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Consulting Engineers

NSW DEPARTMENT OF EDUCATION

BUNGENDORE NORTH CAMPUS HIGH SCHOOL

Review of Environmental Factors

for

Hydraulic Services

Project No : 8366

Revision : 3 – Final Issue

REVISION SCHEDULE

No.	DATE	DESCRIPTION
1	17th March 2025	Draft Issue
2	4th April 2025	Draft Issue
3	14th April 2025	Final Issue

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1 INTRODUCTION

This Hydraulic Services Report has been prepared to support a Review of Environmental Factors (REF) for the NSW Department of Education (DoE) for the construction and operation of the new Bungendore North Campus High School (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 3.37A of the T&I SEPP.

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 and Addendum October 2024 (Consideration of environmental factors for health services facilities and schools).

The purpose of this report is to outline the hydraulic services required for the activity.

2 SITE DESCRIPTION

The project site, and land to which the REF applies (the site) includes Nos. 4-6, and 10 Majara Street, part Lot 1 DP 1276279 (previously Majara Street road reserve) and part Lot 1 DP 1276282 as identified in Figure 1.

As shown at Figure 2, the Bungendore North Campus High School will utilise the former Council administration building and car park located at 10 Majara Street. Demountable buildings are proposed to be placed north of the existing building. Public domain upgrades will feature in part Lot 1 DP 1276279 and part Lot 1 DP 1276282.

The site is located between Mick Sherd Oval (to the west) and the rail corridor (to the east). The site is located approx. 170m north of the Bungendore Train Station and Bungendore Primary School. The Bungendore Primary School, located on the corner of Gibraltar Street and Majara Street currently accommodates Bungendore High School on a temporary basis.

Figure 1 is the arial photo of the site.

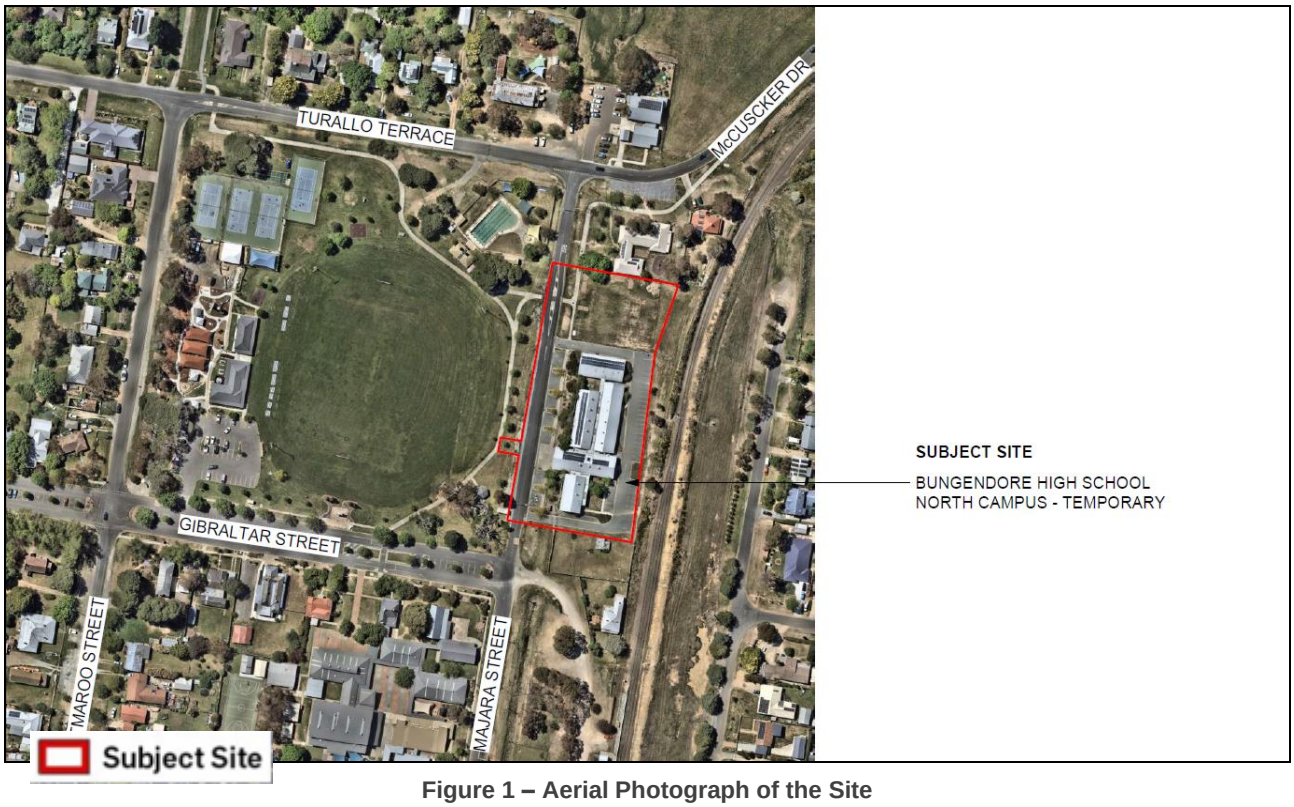


Figure 1 – Aerial Photograph of the Site

Source: TKD, 2025

3 PROPOSED ACTIVITY DESCRIPTION

The proposed activity is for the construction and operation of the new Bungendore North Campus High School. The high school will accommodate the operational needs of the high school on a temporary basis (together with the existing high school located within the grounds of Bungendore Public School) as students as enrolments continue to grow. These facilities will be utilised until such time the permanent high school at Birchfield Drive is established.

Specifically, the project involves the following:

- Use of the former Council administration building as part of the new Bungendore North Campus High School,
- New demountable classrooms,
- Landscaping, outdoor play areas, shade structure and basketball court,
- On site staff parking which utilises the existing car park and access from Majara Street, and
- Public domain upgrades to part Lot 1 DP 1276279 (previously Majara Street Road reserve) and part lot 1 DP 1276282 to enable kiss and drop from Majara Street and pedestrian connectivity to surrounding areas.

The North Campus facilities proposed will supplement the existing high school facilities located within the Bungendore Primary School site.
Refer to the Review of Environmental Factors (REF) for the detailed scope of works and operational details.

Figure 2 is the Proposed Site Plan.

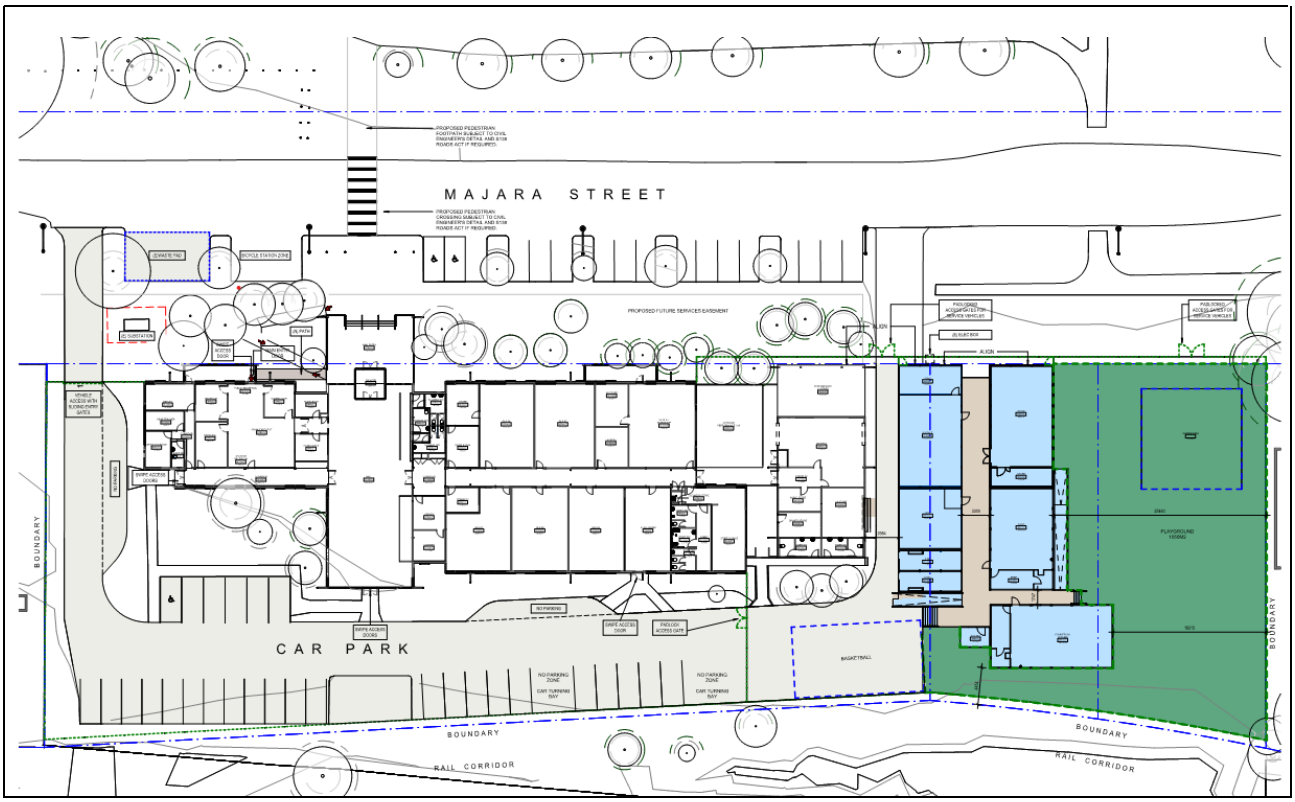


Figure 2 – Proposed Site Plan

Source: TKD, 2025

4 ASSESSMENT OF UTILITIES - WATER AND WASTEWATER

Requirement	Y	N	N/A	Comments
Utilities				
Does the REF broadly set out how the proposal will be serviced by necessary services and utilities?	☒	☐	☐	Sections 5 & 6
Does the REF assess any works required to provide necessary services and utilities and conclude that these would not have significant environmental effects?	☐	☒	☐	QPRC will undertake an assessment of the water and sewer mains and provide the notice of requirements in the next phase of design.
If on site water treatment is required, does the REF include an on-site wastewater management plan / land capability assessment that concludes that the site would be capable of accommodating wastewater without significant effects on the environment?	☐	☐	☒	Authority sewer mains are currently available at the site.

5 EXISTING SERVICES INFRASTRUCTURE

A desktop study of the detailed infrastructure design undertaken by Project Surveyors was conducted for the proposed Bungendore North Campus High School site and the surrounding area. Testing of existing hydraulic and firefighting systems that will be retained in the proposed site must take place prior to recommissioning. The following outlines the existing services and infrastructure around the site, providing context for the proposed development's servicing strategy.

5.1 WATER

The detailed survey by Project Surveyors indicates that the 100 mm potable water main is located on the eastern side of Majara Street and is available for the site's potable water supply. The existing on-site 32 mm master water meter will be utilised, as this has sufficient capacity to service the additional temporary school buildings. As shown in **Figure 3**.

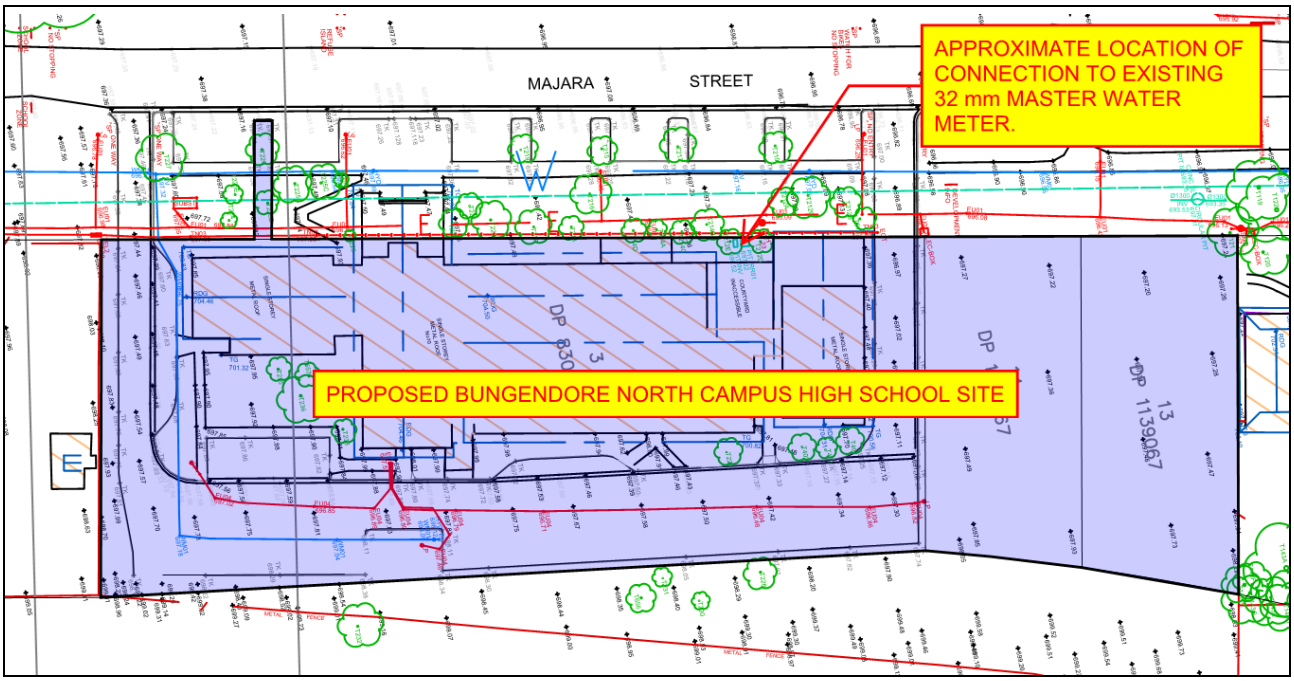


Figure 3 – Project Surveyors – Water

5.2 FIRE HYDRANTS

The existing site does not include any on-site fire hydrant apparatus. The detailed survey by Project Surveyors indicates that the 100 mm potable water main is located on the eastern side of Majara Street and is available for the site's fire hydrant coverage. Town's main feed fire hydrants, located on the existing QPRC 100 mm water main have been identified and utilised on a hydrant hose lay plan to determine adequate fire hydrant coverage to the proposed Bungendore North Campus High School.

There is no requirement of any additional fire hydrant site infrastructure works, as coverage has been achieved. Final determination of compliant fire hydrant coverage is subject to authority water main pressure and flow information, final architectural layouts and any additional comments/ requests from Fire & Rescue NSW. See **Appendix 1** for fire hydrant coverage detail (plans subject to change – for reference only).

5.3 SEWER

The detailed survey by Project Surveyors indicates that a sewer main is located on the eastern side of Majara Street and is available for the site sewer connection. An existing sewer connection is located at the site boundary for connection of the new temporary buildings, as shown in **Figure 4**.

Refer to the civil engineering report for stormwater.

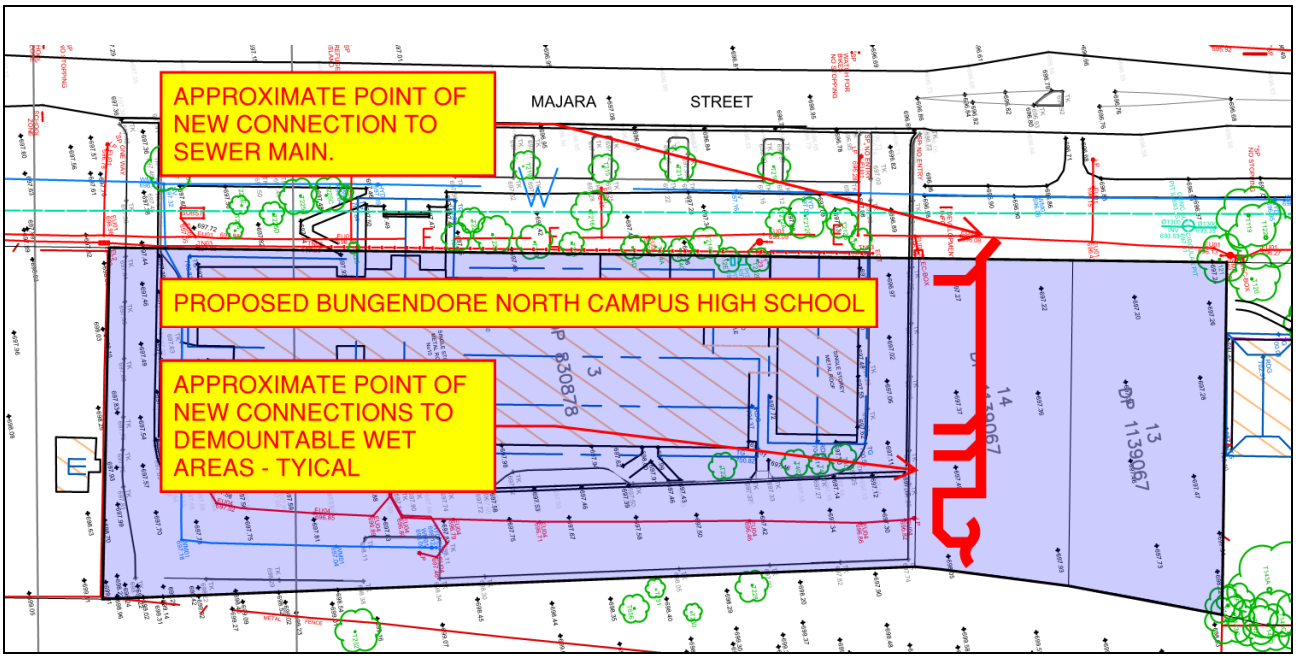


Figure 4 – Project Surveyors – Sewer (Main Buildings)

6 PROPOSED INFRASTRUCTURE

6.1 WATER

The current authority water main in Majara Street is expected to be able to support the water demand for the new High School. The next design phase will require a Section 68 application to QPRC.

The proposed water infrastructure consists of:

- Utilise existing domestic cold-water connection and existing 32 mm authority master water meter.
- 2 x 5000L rainwater tanks with rainwater reuse pumps and filtration.
- Rainwater reuse system to supply irrigation throughout the site.

6.2 SEWER

The current authority sewer main in Majara Street is expected to be able to support the sewer demand for the new North Campus High School. The next design phase will require a Section 68 application to QPRC.

The proposed sewer infrastructure consists of:

- Gravity sewer mains serving all buildings up to 100 mm in diameter and a new sewer junction/ connection to the authority main.
- Sewer access chambers located on main lines and at changes of direction.
- Trade waste grease arrestor serving trade waste drainage from kitchens.
- Dilutions pit serving science lab trade waste drainage.

7 ENVIRONMENTAL CONSIDERATIONS

Environmental impact considerations from hydraulic services:

- Trenching for underground water and drainage services could disturb soil and vegetation.
- Noise from construction activities may temporarily affect surrounding areas.
- Visual impact from above-ground installations such as rainwater tanks, pumps and equipment.

8 HYDRAULIC MITIGATION MEASURES

ID	Mitigation Measure	Timing	Reason for measure
HY1	To minimise soil disturbance during trenching, plan service routes efficiently, reuse excavated soil for backfilling, stabilise exposed areas with mulch or vegetation, and implement silt barriers to prevent erosion and runoff.	Construction	To minimise soil disturbance
HY2	To minimise noise disturbance, restrict noisy activities to standard working hours, use noise barriers near sensitive areas, maintain equipment with noise-dampening devices, and inform residents and businesses about high-noise activities in advance as per the traffic consultant's report.	Construction	To minimise noise during construction
HY3	To minimise visual impact from above-ground hydraulic services using neutral or natural-coloured materials for utility structures, positioned discreetly, landscaping for screening, and incorporating aesthetic design elements to blend with the surroundings as per the landscape architect's report.	Design	To minimise visual impact

9 COMPLIANCE WITH STANDARDS AND REGULATIONS

The design aligns with:

- NCC 2022 and relevant Australian Standards, including but not limited to AS3500 & AS2419.1
- NSW Department of Education's EFSG 2.0 and Pattern Book
- Australian Standards
- QPRC - Local Council – Engineering Standards
- Fire and Rescue NSW – Access for Fire Brigade Vehicles and Firefighters

10 STAKEHOLDER CONSULTATION

- BYDA enquiry for QPRC is complete.
- Liaison with QPRC regarding sewer connection and discharge requirements for the site.
- A Section 68 application will be submitted at the next design stage to QPRC to confirm the notice of requirements.
- Coordination of sewer connections and approvals will commence at the next design stage.

11 EVALUATION OF ENVIRONMENTAL IMPACTS

The extent and nature of potential impacts are low and will not have a significant impact on the locality, community, and/or the environment.

Potential impacts can be appropriately mitigated or managed to ensure that there is a minimal impact on the locality, community, and/or the environment.

12 CONCLUSION

The hydraulic services proposed for Bungendore North Campus High School have been assessed with careful consideration of environmental, regulatory, and operational factors. Existing infrastructure has been evaluated, and planned enhancements to water and sewer services will adequately support the proposed development while complying with QPRC standards and other regulatory requirements.

Potential environmental impacts, such as soil disturbance, noise, and visual effects, have been identified, and mitigation strategies have been outlined to address these issues effectively. The project aligns with relevant standards, including the NCC 2022, Australian Standards, and NSW Department of Education guidelines, ensuring sustainable and safe implementation.

Through diligent planning and stakeholder engagement, this development is well-positioned to meet the community's needs while minimising adverse environmental effects.

13 APPENDIX 1 – HYDRAULIC SPATIALS AND FIRE HYDRANT COVERAGE

Note: The following two pages must be used for reference only. Architectural and other service's plans are continually being updated; hence the following two pages are subject to alteration and may incorporate out-of-date backgrounds at the time of reading this report.

Photo 1: Existing site authority master water meter.

DSC: Existing Ø32 cold water supply is adequate to serve the temporary school. Existing water meter can be retained and used to serve this site. See Photo 1.

DSC: Proposed cold water connection to existing with isolation backflow prevention device to service new temporary buildings

DSC: Proposed 1000L in-ground cooling pit to serve science room. Truck access required. 2.0m(L) x 1.0m(W) x 1.4m(D).

DSC: Proposed location of LPG storage tanks to serve science rooms. 3.0m(W) x 1.0m(D) x 1.6m (H).

DSC: Proposed location of new connection to authority sewer main

DSC: Propose 5000L above ground slimline rainwater tank

DSC: Existing Queanbeyan-Paler-ang Regional Council towns water main.

DSC: Existing Queanbeyan-Paler-ang Regional Council sewer man hole - Typical

DSC: Existing Queanbeyan-Paler-ang Regional Council sewer main.

DSC: Existing rainwater pump location. Confirm rainwater reuse requirements.

DSC: Proposed location of 315L electric hot water unit.

DSC: Indicative location of existing site sewer service.

DSC: Proposed instantaneous LPG HWU on wall - due to existing power load conditions

DSC: Propose 5000L above ground slimline rainwater tank

DSC: Proposed 2000L in-ground grease arrestor to serve trade waste requirements. Access required. 2.5m(L) x 1.0m(W) x 1.4m(D).

WASTE PAD
REMOVE (E) BAL
(N) PATH
ZEBRA CROSSING
ACC
SECURED ACCESS ENTRY GATE
SECURED ACCESS ENTRY GATES
e STREET HYD
EXISTING AUTHORITY CW 100 MAIN
VEHICLE ACCESS WITH SLIDING ENTRY GATES
(E) SUBSTATION
SWIPE ACCESS DOOR
OUTDOOR GLS 65m2
eCW METER
PADLOCKED ACCESS GATES FOR SERVICE VEHICLES
SERVICE VEHICLES ACCESS ROUTE
EASEMENT
EXISTING SEWER MAIN
eSMH
CW (in ground)
eS 100
Deputy Principal 18m2
Interview 17m2
Counsellor 15m2
Sick Bay 2 10m2
Head Teacher 10m2
Staff Kitchen
Staff WC
Principal 20m2
CLERICAL 62m2
Sick Bay 1 12.6m2
CORRIDOR
HALL 235m2
STUDENT WC
STORE 19M2
CHAIR STORE 19M2
Converted GLS 65m2
Converted VA GLS 70m2
VA STORE 19M2
CAREERS 19M2
Converted VISUAL ART WORKSHOP 80m2
OUTDOOR PERFORMANCE / VA 78M2
CLEANER S STORE
COMMS
LIBRARY 15m2
CANTEEN 15m2
Converted GLS 65m2
Converted GLS 66m2
Converted GLS 66m2
STAFF STUDY 54.5m2
STAFF WC
STAFF LOUNGE LUNCH ROOM
SWIPE ACCESS DOORS
SWIPE ACCESS DOOR
(N) COUNTER
REMOVE (E) PENDANT LIGHTS TYP
(N) ROLLER SHUTTER DOOR
CARPARK
SWIPE ACCESS GATES
BASKETBALL
CW 100
e SPRING HYDRANT
PERFORMANCE COVERED 60 M2
PERFORMANCE SPACE 68 M2
SERVICES
HWU
STORE 15 M2
GA STORE 28 M2
STAFF WC
PREP 25m2
SCIENCE 81m2
GLS 53m2
F. WC
M. WC
WOOD/ METAL 90m2
RWT
ST. 17m2
FOOD 72m2
FIRE 11m2
LD 20m2
SHADED AREA TBC
PLAYGROUND
ACC WC
COMMERCIAL KITCHEN
TW
RAIL CORRIDOR

HYDRAULIC SERVICES CONCEPT DESIGN

DSC Consulting Engineers			
Project	: BHS - Temporary School	Job No	: 8332
Title	: Hydraulic & Wet Fire Spatial Advice	Date	: 05.03.2025
Scale	: 1:200 @ A1	No+Rev	: SK-HF/1

Project
BUNGENDORE TEMPORARY SCHOOL
Job No. 240071 Sheet A1 Scale 1 : 200
Drawing Title
2026-2027 OVERALL PLAN

0M 4 8 12

NSW Nominated Architects: Robert Denton Reg. No. 5782, Alex Kibble Reg. No. 6015

Drawing No. AR SD 2203 Revision B

TKDArchitects
Tanner Kibble Denton

General Notes - Fire hydrant Coverage:
- Hose lay and pumping appliance locations are designed to NCC 2022, AS2419.1-2021 and FRNSW *'Access for fire brigade vehicles and fire fighters - Version 05'* requirements.
- Final fire hydrant system compliance is subject to towns main pressure and flow - currently awaiting pressure and flow statement from QPRC. Minimum requirements for this feed fire hydrant system is 10L/s @ 150kPa.
- Final hose lay compliance is subject to final architectural layouts, FRNSW comments and any fire engineered solutions.
- Typical FRNSW pumping appliance is 10.0m x 2.5m in dimension.
- Required hardstand for FRNSW pumping appliance is minimum 13.0m x 6.0m.
- Maximum hose lay distance from feed fire hydrant and pumping appliance is 20.0m. Shown in blue hatch radius.
- Minimum distance from pumping appliance to a substation and/ or the facade of the building it is covering is 10.0m. Shown in red hatch radius.

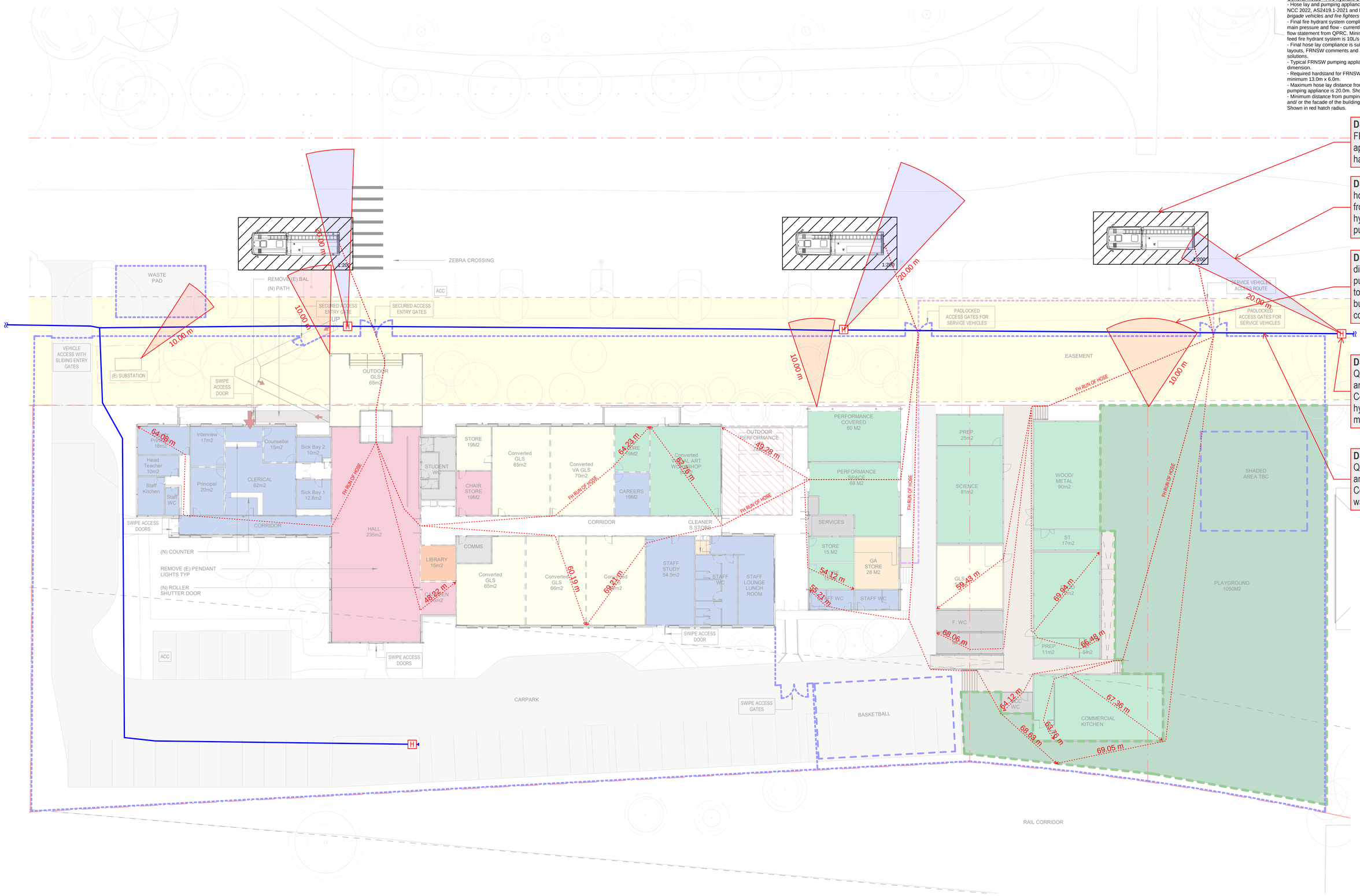
DSC: Typical FRNSW pumping appliance and hardstand - Typical

DSC: Maximum hose lay distance from feed fire hydrant and pumping appliance.

DSC: Minimum distance from pumping appliance to the facade of the building it is covering.

DSC: Existing Queanbeyan-Paler-ang Regional Council feed fire hydrant on towns main - Typical

DSC: Existing Queanbeyan-Paler-ang Regional Council towns water main.



DSC Consulting Engineers

Project	: BHS - Temporary School	Job No	: 8332
Title	: Hydraulic & Wet Fire Spatial Advice	Date	: 05.03.2025
Scale	: 1:200 @ A1	No+Rev	: SK-HF/2

FIRE HYDRANT HOSE COVERAGE REVIEW

Project
BUNGENDORE TEMPORARY SCHOOL
Job No. 240071 Sheet A1 Scale 1 : 200
Drawing Title
2026-2027 OVERALL PLAN

0M 4 8 12 16 20

Drawing No. AR SD 2203 Revision B

TKDArchitects
Tanner Kibble Denton