BEDE POLDING CATHOLIC COLLEGE FLOOD ASSESSMENT

NOVEMBER 2022

PREPARED FOR

TSA on behalf of CEDP

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5	Final for DA Submission (RFIs #2 addressed)

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LIST OF ABBREVIATIONS

AEP	Annual Exceedance Probability
ARI	Annual Recurrence Interval
CEDP	Catholic Education Diocese of Parramatta
DA	Development Application
DCP	Development Control Plan
FERP	Flood Emergency Response Plan
HCC	Hawkesbury City Council (also 'Council')
LEP	Local Environmental Plan
PMF	Probable Maximum Flood
WMS	Water Modelling Solutions

1 INTRODUCTION

WMS was engaged by TSA to carry out a flood assessment for the proposed development works at Bede Polding Catholic College in South Windsor, NSW. The current report outlines the assessment process and results for pre- and post-development scenarios. The report also provides an assessment of the proposed development against the applicable flood related planning controls to ensure the proposal demonstrates compliance with Hawkesbury City Council (HCC) requirements.

1.1 PROJECT BACKGROUND AND OBJECTIVES

The Catholic Education Diocese of Parramatta (CEDP) is responsible for the management of Catholic primary and secondary schools in the diocese, which spans a large portion of Western Sydney from Parramatta to the Blue Mountains. Following an equity audit in 2019, CEDP identified three schools that required prioritised upgrades to bring the functionality of their learning spaces into line with current educational planning principles and the needs of the local community. One of these three schools is Bede Polding Catholic College, located in South Windsor (refer to Section 1.3.2 for description of proposed works).

Bede Polding Catholic College (the Site) is located within the Hawkesbury River floodplain and, as such, is heavily constrained by flood risk and was recently closed for several days following flooding in the Hawkesbury River catchment in March 2021. In addition to mainstream flood risk from the Hawkesbury River, i.e. water rising out of the river and inundating surrounding land, the Site is also subject to local overland flow, which occurs when local rainfall exceeds the capacity of the stormwater system, and the excess runoff makes its way towards the nearest watercourse overland. TSA (the Client and the Project Manager for CEDP), has identified an overland flowpath through the Site which, if obstructed, could cause damage to buildings on the Site and adversely affect neighbours upstream.

In light of the flood risk expected at the Site, CEDP has engaged WMS to help inform the planning and design of the proposed works and to assist TSA with the preparation of a Development Application that complies with Hawkesbury City Council requirements. As such, WMS has undertaken a flood assessment of the Site in order to:

- Advise CEDP on the flood risk (mainstream and local) of the proposed works;
- Determine if the proposed works adversely impact the local overland flood behaviour elsewhere and, if so, provide CEDP with advise on minimising that impact; and
- Demonstrate compliance of the proposed works with the relevant flood-related development controls as set out in the Hawkesbury Flood Policy 2020.

1.2 PRE-DA MEETING WITH HAWKESBURY CITY COUNCIL

A meeting with Council's Pre-Lodgement Advisory Panel was held on the 16th December 2021 to discuss the proposed development. Council provided the below advice in relation to the application of Schedule of Flood Related Development Controls:

Item	Requirement	WMS Comment	Refer to
a	Determine what flood information is available for the site, including flood levels and velocity of flood waters.	Mainstream flood information for the Hawkesbury River was obtained through Council and Infrastructure NSW. WMS produced a local overland flow model to assess flood risk generated by local rainfall, and map key flow-paths and runoff through the site.	Section 2
b	Determine what hazard categories (H1 - H6) and which hydraulic classification (Floodway or Flood Storage) applies to the site.	The site is subject to a range of hazard classifications, from H1-H6. Hazard is related directly to topography and flood depths.	Section 2.1.3
c	Review Table 2 – Compatibility of Land Uses with Hazard Categories within the Schedule of Flood Related Development Controls to determine if your development is compatible or not with the hazard category of the site.	A new school land use would only be considered compatible with Hazard Category H1. However, Council's Schedule of Flood Controls contains provision for "Additions and Alterations to, or the Redevelopment of, existing lawful Incompatible Development".	Section 3

Item	Requirement	WMS Comment	Refer to
		Controls pertaining to H4 and H5 have been used to assess the proposed development.	
d	Address how the development meets the relevant development controls in this 'Schedule of Flood Related Development Controls'.	An itemised assessment of the development's compliance with applicable controls has been undertaken by WMS.	Section 3
e	Detailed Flood Impact Assessment report prepared by suitably qualified person.	This report has been prepared by Catherine Walker, a qualified Principal Engineer with 9 years' experience in civil design and floodplain risk management. The report has been reviewed by Principal Engineer and Managing Director Blake Boulton (RPEQ). CVs for both Catherine and Blake can be provided upon request.	NA
f	Flood Risk Management Plan including flood warning and evacuation system.	A preliminary assessment of evacuation capability has been undertaken as part of this report, and a detailed site Flood Emergency Response Plan will be prepared prior to Occupation Certificate.	Section 4
g	Submit all information to Council for assessment having regard to Section E - Information Required of this Schedule.	This report has been prepared in accordance with Section E. Reference has been provided to components of other consultant reports where required.	NA

1.3 STUDY AREA

1.3.1 Site Location and Topography

Bede Polding Catholic College is located at 22 Rifle Range Road, South Windsor, in Sydney's west. The Site is bounded by Rifle Range Road, Collith Avenue, Tasman Place and Mileham Street, and covers approximately 6 ha.

The Site is located approximately 3.3 km from the Hawkesbury River, however during flood events, would initially be inundated by overbank flow from Rickabys Creek, located approximately 700 m northwest of the Site.

Site location and topography are illustrated in Figure 1-1 and Figure 1-2, respectively.

Figure 1-1 Bede Polding Catholic College, South Windsor – Site Location (NSW SIXMAPS)

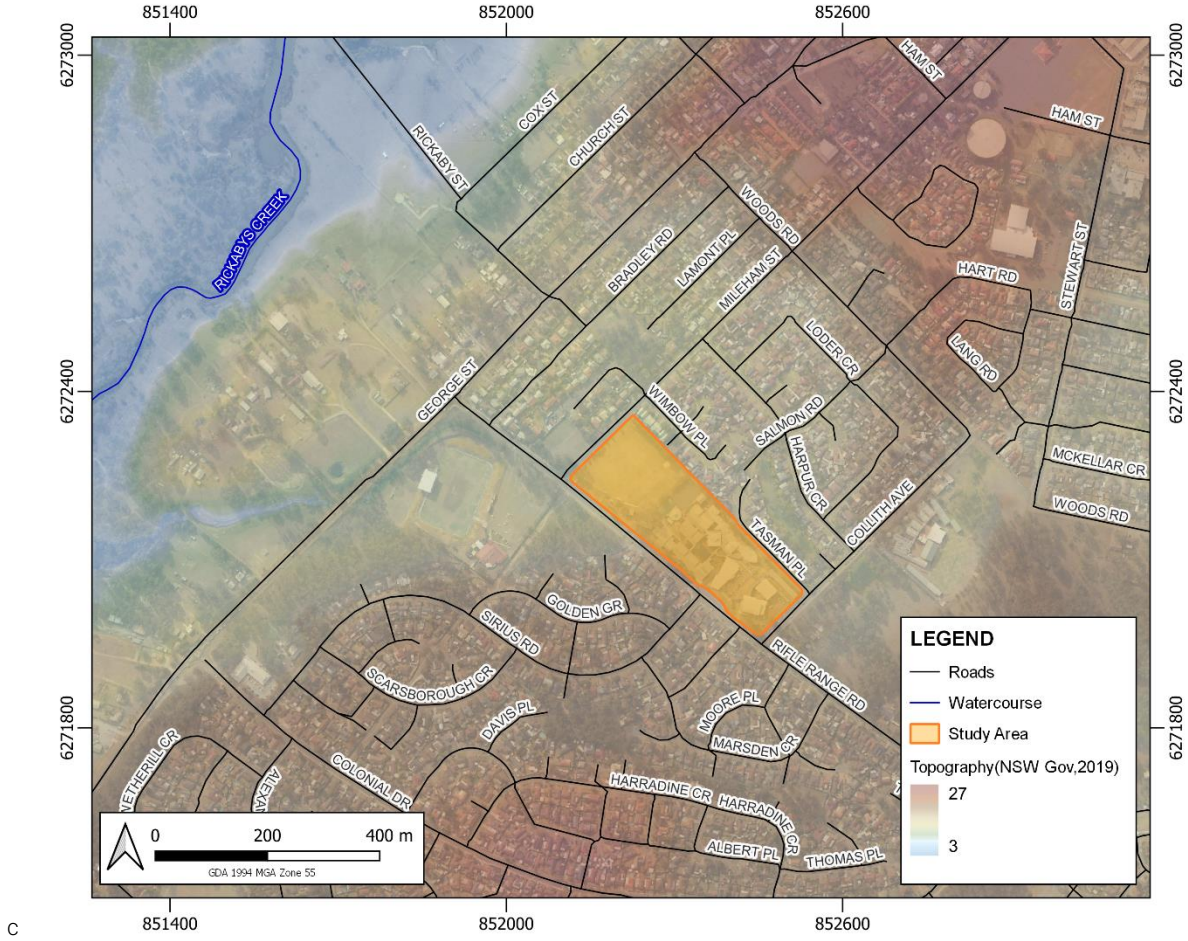

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Figure 1-2 Topography in the Vicinity of the Site (NSW Gov, 2019)

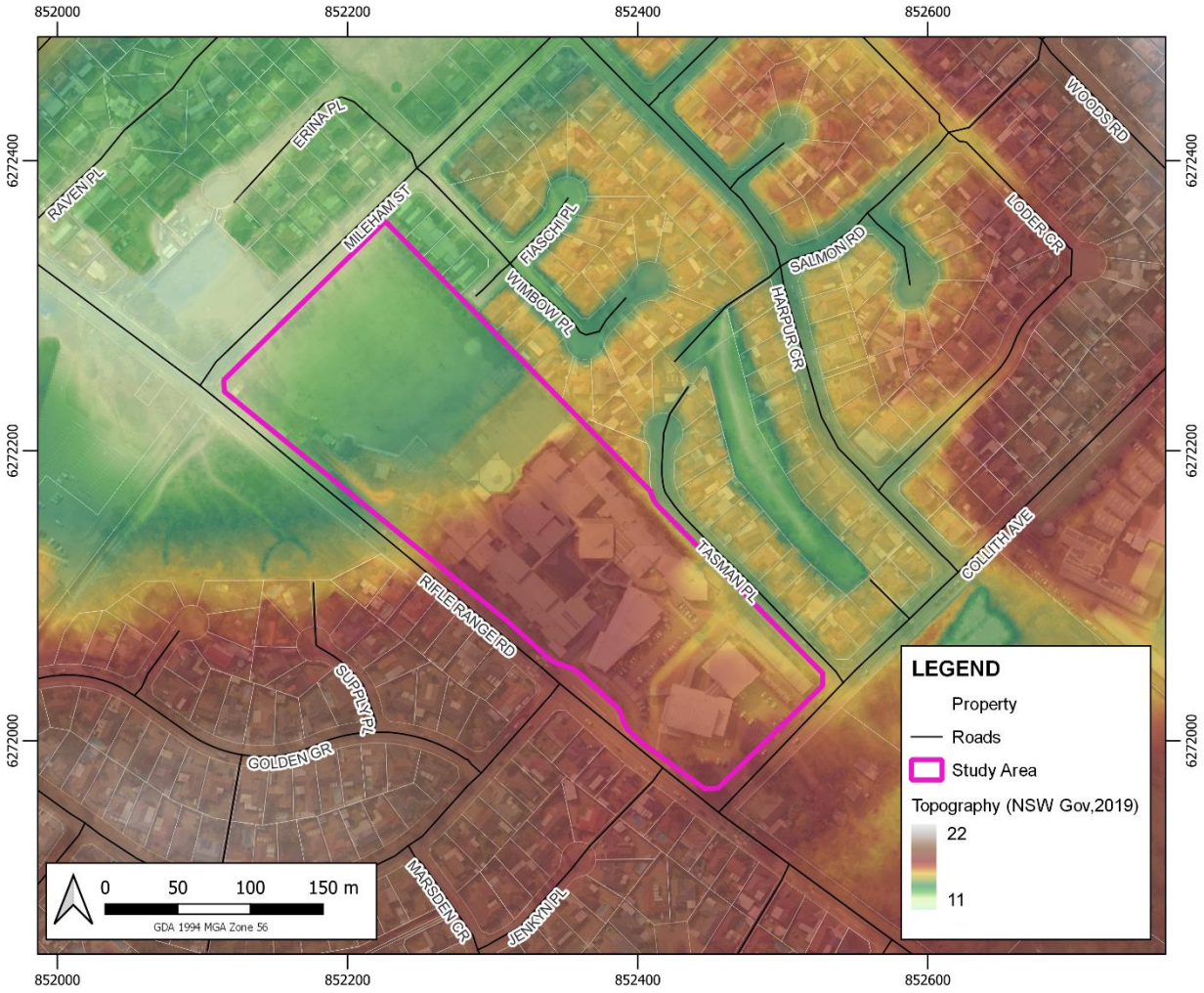


Figure 1-3 Topography within the site

1.3.2 Proposed Development

The proposed development involves the demolition of several buildings and carparks, and the construction of the following features (shown in Figure 1-4 below):

- Demolition of 16 existing GLAs equivalent to 8 Inquiry Hubs;
- Retention of 12 existing GLAs and multi-purpose space in 50% Block F for future uses;
- Removal and provisioning where necessary of temporary demountable accommodation;
- Construction of 22 new Inquiry Hubs and refurbishment of 2 existing Inquiry Hubs;
- Construction of new student amenities;
- Construction of new Learning Streets;
- Landscaping and Sports Courts;
- Increase of student capacity from 1240 to 1360;
- Increase of number of full-time staff from 101 to 105;
- Increase of carparking spaces from 144 to 178.

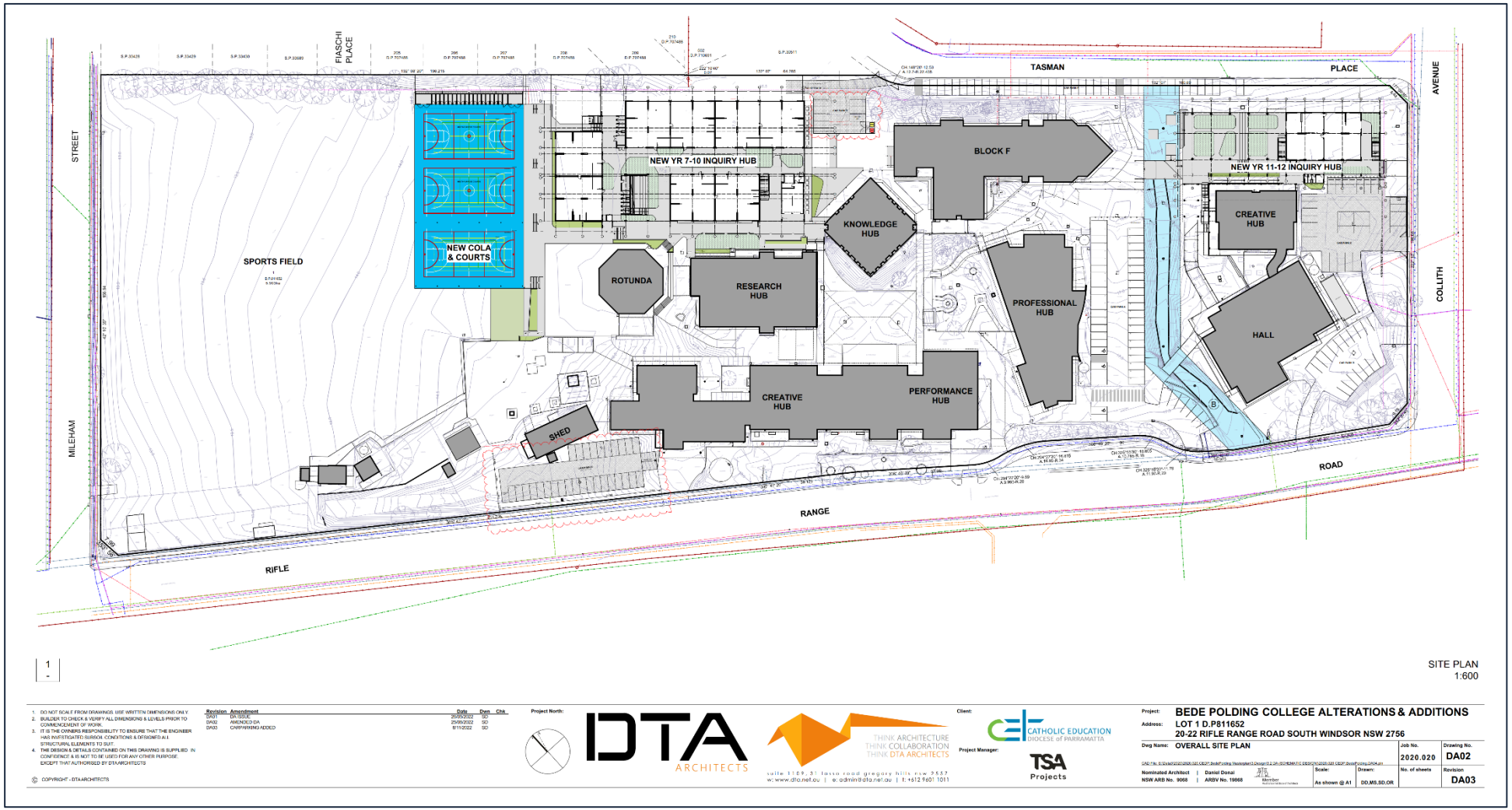


Figure 1-4 Overall Site Plan for Bede Polding Catholic College (DTA, Rev DA03, 08/11/2022)

2 EXISTING FLOOD RISK AT THE SITE

2.1 MAINSTREAM FLOODING – HAWKESBURY RIVER

2.1.1 Sources of Flood Information

The Site is subject to mainstream flooding from the Hawkesbury-Nepean system, caused by water backing up and spilling out of Rickabys Creek when levels in the Hawkesbury River are elevated.

Design flood behaviour for the Hawkesbury River is defined by the Hawkesbury-Nepean Valley Regional Flood Study (INSW, 2019). Flood results in GIS format were obtained by WMS with permission from Infrastructure NSW for the purposes of this assessment. Flood mapping for the site, including depths, levels, hydraulic categories and hazard are provided in Appendix A. It is noted that the flood modelling for the Hawkesbury-Nepean Regional Flood Study utilises a coarse grid cell size of 20 m, and provides a high level indication of risk across the Hawkesbury Nepean Valley. The model is not available (nor suitable) for a flood impact assessment, rather Council manages impacts on the floodplain via cut and fill balance requirements set out in the Council Flood Policy 2020.

Specific flood information for the site was provided by Hawkesbury City Council via a "Flood Advice (Detailed)" report, provided on the 20th August 2021 (Provided in Appendix B).

2.1.2 Design Flood Behaviour

Mainstream flooding at the site is driven by the slow movement of water backing up from Rickabys Creek, which cannot drain to the Hawkesbury River when tailwater levels are elevated. As such, the peak flood levels across the site are relatively flat due to the 'bathtub effect'. The depth of flooding varies with the topography – with greater depths (2-4 m) in the lower lying western portion of the site (currently used as playing fields), and shallower depths around the existing school buildings (Figure 2-3).

Estimated flood velocities for the 20%, 5% and 1% AEP flood events were provided in the Flood Advice (Detailed) report (HCC, 2021), and are shown in Table 2-1:

Table 2-1 Design Flood Metrics

Flood Event	Approximate Flood Level (mAHD)	Estimated Peak Flood Velocities (m/s)
20% AEP	11.1 mAHD	Unknown
5% AEP	13.8 mAHD	0.1
1% AEP	17.3 mAHD	0.3

2.1.3 Flood Hazard Classification

Flood hazard classifications are defined by depth, velocity and depth x velocity products, based on the guidance outlined in *Managing the floodplain: a guide to best practice in flood risk management in Australia (Australian Institute of Disaster Resilience, Guideline 7-3).* The classifications are divided into 6 categories (H1-H6), shown in Figure 2-1, which indicate the effect of the hazard on people, buildings and vehicles.

As described above, the flooding at the site is characterised by slow moving inundation, backing up from Rickabys Creek, rather than an active flowpath with higher velocity. As such, the hazard classification is driven by the flood depth onsite, rather than velocity. As shown in Figure 2-2, the western part of the site is subject to greater flood depths and hence higher hazard classification (H5). The school buildings themselves are located on higher ground in the eastern part of the site, where the hazard classification varies from H1-H4 depending on the depth.

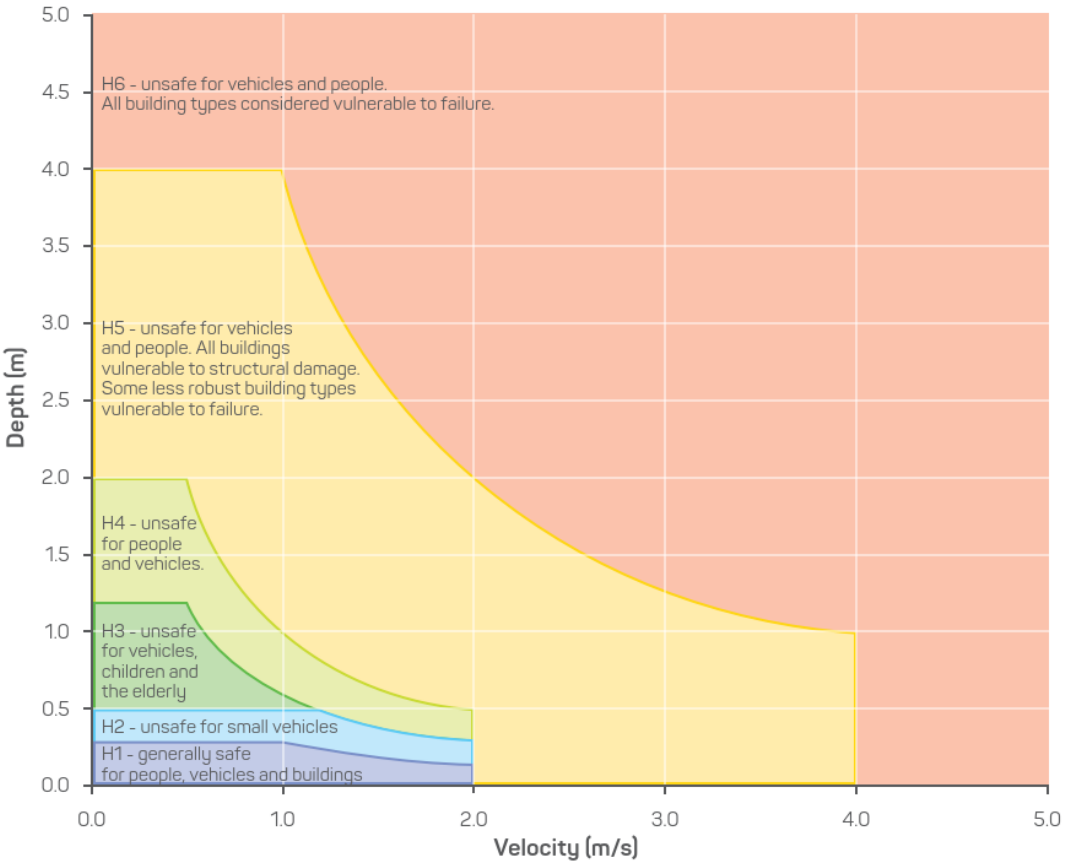


Figure 2-1 Flood Hazard Classifications (AIDR, 2017)

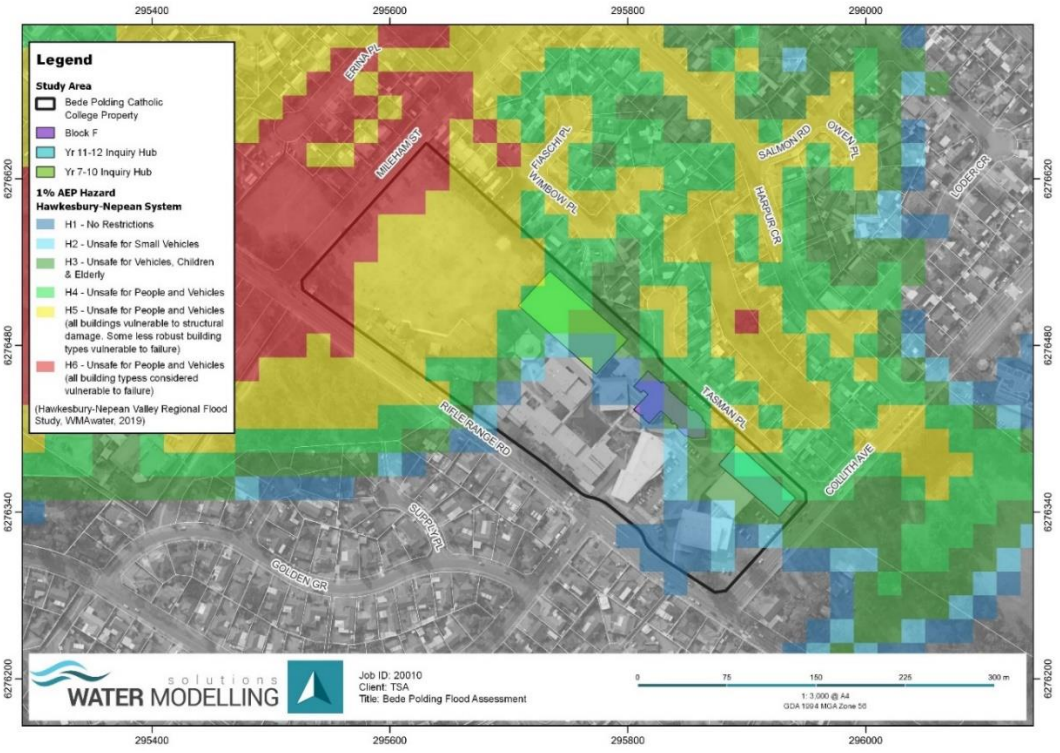


Figure 2-2 1% AEP Hazard (Hawkesbury-Nepean Regional Flood Study, INSW, 2019)

The three proposed buildings are located within the food extents and therefore flood related development controls pertaining to flooding from the Hawkesbury-Nepean system are applicable (refer Section 2.2).

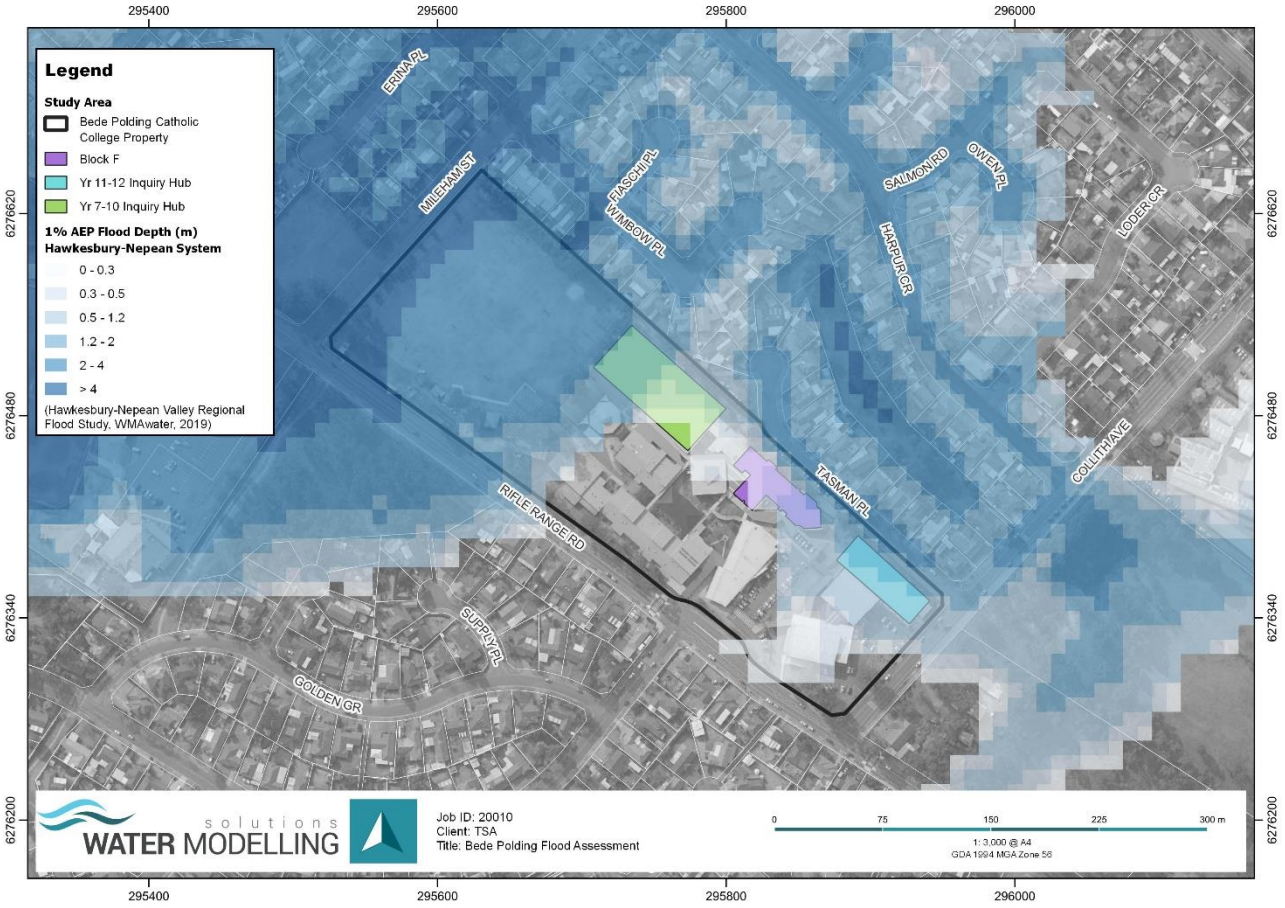


Figure 2-3 Hawkesbury-Nepean System 1% AEP Flood Depth for Current Site Conditions (Hawkesbury-Nepean Regional Flood Study, INSW, 2019)

2.2 LOCAL OVERLAND FLOW

2.2.1 Sources of Overland Flow Information

In addition to reviewing the mainstream flood risk from the Hawkesbury-Nepean system, it is good practice to understand the local overland flow behaviour in the vicinity of the site, particularly to ensure that any changes in building footprint locations will not obstruct local flowpaths.

Overland flow occurs when local rainfall exceeds the capacity of the stormwater system, and the excess runoff makes its way overland towards the nearest watercourse. It is typically shallower and 'flashier', meaning it can rise and fall quickly following rainfall.

As no existing overland flow model was available for the site, a new local model was developed by WMS to define overland flow behaviour for consideration in the design. Details of the rain-on-grid TUFLOW model setup are provided in Appendix C. The critical duration for the 1% AEP event is 360 minutes (6 hours), which results in the most severe flooding at the site in the 1% AEP event. The key temporal pattern for the 360-minute duration is temporal pattern five.

2.2.2 Design Flood Behaviour

The 1% AEP flood extent and depths for existing site conditions are illustrated in Figure 2-4.

The overland flow path is concentrated within the lower-lying areas of the catchment, with the greatest flood depths observed to the northwest at the intersections between Rifle Range Road and Mileham Street and Erina Place. To the east of the catchment,

water flows northwest along Tasman Place and Harpur Crescent, and there is some accumulation within a retention basin located between these two roads. It is noted that no pit and pipe data was available for the assessment, and as such, the results represent a conservative scenario, effectively assuming all pipes would be full during a 1% AEP event.

Within the Site, the areas most affected by flooding for the 1% AEP local event are the two parking lots to the southeast of the Site; the sports field along the northwest boundary; and the low-lying area between Block F (existing Inquiry Hub to be refurbished) and the proposed Inquiry Hub (Yr 11-12) which forms a flow path for water to drain northeast towards Tasman Place.

The proposed building footprints (shown in Figure 2-4) do not encroach on the main flowpath through the school, and as such a flood impact assessment is not considered necessary at this stage of the project. However, information from the local overland flow assessment will be provided to the design team to ensure that carparking grading, stormwater management and landscaping features are all designed appropriately.

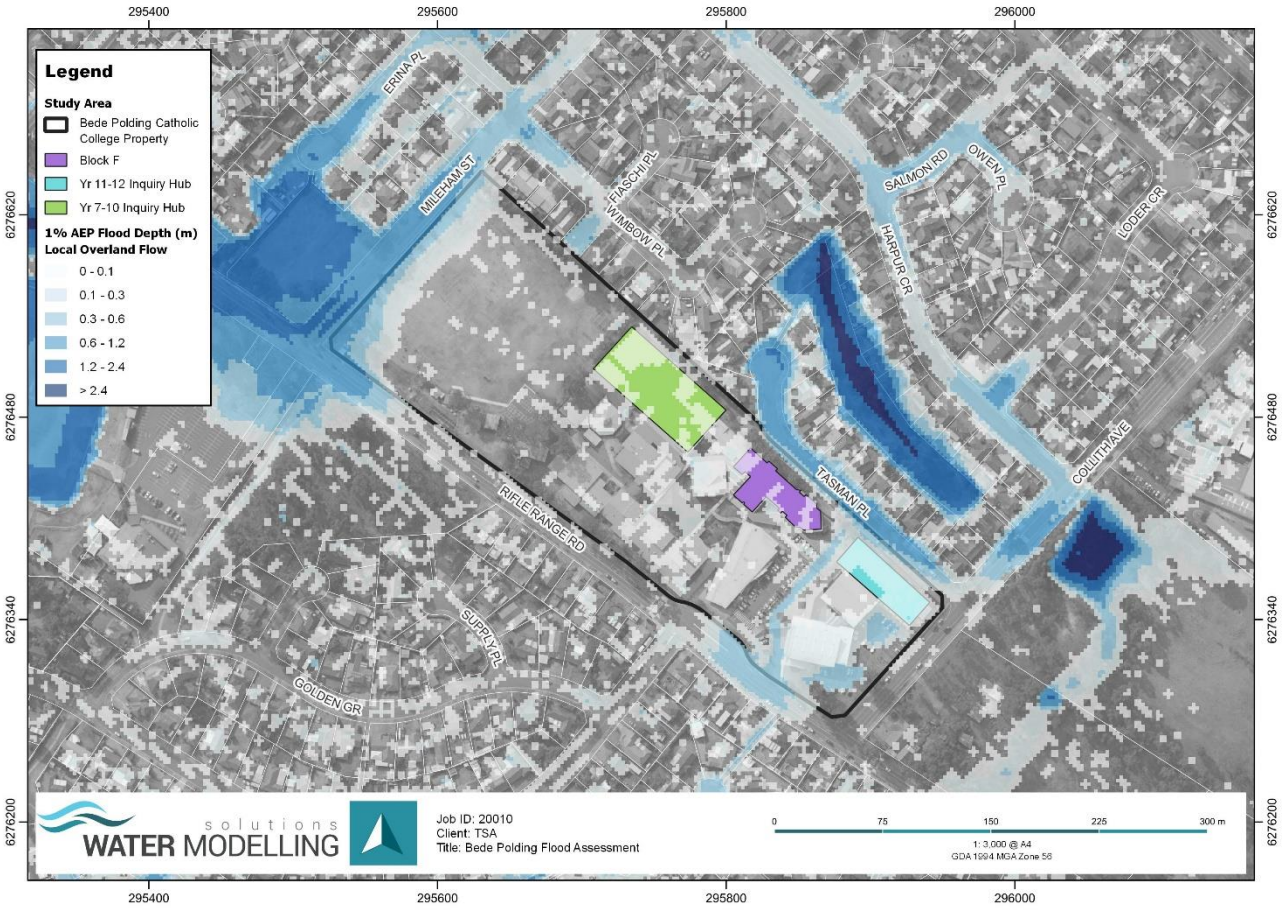


Figure 2-4 Local Overland Flow 1% AEP Flood Depth for Current Site Conditions

3 FLOOD RELATED DEVELOPMENT CONTROLS

The modelling has confirmed that, as expected, the mainstream flood risk is the more critical of the two mechanisms at the site. As such, the site will be assessed in relation to flood controls pertaining to the Hawkesbury-Nepean system.

The Flood Advice report (HCC, 2021) indicates that the property is subject to the following Council Flood Related Development controls:

- Clause 5.21 of the Hawkesbury Local Environmental Plan 2012; and
- Council's Flood Policy 2020

3.1.1 Hawkesbury LEP 2012, Clause 5.21: Flood Planning

The objectives of Clause 5.21 – Flood Planning are as follows:

a) To minimise the flood risk to life and property associated with the use of land;

b) to allow development on land that is compatible with the flood function and behaviour on the land, taking into account projected changes as a result of climate change,

c) to avoid adverse or cumulative impacts on flood behaviour and the environment,

d) to enable the safe occupation and efficient evacuation of people in the event of a flood.

The objectives of the LEP are supported by the Council Flood Policy 2020, which set out specific requirements to ensure proposed developments meet the above outcomes.

Table 3-1 Hawkesbury LEP, Section 5.21, Flood Planning - Requirements

Planning Requirements	WMS Comment	Status
(1) Objectives, see list above.	*n/a*	n/a
(2) Development consent must not be granted to development on land the consent authority considers to be within the flood planning area unless the consent authority is satisfied the development	*The proposed development is within the Hawkesbury River Flood Planning Area, and satisfies the planning requirements as outlined below.*	Satisfied
(a) is compatible with the flood function and behaviour on the land, and	*The site is located within the Flood Storage/Fringe area, in which flooding is characterised by slow moving water backing up from Rickabys Ck when the Hawkesbury River level is elevated.* *The proposed upgrade to the existing school has been designed with this behaviour in mind, and seeks to minimise risk to occupants through minimum floor level controls and emergency response procedures, and minimise impact on flood storage through well considered siting of buildings, achieving a cut/fill balance, and ensuring sub-floor areas are not enclosed with a solid material.*	Satisfied
(b) will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, and	The proposed development seeks to ensure no detrimental increases in potential flood affectation are caused through the following provisions: • All floor levels are either outside the 1% AEP flood extent or suspended above the FPL to ensure no net reduction in flood storage occurs; • A cut/fill balance is achieved to ensure no net reduction in flood storage capacity occurs; • Proposed building footprints do not encroach on local overland flowpaths within the school.	Satisfied
(c) will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes	Rising road access is available from the site, and with appropriate planning it is considered likely that safe	Satisfied

Planning Requirements	WMS Comment	Status
for the surrounding area in the event of a flood, and	evacuation will be achievable. The evacuation capability and capacity is discussed further in Section 4.	
(d) incorporates appropriate measures to manage risk to life in the event of a flood, and	*A detailed Site Emergency Response Plan is proposed to be prepared in collaboration with the school community and NSW SES both for the construction phase and for occupation following construction.*	Satisfied
(e) will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.	*The proposed extension is wholly contained within the existing site and will not encroach on riparian corridors, riverbanks or watercourses.*	Satisfied
(3) In deciding whether to grant development consent on land to which this clause applies, the consent authority must consider the following matters		
(a) the impact of the development on projected changes to flood behaviour as a result of climate change,	*An increase in rainfall intensity associated with climate change could be expected to increase overland flow depths and durations, however given that the site is largely flood free under current conditions, the proposed extension is not likely to impact on flood behaviour under a future climate change scenario.* *In relation to mainstream flooding, the developed has been designed to minimise impact on flood behaviour through siting, minimum floor levels (with freeboard above the 1% AEP level) and achieving a cut/fill balance.*	Satisfied
(b) the intended design and scale of buildings resulting from the development,	*The proposed extension is in keeping with the current scale of buildings, whilst delivering the improvements required for safe occupation and amenity of the school community.*	Satisfied
(c) whether the development incorporates measures to minimise the risk to life and ensure the safe evacuation of people in the event of a flood,	*Refer to Item 2(d) above*	Satisfied
(d) the potential to modify, relocate or remove buildings resulting from development if the surrounding area is impacted by flooding or coastal erosion.	*The site is not affected by riverine flooding or coastal erosion, and removal or relocation of buildings is unlikely to be necessary due to overland flow.*	Satisfied

3.1.2 Hawkesbury City Council Flood Policy 2020

The Hawkesbury City Council Flood Policy 2020 was adopted in October 2020 following completion of the Hawkesbury-Nepean Valley Regional Flood Study (INSW, 2019). The purpose of the policy is to:

a) Highlight Council's position in respect of the need for a collaborative approach across all levels of government to respond to issues associated with floodplain management across the Hawkesbury-Nepean Valley, and

b) Set the information and development controls to be used for the preparation and assessment of Development Applications for land located within the Flood Planning Area to address the requirements of Clause 5.21 *Flood planning* of Hawkesbury Local Environmental Plan 2012.

Section 3 of the Hawkesbury City Council Flood Policy 2020 states:

"The Flood Planning Area is defined as "the area of land below the FPL (Flood Planning Level) and thus subject to flood related development controls." Currently within the Hawkesbury Local Government Area, the Flood Planning Area corresponds to land having a level below the 1:100 ARI flood event"

The Flood Information Report (Hawkesbury City Council) indicates that the Flood Planning Level at the site (equivalent to the 1% AEP peak flood level) is 17.3 mAHD. As such, proposed works on land at or below this level within the site must demonstrate compliance with Council's planning requirements.

3.1.3 Assessment of Compliance with Applicable Controls

Flood related development controls are assigned based on the hazard classification at the location of the proposed works. As shown in Figure 2-2, the Site is subject to varying flood hazard, with higher hazard classifications on the lower ground to the northwest (where flooding is deeper), and lower hazard along the southeast portion.

3.1.3.1 7-10 Inquiry Hub and 11-12 Inquiry Hub – Hazard Classification H4

The proposed school buildings, specifically the new Yr 7-10 Inquiry Hub and new Yr 11-12 buildings are considered an 'Additions and Alterations to, or the Redevelopment of, existing lawful incompatible development in Hazard Category H4' according to Table 2 of the Flood Policy 2020.

Applicable controls are identified in Table 3-1. WMS has reviewed the proposed design in relation to each control, provided comment and an assessment of compliance with each control.

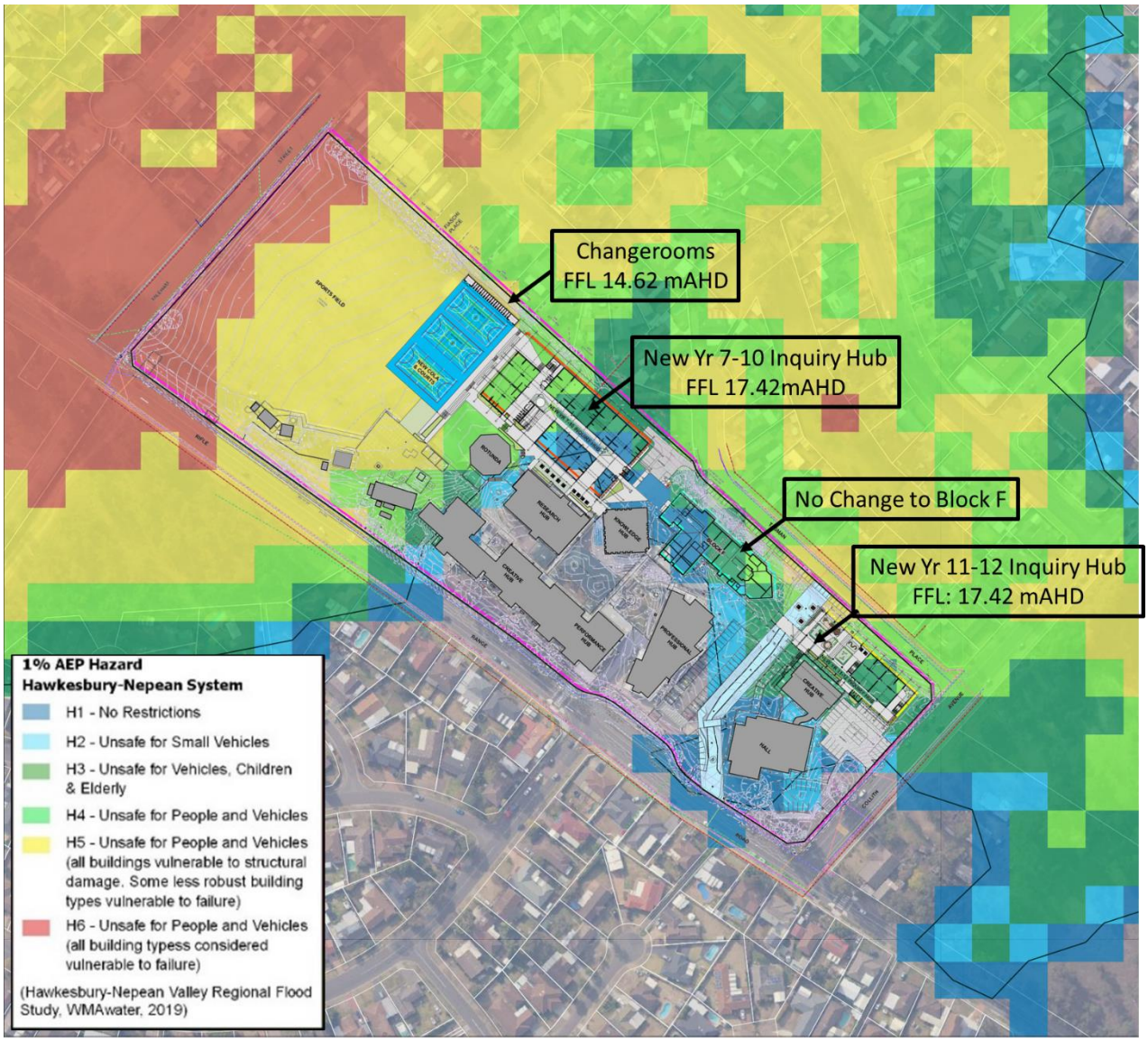


Figure 3-1 Overview of proposed floor levels and hazard categories

Table 3-2 Schedule of Flood Related Development Controls (Additions and Alterations to, or the Redevelopment of, existing lawful incompatible development in Hazard Category H4).

ID	Control Description	WMS Comment	Status
H4.18	Additions and alterations to, or the redevelopment of, existing lawful incompatible development must not be located within a higher Hazard Category than that in which the existing development is situated.	Parts of the existing development are situated in an area of H4 hazard. The only element of the proposed design within a higher hazard category are the basketball courts and changerooms. It is considered likely that the flood risk to these facilities could be adequately managed	Satisfied. Flood Emergency Management Plan required to ensure timely closure of changerooms adjacent to basketball courts.
H4.19	The redevelopment of existing lawful Incompatible Development must, as far as practicable, be designed, located and constructed to minimise the impacts of flooding on the building and improve risk to life factors when compared to that of the existing development.	The proposed development seeks to improve risk to life factors through the following measures: • Existing floor levels at the school are at 17.30-17.32 mAHD. FFLs for the proposed development are at 17.42 mAHD, providing additional freeboard above the FPL. • New buildings to be constructed with flood compatible materials below the FPL • An updated Flood Emergency Response Plan has been prepared using the latest available information from the Hawkesbury-Nepean Regional Flood Study (INSW, 2019)	Satisfied
H4.20	Additions and alterations to, or the redevelopment of, existing lawful incompatible development must not increase the residential occupancy of the land i.e. no additional bedrooms are permitted.	Not Applicable	Not applicable
H4.21	An increase in the number of caravan sites (both long-term and short-term sites) within existing lawful caravan parks is not permitted within Hazard Category H4.	Not Applicable	Not applicable
H4.22	An increase in the numbers of attendees at childcare centres or respite day care centres is not permitted within Hazard Category H4.	Bede Polding College caters to senior students only. Increase of student capacity from 1240 to 1360	Not applicable
H4.23	Additions to, or the redevelopment of, existing lawful Incompatible Development must not be located within a floodway area or flow path.	The site is wholly within the flood storage/ flood fringe zone as defined by the Hawkesbury-Nepean Valley Regional Flood Study (INSW, 2019)	Satisfied

ID	Control Description	WMS Comment	Status
H4.24	Additions to, or the redevelopment of, existing lawful uses located within an incompatible Hazard Category must not increase the size of the original building as approved and constructed at the commencement of the Flood Policy 2020 by more than 20m^2, unless the additional floor area is a second storey addition that does not include additional bedrooms and does not increase the footprint of the existing building.	The intent of this control is to limit the expansion of existing buildings within an incompatible Hazard Category. The Yr 7-10 Enquiry Hub design does involve increasing the proportion of the building within the H4 hazard classification. The flood risk is proposed to be managed through the following: • Open sub-floor area to allow free flow of flood water and reduce impact on floodplain storage capacity; • FFLs at 17.42 mAHD, above the FPL; • Flood Emergency Management Plan and stringent closure policy to reduce risk to students and staff.	WMS is satisfied that the intent of the control is fulfilled
H4.25	Ancillary development, such as garages and outbuildings, associated with existing lawful uses located within an incompatible Hazard Category must not exceed 20m^2 in total area for all ancillary development. **Note: Whilst the area for additions or ancillary development may meet the 20m^2 area limit, the proposed development must still meet the other requirements of this Schedule.**	No Ancillary developments are proposed within Hazard Category H4	Not applicable
Land Levels			
H4.26	Addition to, or the redevelopment of, existing lawful incompatible development must not be located on any land lying at a level lower than 2.0 m below the Flood Planning Level (1:100 ARI flood level for the land)	All proposed development within the H4 area is at or above the 1% AEP. The sub-floor area at the western end of the 7-10 Enquiry Hub is at approximately 15.60 mAHD, therefore complying with H4.26. Dwg Reference: Cut/Fill Plan C-DA-08-P5 (Birzulis, 11/11/2022).	Satisfied
H4.27	Any non-habitable buildings ancillary to existing lawful Incompatible Development (such as garages, carports, animal shelters and other outbuildings) must not be erected on any land within Hazard Category H4 that lies at a level lower than 2.0 metres below the Flood Planning Level (1:100 ARI flood level for the land).	No non-habitable buildings are proposed within the H4 hazard category. Refer to Section 3.1.3.2 in relation to the outdoor changeroom facility (ancillary to the outdoor recreation space/basketball courts).	Satisfied
Floor Levels			
H4.28	All floor levels, including habitable floor levels, associated with the redevelopment of existing lawful incompatible development must be no lower than the	Minimum 17.3 mAHD required. All proposed FFLs at 17.42 mAHD	Satisfied

ID	Control Description	WMS Comment	Status
	Flood Planning Level (1:100 ARI flood level for the land).		
H4.29	All floor levels, including habitable floor levels, associated with additions or alterations to existing lawful incompatible development must be no lower than the Flood Planning Level (1:100 ARI flood level for the land).	Minimum 17.3 mAHD required. All proposed FFLs within the H4 hazard category are at 17.42 mAHD	Satisfied
H4.30	All floor levels of non-habitable buildings ancillary to existing lawful Incompatible Development must be no lower than 2.0 metres below the Flood Planning Level (1:100 ARI flood level for the land) when located within Hazard Category H4.	No non-habitable buildings are proposed within the H4 hazard category. Refer to Section 3.1.3.2 in relation to the outdoor changeroom facility (ancillary to the outdoor recreation space/basketball courts).	Satisfied
H4.31	Where the lowest floor area is elevated above ground level (where raised building construction is used), the undercroft area must not be enclosed. No walls, doors, blockwork, cladding or the like is to be affixed around or within the undercroft area. Decorative features will be considered on merit.	The subfloor area beneath the 7-10 Inquiry Hub is proposed to be enclosed with a perforated steel mesh to enclose the sub-floor area, preventing student access whilst enabling flood water to flow through the sub-floor space and minimise impact on flood storage. Dwg Ref: Cut/Fill Plan C-DA-08-P5 (Birzulis, 11/11/2022).	Satisfied
H4.32	Undercroft areas may be used for car parking purposes.	No undercroft areas are proposed	Not applicable
H4.33	An undercroft area shall not exceed 2.1 metres above ground level. Any slab installed for car parking purposes shall be at ground level to maintain a clearance of 2.1 metres to the underside of the lowest floor area.	No undercroft areas are proposed	Not applicable
H4.34	Where required by Hawkesbury City Council, an area must be provided within a building on the land for the storage of goods, valuable possessions or potentially hazardous or polluting materials at a level above the Flood Planning Level (1:100 ARI flood level for the land).	Proposed building floor levels for all structures (except for outdoor changerooms) are at 17.42 mAHD, providing adequate space for the storage of goods, valuable possessions or potentially hazardous or polluting materials above the FPL (17.3 mAHD).	Satisfied
Cut and Fill			
H4.35	Importation of fill to the land/property and/or excavation works, are not permitted, other than to facilitate development for the purposes of:	No importation of fill is proposed	Satisfied

ID	Control Description	WMS Comment	Status
	• environmental protection works; • bank restoration/stabilisation works; • boat ramps.		
H4.36	A balance of cut and fill must be used on the site to create a level building platform or driveway access on land. Cut and fill must not exceed a depth of 1 metre of cut or 1 metre of fill in these situations.	A cut and fill balance has been achieved in the design (refer to Cut and Fill Plan, C.DA.08, Birzulis Associates, RevP2, Aug 2021).	Satisfied
Buildings			
H4.37	All additions, alterations or new buildings must be constructed using flood compatible building materials.	Buildings are proposed to be constructed of masonry blockwork and concrete below the FPL. Further details to be provided at detailed design phase.	Satisfied
H4.38	An engineering report, prepared by a suitably qualified and experienced structural engineer, must be provided to demonstrate that new buildings and structures are able to withstand forces from floodwater, impacts from debris, and buoyancy forces (See Section E – Information Required of this Schedule).	Where the controls for a particular development proposal require an assessment of structural soundness during a 1:100 ARI flood event, the following impacts must be addressed having regard to the likely depths and velocities of flood waters: • Hydrostatic pressure; • Hydrodynamic pressure; • Impact of debris; and • Buoyancy forces. Note that the foundations of buildings need to be included in the structural analysis. The engineering report must be prepared by a suitably qualified and experienced structural engineer.	WMS is satisfied that the proposed development is able to be designed to withstand the likely impact of flooding during a 1:100 ARI flood event. The structural engineering report is not within the scope of this assessment, and will be provided by a suitably qualified engineer upon completion of the Detailed Design.
Emergency Management			
H4.39	An Evacuation Capability Assessment must be provided for any additions to, or the redevelopment of existing lawful Incompatible Development that result in an intensification of occupancy of the site, such as an increase in the number of employees (See Section E – Information Required of this Schedule).	A preliminary Evacuation Capability Assessment has been undertaken (refer to Section 4.1 of this report).	WMS is satisfied that the proposed development will be able to demonstrate compliance with the evacuation capability requirements, however further investigation of the influence of South Creek is required. This will be provided as part of

ID	Control Description	WMS Comment	Status
	Note: An increase in the number of residents or the number of attendees of an existing lawful Incompatible Development (e.g. increase in number of bedrooms in a residence, residential care facility or group home, children at childcare centres, or additional sites within a caravan park) is not permitted within Hazard Category H4.		the Site Flood Emergency Response Plan.
H4.40	A Site Flood Emergency Response Plan must be provided when elements of the development, including vehicular and pedestrian access are below the Flood Planning Level	A Site Emergency Flood Plan will be developed in line with relevant NSW SES FloodSafe Guidelines and in collaboration with CEDP and key school stakeholders. It will be provided prior to occupation certificate.	The Site FERP will be provided prior to Occupation Certificate.
H4.41	Where it has been demonstrated that evacuation of a property located within the MacDonald Valley or Colo Valley is not possible, 'sheltering in place' may be considered for residential and sensitive development subject to a refuge being provided on land having a level above the Probable Maximum Flood. The refuge must either be located on the subject land, or be a community provided building previously approved for use as a flood refuge. Details of the capacity of the building, the likely time period of isolation, the provision of food, fresh water and effluent disposal facilities, as well as other necessary supplies (such as batteries, radio, torch, first aid kit, medication, candles etc) must be provided with any development application. In addition, should the development rely on a community provided refuge, details in regard to the distance the development is located from the refuge, the identification of hazards along the route between the development and the refuge and demonstrating that the refuge can be accessed during flood events up to and including the 1:100 ARI flood event, is also to be provided.	Not applicable	Not applicable

3.1.3.2 Basketball courts and changeroom facilities (Hazard classification H5)

The changeroom facility is considered a 'building ancillary to the purposes of uses listed as Recreational Uses 2', which includes outdoor recreational facilities, as defined in Table 2 of the HCC Schedule of Flood Related Development Controls.

The proposed basketball courts and changeroom facilities are proposed to be constructed in an area subject to H5 hazard. As such, flood related development controls are set out from Section 5.2 of the HCC Schedule of Flood related Development Controls. WMS has reviewed Section 5.2 and provided the below comments:

Table 3-3 Flood Controls pertaining to proposed changerooms in the H5 Hazard Category

Item	ID	WMS Comment	Status
Permissibility			
H5.18	Additions and alterations to, or the redevelopment of, existing lawful incompatible development must not be located within a higher Hazard Category than that in which the existing development is situated.	Under current conditions, sporting fields and amenities are located within the H5 hazard category. The development of a new changeroom within the H5 hazard category is therefore permissible.	Satisfied
H5.19	The redevelopment of existing lawful Incompatible Development must, as far as practicable, be designed, located and constructed to minimise the impacts of flooding on the building and improve risk to life factors when compared to that of the existing development.	The proposed changeroom is proposed to minimise impacts of flooding on the building and improve risk to life factors through the following: • Masonry/concrete block construction • Openings and drainage bungs to minimise impact on floodplain storage and improve cleanout methods • Be subject to a Flood Emergency Response Plan and a stringent closure policy to manage risk to life.	Satisfied
5.20	Additions to, or the redevelopment of existing lawful Incompatible Development must not be located within a floodway area.	No works proposed in floodway – the site is wholly within the flood storage/fringe	Satisfied
H5.21	Additions and alterations to, the redevelopment of, and ancillary development to existing lawful Incompatible Development, must demonstrate that the development will not increase flood effects elsewhere, having regard to: loss of flood storage, changes in flood levels and velocities caused by changes to flow paths, the cumulative impact of development within the floodplain, and the development withstanding forces from floodwater, impacts from debris, and buoyancy forces.	The changerooms will be designed to minimise building footprint and impact on floodplain storage. The proposed structure will be subject to review by a structural engineer at Detailed Design phase.	Satisfied
H5.22	Additions and alterations to, or redevelopment of, existing lawful incompatible development must not increase the residential occupancy of the land i.e. no additional bedrooms are permitted.	No increase to residential occupancy is proposed	Satisfied
H5.23	An increase in the number of caravan sites (both long-term and short-term sites) within existing lawful caravan parks is not permitted within Hazard Category H5.	Not applicable	Not applicable
H5.24	An increase in the number of attendees at childcare centres or respite day care centres is not permitted within Hazard Category H5.	Not applicable	Not applicable

Item	ID	WMS Comment	Status
H5.25	Additions to, or the redevelopment of, existing lawful uses located within an incompatible Hazard Category must not increase the size of the original building as approved and constructed at the commencement of the Flood Policy 2020 by more than 20m^2, unless the additional floor area is a second storey addition that does not include additional bedrooms and does not increase the footprint of the existing building	The proposed changeroom will be a new structure, designed to minimise impact to flood storage and improve risk to life factors through the measures identified in Clause H5.19	WMS is satisfied that the intent of this clause is achieved by the proposed changeroom design.
H5.26	Ancillary development, such as garages and outbuildings, associated with existing lawful uses located within an incompatible Hazard Category must not exceed 20m2 in total area for all ancillary development, other than: • Farm buildings and other buildings ancillary to the purposes of uses listed as Agricultural Uses 2 in Table 2 of this Schedule, subject to: – Justification of the proposed size of a building; and – Meeting the requirements of Development Control H5.39. Note: Whilst the area for additions or ancillary development may meet the 20m2 area limit, the proposed development must still meet the other requirements of this Schedule.	The intent of this clause is to limit the size of ancillary development in hazardous areas, both to ensure the safety of the building itself and minimise impact on flood storage. The changeroom facility is proposed to have an area of 129.92 m^2. It will be designed to minimise impact on flood storage through openings in walls/doors to allow flow, made of flood compatible materials and with sufficient drainage bungs and surfacing to enable ease of cleaning following floods. The changerooms will be subject to a stringent operating procedure to ensure they are not in use in the lead up to a flood event until the flood has receded, cleaning has been completed and the facility deemed safe for use.	WMS is satisfied that the intent of this clause is achieved by the proposed changeroom design.
Land Levels			
H5.27	Additions to, or the redevelopment of, existing lawful incompatible development must not be located on any land lying at a level lower than 3.0 metres below the Flood Planning Level (1:100 ARI flood level for the land), other than where it is demonstrated that the works will reduce risk to life and/or improve building resilience and evacuation	The changerooms are proposed to be on grade with the basketball courts with a level of 14.62 mAHD, above the minimum requirement of 14.3 mAHD (i.e. 3 m below the 1% AEP level, 17.3 mAHD)	Satisfied
H5.29	Any non-habitable buildings ancillary to existing lawful Incompatible Development (such as garages, carports, animal shelters and other outbuildings) must not be erected on any land within Hazard Category H5 that lies at a level lower than 3.0 metres below the Flood Planning Level (1:100 ARI flood level for the land), other than: • Farm buildings and other buildings ancillary to the purposes of uses listed as Agricultural Uses 2 in Table 2 of this Schedule.	The changerooms are proposed to be on grade with the basketball courts with a level of 14.62 mAHD, above the minimum requirement of 14.3 mAHD (i.e. 3 m below the 1% AEP level, 17.3 mAHD)	Satisfied
Floor Levels			

Item	ID	WMS Comment	Status
H5.31	All floor levels of non-habitable buildings ancillary to existing lawful Incompatible Development must be no lower than 3.0 metres below the Flood Planning Level (1:100 ARI flood level for the land) when located within Hazard Category H5.	The changerooms are proposed to have a finished floor level of 14.62 mAHD, above the minimum requirement of 14.3 mAHD (i.e. 3m below the 1% AEP level, 17.3 mAHD)	Satisfied
Cut and Fill			
H5.36	Importation of fill to the land/property and/or excavation works, are not permitted, other than to facilitate development for the purposes of: • environmental protection works; • bank restoration/stabilisation works; • boat ramps.	No importation of fill is proposed	Satisfied
H5.37	A balance of cut and fill must be used on the site to create a level building platform or driveway access on land. Cut and fill must not exceed a depth of 1 metre of cut or 1 metre of fill in these situations.	A cut/fill balance is proposed. Dwg ref: Cut/Fill C-DA-07 to 09, issue P5 (Birzulis, 11/11/2022).	Satisfied
Building			
H5.38	All additions, alterations or replacement buildings must be constructed using flood compatible building materials.	The changerooms will be constructed of concrete and masonry blockwork	Satisfied
H5.39	An engineering report, prepared by a suitably qualified and experienced structural engineer, must be provided to demonstrate that new buildings and structures are able to withstand forces from floodwater, impacts from debris, and buoyancy forces (See Section E – Information Required of this Schedule).	To be provided by Structural Engineer following detailed design phase.	Will be completed by structural engineer at detailed design phase using available flood information.
Emergency Management – Refer to Table 3.1 for controls and Section 4 for further details.			

4 FLOOD EVACUATION AND EMERGENCY MANAGEMENT

4.1 FLOOD EMERGENCY RESPONSE PLAN

A Flood Emergency Response Plan has been prepared by WMS and can be found in Appendix D. The plan addresses the following:

- Preparing for a flood;
- Responding when a flood is likely, including evacuation routes and when to leave;
- Responding during a flood, including what to do if isolated; and
- Recovery after a flood.

4.2 EVACUATION CAPABILITY ASSESSMENT

An Evacuation Capability Assessment has been prepared by WMS and can be found in the appendices section of the Flood Emergency Response Plan.

The objectives of the Evacuation Capability Assessment were to:

- Demonstrate the available route/s from the development to the Regional Flood Evacuation Route;
- Determine the available time for evacuation;
- Identify at what point and time the access route is cut off;
- Identify whether the proposed development will be capable of self-evacuation or whether it will rely on emergency services to assist in the evacuation of occupants, such as seniors housing, residential care facilities, group homes, or correctional centres;
- Determine whether evacuation from the site can be achieved within the Effective Warning Time; and
- Demonstrate that evacuation of the site will not adversely impact on existing evacuation capabilities.

4.3 FLOOD EVACUATON ROUTES

There are 12 designated evacuation routes in the Hawkesbury Nepean Valley that provide the quickest and safest way to exit the Wallacia, Penrith-Emu Plains, Richmond-Windsor, South and Eastern Creek floodplains. It is important to be aware of more than one route, because each flood behaves differently, and evacuation routes will get cut by flood water at different points.

The 12 flood evacuation routes defined by the NSW SES are shown on Figure 4-1. Bede Polding Catholic College is located nearest to the Richmond Road and The Northern Road evacuation routes.

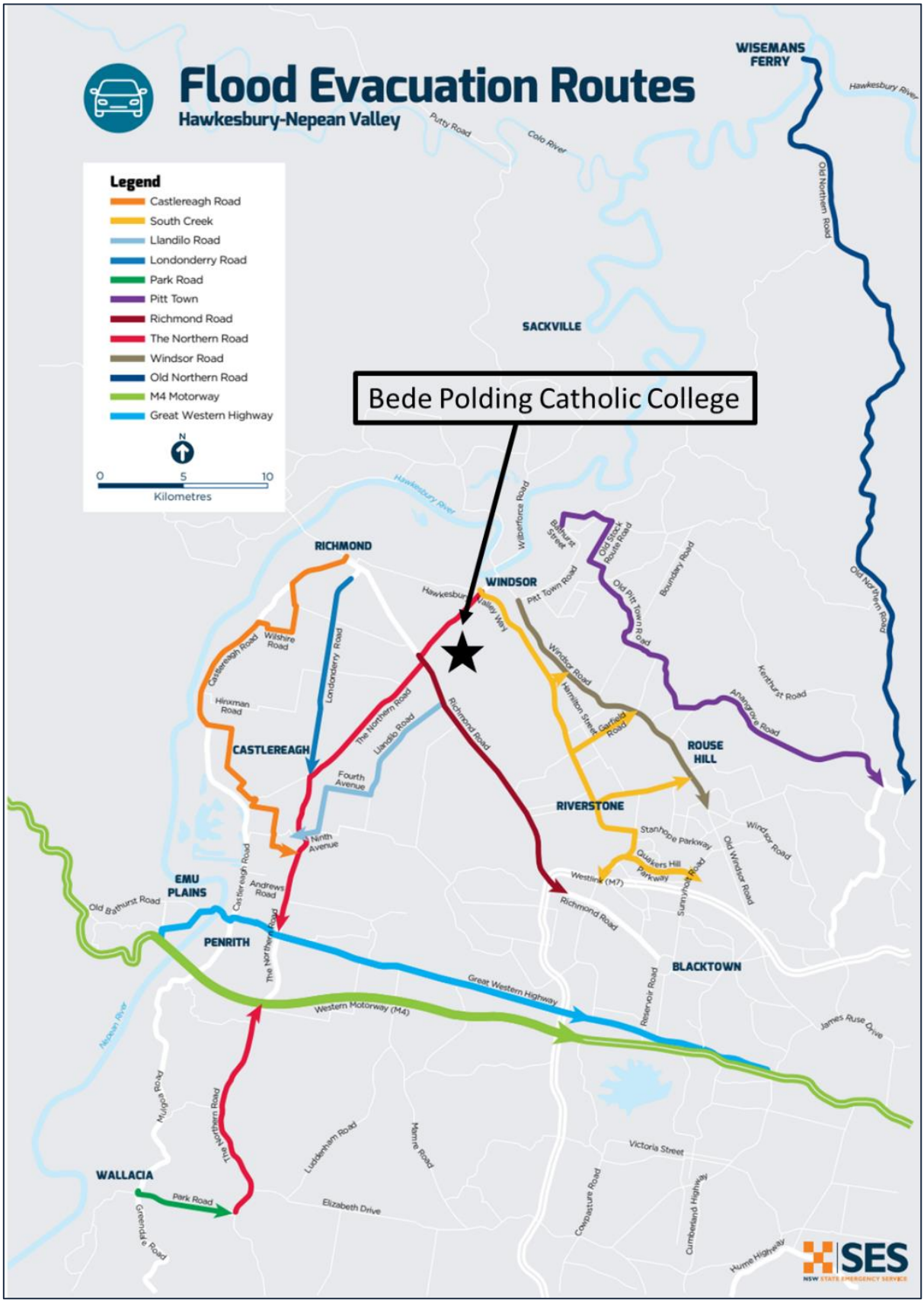


Figure 4-1 Hawkesbury Nepean Flood Evacuation Routes, NSW SES, July 2019

Richmond Road is the preferred evacuation route, which can be accessed west of the site via Rifle Range Road and George Street ('Access Route A'), or to the east via Rifle Range Road and Sanctuary Drive ('Access Route B'). An overview of the available access routes is provided in Figure 4-2. If sufficient warning time is available, the Northern Road evacuation route is also an option.

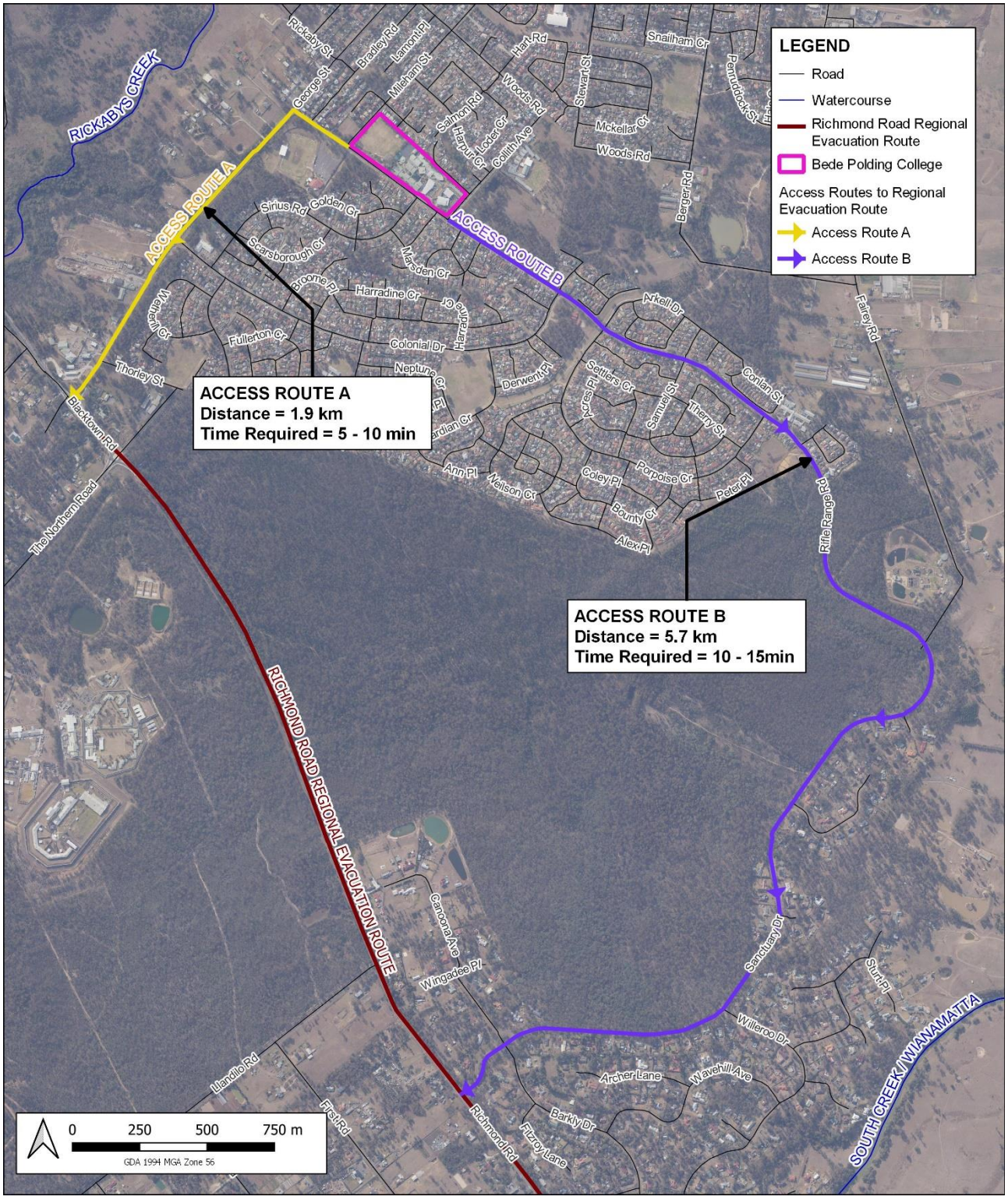


Figure 4-2 Overview of Access Routes to Richmond Road Regional Evacuation Route from Bede Polding

5 CONSTRUCTION STAGING PLANS AND LOCATION OF DEMOUNTABLES

5.1 OVERVIEW

The construction of the proposed works at Bede Polding will be divided into seven (7) stages: 1A, 1B, 2A, 2B, 2C, 3A and 3B. During stages 1A through to 2B, it is proposed to locate temporary demountable buildings on the northwest portion of the Site near the proposed sports field, as illustrated in Figure 5-1. The demountable buildings will be used as temporary classrooms and as a temporary canteen while the construction works take place. In total, the temporary classrooms could accommodate up to approximately 300-500 students depending on the stage, point in the construction period, and general variability in school usage.

5.2 RISK ASSESSMENT AND MANAGEMENT

The temporary classrooms are proposed to be located on the basketball court and eastern end of the sports field. To reduce the exposure to flood risk, the demountable classrooms have been moved to higher ground than was shown in the original DA submission, as can be seen in Figure 5-2. The temporary classrooms will be on ground at or above 14.1 mAHD at the lowest, putting them above the 5% AEP event and above the July 2022 peak flood level.

The flood hazard in the 1% AEP event is classified as H5, and as such, due consideration of the flood risk during the construction period is required.

The original and amended locations of the demountables are illustrated in Figure 5-3.

5.2.1 Construction Timeframes and Likelihood of Inundation

An overview of the expected duration of construction stages is provided in Table 5-1. The demountable buildings are proposed to be used during Stages 1 and 2, which combined have a maximum expected duration of 24 months (2 years). To be conservative, an assessment of the likelihood of flooding has been calculated based on a construction period of 3 years, in case there are significant project delays. The results are shown in provided in Table 5-2.

The demountables will be located above the 5% AEP flood level, and therefore will only be at risk of flooding in events greater than the 5% AEP. As illustrated in Table 5-2 the likelihood of a flood greater than a 5% AEP flood occurring within the 3 year timeframe is less than 15%.

Table 5-1 Construction Timeframe Summary

Stage	Estimated Duration (Months)
Stage 1	6-12
Stage 2	6-12
Final Stage	6-12

Table 5-2 Likelihood of inundation at Bede Polding within next 3 years

Flood Event	Likelihood of occurring within next 3 years
5% AEP	14.3%
2% AEP	5.9%
1% AEP	3.0%
0.5% AEP	1.5%
0.2% AEP	0.6%
0.1% AEP	0.3%

5.2.2 Flood Emergency Management

Residual flood risk to the demountable classrooms (i.e. in events that reach above 14.1m AHD at the Windsor Bridge), will managed through the implementation of a Flood Emergency Response Plan which addresses the emergency procedures for both construction and ultimate development scenarios. The FERP is provided in Appendix D.

5.2.3 Structural Adequacy and Minimum Floor Levels

The structural adequacy and minimum floor level of each demountable classroom is to be confirmed by the successful contractor at tender stage. The successful tenderer must ensure:

- Each demountable classroom is to be installed on piers/stumps at a minimum of 0.45 m above ground level;
- Piers to be reinforced if required to provide adequate structural support against the forces of flood water (noting that the flooding on the Bede Polding ovals is typically slow moving, volume-driven flood storage rather than fast flowing water);
- Consideration of buoyancy forces using flood depth information from the Hawkesbury-Nepean Regional Flood Study (INSW, 2019);
- The selection of floor level should be determined through a merits-based approach that seeks to minimise exposure to flood risk, whilst balancing the accessibility requirements (i.e. DDA compliant access ramps) and site space constraints;
- Priority should be given to minimise the duration for which the western-most demountables (i.e. those designated for use in Stage 2 only) are in use, as these are at the greatest risk of inundation.

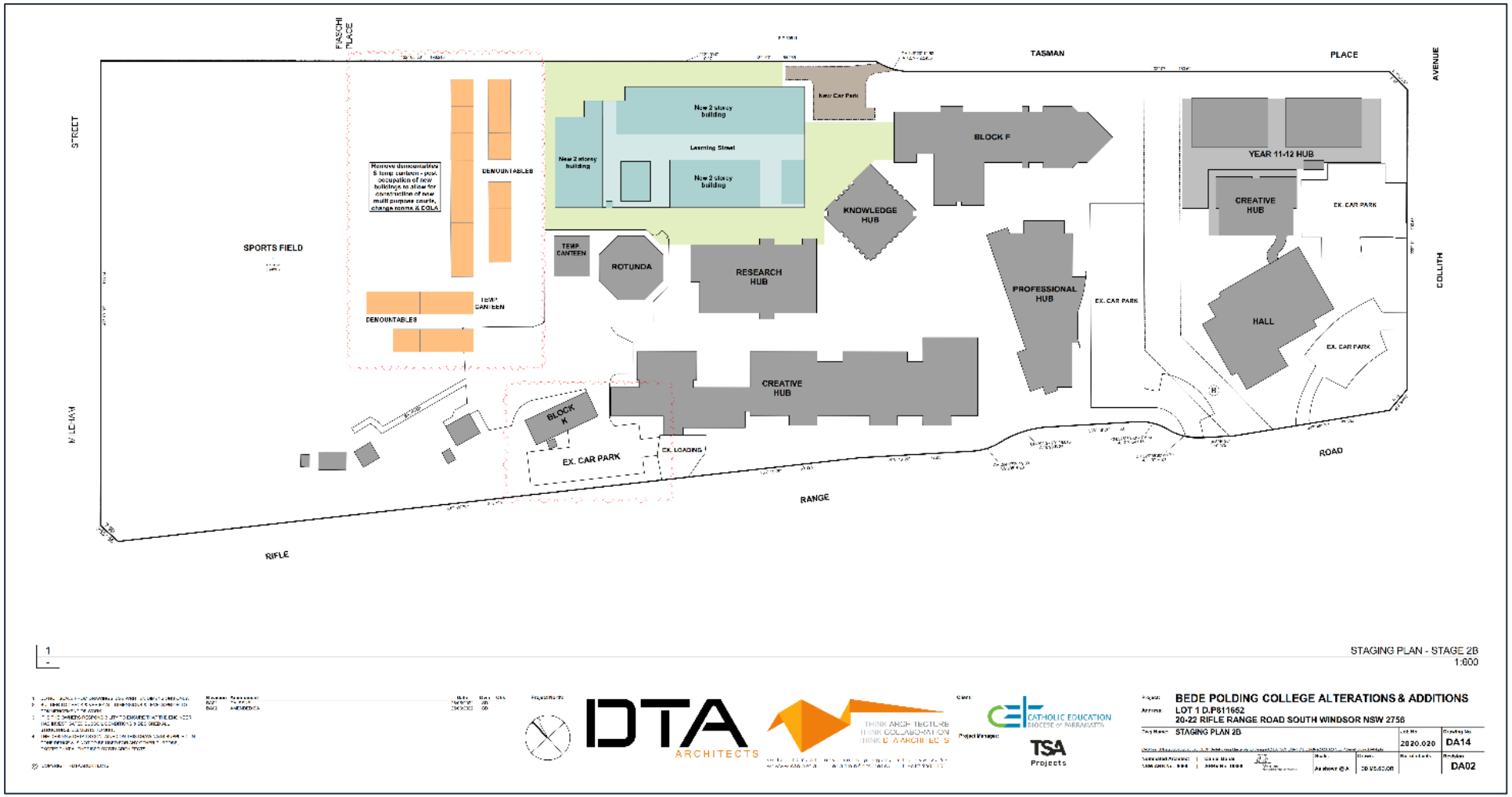


Figure 5-1 Construction Staging Plans – Stage 2B

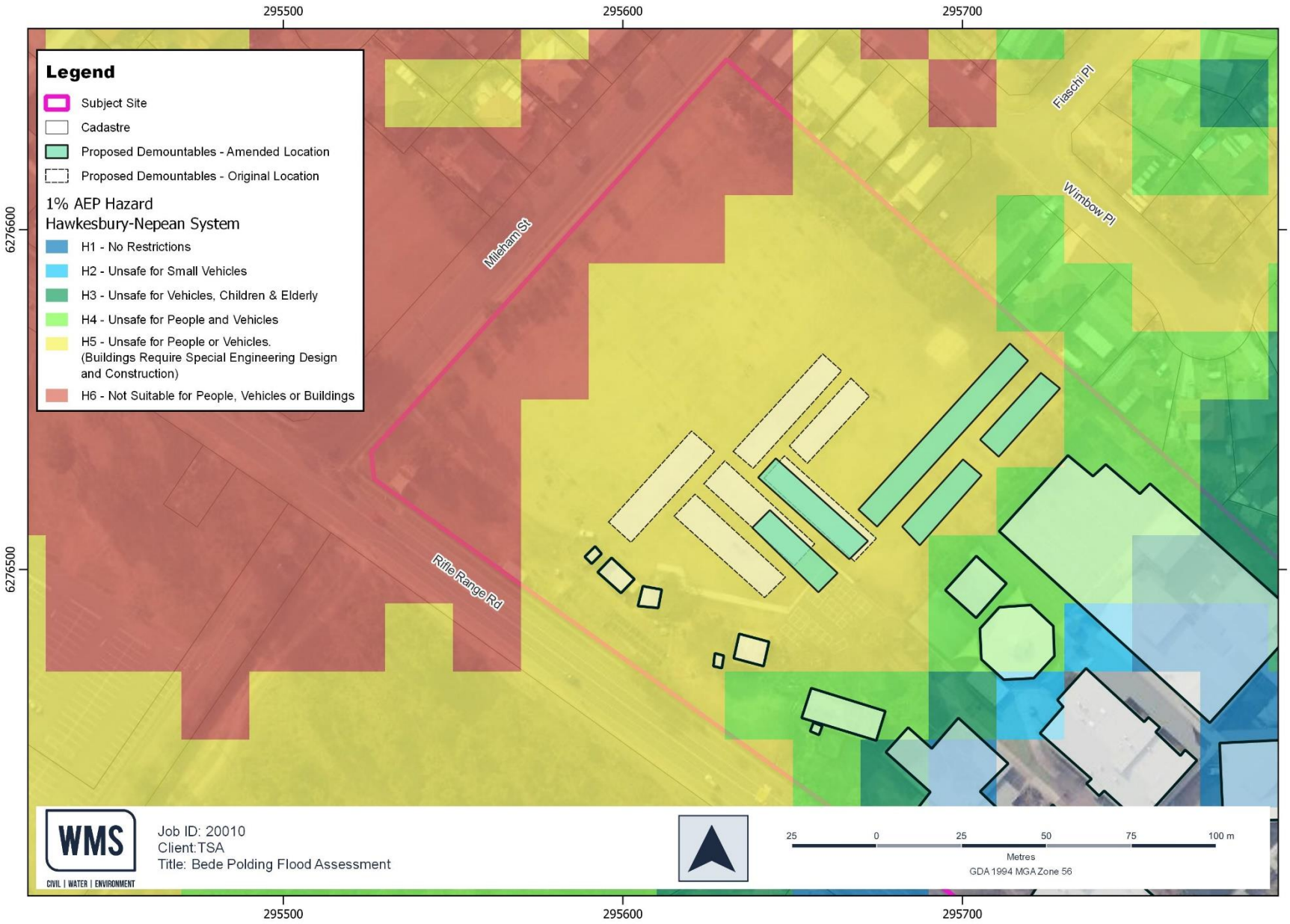
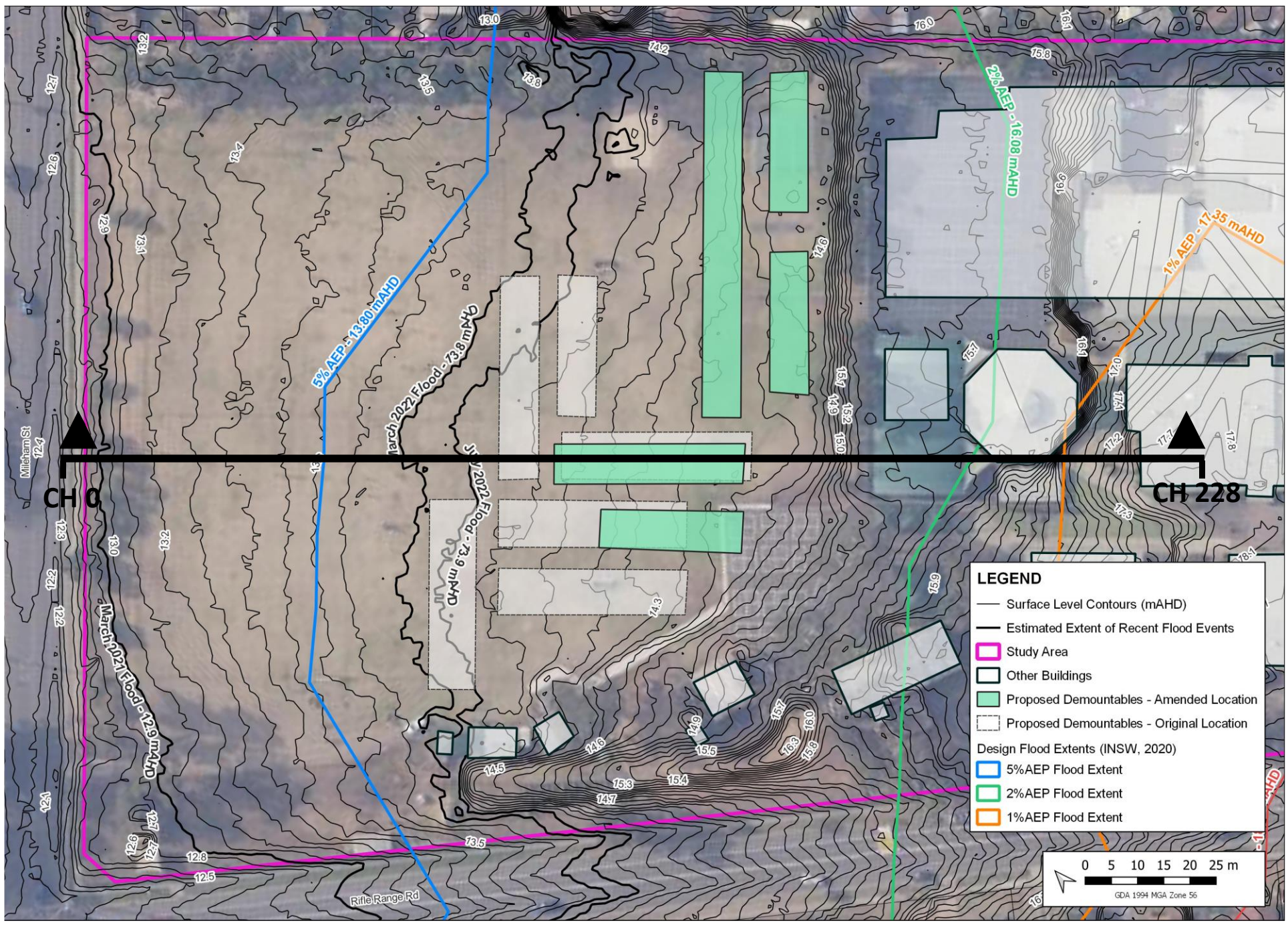


Figure 5-2 1% AEP Hazard at Proposed Location of Demountable Buildings (Hawkesbury-Nepean Regional Flood Study, INSW, 2019).



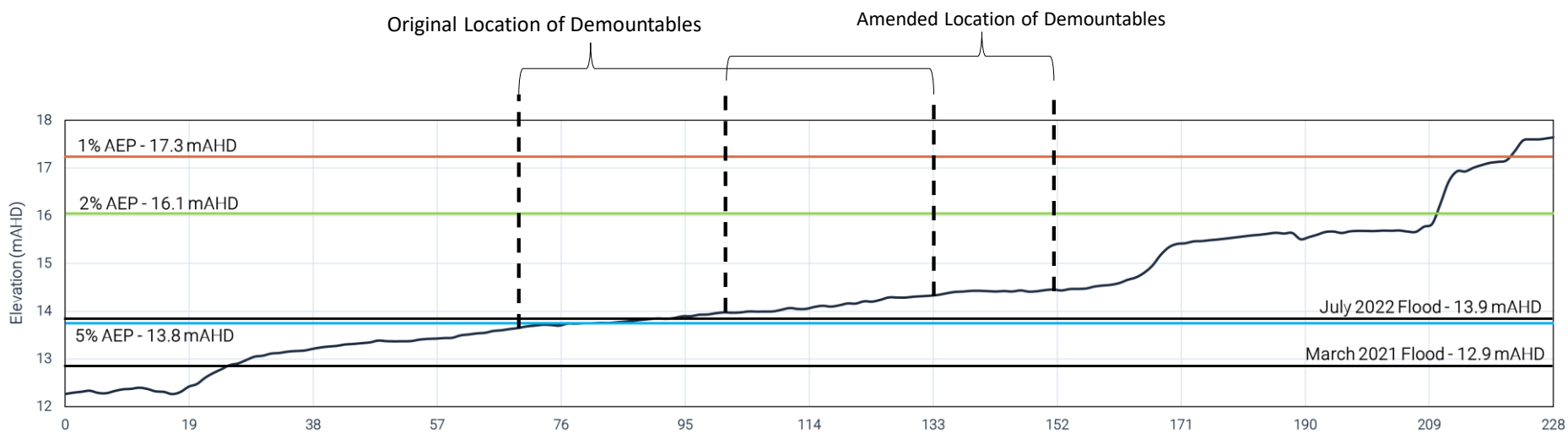


Figure 5-3 Proposed Demountable Buildings Location and Flood Extents

6 SUMMARY AND CONCLUSIONS

The Catholic Education Diocese Parramatta engaged WMS to prepare a flood assessment report to support its Development Application for the redevelopment of Bede Polding Catholic.

The site is located within the Flood Planning Area defined by the Hawkesbury-Nepean Valley Regional Flood Study (INSW, 2019), which encompasses all land inundated in the 1% AEP event. At the site, this equates to a level of 17.3 mAHD.

WMS has reviewed the proposed development in relation to the following planning requirements:

- Hawkesbury LEP 2012, Clause 5.21: Flood Planning;
- Council Flood Policy 2020, which includes:
  - Schedule of Flood Related Development Controls
  - Section E: Information Required (a checklist of inclusions required by HCC).

WMS has also taken cognisance of the comments from Council at the Pre-DA lodgement meeting held on the 16th December 2021 and RFIs provided by Council on the 19th August.

This report has found that:

- The proposed development demonstrates compliance with the intent of each flood control set out in the Schedule of Flood Related Development Controls, relating to mainstream flood risk in the H4 and H5 hazard categories;
- The site is subject to limited flood risk from overland flow. The proposed building footprints do not encroach on the overland flow path through the school site under existing conditions, and hence a flood impact assessment is not required.
- A Flood Evacuation Capability Assessment has been prepared;
- A Flood Emergency Management Plan has been prepared;
- An assessment of the flood risk and management of flood risk to the temporary classrooms (demountables) has been included in the Flood Assessment Report.

7 REFERENCES

Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M, Testoni I, (Editors) (2016). Australian Rainfall and Runoff: A Guide to Flood Estimation, Commonwealth of Australia.

NSW Department of Planning & Environment (2021). https://www.planningportal.nsw.gov.au/spatialviewer/

INSW (2019) Hawkesbury-Nepean Regional Flood Study

(AIDR 2017) Flood Hazard (Guideline 7-3) Supporting document for the implementation of Australian Disaster Resilience Handbook 7 Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia

APPENDIX A

HAWKESBURY-NEPEAN MAINSTREAM FLOOD MAPS

solutions
WATER MODELLING

Appendix A-01

1% AEP Peak Depth

LEGEND

- 1%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

1%AEP Depth

- 0 - 0.3m
- 0.3 - 0.5m
- 0.5 - 1.2m
- 1.2 - 2m
- 2 - 4m
- >4m

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

solutions
WATER MODELLING

Appendix A-02

1% AEP Peak Level

LEGEND

1%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

1%AEP Flood Level (mAHD)

- <= 12
- 12 - 13
- 13 - 16
- 16 - 17
- 17 - 18
- 18 - 20
- 20 - 22
- 22 - 24
- 24 - 27

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

solutions
WATER MODELLING

Appendix A-03

1% AEP Peak Hazard

LEGEND

- 1%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

1%AEP Hazard

- Band 1 (Gray)
- H1 - No Restrictions
- H2 - Unsafe for Small Vehicles
- H3 - Unsafe for Vehicles, Children & Elderly
- H4 - Unsafe for People and Vehicles
- H5 - Unsafe for People or Vehicles. (Buildings Require Special Engineering Design and Construction)
- H6 - Not Suitable for People, Vehicles or Buildings

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

solutions
WATER MODELLING

Appendix A-04

1% AEP Hydraulics Categorisation

LEGEND

1%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

Hydraulics categorisation

- 1%AEP Primary Floodway
- 1%AEP Secondary Floodway
- 1%AEP Storage Fringe

Bede Polding Flood Assessment

1:5000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 100 200 300 m

solutions
WATER MODELLING

Appendix A-05

2% AEP Peak Depth

LEGEND

- 2%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

2%AEP Depth

- 0 - 0.3m
- 0.3 - 0.5m
- 0.5 - 1.2m
- 1.2 - 2m
- 2 - 4m
- >4m

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

solutions
WATER MODELLING

Appendix A-06

2% AEP Peak Level

LEGEND

- 2%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

2%AEP Flood Level (mAHD)

- <= 12
- 12 - 13
- 13 - 16
- 16 - 17
- 17 - 18
- 18 - 20
- 20 - 22
- 22 - 24
- 24 - 27

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

solutions
WATER MODELLING

Appendix A-07

5% AEP Peak Depth

LEGEND

5%AEP Flood Extent

Study Area

Block F

yr 11-12 inquiry hub

yr 7-10 inquiry hub

5%AEP Depth

0 - 0.3m

0.3 - 0.5m

0.5 - 1.2m

1.2 - 2m

2 - 4m

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

solutions
WATER MODELLING

Appendix A-08

5% AEP Peak Level

LEGEND

- 5%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

5%AEP Flood Level (mAHD)

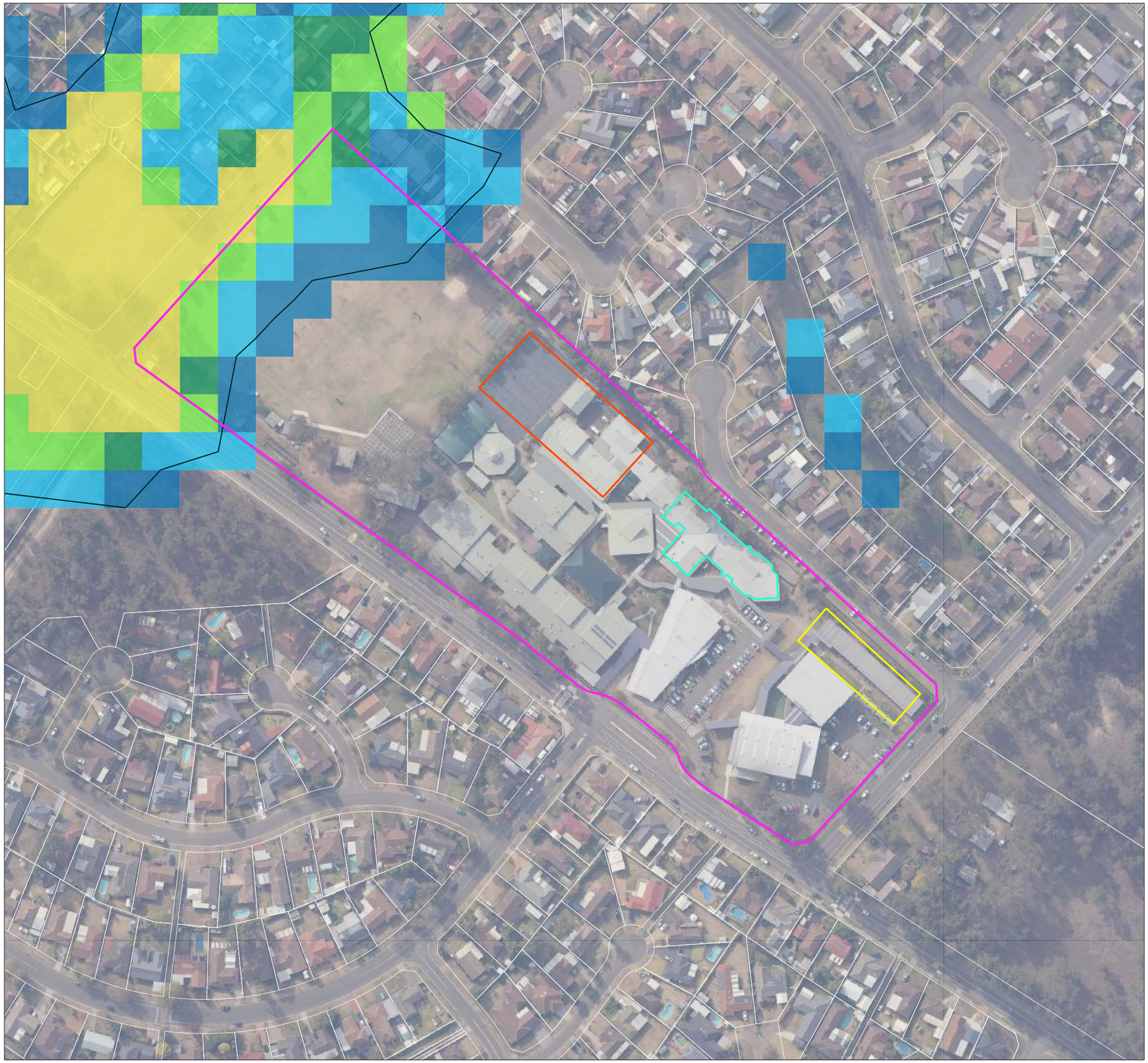
- <= 12
- 12 - 13
- 13 - 16
- 16 - 17
- 17 - 18
- 18 - 20
- 20 - 22
- 22 - 24
- 24 - 27

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m



solutions
WATER MODELLING

Appendix A-09

5% AEP Peak Hazard

LEGEND

- 5%AEP Flood Extent

Study Area
- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

5%AEP Hazard
- H1 - No Restrictions
- H2 - Unsafe for Small Vehicles
- H3 - Unsafe for Vehicles, Children & Elderly
- H4 - Unsafe for People and Vehicles
- H5 - Unsafe for People or Vehicles. (Buildings Require Special Engineering Design and Construction)
- H6 - Not Suitable for People, Vehicles or Buildings

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

solutions
WATER MODELLING

Appendix A-10

10% AEP Peak Depth

LEGEND

- 10%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

10%AEP Depth

- 0 - 0.3m
- 0.3 - 0.5m
- 0.5 - 1.2m
- 1.2 - 2m
- 2 - 4m
- >4m

Bede Polding Flood Assessment

1:5000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 100 200 300 m

solutions
WATER MODELLING

Appendix A-11

10% AEP Peak Level

LEGEND

- 10%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

10%AEP Flood Level (mAHD)

- <= 12
- 12 - 13
- 13 - 16
- 16 - 17
- 17 - 18
- 18 - 20
- 20 - 22
- 22 - 24
- 24 - 27

Bede Polding Flood Assessment

1:5000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 100 200 300 m

solutions
WATER MODELLING

Appendix A-12

20% AEP Peak Depth

LEGEND

- 20%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

20%AEP Depth

- 0 - 0.3m
- 0.3 - 0.5m
- 0.5 - 1.2m
- 1.2 - 2m
- 2 - 4m
- >4m

Bede Polding Flood Assessment

1:5000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 100 200 300 m

solutions
WATER MODELLING

Appendix A-13

20% AEP Peak Level

LEGEND

20%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

20%AEP Flood Level (mAHD)

- <= 12
- 12 - 13
- 13 - 16
- 16 - 17
- 17 - 18
- 18 - 20
- 20 - 22
- 22 - 24
- 24 - 27

Bede Polding Flood Assessment

1:5000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 100 200 300 m

solutions
WATER MODELLING

Appendix A-14

20% AEP Peak Hazard

LEGEND

- 20%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

20%AEP Hazard

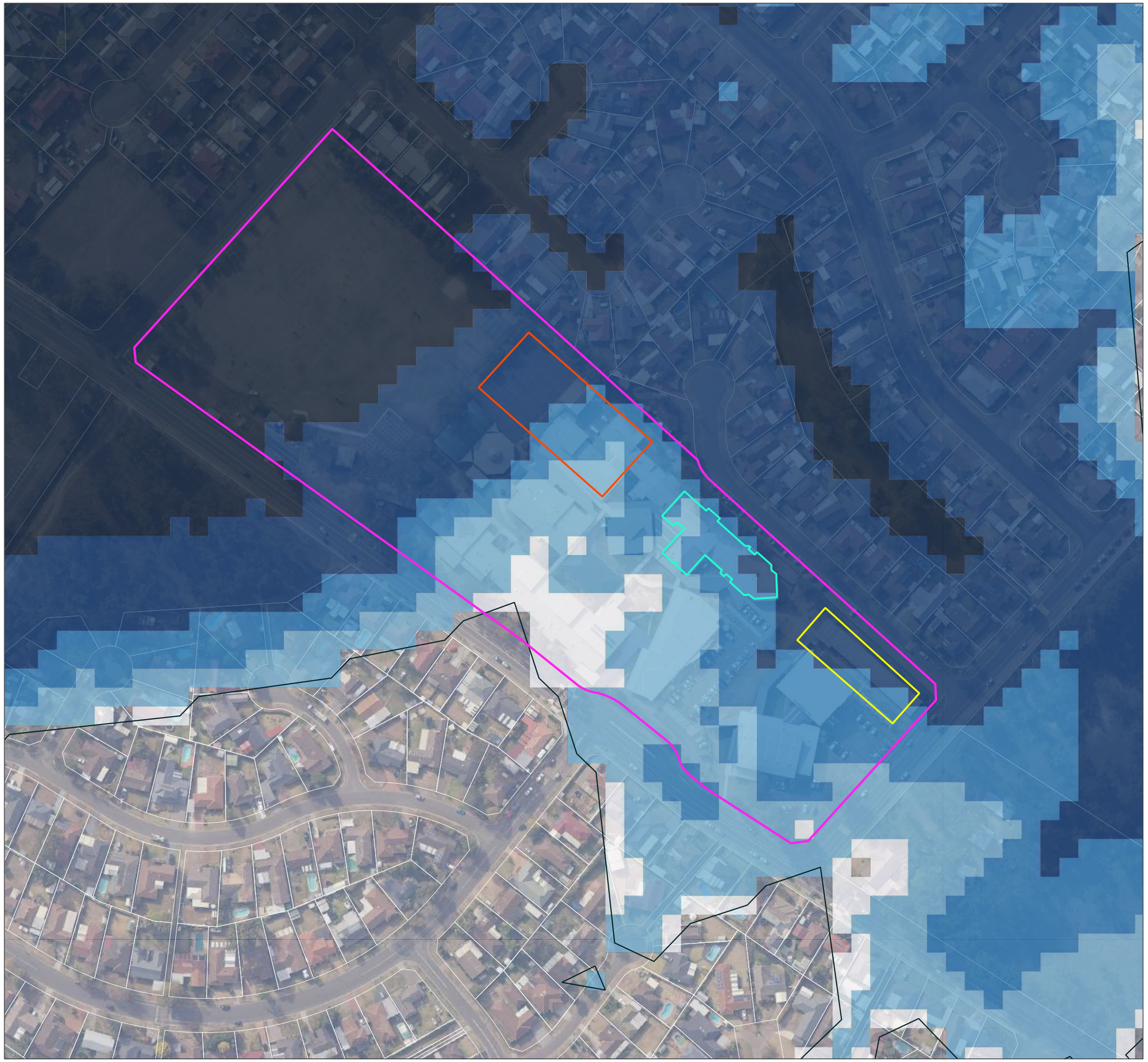
- H1 - No Restrictions
- H2 - Unsafe for Small Vehicles
- H3 - Unsafe for Vehicles, Children & Elderly
- H4 - Unsafe for People and Vehicles
- H5 - Unsafe for People or Vehicles. (Buildings Require Special Engineering Design and Construction)
- H6 - Not Suitable for People, Vehicles or Buildings

Bede Polding Flood Assessment

1:5000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 100 200 300 m



solutions
WATER MODELLING

Appendix A-15

0.5% AEP Peak Depth

LEGEND

- 0.5%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

0.5%AEP Depth

- 0 - 0.3m
- 0.3 - 0.5m
- 0.5 - 1.2m
- 1.2 - 2m
- 2 - 4m
- >4m

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

solutions
WATER MODELLING

Appendix A-16

0.5% AEP Peak Level

LEGEND

- 0.5%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

0.5%AEP Flood Level (mAHD)

- <= 12
- 12 - 13
- 13 - 16
- 16 - 17
- 17 - 18
- 18 - 20
- 20 - 22
- 22 - 24
- 24 - 27

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

solutions
WATER MODELLING

Appendix A-17

0.2% AEP Peak Depth

LEGEND

- 0.2%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

0.2%AEP Depth

- 0 - 0.3m
- 0.3 - 0.5m
- 0.5 - 1.2m
- 1.2 - 2m
- 2 - 4m
- >4m

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

solutions
WATER MODELLING

Appendix A-18

0.2% AEP Peak Level

LEGEND

- 0.2%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

0.2%AEP Flood Level (mAHD)

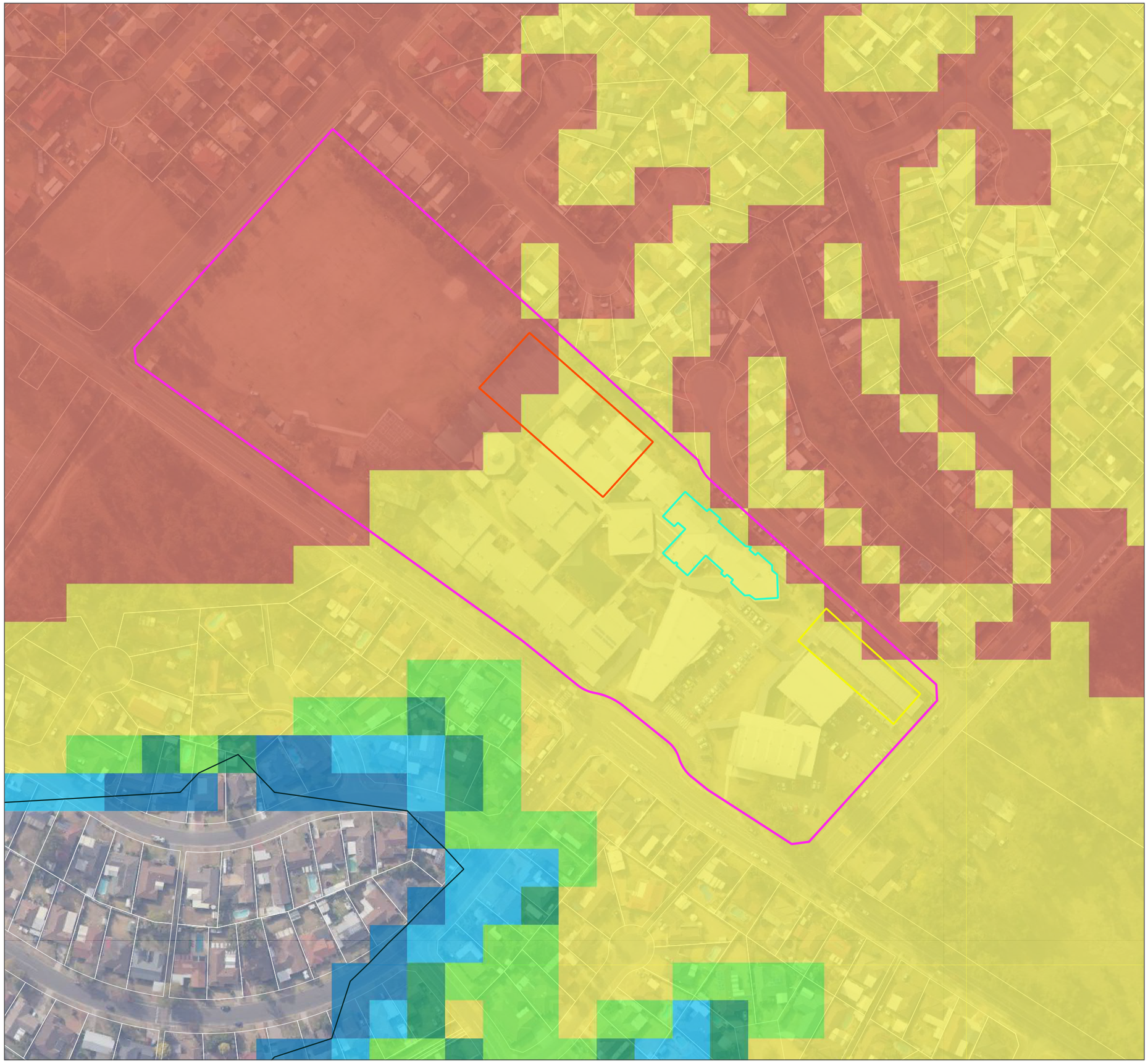
- <= 12
- 12 - 13
- 13 - 16
- 16 - 17
- 17 - 18
- 18 - 20
- 20 - 22
- 22 - 24
- 24 - 27

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m



solutions
WATER MODELLING

Appendix A-19

0.2% AEP Peak Hazard

LEGEND

- 0.2%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

0.2%AEP Hazard

- H1 - No Restrictions
- H2 - Unsafe for Small Vehicles
- H3 - Unsafe for Vehicles, Children & Elderly
- H4 - Unsafe for People and Vehicles
- H5 - Unsafe for People or Vehicles. (Buildings Require Special Engineering Design and Construction)
- H6 - Not Suitable for People, Vehicles or Buildings

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

solutions
WATER MODELLING

Appendix A-20

0.2% AEP Hydraulics Categorisation

LEGEND

- 0.2%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

Hydraulics categorisation

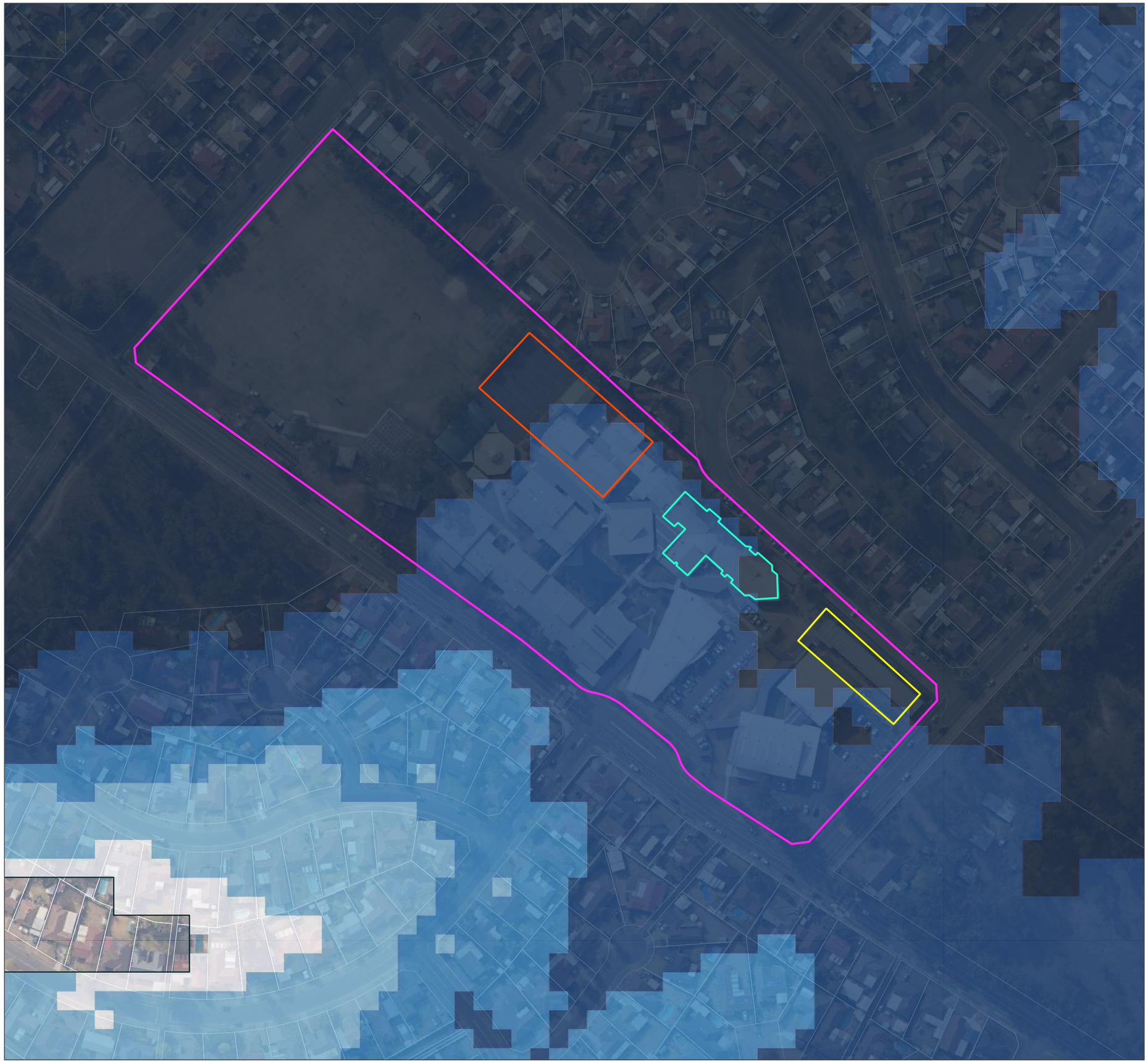
- 0.2%AEP Primary Floodway
- 0.2%AEP Secondary Floodway
- 0.2%AEP Storage Fringe

Bede Polding Flood Assessment

1:5000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 100 200 300 m



solutions
WATER MODELLING

Appendix A-21

0.1% AEP Peak Depth

LEGEND

- 0.1%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

0.1%AEP Depth

- 0 - 0.3m
- 0.3 - 0.5m
- 0.5 - 1.2m
- 1.2 - 2m
- 2 - 4m
- >4m

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

solutions
WATER MODELLING

Appendix A-22

0.1% AEP Peak Level

LEGEND

- 0.1%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

0.1%AEP Flood Level (mAHD)

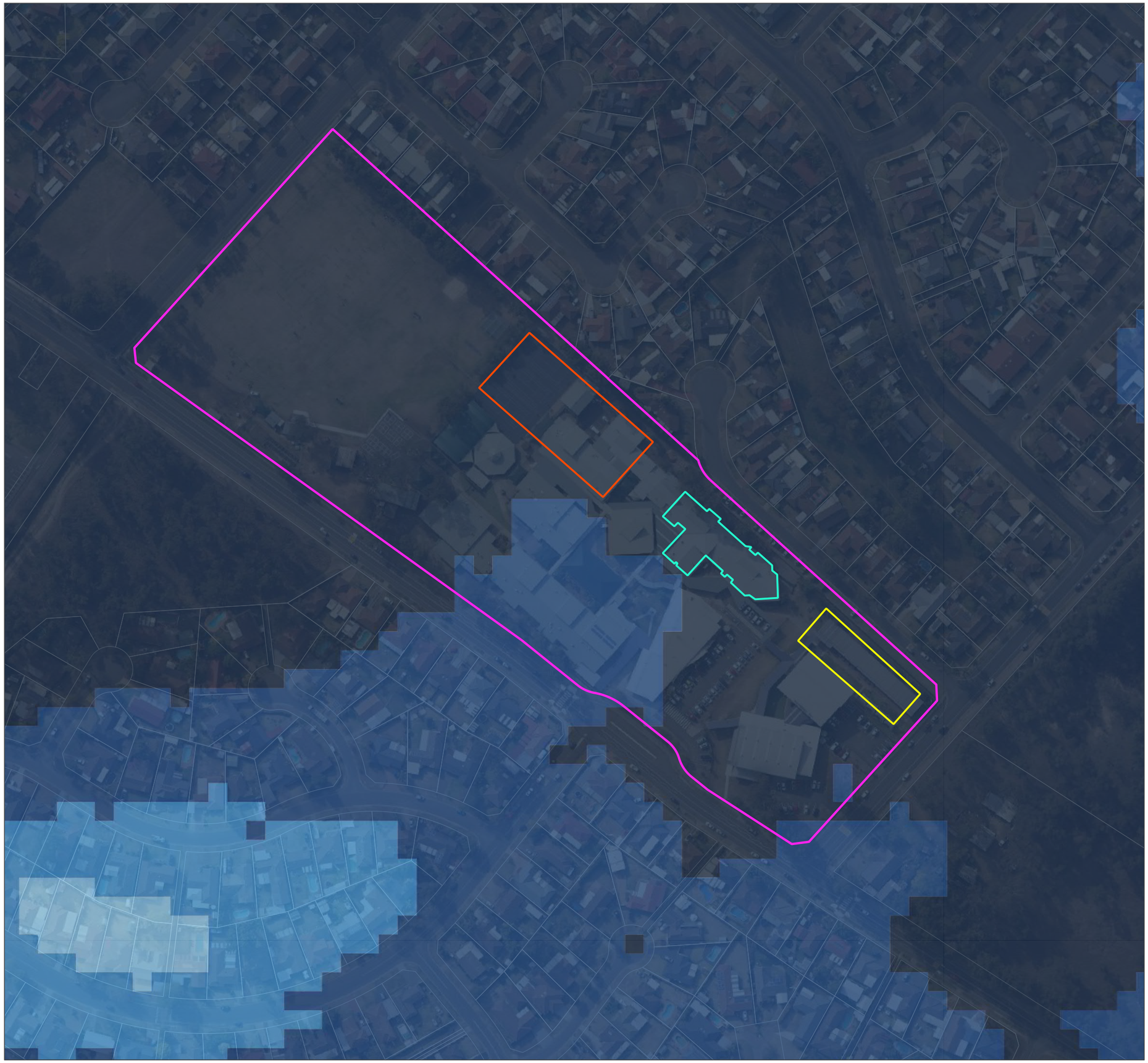
- <= 12
- 12 - 13
- 13 - 16
- 16 - 17
- 17 - 18
- 18 - 20
- 20 - 22
- 22 - 24
- 24 - 27

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m



solutions
WATER MODELLING

Appendix A-23

0.05% AEP Peak Depth

LEGEND

- 0.05%AEP Flood Extent

Study Area
- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

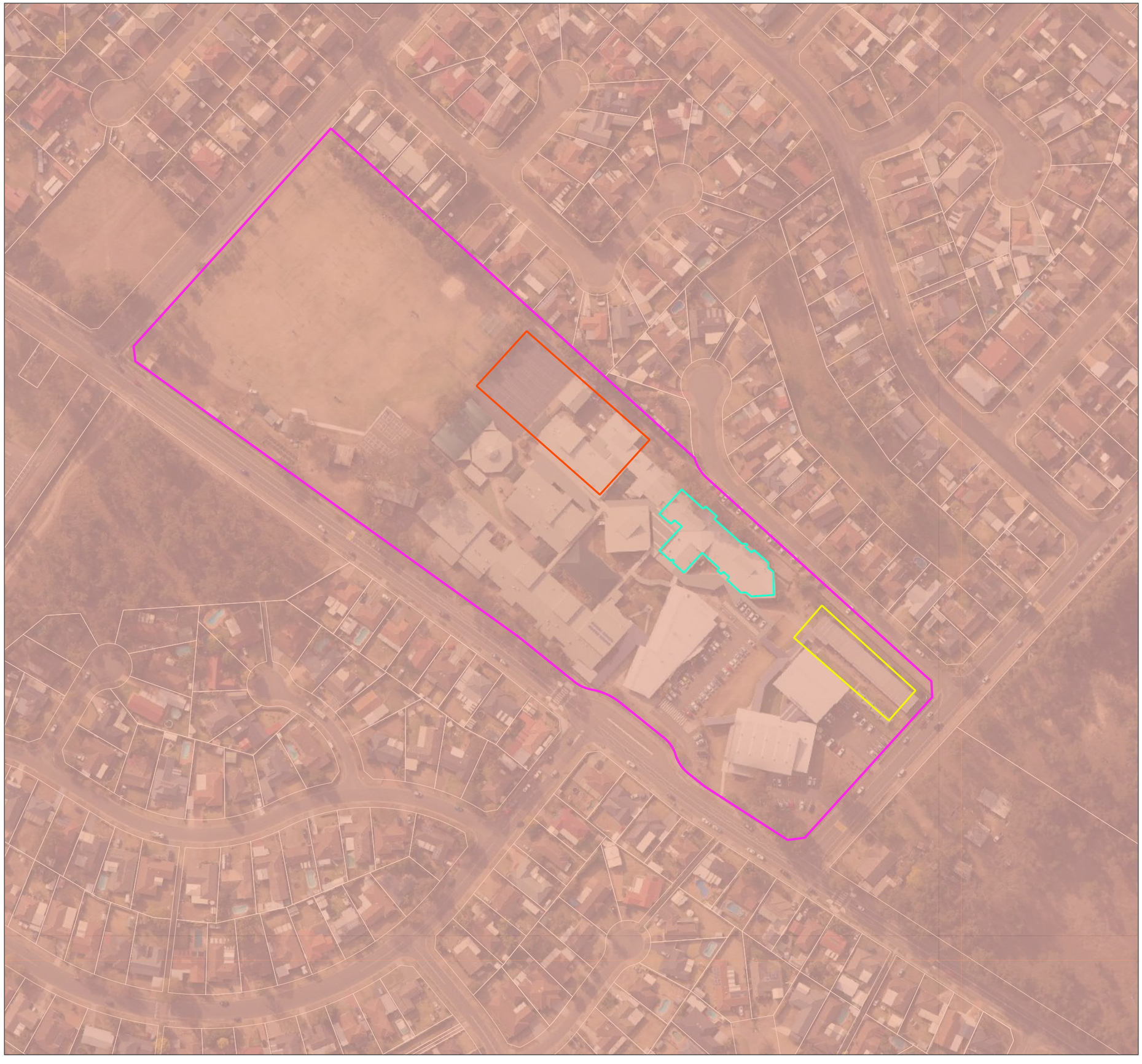
0.05%AEP Depth
- 0.5 - 1.2m
- 1.2 - 2m
- 2 - 4m
- >4m

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m



solutions
WATER MODELLING

Appendix A-24

0.05% AEP Peak Level

LEGEND

- 0.05%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

0.05%AEP Flood Level (mAHD)

- <= 12
- 12 - 13
- 13 - 16
- 16 - 17
- 17 - 18
- 18 - 20
- 20 - 22
- 22 - 24
- 24 - 27

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

solutions
WATER MODELLING

Appendix A-25

0.05% AEP Peak Hazard

LEGEND

- 0.05%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

0.05%AEP Hazard

- H1 - No Restrictions
- H2 - Unsafe for Small Vehicles
- H3 - Unsafe for Vehicles, Children & Elderly
- H4 - Unsafe for People and Vehicles
- H5 - Unsafe for People or Vehicles. (Buildings Require Special Engineering Design and Construction)
- H6 - Not Suitable for People, Vehicles or Buildings

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

solutions
WATER MODELLING

Appendix A-26

0.02% AEP Peak Depth

LEGEND

- 0.02%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

0.02%AEP Depth

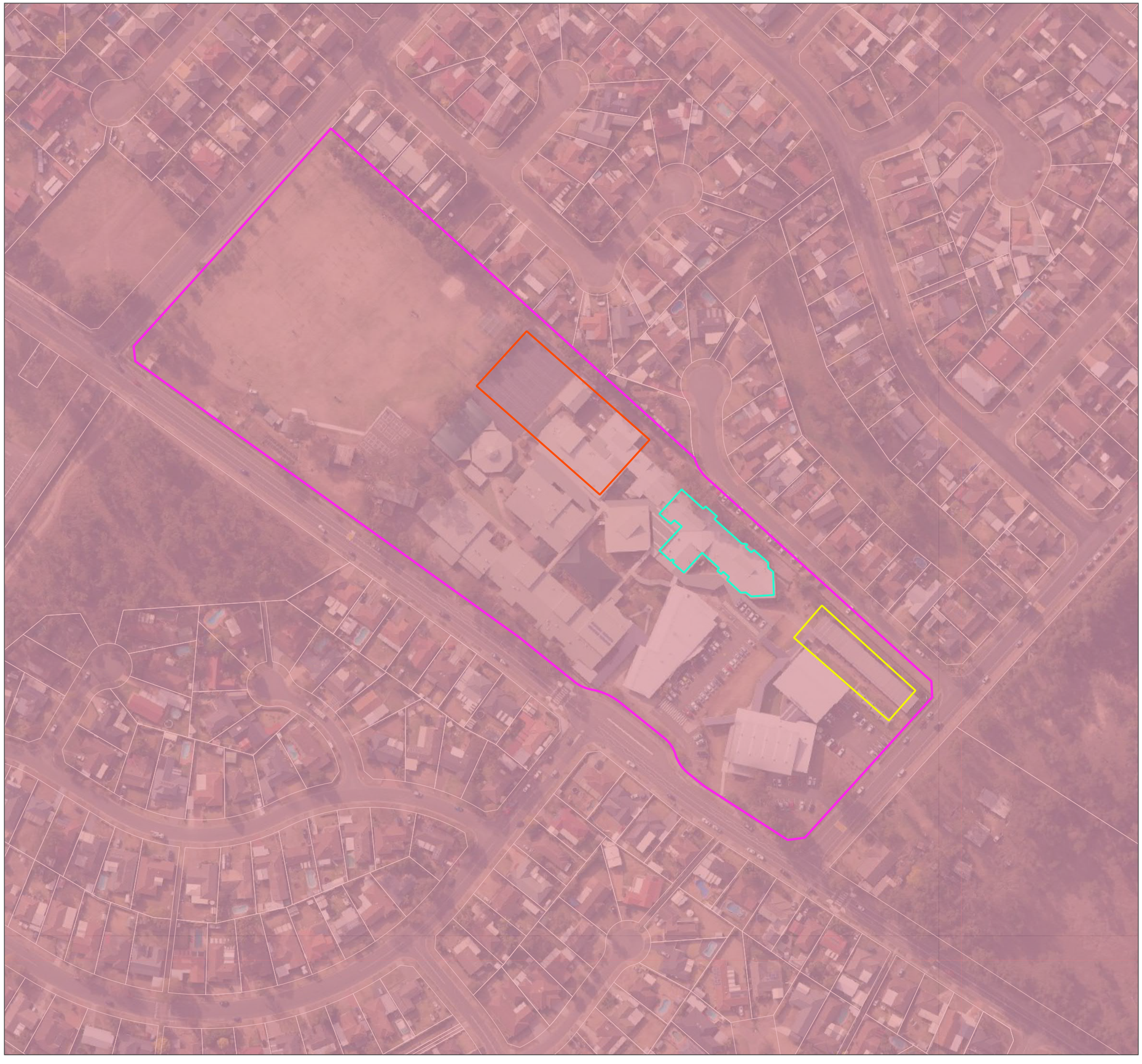
- 1.2 - 2m
- 2 - 4m
- >4m

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m



solutions
WATER MODELLING

Appendix A-27

0.02% AEP Peak Level

LEGEND

- 0.02%AEP Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

0.02%AEP Flood Level (mAHD)

- <= 12
- 12 - 13
- 13 - 16
- 16 - 17
- 17 - 18
- 18 - 20
- 20 - 22
- 22 - 24
- 24 - 27

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

WATER MODELLING solutions

Appendix A-28

PMF Peak Depth

LEGEND

PMF Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

PMF Depth

- >4m

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

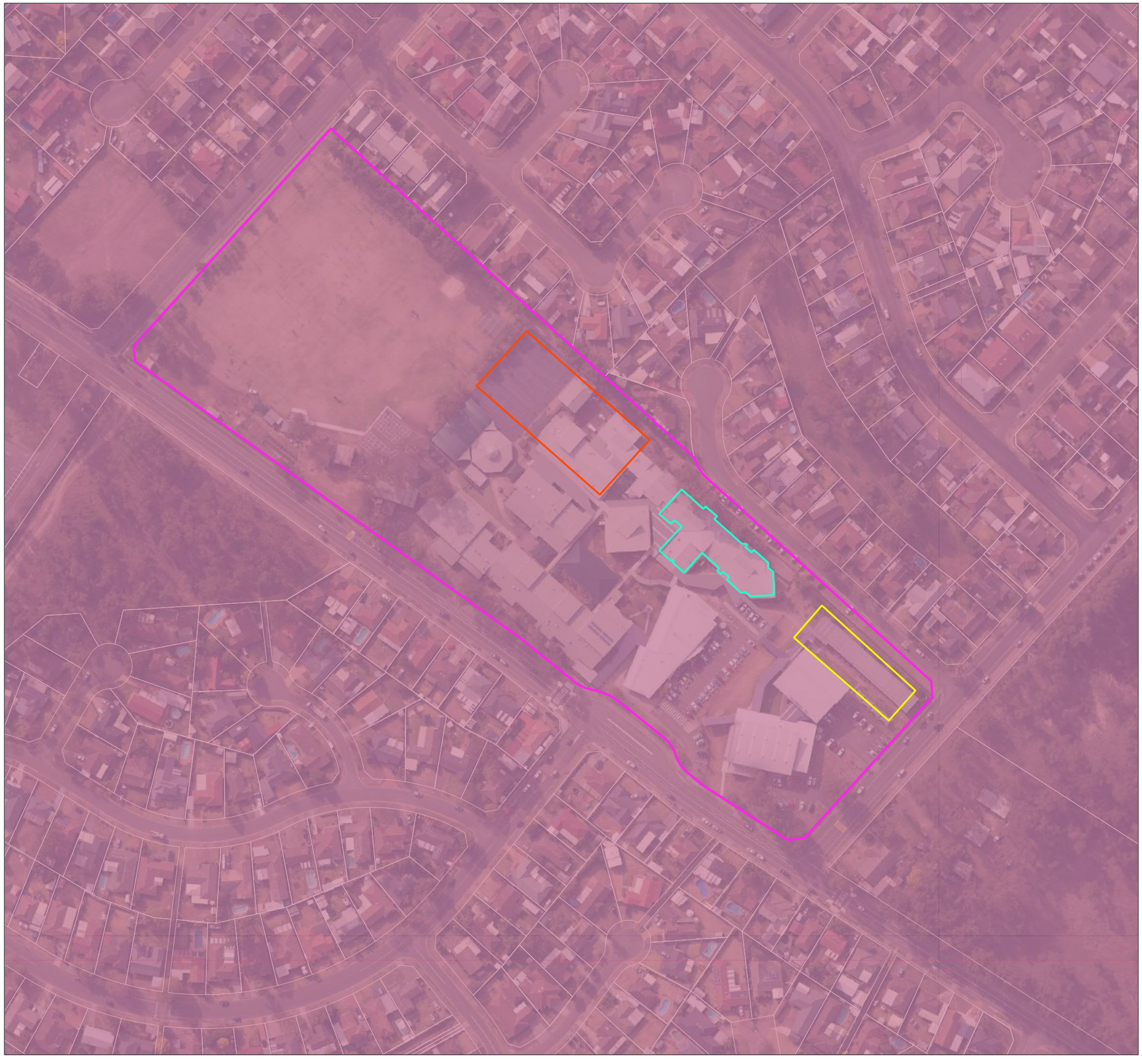
Job No: 20010
Date: 11/11/2021

0 40 80 120 m

solutions
WATER MODELLING

Appendix A-29

PMF Peak Level



LEGEND

PMF Flood Extent

Study Area

- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

PMF Flood Level (mAHD)

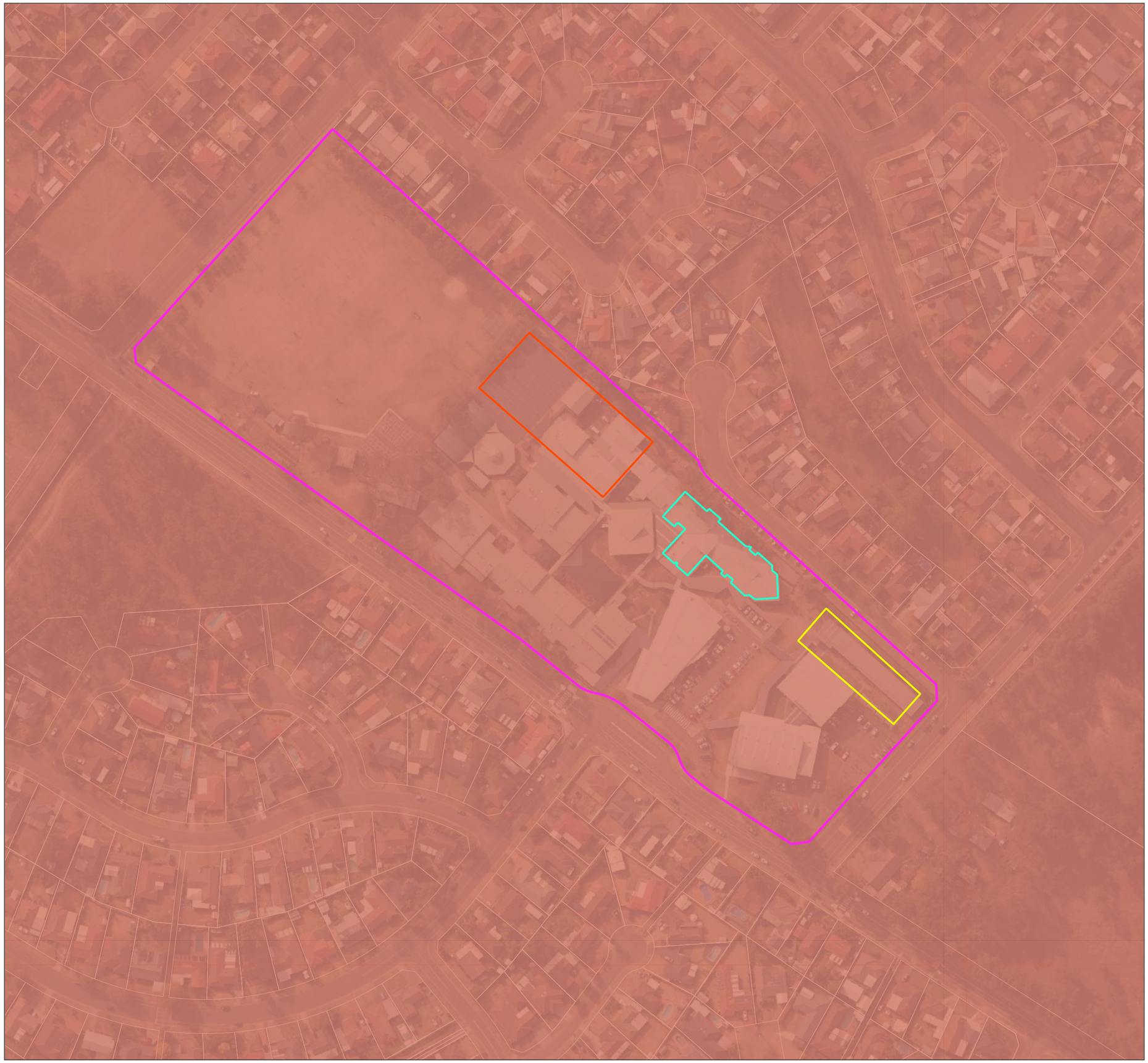
- <= 12
- 12 - 13
- 13 - 16
- 16 - 17
- 17 - 18
- 18 - 20
- 20 - 22
- 22 - 24
- 24 - 27

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m



solutions
WATER MODELLING

Appendix A-30

PMF Peak Hazard

LEGEND

PMF Flood Extent

Study Area
- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

PMF Hazard
- H1 - No Restrictions
- H2 - Unsafe for Small Vehicles
- H3 - Unsafe for Vehicles, Children & Elderly
- H4 - Unsafe for People and Vehicles
- H5 - Unsafe for People or Vehicles. (Buildings Require Special Engineering Design and Construction)
- H6 - Not Suitable for People, Vehicles or Buildings

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 11/11/2021

0 40 80 120 m

APPENDIX B

OVERLAND FLOW MODEL DEVELOPMENT AND MAPS

B.1 INPUT DATA SOURCES

The following data was received and reviewed in the overland model development:

- NSW Government Spatial Services 1m LiDAR (2019);
- NSW Six Maps Data including:
  - Property Data
  - Land Use (Planning Scheme Zones)
  - Waterways and Hydro Areas; and
  - Roads and Rail.
- Site Layout - Provided by client
- Hawkesbury-Nepean Valley Regional Flood Study (WMAwater, 2019).

B.2 HYDROLOGIC MODELLING

The average centroid of the contributing catchment's latitude and longitude were used as inputs to the Australian Bureau of Meteorology website to extract the Intensity Frequency Duration (IFD) Table which was used within the TUFLOW model. The Design Rainfall Data System (2016) was used to extract IFD tables for the infrequent rainfall events. The adopted IFD table is provided in Table A-7-1.

Table A-7-1 IFD Intensity Frequency Depths Table (Australia Bureau of Meteorology)

Duration	Annual Exceedance Probability (AEP)						
	63.20%	50%	20%	10%	5%	2%	1%
1 min	1.99	2.26	3.16	3.78	4.4	5.24	5.89
2 min	3.25	3.66	4.97	5.87	6.75	7.97	8.95
3 min	4.52	5.1	6.96	8.25	9.52	11.3	12.6
4 min	5.68	6.44	8.85	10.5	12.2	14.4	16.2
5 min	6.74	7.65	10.6	12.6	14.6	17.4	19.6
10 min	10.7	12.3	17.2	20.6	24.1	28.7	32.3
15 min	13.4	15.3	21.5	25.9	30.2	36	40.5
20 min	15.3	17.5	24.6	29.5	34.4	41	46.2
25 min	16.9	19.3	27	32.3	37.7	44.8	50.4
30 min	18.1	20.7	28.8	34.5	40.2	47.8	53.8
45 min	21	23.8	32.9	39.3	45.6	54.2	61
1 hour	23.1	26.1	35.8	42.6	49.4	58.7	66.1
1.5 hour	26.2	29.5	40.1	47.6	55.1	65.5	73.9
2 hour	28.7	32.1	43.5	51.5	59.7	71.1	80.2
3 hour	32.6	36.5	49.1	58.2	67.6	80.7	91.3
4.5 hour	37.5	41.8	56.3	67	78	93.4	106
6 hour	41.6	46.4	62.8	74.8	87.4	105	119
9 hour	48.5	54.3	74.1	88.9	105	126	144
12 hour	54.3	61.1	84.1	101	120	145	165
18 hour	63.8	72.3	101	123	147	177	202
24 hour	71.4	81.4	116	142	169	204	233

B.2.1 Temporal Patterns

ARR 2019 temporal patterns have been adopted for the analysis.

The temporal patterns adopted within the hydraulic models were taken from Chapter 5 of Book 2 of ARR 2019. The site is situated in the East Coast South region of Figure A-7-1.

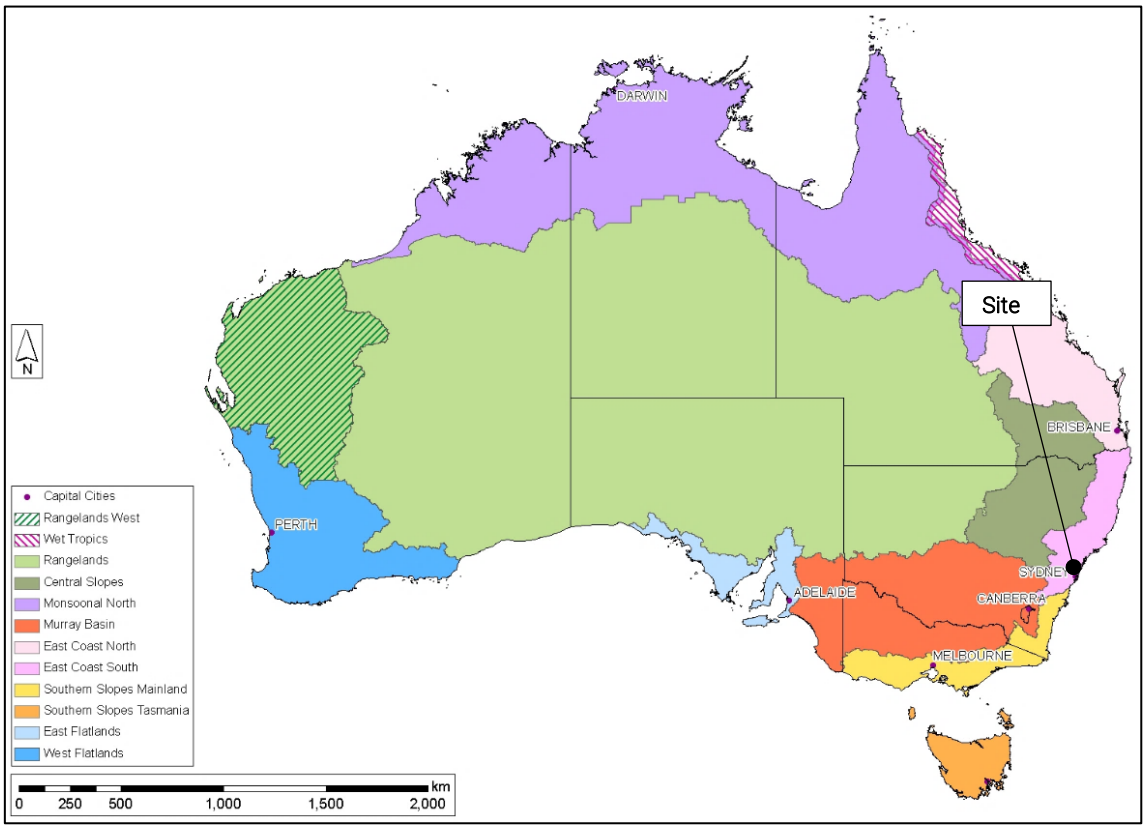


Figure A-7-1 Temporal pattern regions (AR&R 2019)

B.2.2 Rainfall losses

Storm losses and median pre-burst rainfall depths were extracted from the AR&R Data Hub to determine the rainfall initial loss and continuing loss parameters adopted within the model. The latitude and longitude inputs used within the AR&R Data Hub are shown in Figure A-7-1.

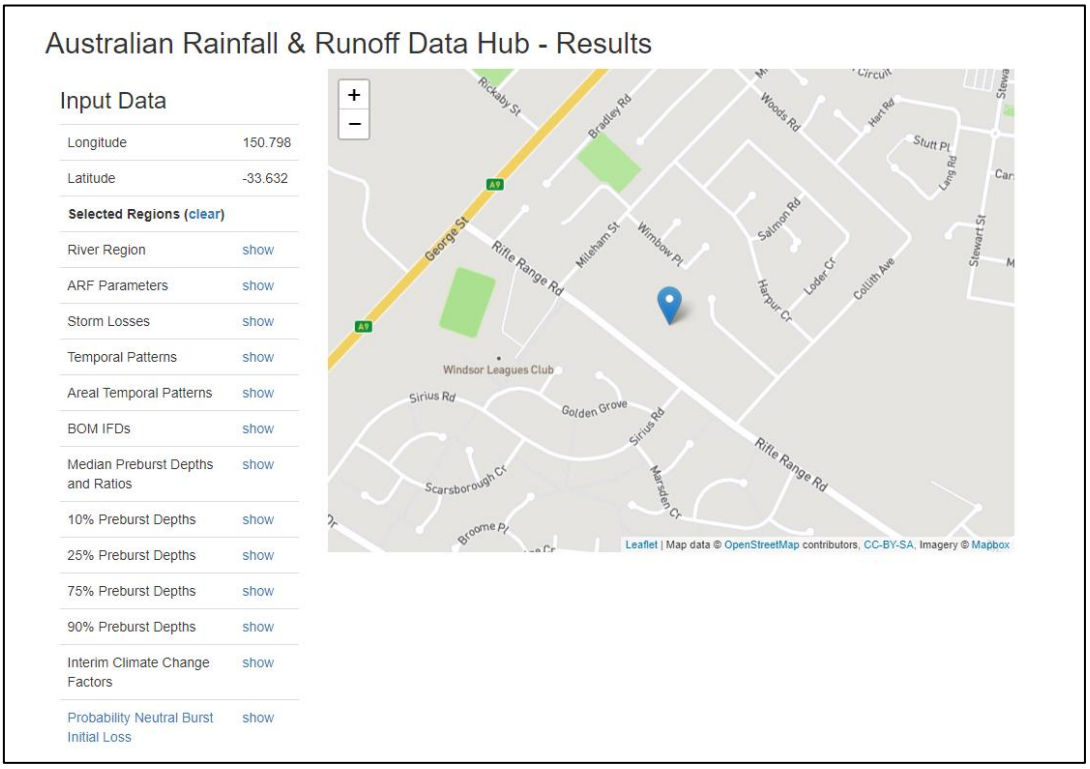


Figure A-7-2 AR&R Data Hub Inputs

The storm losses from the AR&R datahub are shown in Figure A-7-3 and the median pre-burst rainfall depths for the 60 minute event are shown in Figure A-7-4.

Storm Initial Losses (mm)	40.0
Storm Continuing Losses (mm/h)	3.0

Figure A-7-3 AR&R Data Hub Storm Losses

Median Preburst Depths and Ratios

Values are of the format depth (ratio) with depth in mm

min (h)\AEP(%)	50	20	10	5	2	1
60 (1.0)	1.0 (0.038)	1.0 (0.029)	1.1 (0.025)	1.1 (0.022)	2.1 (0.036)	2.8 (0.043)

Figure A-7-4 AR&R Data Hub Pre-burst Depths

The rainfall initial loss and continuing loss values were applied to the pervious areas within the hydrologic models. An initial loss value of 40.0 mm was adopted within the hydrologic models (Storm Initial Loss – Preburst Depth). A continuing loss value of 1.0 mm/hr was also adopted.

B.3 HYDRAULIC MODELLING

A 2D hydraulic model was developed using TUFLOW version 2020-10-AA. The latest versions of TUFLOW incorporate the HPC (Heavily Parallelised Compute) model run engine. TUFLOW HPC is an explicit solver for the full 2D Shallow Water Equations (SWE), including a sub-grid scale eddy viscosity model. HPC can be used in GPU (Graphics Processing Unit) mode to improve simulation speed. TUFLOW HPC GPU was used for this assessment.

B.3.1 Model Topography and Boundary Condition

A spatial resolution of 3m was chosen as a compromise between model resolution and run times. This spatial resolution was deemed appropriate based on the size of the area to be modelled and considering the key hydraulic structures that needed to be represented. The TUFLOW model topography is illustrated below in Figure A-7-5.

The downstream boundary of the TUFLOW model is located approximately 0.8 km downstream of the Site to the west. The model boundary location is shown in Figure A-7-6.

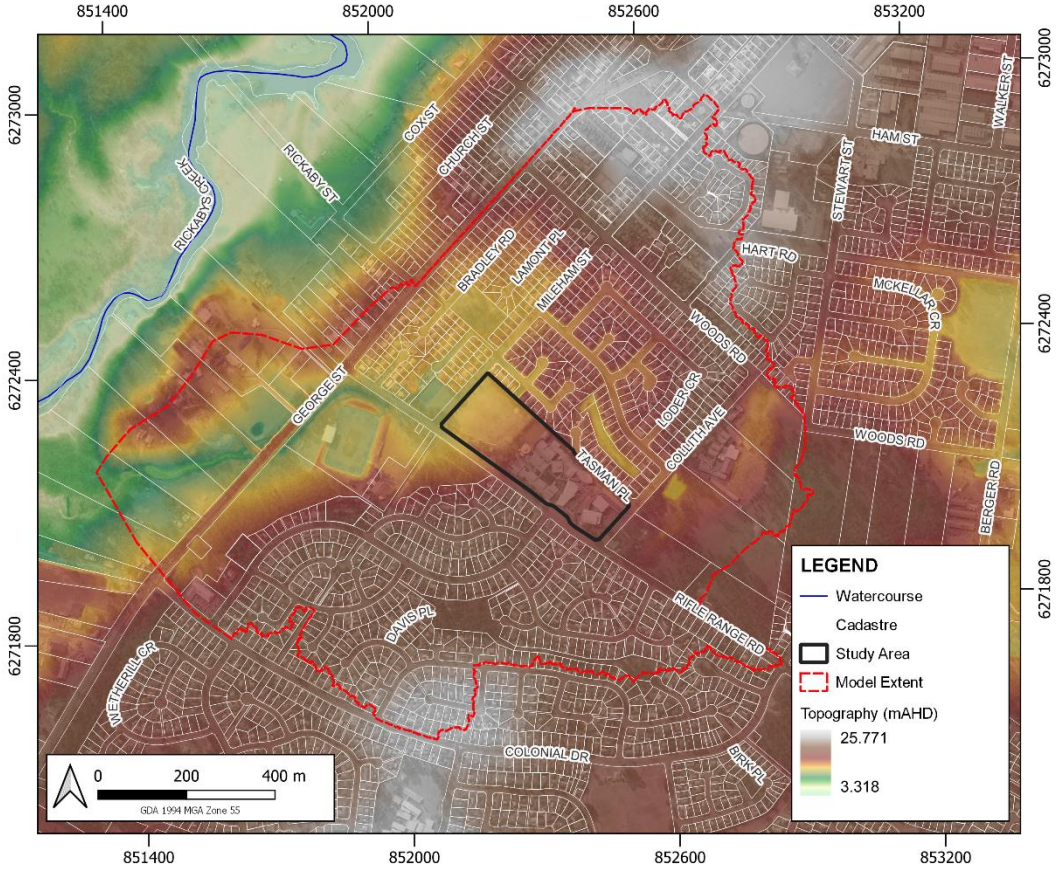


Figure A-7-5 TUFLOW Model Topography

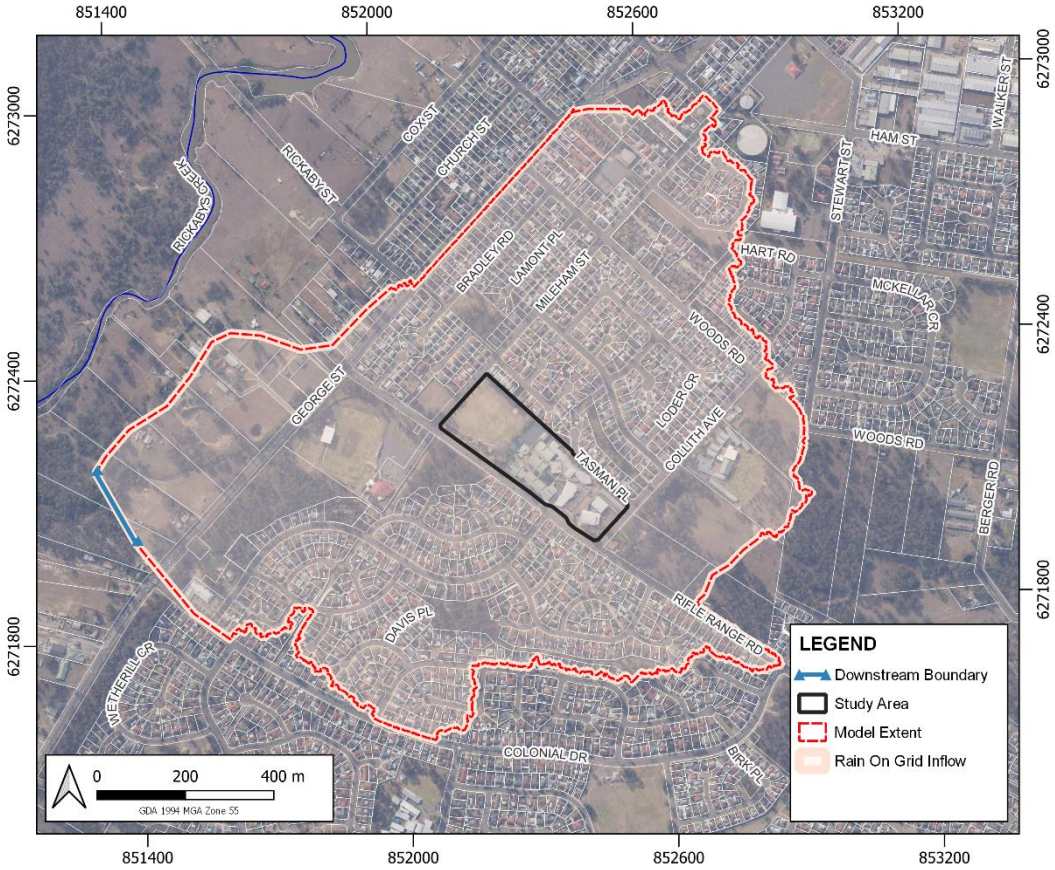


Figure A-7-6 TUFLOW Model Hydraulic Boundary

B.3.2 Hydraulic Roughness

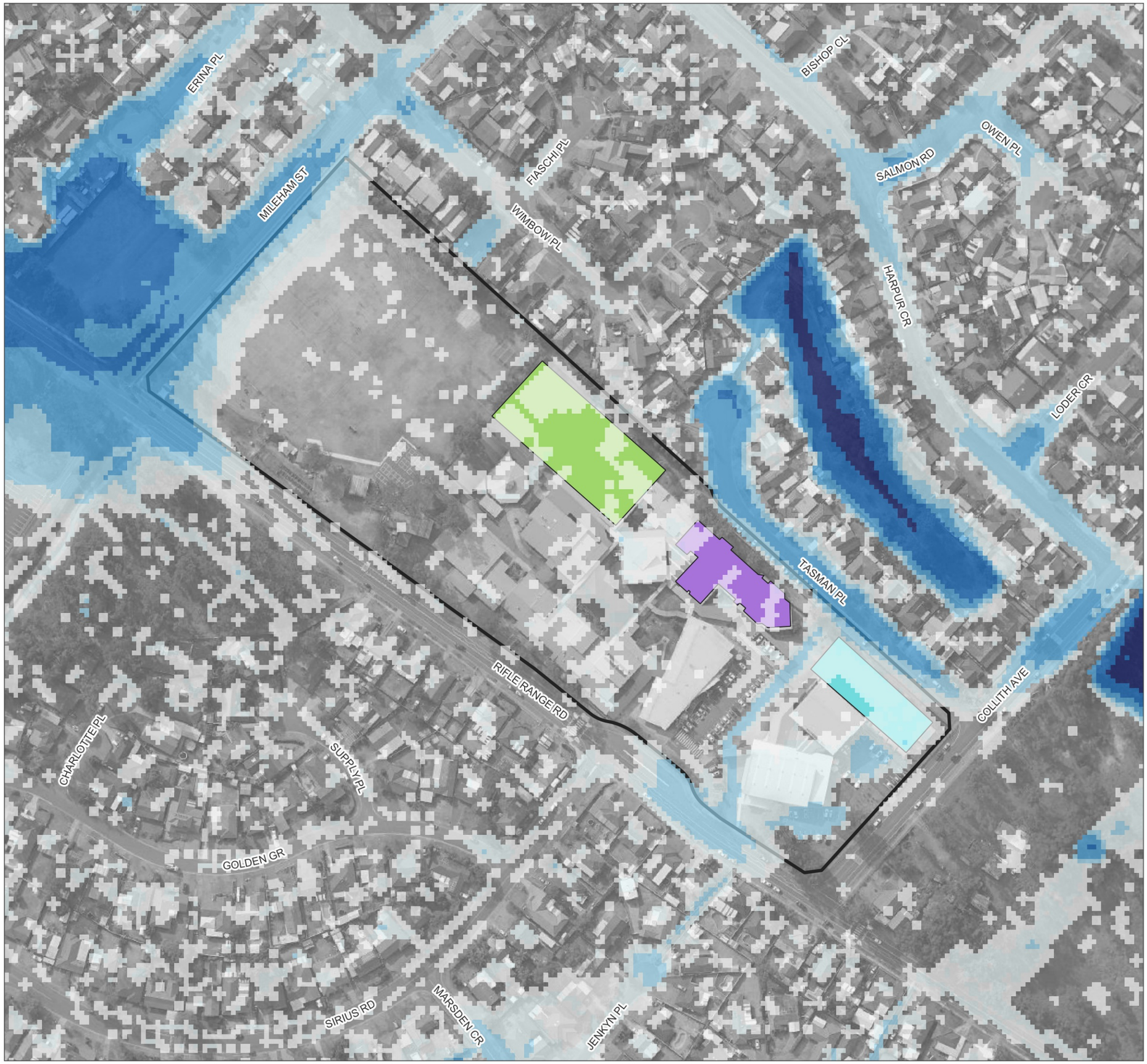
The adopted hydraulic roughness (Manning's 'n') values for each land use type are listed in Table A-7-2. The spatial distribution of roughness is shown in Figure A-7-7. These roughness values have been delineated based on inspection of aerial imagery and google street view. The values are in line with roughness value ranges outlined in Book 6 of the ARR 2019 Guidelines.

Table A-7-2 Adopted Hydraulic Roughness Values

Land Use Type	Adopted Manning's 'n'
Grassed Areas	0.03
Light Vegetation	0.06
Medium Density Vegetation	0.08
Road	0.02
Residential	0.2
Natural Waterways	0.035

Figure A-7-7 TUFLOW Model Materials

B.4 OVERLAND FLOW FLOOD MAPS



solutions
WATER MODELLING

Appendix B-01

1% AEP Peak Depth

LEGEND

Study Area
- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

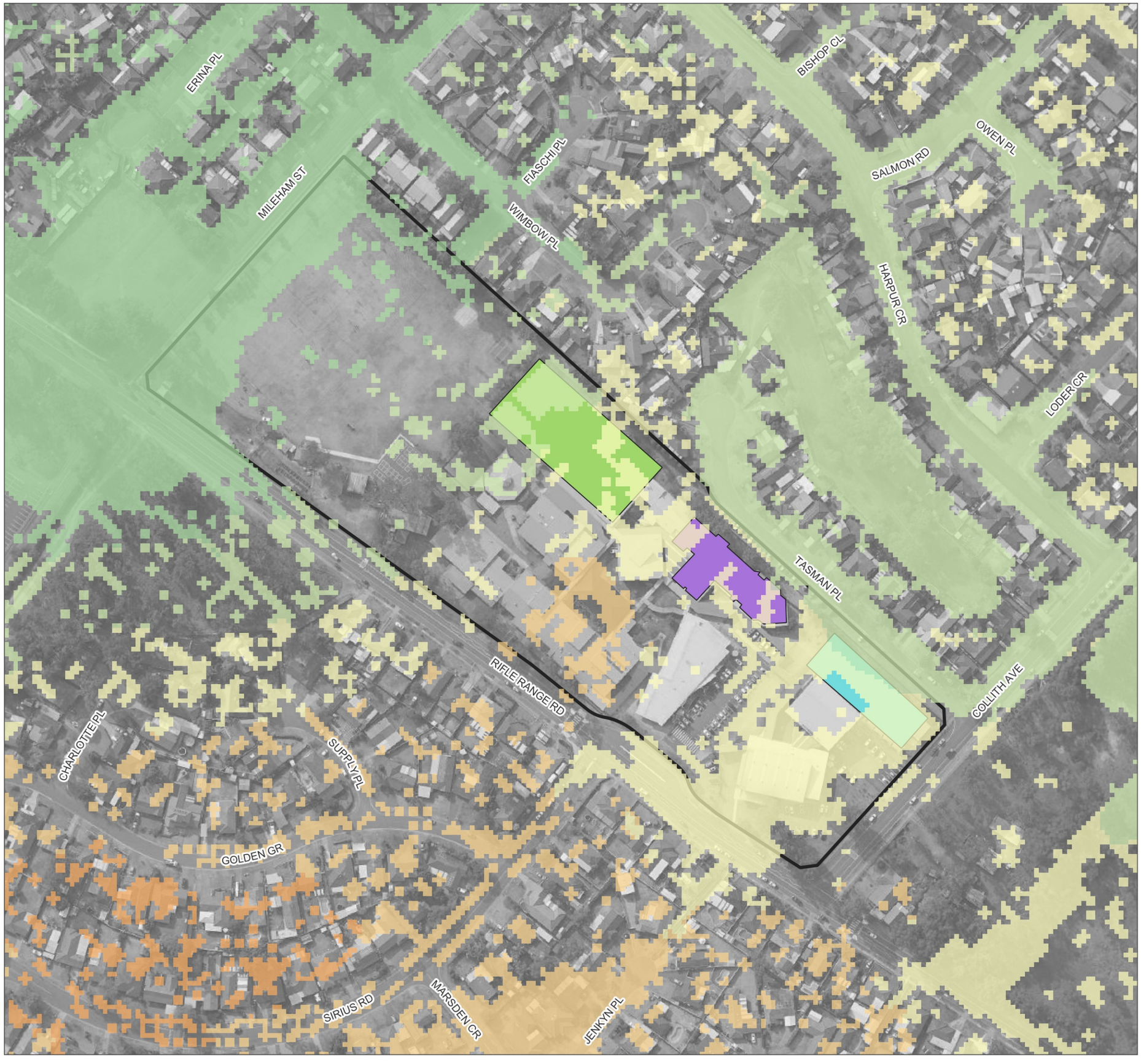
1% AEP Depth (m)
- 0 - 0.1
- 0.1 - 0.3
- 0.3 - 0.6
- 0.6 - 1.2
- 1.2 - 2.4
- > 2.4

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 15/02/2022

0 40 80 120 m



solutions
WATER MODELLING

Appendix B-02

1% AEP Peak Level

LEGEND

Study Area
- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

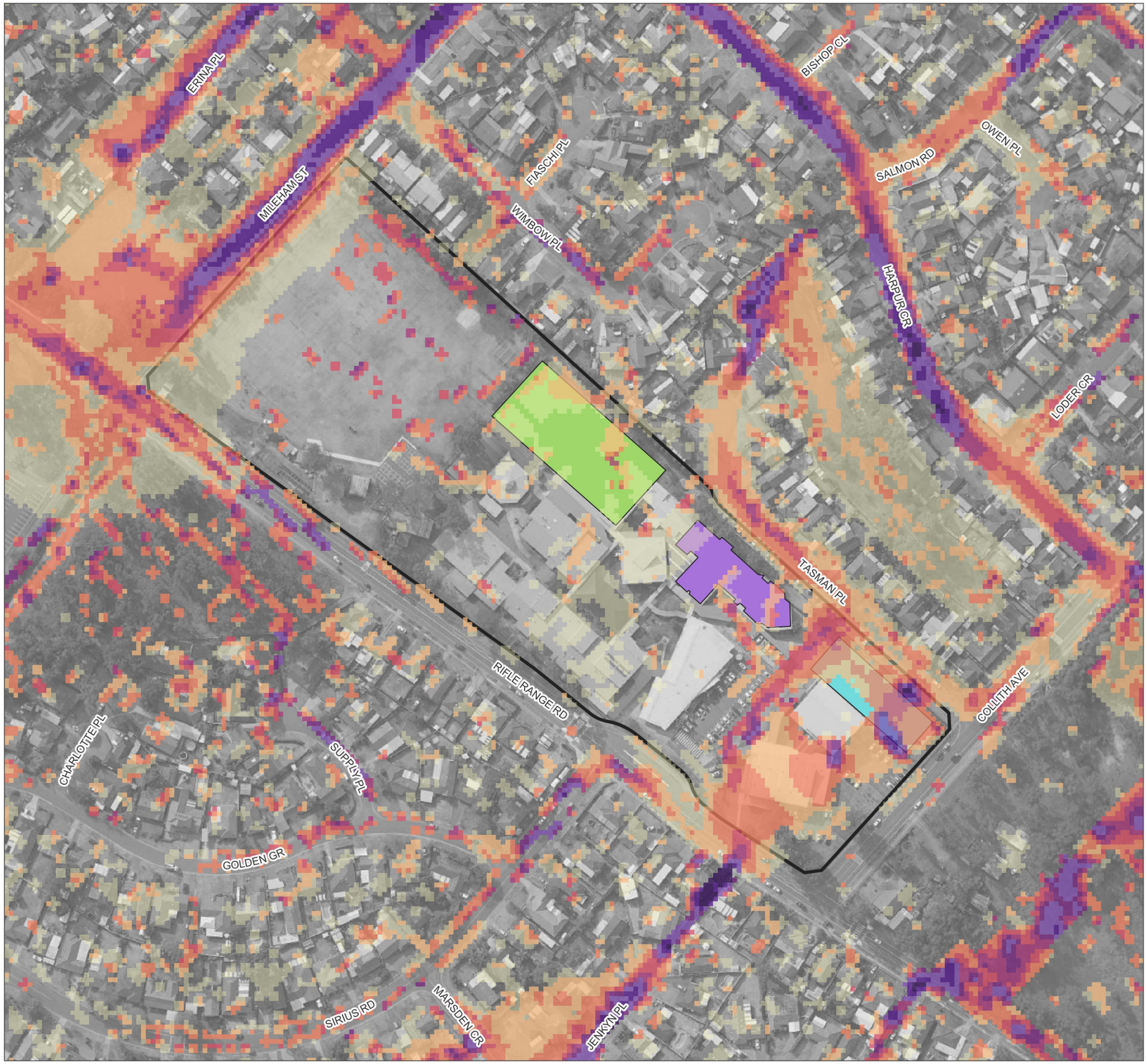
1% AEP Flood Level (mAHD)
- <= 10
- 10 - 12
- 12 - 14
- 14 - 16
- 16 - 18
- 18 - 20
- 20 - 22
- 22 - 24
- 24 - 26

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 15/02/2022

0 40 80 120 m



solutions
WATER MODELLING

Appendix B-03

1% AEP Peak Velocity

LEGEND

Study Area
- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

1% AEP Peak Velocity (m/s)
- <= 0.05
- 0.05 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.75
- 0.75 - 1.0
- 1.0 - 2.0

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 15/02/2022

0 40 80 120 m

solutions
WATER MODELLING

Appendix B-04

1% AEP Peak Hazard

LEGEND

Study Area
- Block F
- yr 11-12 inquiry hub
- yr 7-10 inquiry hub

1% AEP Hazard
- H1 - No Restrictions
- H2 - Unsafe for Small Vehicles
- H3 - Unsafe for Vehicles, Children & Elderly
- H4 - Unsafe for People & Vehicles
- H5 - Unsafe for People & Vehicles (Buildings Require Special Engineering Design and Construction)
- H6 - Not Suitable for People, Vehicles or Buildings

Bede Polding Flood Assessment

1:2000 @ A3
GDA 1994 / MGA Zone 56

Job No: 20010
Date: 15/02/2022

0 40 80 120 m

APPENDIX C

COUNCIL FLOOD ADVICE

Hawkesbury City Council

Flood Advice - Detailed

Applicant

Birzulis Associates
583 Darling Street
ROZELLE NSW 2039

FLA0115/21

Date of Advice

Date of Advice: 20 August 2021

This advice is only valid as at the date of issue.

Location

The flood advice applies to the following property:

Lot 1 DP 811652
22 Rifle Range Road SOUTH WINDSOR NSW 2756

Council Adopted Flood Planning Level

The adopted 1% AEP (Annual Exceedance Probability)

RL 17.3m AHD (Note 1a)

Applicable Flood Related Development Controls and Information

Estimated Property Natural Ground Levels (NGL)	NGL range from RL 12.5m to RL 18m AHD.
Flood related Development Control	The property is subject to the following Council Flood related development control: a) Clause 5.21 of the Hawkesbury Local Environmental Plan 2012; and b) Council's Flood Policy 2020. **Note:** Some State or Regional Environmental Planning Instruments may also contain flood related development controls which affect the land.
Flood Hazard Category (based upon the 1% AEP flood planning level)	H1, H2, H3, H4, H5, H6
Flood Hydraulic Classification	Flood storage

Estimated Peak Flood Velocities

Estimated flood velocities for the 20%, 5% and 1% AEP flood events are shown in the table below.

Flood Event	Approximate Flood Level (Note 1a, b)	Estimated Peak Flood Velocities (Note 1a, b, c)
20% AEP (1:5 year ARI)	RL 11.1m AHD	Unknown
5% AEP(1:20 year ARI)	RL 13.8m AHD	0.1m/s
1% AEP(1:100 year ARI)	RL 17.3m AHD	0.3m/s

Note 1:

a) Flood information provided relates to riverine flooding from the Hawkesbury-Nepean River, MacDonald River and Colo River. This information does not relate to flooding from other sources such as creeks and local

drainage systems.

b) The values are estimates only and **substantial variations from the values provided (for velocities in particular) may occur on site**.

c) The information provided should be used as a **guide only** and **council recommends a large safety margin be incorporated into all designs** based on the above information.

Information Source

Flood Levels	Flood levels are sourced from Council adopted flood studies current at the date of this advice.
Property Levels	Property levels are taken from Council's Digital Terrain Model mapping and as such are approximate only. To determine accurate site levels a survey will be required to be undertaken by a Registered Surveyor.
Flood Velocities	Flood Velocities are derived from Council adopted flood studies current at the date of this advice. They are estimate velocities based on the information available to Council at the time of issue of this advice.
Flood Hazards	Flood hazard categories are a key tool used to determine flood severity and for assessing the suitability of future land uses. They are determined based on the available information to Council at the time of issue of this advice and Council recommends confirmation of the Flood hazards categories based on accurate ground surface levels and footprint of the development in which it is situated.

Enquiries

This advice is not intended to address the requirements for flood control lots as referred to in the State Environmental Planning Policy (Exempt and Complying Codes) 2008.

More information about flood related development controls is available on Council's website or by contacting Council's Duty Officer on (02) 4560 4444 or via email: council@hawkesbury.nsw.gov.au.

Sean Khoo
Senior Subdivision and Development Engineer

APPENDIX D

FLOOD EMERGENGY RESPONSE PLAN

BEDE POLDING CATHOLIC COLLEGE – FLOOD EMERGENCY RESPONSE PLAN

NOVEMBER 2022

PREPARED FOR

Catholic Education Diocese of Parramatta

Proposal Details	
Proposal Title	Bede Polding Catholic College – Flood Emergency Response Plan
Prepared for	Catholic Education Diocese of Parramatta
Document Name	20010-R04-BP-FERP-2.docx

Document Control				
Revision	**Author**	**Reviewer**	**Approved for Issue**	
			Name	**Date**
0	ATO	CSW	B. Boulton	16/09/2022
1	ATO	CSW	C. Walker	20/9/2022
2	ATO	CSW	C. Walker	14/11/2022

Revision Status	
Revision	**Description**
0	Issued for Client review
1	Issued for DA Submission
2	Issued for DA Submission (Amended Based on Updated Design Plans)

Cover Image: Floodwaters across Rifle Range Road in front of Bede Polding College during March 2022 floods. Sourced from the school's Facebook page (available at https://www.facebook.com/bedepoldingcollegesthwindsor/photos/pb.100063551382195.-2207520000../1138155753652595/?type=3)

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LIST OF ABBREVIATIONS

AEP	Annual Exceedance Probability
BOM	Bureau of Meteorology
CEDP	Catholic Education Diocese of Parramatta
EMP	Emergency Management Plan
FERP	Flood Emergency Response Plan
FTE	Full Time Equivalent
NLA	Net Lettable Area
SES	State Emergency Service
TTPP	The Transport Planning Partnership

1 INTRODUCTION

1.1 BACKGROUND

The Catholic Education Diocese of Parramatta (CEDP) is responsible for the management of Catholic primary and secondary schools in the diocese, which spans a large portion of Western Sydney from Parramatta to the Blue Mountains. Following an equity audit in 2019, CEDP identified three schools that required prioritised upgrades to bring the functionality of their learning spaces into line with current educational planning principles and the needs of the local community. One of these three schools is Bede Polding Catholic College (the Site), located in South Windsor.

The Site is located within the Hawkesbury River floodplain and, as such, is heavily constrained by flood risk and was recently closed for several days following flooding in the Hawkesbury River catchment in March 2021, March 2022 and July 2022. Given the flood risk expected at the Site, and in line with Council requirements, CEDP has engaged WMS to prepare a Flood Emergency Response Plan (FERP) to help the proposed development manage risk to life (and property) from flooding.

This FERP is consistent with the relevant NSW SES "Floodsafe" Guides, and addresses the following specific actions:

- Preparing for a flood;
- Responding when a flood is likely, including evacuation routes and when to leave;
- Responding during a flood, including what to do if isolated; and
- Recovery after a flood.

1.2 SITE DETAILS

1.2.1 Site Location and Topography

Bede Polding Catholic College is located at 22 Rifle Range Road, South Windsor, in Sydney's west. The Site is bounded by Rifle Range Road, Collith Avenue, Tasman Place and Mileham Street, and covers approximately 6 ha.

The Site is located approximately 3.3 km from the Hawkesbury River, however during flood events, would initially be inundated by overbank flow from Rickabys Creek, located approximately 700 m northwest of the Site.

The site location and topography are illustrated in Figure 1-1 and Figure 1-2, respectively.

Figure 1-1 Bede Polding Catholic College, South Windsor – Site Location (NSW SIXMaps)

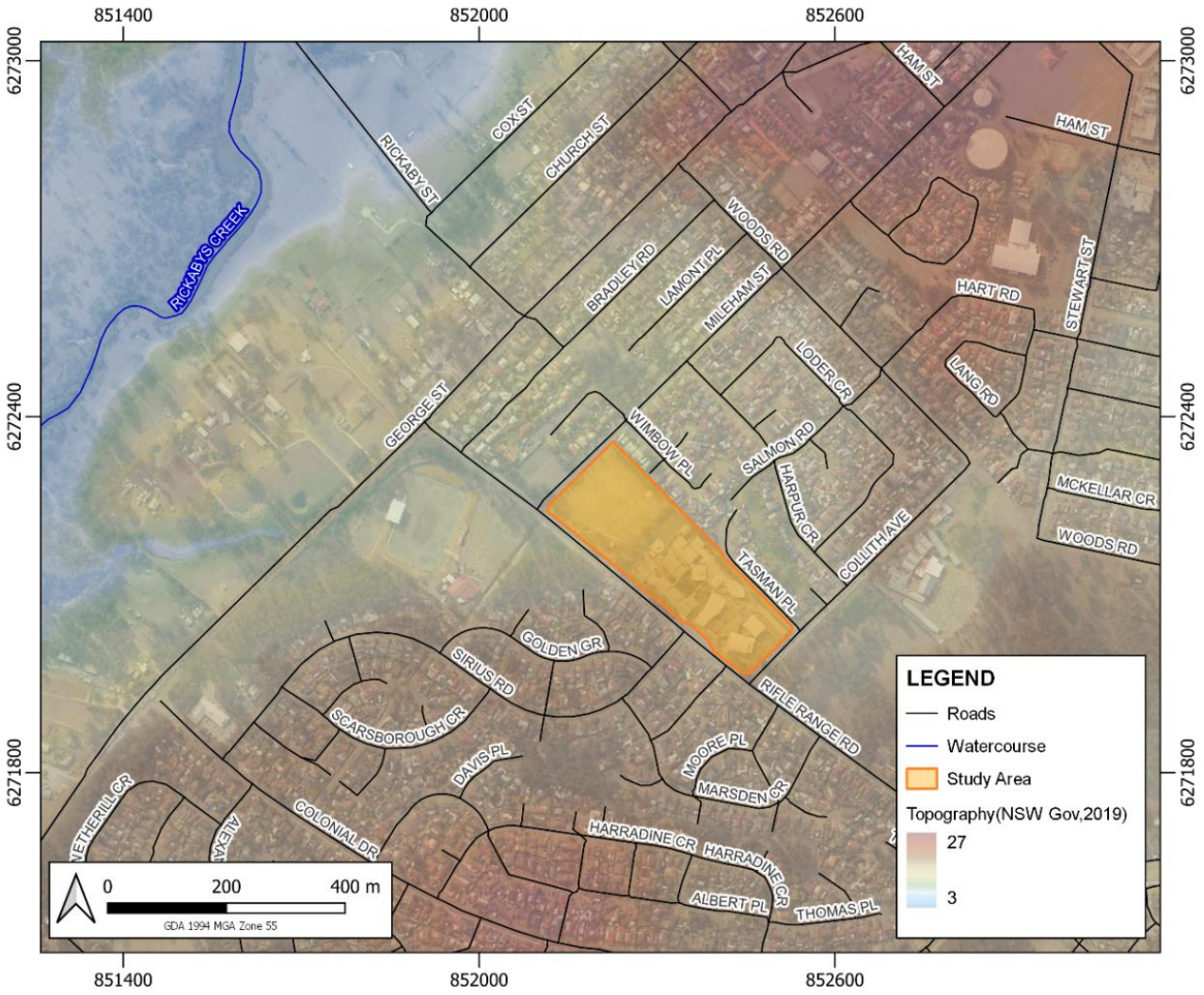


Figure 1-2 Topography in the Vicinity of the Site (NSW Gov, 2019)

1.2.2 Proposed Site Layout

The proposed development involves the demolition of several buildings and carparks, and the construction of the following features (shown in Figure 1-3):

- Demolition of 16 existing GLAs equivalent to 8 Inquiry Hubs;
- Retention of 12 existing GLAs and multi-purpose space in 50% Block F for future uses;
- Removal and provisioning where necessary of temporary demountable accommodation;
- Construction of 22 new Inquiry Hubs and refurbishment of 2 existing Inquiry Hubs;
- Construction of new student amenities;
- Construction of new Learning Streets;
- Landscaping and Sports Courts;
- Increase of student capacity from 1240 to 1360;
- Increase of number of full-time staff from 101 to 105;
- Increase of carparking spaces from 144 to 178.

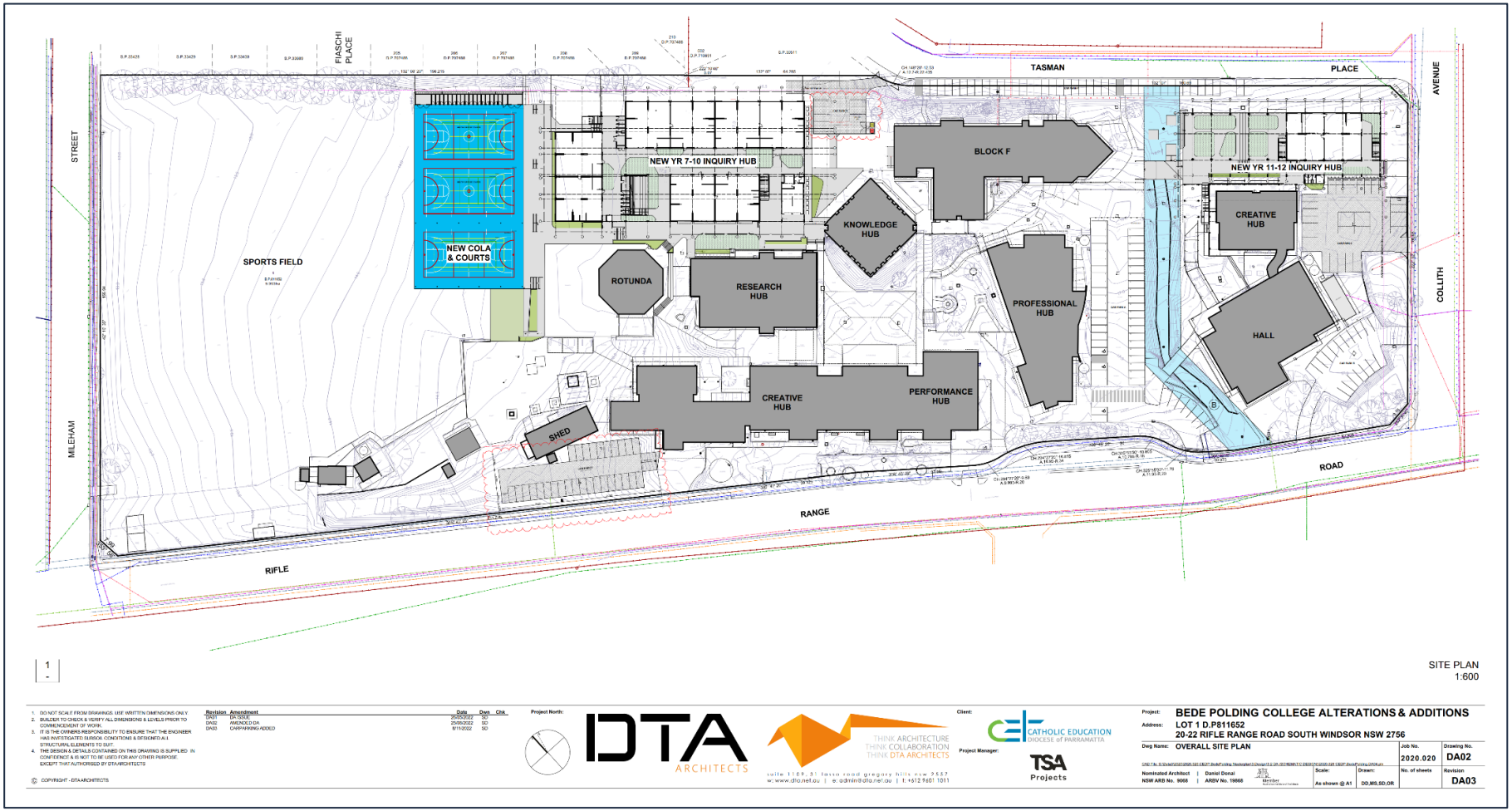


Figure 1-3 Overall Site Plan for Bede Polding Catholic College (DTA, Rev DA03, 08/11/2022)

1.2.3 Construction Staging Plans

The construction of the proposed works at Bede Polding will be divided into seven (7) stages: 1A, 1B, 2A, 2B, 2C, 3A and 3B. During stages 1A through to 2B, it is proposed to locate temporary demountable buildings on the northwest portion of the Site near the proposed sports field, as illustrated in Figure 1-4. The demountable buildings will be used as temporary classrooms and as a temporary canteen while the construction works take place.

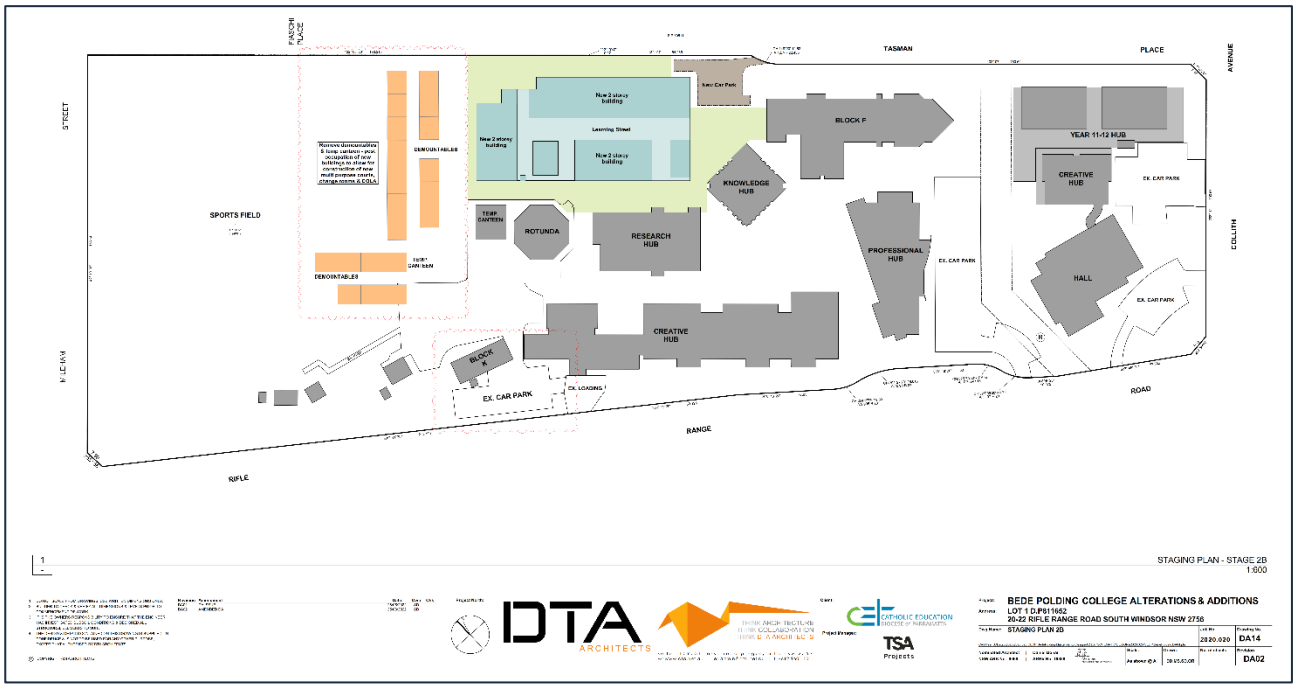


Figure 1-4 Construction Staging Plans – Stage 2B

1.2.4 Access Points

The Site currently has a total of eleven (11) access points, consisting of seven (7) vehicle gates and four (4) pedestrian gates. The existing access points are proposed to be retained as per the existing conditions.

The Site has one (1) vehicle driveway each on Mileham Street and Tasman Place, two (2) vehicle driveways on Collith Avenue and three (3) vehicle driveways on Rifle Range Road. Gate 5, Gate 7, Gate 8, Gate 9 and Gate 11 are two-way vehicle driveways used by staff to access the car park. Gate 5 also provides access for visitor parking and delivery vehicles. Students generally enter the school via the pedestrian gates, Gate 4 and Gate 6. Gate 10 is accessed by staff who park on Tasman Place (TTPP, 2022).

The vehicle and pedestrian gates are illustrated in Figure 1-5.

Figure 1-5 Location of Vehicle and Pedestrian Access Points (TTPP, 2022)

1.2.5 Site Usage and Occupancy

The Site is currently used as a school for students from Years 7 to 12, and will retain its current use post-development. As part of the development, it is proposed to increase the student enrolment capacity to 1,360 students, and to increase the number of employees to 105 FTE (full-time equivalent) staff. It is also proposed to increase the number of car parking spaces to 178.

The Site will be mainly occupied during school days (Monday to Friday) excluding public holidays.

A summary of building details is provided in Table 1-1.

Table 1-1 Summary of Building Sizes and Floor Levels

Building	Net Lettable Area (NLA) Area (m^2)	Finished Floor Level (mAHD)	Flood Event Immunity (i.e. floor level is above X event)
Hall	1055	17.41	1% AEP
Creative Hub 1	2,420	18.27	1% AEP
Creative Hub 2	458	17.42	1% AEP

Building	Net Lettable Area (NLA) Area (m^2)	Finished Floor Level (mAHD)	Flood Event Immunity (i.e. floor level is above X event)
Professional Hub	1165	18.12	1% AEP
Performance Hub	This is Hall	N/A	N/A
Research Hub	909	18.28	1% AEP
Knowledge Hub	490	17.29	1% AEP
Year 11-12 Inquiry Hub	1,700	17.42	1% AEP
Year 7-10 Inquiry Hub	3,771	17.42	1% AEP
Block F	1,290	17.31	1% AEP
Rotunda	349	15.80	5% AEP
Courts	808	14.60	5% AEP
Sports Field	13,600	13.00 - 14.60	10% AEP
Carparks	3,873	N/A	N/A

1.3 ROLES AND RESPONSIBILITIES

Bede Polding College has an already established Emergency Management Plan (EMP) which outlines their procedures and key roles and responsibilities in the case of an emergency (Bede Polding College, 2021). As such, this FERP aims to complement the existing EMP (provided in Appendix D), and has adopted the roles and responsibilities outlined in the Bede Polding EMP. The key persons responsible for implementing this FERP are defined in Table 1-2.

Successful implementation of this FERP is the responsibility of the Principal (or Chief Warden), assisted by the Deputy Wardens.

Table 1-2 Key Roles and Responsibilities used in this FERP

Organisation/Person	Roles and Responsibilities
NSW SES	The NSW SES is the legislated lead combat agency for flooding in NSW. Any flood directive issued by the SES must be followed by all building occupants. This includes any order to evacuate the site, or not evacuate the site, irrespective of the instructions given in this FERP or as decided by the Principal.
Principal (AKA Chief Warden)	The Principal (or Chief Warden) is responsible for: • Ensuring that all deputy wardens who are on site are aware of the flood risks and the flood management procedures detailed in this FERP; • Support the wardens in their duties; • Maintain a register of all tenants, staff and subcontractors on site at all times, including contact details and emergency contacts; • Lead the annual shelter in place/ flood emergency response drill (to be undertaken with the Deputy Wardens only, not building occupants); • Monitor flood warnings and alert mode triggers in accordance with this FERP; • Escalate alert modes in accordance with the relevant triggers set in this FERP; • Communicate flood response messages to Wardens and occupants in accordance with this FERP; • Coordinate all flood emergency procedures; • Participate in a review of this FERP annually and following a major flood.
Deputy Wardens	• Assist the Principal (Chief Warden) to implement flood emergency procedures as required; • Assist in distributing communications from the Principal to occupants on each building; • Participate in the annual flood emergency response drill; • Participate in a review of this FERP annually and following a major flood.
All other occupants, visitors and contractors	• Follow directions of the wardens or PA announcements; • Report any concerns to the wardens.

1.4 MAINTENANCE OF THIS FERP

This FERP shall be reviewed and updated on an annual basis by the Principal (or nominated representative), and following all major flood events that trigger implementation of the FERP. Any modifications to the Action Plan (Appendix A) should be made in this document and recorded in Appendix C.

As a minimum the following items should be reviewed to ensure:

- Web addresses and links to other sources (e.g. NSW SES, Bureau of Meteorology etc.) are correct;
- Contact details are up to date and the list is complete (Appendix B);
- All signage is in good condition and installed as required; and
- The FERP Review Record is up to date (Appendix C).

2 FLOOD RISK OVERVIEW

2.1 SOURCES OF FLOOD INFORMATION

The Site is subject to mainstream flooding from the Hawkesbury-Nepean system, caused by water backing up and spilling out of Rickabys Creek when levels in the Hawkesbury River are elevated.

Design flood behaviour for the Hawkesbury River is defined by the Hawkesbury-Nepean Valley Regional Flood Study (INSW, 2019). Flood results were obtained by WMS with permission from Infrastructure NSW for the purposes of this assessment. Furthermore, specific flood information for the site was provided by Hawkesbury City Council via a "Flood Advice (Detailed)" report, provided on the 20th August 2021.

2.2 DESIGN FLOOD BEHAVIOUR

Mainstream flooding at the Site is driven by the slow movement of water backing up from Rickabys Creek, which cannot drain to the Hawkesbury River when tailwater levels are elevated. As such, the peak flood levels across the site are relatively flat due to the 'bathtub effect'. The depth of flooding varies with the topography, with greater depths in the lower lying western portion of the Site (at proposed sports field), and shallower depths around the school buildings. The 1% AEP peak flood depths at the site with the proposed site layout during construction and post-development are illustrated in Figure 2-1 and Figure 2-2, respectively.

Table 2-1 provides a summary of the design water levels at Windsor Bridge, and the corresponding levels at the Site. The levels in Table 2-1 indicate that flooding at the site can occur during events as frequent as the 5% AEP event.

Table 2-1 Design Water Levels at Windsor Bridge Gauge and at the Site

Event	Hawkesbury River level at Windsor Bridge (mAHD)[a]	Water Level at Bede Polding (mAHD)[b]
5.8 mAHD – Minor Flood Level[d]		
7.0 mAHD – Moderate Flood Level[d]		
February 2020	*9.4*	*Outside the site[c]*
20% (1 in 5yr) AEP	9.9	11.1 (outside the site)
10% (1 in 10yr) AEP	11.9	12.0 (outside the site)
12.2 mAHD – Major Flood Level[d]		
March 2021	*12.9*	*12.9[c]*
5% (1 in 20yr) AEP	13.7	13.8
July 2022	*13.9*	*13.9[c]*
March 2022	*13.7*	*13.7[c]*
2% (1 in 50yr) AEP	16.1	16.1
1% (1 in 100yr) AEP	17.3	17.3
0.5% (1 in 200yr) AEP	18.4	18.4

[a] Design water levels at Windsor Bridge were sourced from the Hawkesbury-Nepean Valley Regional Flood Study (INSW, 2019).

[b] Design water levels at Bede Polding were sourced from Council's Flood Advice letter for the 20%, 5% and 1% AEP, and from the Hawkesbury-Nepean Valley Regional Flood Study (INSW, 2019) for the remaining events.

[c] Historical water levels at Bede Polding were estimated to be equivalent to the recorded water levels at Windsor Bridge, given the relatively flat flood levels that typically occur in the area.

[d] Bureau of Meteorology (BOM) flood warning classifications (refer Section 3.1.1) taken from the Service Level Specification for Flood Forecasting and Warning Services for New South Wales and the Australian Capital Territory – Version 3 (BOM, 2013).

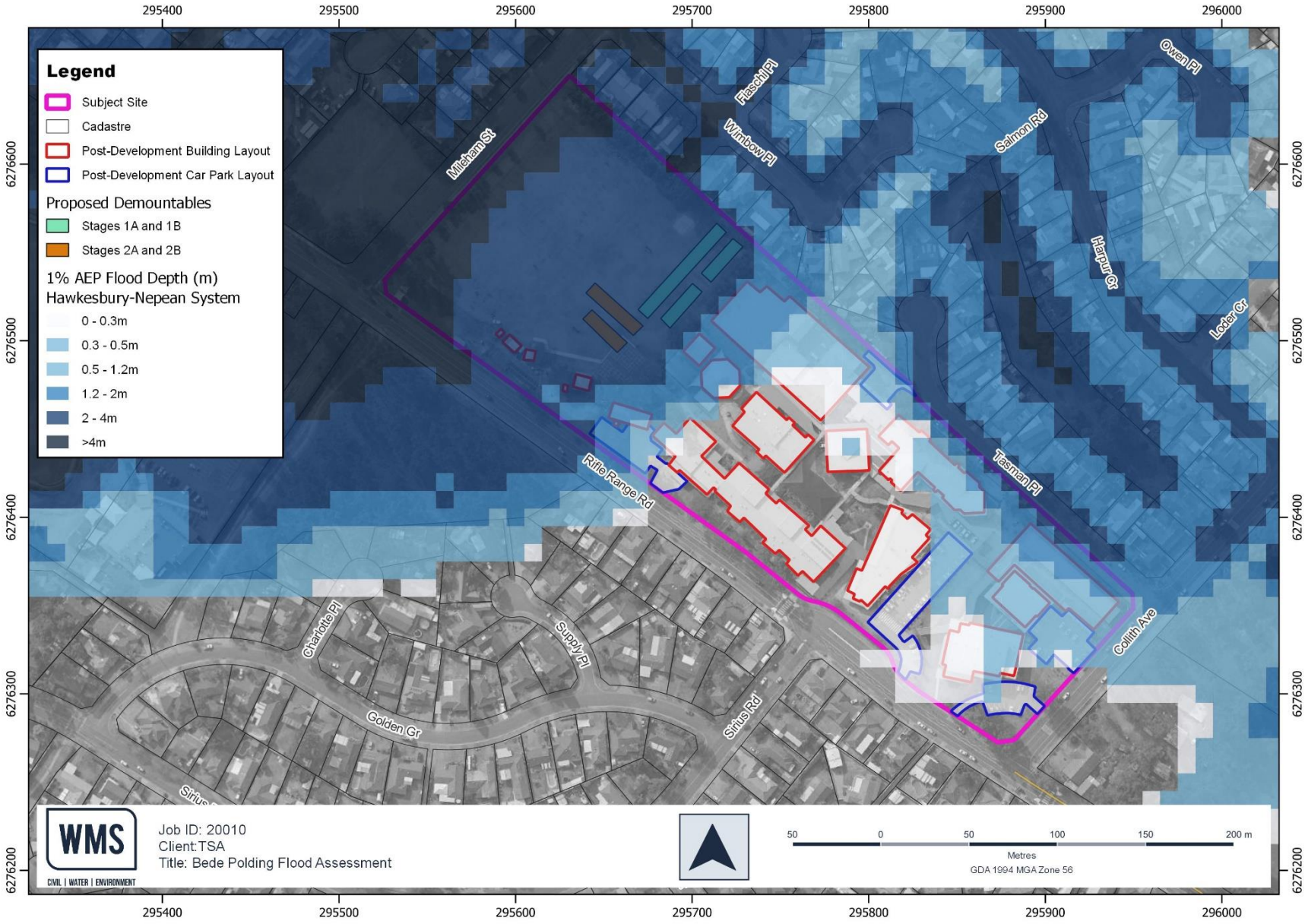


Figure 2-1 Construction Staging Site Layout and 1% AEP Flood Depth for Current Site Conditions (Hawkesbury-Nepean Regional Flood Study, INSW, 2019)

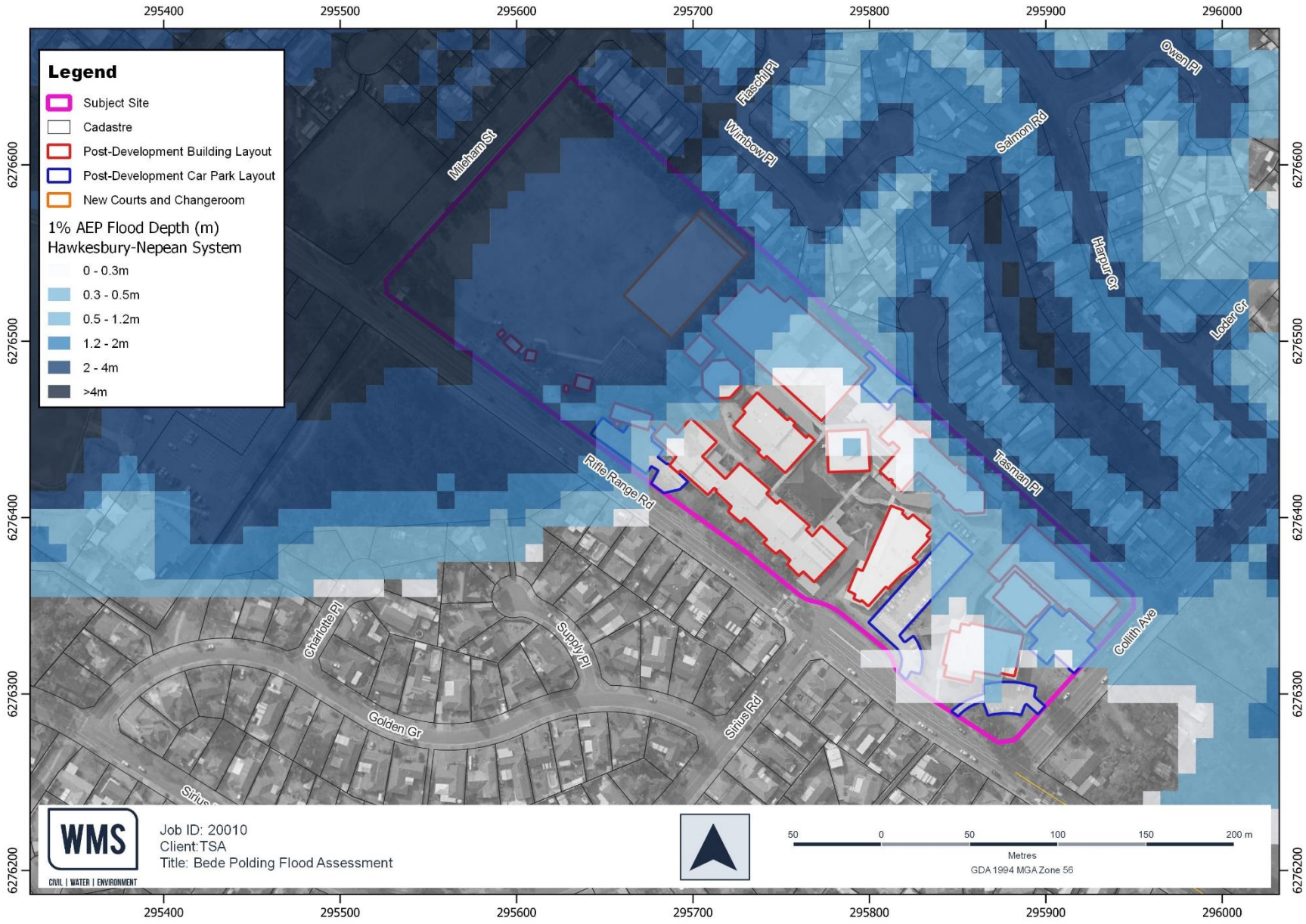


Figure 2-2 Post-Development Site Layout and 1% AEP Flood Depth for Current Site Conditions (Hawkesbury-Nepean Regional Flood Study, INSW, 2019)

2.3 FLOOD HAZARD CLASSIFICATION

Flood hazard classifications are defined by depth, velocity and depth x velocity products, based on the guidance outlined in *Managing the floodplain: a guide to best practice in flood risk management in Australia (Australian Institute of Disaster Resilience, Guideline 7-3).* The classifications are divided into 6 categories (H1-H6), shown in Figure 2-3, which indicate the effect of the hazard on people, buildings and vehicles.

As described above, the flooding at the site is characterised by slow moving inundation, backing up from Rickabys Creek, rather than an active flowpath with higher velocity. As such, the hazard classification is driven by the flood depth onsite, rather than velocity.

The 1% AEP flood hazard at the site with the proposed site layout during construction and post-development are illustrated in Figure 2-4 and Figure 2-5, respectively. The western part of the site is subject to greater flood depths and hence higher hazard classification (H5). The school buildings themselves are located on higher ground in the eastern part of the site, where the hazard classification varies from H1-H4 depending on the depth.

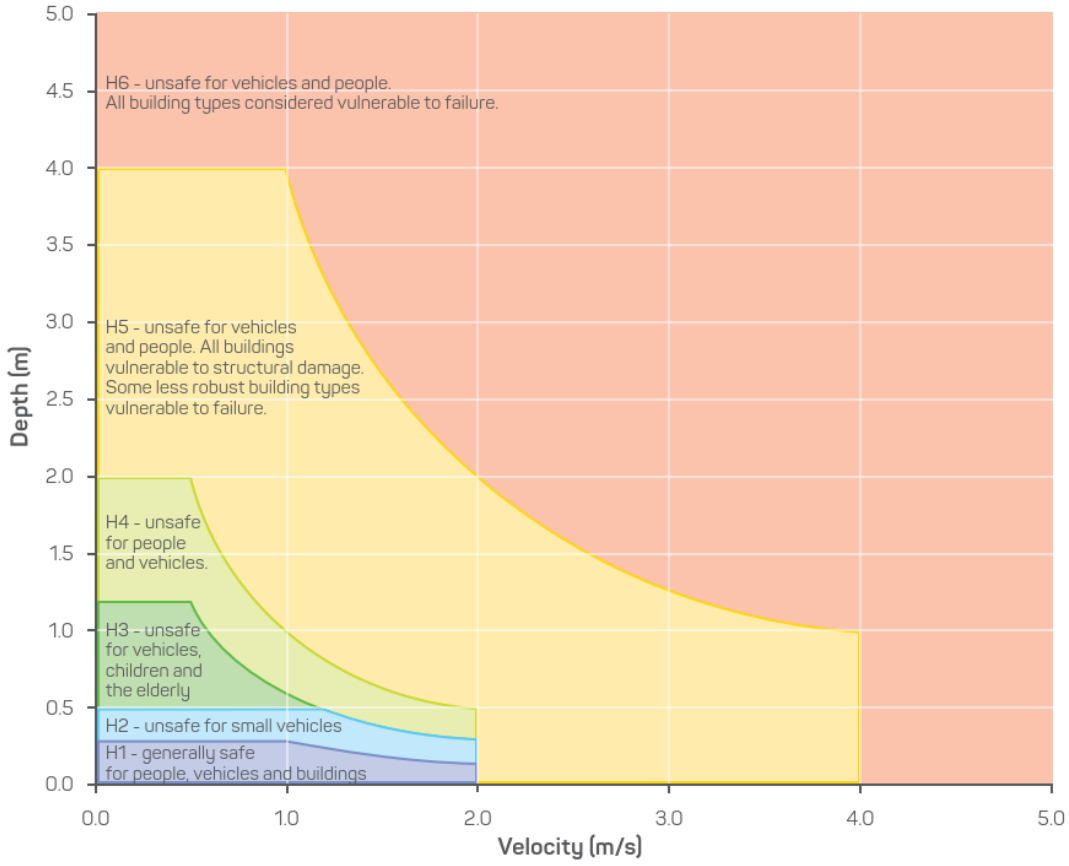


Figure 2-3 Flood Hazard Classifications (AIDR, 2017)

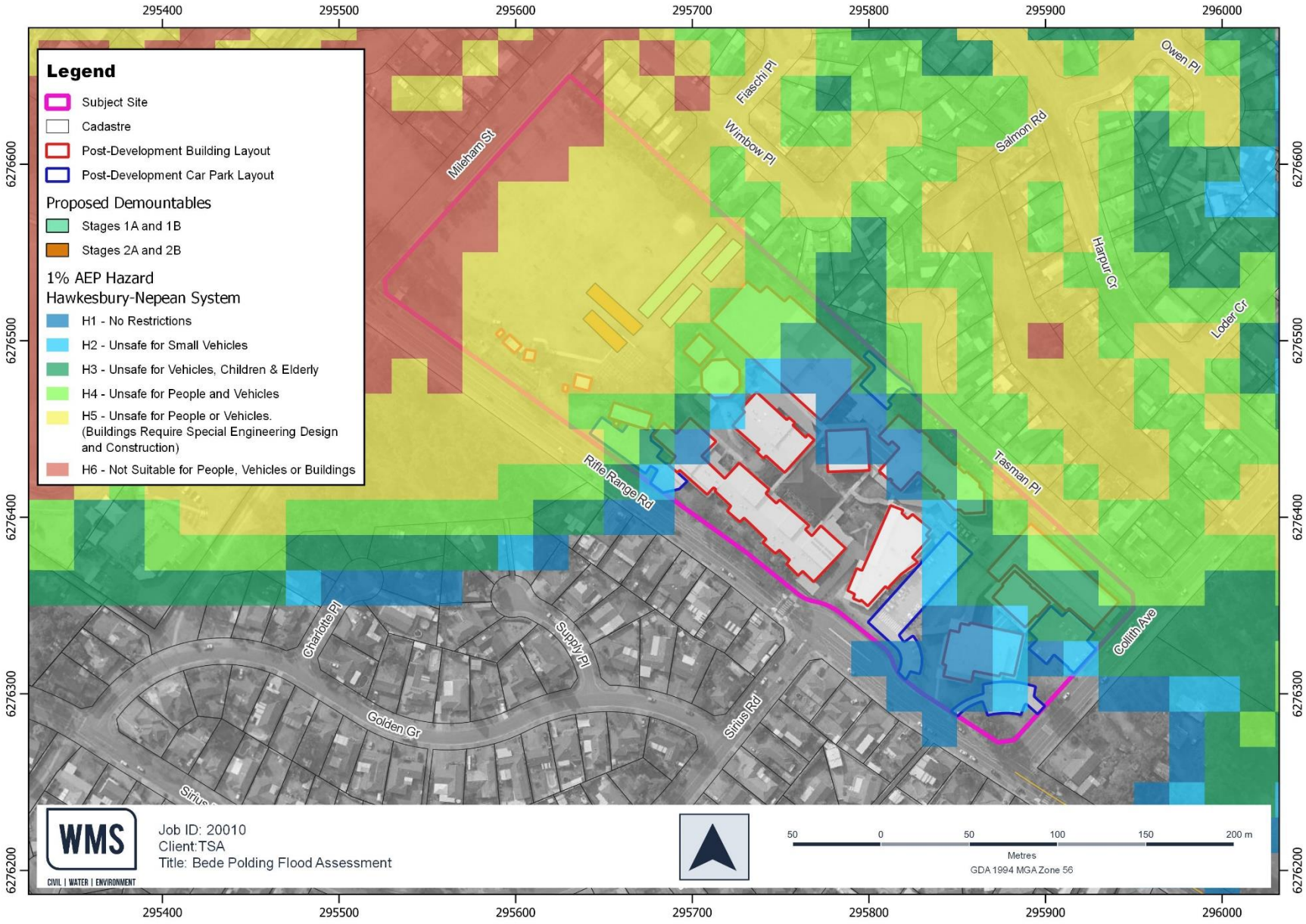


Figure 2-4 Construction Staging Site Layout and 1% AEP Hazard (Hawkesbury-Nepean Regional Flood Study, INSW, 2019)

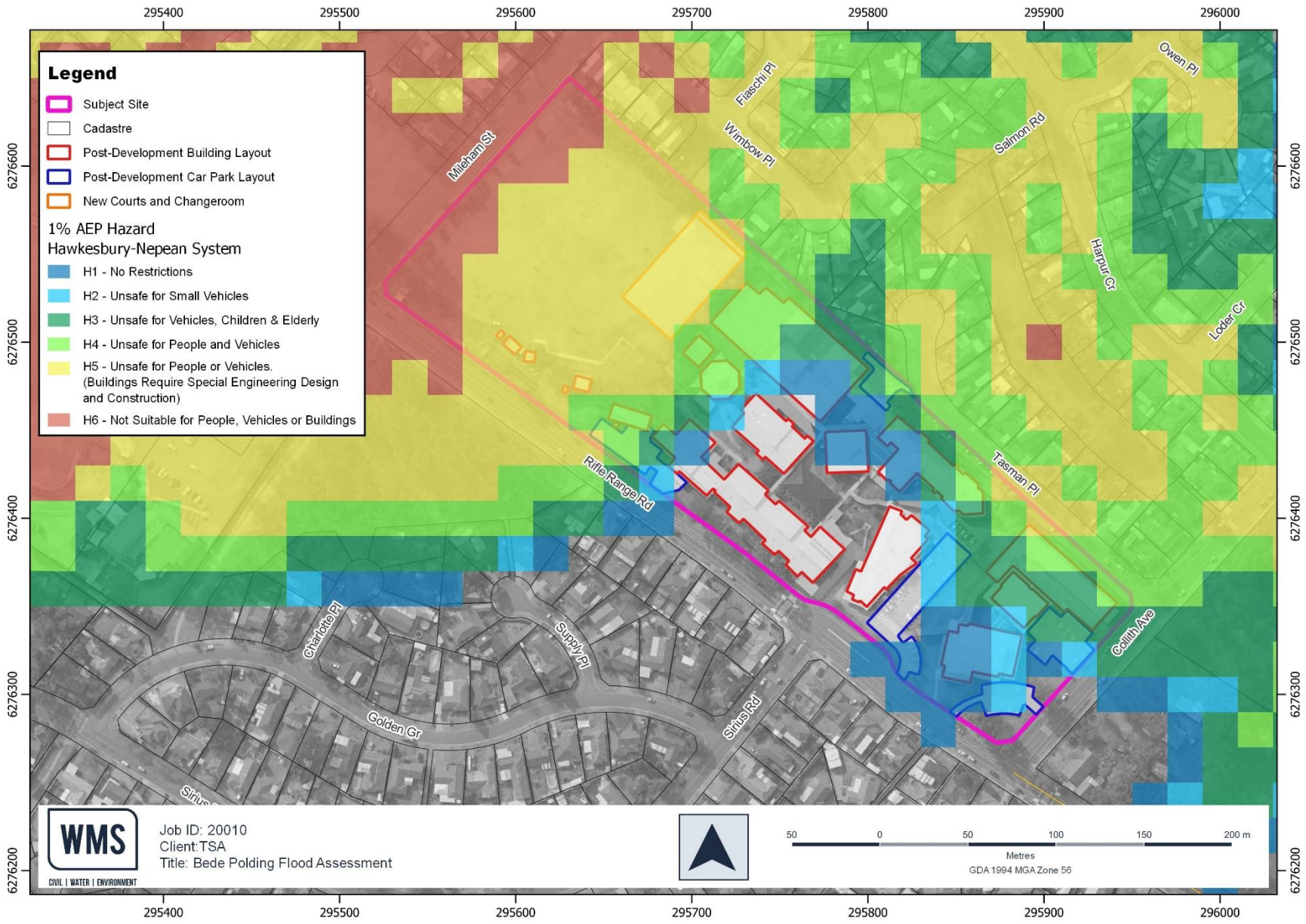


Figure 2-5 Post-Development Site Layout and 1% AEP Hazard (Hawkesbury-Nepean Regional Flood Study, INSW, 2019)

3 SOURCES OF FLOOD INFORMATION, FORECAST AND WARNINGS

Monitoring weather forecasts is key to managing flood risk at the site and ensuring the FERP is enacted at the appropriate time. Information about current and impending flood risks can be found through the following sources.

3.1 BUREAU OF METEOROLOGY (BOM)

The primary source of information regarding flood risk at the Site is the Bureau of Meteorology (BOM). The following warning products are provided by the Bureau and could provide an indication of increased flood risk at the site.

3.1.1 Types of warnings

Flood Watch

The Bureau issues a Flood Watch to provide early advice of a developing situation that may lead to flooding. A Flood Watch is not a warning of imminent flooding. A Flood Watch provides information about a developing weather situation including forecast rainfall totals, catchments at risk of flooding, and indicative severity where required. The product also provides links to weather warnings, other Bureau flood-related products, and contact details and information of relevant emergency services.

Although there is uncertainty attached to a Flood Watch, its early dissemination can help individuals and communities to be better prepared should flooding eventuate. A Flood Watch may discuss possible snowmelt, local flooding or tidal impacts but a Flood Watch will not be issued solely on the basis of these phenomena.

A Flood Watch is generally issued up to four days in advance of the expected onset of flooding. A Flood Watch can be issued before, during and after the rainfall has occurred, depending on the level of maturity of the flood warning systems and services, and flood impact information made available from the local emergency services or state agency.

Flood Watches are updated at least daily and finalised once all areas are covered by flood warnings or the risk of flooding has passed.

Flood Warning

Flood Warnings are issued by the Bureau to advise that flooding is occurring or expected to occur in a geographical area based on defined criteria. Flood Warnings may include either qualitative or quantitative predictions or may include a statement about future flooding that is more generalised. The type of prediction provided depends on the quality of real-time rainfall and river level data, the capability of rainfall and hydrological forecast models and the level of service required.

Predictions for the Hawkesbury River at the area where Bede Polding is located are based on the Windsor PWD gauge (Station No. 567044), which is located slightly upstream of Windsor Bridge, and can be classified as Minor, Moderate or Major Flooding in accordance with the predicted level at the gauge. The meaning of this classification is provided in, and the relationship between the flood warning classification, the predicted levels at the Windsor PWD gauge and flooding at the site is provided in Table 2-1 of Section 2.2.

Table 3-1 Flood Warning Classification Explained (Source: Local Flood Guide – Geelong, VICSES)

Classification	Meaning
Minor Flood Warning	A Minor Flood Warning means floodwater can: • Reach the top of the river banks • Come up through drains in nearby streets • Cover low-lying areas including riverside camping areas • Affect some low-lying caravan parks • Cover minor roads, tracks and low level bridges • Spread across land or go into buildings on some properties and farms
Moderate Flood Warning	A Moderate Flood Warning means floodwater can: • Spill over river banks and spread across low-lying areas • Start to threaten buildings, roads, rail, power and other developments • Require evacuation in some areas • Cover main roads

Classification	Meaning
Major Flood Warning	A Major Flood Warning means floodwater can: • Cause widespread flooding • Threaten many more houses and businesses • Cause properties and whole areas to be isolated by water • Disrupt major roads and transport routes • Require many evacuations

Severe Weather Warnings

The BOM issues Severe Weather Warnings whenever severe weather is occurring in an area or is expected to develop or move into an area. The warnings describe the area under threat and the expected hazards. Warnings are issued with varying lead-times, depending on the weather situation, and range from just an hour or two to 24 hours or sometimes more.

Severe Weather Warnings can contain the following information:

- Standard Emergency Warning Signal (SEWS) - sounded only for the most serious events
- List of severe weather phenomena expected in the warning area
- Threat area
- Warning issue time
- (Usually) Description of the weather pattern, including forecast developments of significant weather systems
- Description of the threat
- Action statements
- Advice of next issue time

As part of its Severe Weather Warning Service, the Bureau also provides warnings for severe weather that may cause flash flooding. State emergency services or local authorities may provide flash flood warnings in some locations.

Note: The BOM does not provide flash flood warnings (i.e. flooding that occurs within 6 hours of the rainfall).

Severe Thunderstorm Warnings

The Bureau of Meteorology issues Severe Thunderstorm Warnings to alert communities of the threat of these more dangerous thunderstorms.

A severe thunderstorm is one that produces any of the following:

- Large hail (2cm in diameter or larger)
- Giant hail (5cm in diameter or larger)
- Damaging or destructive wind gusts (generally wind gusts exceeding 90 km/h)
- Heavy rainfall which may cause flash flooding
- Tornadoes

Most thunderstorms do not reach the level of intensity needed to produce these dangerous phenomena so the Bureau of Meteorology does not warn for all thunderstorms.

3.1.2 Accessing BOM Warnings

In each State, Flood Warnings, Watches and River Height Bulletins are available via some or all of the following:

- Local Response Organisations: These include the Council, Police, and State Emergency Service in the local area.
- Bureau of Meteorology: Flood Warnings, Flood Watches and general information are available directly from the Bureau of Meteorology, including:
- On the web at: www.bom.gov.au/australia/warnings

- Through the Telephone weather warnings service. Flood Warnings and Flood Watches in most States are available on the Bureau of Meteorology's recorded message service. Charges apply.
- Radio: Radio stations, particularly local ABC and local commercial stations broadcast flood warning information as part of their new bulletins, or whenever practicable.

3.2 NSW STATE EMERGENCY SERVICES (SES)

The NSW SES is the legislated lead combat agency for flooding in NSW. Any flood directive issued by the SES must be followed by all building occupants. This includes any order to evacuate the site, or not evacuate the site, irrespective of the instructions given in this FERP or as decided by the Principal.

Leading up to and during a flood, NSW SES can issue:

- Flood Bulletins that provide information on likely flood consequences and what actions you should take to protect yourself and your property.
- Evacuation Warnings that warn when evacuation routes are likely to be cut or when floodwaters are expected to inundate property. These warnings aim to get people prepared to evacuate and to respond quickly if an Evacuation Order is issued.
- Evacuation Orders that advise people what to do in an evacuation and where to go. Evacuations orders are transmitted on radio stations, or by automated telephone and/or SMS, NSW SES social media, or door knocks.

It is vital that all occupants leave the Site if an Evacuation Order is received.

NSW SES communications and warnings can be found in the following social media pages:

- NSW SES Facebook Page: https://www.facebook.com/NSW.SES/
- NSW SES Hawkesbury Unit Facebook Page: https://www.facebook.com/seshawkesbury/

3.3 OTHER SOURCES

In each state, Flood Warnings, Watches and River Height Bulletins are available via some or all of the following:

- The Hawkesbury City Council shares flood warnings and general information via their Disaster and Emergency Dashboard, which can be accessed at: https://disaster.hawkesbury.nsw.gov.au/
- WaterNSW provides real-time water level data for several flood gauges near the Site, including the Windsor Bridge gauge. Information from WaterNSW can be accessed via their website at https://realtimedata.waternsw.com.au/ and searching for gauge no. 212903 (Windsor Bridge gauge) or any other gauges of interest. WaterNSW information can also be accessed via the WaterLive App, which is a mobile phone application for accessing near real-time water data. The application allows water users to access information from handheld devices for surface water, including major rivers, major dam levels, dam inflows and groundwater data. Push notifications can also be set up to be sent to the phone home screen with updates on timely water information, including alerts related to a 'watchlist' of locations defined by the user.
- Radio and television: radio stations, particularly local ABC and local commercial stations broadcast flood warning information as part of their new bulletins, or whenever practicable. Some of the local emergency broadcasters in the Hawkesbury are:
  - 2CH 1170 AM
  - 2DAY FM 104.1 FM
  - 2GB 873 AM
  - 2ME 1638 AM
  - 2SM/GORILLA 1269 AM
  - 2UE 954 AM
  - 2VTR HAWKESBURY 89.9 FM
  - 702 ABC SYDNEY 702 AM
  - BLU FM 89.1 FM
  - MIX 106.5 106.5 FM
  - NOVA 96.9 FM
  - RADIO 2MORO 1620 AM
  - RADIO 2RDJ 88.1 FM
  - SBS RADIO 97.7 FM
  - SYDNEY'S 95.3 95.3 FM
  - TRIPLE M 104.9 FM
  - WFSM 101.7 FM

4 FLOOD RESPONSE STRATEGY

4.1 TYPES OF RESPONSE

The two main types of responses to a flood emergency are:

- "Horizontal Evacuation" – occupants exit the site and make their way (walking is likely to be safest) to an area above the reach of flood waters. This is the NSW SES preferred response, provided that the risks of evacuating are deemed acceptable.
- "Vertical Evacuation", also referred to as "Shelter in Place" – occupants remain in the building and wait until floodwaters have receded. Shelter in Place is to be considered an alternative to horizontal evacuation only when it is safer to remain in the building than it is to evacuate horizontally. For example, in flash flood catchments where roads can become unsafe due to flooding, it can be safer to shelter in place until the flood recedes rather than driving in floodwaters.

4.2 RECOMMENDED FLOOD EMERGENCY RESPONSE

The risk of flooding from overland flow due to local storms at the Bede Polding site is considered low, and the main source of flood risk at the site is mainstream flooding from the Hawkesbury River. As such, this FERP focuses on the emergency procedures related to Hawkesbury River flooding.

Considering that the Hawkesbury River is not subject to flash flooding and flood warnings typically provide at least 6 hours of lead time, the recommended emergency response for Bede Polding is horizontal evacuation. In light of the significant flood risk at the site, the recommended trigger for a site evacuation should be when a Flood Watch is issued by the BOM.

A summary of the recommended strategies is provided in Table 4-1, and an Action Plan is provided in Appendix A.

Furthermore, a one-page summary of the Bede Polding FERP is provided in Appendix F.

Table 4-1 Flood Response Strategy Overview

Type of Warning Issued by BOM	Overview of Actions Required
Severe Weather/Thunderstorm Warnings	• Occupants are advised to shelter in place during storm. • Monitor BOM warnings and SES advice, and leave with care when storm subsides. Local roads/ paths may be inundated or slippery. • Occupants may leave the site if safe to do so (if local roads are not inundated by local overland flow). – Occupants are to take care when leaving the site as local roads may be inundated (or wet and a slip hazard).
Flood Watch or Flood Warning	• Flooding from the Hawkesbury River is likely to reach the Site and inundate surrounding roads in approximately 12 hours or more. • School must be fully evacuated before the Hawkesbury River level at the Windsor PWD gauge or Windsor Bridge gauge reaches 11.9 mAHD (refer Evacuation Capability Assessment in Appendix E). • Horizontal evacuation should be carried out in accordance with the Action Plan in Appendix A and the school's EMP in Appendix D. Key actions include: – Bede Polding College will invoke a communication strategy to ensure all parents are aware of the situation and that the students are safe. – An appropriate communication will be posted detailing that parents/carers or other family members need to pick up students due to flooding issues, and details of how these pickups are to be managed at the school. – The School Executive Team (SET) will start preparations by organising potential bus transport, planning evacuation routes, managing relocation of livestock and ensuring utilities are closed down. • The Principal will issue an Evacuation Order and the school will be evacuated following the evacuation procedures outlined in the school's EMP.

5 FLOOD EVACUATION

5.1 FLOOD EVACUATON ROUTES

There are 12 designated evacuation routes in the Hawkesbury Nepean Valley that provide the quickest and safest way to exit the Wallacia, Penrith-Emu Plains, Richmond-Windsor, South and Eastern Creek floodplains. It is important to be aware of more than one route, because each flood behaves differently, and evacuation routes will get cut by flood water at different points.

The 12 flood evacuation routes defined by the NSW SES are shown on Figure 5-1. Bede Polding Catholic College is located nearest to the Richmond Road and The Northern Road evacuation routes.

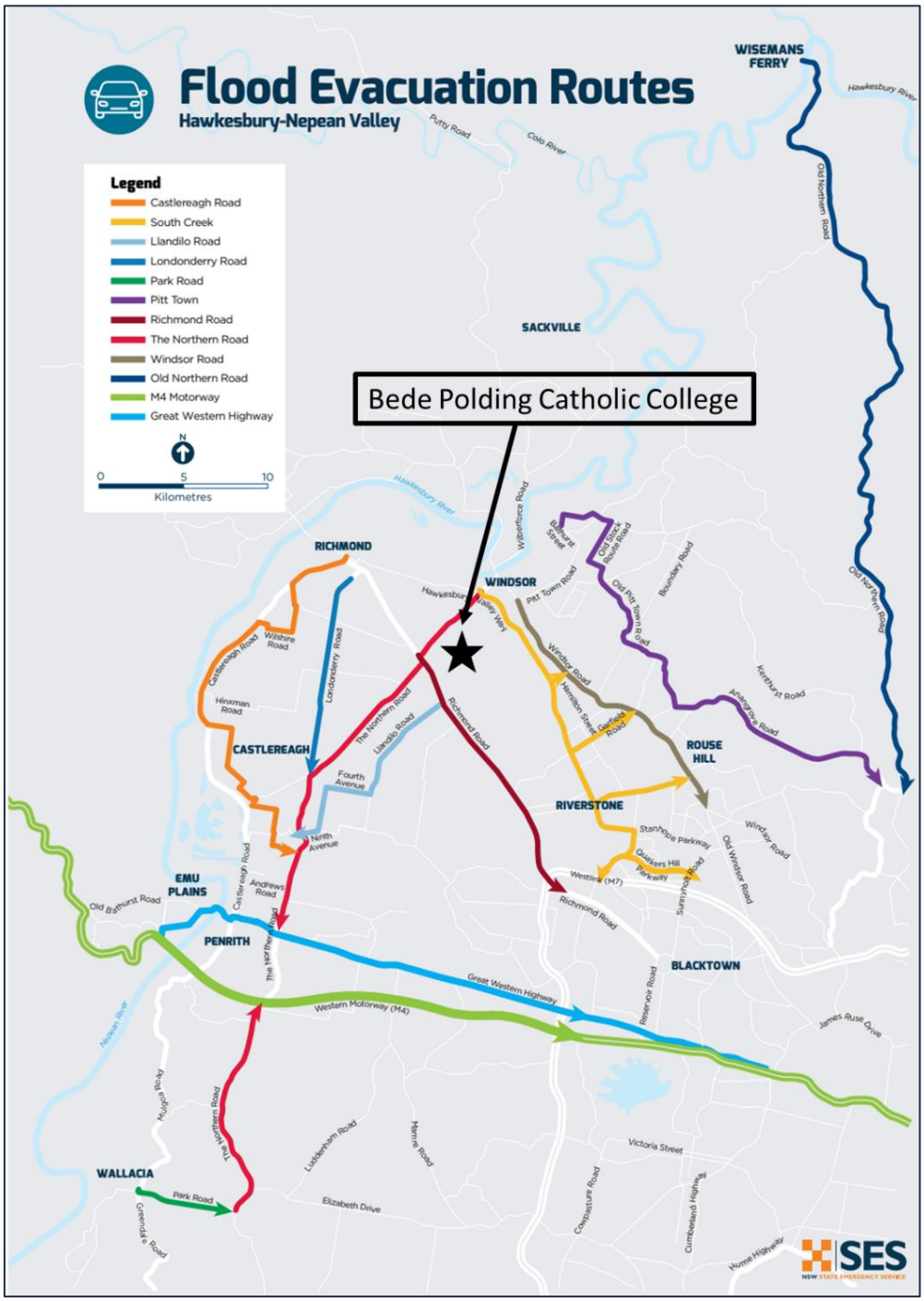


Figure 5-1 Hawkesbury Nepean Flood Evacuation Routes, NSW SES, July 2019

Richmond Road is the preferred evacuation route, which can be accessed west of the site via Rifle Range Road and George Street ('Access Route A'), or to the east via Rifle Range Road and Sanctuary Drive ('Access Route B'). An overview of the available access routes is provided in Figure 5-2. If sufficient warning time is available, the Northern Road evacuation route is also an option.

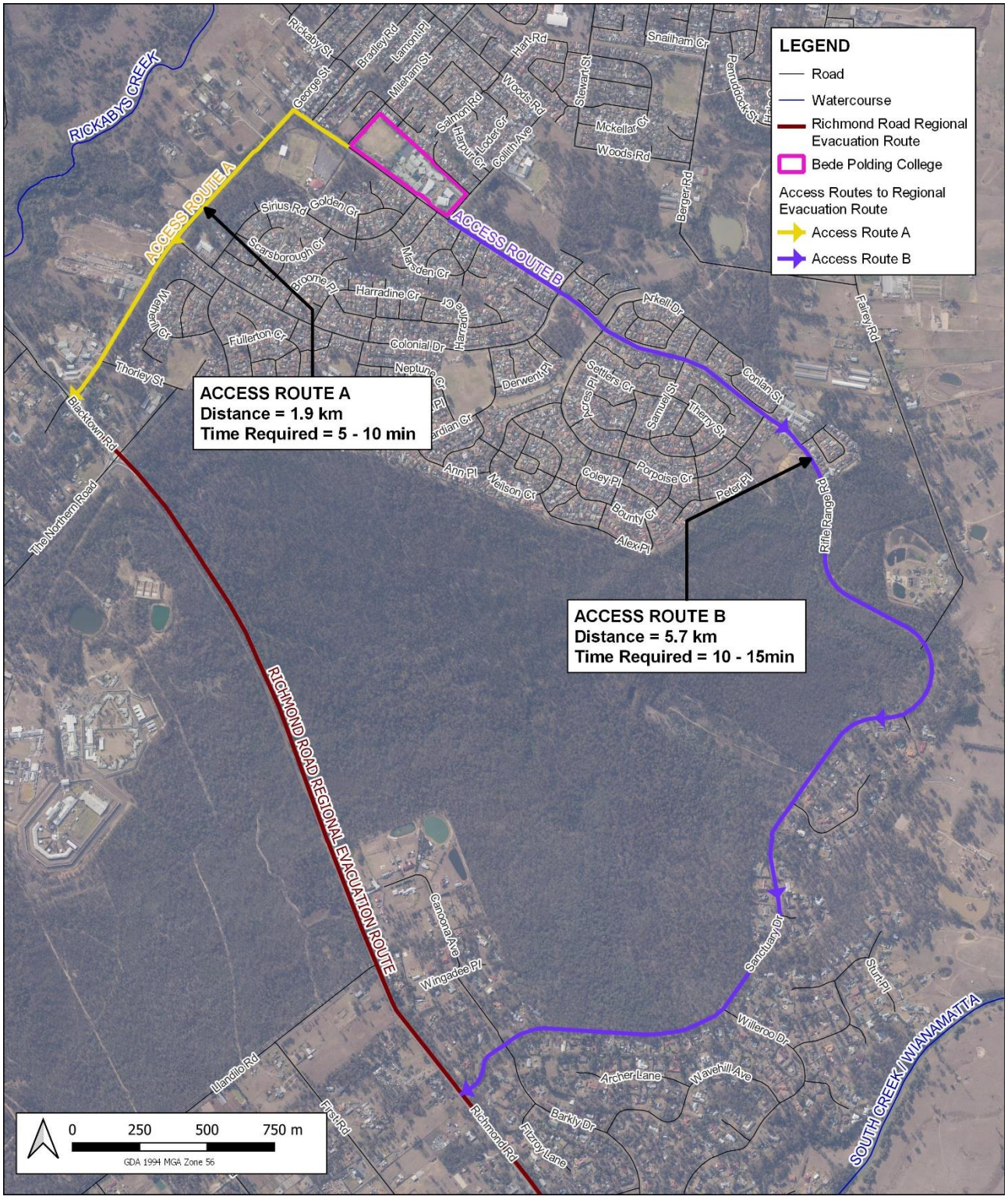


Figure 5-2 Overview of Access Routes to Richmond Road Regional Evacuation Route from Bede Polding

5.2 EVACUATION CAPABILITY ASSESSMENT

An Evacuation Capability Assessment has been prepared by WMS and should be read in conjunction with this FERP. The assessment has been provided in Appendix E.

The objectives of the Evacuation Capability Assessment were to:

- Demonstrate the available route/s from the development to the Regional Flood Evacuation Route;
- Determine the available time for evacuation;
- Identify at what point and time the access route is cut off;
- Identify whether the proposed development will be capable of self-evacuation or whether it will rely on emergency services to assist in the evacuation of occupants, such as seniors housing, residential care facilities, group homes, or correctional centres;
- Determine whether evacuation from the site can be achieved within the Effective Warning Time; and
- Demonstrate that evacuation of the site will not adversely impact on existing evacuation capabilities.

As part of the Evacuation Capability Assessment, it was found that the access routes from Bede Polding Catholic College to the Richmond Road Regional Flood Evacuation Route may be cut off by flooding at two locations:

- Location A: Rifle Range Road along Route A is initially cut off approximately 75 m west of Bede Polding Catholic College (between Mileham Street and Raven Place); and
- Location B: Rifle Range Road along Route B is initially cut off approximately 1.9 km east of Bede Polding Catholic College (near Fairey Road).

Based on the assessment of the elevations along the Bede Polding access routes to the Richmond Road Regional Evacuation Route, for Hawkesbury River levels lower than 11.9 mAHD at Windsor, the access routes remain free of flooding and therefore evacuation can occur. As such, the Effective Warning Time for Bede Polding has been defined as the minimum available warning time before the river levels reach 11.9 mAHD. Based on available BOM flood warning lead times and rate of rise for the Hawkesbury River, the Effective Warning Time for Bede Polding has been determined to be a minimum of 17 hours.

6 REFERENCES

Bede Polding College. (2021). *Emergency Management Plan.*
BOM. (2013). Service Level Specification for Flood Forecasting and Warning Services for New South Wales and the Australian Capital Territory – Version 3.13.
INSW. (2019). *Hawkesbury-Nepean Valley Regional Flood Study.*
TTPP. (2022). *Bede Polding Catholic College, South Windsor - Traffic Impact Assessment.*

APPENDIX A

ACTION PLAN

A.1 BEFORE A FLOOD

Trigger/ Frequency	Action
Always	• The Principal will make all staff on site aware of the possibility of flooding and the procedures to be followed in a flood. • The Principal will appoint a Deputy Warden. This should be a senior staff member who is familiar with this Flood Emergency Response Plan and who is always on site when the site is open. If necessary, to ensure that at least one Deputy Warden is always on site, the Principal may appoint two or more Deputy Wardens. • The Site is to be equipped with a siren and PA system. In addition, an airhorn will be kept on site at all times. This is to be used to alert everyone on site in case of emergency if there is a power outage. All staff on site will be trained during their site induction to immediately go to the muster point at the front of the site when the airhorn/siren sounds. • A set of at least two wireless radio communication transceivers with charged spare batteries will be kept on site at all times. The Deputy Warden will make sure that the main and spare batteries are changed at all times. • A flood warning sign will be kept on the premises. The sign should read a message to this effect: "The site is temporarily closed due to flood risk. For your own safety, leave the area immediately. You will be notified once it is safe to come back." • The Principal and Deputy Warden are to always have a smartphone/tablet available, with 3G/4G/5G internet access and at least 12 hours independent power supply • Using the above smartphone/tablet, the Principal and the Deputy Warden will download and install the BOM Weather app or will bookmark the link to the BOM warning webpage for easy access.
Always	An emergency contact sheet will be kept in hardcopy format on site. A suggested format for these details and other necessary contact details is provided in Appendix B.
Always	The Principal will keep an updated register of the people who are on site at all times. The list will have to include as a minimum name, mobile number, and emergency contact details.
Always	The Principal will maintain an emergency kit including a portable radio and torch with spare batteries and a first aid kit.
Daily	Every morning, the Principal will check the Bureau of Meteorology weather forecast and warnings. At the time this report was prepared, the BOM weather forecast and warnings for NSW were available at the following link: http://www.bom.gov.au/nsw/warnings/
Annually	The Principal will host a Flood Emergency Response Drill, in which Evacuation procedures are practised by Deputy Wardens.

A.2 WHEN A FLOOD IS POSSIBLE AND DURING A FLOOD

Trigger/ Frequency	Action
During school hours When a BOM Flood Watch or Flood Warning is issued for the Hawkesbury River	As per the existing EMP, the following actions should take place: • Bede Polding College will invoke a communication strategy to ensure all parents are aware of what the situation is and that the students are safe. • Using the Skoolbag app, an appropriate communication will be posted detailing that students are safe, that parents/carers or other family members need to pick up students due to flooding issues, and details of how these pickups are to be managed at the College. • The communication to parents should be updated every two hours, or more frequently if deemed necessary. • The Principal will closely monitor the flood situation, and keep up to date with Flood Warnings issued on the Bureau of Meteorology website and act on all advice provided by the NSW SES. • Prior to an Evacuation Warning being issued, the School Executive Team (SET) should instigate preparations by: – Organising potential bus transport to higher ground for any students and staff who are still on site. Consideration needs to be given in regards to the needs of individuals with health issues (collect and take student and staff medications, first aid and asthma kits, and other medical equipment e.g. defibrillators, epi-pens). – Planning the evacuation route through consultation with emergency services. – Managing the movement of all livestock to a pre-determined destination e.g. Agriculture area of St Columba's College in Springwood. – Identifying areas of the College that would be above the flood water level (refer to Table 1-1 for floor levels, Creative Hub1, Professional Hub and Research Hub are the buildings with highest floor levels) and commence the movement of essential records, equipment, major works, teaching resources, potentially dangerous chemicals, copies of computer back-up files (an off-site back-up copy should already be maintained) and fire-fighting equipment, to these locations. – Advising the staff to take their possessions off-site in the days leading up to the flood. • Prior to an Evacuation Order being issued, the SET (in particular, the Business Manager and ground staff) should ensure that any utilities that may cause additional hazards e.g. electricity, gas and water services, are closed down. • The Principal will issue an Evacuation Order, and the school will be evacuated following the evacuation procedures outlined in the school's EMP (Appendix D).
Outside school hours When a BOM Flood Watch or Flood Warning is issued for the Hawkesbury River	The Principal will contact everyone expected to go to the school on the following day and communicate that the school will be closed due to flood risk until further notice. Any sporting fixtures or training sessions planned on school grounds outside of school hours are to be cancelled.
	The Principal will keep monitoring the BOM weather warnings every two hours.

A.3 AFTER A FLOOD

Trigger/ Frequency	Action
When the BOM cancels the Flood Watch or Flood Warning for the Hawkesbury River	• The Principal will inspect the school to check if access roads are clear and if the school was affected by flooding. • If access roads are clear and the school was not affected, the emergency has passed and the school can re-open. • If access roads are not clear, the Principal will return for an inspection after at least two hours. Under no circumstances should the Principal drive through floodwaters. • If access roads are clear but the school was affected by flooding, the Principal will organise access to the school making sure that any precautionary measures recommended by the NSW SES are put in place. • Extra care will be taken of potential slips on muddy floors or footpaths. • All flood-affected parts of the premises will be appropriately cleaned and utilities checked by professionals before anyone can return to the school. • A hazard assessment will be undertaken 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. • Changerooms will be inundated when the Hawkesbury River reaches a level of approximately 14.6 mAHD at Windsor. Floors and walls will need to be hosed out and dried. Electricity to be thoroughly checked by professionals. • Demountable buildings will need to be thoroughly cleaned, and structural and electrical safety assessment to be carried out before return to normal activities. • Following the re-commencement of the school activities, a de-brief will be held with key management staff and may involve Council flood staff or the NSW SES. The flood event and response, including the use of this FERP and any emergency procedures will be reviewed. • Changes may be made to the FERP and the requirements for future emergency response should the review identify any improvements which may be made.

APPENDIX B

EMERGENCY CONTACT LIST

B.1 EMERGENCY CONTACT LIST

Category	Contact Name	Contact Phone Number
Emergency Services and Sources of Information	Emergency – Police, Fire, Ambulance	000
	NSW SES	132 500 https://www.ses.nsw.gov.au/
	NSW Live Traffic	https://www.livetraffic.com/
	Hawkesbury Council	Phone: (02) 4560 4444 Email: council@hawkesbury.nsw.gov.au https://www.hawkesbury.nsw.gov.au/
	Emergency Broadcasters	ABC Sydney 702 2day FM 104.1
	Bureau of Meteorology (BOM)	1300 659 217 NSW Warnings: http://www.bom.gov.au/nsw/warnings/ Windsor PWD Flood Gauge: http://www.bom.gov.au/fwo/IDN60233/IDN60233.567044.plt.shtml
Utilities and Providers	Electricity Retailer	
	Electricity Distributor	
	Gas Retailer	
	Water and Sewer Retailer	
	Doctor	
	Insurance	Policy Number: Contact Phone:
Key On-Site Personnel ***(Add as necessary)***	Principal	
	Deputy Wardens	
Details for contacting students and parents		

APPENDIX C

FERP REVIEW RECORD

C.1 BEDE POLDING CATHOLIC COLLEGE – FERP REVIEW RE

Reviews of this FERP are required annually and following major flood events. Rows to be added as required.

Date	Changes Made	Made by:	Action Required	Action Completed by & date
16/09/2022	Initial Draft	WMS	NA	NA

APPENDIX D

BEDE POLDING COLLEGE EMERGENCY MANAGEMENT PLAN

Emergency Management Plan

For
BEDE POLDING COLLEGE
22-30 RIFLE RANGE ROAD
SOUTH WINDSOR
Ph: 4560 2900
Fax: 4560 2999
bedepolding@parra.catholic.edu.au

Signature of School Principal

Date: 21st May 2021

Review Date: December 2018

Version: 1.1 (December 2017)

Version: 1.2 (September 2019)

Version: 1.3 (July 2020)

Version: 1.4 (May 2021)

Disclaimer

This document was prepared using guidance material from Catholic Education Commission NSW (CECNSW) however, is not endorsed by the Catholic Education Commission NSW.

This publication contains general information only.

The general information contained in this and related publications do not recommend or indicate any commitment to, or recommendation of, a particular course of local action.

Before readers take any action or decisions each reader must obtain appropriate local professional advice on emergency management options and actions.

CEDP advises that you must not act upon or rely on any information contained in this publication alone. You must always obtain specific site related advice from qualified persons.

Other Related Documents:

- Workplace Health & Safety Policy – CEDP
- Workplace Health & Safety, Risk Management Guidebook for Staff – CEDP
- Risk Assessment Tool Guidebook – CEDP
- Hazardous Materials in Colleges – CEDP
- Critical Incident Management Procedure (June 2017) – CEDP
- Bomb Threat Protocol (February 2016) – CEDP

Aerial View Bede Polding College – Rifle Range Road South Windsor 2017

Revision History

Version Number	Date	Reason for Version
1.0	June 2017	Initial version
1.1	December 2017	Revised version
1.2	September 2019	Change of staff, update contents
1.3	July 2020	Update staff and contents
1.4	May 2021	Update staff and contents

1. Components

Table of Contents

2. In Case of Emergency

Incident occurs	**CALL**	**000**
	CONTACT	**As soon as it is appropriate, contact Catholic Education Diocese of Parramatta. Keep parish priest/council advised as necessary.** **Emergency Call mobile phone 112 – Dialing 112 on any newer mobile phone breaks through the phone's key lock and contacts emergency services. ANY mobile phone can be used, even one that does not belong to the person.**

Advise	WHO	▪ **The number and name/s of persons involved.** ▪ **Name of the person reporting the emergency**
	WHAT	▪ **The nature of the emergency.**
	WHEN	▪ **The time you became aware of the emergency.**
	WHERE	▪ **The location of the emergency and contact phone numbers if the emergency is away from the school.**

Report	▪ **Following resolution of the emergency, complete a copy of the Emergency Management Accident/Incident Report and retain the records in your WHS files at the school.**

	▪ **The school/CEDP must report notifiable incidents to SafeWork NSW if the emergency had any consequences. Please refer to the notifiable incident information found on the WHS page on OSCAR.** ▪ **In addition, all notifiable incidents and injuries must be reported to CEDP via the notification of injury tool on OSCAR.** ▪ **Minor incidents do NOT need to be reported to SafeWork NSW. If in doubt, phone CEDP on 9840 5601 to clarify whether the incident should be reported.**

3. Emergency Numbers & Key Contacts – External Agencies

Group	Phone Number	
Police	**000**	
	Windsor Police Station	4587 4099
Ambulance	**000**	
Fire Services Authority F&RNSW, RFS	**000**	
State Emergency Service (NSWSES)	132 500	
Hospital(s)	Hawkesbury 4560 5555 Nepean 4734 2000	
Gas	Emergency 000 Gas Distributors: Jemena Gas Networks 45 60 5555, Australian Gas Networks NSW 4734 2000	
Electricity	Emergency 000 Endeavour Energy 131 003	
Water Corporation	Sydney Water 132 090	
Department of Community Services	Hawkesbury Community Services Centre 4574 6666	
Local Government	Hawkesbury City Council 4560 4444	
EPA	131 555	
RSPCA	Animal Cruelty 1300 278 3589; Hawkesbury Companion Animal Shelter 4560 464 WIRES 1300 094 737 The Sydney Snake Catchers – Rob 0401 866 429	
Catholic Education Diocese of Parramatta	9840 5600	
Parishes & Priests	St Matthew's Windsor – Fr Robert William – 45 77 3073 St Monica's Richmond – Fr Clifford D'Souza – 45 78 1410	
CatholicCare Social Services	8843 2500	

Catholic Church Insurances	9273 2800
CEDP Student Support Services	Mary Creenaune 98405724
Media Coordinator	Mark Rix 0417 442 018
CEDP Employment Relations / WHS	9840 5601

4. Emergency Contact Information - School Personnel

Role	Name	Phone No. (Daytime)	Phone No. (Mobile)	Phone No. (After Hours)
Principal	Mr Mark Compton	02 45 60 2900	0458 766 775	
Assistant Principal	Mr Harry Fernandez	02 45 60 2900	0404 824 703	
Director of Learning and Wellbeing	Mr Edward Gruppetta	02 45 60 2900	0412 034 784	
Religious Education Coordinator	Mr Joshua Rodricks-Testa	02 45 60 2900	Ext 22901	0422 896 270
School Counsellor	Ms Lisa Gooley Mrs Kathryn Rogers	02 45 60 2900	Ext 22908	
Director of Learning & Administration	Mr Paul Samoluk	02 45 60 2900	Ext 22910	0404 087 189
Business Manager / WHS Officer	Mr Sean McNally	02 45 60 2900	0408 088 752	0409 249 724
Director of Learning & Inclusion	Mrs Tracey Johnson	02 45 60 2900	0433 473 017	
Director of Learning & Pedagogy	Mrs Nicole Mulford	02 45 60 2900	0415 755 089	
Director of Learning & Innovation	Mrs Angela McEnearney	02 45 60 2900	0428 219 940	
Leaders of Wellbeing				
Year 12	Mrs Kylie Kennedy	02 45 60 2900	0414 107 469	
Year 11	Mr Matthew Marshall	02 45 60 2900	0432 642 302	
Year 10	Ms Jenny Woods	02 45 60 2900	0408 299 976	
Year 9	Mr Liam Campbell	02 45 60 2900	0418 662 774	
Year 8	Mr Alex Murphy (Acting)	02 45 60 2900	0404 658 173	
Year 7	Mrs Janette Wick	02 45 60 2900	0479 125 414	
Parish Priest	Fr Robert William Fr Clifford D'Souza	45 77 3073 45 78 1410		
P and F President	Mr Brett Edwards	8292 9700	0404 018 109	
Maintenance	Mr Yorg Fischer		0404 824 698	

5. School Profile

SCHOOL PROFILE SUMMARY	
Name of School: BEDE POLDING COLLEGE	Hours of Operation: 8:00 AM – 4:00 PM
School Authority: CATHOLIC EDUCATION DIOCESE OF PARRAMATTA	
Specify grades: Years 7-12 Co-educational Secondary College	
Numbers	
Students: 1110	Children with disabilities: 6
Staff: 110	Staff with disabilities: 2
Animals on site: Sheep, cattle, chickens.	
Other details	
Bede Polding College is a Catholic community which values and encourages each member to strive for personal excellence, encourages individuals to believe in their self-worth and equips each member with the skills and passion to make a difference in the community. The promotion of respect and responsibility is embedded in the College's Religious Education program and its Pastoral Care (G.E.M.) program. Bede Polding College offers a number of transition programs designed to meet the needs of a full range of students, including transitions between Year 6 into secondary school and between year groups. The College is involved in a number of extra-curricular activities including public speaking and debating; a range of dramatic productions and a full range of sporting and interest activities including Parramatta Diocesan sporting competitions.	

BUILDING INFORMATION

Alarms

Type	Location	Shutoff Instructions
Fire	Hall	EWIS Fire System – linked into College Alarm system and Fire Brigade. Located in Hall Foyer. System assessed every month for correct operation/function.
Intrusion	Whole School can be alarmed	Designated staff de-activate the alarm by entering their code on any of the alarm pads.
Other	*fill this in only if needed*	

Telephones

Type	Location
Fixed line phones	Available in all staff areas e.g. offices, staffroom, Science Preparation room, Kitchen Preparation room, Hall kitchenette
Mobile phones	Two school mobile phones are available in the staff lunchroom

UTILITIES

Type	Location	Shut off Instructions
Gas / Propane	Bottled gas: Science labs, TAS rooms, Town gas: TAS kitchens	In Science labs, TAS rooms and TAS kitchens
Water	Administration Block, Science labs, kitchens, Art rooms, Library, Hall, Agriculture plot, amenities, College grounds	Shut off valves are located outside most buildings. Science block has shut off valves inside the room.
Electricity	All buildings. See evacuation maps for position of Meter Boxes in various buildings	Specialist rooms have cut-off buttons. Electricity can also be shut-off at Meter Boxes.

Sprinkler System – N/A	
Boiler Room – N/A	
Roof Access	
Location	All buildings
Access	Access to all buildings is possible with the appropriately sized ladder – some buildings have specific ladder access points e.g. Hall, Administration Block
Emergency Power System – N/A	
Type	Emergency Lights only
Location	All buildings
Provide Power To	Exit signs in all blocks as well as other lighting in the Administration Block and Hall.
Animals on site	**Location:** Agriculture Plot
	Handling/evacuation procedures. Smaller animals would be captured in their enclosures, transferred to cages and carried off site. Larger animals would be corralled, tethered by a lead and led off site or transferred to a College vehicle for transportation to an alternative site e.g. St Columba's College in Springwood.
On Site Hazards	
Description	**Location**
Hazardous Substances/Dangerous Goods manifest	Science Preparation room and Chemical Store; Maintenance store; Photography room; Cleaner's room
Gas bottles	Outside Science labs and TAS rooms (Metalwork)
Fire Fighting Equipment	
Description	**Location**

External Main Hydrant Internal Hydrants Fire Hose Reels Fire Extinguishers Fire Blankets	External: The external Hydrant Plant is located on the southern side of the College building complex. The external plant is maintained by the College but is for the exclusive use of the NSW Fire Brigade and RFS. Internal: Fire hose reels and portable fire extinguishers and fire blankets are located in easily identifiable locations throughout the premises. Equipment locations are identified on Emergency Evacuation Maps in all buildings. Staff receive training on fire fighting. Advice is provided on the suitability of equipment for use on various types of fires e.g. electrical, flammable liquids, ordinary combustibles.

6.School Executive Team (SET)

Principal	Mark Compton
Assistant Principal	Harry Fernandez
Director of Learning and Wellbeing	Edward Gruppetta
Business Manager	Sean McNally
Religious Education Coordinator	Joshua Rodricks-Testa
Director of Learning & Administration	Paul Samoluk
Director of Learning & Inclusion	Tracey Johnson
Director of Learning & Innovation	Angela McEnearney
Director of Learning & Pedagogy	Nicole Mulford

Incident Management Team - Members and Tasks

SET Member	Tasks	Name of staff member and contact details	Name of delegate staff member and contact details
Principal **Incident Controller**	In charge of overall management of emergency situation	Mr Mark Compton 0458 766 775	Mr Harry Fernandez 0404 824 703 Mr Edward Gruppetta 0412 034 784
Principal **Communications Officer**	All media/outside information management/ (media management support is available from your diocesan CEO/SO)	Mr Mark Compton 0458 766 775	Mr Harry Fernandez 0404 824 703 Mr Edward Gruppetta 0412 034 784
Assistant Principal **Operations Officer**	Student care/ensuring adherence to school protocols, procedures	Mr Harry Fernandez 0404 824 703 Mr Edward Gruppetta 0412 034 784	Mr Paul Samoluk 0404 087 189
Business Manager **Logistics Officer**	Responsible for securing materials, resources, services, additional staff and animal welfare.	Mr Sean McNally 0408 088 752	Mr Yorg Fischer 0404 824 698
Director of Learning & Administration **Planning Officer**	Collects and evaluates information related to development of incident/status of resources/ensures a record (log) is kept of any emergency that occurs, including the timing of events and reasoning for any decisions made.	Mr Paul Samoluk 0404 087 189	Mr Harry Fernandez 0404 824 703 Mr Edward Gruppetta 0412 034 784
Principal's PA Agency Liaison Officer	Responsible for liaising with external agencies.	Mrs Deanna Melbin & Therese Poole Ext 22918	Mrs Natalie Jones Ext 22904
Director of Learning & Inclusion	Responsible for care / wellbeing of students with special needs.	Mrs Tracey Johnson 0433 473 017	Miss Jessica Camilleri 0431 156 306
Director of Learning & Innovation		Mrs Angela McEnearney 0428 219 940	

Director of Learning & Pedagogy		Mrs Nicole Mulford 0415 755 089	

Other Staff Member	Tasks	Name of staff member and contact details	Name of delegate staff member and contact details
Ag Plot Teacher / Manager	Secures and/or evacuates animals from school site or site(s) controlled by the school.	Mr Andrew Heath 0414 946 033	Mr Robert Kroon 0404 824 696
Fire Wardens	Alerts authorities about the emergency	Mr Sean McNally 0408 088 752	Mr Brett Collimore 0414 502 295
School Counsellors	Attends to the psychological and emotional needs of staff, students and parents.	Ms Lisa Gooley Ext 22908 Mrs Marita Vecchio Ext 22908	
First Aid Officers	Provides treatment to injured staff and students.	Mrs Natalie Jones Ext 22904 Mrs Maria Caloia Ext 22905	

Area Maps and Site/Floor Plans

Area Map

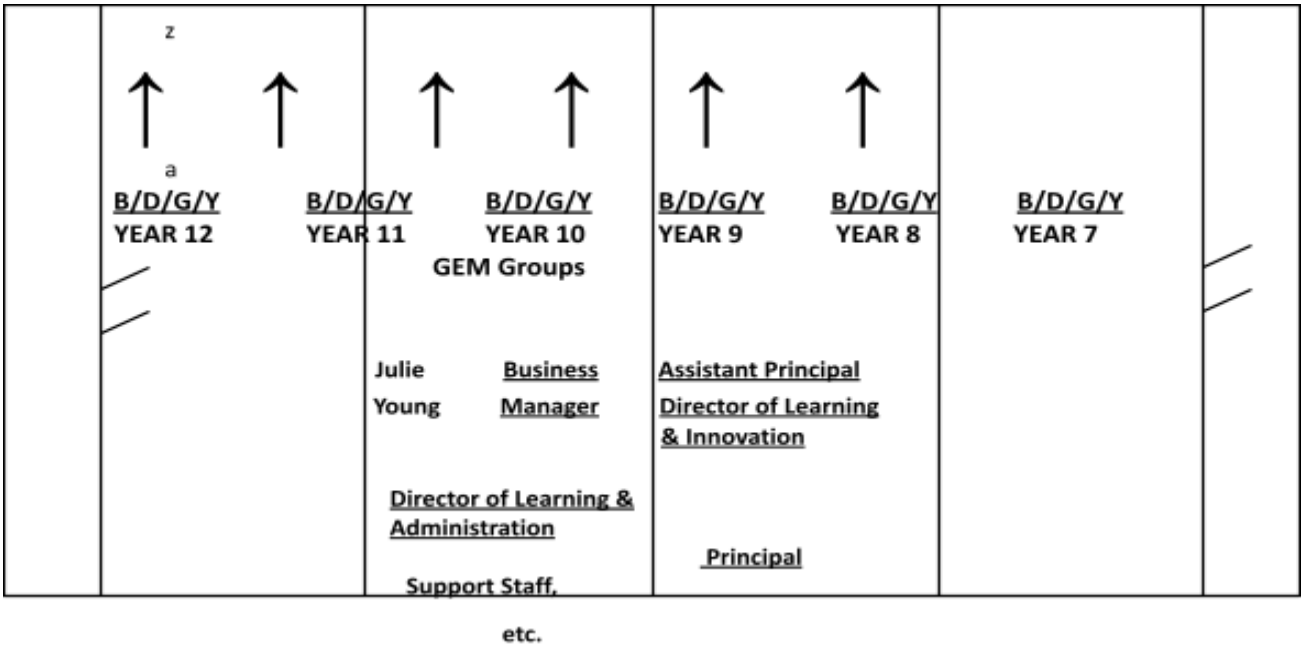
Legend:

Evacuation Route

Evacuation Point

Emergency Assembly Area – College Oval

Mileham Street

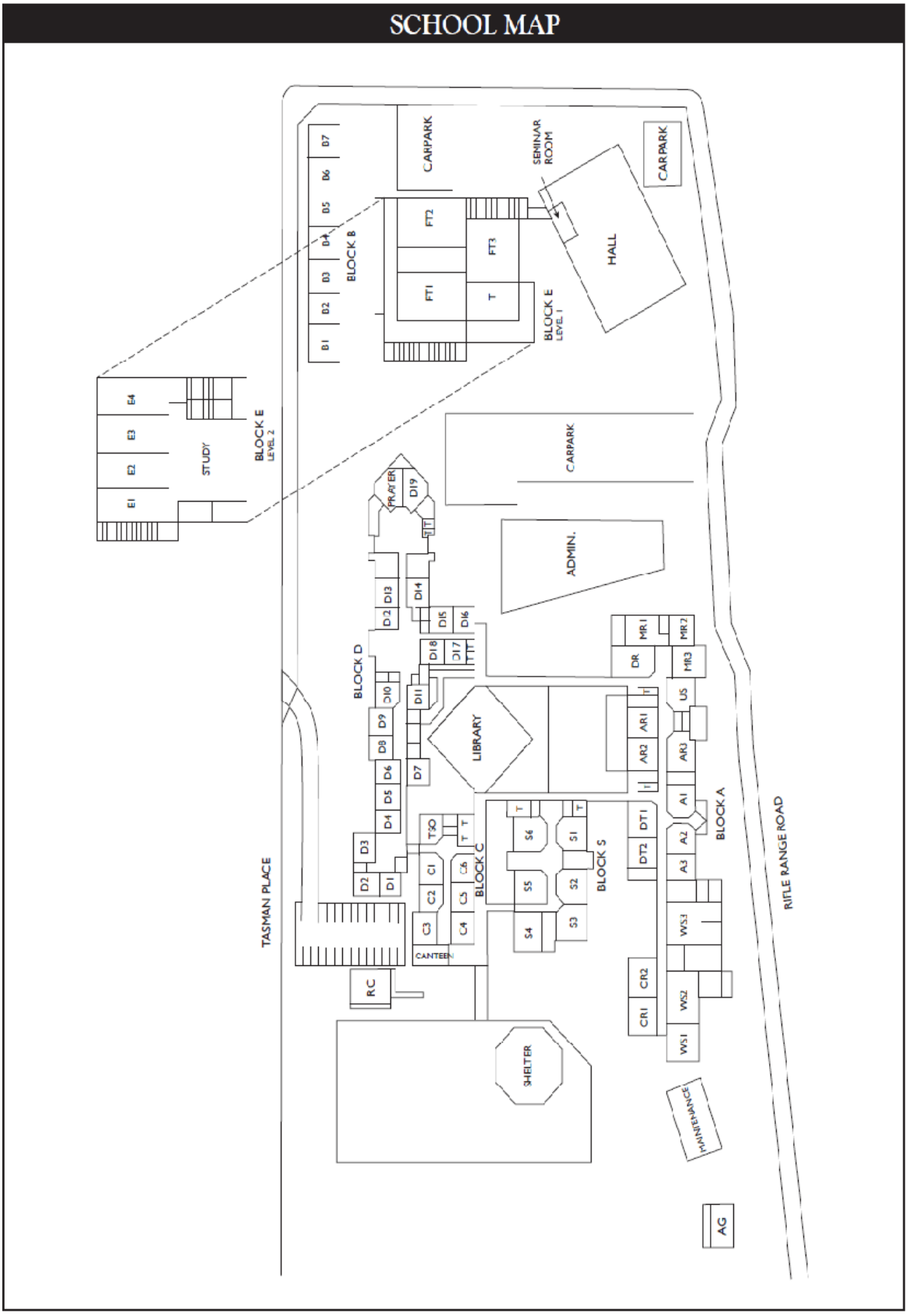


School Oval

Please note: Students in all Years are to face the Basketball Courts. They should be arranged alphabetically in one line per GEM Group.
B/D/G/Y = Bambul / Deerubbin /Guwing / Yarang
Leaders of Wellbeing are responsible for organising their Year Groups within the designated areas.

Basketball Courts

Site Plans/Floor Plans



Catholic Education Diocese of Parramatta

SITE MAP

BEDE POLDING COLLEGE
22-30 RIFLE RANGE ROAD SOUTH WINDSOR NSW 2756

Catholic Education Diocese of Parramatta

ASSEMBLY AREA

On site: Follow the evacuation signs to the middle of the oval.
Secondary on site: Car park located between the Administration Building and the Hall.
Primary off site: Chisholm Catholic primary school oval.

EVACUATION PROCEDURES

ON THE SOUNDING OF THE EVACUATION TONE, A BELL OR VERBAL DIRECTION FROM A WARDEN

Stop what you are doing and evacuate the building via the nearest, safe emergency exit and proceed directly to the Assembly Area

Do not re-enter the building until advised it is 'All Clear'

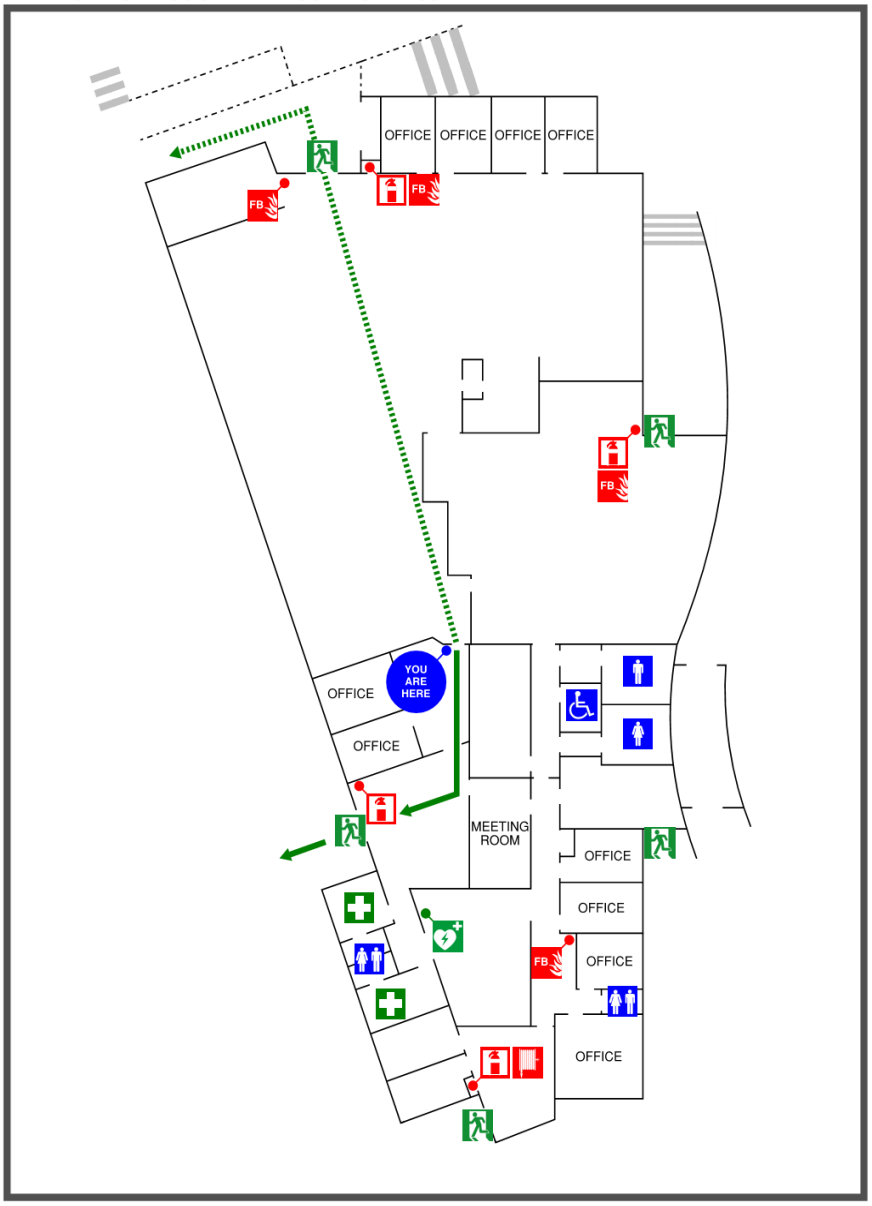
EVACUATION DIAGRAM

Catholic Education
Diocese of Parramatta

BEDE POLDING COLLEGE - ADMINISTRATION GROUND LEVEL
22-30 RIFLE RANGE ROAD SOUTH WINDSOR NSW 2756

LEGEND

- Exit
- First Aid
- Powder Extinguisher
- Fire Blanket
- Fire Hose Reel
- AED
- Evacuation route
- Alternate route



ASSEMBLY AREA

On site: Follow the evacuation signs to the middle of the oval.
Secondary on site: Car park located between the Administration Building and the Hall.
Primary off site: Chisholm Catholic primary school oval.

LOCKDOWN PROCEDURES

ON THE SOUNDING OF THE LOCKDOWN ALERT TONE OR VERBAL DIRECTION FROM A WARDEN

Remain calm and follow directions of Wardens and Educators to shelter in place.

Move to designated refuge area as directed if appropriate and remain there until advised by the Chief Warden and/or Emergency Services that it is 'All Clear'.

EVACUATION PROCEDURES

ON THE SOUNDING OF THE EVACUATION TONE, A BELL OR VERBAL DIRECTION FROM A WARDEN

Stop what you are doing and evacuate the building via the nearest, safe emergency exit and proceed directly to the Assembly Area

Do not re-enter the building until advised it is 'All Clear' by the Chief Warden and/or the Emergency Services

EVACUATION DIAGRAM

BEDE POLDING COLLEGE - BLOCK A GROUND LEVEL
22-30 RIFLE RANGE ROAD SOUTH WINDSOR NSW 2756

Catholic Education Diocese of Parramatta

ASSEMBLY AREA

On site: Follow the evacuation signs to the middle of the oval.
Secondary on site: Car park located between the Administration Building and the Hall.
Primary off site: Chisholm Catholic primary school oval.

EVACUATION PROCEDURES

ON THE SOUNDING OF THE EVACUATION TONE, A BELL OR VERBAL DIRECTION FROM A WARDEN

Stop what you are doing and evacuate the building via the nearest, safe emergency exit and proceed directly to the Assembly Area

Do not re-enter the building until advised it is 'All Clear' by the Chief Warden and/or the Emergency Services

LOCKDOWN PROCEDURES

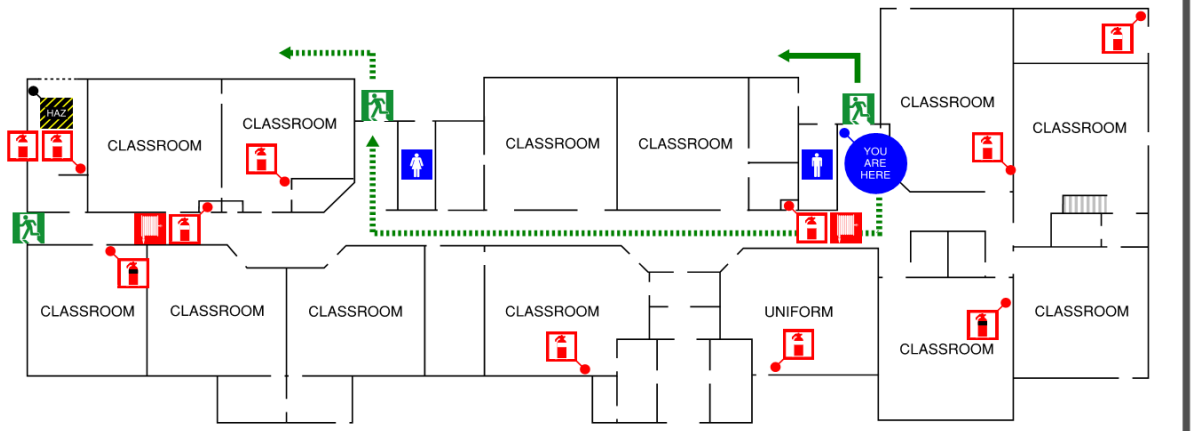
ON THE SOUNDING OF THE LOCKDOWN ALERT TONE OR VERBAL DIRECTION FROM A WARDEN

Remain calm and follow directions of Wardens and Educators to shelter in place.

Move to designated refuge area as directed if appropriate and remain there until advised by the Chief Warden and/or Emergency Services that it is 'All Clear'.

LEGEND

- Exit
- Fire Hose Reel
- Hazardous storage
- Evacuation route
- Powder Extinguisher
- CO2 Extinguisher
- Alternate route



WORKPLACE EMERGENCY MANAGEMENT

ISSUE DATE: May 2019 **VALID TO**: May 2024 **Ref.21156**

Web: **www.workplaceem.com.au** Phone: **1300 831 694** Specialising in: **Evacuation Diagrams ~ Emergency Plans ~ Fire & Emergency Training**

EVACUATION DIAGRAM

BEDE POLDING COLLEGE - BLOCK A1 GROUND LEVEL
22-30 RIFLE RANGE ROAD SOUTH WINDSOR NSW 2756

Catholic Education Diocese of Parramatta

ASSEMBLY AREA

On site: Follow the evacuation signs to the middle of the oval.
Secondary on site: Car park located between the Administration Building and the Hall.
Primary off site: Chisholm Catholic primary school oval.

EVACUATION PROCEDURES

ON THE SOUNDING OF THE EVACUATION TONE, A BELL OR VERBAL DIRECTION FROM A WARDEN

Stop what you are doing and evacuate the building via the nearest, safe emergency exit and proceed directly to the Assembly Area

Do not re-enter the building until advised it is 'All Clear' by the Chief Warden and/or the Emergency Services

LOCKDOWN PROCEDURES

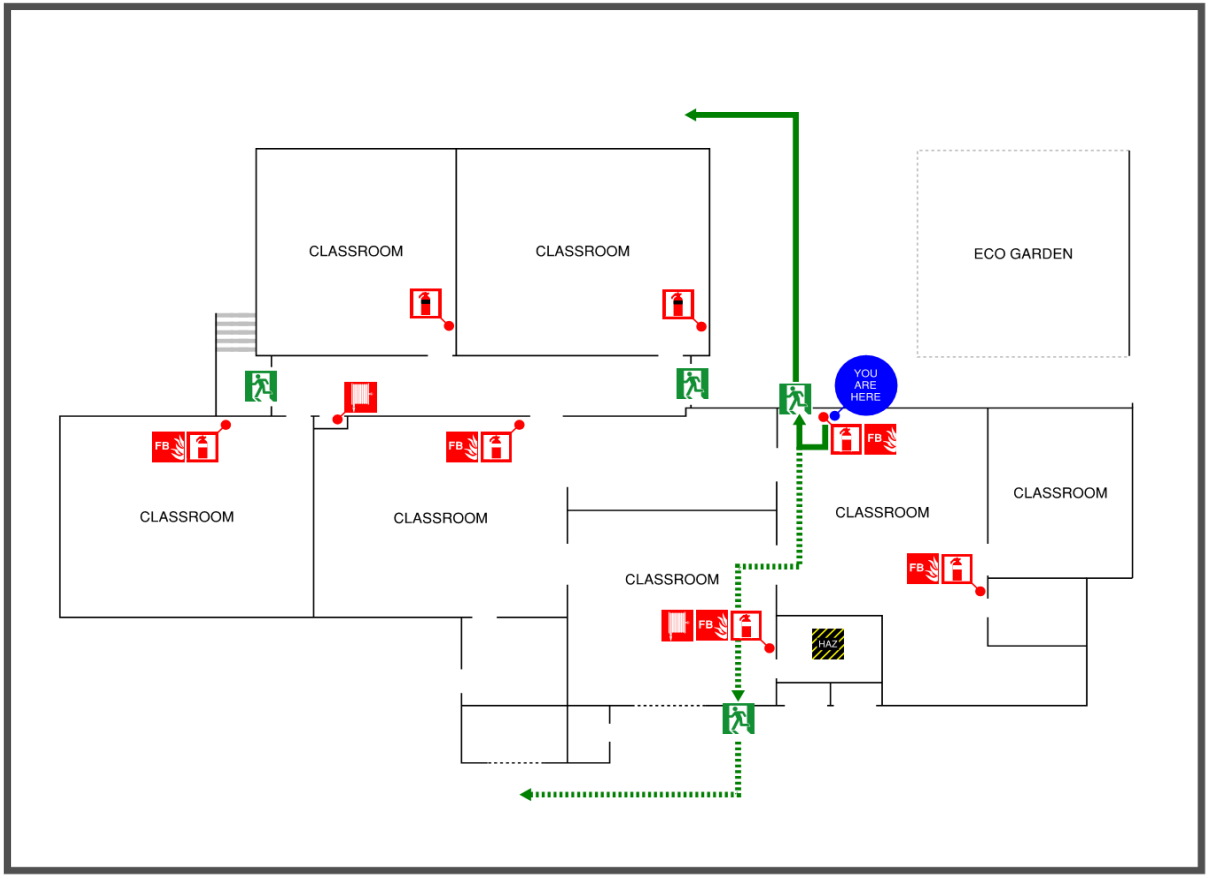
ON THE SOUNDING OF THE LOCKDOWN ALERT TONE OR VERBAL DIRECTION FROM A WARDEN

Remain calm and follow directions of Wardens and Educators to shelter in place.

Move to designated refuge area as directed if appropriate and remain there until advised by the Chief Warden and/or Emergency Services that it is 'All Clear'.

LEGEND

- Exit
- Fire Blanket
- Fire Hose Reel
- Evacuation route
- Hazardous storage
- Powder Extinguisher
- CO2 Extinguisher
- Alternate route



WORKPLACE EMERGENCY MANAGEMENT

ISSUE DATE: May 2019 **VALID TO**: May 2024 **Ref.22105**
Web: **www.workplaceem.com.au** Phone: **1300 831 694** Specialising in: **Evacuation Diagrams ~ Emergency Plans ~ Fire & Emergency Training**

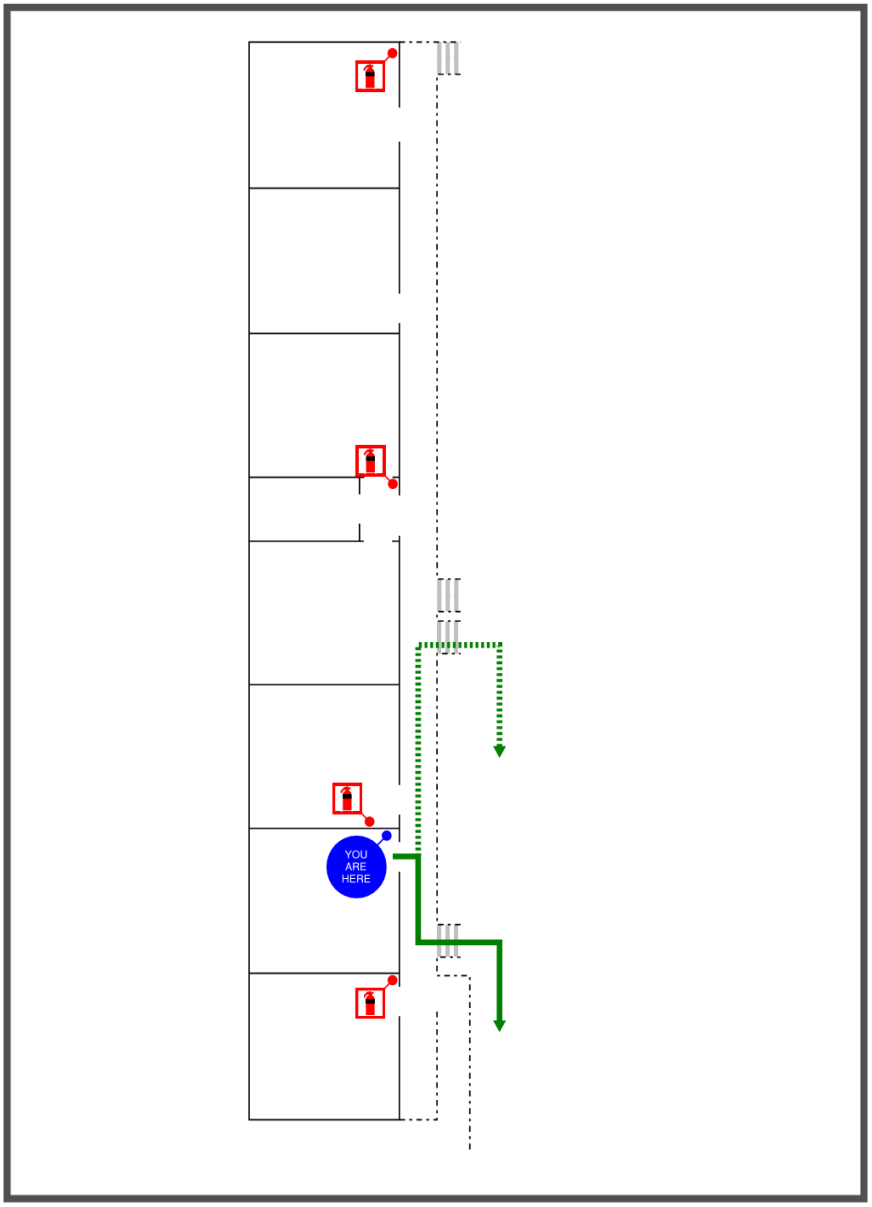
EVACUATION DIAGRAM

BEDE POLDING COLLEGE - BLOCK B GROUND LEVEL
22-30 RIFLE RANGE ROAD SOUTH WINDSOR NSW 2756

Catholic Education Diocese of Parramatta

LEGEND

- Exit
- CO2 Extinguisher
- Evacuation route
- Alternate route



ASSEMBLY AREA

On site: Follow the evacuation signs to the middle of the oval.
Secondary on site: Car park located between the Administration Building and the Hall.
Primary off site: Chisholm Catholic primary school oval.

LOCKDOWN PROCEDURES

ON THE SOUNDING OF THE LOCKDOWN ALERT TONE OR VERBAL DIRECTION FROM A WARDEN

Remain calm and follow directions of Wardens and Educators to shelter in place.

Move to designated refuge area as directed if appropriate and remain there until advised by the Chief Warden and/or Emergency Services that it is 'All Clear'.

EVACUATION PROCEDURES

ON THE SOUNDING OF THE EVACUATION TONE, A BELL OR VERBAL DIRECTION FROM A WARDEN

Stop what you are doing and evacuate the building via the nearest, safe emergency exit and proceed directly to the Assembly Area

Do not re-enter the building until advised it is 'All Clear' by the Chief Warden and/or the Emergency Services

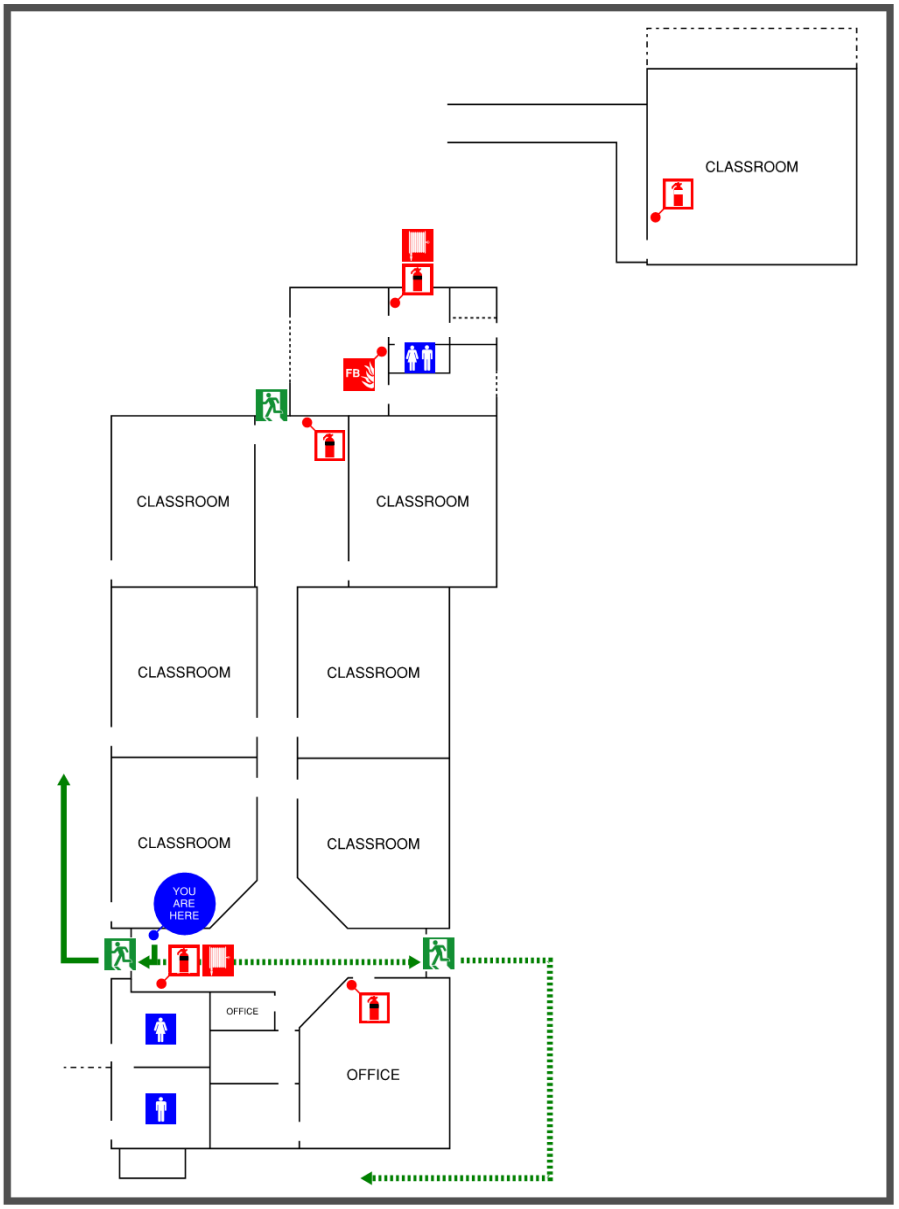
EVACUATION DIAGRAM

BEDE POLDING COLLEGE - BLOCK C GROUND LEVEL
22-30 RIFLE RANGE ROAD SOUTH WINDSOR NSW 2756

Catholic Education Diocese of Parramatta

LEGEND

- Exit
- CO2 Extinguisher
- Powder Extinguisher
- Fire Blanket
- Fire Hose Reel
- Evacuation route
- Alternate route



ASSEMBLY AREA

On site: Follow the evacuation signs to the middle of the oval.
Secondary on site: Car park located between the Administration Building and the Hall.
Primary off site: Chisholm Catholic primary school oval.

LOCKDOWN PROCEDURES

ON THE SOUNDING OF THE LOCKDOWN ALERT TONE OR VERBAL DIRECTION FROM A WARDEN

Remain calm and follow directions of Wardens and Educators to shelter in place.

Move to designated refuge area as directed if appropriate and remain there until advised by the Chief Warden and/or Emergency Services that it is 'All Clear'.

EVACUATION PROCEDURES

ON THE SOUNDING OF THE EVACUATION TONE, A BELL OR VERBAL DIRECTION FROM A WARDEN

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Do not re-enter the building until advised it is 'All Clear' by the Chief Warden and/or the Emergency Services

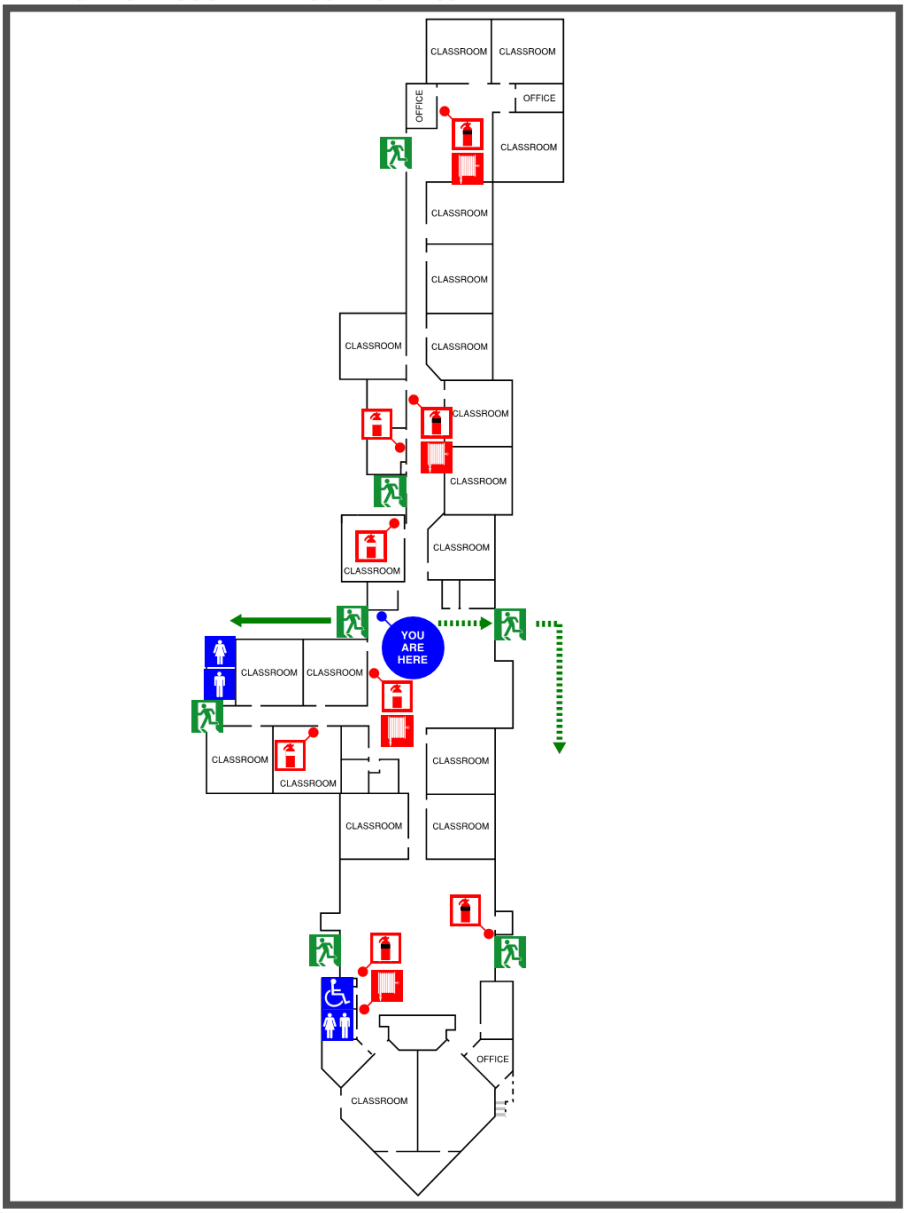
EVACUATION DIAGRAM

Catholic Education Diocese of Parramatta

BEDE POLDING COLLEGE - BLOCK D GROUND LEVEL
22-30 RIFLE RANGE ROAD SOUTH WINDSOR NSW 2756

LEGEND

- Exit
- First Aid
- Powder Extinguisher
- CO2 Extinguisher
- Fire Hose Reel
- Evacuation route
- Alternate route



ASSEMBLY AREA

On site: Follow the evacuation signs to the middle of the oval.
Secondary on site: Car park located between the Administration Building and the Hall.
Primary off site: Chisholm Catholic primary school oval.

LOCKDOWN PROCEDURES

ON THE SOUNDING OF THE LOCKDOWN ALERT TONE OR VERBAL DIRECTION FROM A WARDEN

Remain calm and follow directions of Wardens and Educators to shelter in place.

Move to designated refuge area as directed if appropriate and remain there until advised by the Chief Warden and/or Emergency Services that it is 'All Clear'.

EVACUATION PROCEDURES

ON THE SOUNDING OF THE EVACUATION TONE, A BELL OR VERBAL DIRECTION FROM A WARDEN

Stop what you are doing and evacuate the building via the nearest, safe emergency exit and proceed directly to the Assembly Area

Do not re-enter the building until advised it is 'All Clear' by the Chief Warden and/or the Emergency Services

EVACUATION DIAGRAM

BEDE POLDING COLLEGE - BLOCK E GROUND LEVEL
22-30 RIFLE RANGE ROAD SOUTH WINDSOR NSW 2756

Catholic Education Diocese of Parramatta

ASSEMBLY AREA

On site: Follow the evacuation signs to the middle of the oval.
Secondary on site: Car park located between the Administration Building and the Hall.
Primary off site: Chisholm Catholic primary school oval.

EVACUATION PROCEDURES

ON THE SOUNDING OF THE EVACUATION TONE, A BELL OR VERBAL DIRECTION FROM A WARDEN

Stop what you are doing and evacuate the building via the nearest, safe emergency exit and proceed directly to the Assembly Area

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LOCKDOWN PROCEDURES

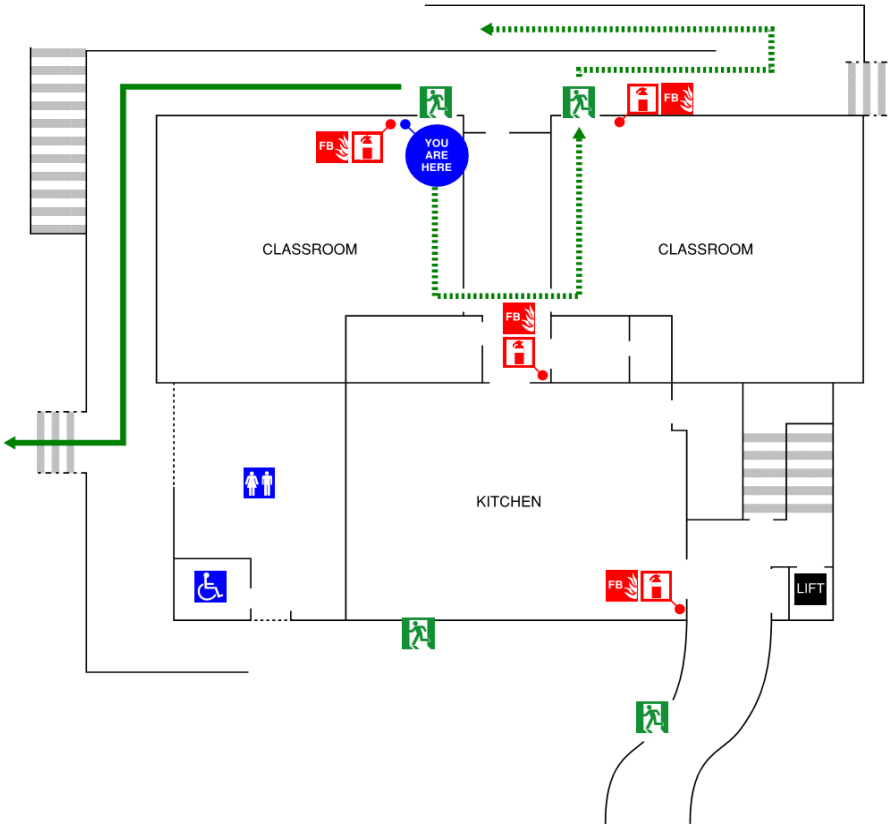
ON THE SOUNDING OF THE LOCKDOWN ALERT TONE OR VERBAL DIRECTION FROM A WARDEN

Remain calm and follow directions of Wardens and Educators to shelter in place.

Move to designated refuge area as directed if appropriate and remain there until advised by the Chief Warden and/or Emergency Services that it is 'All Clear'.

LEGEND

Exit
Powder Extinguisher
Fire Blanket
Evacuation route
Alternate route



WORKPLACE EMERGENCY MANAGEMENT

ISSUE DATE: May 2019 **VALID TO**: May 2024 **Ref.21907**
Web: **www.workplaceem.com.au** Phone: **1300 831 694** Specialising in: **Evacuation Diagrams ~ Emergency Plans ~ Fire & Emergency Training**

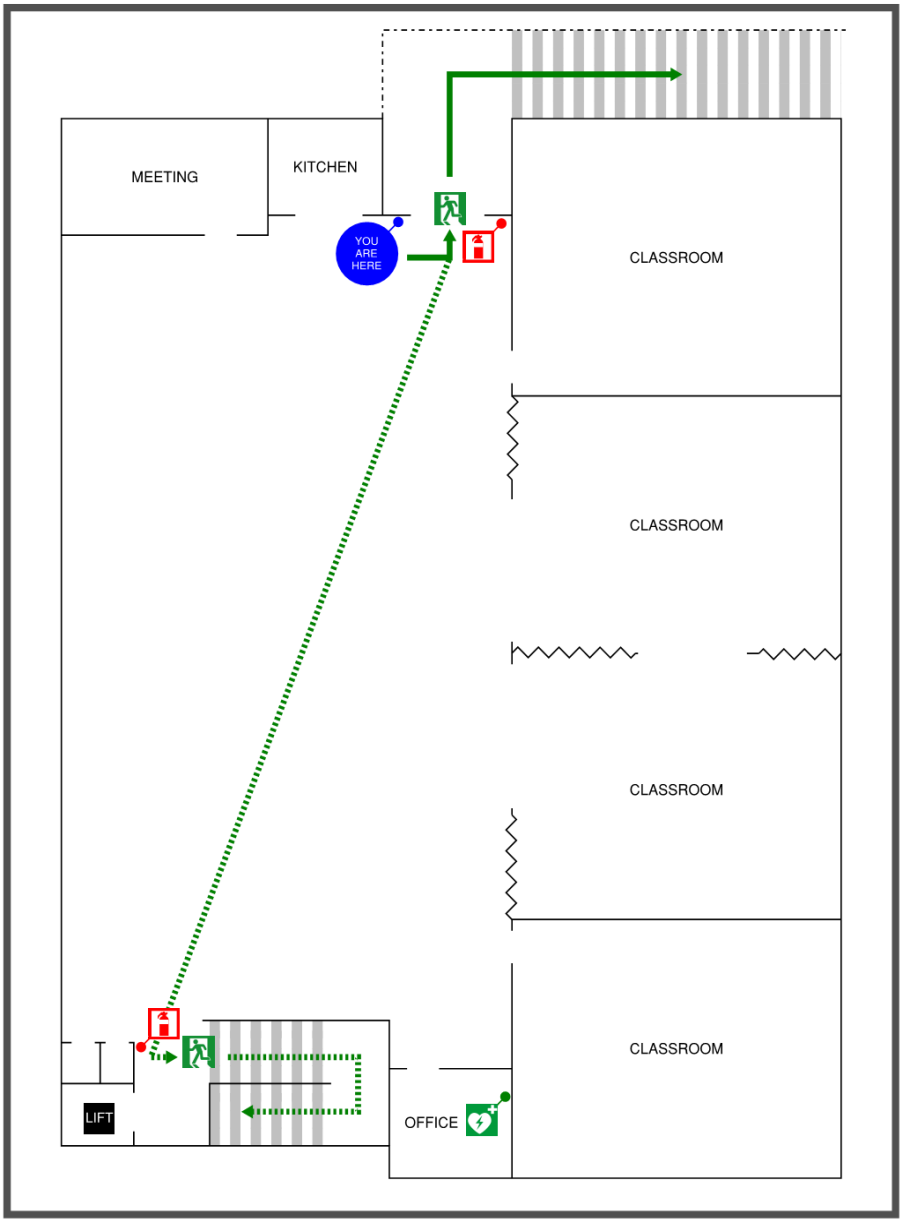
EVACUATION DIAGRAM

BEDE POLDING COLLEGE - BLOCK E LEVEL ONE
22-30 RIFLE RANGE ROAD SOUTH WINDSOR NSW 2756

Catholic Education
Diocese of Parramatta

LEGEND

- Exit
- Powder Extinguisher
- AED
- Evacuation route
- Alternate route



ASSEMBLY AREA

On site: Follow the evacuation signs to the middle of the oval.
Secondary on site: Car park located between the Administration Building and the Hall.
Primary off site: Chisholm Catholic primary school oval.

WORKPLACE EMERGENCY MANAGEMENT

ISSUE DATE: May 2019
VALID TO: May 2024
Ref.22115

Web: **www.workplaceem.com.au** Phone: **1300 831 694**
Specialising in: **Evacuation Diagrams Emergency Plans Fire & Emergency Training**

LOCKDOWN PROCEDURES

ON THE SOUNDING OF THE LOCKDOWN ALERT TONE OR VERBAL DIRECTION FROM A WARDEN

Remain calm and follow directions of Wardens and Educators to shelter in place.

Move to designated refuge area as directed if appropriate and remain there until advised by the Chief Warden and/or Emergency Services that it is 'All Clear'.

EVACUATION PROCEDURES

ON THE SOUNDING OF THE EVACUATION TONE, A BELL OR VERBAL DIRECTION FROM A WARDEN

Stop what you are doing and evacuate the building via the nearest, safe emergency exit and proceed directly to the Assembly Area

Do not re-enter the building until advised it is 'All Clear' by the Chief Warden and/or the Emergency Services

EVACUATION DIAGRAM

BEDE POLDING COLLEGE - BLOCK S GROUND LEVEL
22-30 RIFLE RANGE ROAD SOUTH WINDSOR NSW 2756

Catholic Education Diocese of Parramatta

ASSEMBLY AREA

On site: Follow the evacuation signs to the middle of the oval.
Secondary on site: Car park located between the Administration Building and the Hall.
Primary off site: Chisholm Catholic primary school oval.

EVACUATION PROCEDURES

ON THE SOUNDING OF THE EVACUATION TONE, A BELL OR VERBAL DIRECTION FROM A WARDEN

Stop what you are doing and evacuate the building via the nearest, safe emergency exit and proceed directly to the Assembly Area

Do not re-enter the building until advised it is 'All Clear' by the Chief Warden and/or the Emergency Services

LOCKDOWN PROCEDURES

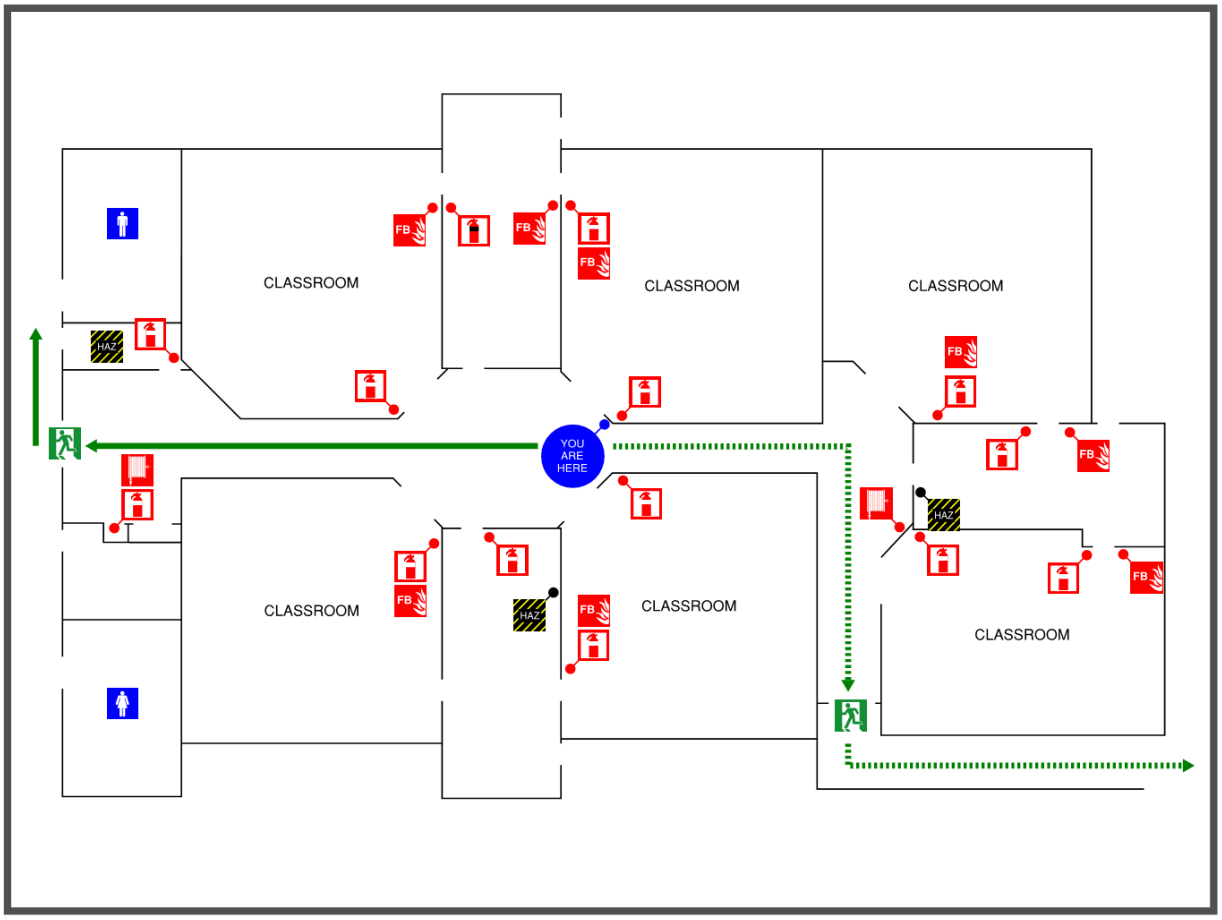
ON THE SOUNDING OF THE LOCKDOWN ALERT TONE OR VERBAL DIRECTION FROM A WARDEN

Remain calm and follow directions of Wardens and Educators to shelter in place.

Move to designated refuge area as directed if appropriate and remain there until advised by the Chief Warden and/or Emergency Services that it is 'All Clear'.

LEGEND

- Exit
- CO2 Extinguisher
- Fire Blanket
- Evacuation route
- Fire Hose Reel
- Powder Extinguisher
- Hazardous storage
- Alternate route



WORKPLACE EMERGENCY MANAGEMENT

ISSUE DATE: May 2019 **VALID TO**: May 2024 **Ref.22114**

Web: **www.workplaceem.com.au** Phone: **1300 831 694** Specialising in: **Evacuation Diagrams ~ Emergency Plans ~ Fire & Emergency Training**

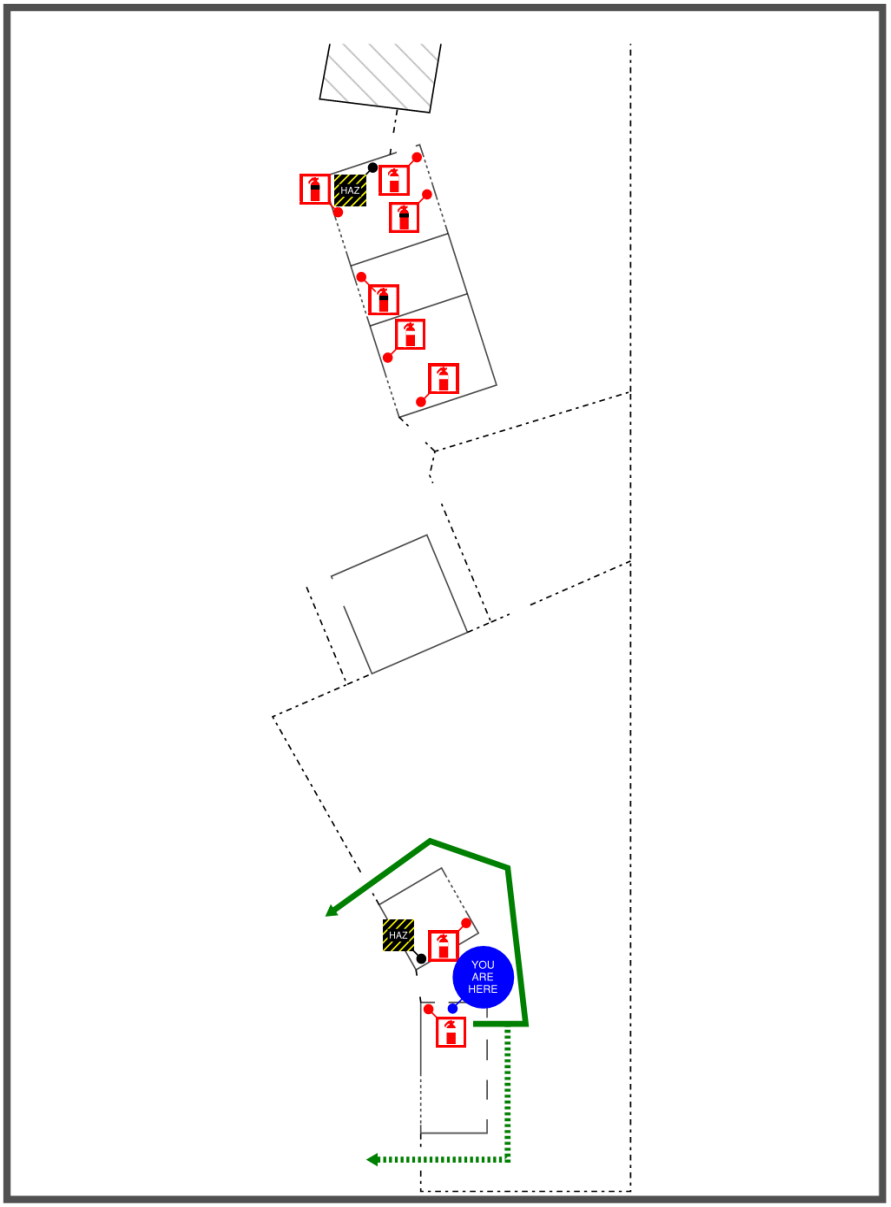
EVACUATION DIAGRAM

BEDE POLDING COLLEGE - AGRICULTURE BLOCK
22-30 RIFLE RANGE ROAD SOUTH WINDSOR NSW 2756

Catholic Education
Diocese of Parramatta

LEGEND

- Exit
- Hazardous storage
- Powder Extinguisher
- CO2 Extinguisher
- Evacuation route
- Alternate route



ASSEMBLY AREA

On site: Follow the evacuation signs to the middle of the oval.
Secondary on site: Car park located between the Administration Building and the Hall.
Primary off site: Chisholm Catholic primary school oval.

LOCKDOWN PROCEDURES

ON THE SOUNDING OF THE LOCKDOWN ALERT TONE OR VERBAL DIRECTION FROM A WARDEN

Remain calm and follow directions of Wardens and Educators to shelter in place.

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EVACUATION PROCEDURES

ON THE SOUNDING OF THE EVACUATION TONE, A BELL OR VERBAL DIRECTION FROM A WARDEN

Stop what you are doing and evacuate the building via the nearest, safe emergency exit and proceed directly to the Assembly Area

Do not re-enter the building until advised it is 'All Clear' by the Chief Warden and/or the Emergency Services

WORKPLACE EMERGENCY MANAGEMENT

ISSUE DATE: May 2019
VALID TO: May 2024
Ref.21925

Web: **www.workplaceem.com.au** Phone: **1300 831 694**
Specialising in: **Evacuation Diagrams** **Emergency Plans**
Fire & Emergency Training

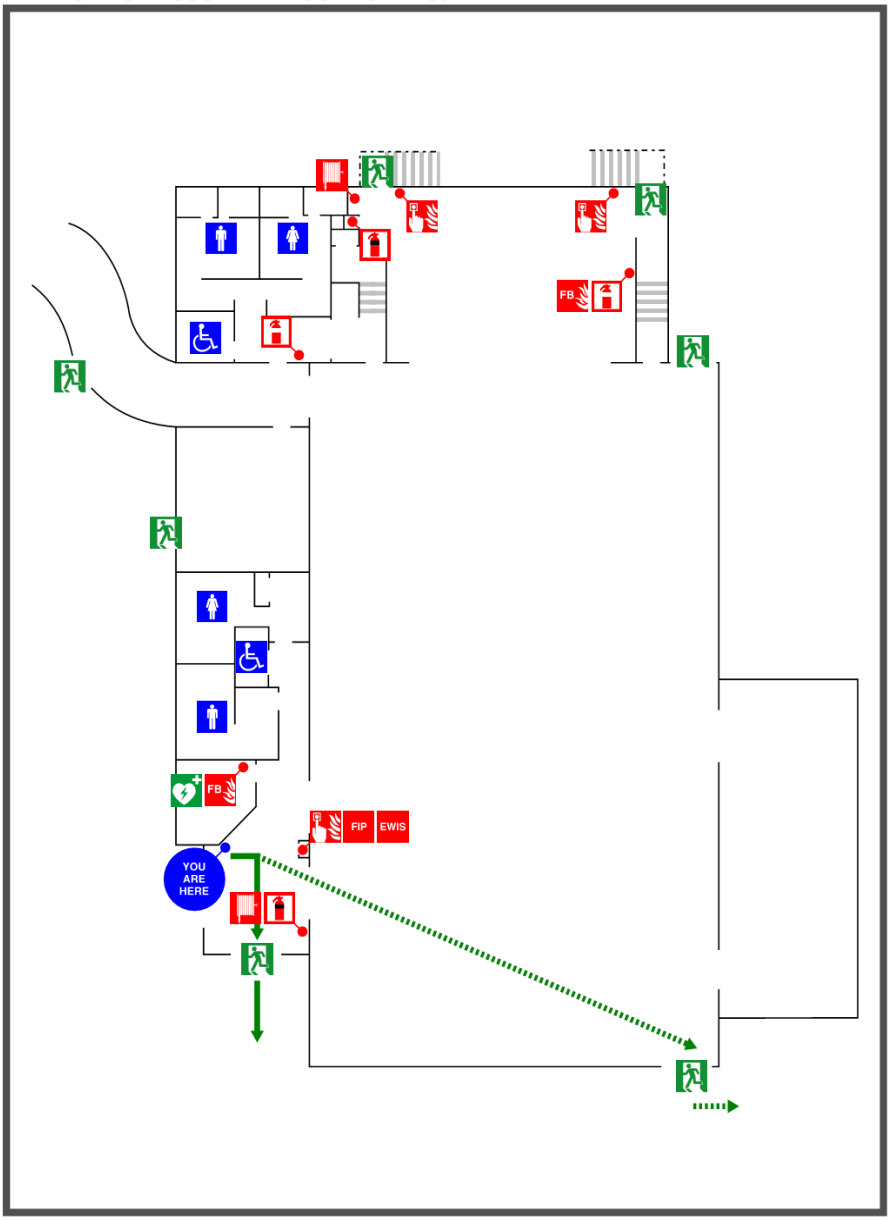
EVACUATION DIAGRAM

Catholic Education
Diocese of Parramatta

BEDE POLDING COLLEGE - HALL GROUND LEVEL
22-30 RIFLE RANGE ROAD SOUTH WINDSOR NSW 2756

LEGEND

- Exit
- AED
- Fire Blanket
- Powder Extinguisher
- CO2 Extinguisher
- Fire Hose Reel
- Emergency Warning System
- Manual Call Point
- Fire Indicator Panel
- Evacuation route
- Alternate route



ASSEMBLY AREA

On site: Follow the evacuation signs to the middle of the oval.
Secondary on site: Car park located between the Administration Building and the Hall.
Primary off site: Chisholm Catholic primary school oval.

LOCKDOWN PROCEDURES

ON THE SOUNDING OF THE LOCKDOWN ALERT TONE OR VERBAL DIRECTION FROM A WARDEN

Remain calm and follow directions of Wardens and Educators to shelter in place.

Move to designated refuge area as directed if appropriate and remain there until advised by the Chief Warden and/or Emergency Services that it is 'All Clear'.

EVACUATION PROCEDURES

ON THE SOUNDING OF THE EVACUATION TONE, A BELL OR VERBAL DIRECTION FROM A WARDEN

Stop what you are doing and evacuate the building via the nearest, safe emergency exit and proceed directly to the Assembly Area

Do not re-enter the building until advised it is 'All Clear' by the Chief Warden and/or the Emergency Services

EVACUATION DIAGRAM

BEDE POLDING COLLEGE - LIBRARY GROUND LEVEL
22-30 RIFLE RANGE ROAD SOUTH WINDSOR NSW 2756

Catholic Education
Diocese of Parramatta

ASSEMBLY AREA

On site: Follow the evacuation signs to the middle of the oval.
Secondary on site: Car park located between the Administration Building and the Hall.
Primary off site: Chisholm Catholic primary school oval.

EVACUATION PROCEDURES

ON THE SOUNDING OF THE EVACUATION TONE, A BELL OR VERBAL DIRECTION FROM A WARDEN

Stop what you are doing and evacuate the building via the nearest, safe emergency exit and proceed directly to the Assembly Area

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LOCKDOWN PROCEDURES

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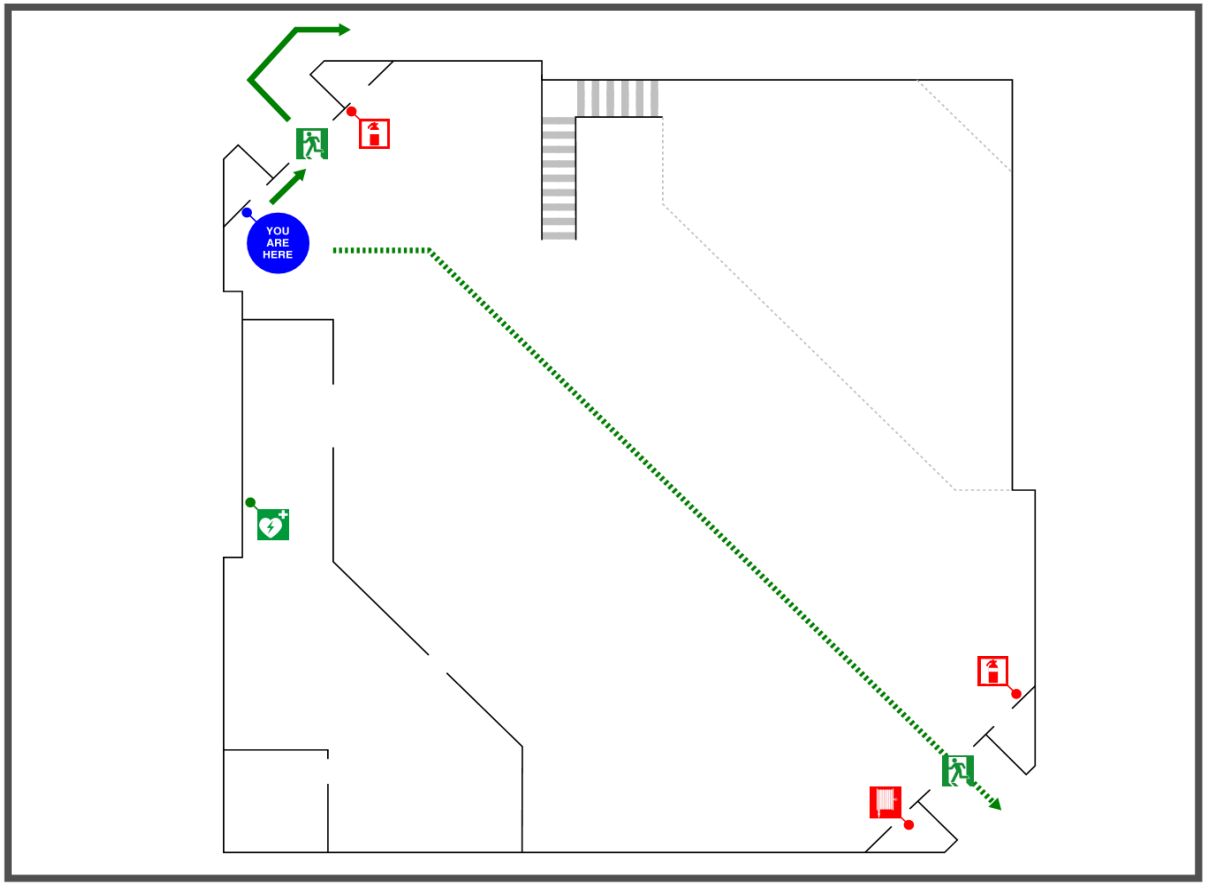
Remain calm and follow directions of Wardens and Educators to shelter in place.

Move to designated refuge area as directed if appropriate and remain there until advised by the Chief Warden and/or Emergency Services that it is 'All Clear'.

LEGEND

- Exit
- AED
- Fire Hose Reel
- Powder Extinguisher
- Evacuation route
- Alternate route



WORKPLACE EMERGENCY MANAGEMENT

ISSUE DATE: May 2019 **VALID TO**: May 2024 **Ref.** 21918
Web: **www.workplaceem.com.au** Phone: **1300 831 694** Specialising in: **Evacuation Diagrams ~ Emergency Plans ~ Fire & Emergency Training**

7. Response Plan: Lockdown, Lockout, Evacuate and Specific Emergency Responses

1 Determining the type of Emergency

The Emergency procedures sets out pre-arranged responses for staff, should the need arise for Shelter in Place, Lockdown, Emergency Assembly, Off-site Evacuation and Lockout.

The possible situations that could arise are as follows:

- Intruder / Hold-up / Assault
- Bomb threats / suspect devices
- Hazardous Materials / Chemical spill
- Explosions
- Fire
- Flood
- Fume / Vapour or gas leaks
- Severe Storm / High winds
- Structural failure

2 Determining the Magnitude of the Emergency

It is the responsibility of all staff to make the Principal aware of any potential emergency as soon as it becomes known to them.

School emergencies can be categorised in terms of magnitude. Identifying the magnitude of an emergency will determine the allocation of resources. Three levels of emergency are described below.

- **Internal**: An emergency handled by College personnel without assistance from outside services. Examples include: temporary power outage and/or animal disturbances.
- **External *support*:** A moderate to severe emergency in most cases is handled by College personnel with the assistance from outside agencies (e.g., police, fire, rural fire brigade, ambulance). Examples include fires on the College grounds and acts of violence.
- **External *management*:** A major disaster that College personnel cannot handle without the management of outside services. Examples include major bushfires.

3 Determine Immediate Response Actions

There are four primary emergency responses which require specific procedures. These are Sit and Stay, Lockdown, Emergency Evacuation, Offsite evacuation and Lockout.

- *Sit and stay* occurs when students and staff must remain in a school building for extended periods of time during an event such as a chemical spill or terrorist attack. This means students stay inside in the place where they are when the alarm sounds.
- A *lockdown* takes place when there is an immediate threat of violence or danger on the College grounds. This means students stay inside in the place (locked rooms) where they are when the alarm sounds.

- An *emergency* evacuation (on site) occurs when it is safer to bring the College together in the Emergency Assembly Area (College Ovals).
- *Off-site evacuation* is likely when being on the school grounds is not safe and evacuation from the premises is preferable. Off-site evacuation is usually advised by an external combat agency.
- In the event of a potential off site threat notified to the College, the Principal will invoke *lockout procedures.*

Lockdown and Lockout Response Steps

Guidelines and Procedures for Lockdown and Lockout

Lockdown:

- Is a procedure used when there is an immediate threat to the school e.g. School intruders, severe storms, gas leaks and chemical spills.

- Minimises access to the school and secures staff, students and visitors in rooms.

- This procedure requires everyone to remain in their room until the situation has been declared safe by an authorised person e.g. Principal or Police Officer.

Lockout:

- Is a procedure which prevents unauthorised persons from entering the school and is commonly used when the threat is general or the incident is occurring off the school property e.g. a Police operation is in progress in the vicinity.

- This procedure allows for school activities to continue as normal during the outside disruption.

Summary

Lockdown - V - Lockout

Intruders on premises - V - Curtailment of trespassers

Guidelines for Lockdown – Normal Class Time

Decisions made that the type/magnitude of the emergency determine that being indoors would provide a greater level of protection to staff and students.

Alarm: Emergency bell and AP announcement on loudspeaker.

Description of action (inside): Students, staff and visitors remain inside, lock windows and doors. Pull down blinds, sit on floor, hide under desks if possible and away from view (if possible). Area LOLs are in charge. No-one goes outside for any reason.

Description of action (outside): Move class to nearest supervised classroom and once inside follow the description of action (inside). If on oval, move to Computer Rooms 1 & 2 with own class teacher. If in Ag plot, move to Ag Room.

Instructions:

- The person who first becomes aware of the danger should notify the Principal or in his absence the Executive Leadership Team, of the emergency by any safe means possible.
- The Principal or in his absence the Executive Leadership Team, and the AP will ring emergency alarm and make announcement on loudspeaker.
- The Principal or AP in his absence, take control of the situation and will contact the Emergency services (if the notification was internal).
- Staff on class to quiet students to listen to AP announcement in regards to the nature of the alarm and that further instructions as to what action to take will be forthcoming.
    - Staff will be advised on the nature of the emergency and instructions to proceed by some or all of the following:
    - Information from Area Warden
    - College Loudspeakers
- Individuals or small groups absent from class (i.e. toilet); check safety of route and then go to the nearest classroom.
- Teachers are to take a class roll.

Guidelines for Lockdown – Outside Normal Class Time

- Proceed immediately to homeroom classes.
- Teaching staff to accompany students to their homeroom, staff not on homeroom gather in the lunchroom.
- Support staff proceed immediately to their normal workspace
- Ground staff proceed immediately to the Business Manager's office.
- Visitors proceed immediately to reception.
- Staff and students to turn mobile devices to silent.

Securing classrooms and workspaces

- Lock ALL doors and windows

- Close any blinds
    - Students should be closely supervised in silence under desks and/or around walls inside rooms. Lights should be turned off. Because of varied conditions in rooms, staff should exercise discretion to determine and advise the safest locations in rooms.
    - Staff in administration areas should seek shelter in protected offices.
    - Remain in Lockdown until AP announcement to Stand down

Stand down

- Remain in rooms until directed to unlock/leave by the AP announcement and/or an Executive Leadership team member or Area Warden comes to the door, announces their name, position, asks to unlock the door and declares all is safe.

Emergency Lockdown Script

Bede Polding College is now in an EMERGENCY LOCKDOWN.

All students and teachers outside classrooms move to their homeroom classrooms immediately.

Students in toilets, return to the closest class immediately

Lock all doors, turn off lights, pull down blinds, sit on floor, hide under desks if possible and remain quiet.

Teachers ensure electronic class rolls were taken at the start of the lesson, check students are all accounted for.

Staff in staff areas go to lockdown space in lunchroom.

No one is to leave rooms during lockdown. Area Wardens please ensure lockdown is in place.

Guideline for Lockout

In the event that a potential off-site threat is notified to the school:

Front office notifies Principal (Incident Controller) of the potential threat.

Designated staff members (maintenance team or executive staff) are informed using mobile phones

All school access gates are to be closed and secured.

If necessary, the Principal should direct students who are outdoors (using the PA system or other methods) to immediately return to the nearest school building or their homeroom in the event that the threat is notified outside of lesson times. In this instance staff will be required to supervise students in their homerooms.

The Principal should ensure that all staff and students are accounted for and safe.

The only entrance to the school during this phase should be through the main entrance which is to be monitored to ensure only authorised personnel have access.

Everybody should remain within the school perimeter until the situation has been declared safe by an authorised person e.g. Principal or Police Officer.

The Principal liaises with the Police or other emergency services to develop and implement a plan for students to depart at the end of the school day if the incident is still continuing.

Emergency Evacuation Response Steps

Guidelines and Procedures for Evacuation

Evacuation:

- This may be the appropriate response when it is determined that students, staff and visitors are safer away from the buildings (more than 150 metres distance) or away from the school grounds. Examples of this type of emergency may include internal fires, gas leaks, chemical spills, bomb threats and floods.

Considerations/Requirements

- Evacuation site requirements include: access to shelter, water or drinks, toilets, possibly food, adequate vehicular access and parking.
- Consideration has to be given to the external evacuation route e.g. the dangers of crossing roads.
- Consideration may need to be given to student responses to the emergency.
- Students may need to be discharged and collected by parents from the evacuation point.
- Bear in mind that students should not be considered safe until they are in the care of their family.

Roles and Responsibilities in an Emergency Evacuation

The primary role of the Principal is to ensure that life safety takes precedence over asset protection.

Each staff member in the College shall have clearly defined duties and responsibilities.

Principal

- On becoming aware of an emergency the Principal will proceed to the Principal's Office which is the Emergency Control Point.
- The Principal may be notified by staff, student or outside person of the emergency.
- Notify emergency services
- Meet Executive Leadership Team in Principal's Office and provide instruction on the nature of the emergency and advise action (AP will tick off attendance).
- Advise Wardens and people with key responsibilities that emergency has been declared
- Delegate that AP sounds the emergency alarm and makes announcement to all people at the College.
- Ensure all visitors to the College are aware of the emergency and are following instructions
- Delegate that Business Manager and Groundsmen shut/man the front gate together (depending on the emergency) and that no more people arrive on site.
- Assume control until Emergency Services arrive and take control

- Brief Emergency Services personnel upon their arrival on the:
    - type
    - extent
    - location
    - status of emergency
    - staff & student location
    - numbers of staff, students and visitors on site
    - any known casualties or any known medical issues
    - The location of the Fire Service panel and Chemical Register. (Business Manager to brief).
- Collect 4 information packs for Emergency Services (College Map & BPC Emergency Evacuation Plan / Policy)
- Remain at Emergency Control Point to assist and liaise with Executive Leadership Team/Key Staff and Emergency services personnel
- Establish an area for visitors.
- Instruct AP to give 'all clear' or 'stand down' notice if appropriate.

Evacuation Off site

- Lead evacuation procedure, delegating to appropriate Executive Leadership Team/Key Staff.
- Last to leave site after confirming all students, staff and visitors are off site.
- **Chief Spokesperson to Media (see Media Policy)**

Assistant Principal

The Assistant Principal shall assume the responsibilities normally carried out by the Principal if the Principal is unavailable, and otherwise assist/follow Principal instructions and delegate as required.

Getting to the muster area

Tasks for Support Staff and Executive members

Principal's PA or Assistant Principal rings the emergency services and collects a copy of the Emergency Evacuation Plan for use at the muster area. Places a sign on the front door to notify visitors that a drill is in progress.

College Receptionist meets the emergency services and directs them to the site of the emergency.

Front Office Secretary collects a phone, First Aid Kit, Epi-Pen, Defibrillator and Asthma Kit and takes them to the muster area. (Please wear a fluorescent vest at the muster area)

Attendance Secretary prints the Evacuation Report Sheets for GEM Groups, collates the sheets into Year Groups and takes these to the muster area for issue to Leaders of Wellbeing. Also collects pens and takes them to the muster area. (Jenny to wear a fluorescent vest at muster area)

Sick Bay Attendants assist any students currently in the sick bay to reach the muster area. (Front Office Attendant is the back-up staff member for this task). **Please note:** The names of students in sick bay need to be given to Year Coordinators at the muster area.

College Bursar collects an air-horn and takes it to the muster area.

Groundsman (YF) unlocks access gates to the oval (Rifle Range Road side of the school) and the gates near the maintenance shed. Also ensures that a golf cart is brought to the muster area.

Groundsman (RK) unlocks the gates on the bridge leading to the hall, car park sliding gate and gate on ramp leading to the print room. Checks and locks the 'E' Block toilets.

Groundsman (KR) unlocks doors and gates on the Tasman Place side of the school.
After the drill, checks that all external gates and appropriate internal gates are locked.

Administration Assistant collects a copy of the Daily Extras sheet and gives this to the Director of Learning and Administration at the muster area. Also notifies Business Manager about other absent staff.

Canteen Manager opens the electric gate on the Tasman Place driveway.

College Business Manager collects the staff sign-out book and student teacher sign-in book, checks app for visitor register and provides relevant information/items to the Director of Learning and Administration at the muster area. Also opens the sliding gate outside the student foyer.

Assistant Principal directs, and assists where necessary, any students who are currently in the student foyer area when the alarm sounds. Assistance may also be required for those students in sick bay.

Director of Learning and Innovation completes tasks of absent support staff or executive members. Directs any visitors to the muster area.

Teachers on class - Instructions for students

When the **evacuation SIREN** sounds – Students should **MOVE** from the classroom in an orderly fashion – row by row, quietly and quickly. **DO NOT RUN** - **DO NOT** take bags or equipment - **DO NOT** go to GEM Group rooms - **DO** shut doors.

Please instruct students to proceed directly to the designated muster area via the routes indicated on the evacuation maps, located near the exit points of buildings. Directing students to use the extremities of the College as the preferred route to the muster area would be advisable.

Ensure that no student remains in the classroom or corridor. You should then follow your class to the muster area.

If you have a special role to perform as part of the evacuation drill and you are in class when the alarm sounds, please **direct** your class to the muster area **but do not accompany** them. You should then immediately proceed to carry out your assigned duty. If your role requires you to check a building but there is an element of risk, please exercise due caution. **DO NOT** put yourself or others at risk under any circumstances. Please **lock** your area after checking it.

Upon arriving at the Muster Area, students are to immediately proceed to the area designated for their Year Group and assemble alphabetically according to GEM groups and sit down.

EVACUATION REPORT SHEETS will then be marked in each GEM Group.
Students are to remain in these areas until given further instructions.

All other staff, visitors, etc.

Proceed to the muster area unless you are a staff member who has a special role. These staff should firstly perform their duties. For staff members who are required to check a designated area – **don't do this if the building is involved in the emergency**. Please **LOCK** areas after checking where possible.

All Staff

Unlock any gates that may be blocking access to the muster area.
Please note: In the event that you did a GEM Group as an extra duty, you will then, in most cases, be required to do the Evacuation Report Sheet for that class during the evacuation drill.
Following the drill: Please re-open toilets blocks and lock any external gates that may have been opened for the drill.

At the Muster Area

GEM Mentors / Support Staff

- ⇒ collect your GEM Group sign from your Leader of Wellbeing or nominated support person
- ⇒ move to the area designated for your Year Group and hold up your GEM Group sign so that students will know where to congregate
- ⇒ get your GEM Group to sit in one line alphabetically
- ⇒ insist on cooperation and ensure students remain quiet for further instructions
- ⇒ mark the Evacuation Report Sheet issued to you by your Leader of Wellbeing or Attendance Secretary / other support staff
- ⇒ a student is 'unaccounted for IF THEY ARE NOT PHYSICALLY PRESENT WHEN YOU ARE TAKING THE ROLL DURING THE DRILL. Please note: Even if you know they are absent for the whole day, still mark them as absent (Unaccounted for) on the roll.
- ⇒ report any 'unaccounted for' students to your Leader of Wellbeing
- ⇒ give the marked Evacuation Report Sheet for your GEM Group to your Leader of Wellbeing
- ⇒ go back to your GEM Group and remain with them

Leaders of Wellbeing (if away, nominated support person from Year group should do this)

- ⇒ get the GEM Group signs for your Year Group from the plastic sleeve attached to your Year Group Sign and distribute these to GEM Group teachers
- ⇒ organise your GEM Groups in order within the designated area
- ⇒ collect the Evacuation Report Sheets from Attendance Secretary or other support staff and distribute them to your GEM Mentors
- ⇒ ensure the Evacuation Report Sheet is marked accurately for each homeroom
- ⇒ collect the Evacuation Report Sheets from the GEM Mentors
- ⇒ check with sick bay staff for students who may be in their care
- ⇒ **after reviewing the** Evacuation Report Sheets for discrepancies, return all sheets to Attendance Secretary or other ancillary staff

- ⇒ **any students identified as being 'unaccounted for', ARE TO BE REPORTED BY YOU TO THE ASSISTANT PRINCIPAL (Harry F / Ed Gruppetta)**
- ⇒ **ensure you have all members of your year team present including support staff. REPORT ANY MISSING STAFF MEMBERS TO THE ASSISTANT PRINCIPAL (Harry F / Ed Gruppetta)**
- ⇒ **regardless of absences <u>YOU MUST</u> report to the Assistant Principal (Harry F / Ed Gruppetta)**
- ⇒ collect GEM Group signs and place them back in the plastic sleeve. (Front Office Secretary will ensure that the signs are re-organised into the correct GEM Group order).

<u>Staff Responsible for Checking Areas</u>

- ⇒ report to the Business Manager (Paul Cruise) following the inspection of your designated area

<u>Other Teachers (includes casual teachers, student teachers and visitors)</u>

- ⇒ report to the Director of Learning and Administration (Paul Samoluk) who will report to the Director of Learning and Innovation (Angela McEnearney)

<u>Support Staff</u>

- ⇒ report to Library Assistant (Julie Young) who will report to the Director of Learning and Innovation (Angela McEnearney)

<u>Canteen Ladies</u>

- ⇒ with Canteen Manager report to Library Assistant who will report to the Director of Learning and Innovation (Angela McEnearney)

<u>Director of Learning and Innovation</u>

- ⇒ **if staff members, etc, are reported as missing, report this to the Principal**

<u>Assistant Principal</u>

- ⇒ reconcile Evacuation Roll Sheets in consultation with ancillary staff and Leaders of Wellbeing
- ⇒ **if staff members or students are reported as missing, report this to the Principal**

<u>Business Manager</u>

- ⇒ assign staff to inspect areas that remain unchecked
- ⇒ report any issues from designated area inspections to the Principal

<u>Principal</u>

- ⇒ receives reports from Assistant Principals, Leader of Learning & Innovation and Business Manager
- ⇒ liaises with Emergency Services present at the time

⇒ announces ‘All Clear’ when appropriate (The air-horn will be sounded to signal ‘All Clear’)

⇒ students released in Year groups with staff currently teaching that cohort

Leaders of Wellbeing

⇒ dismiss students in an orderly fashion – students return to normal lessons

⇒ all staff return to classes or other duties (teachers should leave the muster area with the Year Group they are teaching)

Emergency Evacuation Checklists

Library Assistant (Julie Young) – Support Staff Check List

Kerrie Brownscombe
Michael Catay
Maria Caloia
Nicole Cannon
Majella Cutts
Tanya Eastaway
Julie Finn
Yorg Fischer
Rebecca Hurdis / Debbie Raicevich
Jason Johnson
Natalie Jones
Robert Kroon
Lusy Luk
Deanna Melbin
Anita Mullen
Lisa Psathas (Canteen)
Therese Poole
Belinda Ross
Keith Round
Linda Shepherd
Colleen Vassallo
Jenny Vella
Other canteen and uniform shop assistants
Other office and library assistants

Director of Learning & Administration (Paul Samoluk) - Staff Check List

Patrick Carroll
Jacinta Doulton
Yvonne Foster
Lisa Gooley / Marita Vecchio
Darren Pearson
Jade Pottstock-Millan
Donna Webb
Any other teaching staff not involved with Year Teams
Any other transition staff
Casual Teachers
Instrumental Teachers
Teacher Aides
Student Teachers
Visitors

Director of Learning & Innovation (Angela McEnearney) – Staff Check List

Director of Learning & Administration (Paul Samoluk) Library Assistant (Julie Young)

Assistant Principal (Harry Fernandez / Edward Gruppetta) - Staff Check List

Liam Campbell (Angela Cutajar)	Jenny Woods (Tara Haddad)
Kylie Kennedy	Matthew Marshall
Janette Wick (Jacob Wills)	Alex Murphy (Morgan Wearne)

Principal - Staff Checklist

Harry Fernandez / Edward Gruppetta	Angela McEnearney	Sean McNally

Business Manager - Staff Checklist

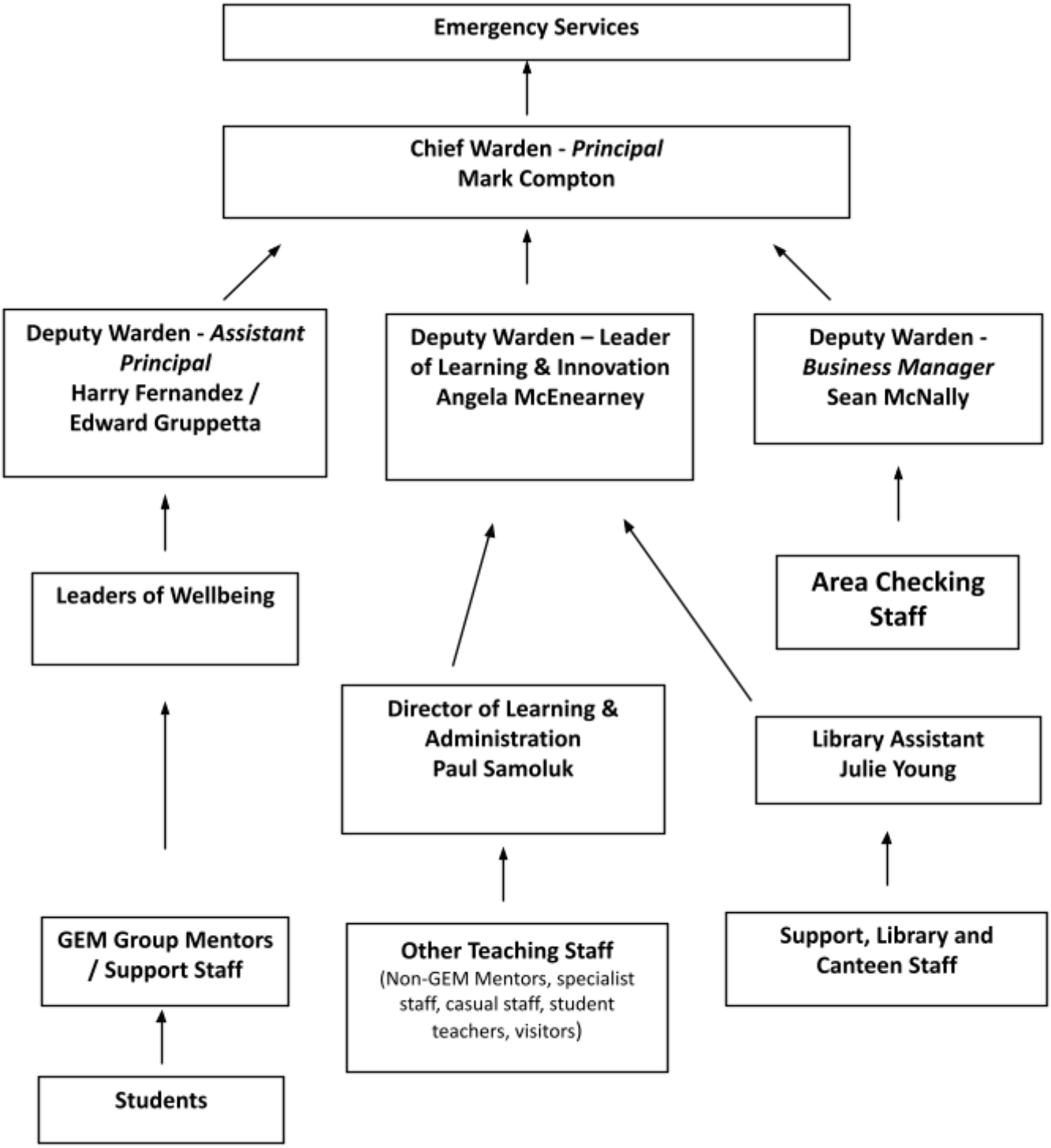
Lock areas after checking them.

A BLOCK (MR, DR)	Bradley Lee
A BLOCK (AR)	Angela Rando
A BLOCK (A1 – A3)	Kelly Hitchen
TOILETS (A Block)	Angela Rando
WORKSHOP AREAS (DT, WS, CR)	Jason Merlino
FOOD TECHNOLOGY / KITCHEN	Lisa Cummins / Julie Finn
B BLOCK (B1 – B7)	Jessica Micallef
SCIENCE BLOCK	David Rowswell / Lab Assistant
TOILETS (Science Block)	David Rowswell
C BLOCK including the Fitness Centre	Marc Sluiter
C BLOCK TOILETS	Marc Sluiter
D BLOCK (D12 – D19, MPA + TOILETS, OFFICES)	Maryanne Grosvenor
D BLOCK (D1 – D11, SPECIALIST ROOMS, OFFICES)	Anni Brailey
TOILETS (D Block near Library)	Brett Collimore
LIBRARY	Kerrie Brownscombe
CANTEEN	Lisa Psathas
ADMINISTRATION, SICKBAY, STAFF TOILETS, FOYERS	Lisa Casey/Deanna Melbin
LUNCH ROOM, STAFF STUDY + ADJOINING OFFICES	Therese Poole
E BLOCK (E1 – E4, Open Area, Offices)	Shelby Vassallo
PE STORE / CHANGE ROOMS / ENGINE ROOM	Dean Bertenshaw
AG PLOT / AG CLASSROOM	Andrew Heath
HALL / E BLOCK TOILETS	Robert Kroon

MAINTENANCE SHEDS Keith Round / Yorg Fischer

Area checkers must report to the Business Manager to convey the status of their area.

BPC Emergency Plan Flow Chart



Specific Emergency Responses

1. Assault

Person Discovering/Involved

- 1. Victim to be secured from further assault
- 2. Report the incident to the PRINCIPAL
- 3. PRINCIPAL or Executive Leadership Team member to identify whether any First Aid or medical treatment is required
- 4. Render First Aid as appropriate or secure medical treatment

If a minor assault, PRINCIPAL to delegate to the AP.

- details to be logged on the 'Attempted assault on school staff or student register' on StaffNet 'Attempted assault on school staff or student register' (full details of the victim, circumstances, action taken and description of the offender and any vehicles involved)
- proceed if the matter is able to be handled by conciliation otherwise refer to Director of System Performance for advice and follow up

If a serious assault, PRINCIPAL to immediately notify the Police

- details to be logged on the 'Attempted assault on school staff or student register' on StaffNet

'Attempted assault on school staff or student register'

- determine whether offender has decamped
- if not, offender to be maintained under watch
- crime scene to be sealed
- logged details to be provided to Police
- witnesses to be established
- victim and witnesses to be isolated from offender
- where witnesses cannot wait for Police attendance, their details are to be taken
- note anything unusual or deviating from normal routine
- note the attendance of on-lookers
- Contact the Director of System Performance for advice and follow up

2. Bomb Threat

A threat, written or verbal, delivered by electronic, oral or other medium, threatening to place or use an explosive, chemical, biological, or radiological device at a time or date or place or against any specific person or organisation.

Considerations may include first attack fire-fighting, first aid, environmental safety actions, lockdown and secure in place procedures.

ABOVE ALL: KEEP CALM

IF THREAT IS BY TELEPHONE:

- Prolong call - keep person talking and ask:
- Location of Bomb
- Time Set to Explode
- Record information for Police as well as any other relevant information as shown on the 'Bomb Threat Checklist'.
- REPORT CALL TO PRINCIPAL OR MEMBER OF THE EXECUTIVE LEADERSHIP TEAM
- CONTACT THE POLICE

IF OBJECT FOUND:

- Do not touch
- Report find
- Keep areas clear

BASIC RULES:

- Treat as genuine
- Record exact information (using checklist if possible)

EVACUATION:

Any bags/articles brought into building on entry should be taken out upon evacuation

For further information, refer to the **Bomb Threat Protocol** (Feb 2016) - CEDP

Use Bomb Threat Checklist at the rear of this document

3. Hazardous Material / Chemical Spill

In the event of a hazardous material spill, staff member will:

1. If safe to do so, identify the hazardous material for correct response purposes.
2. Evacuate from the affected area – ISOLATE affected persons from Non-Affected.
3. Notify, LOL, Assistant Principal and Principal
4. Assist injured personnel.
5. Proceed to the designated assembly area for the site.
6. Do not allow any person to re-enter an area affected by hazardous material.
7. Do not allow any person to eat or smoke until decontamination has taken place.

In the event of a hazardous material spill, the Principal will get the MSDS Chemical Data Sheets from the Science Laboratory Assistant.

4. Civil Disorder and Illegal Occupancy Procedure

The Principal and Executive Leadership Team, together with the staff should be responsible for co-ordinating the response to such incidents, until the arrival of police to whom they should provide such assistance as may be required.

As soon as the Principal and/or Executive Leadership Team is aware of civil disorder occurring in, or in the vicinity of, the premises, the imminence of such an event, or an unauthorized entry into the premises by a disaffected person or group, the Principal or, in his absence, any member of the Executive Leadership Team, should take the following action:

- (a) Notify the police and request assistance.

- (b) Alert other members of the emergency control organisation.
- (c) Initiate action to begin Lockdown procedures
    - (i) restrict access to and egress from the building;
    - (ii) confine presence to the ground floor (if possible); and
    - (iii) restrict contact between the demonstrators and the building occupants.

5. Earthquake

Wardens must instruct persons within their area of responsibility not to leave the building during an earthquake due to falling masonry and glass but to instruct people to take refuge under a desk or table or to stand within a door frame. After the quake, evacuate to a place, which is clear of buildings, trees and power lines.

Be aware of hazards such as fallen live electrical wires or ruptured gas lines. Do not enter a structurally damaged building. Be mindful of the possibility of aftershocks occurring.

6. Explosion

In the event of a sudden explosion, staff will:

1. Assess the situation, being wary of fallen live wires, spilt flammable/corrosive liquids, the release of hazardous materials or flammable or toxic gases.
2. Report the explosion to the Principal or, in his absence, any member of the Executive Leadership Team, who will contact emergency service.
3. Send someone to meet the emergency services at the front gate of main building. Commence an immediate evacuation of people from the explosion-affected area.
4. Evacuate the walking wounded personnel and conduct a quick search for trapped victims.
5. DO NOT remove these persons in case you incur further injuries.
6. Do not enter a building or allow anyone else to enter a building unless it is safe to do so.
7. Provide first aid to the injured.
8. Fight any small fires that may have been lit as a result of the explosion, but only if it is safe to do so.
9. Cordon off the damaged/danger area and keep onlookers and media away.
10. Assist the Emergency Services on their arrival.

7. Localised or Internal Flooding/Water Leak

Person Discovering

1. Do not enter the flooded area until the electricity supply has been disconnected as there is an extreme danger of electric shock
2. Prevent unauthorised access to the flooded area.
3. Ring the Principal or, in his absence, any member of the Executive Leadership Team.

Staff member

1. Evacuate the affected area
2. Shut off electricity to the affected area, or if not possible, contact the Business Manager
3. If practicable, isolate source of flooding/water leakage
4. Prevent unauthorised access to the affected area
5. Contact the Principal

Principal

On being advised of flooding/water leakage:

1. Confirm exact location, extent and apparent source
2. Instruct informant to evacuate persons from the affected area
3. Obtain name and telephone number of informant
4. Notify maintenance personnel
5. Lockdown procedures if deemed appropriate.

8. Gas Leak

Staff Member

1. No naked flames, no smoking
2. Evacuate the affected area – making sure that persons are directed to assemble in a well-ventilated area where they are not exposed to further risk
3. Notify the Principal, or, in his absence, any member of the Executive Leadership Team
4. Ventilate the affected area, lockdown all other rooms in the College
5. Do not allow any electrical equipment to be operated in the immediate vicinity

Principal

On being advised of a gas leak:

1. Confirm exact location, extent and apparent chemical
2. Notify Emergency Services
3. Instruct informant to evacuate persons from the affected area and assemble them in a well-ventilated area where they are not exposed to further risk
4 Remind informant of the danger from Chemical Data Sheet (e.g. naked flames, malfunctioning electrical equipment)
5. Obtain name and telephone number of informant
6. Where applicable, notify the Business Manager

Maintenance

1. Isolate gas supply or contact the Business Manager to do so
2. Ensure no naked flames or smoking throughout the building
3. Ventilate the affected area
4. Follow instructions from the Principal

9. Hold Up

1. Note and report suspicious persons
2. If confronted, obey intruder's instructions
3. Observe carefully:
    - Any articles touched by intruder(s)
    - Physical details and attire
    - Points which may aid description including mannerisms and weapons
    - Direction that intruders leave the area
4. Record information for police

5. Ring Principal or, in his absence, any member of the Executive Leadership Team and provide details of incident

10. Storm/High Winds

On becoming aware of an approaching storm of apparent severe intensity, the following precautionary measures should be borne in mind:

1. Go indoors – don't remain outside due to the risk of lightning strike and flying missiles

   Note: If you are caught outside during a severe electrical storm, avoid high ground, wire fences and tall objects such as towers and light poles due to the risk of lightning strike.
2. Close doors and windows
3. Bring indoors or firmly secure any objects outside which could become airborne in strong wind gusts and cause damage.
4. Do not use electrical equipment during an intense electrical storm (this includes computers and telephones).

11. Snake on the premises

Person discovering

1. Do not attempt to catch or handle the snake.
2. Ensure that nobody remains in the immediate vicinity of the snake.
3. Report the incident to a staff member.

Staff member

1. Evacuate the immediate area.
2. Observe the snake's location from a safe distance.
3. Inform the office and Business Manager.

Business Manager

1. Instruct groundsmen to cordon off the area.
2. Notify the Principal and / or Executive Leadership Team.
3. Assess the situation in consultation with the Principal and / or Executive Leadership Team.
4. Advise groundsmen to monitor location of the snake and to regularly report back.
5. Contact the snake catcher if deemed necessary.

12. Medical Emergency

In the event of a medical emergency, staff will:

1. Quickly check the situation for danger and assess the person's condition.
2. Alert people nearby, enlist their aid and send a student runner to Sickbay to get Sickbay Officer to help. Administer first aid up to the level of your training until help arrives.
3. If the situation is deemed life threatening, the Sickbay Officer will report the location and nature of the medical emergency and request an ambulance immediately.

8. Emergency Exercise and Drill Schedule

Emergency Drills

Emergency drills will be arranged by the Principal, in consultation with the Leadership Team and Emergency Services, at a frequency of no less than two per year. (It is recommended one during class time and one during a break time). Drills for Lockdown and Lockout should also be conducted throughout the year.

Safety Training Exercise - STEX

An activity simulating an emergency event through activation of alarms and deployment of personnel, in order to:

(a) review/test the planning process and procedures;
(b) identify needs and planning inadequacies;
(c) demonstrate capabilities and communication; and
(d) foster working together as a team.

Area Warden Training

Area Wardens require training in first response fire-fighting bi-annually.

9. Students and Staff with Special Needs List

Students/Staff Name		Year Group	Condition	Assistance Needed During an Emergency / Evacuation	Who Will Be Responsible?
First name	Last Name				
Kerrie	Brownscombe	Staff	Limited Mobility	Extra time needed to reach assembly point. Asthma issues in smoke filled environments	Self / Library Assistants
Yousef	Paknejad	9	Autism	Will require assistance for evacuations	Class teacher / Darren Pearson (TA) Tracey Johnson (CM)
Cody	Sneesby	9	Cerebral Palsy Wolff Parkinson-White Syndrome	Extra time needed to reach assembly point. May need another student to carry his bag.	Olivia Ryan (CM)
Jason	Mennell	10	Impaired Vision	Will require assistance for evacuations	Patti Jasinski (CM)
Eloise	Bond	11	Diabetes 1	Close monitoring of sugar levels	Erin Blackman (CM)

Sick Bay Attendees maintain records of all staff and students with disclosed special needs including asthmatics, diabetics, epileptics, epi-pen users, allergy sufferers. They are also aware of staff and students with temporary mobility issues e.g. broken legs, sports injuries.

10. Bushfire Preparedness

Bede Polding College is generally not in direct threat from Bushfire. However, many of the students live in bushfire prone areas. Bede Polding College bushfire preparedness is centred around a communication strategy regarding student safety and pick up procedures for parents.

Bushfire Response Steps

In the event of a major bushfire it is imperative that the safety of students be at the centre of the decision making.

Bede Polding College will invoke a communication strategy to ensure all parents are aware of what the situation is and that the students are safe.

Once the Principal is aware of a significant bushfire that will affect areas in which the students reside the following process will be put in place;

Using the Skoolbag app, an appropriate communication will be posted detailing that students are safe, and should parents/carers or other family members need to pick up students due to issues around where the student reside, details of how these pickups are to be managed at the College.

The communication to parents should be updated every two hours.

11. Major Flood Preparedness (1 in 100/500year flood)

Bede Polding College is situated in the Hawkesbury-Nepean Valley floodplain. This valley is prone to rapid and deep flooding, and the area also has a constrained evacuation road network. The College would be under severe threat in the event of a 1 in 100/500year flood.

Bede Polding College flood preparedness is centred around a communication strategy regarding student safety and wellbeing, and pick-up procedures for parents.

Flood Response Steps

In the event of a major flood, it is imperative that the safety of students be at the centre of the decision making process.

Bede Polding College will invoke a communication strategy to ensure all parents are aware of what the situation is and that the students are safe.

Once the Principal has been made aware of a significant flood warning that will impact the College site and the areas in which the students reside, the following process will be put in place:

Using the Skoolbag app, an appropriate communication will be posted detailing that students are safe, and should parents/carers or other family members need to pick up students due to flooding issues, details of how these pickups are to be managed at the College.

The communication to parents should be updated every two hours, or less if deemed necessary.

The Principal would need to closely monitor the flood situation, and keep up to date with Flood Warnings issued on the Bureau of Meteorology website and act on all advice provided by the NSW SES.

In consultation with the CEDP, the Principal may need to close the site and evacuate all personnel. (If a major flood has been forecast for the area, then the site may need to be closed on the day/s prior to the flood being imminent to allow for preparations and to safeguard the students and staff.)

Prior to an **Evacuation Warning** being issued, the College SET should instigate preparations by:

- Organising potential bus transport to higher ground for any students and staff who are still on site. Consideration needs to be given in regards to the needs of individuals with health issues (Collect and take student and staff medications, first aid and asthma kits, and other medical equipment e.g. defibrillators, epi-pens)
- Planning the evacuation route through consultation with emergency services.
- Managing the movement of all livestock to a pre-determined destination e.g. Agriculture area of St Columba's College in Springwood.
- Identifying areas of the College that would be above the flood water level (e.g. upper level of 'E' Block, the mezzanine level in the Library and the Engine Room above the PE change rooms), and commence the movement of essential records, equipment, major works, teaching resources, potentially dangerous chemicals, copies of computer back-up files (an off-site back-up copy should already be maintained) and fire-fighting equipment, to these locations.
- Advising the staff to take their possessions off-site in the days leading up to the flood.

Prior to an **Evacuation Order** being issued, the College SET (in particular, the Business Manager and ground staff) should ensure that:

- Any utilities that may cause additional hazards e.g. electricity, gas and water services, are closed down.

12. General Information

Handling the News Media

Staff members should not discuss emergency situations with the news media. All enquiries should be forwarded to the CEDP Communications Officer. This is to ensure that the media is furnished with accurate information and additional copy-cat incidents or crank calls are not precipitated by irresponsible statements from uninformed sources. (See Media Policy)

Statutory Investigation

Coronial Inquiry

In the case of a fatality, the Police will be involved and there will be a Coronial Inquiry.

Safework NSW Inquiry

In the event of an incident involving the Fire Brigade, Safework NSW shall be contacted by the WHS Manager, who will explain the incident and ask if Safework NSW wish to conduct an inquiry.

If an employee is asked by a WorkCover NSW inspector to make a statement, they should:

- Inform the inspector of their willingness to cooperate
- Inform the inspector that they wish to exercise the right to legal advice before making a statement or providing information
- Contact the WHS Manager
- If they think that the statement or information may tend to incriminate them in any way, make that claim to the inspector before making the statement – if such a statement is made beforehand, the information they give cannot be used against them in the event of criminal proceedings

13. Recovery

Recovery encompasses the health and wellbeing of staff and students within Bede Polding College as well as the restoration of your school to full operation as quickly as possible. Recovery from an emergency begins almost as soon as the emergency itself.

It is important that the College SET makes every effort to engage persons with specialist expertise to manage trauma within the College as people often suffer most in the aftermath of an emergency. CEDP may be called upon to provide assistance with the provision of psychosocial response/recovery support, such as the coordination and provision of specialist psychological services to students and staff following exposure to a large-scale disaster, emergency or critical incident.

Other elements of recovery include capturing the lessons learned and improving our plan and infrastructure so that Bede Polding College is better placed to manage future emergencies. Every incident needs to be treated as a learning experience and is essential to ensuring that the College is able to return to 'business as usual' as soon as possible.

Record Keeping

This is an often overlooked aspect of managing an emergency; however, it is a critical component to ensure decision-making is adequately documented for post-emergency review and learning and, if required, investigation. This is especially important for emergencies that impact on students, staff or visitors, or that result in a significant loss of infrastructure or assets or public scrutiny of a school activity.

Record keeping is typically the responsibility of those planning, organising and running an activity or those managing an emergency. Simple incident investigation sheets as found in the Appendix should be used as a tool to record information, such as, but not limited to, time of calls or emails, time and basis for the decisions that are made, the time that the SET receives information and other relevant information.

Any records that contain personal information about staff and students must be managed according to Privacy law requirements.

Debriefs and Reviews

An essential step in the continuous Emergency Management Planning Cycle is the capture of lessons learned. Better practice dictates that the College remains committed to a continual learning and improvement process. As part of the way the College manages emergencies it will conduct post-emergency debriefs and reviews. These activities provide a valuable opportunity for people to heal, reflect and apply lessons learned to the future. In order to maximise the learning and improvement outcomes to be gained from a debriefing, it needs to be carefully managed. It should not be used as an occasion to apportion blame or fault.

The typical questions that should be asked during a debriefing are:

- What went well?
- What didn't go so well?
- What lessons did we learn?
- What would we change before next time?

14. Distribution List

The list should include every agency and/or staff person who has been given a copy of this plan. It is important to keep this list up-to-date and to distribute new copies of the plan to every recipient whenever it is updated or amended.

Date	Name	Organisation	Email
May 2021	Mark Compton	BPC	mcompton1@parra.catholic.edu.au
June 2021	Paul Samoluk	BPC	psamoluk@parra.catholic.edu.au
June 2021	Front Office	BPC	bedepolding@parra.catholic.edu.au
June 2021	Edward Gruppetta	BPC	egruppetta@parra.catholic.edu.au
June 2021	Harry Fernandez	BPC	HFernandez@parra.catholic.edu.au
June 2021	Joshua Rodricks-Testa	BPC	jrodricks-testa@parra.catholic.edu.au
June 2021	Tracey Johnson	BPC	tjohnson11@parra.catholic.edu.au
June 2021	Angela McEnearney	BPC	amcenearney@parra.catholic.edu.au
June 2021	Nicole Mulford	BPC	nmulford@parra.catholic.edu.au
June 2021	Sean McNally	BPC	sean.mcnally@parra.catholic.edu.au

15. Staff Communication

Due to Privacy issues a hard copy of staff contact details is held by the Principal and the two Assistant Principals and not included in this document. Additionally, the Business Manager would hold a hard copy of the contact details of all non-teaching staff.

16. Appendix

Checklists, forms and Communication Proforma's

Communication Directory

Bede Polding College Executive Leadership Team

Principal	Mark Compton	0458 766 775
Assistant Principal	Harry Fernandez	0404 824 703
Director of Learning and Wellbeing	Edward Gruppetta	0412 034 784
Religious Education Coordinator	Joshua Rodricks-Testa	0422 896 270
Director of Learning & Inclusion	Tracey Johnson	0417 218 425
Business Manager	Sean McNally	0408 088 752
Director of Learning & Administration	Paul Samoluk	0404 087 189
Director of Learning & Pedagogy	Nicole Mulford	0415 755 089
Director of Learning & Innovation	Angela McEnearney	0428 219 940

Other Key Staff for this Emergency Management Plan

Principal's PA	Deanna Melbin/	45 60 2900 Ext 22918
College Counsellors	Lisa Gooley/Kathryn Rogers	45 60 2900 Ext 22908
Sick Bay	Jenny Vella/ Marie Caloia	45 60 2900 Ext 22905
Maintenance	Yorg Fischer	0404 824 698
Assisting People with Disability or Ambulatory Issues	Tracey Johnson	0417 218 425
Catholic Education Commission Professional Assist. to Executive Director	Tony McArthur	02 9287 1533 / 0421 647 811
Catholic Education Diocese of Parramatta		(02) 9840 5600
Director of System Performance	Mrs Christine Howe	0417 532 692/0407 294 174
Executive Director of Schools	Mr Greg Whitby	0419 254 556
Team Leader (Media)	Mr Mark Rix	0417 442 018
WHS Officer	Mrs Johanna Cordina	9407 7048/0437 596 205
Chisholm Catholic Primary School	Mr Michael Mifsud (Principal)	02 4573 3200
St Matthews Parish	Fr Robert William (Parish Priest)	02 45 77 3073
St Monica's Parish	Fr Clifford D'souza (Parish Priest)	02 45 78 1410
Good Az Gold Bus Tours		02 45 736181

Emergency - 000

000 is an emergency hotline service to contact in the case of life threatening or urgent situations. 000 calls are answered by an operator who will ask which service you require – Police, Fire or Ambulance.

If you ask for the Police, you will be connected to the Police Communications Centre. This Centre is staffed 24 hours a day with highly trained and skilled Emergency Operators. They will ask relevant questions, and arrange an appropriate response from a local police station and/or from other services (e.g. Police, Ambulance or Fire Brigade).

Emergency calls from Mobile Phones - 112

The number 112 will break through the key lock on any newer digital phone and contact emergency services. This means that you can use any mobile phone, even one that does not belong to you. Consult your carrier if you are uncertain how to access the emergency network.

Rural Fire Service Hawkesbury (RFS)	02 4572 0143
NSW State Emergency Service (SES)	132 500
Other:	
NSW Poisons Information Centre	131 126
Gas Leak	131 909
Fallen power lines or branches in contact with power lines	131 388
Bureau of Meteorology Land Weather Warning	1300 659 218
Road Maritime Service (RMS) BushFire Closure	132 701
Department of Community Services Disaster Recovery	1800 018 444
Centacare	02 9473 4511
St Vincent de Paul Disaster Recovery	02 9560 8666

Emergency Checklist

Keep the Emergency Kit in a designated, easily accessible place.

Have you:	✔
Up-to-date student attendance list/rolls?	
Up-to-date students and staff with special needs list?	
Emergency contacts telephone list (including for parents/guardians)?	
List of staff with emergency management or training skills?	
Traffic safety vests?	
Keys?	
Standard portable first-aid kit?	
Special medications e.g. asthma inhalers, EpiPens?	
Charged mobile phone?	
Torch with replacement batteries (or wind up torch)?	
Megaphone?	
Portable battery powered radio ?	
Bottled water?	
Portable non-perishable snacks such as sultanas, dried fruits, energy bars?	
Secured any school farm animal yards/pens?	

Copy of school site plan and evacuation routes?	
Sunscreen and spare sunhats?	
Whistle?	
Plastic garbage bags and ties?	
Toiletry supplies?	
Other (please specify)	

BOMB THREAT CHECKLIST

KEEP CALM - DON'T HANG UP!

QUESTIONS TO ASK

1. When is the bomb going to explode?
2. Where did you plant the bomb?
3. When did you plant the bomb?
4. What does the bomb look like?
5. What kind of bomb is it?
6. What will make the bomb explode?
7. Did you place the bomb?
8. Why did you place the bomb?
9. What is your name?
10. Where are you?
11. What is your address?

EXACT WORDING OF THREAT

_____

CALL TAKEN

Date ____/____/____ Time

Internal Local

STD

Duration of Call

Number Called

CALLER'S VOICE

Accent (specify)

Any speech impediments:

Voice (loud, soft, etc.):

Speech (fast, slow, etc.):

Diction (clear, muffled):

Manner (calm, emotional etc.)

Did you recognise the voice?

If so, who do you think it was?

Was the caller familiar with the area?

Sex of the caller

Estimated age of the caller

THREAT LANGUAGE

Well spoken:

Incoherent:

Irrational:

Taped:

Message read by caller:

Abusive:

Other:

BACKGROUND NOISES

Street noises: House noises:

Aircraft: Office noises:

Voices: Club/Pub noises:

Music: Quiet:

Machinery: Animals:

Trains: Other:

RECIPIENT

Name (print)

Tel No: Signature:

Sample message for initial communication to parents

INSERT SCHOOL students and staff are evacuating to the school oval due to a bomb threat. Police have been notified and believe it is part of the recent hoax bomb threats to schools. We are awaiting further instruction from the police. We will advise you by SMS if you need to pick up your child/ren earlier than normal. Supervision will remain in place for all children. Do not ring school as no one on site. Monitor school communication channels for further updates.

Sample subsequent message

1. Return to class as normal

Police are onsite checking both schools and are progressively allowing students to return to their classrooms as soon as they determine it is safe to do so. The school day will resume as normal. Parents and carers do not need to pick up their child/ren. Monitor school communication channels for further updates.

2. Pick up children

INSERT SCHOOL students and staff evacuate to INSERT LOCATION due to a bomb threat. All safe and accounted for. Parents can pick up children. Please sign your child out with class teacher. After school care and students catching buses will be transported as normal. Do not ring school as no one on site. Monitor Skoolbag and Facebook for further updates

Follow up letter/message to parents

Dear families,

This morning, INSERT SCHOOL received a bomb threat that resulted in the immediate evacuation of staff and students. The school site was scanned thoroughly by police and students and staff were able to return to their classrooms and continue their school day.

Every effort was made to notify parents/emergency contacts using Skoolbag, SMS, the website and social media.

I would like to thank the staff and children for the calm and orderly manner in which they evacuated the school and the NSW Police for acting promptly and keeping us informed about the process.

If you have any questions please contact the school office.

Yours sincerely,

Principal's Name

Issued 2 February 2016

STANDARD FIRE ORDERS

ACTIONS TO BE CONSIDERED ON DISCOVERING A FIRE

R **"RESCUE" any person/s in immediate danger.**

A **"ALARM" Raise the alarm. Contact the Emergency Services on 000. Contact Security. Activate Break Glass Alarm**

C **"CONTAIN" Close doors to contain the fire.**

E **"EXTINGUISH" Attempt to extinguish the fire only if you are trained and it is safe to do so**

Follow the directions of Wardens

FIRE FINAL SUMMARY

The primary duty of staff is **NOT TO COMBAT** the fire, but to ensure as far as practicable and to the best of their ability, their safety and that of our students, visitors and fellow staff.

Staff with Basic Fire Training with NSW FB or RFS may attempt to extinguish the bushfire upon the direction of the Principal and Business Manager.

Every staff member who is informed of, or becomes aware of a fire will:

RESCUE – ALARM – CONTAIN – EXTINGUISH

- ❑ Rescue any person/s in immediate danger if it is safe to do so
- ❑ Move those in the immediate area away from the threat
- ❑ Ascertain the location, extent of the fire and number of people involved
- ❑ Raise the alarm and follow emergency procedures
- ❑ Ensure the Principal is informed
- ❑ The Principal, Executive Leadership Team and Area Wardens will assess the fire situation and make a decision to evacuate to the Emergency Assembly Area.
- ❑ Upon waiting for Emergency Services personnel, all staff, visitors and students will follow commands from the Principal.
- ❑ NSW Fire Brigade will be in control in the event of a structural fire, however, in the event of a Bushfire, NSW RFS will assume control of our College site.
- ❑ Lifts will not be used in a fire/smoke emergency

Incident Investigation Report

Catholic Education
Diocese of Parramatta

1. School and School Response

School	**Bede Polding College**		**Diocese**	**Parramatta**
Address	**Rifle Range Road, South Windsor 2756**			
Incident Date		**Incident Time**		☐ a.m. ☐ p.m.
Who was supervising when the incident occurred?				
Report to Principal or first aid officer delayed?			☐ Yes ☐ No	
If delayed, why?				

2. Person Affected (Staff/Student/Volunteer/Parent/Contractor)

Injured Person		**School Affiliation**	
Date of Birth		**Age**	
Department *(if applicable)*		**Length of Employment** *(if applicable)*	

3. People involved (Staff/Students/Visitors)

1.		**Position/ Class**	
2.		**Position/Class**	
3.		**Position/Class**	
4.		**Position/Class**	
5.		**Position/Class**	

4. Injury and/or Loss

Describe the nature and/or extent of any injury, illness or property damage arising from the incident (If none, please enter "no injuries", "no damage")
What was the response of staff present?

5. Location

In exactly what location did the incident occur?

6. Incident Details and Contributing Factors

Incident Type	
When the incident occurred, what was the person doing?	
Was this part of his or her required duties?	☐ Yes ☐ No
If 'No', why was he/she doing this?	

What was in operation or could have been a factor contributing to the incident?					
Factor	**?**	**Details**	**Factor**	**?**	**Details**
Physical	☐		**Machinery**	☐	
Psychological	☐		**Structures**	☐	
Tools	☐		**Substances**	☐	
Procedures	☐		**Other**	☐	

7. Incident Causes

Determine the incident causes and comment fully

8. Corrective Action

What should be done to prevent recurrence of this type of incident?			
By whom?		**By When?**	
What action are you taking to ensure this is done?			
What remains to be done?			

9. Reporter

Report completed by		**Date**	
Signature			

10. Authorisation

Department Head			
Principal's Signature		**Date**	

APPENDIX E

EVACUATION CAPABILITY ASSESSMENT

WMS

CIVIL | WATER | ENVIRONMENT

BEDE POLDING CATHOLIC COLLEGE – EVACUATION CAPABILITY ASSESSMENT

NOVEMBER 2022

PREPARED FOR

Catholic Education Diocese of Parramatta

Proposal Details	
Proposal Title	Bede Polding Catholic College – Evacuation Capability Assessment
Prepared for	Catholic Education Diocese of Parramatta
Document Name	20010-R03-BP-EvacCapabilityAssessment-0.docx

Document Control				
Revision	**Author**	**Reviewer**	**Approved for Issue**	
			Name	**Date**
0	ATO	CSW	C Walker	16/09/2022
1	ATO	CSW	C.Walker	20/09/2022
2	ATO	CSW	C.Walker	14/11/2022

Revision Status	
Revision	**Description**
0	Issued for Client review
1	Issued for DA submission
2	Issued for DA submission (Amended Based on Updated Design Plans)

Cover Image: Flood Evacuation Route Sign. Available at https://www.dailytelegraph.com.au/news/nsw/inside-the-suburb-at-the-heart-of-sydneys-flood-dilemma/news-story/491663cf010d754e213bf35266813095.

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LIST OF ABBREVIATIONS

AEP	Annual Exceedance Probability
AHD	Australian Height Datum
BOM	Bureau of Meteorology
CEDP	Catholic Education Diocese of Parramatta
LiDAR	Light Detection and Ranging

1 INTRODUCTION

1.1 BACKGROUND

The Catholic Education Diocese of Parramatta (CEDP) is responsible for the management of Catholic primary and secondary schools in the diocese, which spans a large portion of Western Sydney from Parramatta to the Blue Mountains. Following an equity audit in 2019, CEDP identified three schools that required prioritised upgrades to bring the functionality of their learning spaces into line with current educational planning principles and the needs of the local community. One of these three schools is Bede Polding Catholic College, located in South Windsor. The proposed works include:

- Demolition of 16 existing GLAs equivalent to 8 Inquiry Hubs;
- Retention of 12 existing GLAs and multi-purpose space in 50% Block F for future uses;
- Removal and provisioning where necessary of temporary demountable accommodation;
- Construction of 22 new Inquiry Hubs and refurbishment of 2 existing Inquiry Hubs;
- Construction of new student amenities;
- Construction of new Learning Streets;
- Landscaping and Sports Courts;
- Increase of student capacity from 1240 to approximately 1360;
- Increase of full-time staff from 101 to approximately 105;
- Increase of carparking spaces from 144 to 178.

1.2 OBJECTIVES

Bede Polding Catholic College (the Site) is located within the Hawkesbury River floodplain and, as such, is constrained by flood risk. Hawkesbury City Council's Flood Policy 2020 requires an Evacuation Capability Assessment for H4 and H5 category flood hazard areas. WMS has been engaged to prepare a comprehensive Evacuation Capability Assessment for the proposed upgrade of Bede Polding Catholic College, presented herein, which will:

- Demonstrate the available route/s from the development to the Regional Flood Evacuation Route;
- Determine the available time for evacuation;
- Identify at what point and time the access route is cut off;
- Identify whether the proposed development will be capable of self-evacuation or whether it will rely on emergency services to assist in the evacuation of occupants, such as seniors housing, residential care facilities, group homes, or correctional centres;
- Determine whether evacuation from the site can be achieved within the Effective Warning Time; and
- Demonstrate that evacuation of the site will not adversely impact on existing evacuation capabilities.

2 ACCESS TO THE HAWKESBURY-NEPEAN REGIONAL FLOOD EVACUATION ROUTE

There are 12 designated evacuation routes in the Hawkesbury Nepean Valley that provide the quickest and safest way to exit the Wallacia, Penrith-Emu Plains, Richmond-Windsor, South and Eastern Creek floodplains. It is important to be aware of more than one route, because each flood behaves differently, and evacuation routes will get cut by flood water at different points.

The 12 flood evacuation routes defined by the NSW SES are shown on Figure 2-1. Bede Polding Catholic College is located nearest to the Richmond Road and The Northern Road evacuation routes.

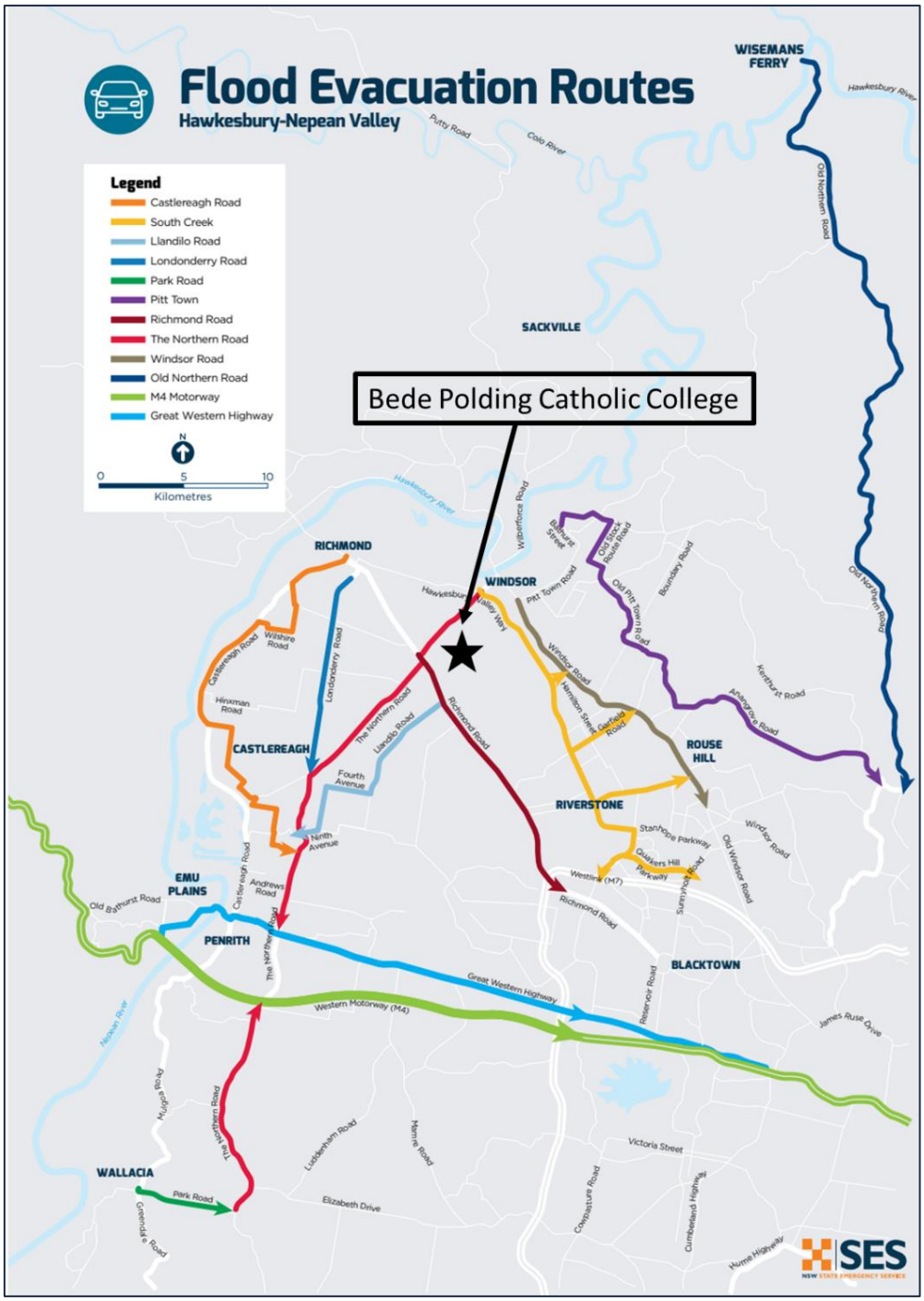


Figure 2-1 Hawkesbury Nepean Flood Evacuation Routes, NSW SES, July 2019

Richmond Road is the preferred evacuation route, which can be accessed west of the site via Rifle Range Road and George Street ('Access Route A'), or to the east via Rifle Range Road and Sanctuary Drive ('Access Route B'). An overview of the available access routes is provided in Figure 2-2. If sufficient warning time is available, the Northern Road evacuation route is also an option.

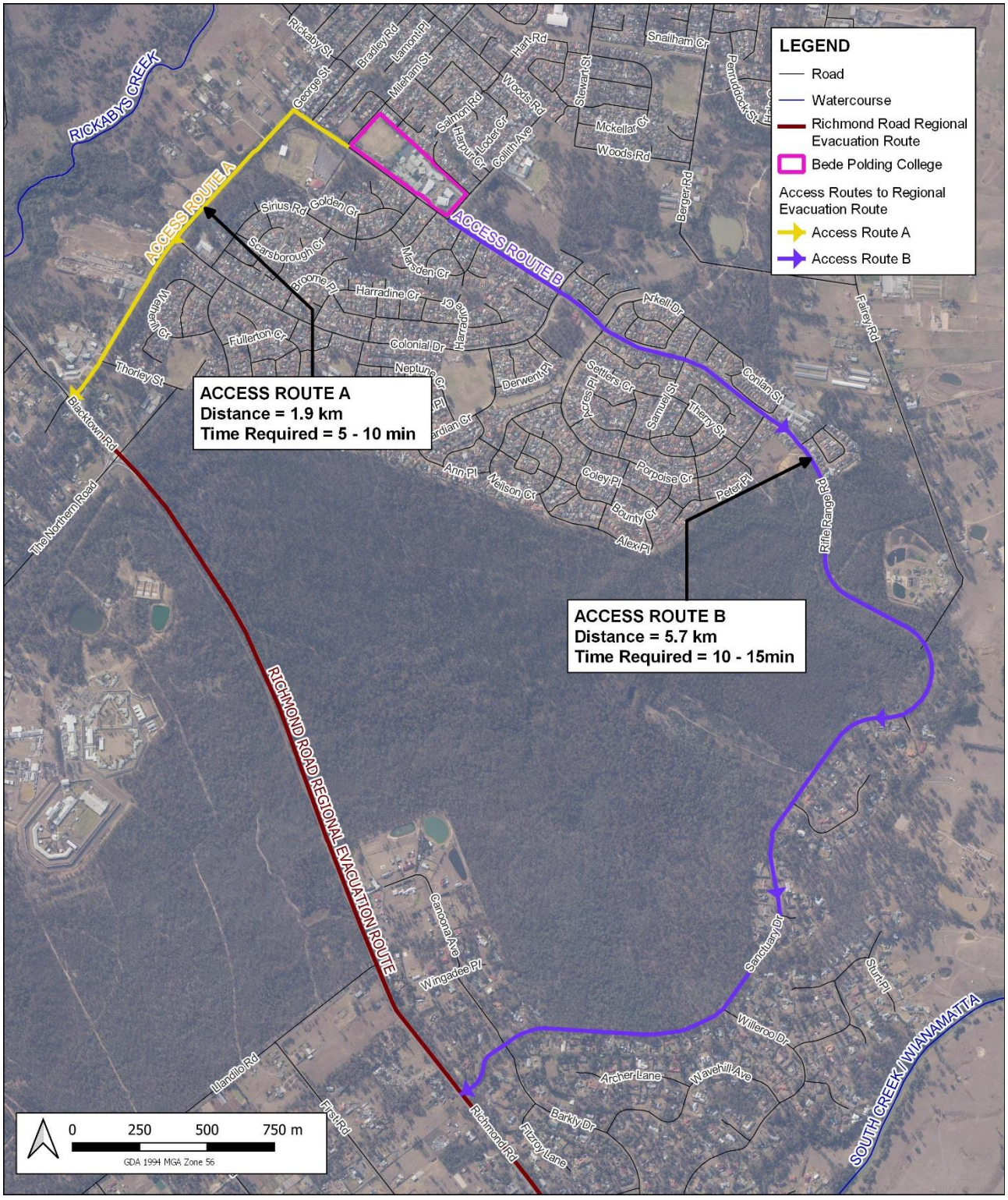


Figure 2-2 Overview of Access Routes to Richmond Road Regional Evacuation Route from Bede Polding

3 AVAILABLE TIME FOR EVACUATION

The available time for evacuation varies depending on a range of factors, such as flood warning lead time, the river rate of rise, distance to the evacuation route and whether the access route is inundated and where.

Essentially, the logic used to determine the available evacuation time follows these steps:

1. Determine at which locations the access routes to the Regional Evacuation Route are cut off;
2. Determine the minimum level in the Hawkesbury River that would cause access to the Regional Evacuation Route to be cut off;
3. Determine the typical time it takes the Hawkesbury River to rise to this level, based on design flood information and observed flood events;
4. Determine the available flood warning lead time from the Bureau of Meteorology (BOM);
5. Determine the available evacuation time based on the available BOM flood warning lead time and the typical time it takes for access routes to be cut off.

3.1 ACCESS ROUTE CLOSURE LOCATIONS

The access routes from Bede Polding Catholic College to the Richmond Road Regional Flood Evacuation Route may be cut off by flooding at two locations:

- Location A: Rifle Range Road along Route A is initially cut off approximately 75 m west of Bede Polding Catholic College (between Mileham Street and Raven Place); and
- Location B: Rifle Range Road along Route B is initially cut off approximately 1.9 km east of Bede Polding Catholic College (near Fairey Road).

Details of the two road closure locations are provided in Table 3-1. The progression of road inundation with flood Annual Exceedance Probability (AEP) is illustrated in Figure 3-1 and Figure 3-2 for Routes A and B, respectively.

In addition, long sections along the centreline of Access Routes A and B are provided in Figure 3-3 and Figure 3-4. The figures illustrate the low points along the roads, and the locations where the routes are initially cut off when the Hawkesbury River reaches the 10% AEP flood level at Windsor Bridge.

Table 3-1 Access Route Closure Locations Summary

Parameters	Location A	Location B
Access route which becomes cut	Route A (Rifle Range Road and George Street)	Route B (Rifle Range Road and Sanctuary Drive)
Location of initial inundation (local sag point)	At Rifle Range Road approximately 75 m west of Bede Polding Catholic College (between Mileham Street and Raven Place)	At Rifle Range Road approximately 1.9 km east of Bede Polding Catholic College (near Fairey Road)
Elevation at local sag point (mAHD, from LiDAR)	11.9	11.2
AEP at which route becomes cut	10% AEP	10% AEP
Equivalent gauge level at Windsor Bridge Gauge (no. 67095)[a]	11.9	11.9
Source of inundation	Water backing up from Rickabys Creek	Water backing up from South Creek

[a] Design water levels at Windsor Bridge were sourced from the Hawkesbury-Nepean Valley Regional Flood Study (INSW, 2019).

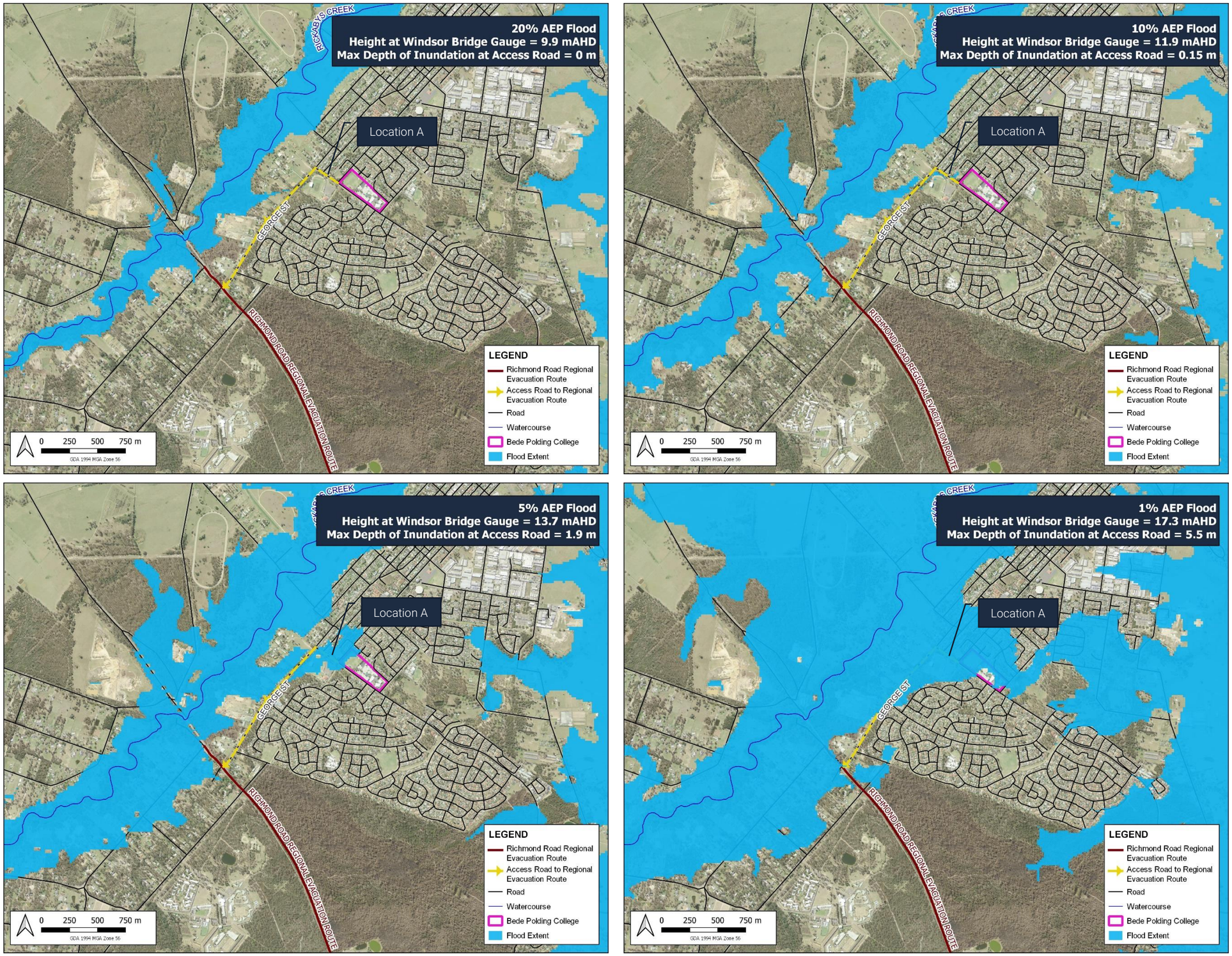
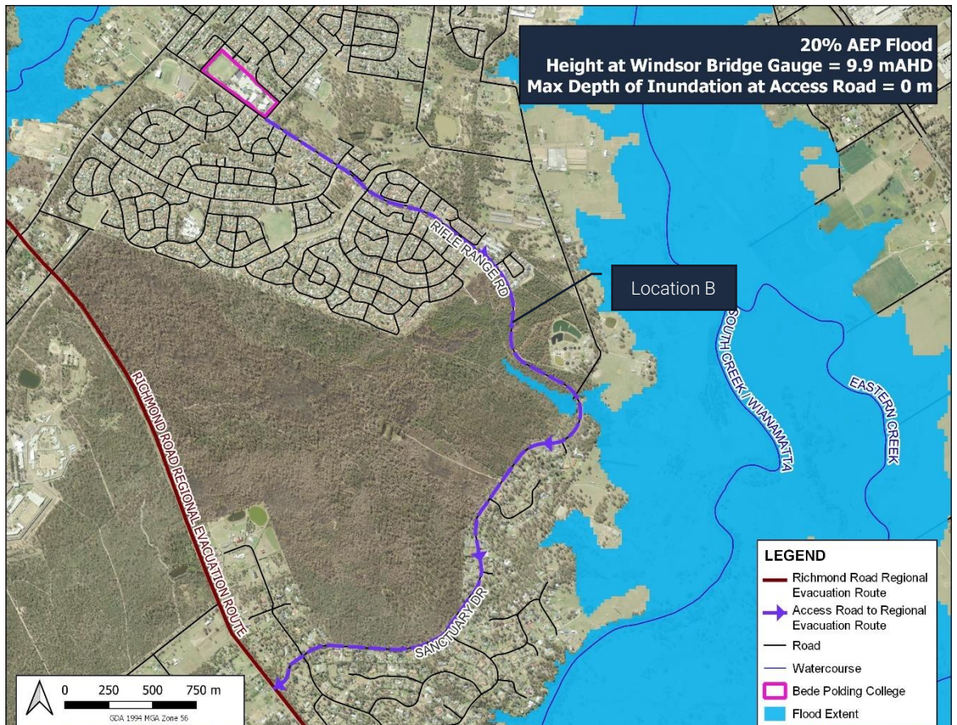
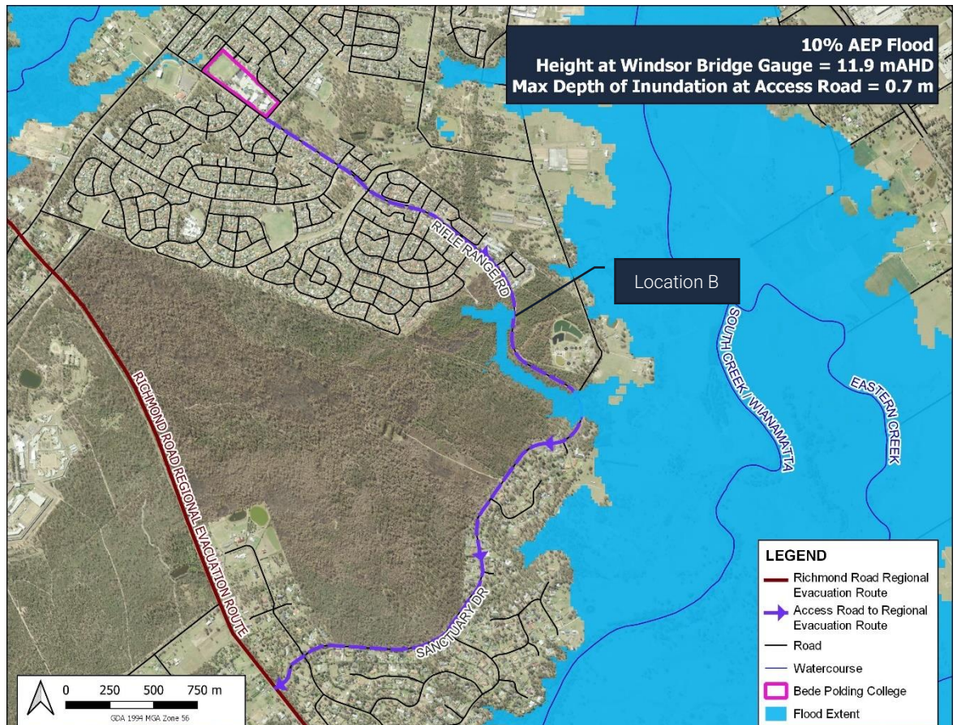
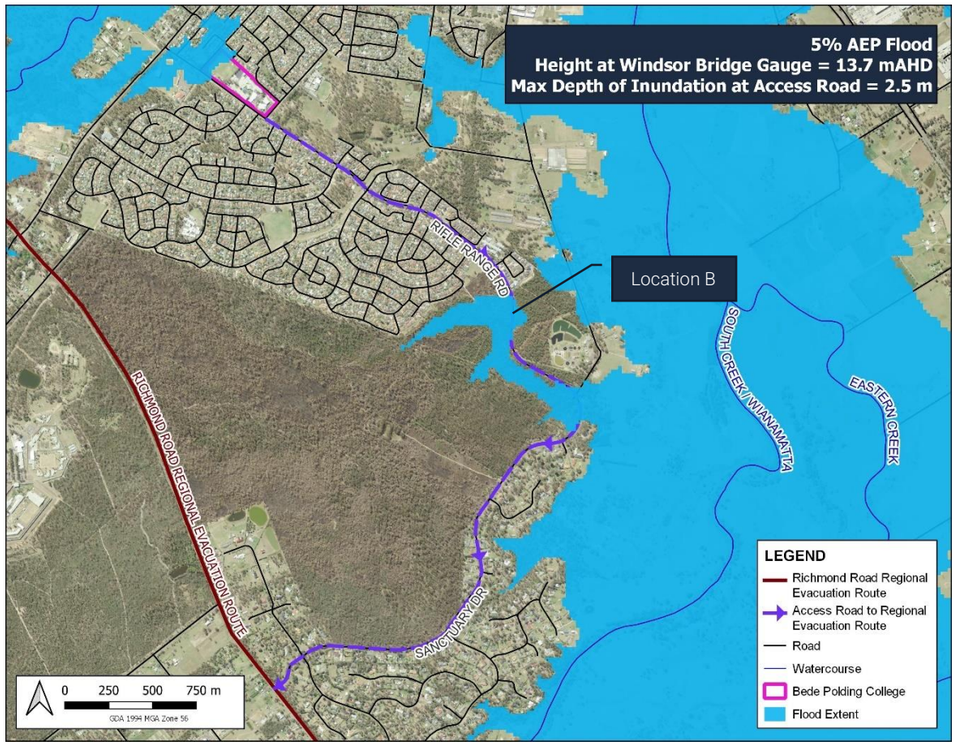


Figure 3-1 Progression of Inundation with Flood AEP – Access Route A







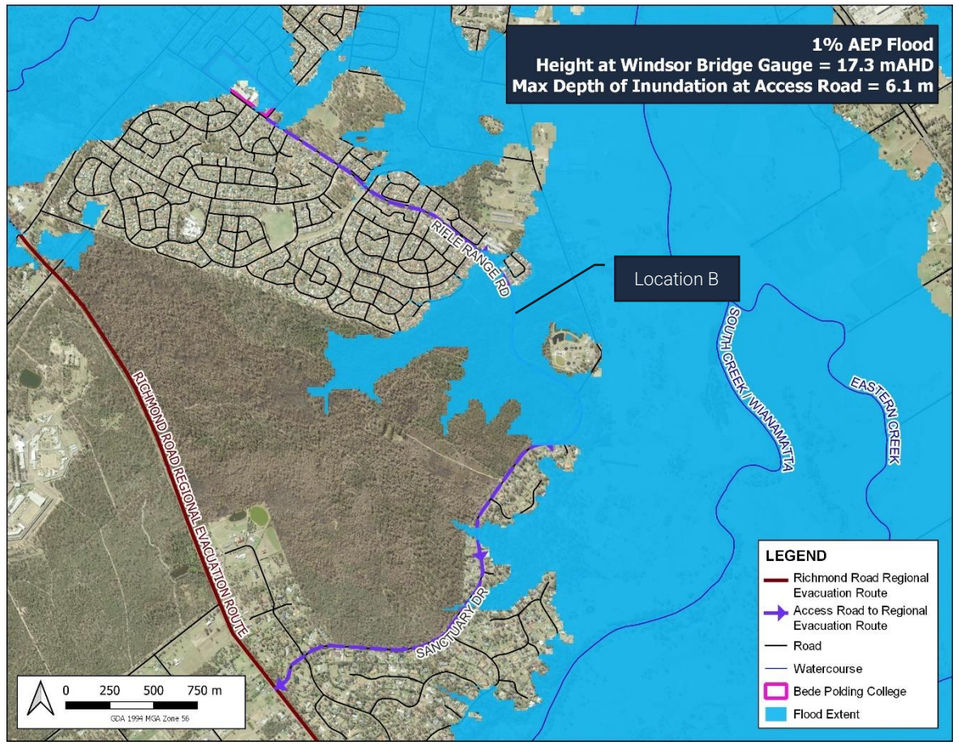


Figure 3-2 Progression of Inundation with Flood AEP – Access Route B

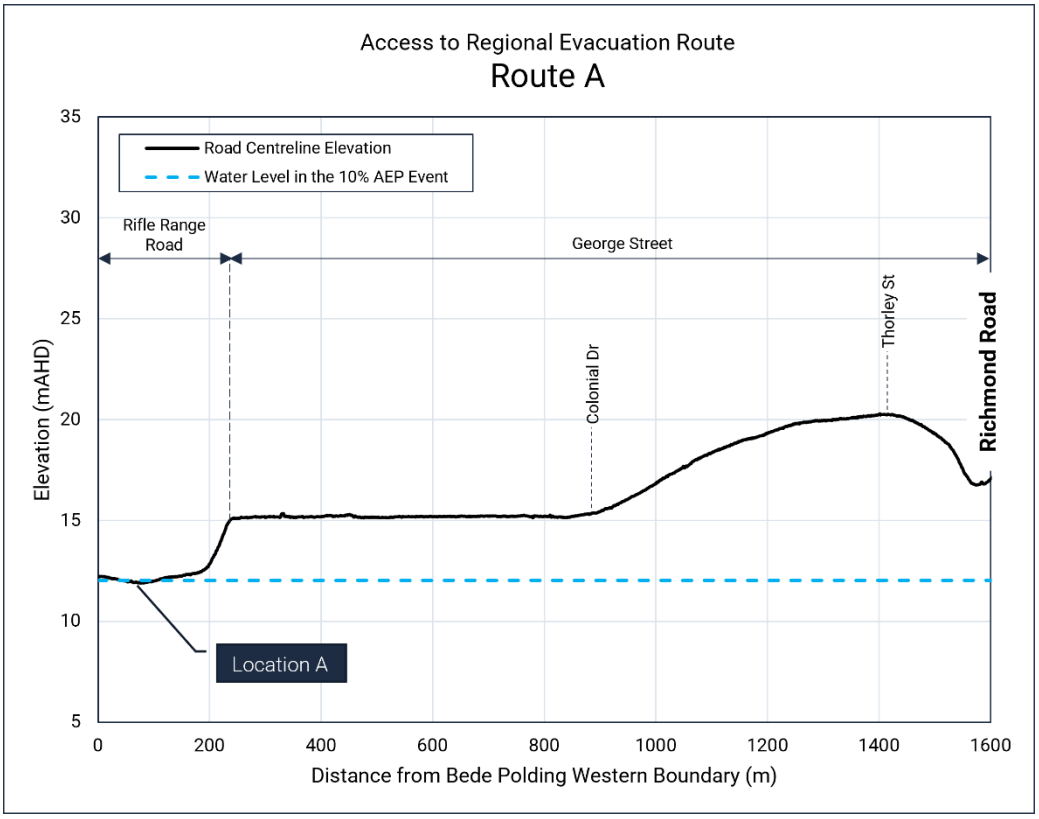


Figure 3-3 Access Route A – Long Section

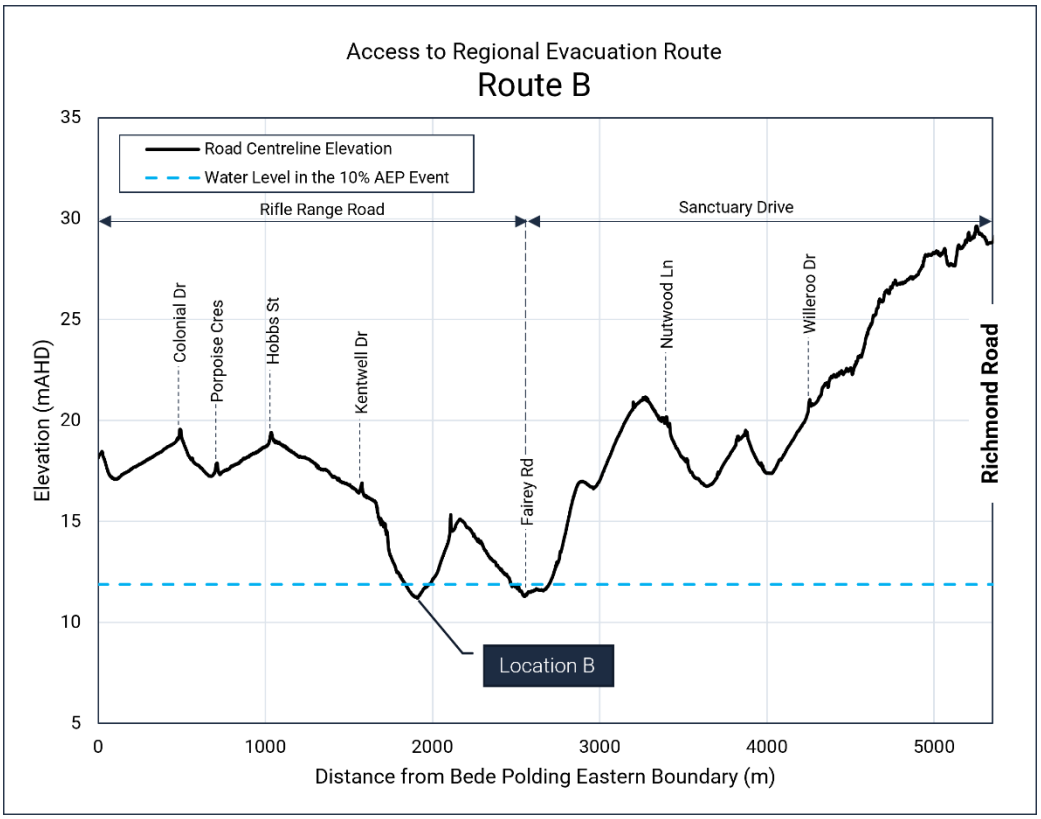


Figure 3-4 Access Route B – Long Section

3.2 AVAILABLE FLOOD WARNING TIME

3.2.1 Bureau of Meteorology Flood Warning Lead Time

Flood Warnings are issued by the Bureau to advise that flooding is occurring or expected to occur in a geographical area based on defined criteria. A quantitative or qualitative flood warning of Minor, Moderate or Major flooding is provided in areas where the Bureau has specialised warning systems. They provide advanced warning about the locations along river valleys where flooding is expected, the likely class of flooding, expected water levels and when it is likely to occur.

The Bureau has defined target waning lead times for each of its forecasting locations, which are tabulated in the Service Level Specification for Flood Forecasting and Warning Services for New South Wales and the Australian Capital Territory – Version 3 (BOM, 2013). The target warning lead time is the minimum lead time that will be provided before the height or the flood class level given is exceeded.

Bureau warnings for the area where Bede Polding is located are issued based on the Hawkesbury River levels at the Windsor PWD gauge (Station No. 567044), which is located slightly upstream of Windsor Bridge. The target warning lead time for the Windsor PWD gauge is provided in Table 3-2.

Table 3-2 Target Warning Lead Time at Windsor PWD Gauge

Parameter	Predicted level > 9.6 mAHD	Predicted level > 13.7 mAHD
Target warning lead time at Windsor PWD Gauge (No. 567044)	6 hours	15 hours

The above times are only the minimum lead warning times set out by the Bureau, and often it issues Flood Watches and Flood Warnings with longer lead times. A Flood Watch is generally issued up to four days in advance of the expected onset of flooding depending on current river levels, catchment conditions and developing weather events.

A summary of the timing of the initial warnings issued by the Bureau during the March 2022 flood is provided in Table 3-3. The records show that a Flood Watch was issued more than 2 days before the 10% AEP flood level was reached (i.e. the level at which the Bede Polding access routes to the Regional Evacuation route are cut off), and that a Minor to Moderate Flood Warning was issued almost 2 days before that level was reached.

Table 3-3 Warning Lead Time at Windsor PWD in March 2022 Floods (source: Bureau of Meteorology)

Parameter	Date and time warning was issued	Hawkesbury River level when warning was issued (mAHD)	Date and time 10% AEP flood level of 11.9 mAHD was reached (i.e. access routes close)	Lead time before access route closure
Initial Flood Watch	1st of March 2022 at 10:37	1.46	3rd of March 2022 at 19:45	2 days and 9 hours
First Minor to Moderate Flood Warning	1st of March 2022 at 23:27	2.72		1 day and 20 hours

3.2.2 Rate of Rise Analysis

Rate of rise is the change in flood height per hour for a particular event to increase from a chosen key level to another chosen key level. WMS has analysed the hydrographs recorded for the Hawkesbury River at Windsor Bridge Gauge in the July 2022, March 2022, March 2021 flood events to develop an understanding of general rate of rise behaviour, particularly in events up to and including the 10% AEP. Rate of rise information is also available in the Hawkesbury-Nepean Valley Regional Flood Study (INSW, 2019), however only for events rarer than the 5% AEP.

For the purposes of this assessment, the analysis looked at the time it took for the Hawkesbury River levels to rise from 9.6 mAHD (as per Section 3.2.1, the level for which the Bureau will provide at least 6 hours of warning lead time) to the 10% AEP flood level of 11.9 mAHD (the level at which the Bede Polding access routes to the Regional Evacuation route are cut off).

A summary of the analysis is provided in Table 3-4, and the hydrograph plots for the flood events used in the analysis are provided in Figure 3-5.

The analysis shows that, for the past 3 major flood events, the Hawkesbury River rate of rise of between 9.6 mAHD and 11.9 mAHD at Windsor varied between 0.10 to 0.20 m/h,, i.e., it took between 11 hours and 45 minutes up to 23 hours for the Hawkesbury River levels to rise from 9.6 mAHD to 11.9 mAHD.

Table 3-4 Hawkesbury River Rate of Rise Analysis

Parameter	March 2021 Flood	March 2022 Flood	July 2022 Flood
Time and date when level of 9.6 mAHD was reached	21st of March 2021 at 08:00	2nd of March 2022 at 23:45	3rd of July 2022 at 15:00
Time and date when level of 11.9 mAHD was reached	22nd of March 2021 at 01:30	3rd of March 2022 at 22:45	4th of July 2022 at 02:45
Time of rise from 9.6 mAHD to 11.9 mAHD (i.e. 2.3 m rise)	17 hours and 30 minutes	23 hours	11 hours and 45 minutes
Rate of rise (m/h)	0.13	0.10	0.20

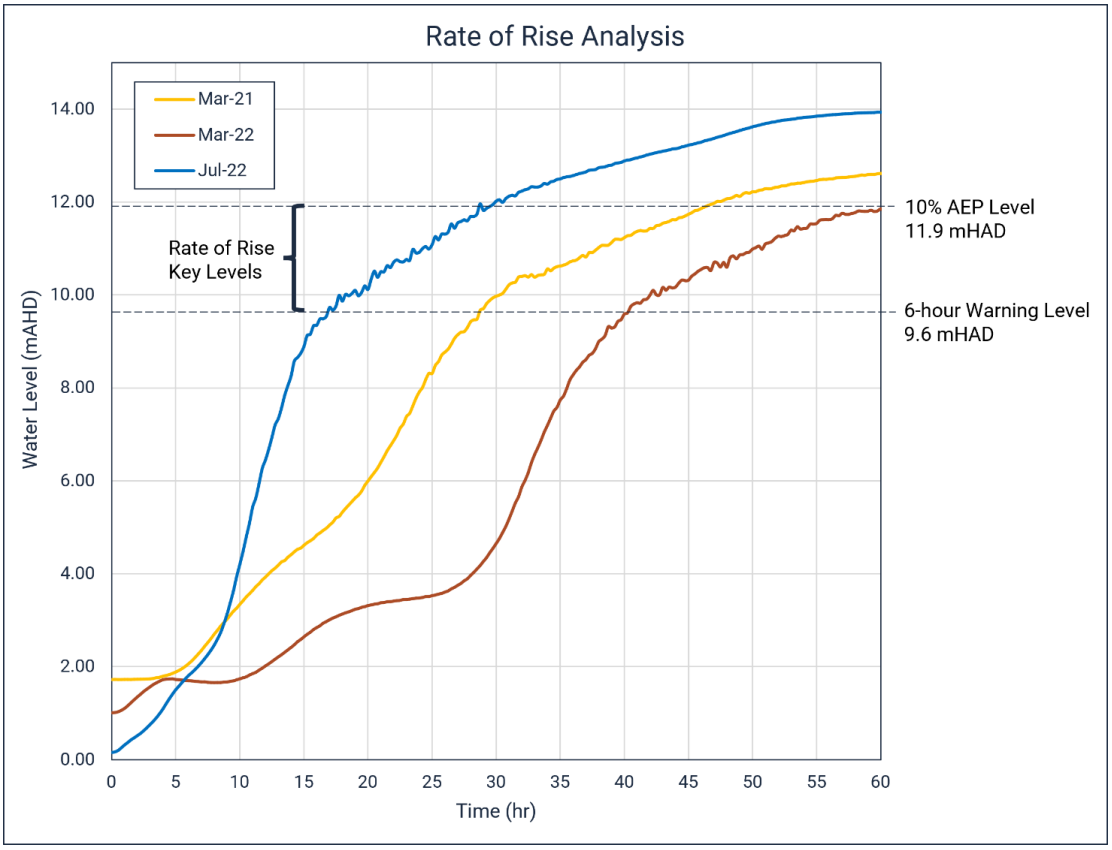


Figure 3-5 Rate of Rise Hydrographs for Recent Hawkesbury River Floods recorded at Windsor Bridge Gauge – Station No. 567095 (source: Bureau of Meteorology)

3.2.3 Effective Warning Time

Based on the assessment of the elevations along the Bede Polding access routes to the Richmond Road Regional Evacuation Route (Section 3.1), for Hawkesbury River levels lower than 11.9 mAHD at Windsor, the access routes remain free of flooding and therefore evacuation can occur. As such, the Effective Warning Time for Bede Polding can be defined as the minimum available warning time before the river levels reach 11.9 mAHD.

According to the Bureau's flood warning lead times (Section 3.2.1), the minimum warning time available before the Hawkesbury River reaches a level of 9.6 mAHD is 6 hours. And, according to the rates of rise observed in recent flood events (Section 3.2.2), the minimum time it takes for the Hawkesbury River level to rise from 9.6 mAHD to 11.9 mAHD is approximately 11 hours and 45 minutes – for the purposes of this assessment, this time can be approximated to a conservative value of 11 hours. As such, the Effective Warning Time for Bede Polding can be defined as a total of 17 hours at a minimum.

4 ABILITY TO EVACUATE

4.1 SELF-EVACUATION

As per the Bede Polding Flood Emergency Response Plan prepared by WMS, it is recommended that the school be closed and occupants be evacuated before the onset of flooding, when the Bureau of Meteorology issues a Flood Watch for the Hawkesbury River. Flood Watch notifications are typically issued 24 hours ahead of an event (at minimum). As such, students and staff are not anticipated to be on site during a flood. However, in the event that the school has not been evacuated before the start of a flood, it is considered that Bede Polding is capable of self-evacuation, and will not rely on emergency services to assist in the evacuation of occupants, due to the following reasons:

- Bede Polding College offers education from Years 7 to 12 (High School), and therefore most of its students will be 12 years old or more.
- The majority of the occupants are non-disabled, and it is expected that assistance is available for disabled occupants in the case that an evacuation is required. As per the Bede Polding Emergency Management Plan, the school keeps an updated list of students and staff with special needs, including temporary mobility issues (e.g. broken legs, sports injuries).
- The development does not fall under the categories of seniors housing, residential care facilities, group homes, or correctional centres, which would typically require emergency services assistance.

4.2 EVACUATION TIMEFRAME

As discussed in Section 3.2.3, the Effective Warning Time at Bede Polding is approximately 17 hours, i.e., from the moment a Flood Warning is issued there is a minimum of approximately 17 hours available for evacuation of all occupants before the access routes to the Regional Flood Evacuation Route are cut off.

A Traffic Impact Assessment has been carried out for the proposed works at Bede Polding by The Transport Planning Partnership as part of the current Development Application. The results of the assessment indicate that approximately 50% of the school occupants arrive/leave the Site by car, and that under normal conditions all those travelling by car take approximately 3.5 hours in total to leave the school.

This effectively equates to one car leaving the site every 10 seconds under normal conditions.

The Bede Polding FERP will trigger a school closure and evacuation based on receipt of a Flood Watch, which may be issued up to 24 hours or more prior to a flood event. As such, it will generally be possible for students and staff to make their way home at the end of the school day as normal (via car/bus), and not return to school until it is safe to do so.

However, if a wide scale evacuation by car is necessary, the following analysis indicates this would be possible within the 17-24 hour timeframe:

- Under normal conditions, one car can enter/leave the site every 10 seconds on average;
- To be conservative, we assume it will take 20 seconds for each car to enter/exit the site (i.e. pick up student or exit carpark on average);
- Assume one vehicle per occupant (i.e. no carpooling/ siblings in same car);
- Projected occupancy to be approximately 1460 (includes students and staff, assumes no absentees);
- 1460 occupant x 20 seconds per occupant = 8 hours total time required for 1460 occupants to leave the site.

While individual car evacuation is feasible, it is advised that the school continues its current practice of closing well ahead of any forecast flooding (i.e. using the BOM Flood Watch as the trigger), to allow a safe, calm evacuation of all students and staff.

4.3 IMPACT ON EXISTING EVACUATION CAPABILITIES

According to the proposed development plans for Bede Polding, the number of enrolled students is expected to increase from 1,240 to approximately 1,360 post-development, and the number of full-time staff is expected to increase from 101 to approximately 105.

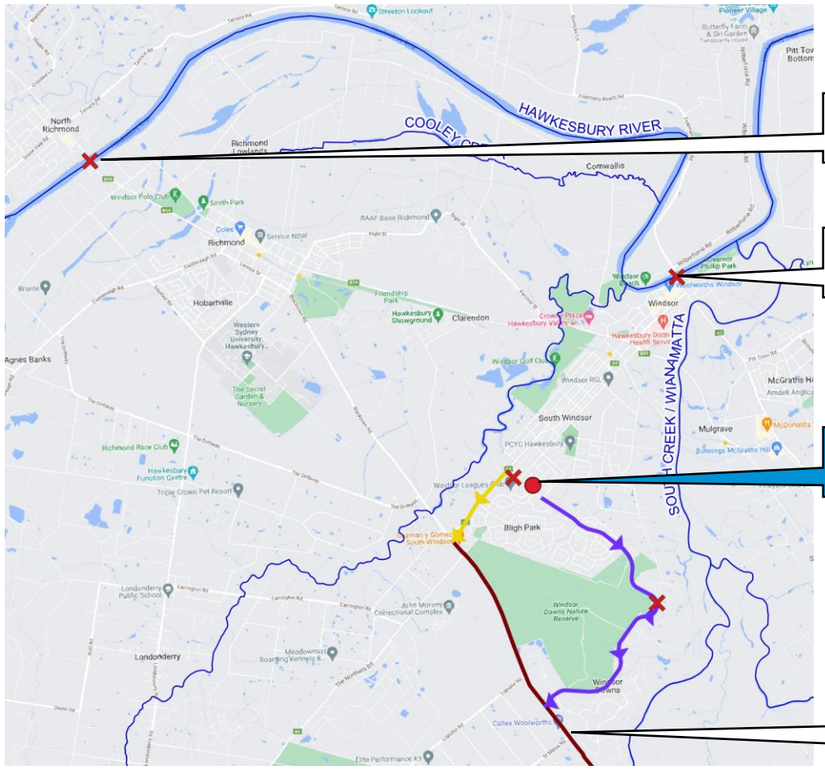
The results of the Traffic Impact Assessment indicate that the expected increase in vehicles trips during the morning and evening peak hours caused by the increase in occupants would have a minor impact to the surrounding road network. Furthermore, the assessment also shows that, under the post-development scenario, the Rifle Range Road/George Street intersection would continue

to operate at similar levels of service to existing conditions (i.e. Level of Service B – Good with Acceptable Delays and Spare Capacity). As such, based on the results of the Traffic Impact Assessment, it is not expected that the development would cause a significant impact on the existing evacuation capabilities. Further, in accordance with the Bede Polding FERP and EMP, the school will be closed well before an evacuation is required.

APPENDIX F

EVACUATION PLAN SUMMARY

BEDE POLDING COLLEGE - FLOOD MANAGEMENT PLAN



Bede Polding College is to be CLOSED (online learning to commence) when:

a) A "FLOOD WATCH" is issued by BoM for the Hawkesbury River OR

b) Road closures are expected at the Richmond or Windsor Bridges

Bede Polding College in the Hawkesbury-Nepean Valley floodplain. The school is primarily affected by reduced access due to road closures in the region long before the school itself is under threat of inundation.

FLOOD RESPONSE STEPS

1. Using the Skoolbag app, an appropriate communication will be posted detailing that students are safe, and should parents/carers or other family members need to pick up students due to flooding issues, details of how these pickups are to be managed at the College. The communication to parents should be updated every two hours, or less if deemed necessary.
2. The Principal will closely monitor the flood situation, and keep up to date with Flood Warnings issued on the Bureau of Meteorology website and act on all advice provided by the NSW SES.

Prior to an Evacuation Warning being issued, the College SET should instigate preparations by:

- Organising potential bus transport to higher ground for any students and staff who are still on site. Consideration needs to be given in regards to the needs of individuals with health issues (Collect and take student and staff medications, first aid and asthma kits, and other medical equipment e.g. defibrillators, epi-pens)
- Planning the evacuation route through consultation with emergency services.
- Managing the movement of all livestock to a pre-determined destination e.g. Agriculture area of St Columba's College in Springwood.
- Identifying areas of the College that would be above the flood water level and commence the movement of essential records, equipment, major works, teaching resources, potentially dangerous chemicals, copies of computer back-up files (an off-site back-up copy should already be maintained) and fire-fighting equipment, to these locations.
- Advising the staff to take their possessions off-site in the days leading up to the flood.
- Ensure that any utilities that may cause additional hazards e.g. electricity, gas and water services, are closed down.

EMERGENCY CONTACTS

TRIPLE ZERO – 000
FOR LIFE-THREATENING EMERGENCIES

NSW SES – 132 500
www.ses.nsw.gov.au
FOR EMERGENCY HELP IN FLOODS OR STORMS

Level at Windsor Bridge (mAHD)	Consequence to Bede Polding Catholic College
Approx 7 – 11.9m AHD	Regional road closures Staff and students may be unable to safely travel between school and home
11.9	Rifle Range Road cut off in both directions from Bede Polding
13.7	Inundation on oval near Mileham Street
16.2	Inundation across western half of school site, no access via Collith Ave or Tasman Pl
17.3	(1% AEP) most of school grounds are inundated

FLOOD INFO

Bureau of Meteorology
www.bom.gov.au

NSW SES Facebook
www.facebook.com/nswses

Hawkesbury City Council
www.hawkesbury.nsw.gov.au

NEVER DRIVE, RIDE OR WALK OR PLAY IN FLOODWATER