continue to learn from and collaborate with. We also extend our respect to all First Nations Peoples, their cultures and to their Elders, past and present.



Artwork by Maurice Goolagong 2023. This piece was commissioned by Water Technology and visualises the important connections we have to water, and the cultural significance of journeys taken by traditional custodians of our land to meeting places, where communities connect with each other around waterways.

The symbolism in the artwork includes:

- Seven circles representing each of the States and Territories in Australia where we do our work
- Blue dots between each circle representing the waterways that connect us
- The animals that rely on healthy waterways for their home
- Black and white dots representing all the different communities that we visit in our work
- Hands that are for the people we help on our journey



IMPORTANT: WHAT TO DO DURING A FLOOD EMERGENCY

If you are reading this report because there is an ongoing flood emergency at New Primary School in Worrigee refer to Chapter 5 for a list of emergency triggers and response actions.

Alternatively, you can use the flood emergency response checklist provided in Appendix A. This has the same content as Chapter 5, but in the more convenient form of a checklist for use during a flood emergency.

Emergency contact details are included in Appendix C.

Any flood response directive issued by the NSWSES or by delegated authority to others acting on its behalf must be followed by site management and staff. This includes any order to evacuate the site or not evacuate the site, irrespective of what decisions have been made by management in accordance with this FERP.



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1 INTRODUCTION

1.1 Context and Background

This Flood Emergency Response Plan (FERP) has been prepared to accompany a Review of Environmental Factors (REF) for the Department of Education (the department) for the construction and operation of a New Primary School in Worrigee (the activity) under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and *State Environmental Planning Policy (Transport and Infrastructure) 2021* (TI SEPP).

1.2 Scope of this FERP

The primary focus of this FERP is managing flood risk to life, with some measures to reduce risk to property. It details the most appropriate flood emergency management strategy for the site utilising data from Council's flood model from the *Lower Shoalhaven River Flood Study* (Stantec, 2022) and overland flood model produced by Water Technology (2026). It does not include measures to reduce the risks of flooding to corporate property or profitability.

The report is organised in the following sections:

- Chapter 1 contains:
 - A description of the context and location
 - A detailed description of the proposed development, including the relevant architectural plans
 - A description of the proposed site management arrangements (operational hours, number of people and vehicles on site)
- Chapter 2 contains a description of flood behaviour and the site affectation
- Chapter 3 reviews the available flood warnings applicable to the site
- Chapter 4 details key emergency management considerations, including a list of features to be incorporated on the premises to manage flood risk
- Chapter 5 details actions to be undertaken before, during and after a flood emergency to keep everyone safe. This includes a list of triggers, a description of the staff roles/responsibilities and an emergency checklist
- Chapter 6 sets out the mitigation measures set out in Operational Flooding Management Measure 1 (OPFMM1) applicable to the proposed development
- Appendix A summarises the content of Chapter 5 in a checklist format for use before, during and after an actual emergency
- Appendix B provides a list of flood emergency items that should be kept on site
- Appendix C is a contact list to be maintained by the Chief Flood Warden
- Appendix D contains pre-prepared messages for communicating with parents and caregivers during a flood.

1.3 Subject Site

The site is known as 9 Worrigee Road, Worrigee. The site has a frontage of 125.23m to Greenwell Point Road, 149.87m to Worrigee Road and 114.89m to Booligal Road (including the preschool frontage). The site is legally described as Lot 1 in Deposited Plan 576975 and is 2 hectares (by title). Off-site works are also proposed in the adjacent road reserves. Figure 1.1 provides an aerial photograph of the site.



Figure 1.1 Aerial Photograph

1.4 Description of Proposed Development

1.4.1 General Layout

The development proposal is for the demolition of existing buildings, construction and operation of a New Primary School in Worrigeer under Chapter 2 and Chapter 3 of TI SEPP comprising:

- Permanent classroom building including a support learning unit;
- Hall;
- Canteen;
- Covered outdoor learning area;
- Library;
- Administration;
- Sports field;
- Waste storage facility;
- Landscaping;
- Car parking;
- Public domain works;
- Infrastructure upgrades;



- A capacity of 582 students;

The proposed development does not include the new public preschool or roundabout. The new public preschool is subject to a separate planning pathway and environmental assessment. The roundabout is to be delivered by Council. Figure 1.2 shows an indicative site plan and distinguishes the indicative extent of the proposed activity in relation to the new public preschool and roundabout.

A general plan site is shown in Figure 1.3 and the proposed development architectural plan are presented from Figure 1.4 to Figure 1.6.

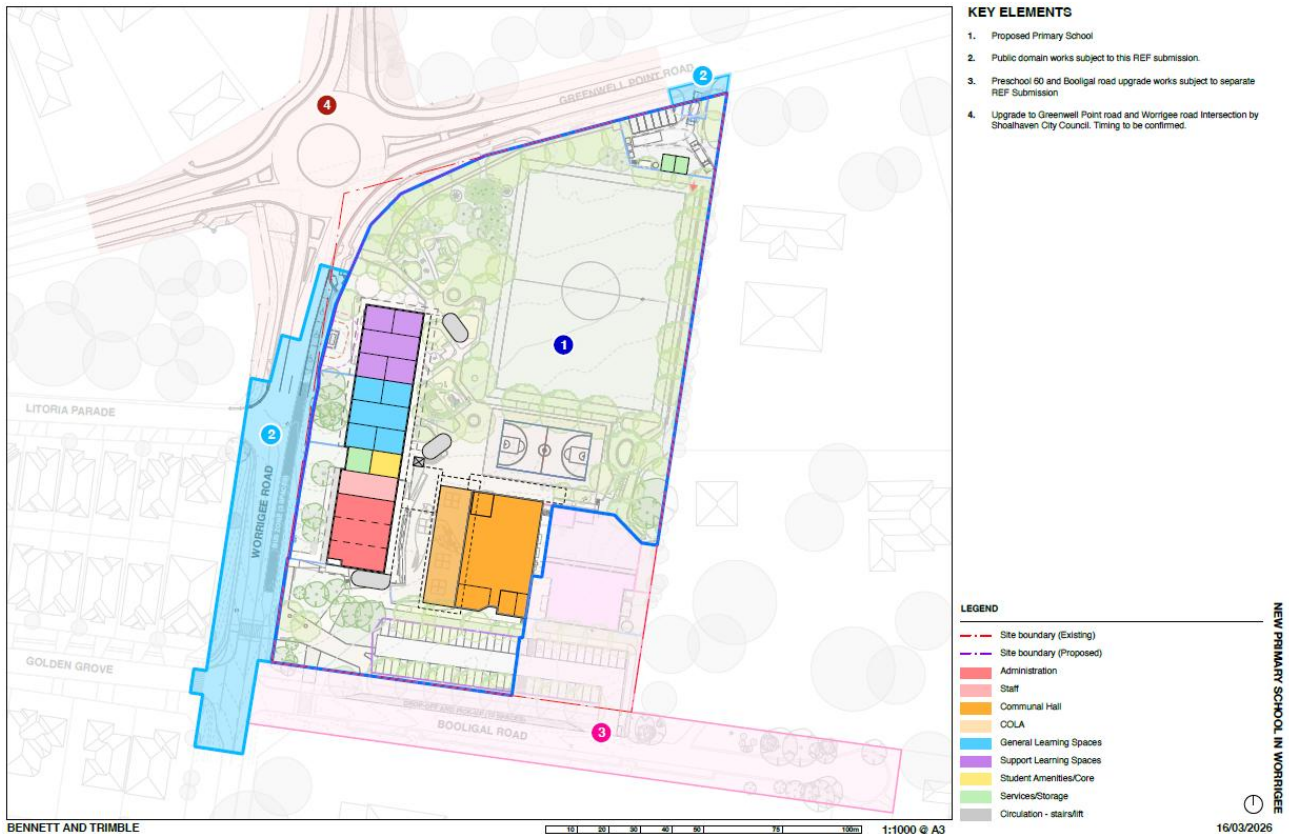


Figure 1.2 Indicative Site Plan

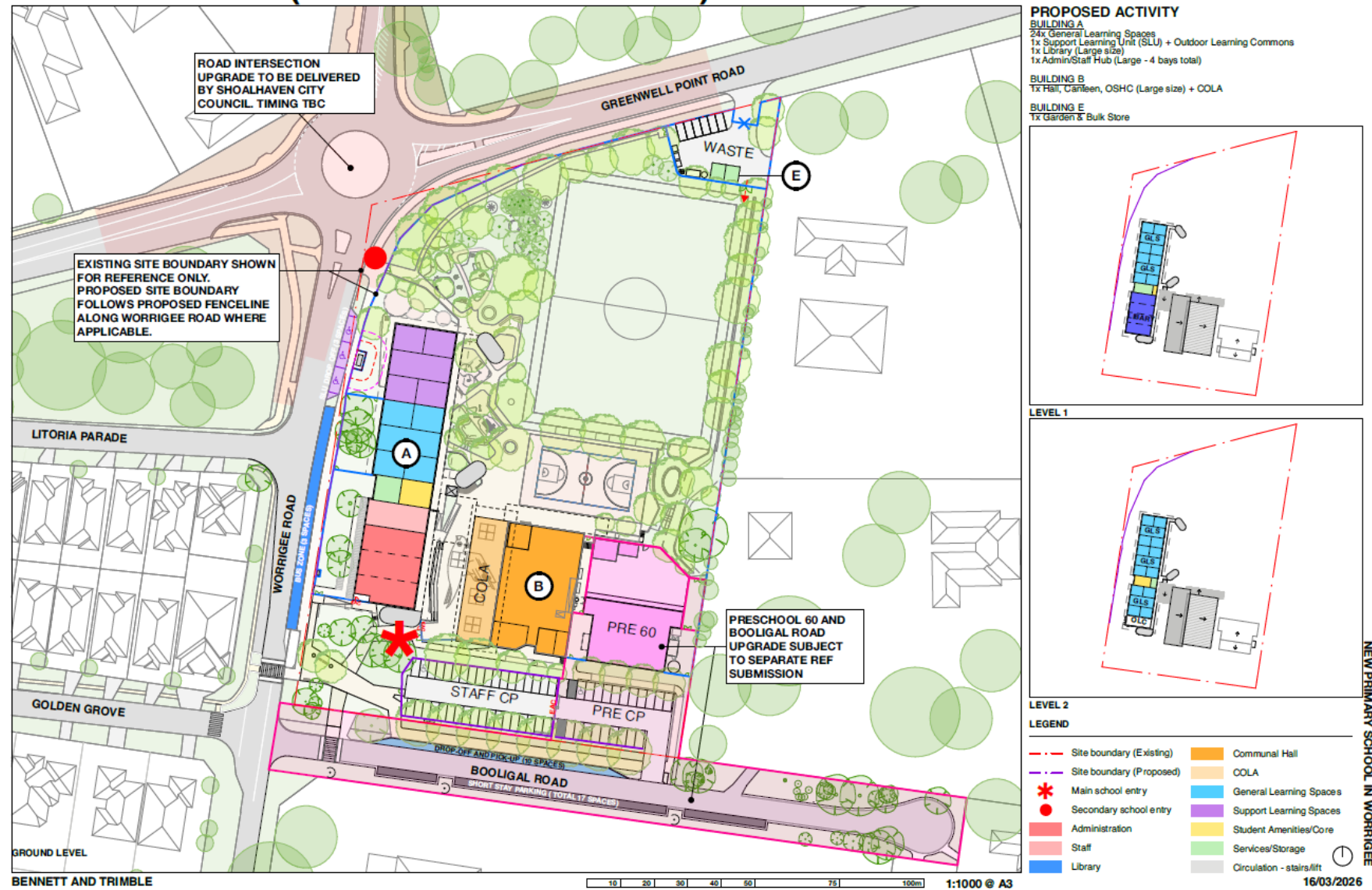


Figure 1.3 General plan



CONCEPT DESIGN

PLAN - GROUND

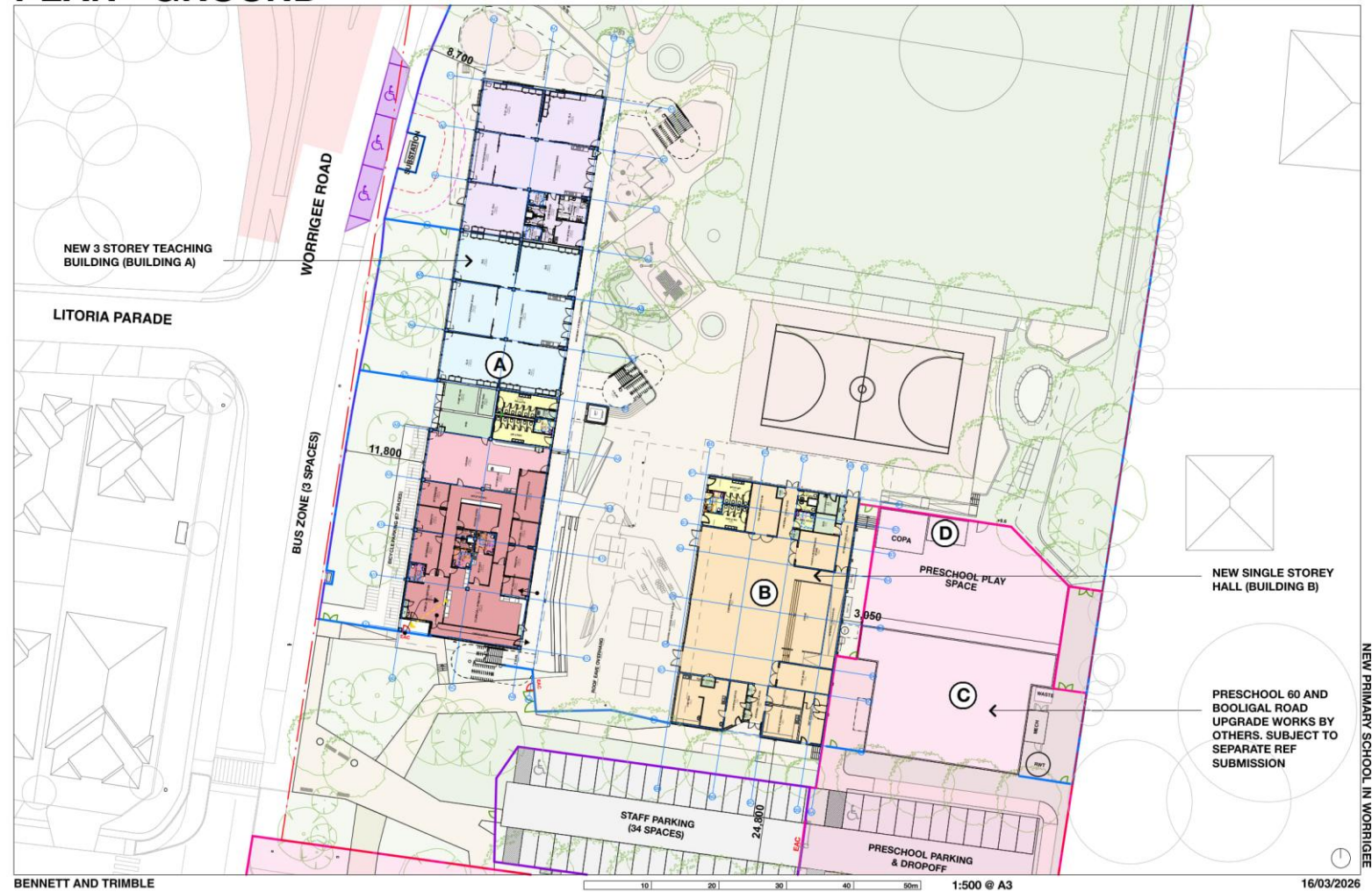


Figure 1.4 Ground floor plan



CONCEPT DESIGN

PLAN - LEVEL 1

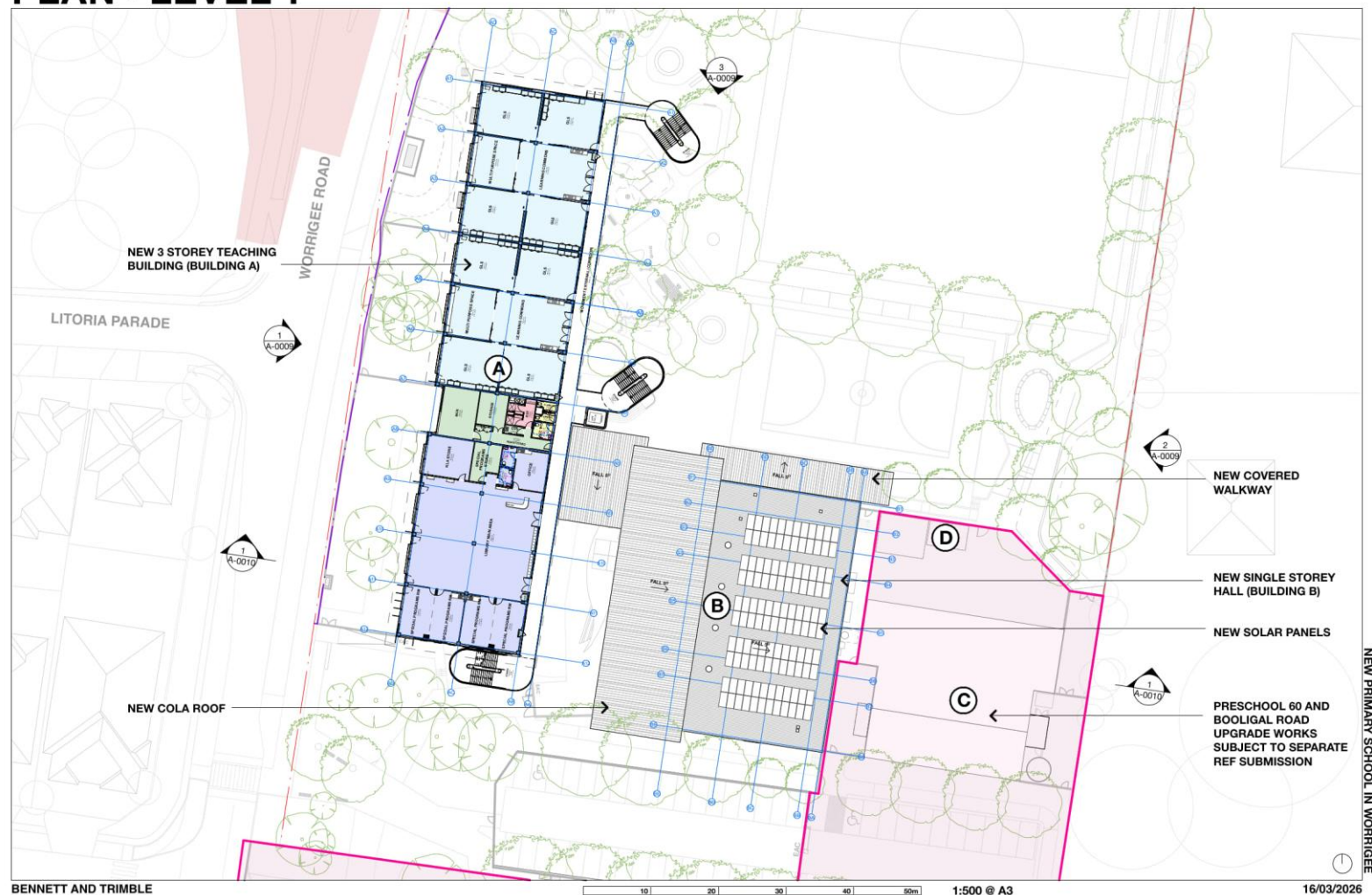


Figure 1.5 Level 1 plan



CONCEPT DESIGN

PLAN - LEVEL 2



Figure 1.6 Level 2 plan



1.4.2 Proposed Floor Levels

Floor levels of the proposed buildings are provided in Table 1.1

Table 1.1 Floor levels of the buildings (recommended)

Building		Level (m AHD)
Communal Hall	Ground Floor	10.45
Administration	Ground Floor	11.22
	Level 1	15.26
	Level 2	19.01
General Learning Spaces (GLS), Support Learning Units (SLU)	Ground Floor	11.52
	Level 1	15.26
	Level 2	19.01

1.4.3 Site access

Vehicular access to the site will be provided via Greenwell Point Road to the north and Booligal Road to the south (Figure 1.7). The northern access will provide entry to a small staff car park with six (6) spaces, while the southern access will serve a larger staff car park with 34 spaces.

The proposed new public preschool and its associated 20 parking spaces are subject to a separate planning pathway and environmental assessment and are not included in the scope of this assessment.



Figure 1.7 Access to the site

1.4.4 Site Operations

The school will accommodate approximately 552 students and 40 staff.

General site operating hours are anticipated to be between 7:00 am and 6:00 pm, allowing for the provision of Outside School Hours Care (OOSH), including before-school and after-school activities. Indicative core school hours are expected to align with standard bell times of approximately 8:45 am to 2:50 pm.

From time to time, special school events (such as assemblies, performances, or community functions) may occur outside standard operating hours. The NVIA has considered operations associated with special events extending up to 10:00 pm. Attendance at these events could result in up to 1,696 people on-site, based on a conservative assumption that each student is accompanied by two parents or caregivers.



2 FLOOD RISKS

2.1 Flood-Generating Weather

Coastal areas of eastern Australia mostly receive flooding rains from so-called "east coast lows" that develop from time to time over the adjacent Tasman Sea. These are intense depressions off the coast and can produce thunderstorm activity associated with troughs.

Depressions can develop at any time of year but are most likely when sea surface temperatures are high and the air is humid. Therefore, these events usually occur in the summer months and over the first half of the year. In Nowra, February historically records the highest average number of wet days, reflecting the increased frequency of rainfall during late summer.

Flooding can also be a winter-spring phenomenon, associated with unusually frequent or active extra-tropical depressions and fronts. However, some major events have occurred in the summer half-year as systems of tropical origin extend or move south. Flooding is usually associated with southward-moving tropical systems, but in the cooler months, it may occur when well-developed cloud bands extend across the interior from the oceans north and northwest of Australia. East Coast Lows are historically prevalent in the winter months.

Rainfall patterns are also dependent on longer term weather patterns. Flooding is more prevalent in a La Niña year when rainfall is significantly greater than the mean average rainfall. Thunderstorms, which generally occur during the summer, can also result in localised flooding which could impact specifically on the site.

In summary, there are many different weather events which could cause intense rainfall in Nowra and Shoalhaven region, leading to flooding. There is no seasonality associated with flooding in Nowra and an event could occur at any time of day or night and on any day of the year.

2.2 The Meaning of Flood Probability

Flood probability can be expressed in more than one way. For example, a flood may be described as having a 100-year Average Recurrence Interval (ARI). This means that over many thousands of years, a flood of this magnitude would occur on average once in 100 years. This does not mean that a flood of this size only occurs once every 100 years. It is possible to have floods of this size in consecutive years or even 2 in the same year, to be followed by several hundred years without flood events this large.

Another way of expressing flood probability is in terms of Annual Exceedance Probability (AEP). A 100-year ARI flood has roughly a 1 in 100 AEP. That is, each year and every year it has a 1 in 100 or 1% chance of being reached or exceeded. This is perhaps a more helpful way of thinking about flood probabilities. A flood with a 1% AEP has about a 1 in 2 chance of being reached or exceeded in the average person's lifetime. There were 4 floods of about this size on the Georges River between 1860 and 1889 but there has not been another since. This underlines the randomness of flood frequency.

Bigger floods can and do occur. There were several floods with greater than a 1% AEP experienced in NSW between 2020 and 2023. A flood with a 1 in 500 (0.2%) AEP has about a 1 in 6 chance of being reached or exceeded in the average person's lifetime, the same as tossing a die and getting a 6. This was about the frequency of the Lismore flood in 2022 and of the Taree flood in 2025. The Eugowra flood in 2022 was larger than a 1 in 5,000 (0.02%) AEP event, which has about a 1 in 60 chance of being reached or exceeded in the average person's lifetime.

The largest flood that can occur is referred to as the Probable Maximum Flood (PMF). Although it has a very low probability of occurring in any one year (1 in 10,000 or less), events approaching a PMF have been recorded. Flooding may occur at any time of year and at any time of day.

2.3 Measuring Flood Risk

The threat to life or property posed by floodwaters can be measured with a parameter called hydraulic hazard, which is based on the combination of maximum flood depth and velocity at any given location. Figure 2.1 shows the national hydraulic hazard classification and the threat to life and property associated with each hazard class from H1 (minimum hazard) to H6 (maximum hazard).

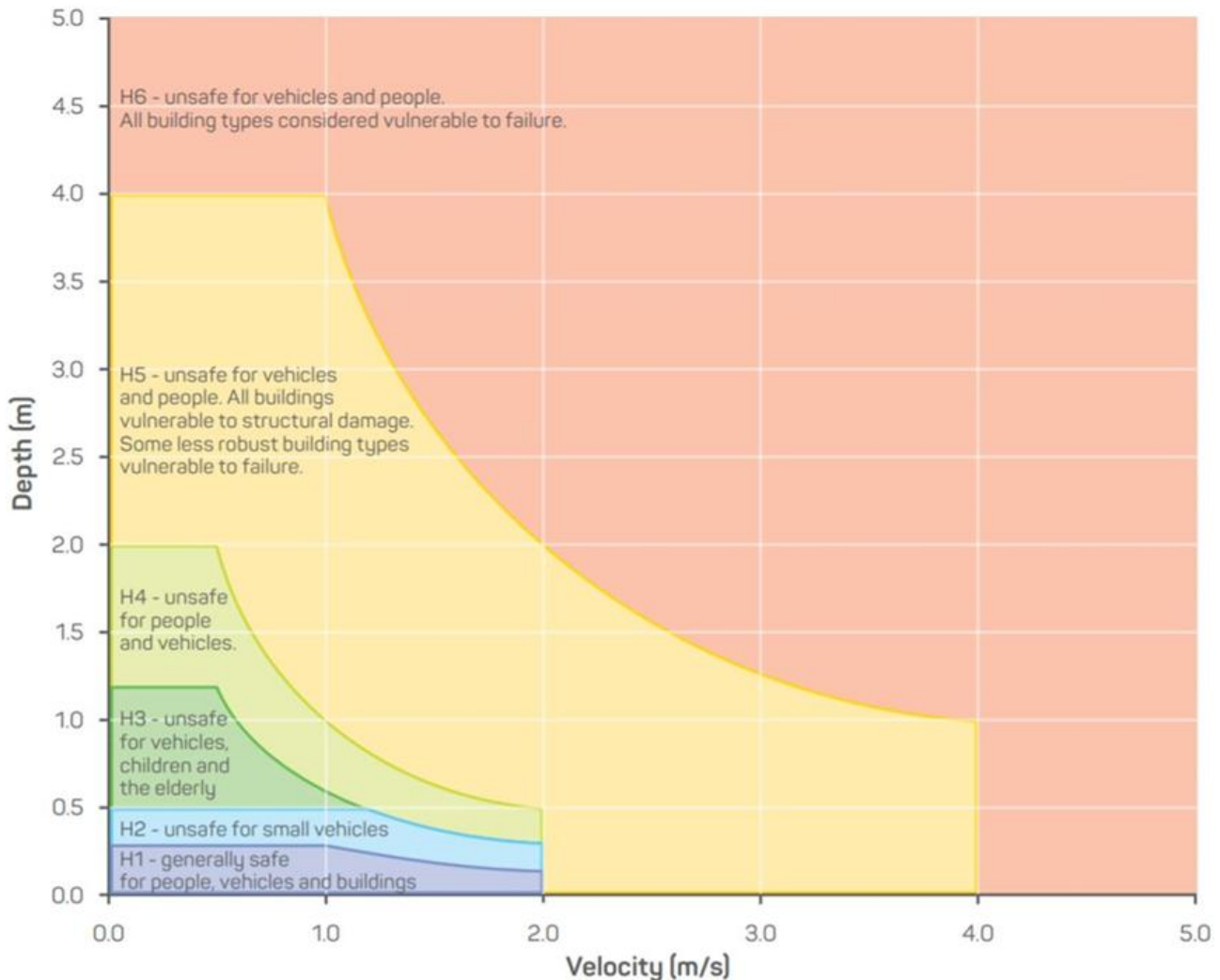


Figure 2.1 Flood hazard vulnerability curves (Geoscience Australia, 2019)

2.4 Flooding of the Site

2.4.1 Summary

The site is situated about 700 m south of Crookhaven Creek, which flows south-east toward the Crookhaven River, with the Shoalhaven River located approximately 3 km to the north, flowing eastwards.

The site itself is virtually flood free: it is not affected by riverine flooding or creek flooding, and may only experience nuisance overland flooding in extreme rainfall events, which would present as on site “puddles” with negligible risk to property or life.



Following intense rainfall events, some of the roads surrounding the site will show localised stormwater flooding which would generally resolve rapidly. As for riverine flooding, access to the site would remain available via the local road network in all riverine events but the PMF.

The analysis set out in this Evacuation Capability Assessment is based on Council's hydraulic model developed for the Lower Shoalhaven River Flood Study (Stantec, 2022) and site-specific overland flow modelling prepared by Water Technology (2026).

2.4.2 Riverine flooding

The site is not affected by riverine flooding; however, the surrounding roads are. Flood levels and flood behaviour at the site, at key riverine flooding cut points on exit routes, and at the nearest river gauge are summarised in Table 2.1 based on the outputs of the Council's flood model from the Lower Shoalhaven River Flood Study (Stantec, 2022).

Table 2.1 Summary of flood levels and riverine flood behaviour at the site, along exit routes and at a river gauge.

Flood	ID	Location	Ground level (m AHD)	Flood Level (m AHD)	Flood Depth (m)	Hydraulic Hazard	Site Isolation
20% AEP	R1	Cut point on Greenwell Point Road (east)	3.78	Not flooded	Not flooded	Not flooded	Site not isolated
	R2	Cut point on intersection Peppermint Drive and Rayleigh Drive	4.78	Not flooded	Not flooded	Not flooded	
	R3	Cut point on Greenwell Point Road (west)	3.68	3.74	0.06	H1	
	R4	Nowra Boat Shed Gauge	-	2.99	6.62	Not relevant	
10% AEP	R1	Cut point on Greenwell Point Road (east)	3.78	Not flooded	Not flooded	Not flooded	Site not isolated
	R2	Cut point on intersection Peppermint Drive and Rayleigh Drive	4.78	Not flooded	Not flooded	Not flooded	
	R3	Cut point on Greenwell Point Road (west)	3.68	3.77	0.09	H2	
	R4	Nowra Boat Shed Gauge	-	4.17	7.79	Not relevant	
5% AEP	R1	Cut point on Greenwell Point Road (east)	3.78	Not flooded	Not flooded	Not flooded	Site not isolated
	R2	Cut point on intersection Peppermint Drive and Rayleigh Drive	4.78	Not flooded	Not flooded	Not flooded	
	R3	Cut point on Greenwell Point Road (west)	3.68	3.79	0.11	H2	
	R4	Nowra Boat Shed Gauge	-	4.82	8.45	Not relevant	
2% AEP	R1	Cut point on Greenwell Point Road (east)	3.78	Not flooded	Not flooded	Not flooded	Site not isolated



Flood	ID	Location	Ground level (m AHD)	Flood Level (m AHD)	Flood Depth (m)	Hydraulic Hazard	Site Isolation
	R2	Cut point on intersection Peppermint Drive and Rayleigh Drive	4.78	Not flooded	Not flooded	Not flooded	
	R3	Cut point on Greenwell Point Road (west)	3.68	3.78	0.1	H2	
	R4	Nowra Boat Shed Gauge	-	5.19	8.83	Not relevant	
1% AEP	R1	Cut point on Greenwell Point Road (east)	3.78	Not flooded	Not flooded	Not flooded	Site not isolated
	R2	Cut point on intersection Peppermint Drive and Rayleigh Drive	4.78	Not flooded	Not flooded	Not flooded	
	R3	Cut point on Greenwell Point Road (west)	3.68	3.92	0.24	H2	
	R4	Nowra Boat Shed Gauge	-	5.35	8.98	Not relevant	
0.2% AEP	R1	Cut point on Greenwell Point Road (east)	3.78	4.59	0.98	H3	Site not isolated
	R2	Cut point on intersection Peppermint Drive and Rayleigh Drive	4.78	Not flooded	Not flooded	Not flooded	
	R3	Cut point on Greenwell Point Road (west)	3.68	4.67	0.99	H3	
	R4	Nowra Boat Shed Gauge	-	6.19	9.83	Not relevant	
PMF	R1	Cut point on Greenwell Point Road (east)	3.78	6.69	2.91	H5	Site isolated for up to 40 hours
	R2	Cut point on intersection Peppermint Drive and Rayleigh Drive	4.78	6.69	1.91	H3	
	R3	Cut point on Greenwell Point Road (west)	3.68	6.76	3.08	H5	
	R4	Nowra Boat Shed Gauge	-	9.51	13.14	Not relevant	

During the 20% Annual Exceedance Probability (AEP) event (Figure 2.2), the western cut point on Greenwell Point Road (R3) is inundated by H1 floodwaters with nearby road sections subject to H2 conditions which can cause stability issues for small vehicles. Therefore, safe egress from the site via Greenwell Point Road is not available during a 20% AEP flood event. However, roads located south of Greenwell Point Road remain free of riverine flooding, allowing egress from the site via these routes.

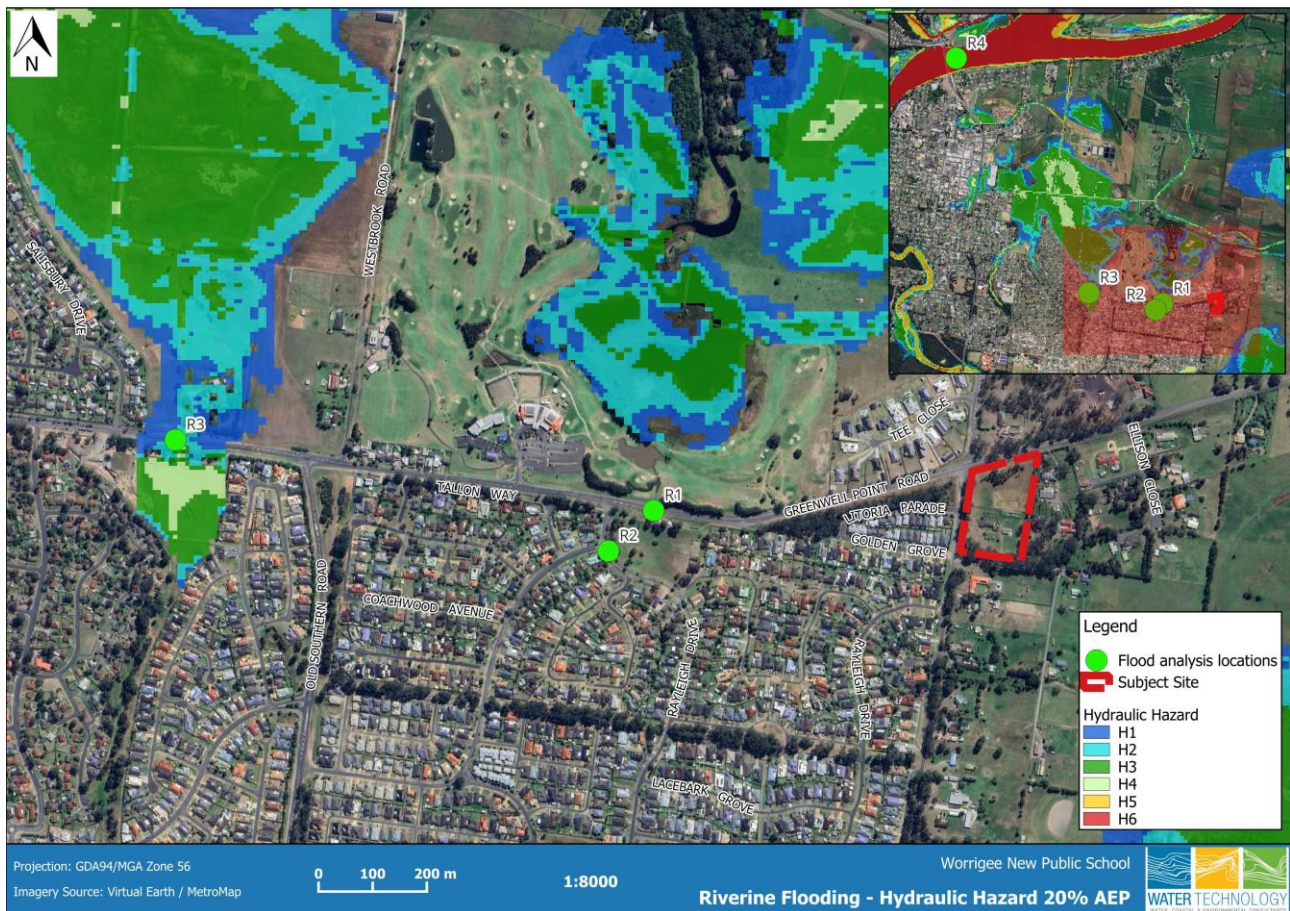


Figure 2.2 Riverine flooding - Hydraulic Hazard during a 20% AEP flood

In the 1% AEP event (Figure 2.3), the hydraulic hazard at the western cut point on Greenwell Point Road (R3) increases to H2, while adjacent road sections are subject to H3 conditions. These conditions present a high risk to vehicle stability and to vulnerable persons, including children and the elderly. However, evacuees could head south from the site and connect back to Greenwell Point Road west of the R3 cut point.

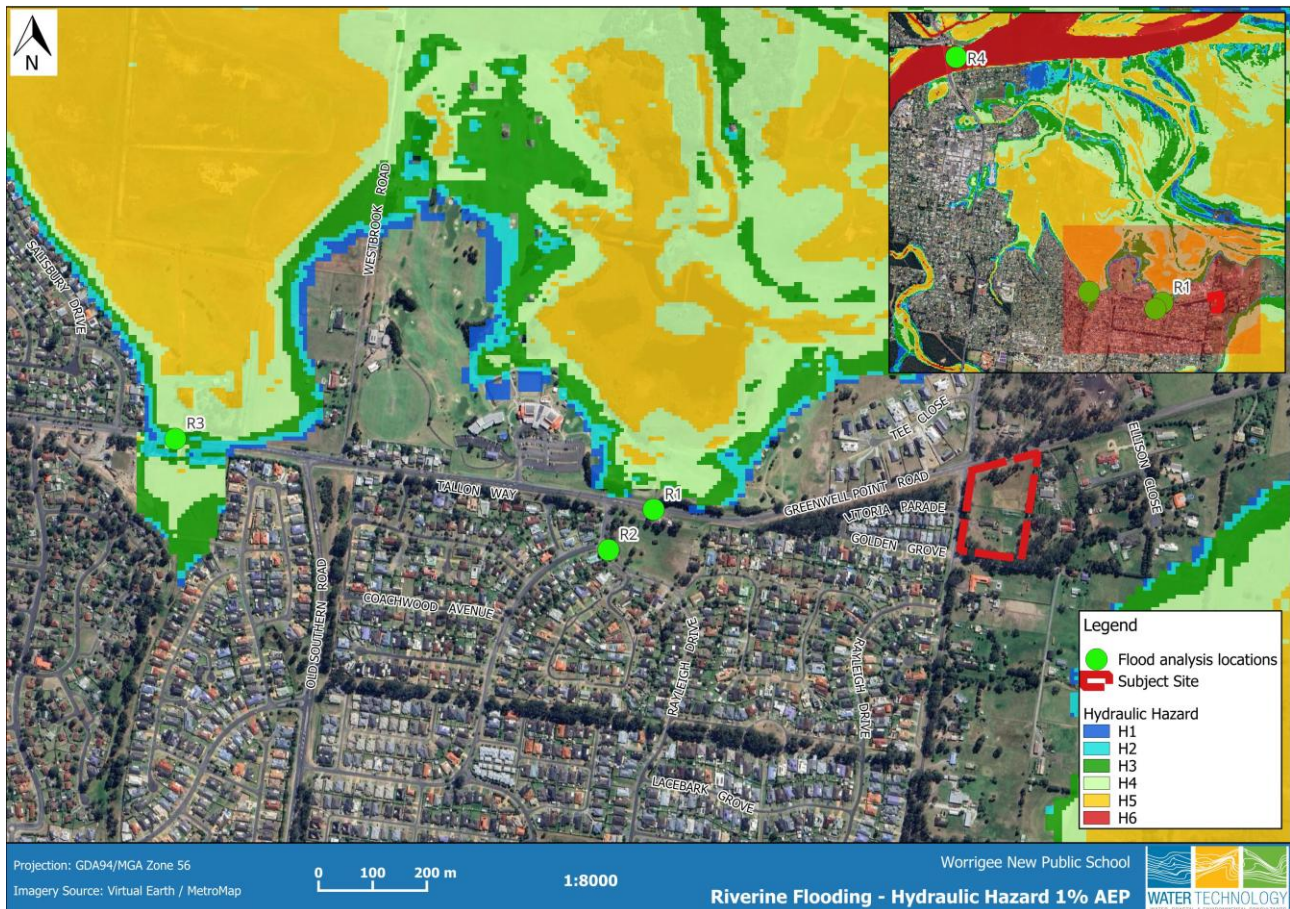


Figure 2.3 Riverine flooding - Hydraulic Hazard during a 1% AEP flood

During the 0.2% AEP event (Figure 2.4) the eastern cut point on Greenwell Point Road (R1) experiences H3 floodwaters, while the road in the vicinity of the western cut point (R3) is subject to H3 and H4 floodwaters, resulting in unsafe conditions for people and vehicles. This corresponds approximately to a flood level of 6.19 m AHD at the Nowra Boat Shed Gauge. However, similarly to the 1% AEP flood, evacuees could head south from the site and connect back to Greenwell Point road west of the R3 low point.

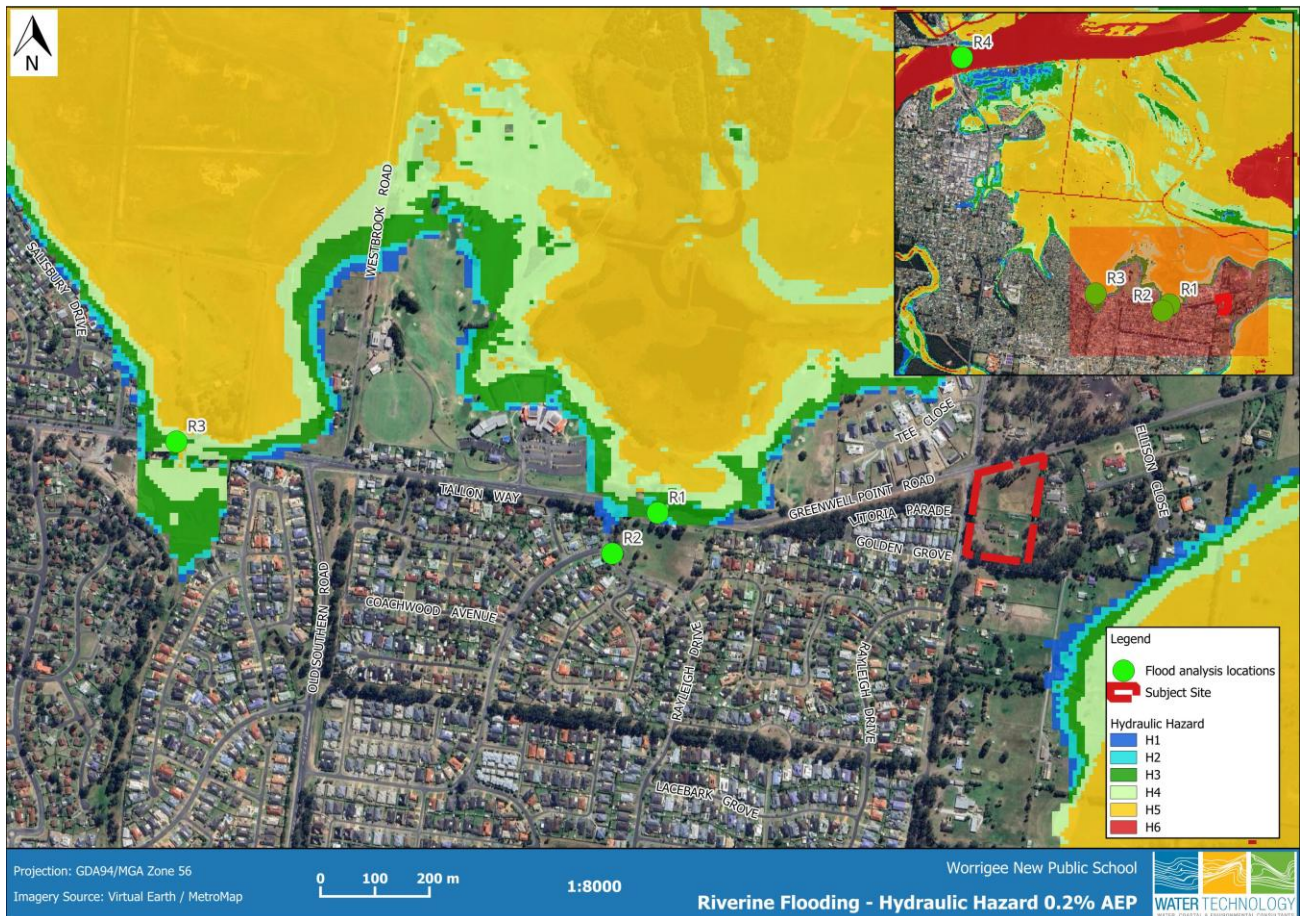


Figure 2.4 Riverine flooding - Hydraulic Hazard during a 0.2% AEP flood

During the PMF event (Figure 2.5), the eastern (R1) and western (R3) cut points on Greenwell Point Road are subject to H5 hydraulic hazard. These conditions present a significant safety risk and are considered unsafe for people and vehicles. The cut point at the Peppermint Drive and Raleigh Drive intersection (R2) is subject to H3 floodwaters isolating the site. These conditions align with an estimated flood level of approximately 9.51 m AHD at the Nowra Boat Shed Gauge. In this scenario, the evacuation route shown in Figure 4.1 would be cut at point R2.

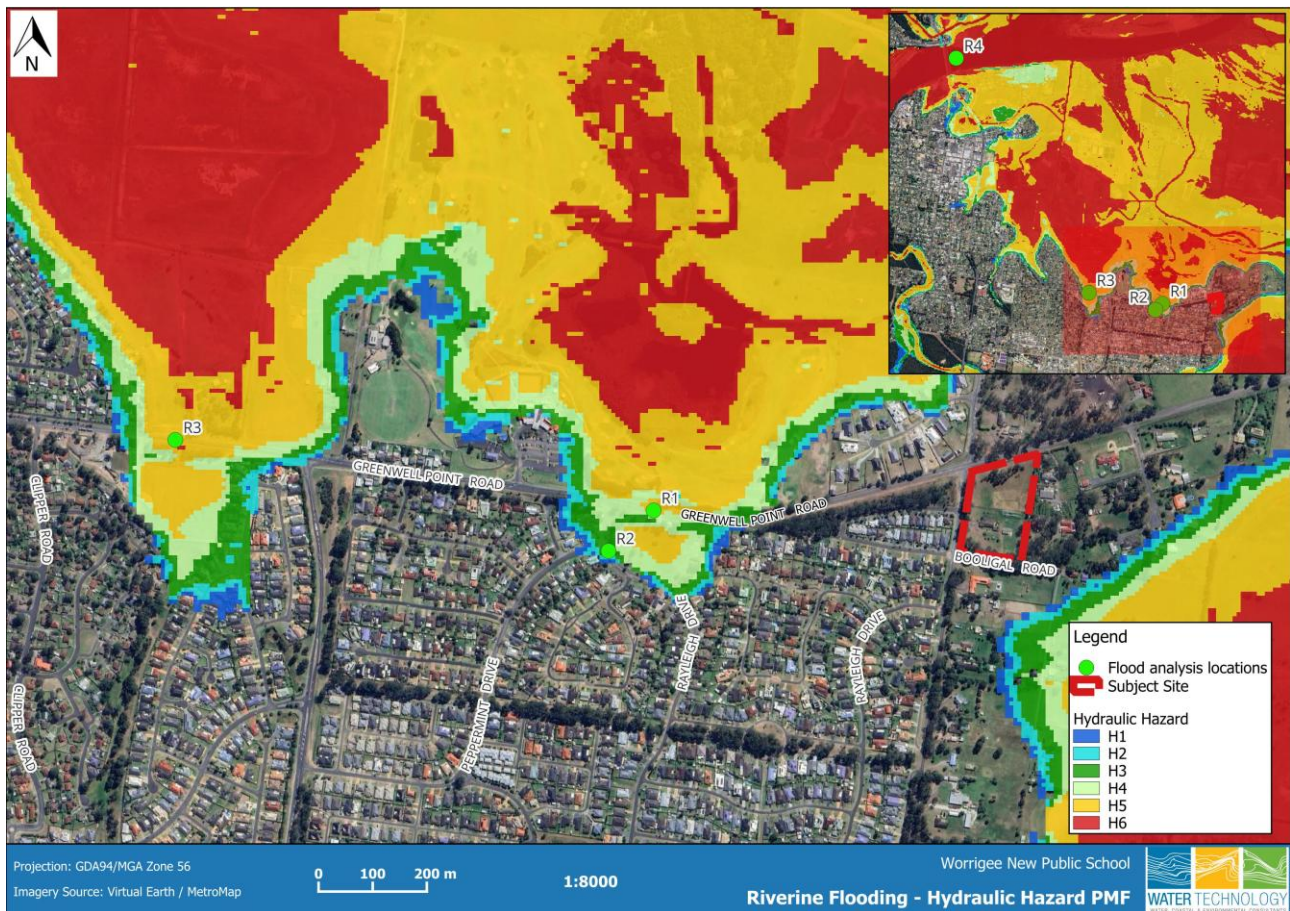


Figure 2.5 Riverine flooding - Hydraulic Hazard during a PMF

2.4.2.1 Site Isolation

Egress from the site via Greenwell Point Road would be restricted once the western cut point R3 is inundated by riverine flooding which occurs at least as frequently as the 20% AEP event. However, egress remains available via roads located south of Greenwell Point Road. The site becomes fully isolated by riverine flooding once the cut point at the intersection of Peppermint Drive and Rayleigh Drive (R2) is inundated, which occurs during the PMF event under H3 hydraulic hazard conditions (i.e. unsafe for vehicles and vulnerable persons such as children and the elderly).

2.4.2.2 Rate of Rise and Duration

To investigate flood evacuation capability the worst-case scenario of a flood rising as fast as the PMF must be considered. In the 24-hour duration PMF (Figure 2.6), the western cut point (R3) is inundated about 8 hours after rainfall commences, with inundation of R1 and R2 occurring at approximately 17 hours and 20 hours, respectively.

Under the 72-hour PMF (Figure 2.7), inundation at the western cut point (R3) may persist for up to 53 hours, while R1 and R2 may remain inundated for approximately 50 hours and 40 hours, respectively. As a result, the site may be fully isolated for a period of up to 40 hours.

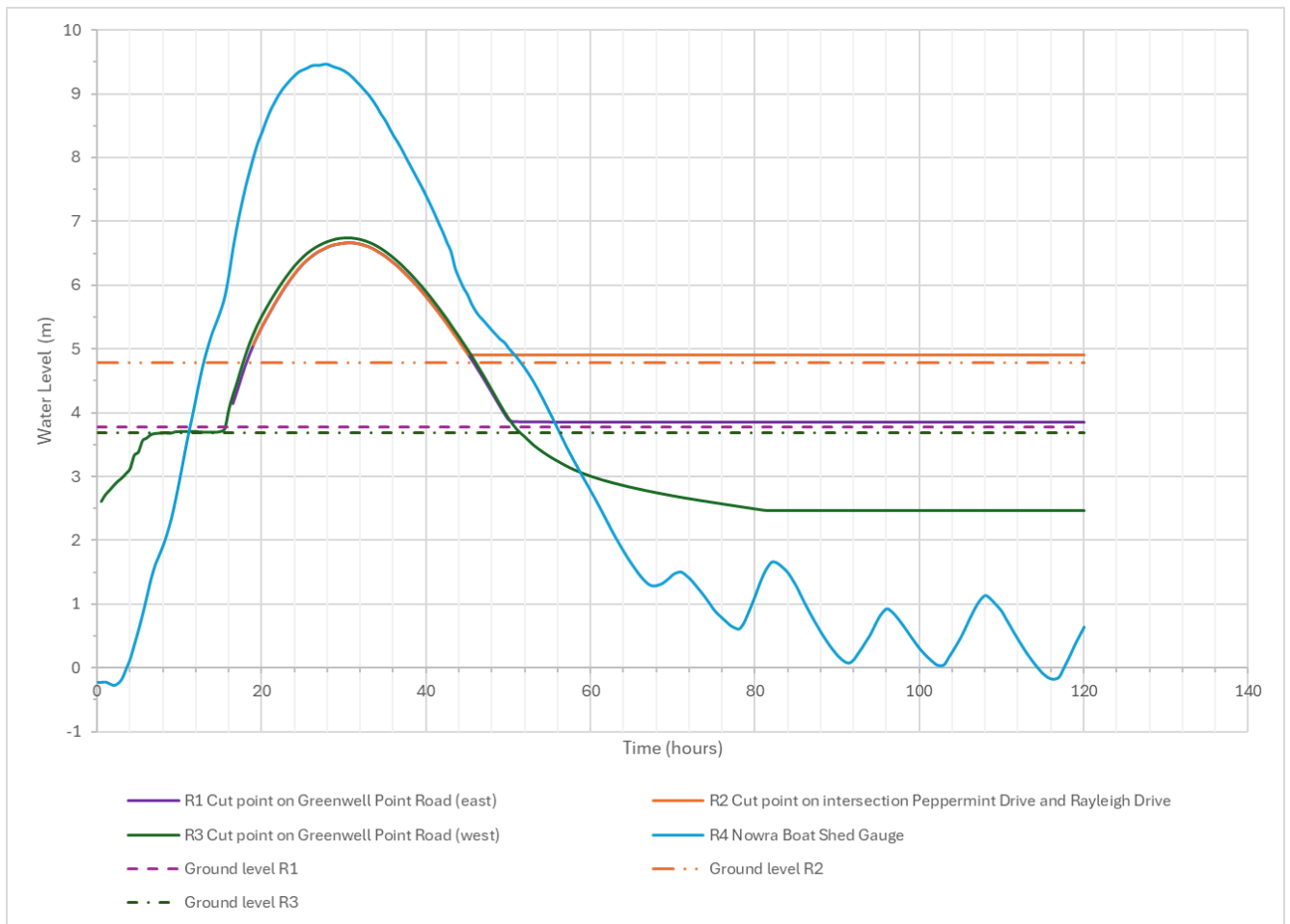


Figure 2.6 Riverine flooding – Flood Level hydrographs during the 24-hour duration PMF

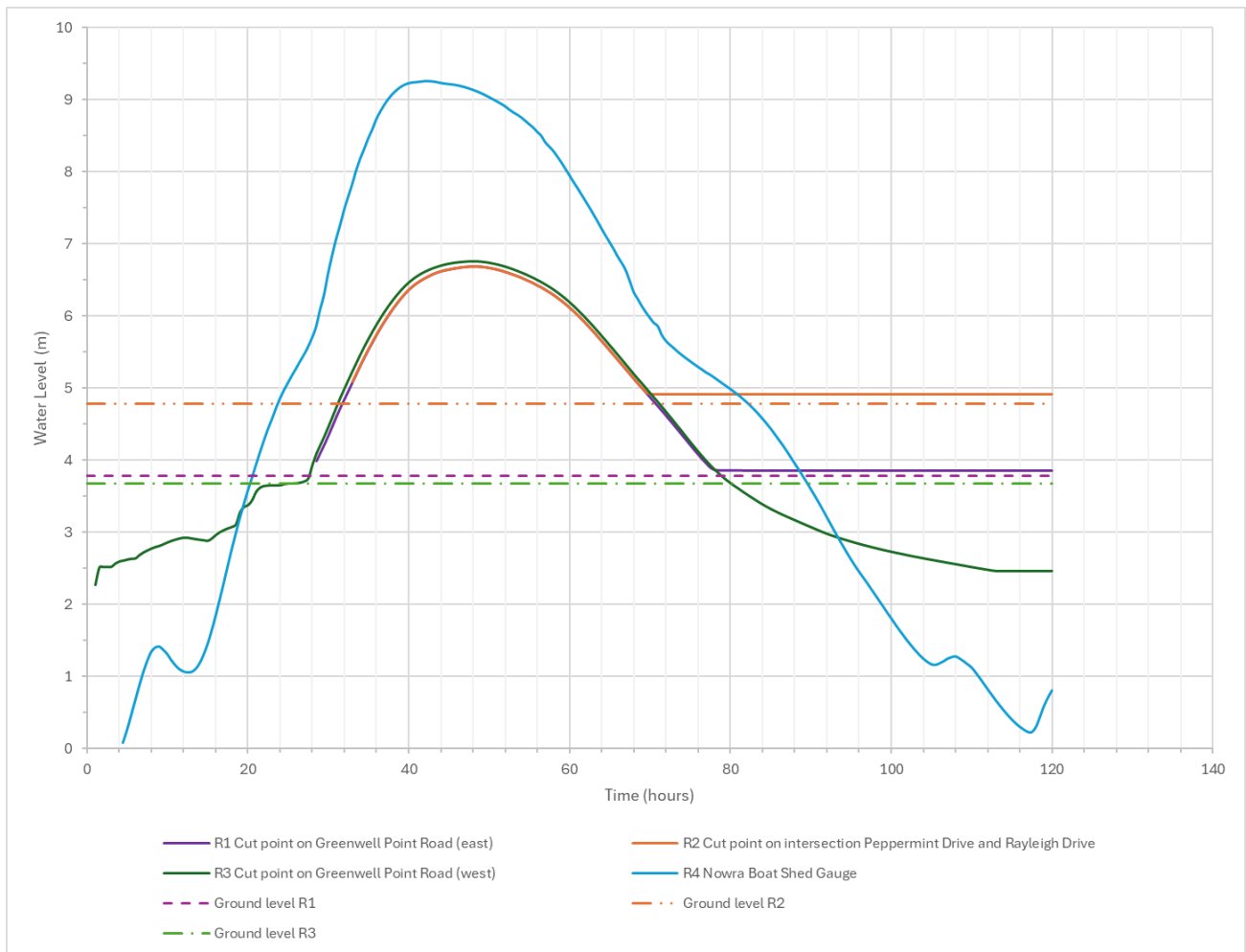


Figure 2.7 Riverine flooding – Flood Level hydrographs during the 72-hour duration PMF

2.4.3 Overland flooding

The overland flood model produced by Water Technology (2026) shows that the site and the surrounding roads are affected by overland flooding. Overland flood levels and flood behaviour at specific locations on the site and along exit routes are described in Table 2.2. Finished floor levels are at or above the PMF flood level and therefore not subject to inundation.

Table 2.2 Summary of flood levels and overland flood behaviour at the site and exit routes

Flood	ID	Location	Ground level (m AHD)	Flood Level (m AHD)	Flood Depth (m)	Hydraulic Hazard	Site Isolation
5% AEP	O1	West of SLU building	11.47	Not flooded	Not flooded	Not flooded	Nuisance flooding, very short duration. Greenwell Point Road and local roads are generally safe for pedestrian and vehicles.
	O2	South-east of games court	10.08	10.15	0.06	H1	
	O3	West of staff building	11.1	Not flooded	Not flooded	Not flooded	
	O4	East of hall building	9.35	9.55	0.2	H1	



Flood	ID	Location	Ground level (m AHD)	Flood Level (m AHD)	Flood Depth (m)	Hydraulic Hazard	Site Isolation
	O5	Southern driveway	8.31	Not flooded	Not flooded	Not flooded	
	O6	Cut point on intersection Rayleigh Drive and Worrigee Road	8.13	8.24	0.11	H1	
	O7	Cut point on Greenwell Point Road	3.75	3.87	0.12	H1	
	O8	Cut point on Rayleigh Drive	5.29	5.39	0.1	H1	
	O9	Cut point on Peppermint Drive	5.34	5.45	0.11	H1	
	O10	Cut point on Old Southern Road	10.34	10.4	0.06	H1	
1% AEP	O1	West of SLU building	11.47	Not flooded	Not flooded	Not flooded	Site access via Greenwell Point Road is generally safe for vehicles and pedestrians. Minor flooding in local roads, with some road spots experiencing high hazard for about 10-15 minutes.
	O2	South-east of games court	10.08	10.16	0.08	H1	
	O3	West of staff building	11.1	Not flooded	Not flooded	Not flooded	
	O4	East of hall building	9.35	9.56	0.21	H1	
	O5	Southern driveway	8.31	Not flooded	Not flooded	Not flooded	
	O6	Cut point on intersection Rayleigh Drive and Worrigee Road	8.13	8.27	0.14	H5	
	O7	Cut point on Greenwell Point Road	3.75	3.88	0.13	H1	
	O8	Cut point on Rayleigh Drive	5.29	5.42	0.14	H5	
	O9	Cut point on Peppermint Drive	5.34	5.48	0.14	H5	
	O10	Cut point on Old Southern Road	10.34	10.41	0.08	H1	
0.2% AEP	O1	West of SLU building	11.47	Not flooded	Not flooded	Not flooded	Site access via Greenwell



Flood	ID	Location	Ground level (m AHD)	Flood Level (m AHD)	Flood Depth (m)	Hydraulic Hazard	Site Isolation
	O2	South-east of games court	10.08	10.17	0.09	H1	Point Road is generally safe for vehicles and pedestrians. Minor flooding in local roads, with some road spots experiencing high hazard for about 15-20 minutes.
	O3	West of staff building	11.1	11.15	0.05	H1	
	O4	East of hall building	9.35	9.56	0.21	H1	
	O5	Southern driveway	8.31	8.35	0.04	H1	
	O6	Cut point on intersection Rayleigh Drive and Worrigee Road	8.13	8.29	0.17	H5	
	O7	Cut point on Greenwell Point Road	3.75	3.88	0.13	H1	
	O8	Cut point on Rayleigh Drive	5.29	5.45	0.17	H5	
	O9	Cut point on Peppermint Drive	5.34	5.51	0.17	H5	
	O10	Cut point on Old Southern Road	10.34	10.43	0.09	H1	
	O10	Cut point on Old Southern Road	10.34	10.43	0.09	H1	
0.05% AEP	O1	West of SLU building	11.47	Not flooded	Not flooded	Not flooded	Site access via Greenwell Point Road is generally safe for vehicles and pedestrians. Minor flooding in local roads, with some road spots experiencing high hazard for a short time.
	O2	South-east of games court	10.08	10.18	0.1	H1	
	O3	West of staff building	11.1	11.15	0.05	H1	
	O4	East of hall building	9.35	9.57	0.22	H1	
	O5	Southern driveway	8.31	8.36	0.05	H1	
	O6	Cut point on intersection Rayleigh Drive and Worrigee Road	8.13	8.31	0.18	H5	
	O7	Cut point on Greenwell Point Road	3.75	3.89	0.14	H1	
	O8	Cut point on Rayleigh Drive	5.29	5.47	0.19	H5	
	O9	Cut point on Peppermint Drive	5.34	5.53	0.19	H5	



Flood	ID	Location	Ground level (m AHD)	Flood Level (m AHD)	Flood Depth (m)	Hydraulic Hazard	Site Isolation
	O10	Cut point on Old Southern Road	10.34	10.44	0.1	H1	
PMF	O1	West of SLU building	11.47	11.52	0.05	H1	Site isolated. Greenwell Point Road flooded for about 2 hours, local roads for about 1 hour.
	O2	South-east of games court	10.08	10.22	0.14	H1	
	O3	West of staff building	11.1	11.21	0.11	H1	
	O4	East of hall building	9.35	9.6	0.25	H1	
	O5	Southern driveway	8.31	8.4	0.09	H1	
	O6	Cut point on intersection Rayleigh Drive and Worrigee Road	8.13	8.44	0.32	H5	
	O7	Cut point on Greenwell Point Road	3.75	4.27	0.52	H3	
	O8	Cut point on Rayleigh Drive	5.29	5.64	0.36	H5	
	O9	Cut point on Peppermint Drive	5.34	5.7	0.35	H5	
	O10	Cut point on Old Southern Road	10.34	10.5	0.16	H5	

In the 5% AEP event (Figure 2.8) overland flooding across the site is generally shallow, with flood depths ranging from 0.06-0.2 m at on-site locations, corresponding to low hydraulic hazard (H1). No inundation is present adjacent to the western buildings or on driveways. Cut points on Greenwell Point Road (O7), Old Southern Road (O10), the intersections of Rayleigh Drive and Worrigee Road (O6), Rayleigh Drive (O8) and Peppermint Drive (O9) are subject to shallow flooding and H1 hazard.



Figure 2.8 Overland flooding - Hydraulic Hazard during a 5% AEP event

During the 1% AEP event (Figure 2.9), overland flooding across the site remains shallow, with low hydraulic hazard (H1) at O2 and O4, and no inundation at O1, O3 or O5. Minor, localised ponding occurs to the west of the administration building. Along exit routes, shallow flooding with H1 hazard is present at O7 and O10. In contrast, high hydraulic hazard conditions (H5) occur at O6, O8 and O9, despite shallow flood depths of approximately 0.14 m, posing a hazard for about 10-15 minutes.



Figure 2.9 Overland flooding - Hydraulic Hazard during a 1% AEP event

During the 0.2% AEP event (Figure 2.10), overland flooding across the site remains classified as low hazard (H1) at O2, O3, O4 and O5. Shallow inundation of approximately 0.05 m depth occurs west of the staff building (O3) and along the southern driveway (O5).

Shallow inundation with H1 hazard also occurs along several exit routes, including O7 and O10. However, hydraulic hazard increases at key cut points, with H5 conditions occurring at O6, O8 and O9, where flood depths increase to approximately 0.17 m, posing a hazard for about 20 minutes.



Figure 2.10 Overland flooding - Hydraulic Hazard during a 0.2% AEP event

During the PMF event (Figure 2.11), overland flooding at the site remains negligible, with low hydraulic hazard (H1) and a maximum depth of 0.25 m to the east of the hall building.

Flood conditions along exit routes increase significantly with high hydraulic hazard (H5) occurring at O6, O8, O9 and O10, where flood depths range from approximately 0.16 m to 0.36 m. At O7, deeper inundation of approximately 0.52 m results in H3 hazard cutting Greenwell Point road for up to 2 hours, while adjacent road sections experience localised hazardous flow conditions for about 1 hour.



Figure 2.11 Overland flooding - Hydraulic Hazard during a PMF

2.4.3.1 Site Isolation

Local flooding conditions will pose a threat to vehicular traffic in the roads surrounding the site only in rare to extreme rainfall events.

Specifically, during the 1% and 0.2% AEP overland flood events, high hydraulic hazard conditions occur on local roads to the south of Greenwell Point (O6, O8 and O9), constraining transit along these routes, while Greenwell Point Road remains subject to low-hazard flooding. In the PMF event, overland flooding results in isolation of the site, with egress via Greenwell Point Road (O7) subject to high hydraulic hazard conditions.

2.4.3.2 Rate of Rise and Duration

The hydrographs in Figure 2.12 and Figure 2.13 show how flood behaviour would change through time during a 15-minute and 45-minute duration overland PMF events respectively.

In a 15-minute PMF event, inundation begins very quickly across multiple locations. Cut points along the evacuation route including O6, O8 and O9 would be inundated to depths exceeding 0.3m within 10 minutes of the start of rainfall. The most pronounced response occurs along the road network, particularly at O7, where water levels increase rapidly to a peak depth of approximately 0.45 m within about 20 minutes. In contrast, on-site locations such as O1, O2, O3 and O5 experience shallower inundation, with flood depths generally remaining below approximately 0.15 m.

In the 45-minute duration PMF event, inundation persists for up to 45 minutes at on-site locations with maximum flood depths ranging between 0.05 m and 0.25 m. At key cut points along exit routes, including O6,



O8 and O9, inundation persists for up to approximately 1 hour. The longest duration of inundation occurs at O7, where negligible flooding persists after 2 hours. Floodwaters with H2 hazard conditions at this location will have a short duration up to 20 minutes.

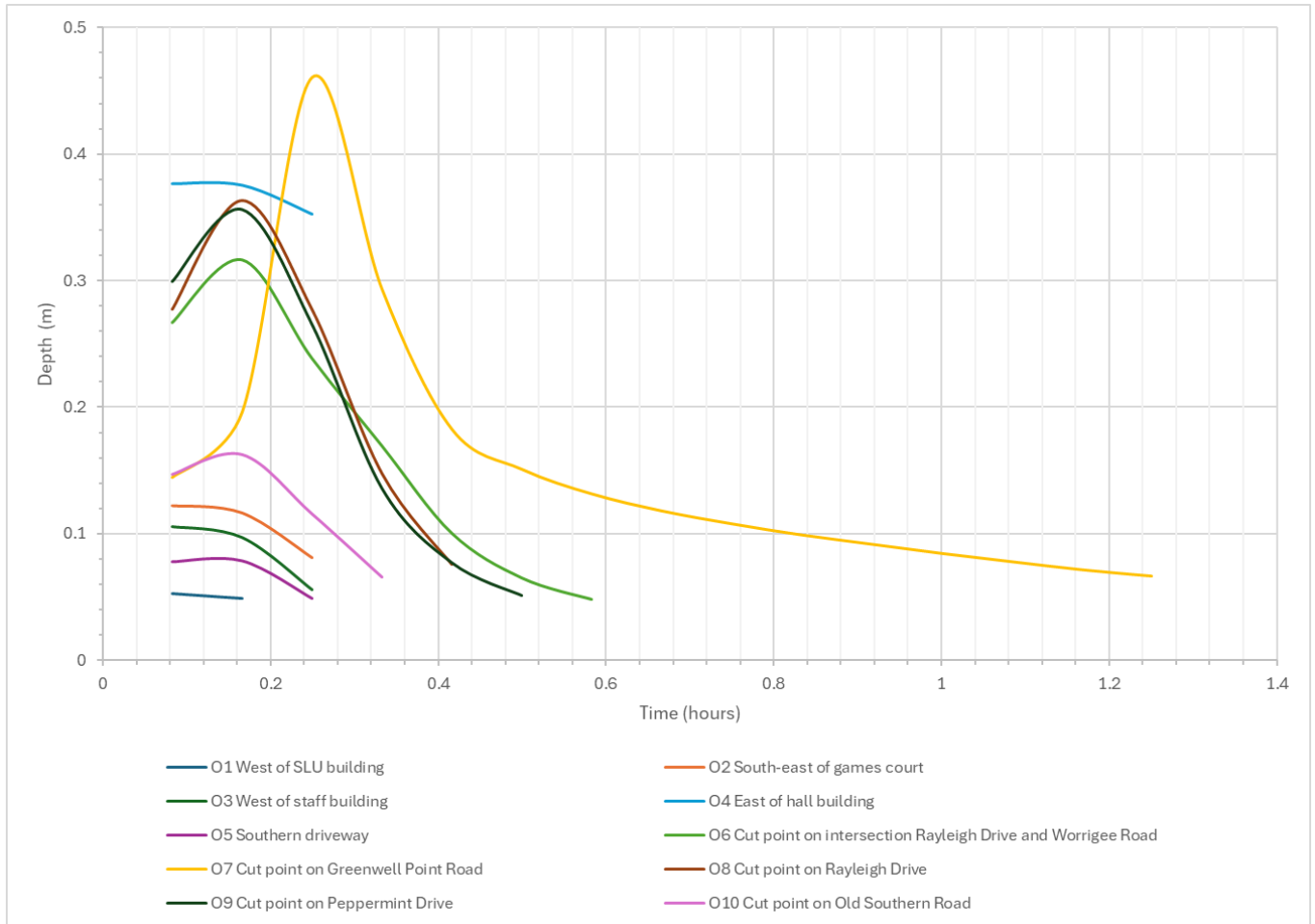


Figure 2.12 Overland flooding – Flood depth hydrographs of the 15-min duration PMF at key locations

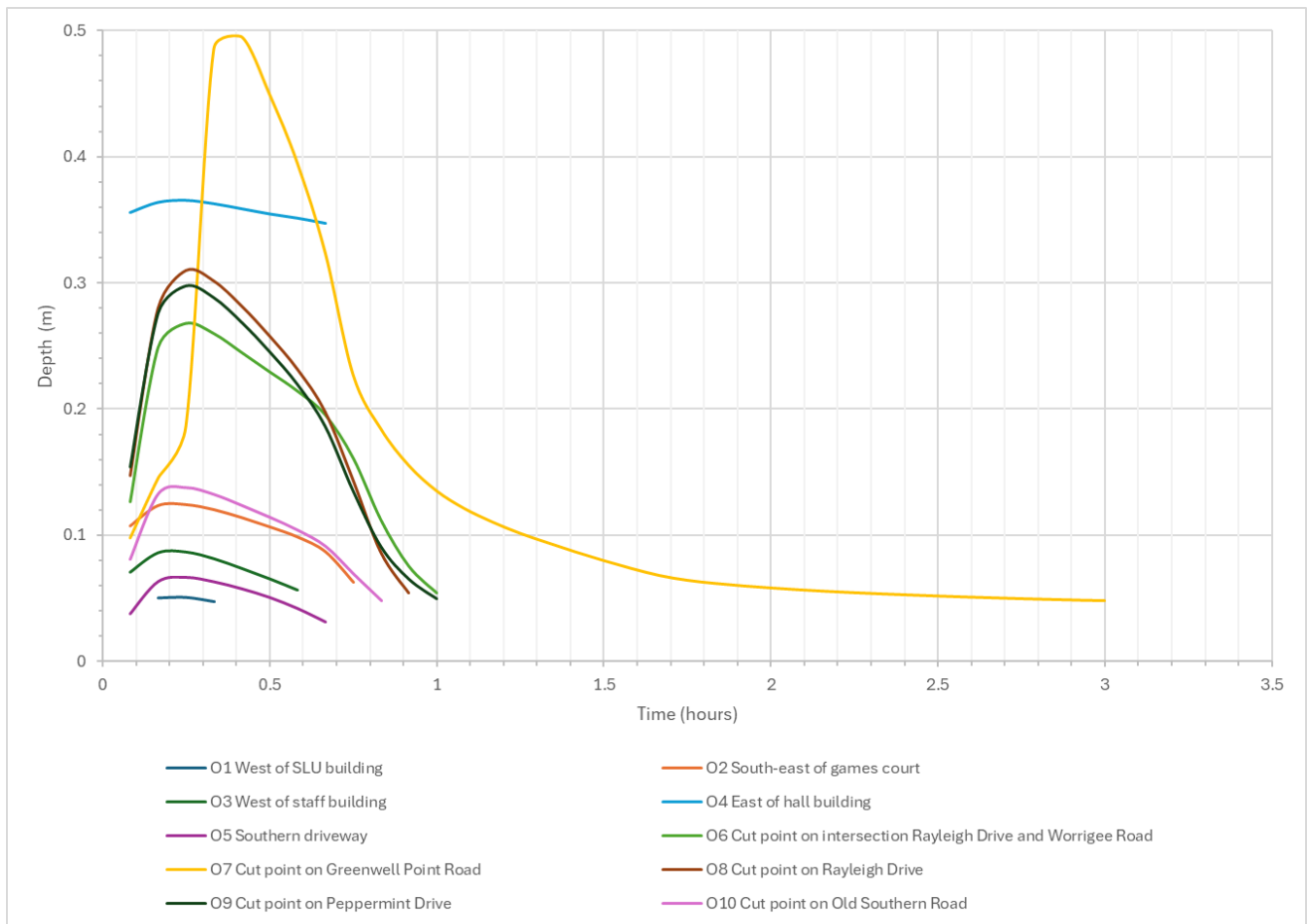


Figure 2.13 Overland flooding – Flood level hydrographs of the 45-min duration PMF at key locations

2.4.4 Creek Flooding

The Council's hydraulic model for the Lower Shoalhaven River Flood Study (Stantec, 2022) does not fully capture flooding associated with the local creek at C1 (Figure 2.14) as it is primarily configured to represent riverine flooding from the Shoalhaven River. The modelling indicates that short-duration events can result in inundation of Greenwell Point Road at C1, whereas longer-duration events do not consistently cause inundation.

Figure 2.15 shows that Greenwell Point Road at C1 may be inundated by H1 Floodwater for up to approximately 2 hours during the 12-hour duration 0.5% AEP event, which was assessed in the absence of short-duration PMF data.

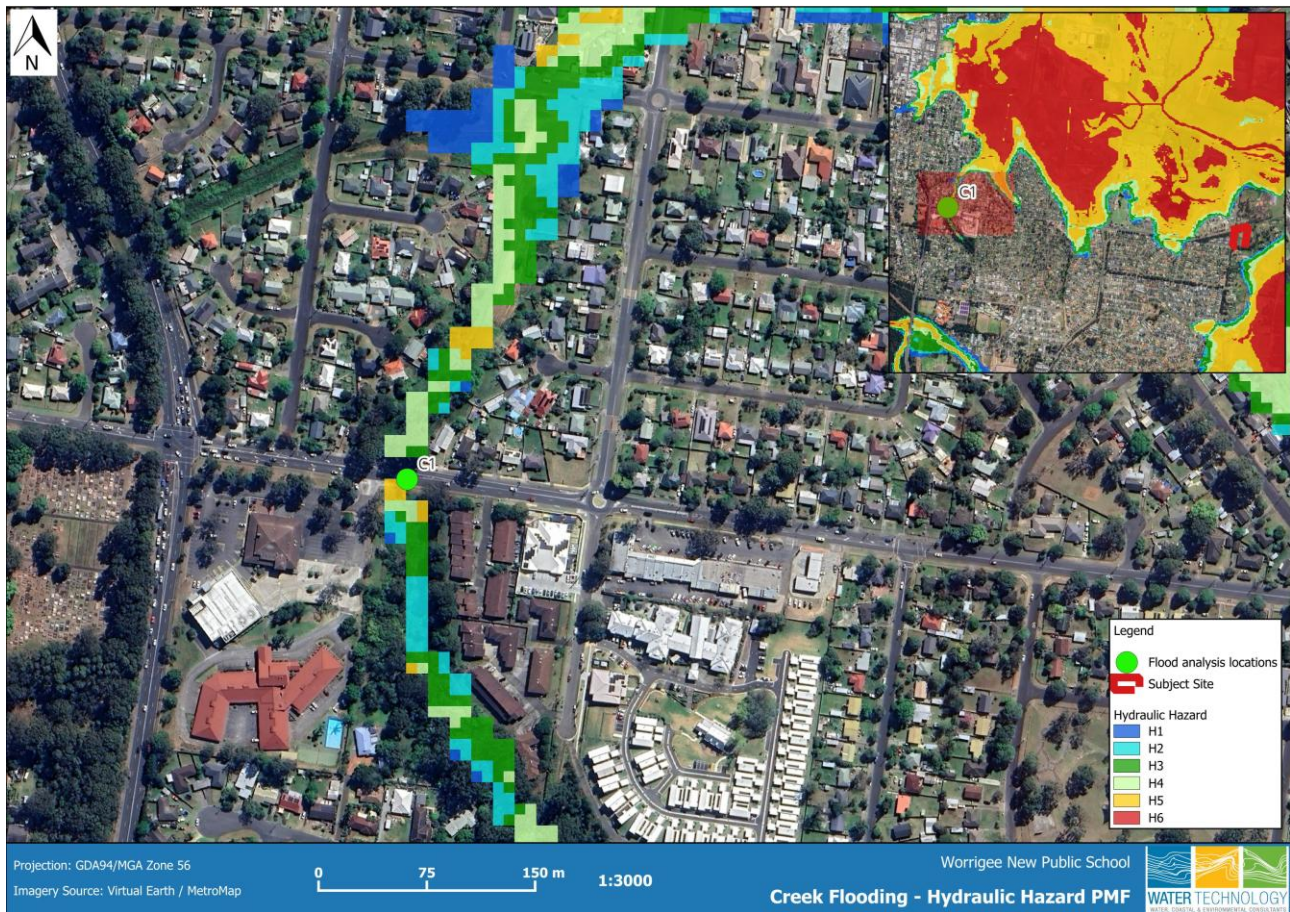


Figure 2.14 Creek flooding - Hydraulic Hazard PMF

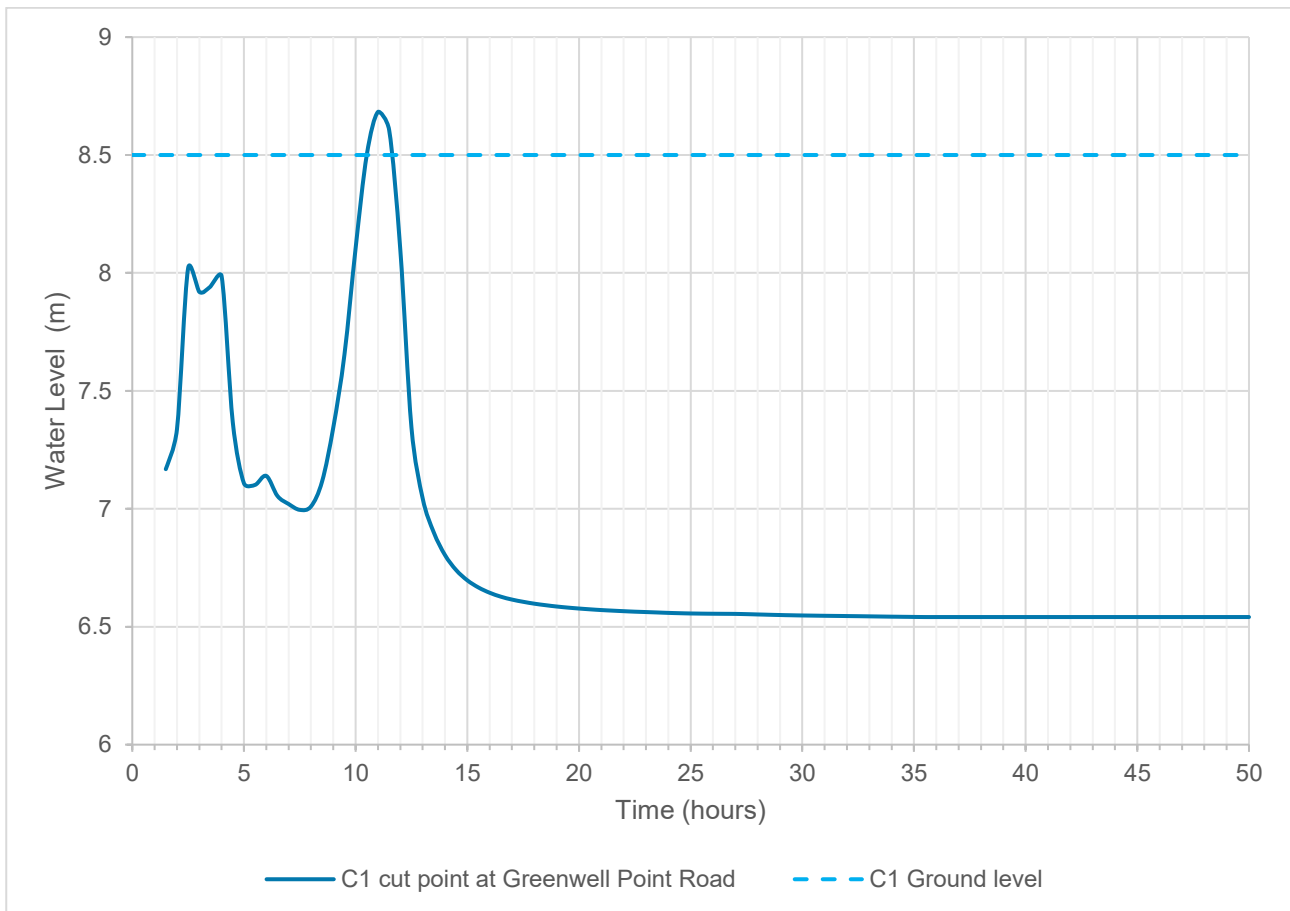


Figure 2.15 Creek flooding – Flood level hydrographs of the 12-hour duration 0.5% AEP event at C1 location.



3 AVAILABLE FLOOD WARNINGS

3.1 Bureau of Meteorology (BoM)

The Bureau of Meteorology (BoM) has warning products that could provide an indication of an increased flood threat. These are summarised in Table 3.1.

Table 3.1 Warning products provided by the BoM

BoM Product	Description	Warning lead-time	Where the product can be accessed	What to monitor for
Severe Weather Warnings	Issued for potentially hazardous or dangerous weather that is not solely related to severe thunderstorms, tropical cyclones or bushfires. The warnings describe the area under threat and the expected weather hazards. Warnings are issued with varying lead-times, depending on the weather situation. Occasionally, severe weather may occur without the relevant warning having been issued by the BoM.	1 – 24 hours	- Issued directly to the media when there is a high probability of flash flooding - Can be found at: http://www.bom.gov.au/nsw/warnings/ - BOM Weather app	Severe Weather Warnings with reference to intense rainfall or flooding for the <u>Illawarra area</u>
Severe Thunderstorm Warnings	Issued for events that may produce heavy rainfall with the potential to result in flash flooding. As severe thunderstorms can develop quickly, these warnings may not provide much warning time.	As little as minutes, but generally a few hours.	- Issued directly to the media when there is a high probability of flash flooding - Can be found at: http://www.bom.gov.au/nsw/warnings/ - BOM Weather app	Severe Thunderstorm Warnings for the <u>Illawarra area</u>
Rainfall Maps	Coarse forecast rainfall maps which can be used to estimate the amount of rain expected to fall over the next 4 days, as well as the next 24 hours.	1 – 4 days	Can be found at: http://www.bom.gov.au/jsp/watl/rainfall/pme.jsp	Intense or prolonged rainfall in the Worrigeer, Nowra, Brundee and areas
Rainfall Forecasts	Rainfall forecasts which can be used to estimate the amount of rain expected to fall within 3-hour windows over the next 3 days.	Up to 3 days	BOM Weather app	Intense or prolonged rainfall in the Worrigeer, Nowra, Brundee and areas



BoM Product	Description	Warning lead-time	Where the product can be accessed	What to monitor for
Radar Service	Shows current rainfall locations and intensities.	90 minutes (BoM Weather App only)	- Can be found at: https://www.bom.gov.au/weather-and-climate/rain-radar-and-weather-maps - BOM Weather app	Intense or prolonged rainfall in the Worrigeer, Nowra, Brundee and areas
Flood Watch	Provide early advice regarding the potential for flooding in a particular area.	24 – 96 hours	- Issued directly to the media when there is potential of flooding - BOM Weather app - Can be found at: https://www.bom.gov.au/weather-and-climate/warnings-and-alerts	Flood Watches with reference to the Shoalhaven River Flood Watch Area
Flood Warning	Issued when there is greater certainty that flooding is expected. Issued for waterways that take more than 6 hours to respond to rainfall	At Nowra Boat Shed (68213): Tagert flood warning time for a flood level >2.3m is 6 hours and for a flood level >3.3m is 9 hours	- Issued directly to the media when there is potential of flooding - Can be found at: http://www.bom.gov.au/nsw/warnings/ - BOM Weather app	A flood warning for a level of >3.3m at the at Nowra Boat Shed (68213):



BOM Weather 4.2
Australia's weather app
Bureau of Meteorology
Designed for iPad
#1 in Weather
★★★★★ 4.5 - 4.8K Ratings
Free

The BOM Weather app can be set to show only the relevant warnings that apply to the area set by the user, as well as three-hourly rainfall forecasts. The use of this app is particularly recommended because it provides most of the available BoM data that can be used to inform the emergency plan on mobile devices, and the BoM warnings can be prioritised as push notifications.

Importantly, the BoM Severe Weather Warnings, Severe Thunderstorm Warnings and Flood Watches may occasionally be issued without necessarily being followed by the event that they are predicting or may not be issued at all ahead of an actual thunderstorm or flood event. As such, these warnings are to be considered like an indication - not a certainty - that a flood affecting the site might occur. Similarly, the lack of

such warnings does not mean that a flood event affecting the site within the following hours or days is impossible.

The BoM also issues Flood Warnings when there is greater certainty that flooding is expected. However, these warnings are only issued for waterways that take more than 6 hours to respond to rainfall. Therefore, quantitative Flood Warnings are available for the Shoalhaven River.

3.2 Water Level Gauges

There are two BoM river level gauges near the site: the Nowra Boat Shed gauge (68213) and the Terara gauge (68221), located approximately 4.2 km and 3.03 km north of the site, respectively (Figure 4). It is understood that the NSW SES predominantly uses the Nowra Boat Shed (68213) forecast location for the Lower Shoalhaven River catchment. A further description of this gauge is provided in Section 3.1



Figure 3.1 Gauges near the site

The current target warning lead time for the Nowra Boat Shed gauge is 6 hours for flood levels exceeding 2.3 m AHD (minor flood) and 9 hours for flood levels exceeding 3.3 m AHD (moderate flood). Riverine levels at this gauge can be monitored at the following link

- Nowra Boat Shed (68213) - <https://www.bom.gov.au/fwo/IDN60234/IDN60234.068213.plt.shtml>

The classified flood levels for the 68213 Nowra Boat Shed are shown in Table 3.2.



Table 3.2 Nowra Boat Shed gauge readings and corresponding flood levels.

Flood Classification	Flood level (m AHD)
Minor	2.3
Moderate	3.3
Major	4.3

With respect to overland flooding, given the potential fast rate of rise of floodwaters on site and exit routes, and that the site can be isolated within 10 minutes of the start of overland flooding, the BoM is unlikely to issue Flood Warnings relevant to the site for overland flooding. Rainfall forecasts on the BOM Weather app give an indication of the amount of rain that will fall within 3-hour windows over the next 3 days. Based on the BoM's 2016 Intensity-Frequency-Duration (IFD) curves, approximately 71.9 mm of rain would fall during a 1% AEP rainfall event at the site with a 1-hour duration. The 3-hour forecast windows do not provide a 1 hour resolution for rainfall forecasts. However, for the purposes of defining triggers for flood emergency response actions this report assumes that the total amount of rain that the BoM app indicates could fall within a 3-hour period could fall within a single hour of that window. The probability of 71.9 mm of rain falling in a 3-hour period in any given year is between 5% and 10%. It should be noted that there is significant uncertainty associated with rainfall forecasts, particularly with regard to the depth of rainfall expected. Therefore, rainfall forecasts should not be relied upon as sole triggers for flood emergency response actions.

In summary, Severe Weather Warnings and Flood Watches provide anywhere between 1 hour to 4 days of warning time that flooding may occur. These types of warnings can be issued several times per year. Rainfall forecasts can provide up to 3 days of warning time that a rainfall event that could produce flooding may occur. In addition, Flood Warnings are issued when there is more certainty that riverine flooding will occur and at least 9 hours of lead warning time would be available prior to the site becoming isolated by riverine flooding.

3.3 NSW State Emergency Service

The NSW State Emergency Service (SES) is also likely to issue warnings using the Australian Warning System (AWS) which is a nationally consistent, 3-tiered approach designed to provide clear warnings and lead people to take action ahead of severe weather events. The warning system comprises warning levels, action statements, hazard icons, colours and shapes. The 3 warning levels and corresponding actions are:

- **Advice** – an incident has started. Stay up to date in case the situation changes.
 - Stay informed
 - Monitor conditions
 - Reduced threat: return with caution
- **Watch and Act** – conditions are changing and you need to start taking action now.
 - Do not enter floodwater
 - Prepare to evacuate
 - Prepare to isolate
 - Avoid the area



- **Emergency Warning** – the highest level of warning. You may be in danger and need to take action immediately.
 - Evacuate now / Evacuate before [time]
 - Shelter now
 - Move to higher ground



Hazards Near Me NSW
NSW Rural Fire Service
Designed for iPad
#96 in Utilities
★★★★★ 3.5 • 984 Ratings
Free

NSW SES warnings can be monitored through the [Hazards Near Me](#) app and it is possible to set it to receive notifications for a particular location.

3.4 Observations

It would also be possible to observe what is happening around the site and use visual cues to indicate potential overland flood behaviour. If flooding is observed on the south-east area of the games court, southern driveway Greenwell Point Road and Worrigee Road, this could indicate that overland flooding will rise to isolate the site within minutes.



4 EMERGENCY MANAGEMENT CONSIDERATIONS

4.1 Flood Emergency Response Strategy

This Flood Emergency Response Plan recognises that protection of life is of critical and primary importance. Consistent with any emergency protocol, the protection of all lives is the first priority, the comfort of students, staff and visitors is second, and protection of site property is third.

Generally speaking, there are 2 main types of responses to a flood emergency. These are to either:

- Evacuate off-site away from the building/s to an area above the reach of floodwaters in the PMF. This is the NSWSES preferred response, provided that the risks of evacuating are deemed acceptable; or
- Shelter in Place (vertical evacuation) until floodwaters have receded

Given that the site can be isolated for several hours (up to 40 hours) in a riverine PMF, shelter in place is not an appropriate response measure for the site.

The primary flood emergency response strategy for this site is to ensure that nobody is on site when this becomes isolated by riverine flooding. This is to be achieved by:

- Not opening the school if an extreme riverine flood is predicted, and considering keeping the school closed if intense local rainfall is predicted.
- Evacuate the school to land that is not constrained by flooding if a sufficiently large riverine flood is predicted when the school is open, having care to never drive or walk through floodwaters.
- If floodwaters are observed on the evacuation route (Figure 4.1), evacuation should pause until no more flooding can be seen over the road. In most cases local flooding will only last minutes, but in extreme events it can cause evacuation delays of up to two hours.

The following sections describe in more detail the analysis that was undertaken to inform the identification of the proposed emergency response strategy.

4.2 Evacuation Capability Assessment

This section estimates and compares the time available to evacuate the site with the time required to do so. If the time available to evacuate exceed the time required to do so, evacuation is deemed possible.

Specifically, evacuation to a location outside the floodplain must be possible in the worst-case scenario of a flood rising as fast as the PMF, when the site is at full capacity and local roads may be cut by local flooding. If evacuation is possible in the worst-case scenario, it is possible in all scenarios.

4.2.1 Time Available to Evacuate

The time available to evacuate the site is 13 hours.

The time available to evacuate depends on the lead time provided by the selected evacuation trigger. The proposed evacuation trigger for this site is when the BoM issues a quantified flood warning for a level of 5.6m AHD at the Nowra Boat Shed gauge on the Shoalhaven River.

Such a warning would provide approximately 9 h of lead warning time prior to this flood level being reached at the gauge. In a flood rising as fast as the 24-hour duration PMF it would take a further 4 hours before floodwaters would rise to cut the Peppermint Drive and Rayleigh Drive intersection at location R2. Therefore, a flood warning for 5.6 m AHD at the Nowra Boat Shed gauge would provide approximately 13 hours of warning time prior to the site becoming isolated by riverine flooding in the 24-hour duration PMF. Such a warning has a probability between 0.2% and 1% of being triggered in any given year.

4.2.2 Time Required for Vehicular Evacuation

The time required to evacuate the site by vehicle is approximately 6 hours.

This includes the time required by parents/guardians to drive to the school (from the farthest location within the school catchment), collect their children and continue the evacuation along the evacuation route shown in Figure 4.1.

This route is preferred as it becomes affected by flooding later than the route heading west along Greenwell Point Road, which is subject to earlier inundation from riverine flooding. Although both routes experience overland flooding, these floodwaters typically recede more quickly. As a result, this route represents the most suitable evacuation option when a riverine flood is forecast.



Figure 4.1 Evacuation Route

The time required to evacuate the site was calculated using the NSW SES Timeline Evacuation Model (Oppel et al., 2009), which considers:

- One hour of “warning acceptance factor” (time required for residents to make a decision to evacuate after an evacuation order has been communicated to them)
- One hour of “warning lag factor” (time required for residents to gather their belongings and leave)
- One hour of Traffic Safety Factor (to account for delays due to road congestion and accidents).
- A standard vehicular evacuation rate of 600 cars per lane per hour



Based on ABS 2021 Census data, it is estimated that approximately 1,038 vehicles may evacuate via cut point R2 during the peak season, comprising resident, commercial and visitor vehicles. Accounting for staff and parents evacuating from the site, a total of approximately 1,600 vehicles are expected to travel along the evacuation route.

Therefore, at a rate of 600 cars per lane per hour it will take approx. 2.7 hours for 1,600 vehicles in the area to clear the R2 low point.

The time required to evacuate the area is:

$$\begin{aligned} \text{Time Required} &= \text{Warning Acceptance Factor} + \text{Warning Lag Factor} + \text{Traffic Safety Factor} \\ &\quad + \text{evacuation time} \\ &= 1 \text{ hr} + 1 \text{ hr} + 1 \text{ hr} + 2.7 \text{ h} \\ &= \sim 6 \text{ h} \end{aligned}$$

4.2.3 Is there Sufficient Time to Evacuate?

Thirteen (13) hours of warning lead time is expected to provide sufficient time to evacuate the school. Considering a maximum of 3-hour allowance for parents and caregivers to travel to the school and collect students, assuming some may need to leave work, and a 4-hour buffer to account for potential delays caused by overland flooding (consistently with local flood behaviour as investigated in Section 2.4.3 and 2.4.4 of this report) on the route.

4.3 Flood Emergency Response Triggers

The recommended flood emergency response triggers are listed in Table 4.1.

Table 4.1 Emergency Response Triggers and Actions

Triggers from BoM or NSW SES	Triggers based on site observations	Actions to be taken
BoM issues a Severe Weather Warning for the Illawarra area Or BoM issues a Severe Thunderstorm Warning for the Illawarra Forecast Area	Intense rainfall is observed on site	■ If the school is closed, consider keeping it closed for the day. Consult with the NSW SES and DoE in making this decision. ■ If the school is open, notify staff, parents and carers that heavy rain and flooding in local streets is possible. Advise against driving through floodwaters of any depth. Reassure them that the school is safe and dry.



Triggers from BoM or NSW SES	Triggers based on site observations	Actions to be taken
BoM Weather App indicates there is at least a 25% chance of 71.9 mm or more of rain falling within any 3-hour window directly before, during or directly after the school is intended to be occupied OR NSW SES issues a Watch and Act for flooding applicable to the site.		■ If the school is still closed, consider not opening the school for the day. Consult with the NSW SES and DoE in making this decision. ■ If the school is open: ■ Notify all staff, parents and carers that heavy rain leading to local flooding is possible. Advise against driving through floodwaters of any depth. Reassure them that the school is safe and will remain open until the roads have cleared and children can be picked up. ■ Flood Wardens will visually monitor the southern driveway every hour
BoM has issued a Major Flood Warning for the Shoalhaven River at Nowra Boat Shed gauge		■ If school is closed, keep it closed for the day and notify staff and parents. ■ If the school is open: ■ Notify all staff and parents/caregivers that riverine flooding has been forecast and that they should be ready to pick up their children if notified. ■ Monitor forecasts, warnings, rainfall/stream gauges and local conditions on the site at least every hour.
	Floodwaters are observed on the southern driveway	Notify staff, parents and carers that due to intense rainfall, local roads are experiencing flooding and access to the school is temporarily cut. Reassure them that the school is safe and will remain open until the roads have cleared and children can be picked up.
BoM has issued a quantitative Flood Warning for a flood level of 5.6 m AHD or greater for the Shoalhaven River at Nowra Boat Shed gauge Or NSW SES Issues an Emergency Warning – Evacuate now/Evacuate before [time] applicable to Worrigeer		■ If the school is closed, keep it closed for the day and notify staff and parents. ■ If the school is open: ■ Notify parents/caregivers to pick up their children as soon as practicable, but making sure that they do not drive through floodwaters of any depth. Reassure them that the school is safe and will remain open until the roads have cleared and children have been picked up. ■ Upon pick-up, hand parents a printed map of the evacuation route ■ All staff to evacuate the site. ■ Flood Warden to visually monitor the southern driveway until all occupants have evacuated. If floodwaters are sighted across the road, pause evacuation until the road has cleared.



The flood emergency response triggers listed above were selected based on the following considerations:

- Severe weather warnings and rainfall forecasts provide just an indication that flooding is possible and do not provide any certainty. Any resulting flooding would not affect the school and may simply cut local roads in its surroundings for up to a few hours, although in most instances it would only be for a matter of minutes. As such, the decision of not opening the school when a Severe Weather Warning is issued or heavy rainfall is forecast will be made by School administration on a case by case basis, in consultation with NSW SES and DoE.
- Evacuating the school and Worrigeer is only required in extreme riverine flood events. The proposed evacuation trigger allows sufficient time for all children to be picked up by their parents and for possible delays due to local flooding.
- All vehicular traffic must stop if the road is cut by flooding of any depth. Evacuation will resume after the roads have cleared.

4.4 Flood Risk Management Features

This Flood Emergency Response Plan assumes that the following features are integrated into the design, construction and operation of the school to minimise the risk to life from flooding. It is a responsibility of School administration to ensure that these features are installed and adequately maintained so that they remain fit for purpose at all times.

- All levels of all buildings are above the reach of flooding in events up to and including the PMF
- Flood-free pedestrian access will be available between the school buildings in events up to and including the PMF
- The Chief Flood Warden will always have access to a laptop/tablet/smartphone with 4G/5G internet access and at least 24 hours of battery capacity.
- A back-up power supply located above the PMF level. All buildings will have a back-up 24-hr power supply.
- A public address (PA) system audible in all parts of the site during heavy rain, including outdoor sports and playground areas, will be maintained for use in communicating flood emergency messages to school occupants.
- Flood Wardens are to be subscribed to the BoM Weather App and the NSW Hazards Near Me App
- Flood Wardens are to have smartphones or other portable methods of communicating with each other (e.g. radio) and with the Chief Flood Warden. These systems will have a minimum of 24 hours battery capacity (this can be achieved through the use of power banks)
- A first aid kit and a list of emergency contact details should be kept in each of the buildings
- Non-perishable foods and drink should be available on site at all times. This can be stored in the hall/canteen.
- A portable radio with spare batteries for listening to information on local radio stations and torches with spare batteries will be stored on site.
- Soft and hard copies of the FERP will be kept in each of the school buildings, readily accessible to the Flood Wardens at all times.
- Hard copies of the evacuation route are kept at the school at all times. At least a copy for each enrolled child must always be available. These are to be handed out to the parents/carers upon pick up, if an evacuation is required.
- A parent/carer messaging app that will be used to message parents/caregivers about flooding and emergency response arrangements.



- There will be at least 2 Flood Wardens on site during main school hours and large events. There will be at least one Flood Warden on site at all other times that the site is occupied.
- School administration will notify NSW SES where there are likely to be significant delays in the operation of the roads affected by the upgrades as this may impact the ability for emergency vehicles to use these routes.
- Flood signage to be installed around the school grounds. Signage to be maintained, be clearly legible and be permanently visible:
 - Flood signage is to be displayed throughout the school and carparks. The signage will indicate:
 - The school can become isolated by flooding for several hours during intense rainfall.
 - Do not walk or drive through floodwaters of any depth.
- School administration and the Chief Flood Warden will organise an annual workshop with the Department of Education and executive to plan for a flood emergency. The workshop will include:
 - Continuity of teaching and learning in the event of a flood.
 - Discussing methods to contact staff/teachers before, during and after such flooding. Note that there may not be any warning prior to the onset of overland flooding.
 - Discussing methods to contact students and parents/carers before, during and after such flooding. Note that there may not be any warning prior to the onset of overland flooding.



5 FLOOD EMERGENCY RESPONSE PLAN (FERP)

5.1 Priorities

This FERP recognises that protection of life is of critical and primary importance. This FERP is principally concerned with the safety and comfort of all occupants on site. All flood emergency responses recommended in this FERP are to recognise the primacy of life and wellbeing over protection of property.

Nonetheless, it is recommended that the School administration and staff take all necessary measures outside of this FERP to manage the risks which flooding poses to the site and its property.

The FERP sets emergency management prevention, preparedness and response measures that are relevant to a flood emergency. It does not cover broader emergency management guidance for any other type of hazard that could affect the site.

5.2 Roles and Responsibilities

5.2.1 NSW State Emergency Services (NSWSES)

The NSWSES is the lead combat agency for flooding in NSW. It can command resources from other government organisations including local councils, Transport for NSW and the Police to assist in flood operations under its command.

Under the State Emergency and Rescue Management Act, 1989, the NSWSES has the power to direct any citizen or organisation to take actions in response to flooding. This includes the power to order evacuations.

Any flood response directive issued by the NSWSES or by delegated authority to others acting on its behalf must be followed by school administration and staff. This includes any order to evacuate the site or not evacuate the site, irrespective of what decisions have been made by management in accordance with this FERP.

5.2.2 School administration

School administration will be responsible for ensuring that:

- all flood risk management features listed in Chapter 4.4 of this report are implemented and are regularly tested, serviced and repaired so that they remain fit for purpose at all times
- the Principal and Deputy Principal are made aware of this FERP
- the Chief Flood Warden and Flood Wardens are familiar with this FERP
- the FERP is reviewed and updated every 5 years, or following a flood that isolates or affects the site
- the FERP is kept up to date
- Flood Wardens are appointed from among the staff and are given flood risk management responsibilities and have sufficient training to implement this FERP
- The Principal, Deputy Principal and Flood Wardens (and the Principal and Deputy Principal if they are not nominated as Flood Wardens) are subscribed to the BoM Weather App and Hazards Near Me App to automatically receive weather and flood alerts and warnings
- there are at least 2 adequately trained Flood Wardens on site during main school hours and during large events. There will be at least one Flood Warden on site at all other times that the site is occupied.
- the parent messaging app is maintained for access by school administration, the Principal, Deputy Principal and by any Flood Wardens delegated the duty of messaging parents/caregivers.



- all staff are given induction and training into their flood emergency response responsibilities
- an annual workshop is organised with the Department of Education and executive to plan for a flood emergency. The workshop will include:
 - Continuity of teaching and learning in the event of a flood.
 - Discussing methods to contact staff/teachers before, during and after such flooding. Note that there may not be any warning prior to the onset of overland flooding.
 - Discussing methods to contact students and parents/carers before, during and after such flooding. Note that there may not be any warning prior to the onset of overland flooding.
- general flood information about the site (see Appendix D) is permanently displayed on the facility's website
- messages are sent to parents via the parent messaging app in the event of a flood should the school be unable to send these messages (see Appendix D for messages).
- support the Chief Flood Warden and Flood Wardens in their duties
- post-flood site clean-up and recovery
- there are sufficient financial, human and other resources to maintain and implement the FERP.
- Notifying NSW SES where there are likely to be significant delays in the operation of roads affected by the upgrades, as this may impact the ability for emergency vehicles to use these routes.
- Ensure workers and people using the facility during and after upgrades are aware of the flood risk, for example through site inductions or by using signage.

5.2.3 Principal / Chief Flood Warden

School administration will appoint a Chief Flood Warden (likely the Principal). The Chief Flood Warden will be responsible for:

- being familiar with all flood emergency management procedures set out in this document and with BoM warnings and rainfall data
- ensuring that all staff and Flood Wardens are aware of the flood emergency response procedures set out in this chapter and Appendix A of this FERP. This will be done during staff inductions and at the start of each school year.
- ensuring that all Flood Wardens know how to monitor rainfall forecasts and internal/external water levels
- organising training for themselves and Flood Wardens in the implementation of the flood emergency management procedures set out in this chapter and Appendix A of this FERP
- subscribing themselves and Flood Wardens to the BOM Weather App and to the Hazards Near Me App to receive severe weather and flood warnings direct to their mobile devices
- ensuring the parent messaging app is maintained for access by the Chief Flood Warden or delegate
- ensuring a first aid kit and a list of emergency contact details is kept in each of the buildings
- ensuring there is sufficient non-perishable foods and drink available on site at all times. This can be stored in the hall/canteen.
- ensuring a portable radio with spare batteries for listening to information on local radio stations and torches with spare batteries are stored on site.
- ensuring an annual audit is undertaken of the resources necessary to implement the FERP
- organising the testing and maintenance of the public address system



- keeping a fully charged and functional mobile phone/laptop/tablet with 4G/5G internet access and at least 24 hours of battery charge on site at all times
- ensuring there are at least 2 adequately trained Flood Wardens on site at all times during main school hours and during large events and that there is at least one Flood Warden on site at all other times that the site is occupied.
- monitoring weather, rainfall forecasts and warnings through the Bureau of Meteorology website each morning, or delegating this task to an on-duty Flood Warden.
- monitoring weather and rainfall forecasts through the Bureau of Meteorology website
- monitoring internal and external flood levels when required
- keeping soft and hard copies of the FERP on site and readily accessible to the Flood Wardens at all times, as per Chapter 4.4
- maintaining a list of emergency contacts which will include emergency services and utility providers. These details and other necessary contact details are provided in Appendix C
- maintaining a register of emergency contact details for the parents and caregivers of all students and for staff.
- organising an annual workshop with the Department of Education and executive to plan for a flood emergency. The workshop will include:
 - Continuity of teaching and learning in the event of a flood.
 - Discussing methods to contact staff/teachers before, during and after such flooding. Note that there may not be any warning prior to the onset of overland flooding.
 - Discussing methods to contact students and parents/carers before, during and after such flooding. Note that there may not be any warning prior to the onset of overland flooding.
- implementing this FERP in the event of a flood or delegating that task to an on-duty Flood Warden
- directing other staff to implement various aspects of this FERP, as required
- liaising with emergency service organisations and other external stakeholders, as required
- organising a review of the FERP every 5 years or following a flood which triggers evacuation
- reporting annually, and as requested, to the school administration on implementation and maintenance of the FERP.

The Chief Flood Warden may delegate the above tasks to others but bears ultimate responsibility for their implementation. If the Chief Flood Warden is not present on site a delegate from among the nominated Flood Wardens (likely the Deputy Principal) will take on the responsibilities of the Chief Flood Warden.

5.2.4 Flood Wardens

Flood Wardens should be selected from among the school staff. If expedient, Fire Wardens should also be appointed as Flood Wardens. All Flood Wardens will be responsible for:

- ensuring that they are aware of the flood emergency response procedures set out in this FERP
- ensuring they know how to monitor rainfall forecasts, severe weather warnings and internal/external water levels
- ensuring soft and hard copies of the FERP are located in the buildings as per Chapter 4.4 and to report absences to the Chief Flood Warden



- implementing the procedures in this FERP during and after a flood.

Flood Wardens may delegate any of the actions set out in this FERP that need to be taken during or after a flood but bear ultimate responsibility for their implementation.

5.2.5 Staff, Students and Visitors

Staff, students and visitors are to follow the directions of school administration, the Chief Flood Warden or Flood Wardens during a flood emergency. Staff will report any concerns to the Chief Flood Warden, Flood Wardens or school administration.

5.2.6 Parents and Caregivers

Parents and caregivers will be responsible for providing the school with their most up to date contact details and following directions issued by the school.

5.3 What to do Before, During and After a Flood

Management actions which are applicable to the entire site are included in the following sections. **Appendix A summarises all of the following actions as a check list to be used before, during and after a flood.** Appendix B lists items which should always be kept on site in case of flood. Appendix C provides an emergency contact list to be completed and kept updated by the Chief Flood Warden. Appendix D contains pre-prepared messages for communicating with the school community during a flood.

The flood emergency response operations are divided into four phases:

- Prevent – this applies at all times
- Prepare – this occurs when flooding of the site may be about to happen
- Respond – this occurs when a flood of the site is ongoing
- Recover – this occurs after a flood event

5.3.1 Prevent: Before a Flood

TRIGGER FOR ACTION #1 — Always

ACTIONS:

All staff to ensure that their responsibilities, as listed in Section 5.2 of this report, are attended

5.3.2 Prepare: When a Flood is Possible

TRIGGER FOR ACTION #2:

BoM issues a Severe Weather Warning or a Severe Thunderstorm Warning for the Illawarra forecast area

OR

Intense rainfall is observed on site

ACTIONS:

- If the school is closed, consider keeping it closed for the day. School administration and the Chief Flood Warden are to consult with the Department of Education and the NSW SES in making this decision.



- If the school is open:
 - The Chief Flood Warden or delegate will notify staff, parents and carers that flooding in local streets is possible. Advise against driving through floodwaters of any depth. Reassure them that the school is safe and dry.
 - The Chief Flood Warden or delegate will visually monitor the southern driveway every 2 hours.

TRIGGER FOR ACTION #3:

BoM Weather App indicates there is at least a 25% chance of 71.9 mm or greater of rain falling within any 3-hour window directly before, during or directly after the school is intended to be occupied

OR

NSW SES issues a Watch and Act for flooding applicable to the site

ACTIONS:

- If the school is still closed, consider not opening the school for the day. Consult with the NSW SES and DoE in making this decision.
- If it is decided to keep the school closed, the Chief Flood Warden or delegate will message all staff, students, parents and caregivers that the school will be closed until further notice due to the possibility of flooding. Please do not drop your child off at school (see Appendix D for messages)
- If the school is open:
 - The Chief Flood Warden or delegate will monitor conditions throughout the day
 - The Chief Flood Warden or delegate will notify all staff, parents and carers that heavy rain leading to local flooding is possible. Advise against driving through floodwaters of any depth. Reassure them that the school is safe and will remain open until the roads have cleared and children can be picked up.
 - During the period over which rain is forecast, the Chief Flood Warden or delegate will visually monitor the southern driveway every hour.

TRIGGER FOR ACTION #4:

BoM has issued a Major Flood Warning for the Shoalhaven River at Nowra Boat Shed gauge

ACTIONS:

- If school is closed, keep it closed for the day. The Chief Flood Warden or delegate will message all staff, students, parents and caregivers that the school will be closed until further notice due to the possibility of flooding. Please do not drop your child off at school (see Appendix D for messages).
- If the school is open:
 - Notify all staff and parents/caregivers that riverine flooding has been forecast and that they should be ready to pick up their children if notified.
 - Chief Flood Warden or a Deputy Flood Warden to monitor forecasts, warnings, rainfall/stream gauges and local conditions on the site at least every hour and advise management accordingly.

5.3.3 Respond: During a Flood

TRIGGER FOR ACTION #5:

Floodwaters are observed on the southern driveway

ACTIONS:



- The Chief Flood Warden or delegate will make sure that no one access the school grounds.
- The Chief Flood Warden or delegate will notify staff, parents and carers that due to intense rainfall, local roads are experiencing flooding and access to the school is temporarily cut. Reassure them that the school is safe and will remain open until the roads have cleared and children can be picked up (see Appendix D for messages).

TRIGGER FOR ACTION #6:

BoM has issued a quantitative Flood Warning for a flood level of 5.6 m AHD or greater for the Shoalhaven River at Nowra Boat Shed gauge

Or

NSW SES Issues an Emergency Warning – Evacuate now/Evacuate before [time]

ACTIONS:

- If the school is closed:
 - Keep it closed for the day
 - The Chief Flood Warden or delegate will message all staff, students, parents and caregivers that the school will be closed until further notice due to forecast flooding of the Shoalhaven River. Please do not drop your child off at school (see Appendix D for messages)
- If the school is open:
 - The Chief Flood Warden or delegate will notify parents/caregivers to pick up their children as soon as practicable, but making sure that they do not drive through floodwaters of any depth. Reassure them that the school is safe and will remain open until the roads have cleared and children have been picked up (see Appendix D for messages). Upon pick-up, the Chief Flood Warden will handle parents a printed map of the evacuation route and ask them to follow instructions from the NSW SES.
 - All staff to evacuate the site.
 - Flood Warden to visually monitor the southern driveway until all occupants have evacuated. If floodwaters are sighted across the road, pause evacuation until the road has cleared.

TRIGGER FOR ACTION #7:

Floodwaters are observed across the southern driveway and evacuation route AFTER the site evacuation has been ordered

- Pause evacuation until local floodwaters have receded and the evacuation route is safe to use.
- Resume evacuation only when safe access is restored.

5.3.4 Recover: After a Flood

TRIGGER FOR ACTION #8:

Emergency Services give the all-clear

ACTIONS:

- If local flooding occurred:
 - The Chief Flood Warden or delegate will notify parents/carers and off-site staff that the flood threat has passed but that local roads may be still affected by flooding or debris, and they must not drive or walk through floodwaters. If their children are on site, they will be cared for until they can be collected.



- Teachers will check off the names of students and escort them to their parents' or caregivers' vehicle when they arrive for pick-up.
- The Chief Flood Warden or delegate will send staff home as permitted under required staff-student ratios.
- The parents or caregivers of any students who have not been picked up after an hour should be contacted again via phone call.
- Enough staff to maintain required staff-student ratios will remain on site until all students have been picked up.
- Once all students have been picked up the Chief Flood Warden or delegate will send everyone home who is remaining. If any do not have their own vehicle on site, carpooling should be organised with other staff members.
- A hazard assessment will be undertaken by the Chief Flood Warden for the clean-up. Safe work methods statements will be 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.
- Plumbing and gas to be checked by licensed plumber and defects rectified
- Electrical to be checked by licensed electrician and defects rectified.
- School administration and the Chief Flood Warden will ensure staff and students do not return to the site until a clearance certificate has been issued by Access Management Utility (AMU)
- Education programs can be resumed once AMU has issued a clearance certificate
- Following the re-commencement of school activities, a de-brief will be held with key management staff and may involve NSW SES flood personnel/volunteers. The flood event and response, including the use of this FERP and any emergency procedures will be reviewed. The debrief will consider the effectiveness of the FERP.
- Changes may be made to this FERP and the requirements for future emergency response should the review identify any improvements which may be made
- Once education programs have resumed, the school administration may organise debrief sessions with students and with staff, in consultation with counselling services.
- The DoE will organise for students or staff experiencing distress in the weeks following a flood emergency to have access to counselling services.



6 MITIGATION MEASURES

The flood emergency response-related (OPFMM1) mitigation measures applicable to the proposed school are set out in Table 6.1.

Table 6.1 OPFMM1 mitigation measures

ID	MM Name	Mitigation Measure	Timing
OM5	Flood Emergency Response Plan	Prior to the commencement of operation, the draft Flood Emergency Response Plan (FERP) (Appendix 8) is to be finalised in consultation with the NSW Department of Education's Emergency Response Team. The final FERP must be to the satisfaction of the NSW Department of Education's Emergency Response Team and include the following: (a) The school must pre-emptively close when a local or mainstream flood event is forecasted or SES advises; (b) outline procedures to be followed in the case of local flooding occurring while the school is occupied and a warning has been issued for potential mainstream flooding of the site; (c) procedures must ensure that there will be no chance of children and teachers being in the preschool when mainstream flooding of the site occurs; (d) a simplified description of flood behaviour, including potential flood levels and associated frequencies within the site and within the adjoining road system; (e) provides clear emergency management triggers and responses, including rainfall and water level and NSW SES alerts and Bureau of Meteorology warnings that require pre-emptive closure of the school; (f) School administration must undertake annual evacuation preparations and an evacuation drill prior to the commencement of the wet season (typically November to April); (g) School administration to undertake responsibilities as set out in the FERP; (h) Ensure that the Flood Warning Notice is maintained and permanently visible; (i) Include details of awareness training for employees, contractors, parents and induction of new staff members; and (j) Provide clear messaging and communication protocols, including but not limited to, staff and parents.	Prior to commencement of Operations
OM6	Flood Emergency Response Plan	The Flood Emergency Response Plan must be implemented.	During Operations



7 REFERENCES

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- Bennet and Trimble (2026) New Primary School in Worrigeer REF report. Architectural Report
- Bureau of Meteorology. (2025). Service level specification for flood forecasting and warning services for New South Wales and the Australian Capital Territory. Commonwealth of Australia.
- NSW Government (2023) *Hazards Near Me app*. Available at: <https://www.nsw.gov.au/emergency/hazards-near-me-app>
- NSW SES (2022) Shoalhaven City Flood Emergency Sub Plan.
- Opper, S., Cinque, P. Davies, B. (2009) Timeline Modelling of Flood Evacuation Operations. Presented at First International Conference on Evacuation Modelling and Management, Den Haag, The Netherlands, 23-25 September 2009.
- Stantec (2022) Lower Shoalhaven River flood study. Prepared for Shoalhaven City Council.
- State of NSW through the Department of Planning, Housing and Infrastructure (2024) Shelter in place guideline for flash flooding.



APPENDIX A FLOOD EMERGENCY RESPONSE PLAN ACTION CHECKLIST





Stage	Trigger for Action	Action	Who is Responsible	What is Needed
Before a flood	Always	School administration will ensure there are sufficient financial, human and other resources to maintain and implement the FERP.	School Administration	FERP
		School administration will ensure all flood management features listed in Chapter 4.5 of this report are implemented and are regularly tested, serviced and repaired so that they remain fit for purpose at all times.	School Administration, Chief Flood Warden	Flood management features
		The Chief Flood Warden will ensure an annual audit is undertaken of the resources necessary to implement the FERP.	Chief Flood Warden	FERP
		School administration and the Chief Flood Warden will ensure the FERP is reviewed and updated every 5 years, or following a flood or that isolates the site.	School Administration, Chief Flood Warden	FERP
		School administration and the Chief Flood Warden will ensure the FERP is kept up to date	School Administration, Chief Flood Warden	FERP
		The Chief Flood Warden will report annually, and as requested, to the school administration on implementation and maintenance of the FERP.	Chief Flood Warden	FERP
		The Chief Flood Warden will organise the testing and maintenance of the public address system	Chief Flood Warden	PA system
		School administration and the Chief Flood Warden will ensure the parent messaging app is maintained for access by School administration, the Principal, Deputy Principal and by any Flood Wardens delegated the duty of messaging parents/caregivers.	School Administration, Chief Flood Warden	Parent messaging app
		School administration will ensure Flood Wardens are appointed from among the staff and are given flood risk management responsibilities and have sufficient training to implement this FERP.	School Administration	Training records



Stage	Trigger for Action	Action	Who is Responsible	What is Needed
		The Chief Flood Warden will organise training for themselves and Flood Wardens in the implementation of the flood emergency management procedures set out in this chapter and Appendix A of this FERP.	Chief Flood Warden	FERP
		School administration will ensure the Principal and Deputy Principal are made aware of this FERP.	School Administration	FERP
		School administration will ensure the Chief Flood Warden and Flood Wardens are familiar with this FERP.	School Administration	FERP
		School administration and the Chief Flood Warden will ensure that the Chief Flood Warden and Flood Wardens (and the Principal and Deputy Principal if they are not nominated as Flood Wardens) are subscribed to the BoM Weather App and Hazards Near Me App to automatically receive weather and rainfall alerts and warnings direct to their mobile devices.	School Administration, Chief Flood Warden	BoM app, Hazards Near Me app
		School administration will support the Chief Flood Warden and Flood Wardens in their duties.	School Administration	N/A
		School administration will ensure there are at least 2 adequately trained Flood Wardens on site at all times during main school hours and during large events and that there is at least one Flood Warden on site at all other times that the site is occupied.	School Administration	Staff roster
		The Chief Flood Warden will ensure all staff and Flood Wardens are aware of the flood emergency response procedures set out in this chapter and Appendix A of this FERP. This will be done during staff inductions and at the start of each school year.	Chief Flood Warden	FERP
		School administration will ensure all staff are given induction and training into their flood emergency response responsibilities.	School Administration	Training records



Stage	Trigger for Action	Action	Who is Responsible	What is Needed
		The Chief Flood Warden and all Flood Wardens will become familiar with this FERP and the flood emergency response procedures set out in this chapter and Appendix A of this FERP and learn how to monitor severe weather warnings, rainfall forecasts and internal/external water levels.	Chief Flood Warden, Flood Wardens	FERP, BoM app
		School administration will ensure general flood information about the site (see Appendix D is permanently displayed on the facility's website.	School Administration	Website content
		School administration and the Chief Flood Warden will ensure an annual workshop is organised with the Department of Education and executive to plan for a flood emergency. The workshop will include: - Continuity of teaching and learning in the event of a flood. - Discussing methods to contact staff/teachers before, during and after such flooding. Note that there may not be any warning prior to the onset of overland flooding. - Discussing methods to contact students and parents/carers before, during and after such flooding. Note that there may not be any warning prior to the onset of overland flooding.	School Administration, Chief Flood Warden	FERP, staff and parent contact list
		The Chief Flood Warden will keep a fully charged and functional mobile phone/laptop/tablet with 4G/5G internet access and at least 24 hours of battery charge on site at all times	Chief Flood Warden	Mobile device, charger
		The Chief Flood Warden will keep soft and hard copies of the FERP on site and readily accessible to the Flood Wardens at all times, as per Chapter 4.5	Chief Flood Warden	FERP copies



Stage	Trigger for Action	Action	Who is Responsible	What is Needed
		Flood Wardens will report any absences of soft or hard copies of the FERP in the school buildings to the Chief Flood Warden	Flood Wardens	FERP copies
		The Chief Flood Warden will ensure a first aid kit and a list of emergency contact details is kept in each of the buildings	Chief Flood Warden	First aid kit, Contact list
		The Chief Flood Warden will ensure there is sufficient non-perishable foods and drink available on site at all times. This can be stored in the hall/canteen.	Chief Flood Warden	Food, Water
		The Chief Flood Warden will ensure a portable radio with spare batteries for listening to information on local radio stations and torches with spare batteries are stored on site.	Chief Flood Warden	Radio, Torches
		All staff, students and visitors will follow the advice of the school administration, the Chief Flood Warden or Flood Wardens	All Staff, Students, Visitors	Communication procedures
		All parents and caregivers will provide the school with their most up to date contact details and will follow directions issued by the school.	Parents/Caregivers	Updated contact details
		Staff will report any concerns to the Chief Flood Warden, Flood Wardens or the school administration	All Staff	Reporting procedure
		The Chief Flood Warden will maintain a list of emergency contacts which will include emergency services and utility providers. These details and other necessary contact details are provided in Appendix C	Chief Flood Warden	Emergency contact list
		The Chief Flood Warden will maintain a register of emergency contact details for the parents and caregivers of all students and for staff.	Chief Flood Warden	Contact register
		The Chief Flood Warden or delegate will monitor weather forecasts and warnings each morning.	Chief Flood Warden	BoM app



Stage	Trigger for Action	Action	Who is Responsible	What is Needed
		Notifying NSW SES where there are likely to be significant delays in the operation of roads affected by the upgrades, as this may impact the ability for emergency vehicles to use these routes.	School administration	Mobile phones, internet
When a flood is possible	BoM issues a Severe Weather Warning or a Severe Thunderstorm Warning for the Illawarra forecast area OR Intense rainfall is observed on site	If the school is closed:		
		Consider keeping it closed for the day. School administration and the Chief Flood Warden are to consult with the Department of Education and the NSW SES in making this decision.	School administration and Chief Flood Warden	mobile phones
		If the school is open:		
		The Chief Flood Warden or delegate will notify staff, parents and carers that flooding in local streets is possible. Advise against driving through floodwaters of any depth. Reassure them that the school is safe and dry.	The Chief Flood Warden	N/A
	BoM Weather App indicates there is at least a 25% chance of 71.9 mm or greater of rain falling within any 3-hour window directly before, during or directly after the school is intended to be occupied OR NSW SES issues a Watch and Act for flooding applicable to the site	The Chief Flood Warden or delegate will visually monitor the southern driveway every 2 hours	The Chief Flood Warden	N/A
		If the school is still closed, consider not opening the school for the day. Consult with the NSW SES and DoE in making this decision.	School Administration, Chief Flood Warden	Mobile phones, internet
		If it is decided to keep the school closed, the Chief Flood Warden or delegate will message all staff, students, parents and caregivers that the school will be closed until further notice due to the possibility of flooding. Please do not drop your child off at school (see Appendix D for messages)	Chief Flood Warden or delegate	Parent messaging app
		If the school is open: - The Chief Flood Warden or delegate will monitor conditions throughout the day - The Chief Flood Warden or delegate will notify all staff, parents and carers that heavy rain leading to local flooding is possible. Advise against driving through floodwaters of any depth. Reassure them that the school is safe and will remain open until the roads have cleared and children can be picked up.	Chief Flood Warden or delegate	Mobile phones, internet, BoM app



Stage	Trigger for Action	Action	Who is Responsible	What is Needed
		- During the period over which rain is forecast, the Chief Flood Warden or delegate will visually monitor the southern driveway every hour.		
	BoM has issued a Major Flood Warning for the Shoalhaven River at Nowra Boat Shed gauge	If school is closed, keep it closed for the day		
		The Chief Flood Warden or delegate will message all staff, students, parents and caregivers that the school will be closed until further notice due to the possibility of flooding. Please do not drop your child off at school (see Appendix D for messages).	Chief Flood Warden / Delegate	Parent messaging app
		If the school is open:		
		Notify all staff and parents/caregivers that riverine flooding has been forecast and that they should be ready to pick up their children if notified.	Chief Flood Warden / Delegate	Parent messaging app
		Chief Flood Warden or a Deputy Flood Warden to monitor forecasts, warnings, rainfall/stream gauges and local conditions on the site at least every hour and advise management accordingly.	Chief Flood Warden or Deputy Flood Warden	BoM Weather app, mobile phones/computers, internet
During a flood	Floodwaters are observed on the southern driveway	The Chief Flood Warden or delegate will make sure that the no one access the school grounds.	Chief Flood Warden / Delegate	NA
		The Chief Flood Warden or delegate will notify staff, parents and carers that due to intense rainfall, local roads are experiencing flooding and access to the school is temporarily cut. Reassure them that the school is safe and will remain open until the roads have cleared and children can be picked up (see Appendix D for messages).	Chief Flood Warden / Delegate	Parent messaging app



Stage	Trigger for Action	Action	Who is Responsible	What is Needed
	BoM has issued a quantitative Flood Warning for a flood level of 5.6 m AHD or greater for the Shoalhaven River at Nowra Boat Shed gauge Or NSW SES Issues an Emergency Warning – Evacuate now/Evacuate before [time]	If the school is closed:		
		Keep it closed for the day	School administration	NA
		The Chief Flood Warden or delegate will message all staff, students, parents and caregivers that the school will be closed until further notice due to forecast flooding of the Shoalhaven River. Please do not drop your child off at school (see Appendix D for messages)	The Chief Flood Warden or delegate	Parents messaging app, mobile phones/computers, internet
		If the school is open:		
		The Chief Flood Warden or delegate will notify parents/caregivers to pick up their children as soon as practicable but making sure that they do not drive through floodwaters of any depth. Reassure them that the school is safe and will remain open until the roads have cleared and children have been picked up (see Appendix D for messages). Upon pick-up, the Chief Flood Warden will handle parents a printed map of the evacuation route and ask them to follow instructions from the NSW SES.	The Chief Flood Warden or delegate	Parents messaging app, mobile phones/computers, internet
		All staff to evacuate the site.	Staff	NA
	Floodwaters are observed across the southern driveway and evacuation route AFTER the site evacuation has been ordered	Flood Warden to visually monitor the southern driveway until all occupants have evacuated. If floodwaters are sighted across the road, pause evacuation until the road has cleared.	Flood Warden	Mobile phones, internet
		Pause evacuation until local floodwaters have receded and the evacuation route is safe to use	Evacuees	NA
		Resume evacuation only when safe access is restored.	Evacuees	NA



Stage	Trigger for Action	Action	Who is Responsible	What is Needed
After a flood	Emergency Services give the all-clear	A hazard assessment will be undertaken by the Chief Flood Warden for the clean-up. Safe work methods statements will be 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.	The Chief Flood Warden	PPE
		Plumbing and gas to be checked by licensed plumber and defects rectified	DoE	Flood Emergency Contact List
		Electrical to be checked by licensed electrician and defects rectified.		
		School administration and the Chief Flood Warden will ensure staff and students do not return to the site until a clearance certificate has been issued by Access Management Utility (AMU)	School administration and the Chief Flood Warden	N/A
		Education programs can be resumed once AMU has issued a clearance certificate	School administration	NA
		Following the re-commencement of school activities, a de-brief will be held with key management staff and may involve NSW SES flood personnel/volunteers. The flood event and response, including the use of this FERP and any emergency procedures will be reviewed. The debrief will consider the effectiveness of the FERP.	School administration, DoE	FERP
		Changes may be made to this FERP and the requirements for future emergency response should the review identify any improvements which may be made	School administration, DoE	FERP



Stage	Trigger for Action	Action	Who is Responsible	What is Needed
		Once education programs have resumed, the school administration may organise debrief sessions with students and with staff, in consultation with counselling services.	School administration	N/A
		The DoE will organise for students or staff experiencing distress in the weeks following a flood emergency to have access to counselling services.	DoE	N/A
		If local flooding occurred:		
		The Chief Flood Warden or delegate will notify parents/carers and off-site staff that the flood threat has passed but that local roads may be still affected by flooding or debris, and they must not drive or walk through floodwaters. If their children are on site, they will be cared for until they can be collected.	The Chief Flood Warden or delegate	Parents messaging app, mobile phones/computers, internet
		Teachers will check off the names of students and escort them to their parents' or caregivers' vehicle when they arrive for pick-up.	Teachers	School roll
		The Chief Flood Warden or delegate will send staff home as permitted under required staff-student ratios.	The Chief Flood Warden or delegate	NA
		The parents or caregivers of any students who have not been picked up after an hour should be contacted again via phone call.	The Chief Flood Warden or delegate	mobile phones, internet
		Enough staff to maintain required staff-student ratios will remain on site until all students have been picked up.	The Chief Flood Warden or delegate	N/A
		Once all students have been picked up the Chief Flood Warden or delegate will send everyone home who is remaining. If any do not have their own vehicle on site, carpooling should be organised with other staff members.	The Chief Flood Warden or delegate	Vehicles



APPENDIX B FLOOD EMERGENCY ITEMS





Item	Date Checked
Fully charged mobile phone, tablet or laptop with 4G/5G internet access capabilities and at least 24 hours of independent power supply (battery capacity or portable power bank)	
Soft and hard copies of up-to-date primary contact lists	
Flood Emergency Kit - a plastic container clearly marked including: ■ Printed copy of the latest version of this FERP ■ Battery operated torches with in-date batteries in each and a set of in-date spare batteries for each ■ A battery-operated portable radio to listen to ABC radio (106.5 FM) for flood and other warning broadcasts. This must have in-date batteries and a set of in-date spare batteries ■ First aid kit	



APPENDIX C FLOOD EMERGENCY CONTACT LIST





Name	Organisation	Role	Contact Details
		Chief Flood Warden	
		Flood Warden	
		Flood Warden... (as required)	
		Fire/ ambulance/ police	000
		SES Local Controller	132 500
Incident Report and Support hotline	NSW Department of Education	Incident Report	1800 811 523
	Shoalhaven City Council	Council	1300 293 111
	Shoalhaven Memorial Hospital	Medical	(02) 4421 3111
		Electricity Supplier	
		Gas Supplier	
		Water and Sewage Supplier	
		Telecommunications	
		Waste Collection	





APPENDIX D FLOOD EMERGENCY MESSAGES





General flood information permanently on the website:

Like many schools, New Primary School in Worrigea can be impacted by flooding and can have access cut when local roads flood. Overland flooding can cut Greenwell Point Road, Worrigea Road and other access routes to the school. Such flooding would generally only last for a few hours. However, none of the school buildings would be flooded in even the largest of events.

New Primary School in Worrigea has a comprehensive emergency response plan to deal with all possible emergency situations including flooding. The plan is designed to ensure that anyone in the school is safe from flooding even in the most extreme flood.

If flooding is expected, we will implement our flood emergency response plan to ensure the safety of everyone. If sufficient warning is provided of potential flooding, the school will be closed for the day. If local/overland flooding rises quickly while people are on site, students, staff and visitors will remain in the school buildings above the level of the largest possible flood until it is safe for parents/caregivers to access the site.

Text messages, emails and social media will be used to keep parents/caregivers up to date with the situation. Please do not try and ring the school as we will not be able to answer all of the calls while caring for the students. Please do not drive or walk through floodwaters to try and reach the school. We will care for your children until it is safe for you to arrive and pick them up.

Remember, it is never safe to drive or walk through floodwaters.



Situation	Email to staff, students, parents and caregivers	Website	SMS	Facebook/Social Media	Telephone call - Parents	SMS - Staff	Phone line (answering machine/when on hold)
If school is cancelled for the day prior to the site being occupied	Dear Families, Due to possible flooding, New Primary School in Worrigee will be closed until further notice. Please do not drop your child off at school. We will inform you when the school reopens. We hope that you are able to stay safe and dry and look forward to seeing you all when the school reopens. Remember that it's never safe to drive or walk through floodwaters.	Due to possible flooding, New Primary School in Worrigee and will be closed until further notice. Please do not drop your child off at school. We will inform you when the school reopens. We hope that you are able to stay safe and dry and look forward to seeing you all when the school reopens. Remember that it's never safe to drive or walk through floodwaters. For more information about the flood risk at our school click [here].	Due to possible flooding, New Primary School Worrigee will be closed until further notice. Please go to our website [here] for more details.	Due to possible flooding New Primary School Worrigee will be closed tomorrow until further notice. Please do not drop your child off at school. We will keep our community informed about when the school will reopen. We hope that everyone is able to stay safe and dry and look forward to seeing you all when the school reopens. Please go to our website [here] for more details on temporary arrangements.	Hi [name], This is [name] from New Primary School Worrigee, I am calling to check that you received the text message we sent regarding the school's closure due to flooding? This means that it won't be safe to come to the school and drop off your child. We will notify you once the risk of flooding has passed. Please go to our website [here] for updates and more details on temporary arrangements.	Due to possible flooding New Primary School Worrigee will be closed. We will inform you when the school reopens.	New Primary School Worrigee will be closed due to possible flooding. We cannot answer your phone call immediately. Please check email or the school's website for further information.



Situation	Email to staff, students, parents and caregivers	Website	SMS	Facebook/Social Media	Telephone call - Parents	SMS - Staff	Phone line (answering machine/when on hold)
Evacuation is initiated	Dear Families, Due to flooding New Primary School in Worrigee will be closing today and may not open tomorrow. We will inform you when the school reopens. All students here are safe and above the level of even the largest floods. All students should be picked up by their parents/ caregivers immediately. If you are unable to pick up your child please contact the school. We hope that you are able to stay safe and dry and look forward to seeing you all when the school reopens. Remember that it's never safe to drive or walk through floodwaters. For more information about the flood risk at our school click here.	Due to flooding New Primary School in Worrigee will be closing today and may not open tomorrow. We will inform you when the school reopens. All students here are safe and above the level of even the largest floods. All students should be picked up by their parents/ caregivers immediately. If you are unable to pick up your child please contact the school. We hope that you are able to stay safe and dry and look forward to seeing you all when the school reopens. Remember that it's never safe to drive or walk through floodwaters. For more information about the flood risk at our school click here.	Due to flooding New Primary School in Worrigee is closing for today. Please pick up your child immediately. Please go to our website [link] for more details.	Due to flooding New Primary School in Worrigee will be closing today. We will keep our community informed about when the school will reopen. All students here are safe and above the level of even the largest floods. All students should be picked up by their parents/ caregivers immediately. If you are unable to pick up your child please contact the school. We hope that everyone is able to stay safe and dry and look forward to seeing you all when the school reopens. Please go to our website [link] for more details on temporary arrangements.	Hi [name], This is [name] from flooding New Primary School in Worrigee, I am calling to check that you received the text message we sent regarding the school's closure for today due to flooding? This means that you will need to pick your child up immediately from school. All students here are safe and above the level of even the largest floods, but students need to be picked up immediately. Please go to our website [link] for updates and more details on temporary arrangements.	Due to flooding, New Primary School in Worrigee will be closing today. Please don't come to work until the school reopens.	New Primary School in Worrigee is currently closed due to flooding. We cannot answer your phone call immediately. Please check email or the school's website for further information.



Situation	Email to staff, students, parents and caregivers	Website	SMS	Facebook/Social Media	Telephone call - Parents	SMS - Staff	Phone line (answering machine/when on hold)
If local streets are affected by overland flooding while students are on site	Dear Families, The roads around New Primary School in Worrigee are currently experiencing local flooding. This has temporarily cut access to our school and it is not safe to try and reach the school at present. Please do not try and pick up your child. We will advise when it is safe to access the school again. Parents/caregivers should check their emails and texts regularly for updates regarding collecting children. Remember that it's never safe to drive or walk through floodwaters.	The roads around New Primary School in Worrigee are currently experiencing local flooding. This has temporarily cut access to our school and it is not safe to try and reach the school at present. Please do not try and pick up your child. We will advise when it is safe to access the school again. Parents/caregivers should check their emails and texts regularly for updates regarding collecting children. Remember that it's never safe to drive or walk through floodwaters. For more information about the flood risk at our school click here.	Flooding has isolated New Primary School in Worrigee. All students are safe but access roads are not safe to travel. Do not pick up students. Please go to our website [here] for more details.	The roads around New Primary School in Worrigee are currently experiencing flooding. This has temporarily cut access to our school and it is not safe to try and reach the school at present. Parents and caregivers should wait until we advise that it is safe to access the school again. Please go to our website [here] for more details on temporary arrangements.	Hi [name], This is [name] from New Primary School in Worrigee, I am calling to check that you received the text message we sent regarding the school being currently inaccessible due to flooding? This means that at the moment it's not safe to come to the school. The students are all safe in the school buildings above the level of even the largest possible flood. Please keep an eye on your texts, emails and our website for updates <i>When will I be able to pick up my child?</i> We expect that flood waters will be gone in the next few hours, and you will be able to pick your child up then. We will send out a SMS and email notification when it is safe to collect your child. Because of the flooding we understand that you may have some trouble with traffic and if you can not get here right away we understand. We want all our parents and caregivers to drive safely and know that we will look after the students until you can be here. <i>I can walk to the school, is it ok to pick my child up now?</i> Please stay safe at home for the duration of the flooding. It is not safe to walk through floodwaters if you can avoid it due to the water often having sewage and other contamination in it. Your child is safe here with us, and we will look after them until it is safe for you to come.		



Situation	Email to staff, students, parents and caregivers	Website	SMS	Facebook/Social Media	Telephone call - Parents	SMS - Staff	Phone line (answering machine/when on hold)
If overland flooding has receded around the school and it is safe to pick up children	Dear Families, It is now safe to access New Primary School in Worrigee to pick up your children. We are all safe and looking forward to seeing you soon. Remember that it's never safe to drive through floodwaters, and if localised flooding or traffic congestion on your route is preventing you from collecting your child please let us know via text or email. We will be staying until all children are collected. Please drive safely and we will see you all soon.	It is now safe to access New Primary School in Worrigee to pick up your children. We are all safe and looking forward to seeing you soon. Parents/caregivers should refer to text and email notifications for more information. Remember that it's never safe to drive through floodwaters, and if localised flooding or traffic congestion on your route is preventing you from collecting your child please let us know via text or email. We will be staying until all children are collected. Please drive safely and we will see you all soon.	It is now safe to access New Primary School in Worrigee to pick up your children. If flooding or traffic is preventing you from collecting your child please let us know. [parents who do not respond and have not picked up their child within 1 hour should be followed up with a telephone call]	It is now safe to access New Primary School in Worrigee to pick up your children. We are all safe and looking forward to seeing you soon. Parents/caregivers should refer to text and email notifications for more information. Remember that it's never safe to drive through floodwaters, and if localised flooding or traffic congestion on your route is preventing you from collecting your child please let us know via text or email. We will be staying until all children are collected. Please drive safely and we will see you all soon.	Hi [name], This is [name] from New Primary School in Worrigee, I am calling to check that you received the text message we sent regarding the flooding being over? [provide relevant information regarding the collection of children] i.e. Yes, that means you can collect your children now		

Melbourne

15 Business Park Drive
Notting Hill VIC 3168

Brisbane

Level 5, 43 Peel Street
South Brisbane QLD 4101

Sydney

Suite 3, Level 1, 20 Wentworth Street
Parramatta NSW 2150

Adelaide

2/39-40 Greenhill Road
Wayville SA 5034

New Zealand

4 Williamson Avenue
Ponsonby New Zealand 1021

Geelong

1/5 Bridge Street
Newtown VIC 3220

Gold Coast

Suite 37, Level 4, 194 Varsity Parade
Varsity Lakes QLD 4227

Sunshine Coast

4C 'Regatta Corporate', 2 Innovation Parkway
Birtinya QLD 4575

Melbourne – CBD

Suite 904, Carlow House, 289 Flinders Lane
Melbourne VIC 3000

Brisbane – Camp Hill

2a/4 Newman Avenue
Camp Hill QLD 4152

Ballina

Unit 1b/1 Hogan Street
Ballina NSW 2478

Perth

Level 1, 21 Adelaide Street
Fremantle WA 6160

Wangaratta

First Floor, 40 Rowan Street
Wangaratta VIC 3677

Wimmera

597 Joel South Road
Stawell VIC 3380

Darwin

Unit 40/29 Woods Street
Darwin City NT 0800

1300 198 413



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