GROUPDLA

Building Code of Australia 2022 Report

Report for BCA Compliance

PROJECT NAME: Ulladulla Public School Upgrade - 241 Green Street, Ulladulla NSW 2539
PROJECT NUMBER: **GDL240198**
DATE: **25/03/2025 (Rev E)**

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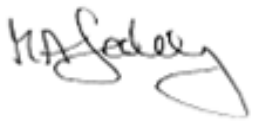
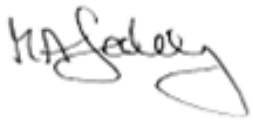
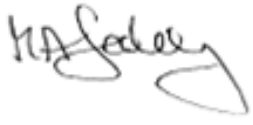
REVISION HISTORY

Revision	Date	Details	Authorised	
			Name/Position	Signature
A	27/08/2024	Masterplan Options	Prepared: Mike Gooley Associate	
			Reviewed: Justin Jones-Gardiner Director	
B	12/11/2024	Concept Design	Prepared: Mike Gooley Associate	
			Reviewed: Justin Jones-Gardiner Director	
C	19/12/2024	Schematic Design – 80%	Prepared: Mike Gooley Associate	
			Reviewed: Justin Jones-Gardiner Director	

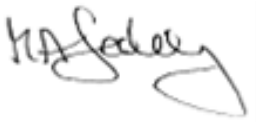
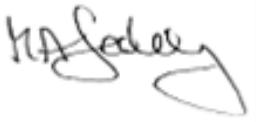
Revision	Date	Details	Authorised	
			Name/Position	Signature
D	20/03/2025	REF-draft	Prepared: Mike Gooley Associate	
			Reviewed: Justin Jones-Gardiner Director	
E	25/03/2025	REF	Prepared: Mike Gooley Associate	
			Reviewed: Justin Jones-Gardiner Director	

Table 1 – Revision History

1.0 EXECUTIVE SUMMARY

This BCA Assessment Report has been prepared to support a Review of Environmental Factors (REF) for the NSW Department of Education (DoE) for Ulladulla Public School upgrade (the activity).

The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37 of the T&I SEPP.

The proposed activity relates to upgrades to Ulladulla Public School. Specifically, the proposed activity comprises the following:

- Construction of a new two-storey home base building over existing car park.
- Alterations to existing car park under new building.
- Construction of new stairs and covered walkways.
- Installation of new fencing.
- External landscape works.
- Installation of solar panels.
- Installation of new pedestrian gate and fire brigade booster.
- Tree removal.

This document has been prepared in accordance with the Guidelines for Division 5.1 assessments (the Guidelines) by the Department of Planning, Housing and Infrastructure (DPHI) as well as the Addendum Division 5.1 guidelines for schools. The purpose of this report is to supplement the REF submission to demonstrate that compliance is readily achieved with the National Construction Code, Volume 1, Class 2-9 Buildings, Building Code of Australia 2022 ("BCA").

Compliance with the BCA will be achieved by a combination of Deemed-to-Satisfy and Performance Solutions and will be assessed further as the design progresses towards the crown certification of building works. Refer to Section 5 and 6 of this report which details departures from the DtS to be addressed by performance solutions and mitigation measures to be implemented and incorporated within the design. The design documentation will require further assessment as the design progresses within the next stage of the design documentation together with application for crown certification of building works.

2.0 INTRODUCTION

The subject BCA review has been limited to an assessment of the REF (Schematic Design – architectural drawings (100% SD) from Fulton Trotter Architects.

2.1 Reporting Team

The information contained within this report was prepared by Mike Gooley, Registered Certifier (BDC0143 and reviewed by Justin Jones-Gardiner, Registered Certifier (BDC0204) from Group DLA.

2.2 Current Legislation

The applicable legislation governing the BCA version for buildings is the Environmental Planning and Assessment Act 1979.

Whilst we await final confirmation on the building approval mechanism, it is understood at this stage that the project will follow a Crown Approval pathway (State Government Project or University). The provisions of Section 6.28 of the Environmental Planning and Assessment Act (Crown Building Work), require that the building work be carried out in accordance with the Building Code of Australia (BCA). The application of compliance with the particular version of the BCA is the date on which tenders were issued for the building works.

The BCA is now updated every three (3) years, the next updated will be BCA 2025 which is anticipated to come into force on the 1st of May 2025.

2.3 Fire Brigade

As per BCA 2022 Clause A2G2(4) all Performance Solutions are required to undertake a Performance Based Design Brief (PBDB) process, NSW Fire Brigades have advised (https://www.fire.nsw.gov.au/page.php?id=9154) that they will only provide their stakeholder input via a Fire Engineering Brief Questionnaire (FEBQ) process prepared and lodged by the engaged Fire Safety Engineer. This applies to all projects irrespective of the approval process, Crown, REF, CDC or Construction Certificate projects, if there are any Performance Solutions affecting fire safety all need to undertake this stakeholder engagement with NSW Fire Brigade which the Fire Safety Engineering will lodge.

Construction Certificates - the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulations 2021 (EP&A Reg 2021), Section 27 (previously Clause 144 of the Old Regulation), requires buildings the subject of Construction Certificate approval to have the Fire Engineering Report to be referred to Fire Brigade within seven (7) days of lodgement of the CC application on the NSW Government e-Planning Portal in certain cases.

Section 27 of the EP&A 2021 Regs defines which fire engineering reports need to be referred, and generally relates to Category 2 Fire Safety Provisions (defined in the Act) and/or for cladding performance solutions[1], and the floor area of a fire compartment in general terms exceeds 2000 m^2 or the floor area of the building exceeds 6000 m^2, the Section 27 referral to the FRNSW is to be assessed and lodged by the engaged Registered Certifier assessing the Construction Certificate**.**

[1]***Category 2 fire safety provision means the following provisions of the Building Code of Australia, namely, CP9, EP1.3, EP1.4, EP1.6, EP2.2 and EP3.2 in Volume One of that Code.***

It is common practice to adopt this Construction Certificate process on Crown projects under a voluntary submission, however this is up to the discretion of the Crown Authority if this subsequent Fire Engineer Report referral and Inspection of Fire Brigades will be adopted on a project by project. (Note: there is no option for the FEBQ process, but voluntary for the Report lodgement and request for inspection on completion which can only be made if the report is lodged initially.)

Under recent changes to the legislation and Fire brigade advice, for Section 27 referrals of the Fire Engineering Report the fire brigade is required to respond within 10 days advising whether or not they will be proceeding with a review and providing the Initial Fire Safety Report. If so, they have not more than 28 days from the initial lodgement to provide their report or the Certifier can choose to invoke the provisions of Clause 144(6A)(c) and issue the Construction Certificate after 28 days of officially lodging the Clause 144 application; further consultation is required on this issue with the engaged Certifier as in almost all cases the Certifier will await comments and adopt any recommendations made by NSW Fire & Rescue which may have programme implications to be planned for.

2.4 Limitations

This report does not constitute or include, nor imply or audit any assessment of the following;

- This assessment is limited to the developed documentation at the date of this report and as referenced within the “Documentation Assessed” section of the Report.
- Preparation of performance provisions of the BCA are excluded.
- This report does not include assessment of the documentation against the provisions of the Disability Discrimination Act 1992 or (Access to Premises Buildings) Standards 2010.
- Any roof top plant or the like has been assessed (assumed) as open to the sky. Covered areas to roof tops may constitute an extra storey thus BCA requirement for the entire building may change.
- Travel distances have been assessed on an open plan basis with an allowance made for travel around pending fixed structures. No consideration has been given to any future fixed structures and accordingly, further assessment will be required in the event of floor plan or fixture amendments if and when these are provided formally.
- This report excludes any form of Certification Work as defined in the regulations, and is for BCA Compliance purposes only.
- Generally, the assessment does not include a detailed assessment of Australian Standards.
- Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Local Council, ARTC, Department of Planning, Liquor Licensing Act 1997 and the like; and
- Demolition Standards not referred to by the BCA.
- Work Healthy and Safety Act 2011 (Safety in Design).
- The National Construction Code – Plumbing Code of Australia Volume 3.
- BCA Report lists Clauses and Specifications are based on the Draft version of BCA 2022, should changes occur in the issued/adopted version then any changes are excluded and the actual clause in the BCA will supersede anything listed in the Report.
- The capacity of design of any Electrical, Fire, Hydraulic or Mechanical Services.
- Structural and services drawings have not been reviewed, nor any consideration given to the structural capacity (or inherent FRL’s) of the building.

3.0 BUILDING DESCRIPTION

3.1 Site Description

Ulladulla Public School is located at 241 Green Street, Ulladulla NSW 2539. The site is located within the Shoalhaven Local Government Area (LGA) and has an approximate area of 3.5 hectares. An aerial photograph of the site is provided at **Figure 1.** The site is comprised of three lots, legally referred to as follows:

i) Lot 1 in Deposited Plan 122514
ii) Lot 1 in Deposited Plan 529425
iii) Lot 1 in Section 16 in Deposited Plan 759018

The site is zoned SP2 Educational Establishment and existing development comprises various buildings, a car park, landscaping, a sports field and sports courts associated with Ulladulla Public School. Ulladulla Public School currently comprises 22 Permanent Teaching Spaces (PTS) and 11 Demountable Teaching Spaces (DTS). The western portion of the site contains playing fields, sports courts and parking. Vegetation is interspersed throughout the site.

The site is irregularly shaped with a long frontage to Green Street to the south. Land to the north of the site is zoned RE1 which consists of natural bushland. Low density residential dwellings adjoin the site along the western boundary.

Figure 1 Aerial Photograph of the Site

Source: Urbis, January, 2024

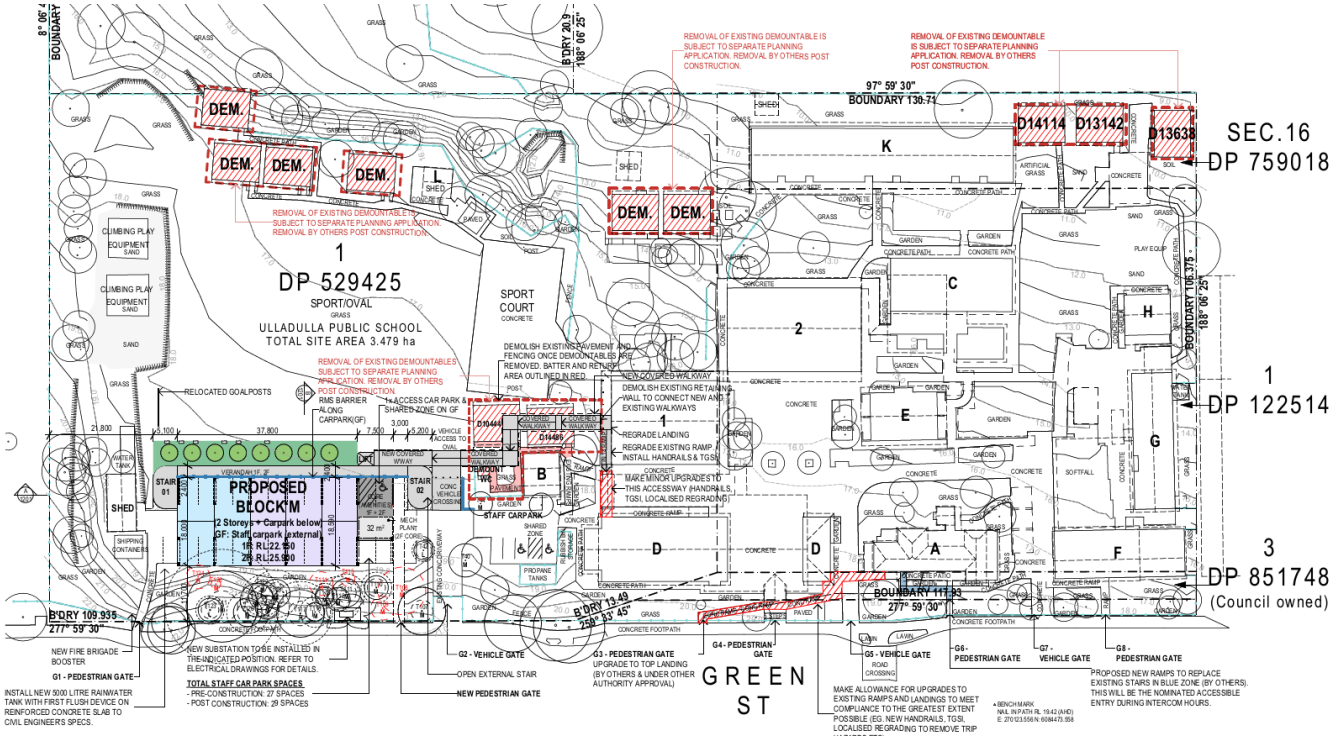
3.2 Proposed Activity Description

The proposed activity relates to upgrades to Ulladulla Public School. Specifically, the proposed activity comprises the following:

v. Construction of a new two-storey home base building over existing car park.
vi. Alterations to existing car park under new building.
vii. Construction of new stairs and covered walkways.
viii. Installation of new fencing.
ix. External landscape works.
x. Installation of solar panels.
xi. Installation of new pedestrian gate and fire brigade booster.
xii. Tree removal.

Any works relating to the existing demountables will be undertaken via a separate planning pathway. **Figure 2** provides an extract of the proposed site plan.

Figure 2 Site Plan



Source: Fulton Trotter, 2025

3.3 Building Description

BCA Class	Level	Description/Use Proposed
Class 7a	Ground Level	Carpark
Class 9b	Level 1 and 2	Educational Purposes (classrooms)
Class 10a	Ground Floor	Covered Walkways

Table 2 – Building Class (or part)

Characteristic	Description
BCA Classifications:	7a, 9b and 10a
Type of Construction:	Type A Construction
Floor Area of Whole Building:	Calculated < 3,000sqm
Volume of Whole Building:	Calculated < 11,250m^3
Max Fire Compartment Size (Floor Area):	8,000m^2
Max Fire Compartment Size (Volume):	48,000m^3
Fire Compartments:	Single fire compartment – whole building.
Rise in Storeys:	3
Levels Contained:	3
BCA Effective Height:	Less than 25.0m
Climate Zone:	6
Importance Level (BCA Table B1D3a):	Assume 3

Table 3 – Building Characteristic

Open-deck carpark:	A carpark in which all parts of the parking storey and cross-ventilated by permanent unobstructed openings in not fewer than 2 opposite or approximately opposite sides, and – (a) Each side that provides ventilation is not less than 1/6 of the area of any other side; and (b) The openings are not less than ½ of the wall area of the side concerned.

3.4 Documentation Assessed

This report is based on the following Schematic Design (architectural drawings – 100%, dated 12/12/2024) prepared by Fulton Trotter.

Description	Drawing No.	Revision
Existing & Demolition Site Plan	DR A 1001	08
Site Analysis	DR A 1002	03
Proposed Site Plan	DR A 1101	11
Site Sections	DR A 1201	08
Shadow Diagrams	DR A 1301	03
Shadow Diagrams	DR A 1302	03
Staging Plan	DR A 1501	06
Playspace Calculation	DR A 1601	03
Proposed Amenities Strategy	DR A 1602	03
Indigenous Artwork Strategy	DR A 1604	03
Proposed Level 1 Floor Plan	DR A 2102	09
Proposed Level 1 Ceiling Plan	DR A 2103	05
Proposed Ground Floor Plan	DR A 2101	09
Proposed Roof Plan	DR A 2104	09
Proposed Level 2 Floor Plan	DR A 2103	09
Proposed Level 2 Ceiling Plan	DR A 2201	05
Proposed Elevations	DR A 3201	04
Proposed Elevations	DR A 3202	04
Proposed Sections	DR A 3301	04
Façade Strategy	DR A 3401	07
External Materials and Finishes	DR A 3402	03
External Wall Types Details	DR A 4001	04
Internal Wall Types Details	DR A 4002	04
Typical Details Section 01	DR A 4201	04
Typical Details Section 02	DR A 4202	04
Typical Covered Walkway Details	DR A 4801	02

Description	Drawing No.	Revision
Typical Fascia Details	DR A 4901	02
External Door & Window Schedule	DR A 6001	02
Internal Door & Window Schedule	DR A 6002	02
Perspectives 01	DR A 9001	05

Table 4 – Documentation Assessed

Additional Supporting Documentation:
➢ Bushfire – Opportunities and Constraints Assessment Report by Eco Logical dated 1 September 2023.
➢ Bushfire Protection Assessment by Eco Logical dated 3 March 2025
➢ Annual Fire Safety Statement for Ulladulla Primary School

Table 5 – Documentation Assessed

3.5 Assumptions

Assumptions made in the preparation of the report are identified below;

1. A total school campus population of up to 703 (2024) students with 66 staff (54 full time equivalent) (2024).
2. The proposed school building will be designed to accommodate 270 students. (30 students X 8 GLS) + (10 students x 3 Support Learning GLS).
3. Importance Level: Guide to the BCA indicates importance level 3 apply to buildings and facilities with a primary school, a secondary school or day care facilities with a capacity greater than 250.
4. The external balconies and walkways are open circulation areas with sterile finishes. Consequently, the use of these areas does not contribute to the fire load for the purposes of assessment under Part C3 of the BCA.
5. Disabled Access, Section J energy Efficiency are excluded from this report and details relating to these elements are located in other reports/documentation.

4.0 BCA COMPLIANCE DISCUSSION & DESIGN CONSIDERATIONS

The following assessment will provide an overview of the compliance with the BCA and identify issues that require particular attention as the design progresses towards the crown certification of building works.

Section B – Structure

1. Structural Engineer to review and provide compliant design in accordance with Part B, Part C and Clauses D3D4 of BCA 2022, and all listed / referenced Australian Standards
2. Structural Engineer is to outline and provide to the Consultant Team (Façade designer, Architect and Services Consultants) the calculated expected Earthquake actions and expected forces expected on non-structural components to be designed for, from Section 8 of AS 1170.4-2007 as referenced in BCA 2022.
3. Services Consultants to provide confirmation of compliance of non-structural elements in accordance with Sections 8 of AS1170.4-2007 or alternatively Structural Engineer to provide specific design statement referencing non-structural elements as outlined in Section 8 of AS1170.4-2007 Note: This may require input from Structural engineer as per Item 2 above.
4. Architect to provide confirmation of compliance of non-structural elements in accordance with Sections 8 of AS1170.4-2007 or alternatively Structural Engineer to provide specific design statement referencing non- structural elements as outlined in Section 8 of AS1170.4-2007. Note: This may require input from Structural engineer as per Item 2 above.

Section C – Fire Resistance

5. Structural Engineer and Architect to review and provide compliant design with respect to required FRL's for a Type A, 9b structure, including all loadbearing structures which provide direct vertical or lateral support to those elements with a required FRL.
6. Lift Shaft – should the lift shaft/s be designed to be non-loadbearing; the Structural engineer is to provide the required Earthquake information to the consultant designing the lift shafts to meet the requirements of Section 8 of AS 1170.4-2007 as referenced in BCA 2022.
7. The buildings with a rise in storey of 3 must be designed to comply with Type A construction. The windows between storeys must be suitably fire-separated by spandrel which achieve compliance with Clause C3D7 of the BCA. The architectural drawings to be suitably detailed to provide 900mm vertical spandrel panels to level 1 and 2. Please note – spandrel separation does not apply to an open-deck carpark.
8. Architect / Façade Consultant is to provide a Detailed statement outlining each part/element contained in the makeup of the external wall system and any other elements required to be non-combustible in accordance with C2D10 (external walls) & C2D14 (Ancillary Elements). Current fire test reports required to be provided in accordance with AS1530.1 for each element required to be non-combustible in accordance with C2D10 & C2D14.

(1) In a building *required* to be of **Type A** construction—

(a) each building element listed in Tables S5C11a to S5C11g and any beam or column incorporated in it, must have an FRL not less than that listed in those Tables for the particular Class of building concerned; and

(b) any *internal wall required* to have an FRL with respect to *integrity* and *insulation* must extend to—

(i) the underside of the floor next above; or

(ii) the underside of a roof complying with Tables S5C11a to S5C11g; or

(iii) if under S5C15 the roof is not *required* to comply with Tables S5C11a to S5C11g, the underside of the *non-combustible* roof covering and, except for roof battens with dimensions of 75 mm x 50 mm or less or *sarking-type material*, must not be crossed by timber or other *combustible* building elements; or

(iv) a ceiling that is immediately below the roof and has a *resistance to the incipient spread of fire* to the roof space between the ceiling and the roof of not less than 60 minutes; and

(c) a *loadbearing internal wall* and a *loadbearing fire wall* (including those that are part of a *loadbearing shaft*) must be constructed from—

(i) concrete; or

(ii) masonry: or

(iii) Subject to (2), *fire-protected timber*; or

(iv) any combination of (i) to (iii); and

(d) the FRLs specified in Tables S5C11a to S5C11g for an external column apply also to those parts of an internal column that face and are within 1.5 m of a window and are exposed through that window to a fire-source feature

(2) For the purposes of (1)(c)(iii), fire-protected timber may be used, provided that—

(a) the building is—

(i) a separate building; or

(ii) a part of a building—

(A) which only occupies part of a *storey*, and is separated from the remaining part by a *fire wall*; or

(B) which is located above or below a part not containing *fire-protected timber* and the floor between the adjoining parts is provided with an FRL not less than that prescribed for a *fire wall* for the lower *storey*; and

(b) the building has an *effective height* of not more than 25 m; and

(c) the building has a sprinkler system (other than a FPAA101D or FPAA101H system) throughout complying with Specification 17; and

(d) any insulation installed in the cavity of the timber building element *required* to have an FRL is *non-combustible*; and

(e) cavity barriers are provided in accordance with Specification 9

(3) For the purposes of Table S5C11a and Table S5C11b, includes any column and other building element incorporated within it or other external building element

Table S5C11a: Type A Construction: FRL of loadbearing parts of external walls

Distance from a fire-source feature	FRL (in minutes): Structural adequacy/ Integrity / Insulation			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3m	90/60/60	120/90/90	180/180/120	240/240/180
3m or more	90/60/30	120/60/30	180/120/90	240/180/90

Table S5C11b: Type A Construction: FRL of non-loadbearing parts of external walls

Distance from a fire-source feature	FRL (in minutes): Structural adequacy/ Integrity / Insulation			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5m	–/90/90	–/120/120	–/180/180	–/240/240
1.5 to less than 3m	–/60/60	–/90/90	–/180/120	–/240/180
3m or more	–/–/–	–/–/–	–/–/–	–/–/–

Table S5C11c: Type A construction: FRL of external columns not incorporated in an external wall

Column Type	FRL (in minutes): Structural adequacy/ Integrity / Insulation			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing	90/–/–	120/–/–	180/–/–	240/–/–
Non-Loadbearing	–/–/–	–/–/–	–/–/–	–/–/–

Table S5C11d: Type A construction: FRL of common walls and fire walls

Wall Type	FRL (in minutes): Structural adequacy/ Integrity / Insulation			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing or Non-loadbearing	90/90/90	120/120/120	180/180/180	240/240/240

Table S5C11e: Type A construction: FRL of loadbearing internal walls

Distance from a *fire-source feature*	FRL (in minutes): Structural adequacy/ Integrity / Insulation			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair *shafts*	90/90/90	120/120/120	180/120/120	240/120/120
Bounding *public corridors*, public lobbies and the like	90/90/90	120/–/–	180/–/–	240/–/–
Between or bounding *sole-occupancy units*	90/90/90	120/–/–	180/–/–	240/–/–
Ventilating, pipe, garbage, and like *shafts* not used for the discharge of hot products of combustion	90/90/90	120/90/90	180/120/120	240/120/120

Table S5C11f: Type A construction: FRL of non-loadbearing internal walls

Location	FRL (in minutes): Structural adequacy/ Integrity / Insulation			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair *shafts*	–/90/90	–/120/120	–120/120	–/120/120
Bounding *public corridors*, public lobbies and the like	–/60/60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*	–/60/60	–/–/–	–/–/–	–/–/–
Ventilating, pipe, garbage, and like *shafts* not used for the discharge of hot products of combustion	–/90/90	–/90/90	–/120/120	–/120/120

Table S5C11g: Type A construction: FRL of other building elements not covered by Tables S5C11a to S5C11f

Building element	FRL (in minutes): Structural adequacy/ Integrity / Insulation			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Other *loadbearing* internal walls, internal beams, trusses and columns	90/–/–	120/–/–	180/–/–	240/–/–
Floors	90/90/90	120/120/120	180/180/180	240/240/240
Roofs	90/60/30	120/60/30	180/60/30	240/90/60

Roof: Concession

A roof need not comply with Tables S5C11a to S5C11g if its covering is *non-combustible* and the building—

(a) has a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17 installed throughout; or

(b) **has a *rise in storeys* of 3 or less**; or

(c) is of Class 2 or 3; or

(d) has an *effective height* of not more than 25 m and the ceiling immediately below the roof has a *resistance to the incipient spread of fire* to the roof space of not less than 60 minutes

Section D – Access & Egress

9. Number of Exits Required (BCA Clause D2D2):

The BCA prescribes that not less than 2 require exits must be provided from each storey in a Class 9b – Primary/secondary School building. Compliance will be achieved with these provisions of the BCA.

10. Travel Distance to Exits and between Alternative Exits (BCA Clause D2D3 & D2D5):

- Travel distances on the floor must be more than 20m to an exit or a point in which travel in different directions to 2 exits is available, in which case, the maximum distance to 1 exit cannot exceed 40m; and
- Travel distances between alternative exits must be at least 9.0m apart and not exceed a distance of 60m in all other classes, uniformly distributed with access to 2 exits if required and not converge so they become less than 6m apart.

A review of the architectural drawings indicates that travel distances will not comply with the DtS provisions of the BCA. Refer to Appendix A. This will require a performance solution from a fire engineer to comply with the performance requirements of BCA 2022.

11. Fire-isolated exits (BCA Clause D2D4):

- The building is served by 2 perimeter stairways and has been assessed against BCA Clause D2D4. The stairways are not required to be designed as fire-isolated exit where the exit connects, passes through or passes by not more than 2 consecutive storeys and one extra storey of any classification may be included if the required exit does not provide access to or egress for, and is separated from, the extra storey by construction having an FRL of -/60/60 (non-loadbearing) and FRL of 90/90/90 (loadbearing).
- The external stairway are exposed and situated within 6.0m of carpark openings. Therefore – these stairways are required to be assessed as fire-isolated stairways or external stairways in lieu of fire-isolated stairways.
- Refer to mark-up drawings within Appendix A which reflect fire-rating requirements of external walls where exposed to the external stairways.

12. Widths of exits and path of travel to exits (BCA Clause D2D8):

D2D8	**Width of exits and paths of travel to exits**
	If the *storey*, *mezzanine* or *open spectator stand* accommodates more than 200 persons, the aggregate unobstructed width of each *required exit* or path of travel to an *exit*, except for doorways, must be not less than— (a) 2 m plus 500 mm for every 60 persons (or part) in excess of 200 persons if egress involves a change in floor level by a stairway or ramp with a gradient steeper than 1 in 12; or (b) in any other case, 2 m plus 500 mm for every 75 persons (or part) in excess of 200. In an *open spectator stand* which accommodates more than 2000 persons, the aggregate unobstructed width of each *required exit* or path of travel to an *exit*, except for doorways, must be not less than 17 m plus a width (in metres) equal to the number in excess of 2000 divided by 600 In a *required exit* or path of travel to an *exit*, **the unobstructed width of a doorway** must be not less than— (i) where the doorway referred to in (i) is fitted with two leaves and one leaf is secured in the closed position in accordance with D3D26(3)(e), the other leaf must permit an unobstructed opening not less than 800 mm wide; or **(ii)** the unobstructed width of each *exit* provided to comply with D2D8(1), (2), (3) or (4), **minus 250 mm;**

Building	Level	Population	Aggregate Exit Widths Required	Aggregate Exit Widths (Design)	Compliance Comments (Y/N)
	Level 01	200	2.0m	4.3m	Yes
	Level 02	200	2.0m	4.3m	Yes
The unobstructed width of a required exit must not diminish in the direction of travel to a road or open space. The building caters for an occupancy density 560 persons/storey based upon the aggregate exit widths within each storey.					

13. External stairways in lieu of Fire-isolated stairways (BCA Clause D2D13):

(1) An external stairway or ramp may serve as a *required exit* in lieu of a fire-isolated *exit* serving a *storey* below an *effective height* of 25 m, if the stairway or ramp is—

(a) *non-combustible* throughout; and

(b) protected in accordance with (3) if it is within 6 m of, and exposed to, any part of the *external wall* of the building it serves.

(2) For the purposes of this clause—

(a) exposure under (1)(b), is measured in accordance with S5C2, as if the *exit* was a building element and the *external wall* of the building was a *fire-source feature* to the *exit*, except that the FRL *required* in S5C2(1)(a) must not be less than 60/60/60; and

(b) the plane formed at the construction edge or perimeter of an unenclosed building or part such as an *open-deck carpark*, *open spectator stand* or the like, is deemed to be an *external wall*; and

(c) openings in an *external wall* and openings under (3) and (4), are determined in accordance with C4D2.

(3) The protection referred to in (1)(b), must adequately protect occupants using the *exit* from exposure to a fire within the building, in accordance with one of the following methods:

(a) The part of the *external wall* of the building to which the *exit* is exposed must have—

(i) an FRL of not less than 60/60/60; and

(ii) no openings less than 3 m from the *exit* (except a doorway serving the *exit* protected by a –/60/30 fire door in accordance with C4D9(1)); and

(iii) any opening 3 m or more but less than 6 m from the *exit*, protected in accordance with C4D5 and if wall wetting sprinklers are used, they are located internally.

(b) The *exit* must be protected by construction of a wall, roof, floor or other shielding element as appropriate in accordance with (4) from—

(i) any part of the *external wall* of the building having an FRL of less than 60/60/60; and

(ii) any openings in the *external wall*.

(4) The wall, roof, floor or other shielding element *required* by (3)(b) must—

(a) have an FRL of not less than 60/60/60; and

(b) have no openings less than 3 m from the *external wall* of the building (except a doorway serving the *exit* protected by a –/60/30 fire door in accordance with C4D9(1)); and

have any opening 3 m or more but less than 6 m from any part of the *external wall* of the building protected in accordance with C4D5 and if wall wetting sprinklers are used, they are located on the side exposed to the *external wall.*

Assessment:

The external stairways (FS01 & FS02) are located adjacent to the eastern and western external walls of the building. The stairway connects and provides egress from level 01 and 02 and discharge at the ground floor within close proximity to openings within the multi-deck carpark. A review of the design has identified the following departures from the DtS provisions:

- The external stairway circulation zone at the landing of Level 01 will be within 6.0m to the external walls. The external walls within 6.0m zone are required to achieve an FRL 60/60/60 with openings protected by wall-wetting drenchers. Compliance will not be achieved with BCA Clause D2D13 (3). There are openings situated within 3.0m which are not permitted under D2D13 (3) (a) (ii).
- The openings to the open-deck carpark are exposed to the external stairway. The bounding construction of the external stairway within 6.0m to the open-deck carpark are required to achieve an FRL 60/60/60 in accordance with Clause D2D13 (3). It is noted that open perorated mesh surrounds the external stairway.

The abovementioned non-compliance with the DtS provisions will require consultation with the fire engineer to establish that a performance solution is feasible at the crown certificate stage.

<u>Egress Paths to the Public Roadway (BCA Clause D2D15):</u>

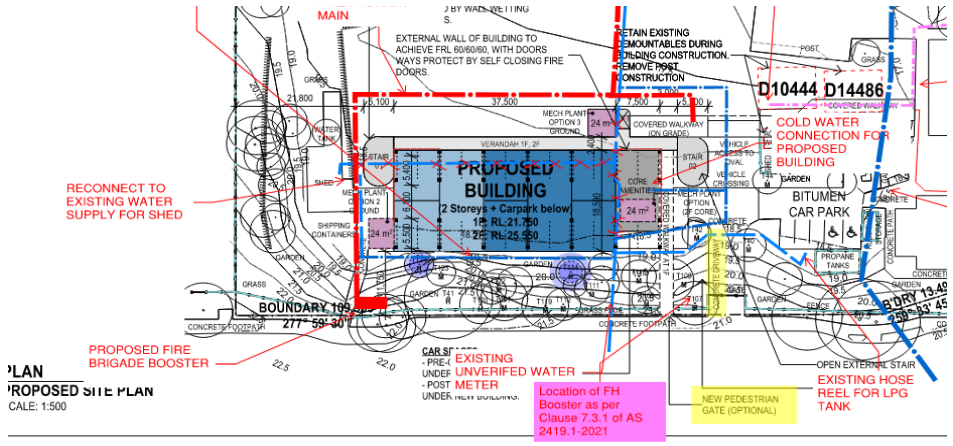
14. The path of travel to the public road after egress from the stairway must be via the same allotment of land. Stair 01 and Stair 02 discharges at the ground floor level with access to the public road via walkway. Compliance will be achieved with the provisions of the BCA.

Section E –Services & Equipment

15. Fire Services and Mechanical Consultants to provide compliant design in accordance with Part E, for the purposes of the building design at this stage the following fire services are anticipated/expected:

- Hydrant system to BCA Clause E1D2 and AS 2419.1-2021;
- A new fire hydrant booster assembly is proposed to be situated along Green Street frontage adjacent to a pedestrian entry gate. It is noted that the location of the fire hydrant booster assembly will not comply with Clause 7.3.1 of AS 2419.1-2021 which requires the following:

  (a) adjacent to the site boundary and the principal vehicle access for the fire brigade pumping appliances to the building or site; or
  (b) not more than 20m from the façade of the building containing the principal pedestrian entrance and not more than 20m from the main pedestrian entrance.



Fire Services Consultant to review location of FH booster.

The proposed location may need to be justified by a performance solution from a fire engineer in consultation with NSW Fire & Rescue.

- Hydraulic Consultant to provide advice in relation to the suitability of the existing fire hydrant booster and access for the fire brigade. Any departures being addressed by way of performance solution from a fire engineer in consultation with NSW Fire and Rescue.

- Fire Hose Reel System is required to serve the Class 7a (carpark) suitable located within 4.0m to the required exits. Fire Hose Reels is not required to serve a class 9b – classrooms.

- Smoke detection system that is provided to satisfy the requirements for automatic shutdown of air-handling system in accordance with NSW E2D16 and S20C6 of the BCA.

- Exit Signs and Emergency Lighting to BCA Part E4 and AS 2293.1-2005.

- Portable Extinguishers to BCA Clause E1D14 and AS 2444-2001.

- Mechanical Ventilation System - Auto Shut Down of any air-handling system as per BCA Clause E2D16 (other than non-ducted individual room units with a capacity not more than 1000 L/s and miscellaneous exhaust air systems installed in accordance with Section 5 and 6 of AS 1668.1) which does not form part of the smoke hazard management system, on the activation of smoke detectors installed in accordance with S20C6.

Section F – Health and Amenity

16. Weatherproofing of External Walls:

    As the materials that can be used as external walls under the DTS provisions are limited, and the proposed design is expected to contain other external wall material / cladding a Performance Solution to BCA Clause F3P1 is to be provided as part of the Crown Certificate Application to the Certifier.

17. Damp and Weatherproofing:

    There are new requirements that a roof, balcony, podium or similar horizontal surface part of a building must be provided with a waterproofing membrane in accordance with AS 4654.1 and AS 4651.2.

    This is a new requirement coming into effect as of 1 May 2022 and careful design consideration will need to be applied in the areas of the balconies and the like in this development. This may be applicable for the proposed trafficable rooftop area of the design.

    There may be conflict with the accessible provisions of Part D4 of the BCA which will need to be comment on further by the access consultant, as this Standard may require hobs at the thresholds to the rooftop, see Figure 3 below. There is relief available as the Standard does allow for a gutter system at the threshold of the door sill, which is to be fitted with an AS1428.1-2009 approved grate, in lieu of a hob (Ref: AS 4654.2). However, such detail should only be determined in accordance with the hydraulic engineer and the access consultant. Note that the accessible Standard contains restrictions on heights differences between abutting surfaces, such as the flooring and door sill, and a review of Section 7 of AS 1428.1-2009 (note the designer will need to review the 2021 version of this standard as this will be applicable at the time of the Construction Certificate) should be considered as part of the threshold designs.

Figure 3 below also illustrates the membrane termination heights which are given in Table A1 of Appendix of the Waterproofing Standard. Note that the heights are related to the determined wind class from AS 4055-2012 and should only be determined by the appropriate project engineer, i.e., structural, hydraulic or façade engineer.

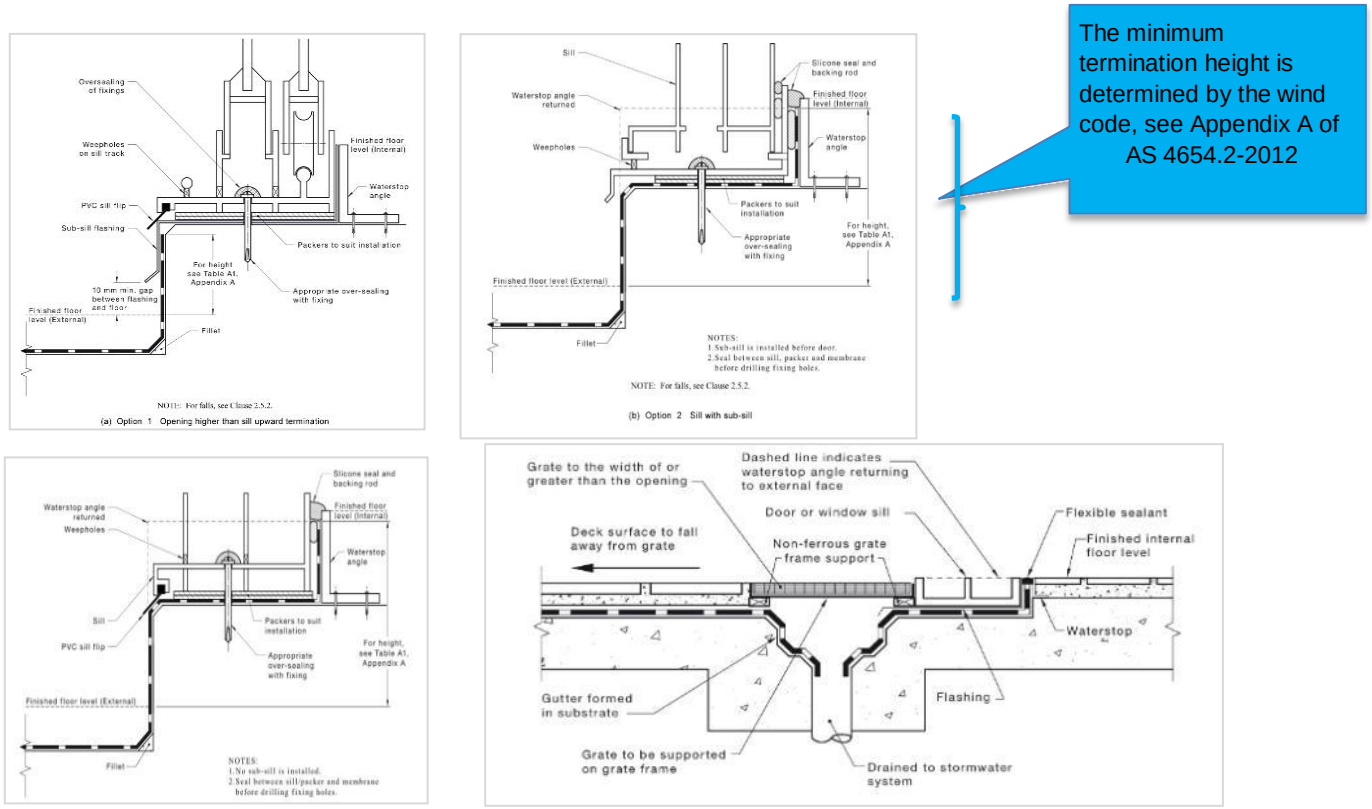


Figure 3 - Various waterproofing options at threshold and outlets.

Doors and windows onto external waterproof areas are required to comply with either of the 4 options above. Consideration must be given to access for people with disabilities which requires 5mm tolerance in difference with floor levels at door thresholds. Therefore – Clause 2.8.3 from AS 4654.2 requires grates to be provided as per figure 2.9 in front of doorways along the balconies within each storey.

The architectural and Hydraulic details will be further developed to achieve compliance with these provisions of the BCA.

18. <u>Occupant Numbers and Assessment of Sanitary Facilities:</u>

Sanitary facilities have been calculated for the new 3 storey school building based upon a student population of 270 students. We have assessed and confirm that the sanitary facilities for male and female are sufficient to comply with the provisions of the BCA.

Sanitary Facilities required based upon Design Occupancy

Student – Sanitary Facilities

	Population	Pans	Urinals	Washbasins
Male	135	3	3	4
Female	135	7	N/A	4
	Unisex Accessible		1 per Bank	

Notes:

1. Each urinal for males can be substituted with a water closet.
2. An accessible unisex facility required for people with a disability may be counted once for each sex. This concession means that for each wash basin and closet pan counted above, you may deduct for each accessible unisex facility provided.
3. Ambulant facilities must be provided with the block of sanitary facilities in accordance with BCA and AS 2419.1- 2009.
4. Unisex staff sanitary facility is provided via the SLSO office. It is assumed adequate number of

sanitary facilities for employees are located within the school campus. Further details of the number of employees within the school campus.

Part J – Energy Efficiency

19. ESD Consultant to review project and provide compliance statement/report for Section J. Note this is expected to include a review of the detailed design sections and detail of external walls for thermal break and make-up of the façade elements in the review, and not a high-level report outlining the required values only, this is due to the detailed assessment nature for Section J of external walls and roofs in BCA 2019 Amendment 1 together with draft version of BCA 2022 which will be implemented from 1 May 2023.

Part G5 – Construction in Bushfire Prone Areas

20. The Deemed-to-Satisfy provisions apply in a designated bushfire prone area to a building located in an area subject to a Bushfire Attack Level (BAL) not exceeding BAL – 12.5, determined with AS 3959 that is a Class 9b – primary or secondary school.

    Bushfire – Opportunities and Constraints Assessment Report prepared by Eco Logical Australia dated 3 March 2025 has confirmed the subject land is partially mapped as bush fire prone land (BFPL), however the proposed activity is located outside this area. It is our opinion, based upon the new building being located outside the mapped area then Part G5 and specification 43 will not be applicable for this development. Whilst this is our opinion, this must be reviewed/confirmed by the project PCA/Crown Certifier for concurrence.

5.0 PERFORMANCE SOLUTIONS

The following are Performance Solutions proposed or expected as a result of our assessment of the listed documentation:

5.1 Fire Engineering Performance Solutions

Item	Query or DTS Non- Compliance	Suggested Resolution	BCA Clause	BCA Performance Requirements
1.	Travel Distance exceed the DtS provisions: A review of the architectural drawings indicates that travel distances will not comply with the DtS provisions of the BCA. Refer to Appendix A. This will require a performance solution from a fire engineer to comply with the performance requirements of BCA 2022.	Consideration being given to the documentation of a performance solution from a fire engineer to address the extended travel distances to required exits.	D2D5, D2D6	D1P4, E2P2
2.	External Stairways: a. The external stairway circulation at the landing of Level 01 will be within 6.0m to the external walls. The external walls within 6.0m are required to achieve an FRL 60/60/60 with openings protected by wall-wetting drenchers. There are openings situated within 3.0m which are not permitted under D2D13 (3) (a) (ii). b. The openings to the open-deck carpark are exposed to the external stairway. The bounding construction of the external stairway within 6.0m to the open-deck carpark are required to achieve an FRL 60/60/60.	Consideration may be given to a fire engineering – performance solution to evaluate the safe evacuation of occupants.	D2D13 (3)	C1P2, D1P5, E2P2
3.	Location of Fire Hydrant Booster Assembly: The fire hydrant booster assembly is not located adjacent to main pedestrian entry or vehicle access to the site in accordance with Clause 7.3.1 of AS 2419.1-2021.	Consideration being given to a performance solution from a fire engineer to address the location of the new booster assembly.	E1D2, AS 2419.1-2021 (Clause 7.3.1).	E1P3

Table 6 – DtS Non-compliances Summary

5.2 Disabled Access Performance Solutions

Disabled Access consultant is to advise if any Performance Solutions are proposed for any Disabled Access matters for the building. Refer to a separate Access consultant's report for details.

5.3 Section J Energy Efficiency

It is expected that a Verification Method approach is proposed for the building based off the design, if that is the case then the Provision of the Section J report will be required to meet the requirements of the relevant Verification Clause of Section J and be provided as part of the Construction Certificate/Crown Certificate/Complying Development Certificate Application to the Certifier.

See Section J Consultants report for requirements relating to the design of the building and services requirements, which may differ from the BCA clauses contained in this report.

5.4 Weatherproofing of External Walls

As the materials that can be used as external walls under the DTS provisions (BCA Clause F3D5) are limited, and the proposed design is expected to contain other external wall material/cladding a Performance Solution to BCA Clause F3P1 may be considered/evidence of suitability that the selected materials are tested and certified for the particular purpose. Further documentation to be verified towards the lead up to the certification of building works.

Note: Design team is to establish which consultant will be preparing this Report, and the required PBDB for it as well, this is not as simple as a Design Statement but involves the preparation of a Performance Solution Report.

6.0 Mitigation Measures

The information submitted at this stage of the design is not considered to be detailed to the extent where the development of a comprehensive BCA report is achievable and therefore this report is preliminary only. Subject to compliance with the mitigation measures of this report, it is considered that the activity can readily comply with the relevant requirements of the BCA.

In order for the design complies with the BCA, the following items listed in Table 7 below are required to be clarified, submitted, illustrated, etc. as the case may be as the design progresses towards the application for crown certification of building works.

Item No.	Mitigation Measures	Reasons/Comment	BCA Clause
A.	Fire-rating of Building Elements: Structural steel columns incorporated within the external walls together with external columns to the fire-source feature must achieve the required FRL's.	Architect/structural engineer to detail compliance with the provisions of the BCA.	Spec. 5 of BCA.
B.	External Walls – Non-combustible Construction: The elements that make up an external wall must be tested and certified as non-combustible (i.e., wall assembly, insulation, sarking and attachments).	Architectural design to be development.	C2D10
C.	Spandrel Separation: The windows between storeys must be suitable fire-separated by spandrel separation which achieves compliance with Clause C3D7 of the BCA.	The architectural design drawings being suitable detailed to reflect spandrel separation within the external walls within level 01 and 02 satisfy these requirements.	C3D7
D.	External Stairways: The building is served by 2 perimeter stairways and has been assessed as external stairway in lieu of fire-isolated stairways. a. The external stairway circulation at the landing of Level 01 will be within 6.0m to the external walls. The external walls within 6.0m are required to achieve an FRL 60/60/60 with openings protected by wall-wetting drenchers. There are openings situated within 3.0m which are not permitted under D2D13 (3) (a) (ii). b. The openings to the open-deck carpark are exposed to the external stairway. The bounding construction of the external stairway within 6.0m to the open-deck carpark are required to achieve an FRL 60/60/60.	Architectural design drawings to provide colour coded drawings to reflect fire-separation of the stairway from the external walls of the building which includes any openings in the external walls of the open-deck carpark. Consideration may be given to a fire engineering – performance solution to evaluate the safe evacuation of occupants.	D2D13

Item No.	Mitigation Measures	Reasons/Comment	BCA Clause
E.	Damp and Weatherproofing: There are new requirements that a roof, balcony, podium or similar horizontal surface part of a building must be provided with a waterproofing membrane in accordance with AS 4654.1.	Architectural, hydraulic services and structural design to detail the waterproof membrane in accordance with AS 4654.1 and AS 4651.2	F1D5
F.	Services Design	Fire Services, Electrical, Mechanical, Hydraulic Engineering design to be developed to achieve compliance with the prescriptive provisions of the BCA.	Part C, D, E, F and J

Table 7 – Mitigation Measures

7.0 Evaluation of Environmental Impacts

Compliance with the BCA will be achieved by a combination of Deemed-to-Satisfy and Performance Solutions and will be assessed further as the design progresses towards the crown certification of building works. Performance Solution Reports as identified within the report will be prepared and verified by appropriate qualified persons and mitigation measures suitable incorporated into the design to verify compliance with BCA 2022.

Based upon review of design documentation as reference within this report. We conclude the following:

1. The extent and nature of potential impacts are low and will not have significant impact on the locality, community and / or the environment.
2. Potential impacts can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and / or the environment.

8.0 ESSENTIAL FIRE SAFETY MEASURES (EFSM)

Below is a list of essential fire safety services that may be required to serve a 3-storey school building. This table may be required to be updated as the design develops.

Fire Safety Measure	Standard of Performance	BCA 2022 Clause/Specification(s)
Access panels, doors & hoppers to fire resisting shafts	AS 1530.4 – 2014	C4D14
Automatic fire detection & alarm systems	AS 1670.1 – 2018	Part E2, Specification 20, G3D8
Emergency lighting	AS 2293.1 – 2018	E4D2, E4D4, E4D8
Exit signs	AS 2293.1 – 2018	E4D5, E4D6, NSWWE4D6, E4D8, Spec 25
Fire doors	AS 1905.1 – 2015	C4D7, Spec 12
Fire Doors – Lift Landing Doors	AS 1735.11-1986	C4D11
Fire hydrant systems	AS 2419.1 – 2021	E1D2, Spec 18
Fire seals (protecting openings in fire resisting components of the building)	AS 4072.1 – 2005 AS 1530.4 – 2014	C4D15, C4D16, Spec 13
Lightweight construction	--	C2D9, Spec 6
Mechanical air handling systems • Auto shutdown	AS 1668.1 – 2015 AS 1668.2 –2012	E2D4, E2D3, E2D4, Spec 19, Spec 21, Spec 31
Portable fire extinguishers	AS 2444 – 2001	E1D14
Fire Blankets	AS 2444-2001	E1D14
Warning and operational signs	--	C4D7, E3D4, D3D28 & Spec 17
The documentation of a performance solution from a fire engineer may require additional fire safety measures to be incorporated within the design documentation. This will be established at a later date with the documentation of the FEBQ.		

Table 8 – Essential Fire Safety Measures (EFSM)

Appendix A:

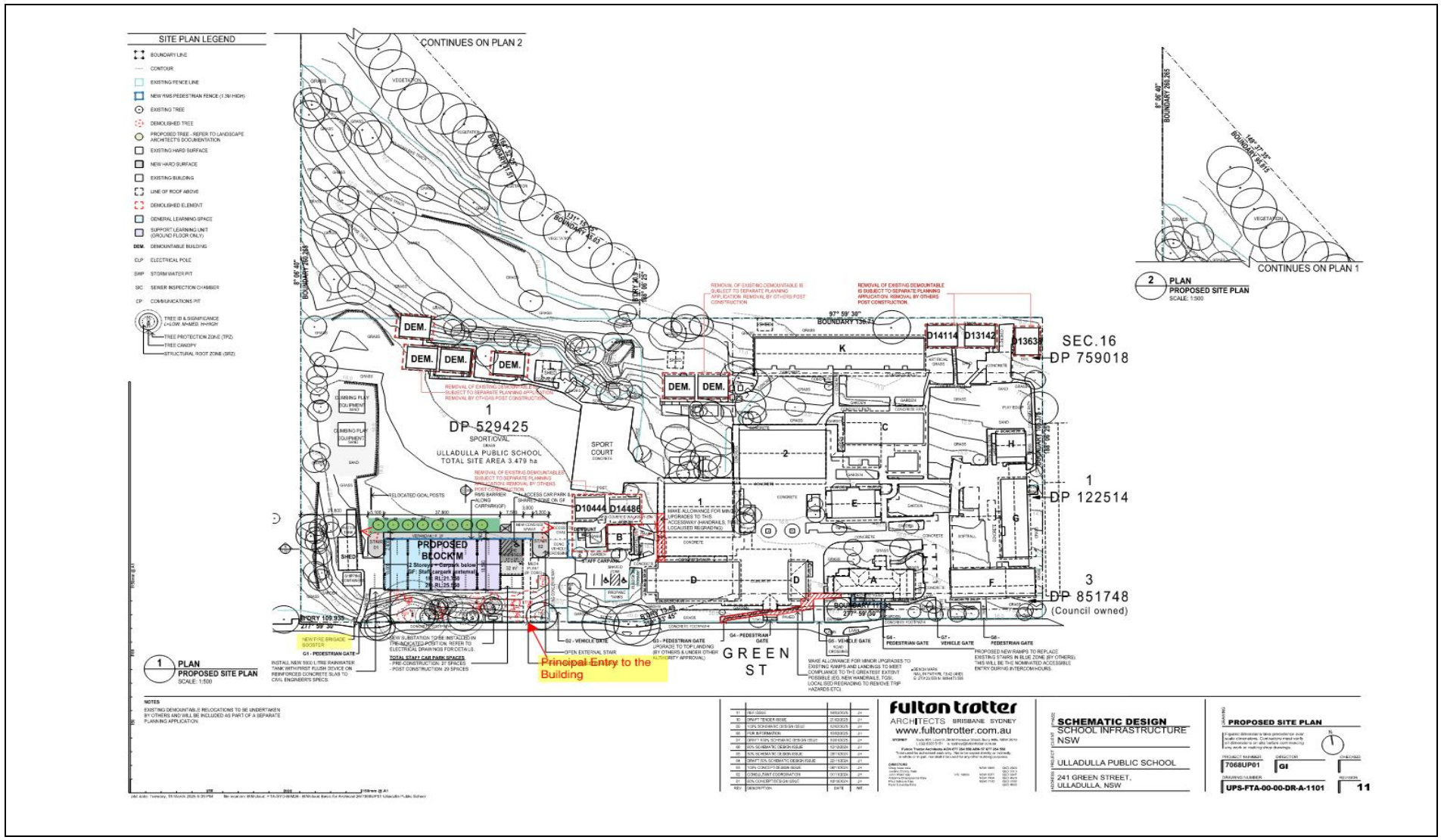
Ancillary Information

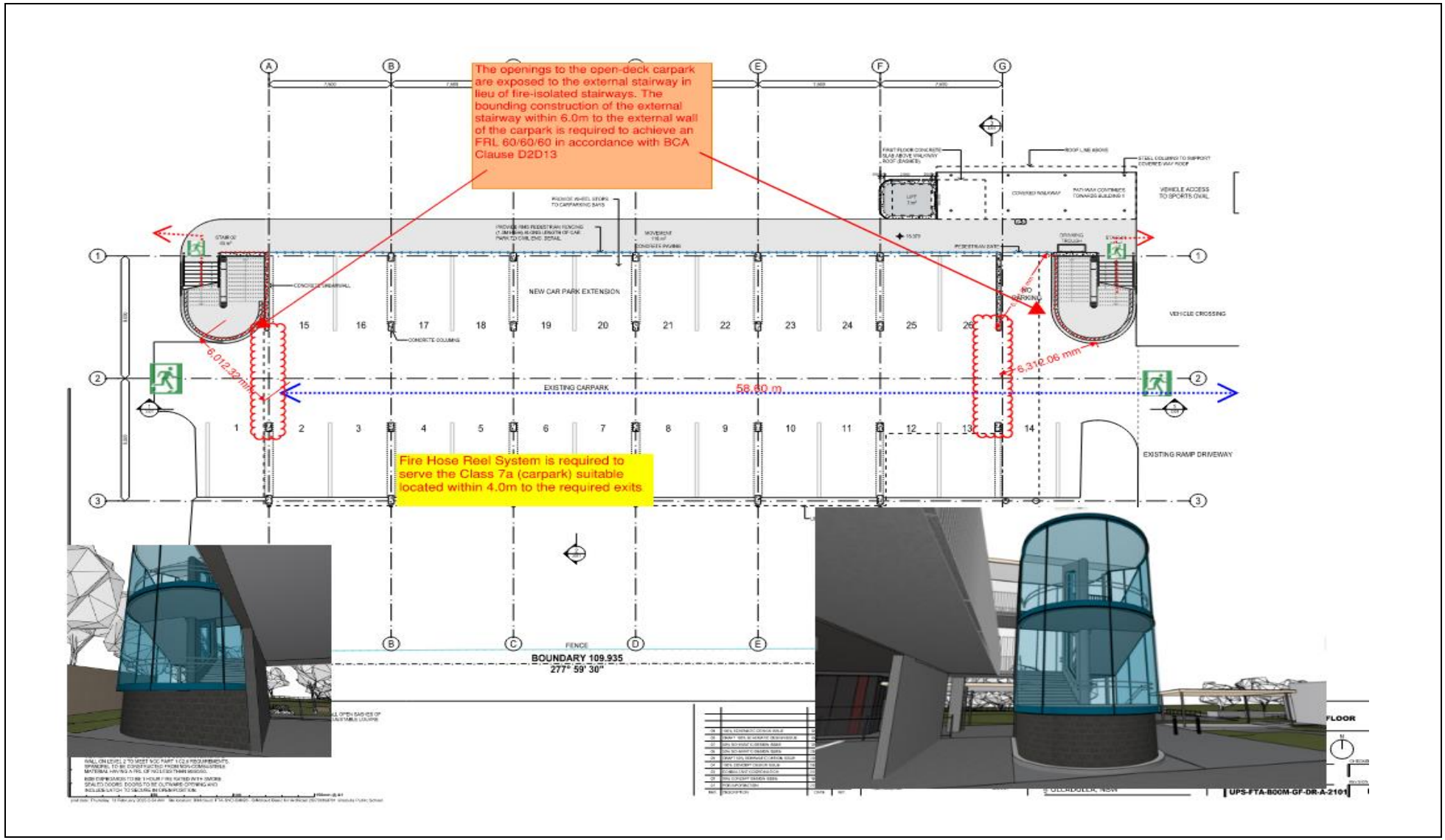
- BCA Assessment – Markup Plans
- Egress Assessment

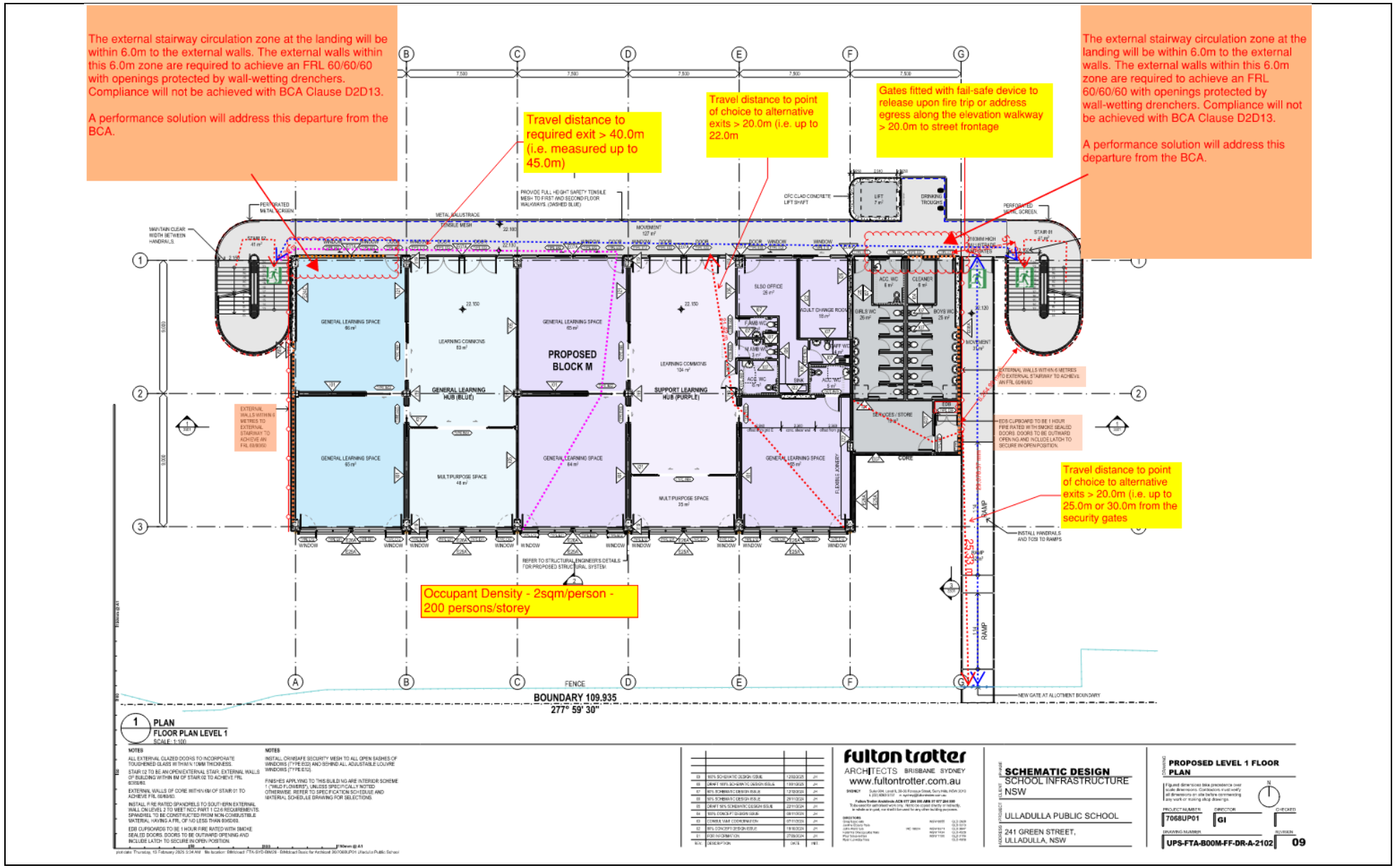
Travel Distances Assessment:

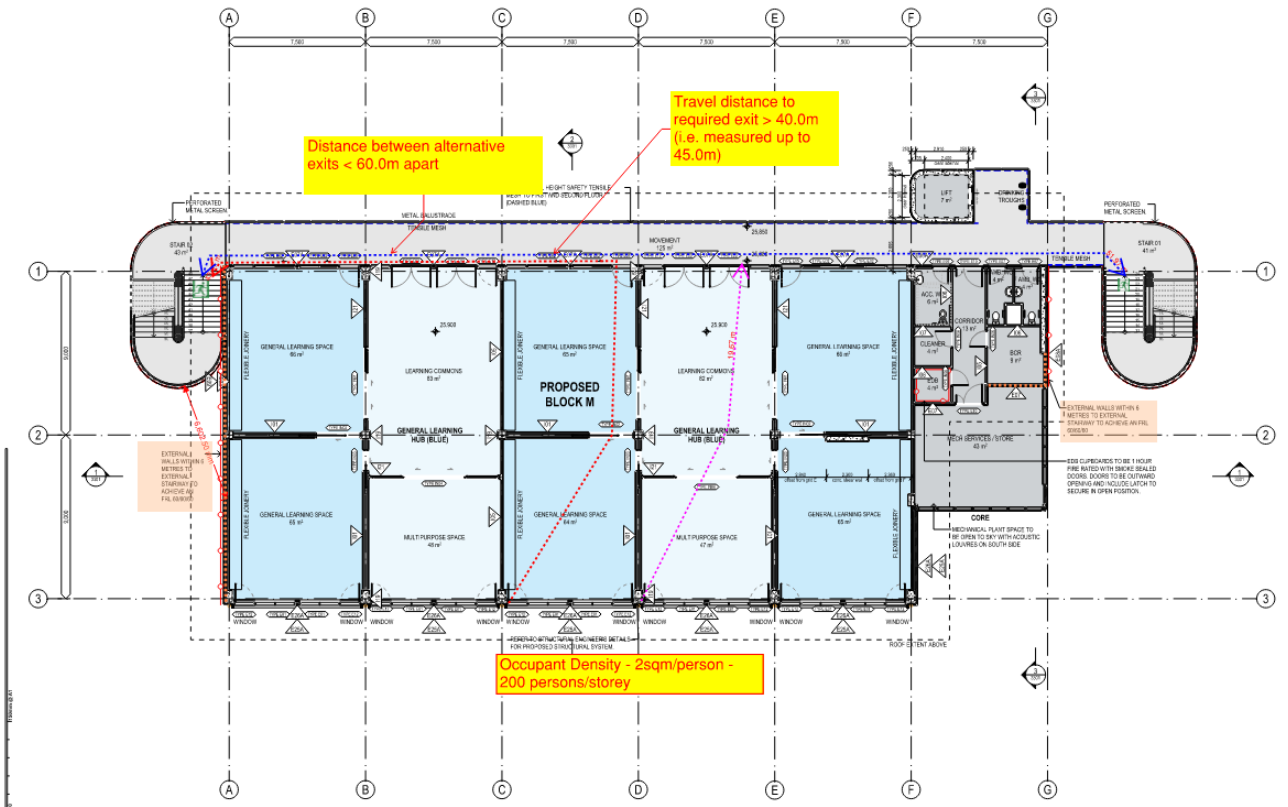
Location	DTS Travel Distance Requirement	Current condition	Performance Requirement	Resolution
Level 2	• 20m max. to a point of choice. • 40m max. to an exit (where min of Two. provided). • 60m max between alternative exits • 9m min.	20/**45**/60	D1P4, E2P2	Travel distance to required exit > 40.0m (i.e. measured up to 45.0m). Compliance will not be achieved with DtS provisions. Performance Solution to be prepared from a fire engineer.
Level 1	• 20m max. to a point of choice. • 40m max. to an exit (where min of Two. provided) • 60m max between alternative exits • 9m min.	**30**/45/60	D1P4, E2P2	➢ Travel distance from GLS to point of choice to alternative exits > 20.0m (i.e. up to 22.0m). ➢ Travel distance to required exit > 40.0m (i.e. measured up to 45.0m). ➢ Travel distance from services/Store via elevation walkway to road > 20.0m (i.e. up to 26.0m). ➢ Travel distance from security gates to road along the elevated walkway up to 30.0m in lieu of 20.0m. Performance Solution to be prepared from a fire engineer.
Carpark	• 20m max. to a point of choice. • 40m max. to an exit (where min of Two. provided) • 60m max between alternative exits • 9m min.	20/40/60	N/A	Travel distance within the open-deck carpark will comply with the DtS provisions of the BCA. The required exit has been assessed at gridline A & G.

BCA Assessment – Markup Plans




The openings to the open-deck carpark are exposed to the external stairway in lieu of fire-isolated stairways. The bounding construction of the external stairway within 6.0m to the external wall of the carpark is required to achieve an FRL 60/60/60 in accordance with BCA Clause D2D13
NEW CAR PARK EXTENSION
EXISTING CARPARK
58.60 m
6,012.32 mm
6,310.06 mm
Fire Hose Reel System is required to serve the Class 7a (carpark) suitable located within 4.0m to the required exits
BOUNDARY 109.935
277° 59' 30"
FENCE
VEHICLE CROSSING
EXISTING RAMP DRIVEWAY
VEHICLE ACCESS TO SPORTS OVAL
UPS-FTA-BOOM-GF-DR-A-2101


The external stairway circulation zone at the landing will be within 6.0m to the external walls. The external walls within this 6.0m zone are required to achieve an FRL 60/60/60 with openings protected by wall-wetting drenchers. Compliance will not be achieved with BCA Clause D2D13.
A performance solution will address this departure from the BCA.
Travel distance to required exit > 40.0m (i.e. measured up to 45.0m)
Travel distance to point of choice to alternative exits > 20.0m (i.e. up to 22.0m
Gates fitted with fail-safe device to release upon fire trip or address egress along the elevation walkway > 20.0m to street frontage
The external stairway circulation zone at the landing will be within 6.0m to the external walls. The external walls within this 6.0m zone are required to achieve an FRL 60/60/60 with openings protected by wall-wetting drenchers. Compliance will not be achieved with BCA Clause D2D13.
A performance solution will address this departure from the BCA.
PROPOSED BLOCK M
GENERAL LEARNING HUB (BLUE)
SUPPORT LEARNING HUB (PURPLE)
Travel distance to point of choice to alternative exits > 20.0m (i.e. up to 25.0m or 30.0m from the security gates
Occupant Density - 2sqm/person - 200 persons/storey
BOUNDARY 109.935
277° 59' 30"
1 PLAN
FLOOR PLAN LEVEL 1
SCALE: 1:100
fulton trotter
ARCHITECTS BRISBANE SYDNEY
www.fultontrotter.com.au
SCHEMATIC DESIGN
SCHOOL INFRASTRUCTURE NSW
ULLADULLA PUBLIC SCHOOL
241 GREEN STREET, ULLADULLA, NSW
PROPOSED LEVEL 1 FLOOR PLAN
7068UP01
GI
UPS-FTA-B00M-FF-DR-A-2102
09


Distance between alternative exits < 60.0m apart
Travel distance to required exit > 40.0m (i.e. measured up to 45.0m)
PROPOSED BLOCK M
GENERAL LEARNING HUB (BLUE)
GENERAL LEARNING HUB (BLUE)
Occupant Density - 2sqm/person - 200 persons/storey
1 PLAN
FLOOR PLAN LEVEL 2
SCALE: 1:100
fulton trotter
ARCHITECTS BRISBANE SYDNEY
www.fultontrotter.com.au
SCHEMATIC DESIGN
SCHOOL INFRASTRUCTURE NSW
ULLADULLA PUBLIC SCHOOL
241 GREEN STREET, ULLADULLA, NSW

Stair / Ramp Precis

Stairs	Access requirement	Handrails	Balustrade	Slip Resistance	Treads, Risers, Widths, Other	TGSI	Common Issues
FIS & Communication Stairs	**YES**	**YES:** Fully accessible handrails required to both sides as follows • 180 degrees handrail turndown or return to wall, • 30 to 50 mm diameter with a 270 degrees clearance around the top of the handrail, • 50 mm clearance to back of handrail, and to a height of 600 mm above the handrail. • Located between 865 mm and 1 m above nosing line. And must be at consistent height through the stairs and landings. • Continuous rail, no handhold breaks • Clear area for 270 degrees to the top of the handrail. **Ref:** BCA D2.17, D3.3(a)(ii) & Cl 11 & 12 of AS 1428.1-2009.	**YES:** No Less than 865 mm above stair nosing line, no less tanh 1 m above landings. No openings greater than 125 mm. No climbable members between 150 and 760 mm where the floor level is 4 m or more above the surface beneath. **Ref:** BCA D2.16(g)(h)(ii)	**YES:** P3 rated slip resistance and highlighted nosing's to no less than 30% luminance contrast to the background. Nosing widths to be between 50 & 75 mm. Strip may be set back 15 mm from the front edge of the nosing but where it is not set back the luminance contrast must not extend down the riser by more than 10 mm. The lip between the tread and strip must not exceed 3 mm, or 5 mm where the edges are chamfered. **Ref:** BCA D2.13, D2.14, D3.3(a)(iii) & Cl 11, 7.2, 7.3 of AS 1428.1-2009.	**Tread:** 250 to 355 mm. (Public) **Tread:** 240 to 355 mm. (Private) **Riser:** 115 to 190 mm. **Quantity:** Must be between 550 to 700 when applying (2 x Riser + Tread.) **Open Riser:** Not permitted, must be opaque. **Riser Splay Back:** Be vertical or max 25 mm. **Stair Width:** Minimum unobstructed width of 1000 mm, measured clear of handrails. Note: 1000 mm clear width will only allow for 100 persons, occupancy quantity review may be required. **Stair Height:** No less than 2 m. **Ref:** BCA D2.13, D1.6	**YES:** Required to the top and bottom of landings. No requirement for the mid landing. **Ref:** BCA D3.8, AS/NZS 1428.4.1-2009	• Lip of the nosing strip excessive in height. • Outer handrail not continuous due to allowing for fire hydrant equipment. • No site allowance for balustrade tolerances. • If separate handrail and balustrade is not used, this usually causes a conflict with the requirement to have the same heights throughout the landings and stairs. • Tread and riser dimensions not constructed uniform in dimension.
Accessible Ramp (1:14 max. gradient)	**YES**	**YES:** Fully accessible handrails required to both sides as follows: • 180 degrees handrail turndown or return to wall, • 30 to 50 mm diameter with a 270 degrees clearance around the top of the handrail, • 50 mm clearance to back of handrail, and to a height of 600 mm above the handrail. • Located between 865 mm and 1 m above the surface. And must be at consistent height through the ramp and mid-landings. • Continuous rail, no handhold breaks. • Continuous kerbing on both sides in compliance with AS1428.1 Figures (18 & 19). • Handrails not to protrude into over the traverse path. • Clear area for 270 degrees to the top of the handrail. **Ref:** BCA D2.17, D3.3(a)(i) & Cl 1.3 & 12 of AS 1428.1-2009.	**YES:** No Less than 865 mm above stair nosing line, no less tanh 1 m above landings. No openings greater than 125 mm. No climbable members between 150 and 760 mm where the floor level is 4 m or more above the surface beneath. **Ref:** BCA D2.16(g)(h)(ii)	**YES:** P3 (dry) and P4 (wet) rated slip resistance and highlighted nosing's to no less than 30% luminance contrast to the background. Nosing widths to be between 50 & 75 mm. Strip may be set back 15 mm from the front edge of the nosing but where it is not set back the luminance contrast must not extend down the riser by more than 10 mm. The lip between the tread and strip must not exceed 3 mm, or 5 mm where the edges are chamfered. **Ref:** BCA D2.13, D2.14, D3.3(a)(iii) & Cl 11, 7.2, 7.3 of AS 1428.1-2009.	**Ramp Width:** Minimum unobstructed width of 1000 mm, measured clear of handrails. Note: 1000 mm clear width will only allow for 100 persons, occupancy quantity review may be required. **Ref:** BCA D2.13, D1.6	**YES:** Required to the top and bottom of landings. No requirement for the mid landing. **Ref:** BCA D3.8, AS/NZS 1428.4.1-2009	• Handrails extension protruding over traverse path or side boundary. Note: TGSI are not required for residential aged care and nursing homes buildings.

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