



INFRASTRUCTURE REPORT

**HASTINGS SECONDARY COLLEGE – PORT MACQUARIE CAMPUS**  
**SSDA INFRASTRUCTURE REPORT**

HYDRAULIC AND ELECTRICAL SERVICES



This report is prepared for the nominated recipient only and relates to the specific scope of work and agreement between JHA and the client (the recipient). It is not to be used or relied upon by any third party for any purpose.

DOCUMENT CONTROL SHEET

Project Number	200360
Project Name	Hasting Secondary College – Port Macquarie Campus
	SSDA Infrastructure Report
Description	SSDA Infrastructure Report for Hydraulics and Electrical Services
Key Contact	Tom Hamer

Prepared By

Company	JHA
Address	Level 23, 101 Miller Street, North Sydney NSW 2060
Phone	61-2-9437 1000
Email	Mathew.MacIntyre@jhaengineers.com.au
Website	www.jhaservices.com
Author	Mathew MacIntyre and Patrick Ilagan
Checked	Tom Hamer
Authorised	Tom Hamer

Revision History

Issued To	Revision and Date								
SINSW – ISSUED FOR SSDA	REV	P1	P2	P3	P4	P5			
	DATE	22/02/2021	26/03/2021	14/04/21	16/04/21	13/05/21			
	REV								
	DATE								
	REV								
	DATE								
	REV								
	DATE								

CONTENTS

2 EXECUTIVE SUMMARY .....5

3 STANDARDS AND REGULATIONS.....6

4 STAGING OF WORKS AND APPLICATIONS .....7

4.1 CDC 01..... 7

4.2 CDC 02..... 7

4.3 SSDA..... 7

5 ELECTRICAL SERVICES .....8

5.1 GENERAL ..... 8

5.2 EXISTING SITE INFRASTRUCTURE ..... 8

5.3 ELECTRICAL SUPPLY - MAXIMUM DEMAND.....10

5.4 ELECTRICAL SUPPLY - SUBSTATION.....10

5.5 MAIN ELECTRCIAL SWITCHBOARD.....10

5.6 SUPPLY AUTHORITY METERS.....10

5.7 SURGE PROTECTION .....10

5.8 CONSUMERS MAINS AND SUBMAINS CABLING.....10

5.9 PIT AND PIPE EXTERNAL WORKS.....10

6 TELECOMMUNICATION SERVICES .....12

6.1 EXISTING LEAD IN TELECOMMUNICATIONS INFRASTRUCTURE.....12

6.2 TELECOMMUNICATIONS INFRASTRUCTURE.....13

7 HYDRAUIC SERVICES .....14

7.1 GENERAL .....14

7.2 POTABLE COLD WATER .....14

7.3 GAS (LPG) .....14

7.4 SANITARY PLUMBING AND DRAINAGE .....15

7.5 FIRE HYDRANT SERVICES .....15

8 PROPOSED HYDRAULIC WORKS .....16

8.1 POTABLE COLD WATER .....16

8.2 GAS (LPG) .....16

8.3 SANITARY PLUMBING AND DRAINAGE .....16

8.4 FIRE HYDRANT SERVICES .....16

8.5 FIRE HOSE REEL SERVICES .....16

APPENDIX A – ELECTRICAL STAGING PLAN .....17

APPENDIX B – SECURITY STAGING PLAN.....18

APPENDIX C – ELECTRICAL SITE PLAN .....19

APPENDIX D – SECURITY SITE PLAN.....20

APPENDIX E – HYDRAULIC STAGING PLAN..... 21

APPENDIX F – HYDRAULIC SITE PLAN .....22

APPENDIX G – STATEMENT OF AVAILABLE PRESSURE.....23

## 2 EXECUTIVE SUMMARY

---

JHA Consulting Engineers has been commissioned by School Infrastructure NSW (SINSW) on behalf of the Department of Education (DOE) to prepare (Infrastructure Report) to accompany a State Significant Development Application (SSDA) to the NSW Department of Planning, Industry and Environment (DPIE) for proposed upgrades to Hastings Secondary College (Port Macquarie Campus), previously known as Port Macquarie High School.

Hastings Secondary College consists of two campuses, being Westport and Port Macquarie. This report has been prepared for proposed works at the Port Macquarie Campus, which consists of two properties, the main campus and the Ag Plot.

The works subject to this proposal are to be carried out on the main Port Macquarie campus which is located at 16 Owen Street, Port Macquarie (the site). The site has a secondary street frontage to Burrawan Street and adjoins Oxley Oval along the eastern boundary.

On 23 December 2020, the Secretary of the DPIE issued Secretary's Environmental Assessment Requirements (SEARs) for SSD Application No. 11920082. This report has been prepared in accordance with the SEARs requirements.

### Location/ Site Description

The site is located approximately 1.2km south east of the Port Macquarie town centre, with access from Oxley Highway (Gordon Street) via Owen Street to the centre, William Street via Owen Street to the north and Burrawan Street via Owen Street to the south. A maintenance access road exists to the east of the site along Burrawan Street.

The site is located at 16 Owen Street, Port Macquarie and is legally known as Lot 111 in DP 1270315. The Port Macquarie Campus site is located within a coastal setting (east), with residential (single two storey and residential flat buildings) located to the west and south and Port Macquarie Bowling Club to the north. The surrounding street network provides on-street parking. Maintenance vehicular access is located off Burrawan Street.

No Natural watercourses are mapped as traversing the site. Scattered vegetation is located throughout the site, with a small area of vegetation concentrated towards the pedestrian access area.

The Port Macquarie Campus site is gently sloping downwards in three general 'platforms' towards the north, with distinct views out towards the ocean and the Hastings River. It also has a distinct view line to the row of Norfolk pine trees along the coastline. The siting of the campus provides many opportunities for ongoing cultural connection to Country. Current built form has an established language of two (2) story, face brick, low pitched metal roof buildings.

### Proposed Development

The upgrades will support high-quality educational outcomes to meet the needs of students within the local community and deliver innovative learning and teaching spaces as follows:

- Demolition works to accommodate new works;
- Upgrade to school entry;
- Construction of new two (2) storey Creative and Performing Arts (CAPA) building;
- Construction of new Police Citizens Youth Club (PCYC);
- Partial refurbishment of Building L;
- Refurbishment and alteration to Building B;
- Removal of Building S and demountable buildings;
- New lift connections, covered outdoor learning area (COLA) and covered walkways;
- Associated earthworks, landscaping, stormwater works, service upgrades; and
- Tree removal/ tree safety works.

No change to current staff or student numbers is proposed.

### 3 STANDARDS AND REGULATIONS

In addition to complying with the brief, the final design solution will be in strict accordance with the following relevant Codes and Standards (note, some of these Standards may be overridden by specific State Government guidelines):

National Construction Code (NCC) – 2019;	
AS/NZS 3000.2007 -	SAA Wiring Rules and all applicable standards within – Normal and Informative. Inclusive of all current amendments.
AS/M25 1044 -	EMI and RFI Requirements;
AS/NZS 1044 -	Limits of radio disturbance characteristics of electrical appliances for households and similar purposes
AS/NZS 1680	Interior Lighting and Visual Environment
AS/NZS 1158.3	Lighting for Roads and Public Spaces
AS 2293	Emergency lighting and exit signs for buildings
AS 3000	Wiring Rules;
AS 3008	Electrical installations – Selection of cables;
AS 3996	Access covers and grates
AS/ ACIF S008 -	Requirements for authorised cabling products;
AS/ ACIF S009 -	Installation requirements for customer cabling (wiring rules);
NSW Service and Installation Rules	
Service Rules, Regulations, Standards and Requirements of Essential Energy;	
Work Cover Authority requirements;	
Local Council regulations having jurisdiction on this project;	
Educational Facilities Standards and Guidelines (ESFG)	
NSW Department of Education Structured Cabling System Specification – Feb 2019 (DoE SCS-2019)	

AS/NZS 3500.1 - 2018	Plumbing and Drainage – Water Services
AS/NZS 3500.2 - 2018	Plumbing and Drainage – Sanitary Plumbing and Drainage
AS/NZS 3500.3 - 2018	Plumbing and Drainage – Stormwater Drainage
AS/NZS 3500.4 - 2018	Plumbing and Drainage – Heated Water Services
AS 5601.1 - 2013	Gas Installations – Gas Services
AS 1596 - 2014	The Storage and Handling of LP Gas
AS 2419.1 – 2005	Fire Hydrant Installations
AS 2441 – 2005	Fire Hose Reel Installations
Port Macquarie-Hastings Council regulations and requirements	
NSW Rural Fire Service (RFS)	
NSW Service and Installation Rules	
Work Cover Authority requirements;	
Educational Facilities Standards and Guidelines (ESFG)	

4 STAGING OF WORKS AND APPLICATIONS

To fully understand the extent of the SSDA works it would be best to give a brief overview of the prior applications of works and the overall stages at the port Macquarie campus. It is important to understand these stages when they are referenced later in this report. As infrastructure may be introduced in an earlier stage to support the SSDA scope and avoid abortive works and thus abortive costs to SINSW.

4.1 CDC 01

Stage 0 – Early Works

- Demolition of existing building C
- Demolition of existing building TAS
- Internal Demolition of building T (To be ready for refurbishment)

4.2 CDC 02

Stage 1

- Construction of a new TAS building
- Refurbishment of existing Building T
- External works including a TAS forecourt
- New main switchboard
- Upgraded substation for overall additional electrical load.

4.3 SSDA

Stage 2

- Construction of a new two story CAPA building
- External works including new covered walk ways
- Construction of a new PCYC building.

Stage 3

- Refurbishment to existing Block B (Extent of refurbishment being confirmed by SINSW and FJMT)

Stage 4

- Refurbishment to the ground floor of the existing Block L

Stage 5

- Construction of a new PCYC building.

To assist in understanding the above mentioned stages. Please refer to the image below which is a screen capture of the FJMT drawing HSPM-CDC-120010.

Blue areas represent CDC02 and the orange areas represent the SSDA.

Please refer to Appendix A for the electrical Staging plan that shows the full extent of the areas of each stage.

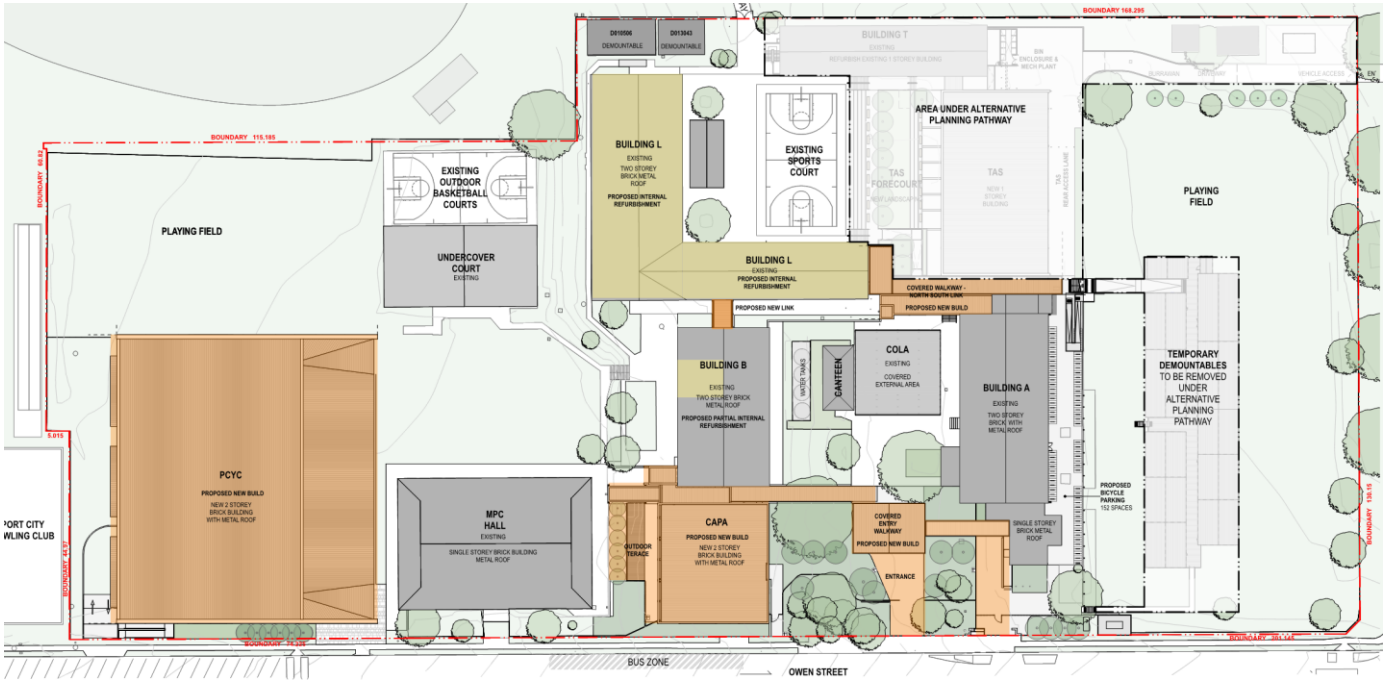


Image 4.1 – FJMT extract of the scoped areas.

P3
14/04/21







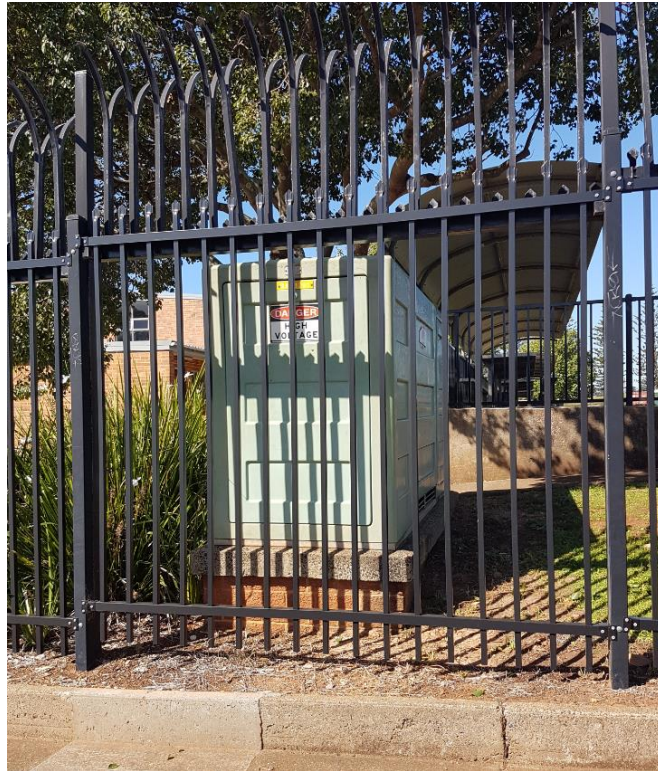


Figure 5.3 – Image of Existing Kiosk Substation

This substation currently services the entire Public School which consists of the following existing buildings:

- Building A,
- Building B
- Building C
- Building L
- Building T
- Building TAS
- Building MPC
- Demountable's

The following buildings are proposed to be demolished:

- Building C
- Building TAS

The following buildings are proposed to be refurbished:

- Building T
- Areas of Building L

The following new buildings are proposed:

- Building CAPA
- Building TAS

#### Main Switchboard

The existing Main switchboard is located within the existing Administration building in Block A. This board is served by a 350Amp Main switch. The incoming set of consumer mains that have been labelled on the main switchboard are 4 x 1c x 240mm<sup>2</sup> submains. Assuming these are copper will have a current carrying capacity of approximately 400Amps if installed in conduits/duct.

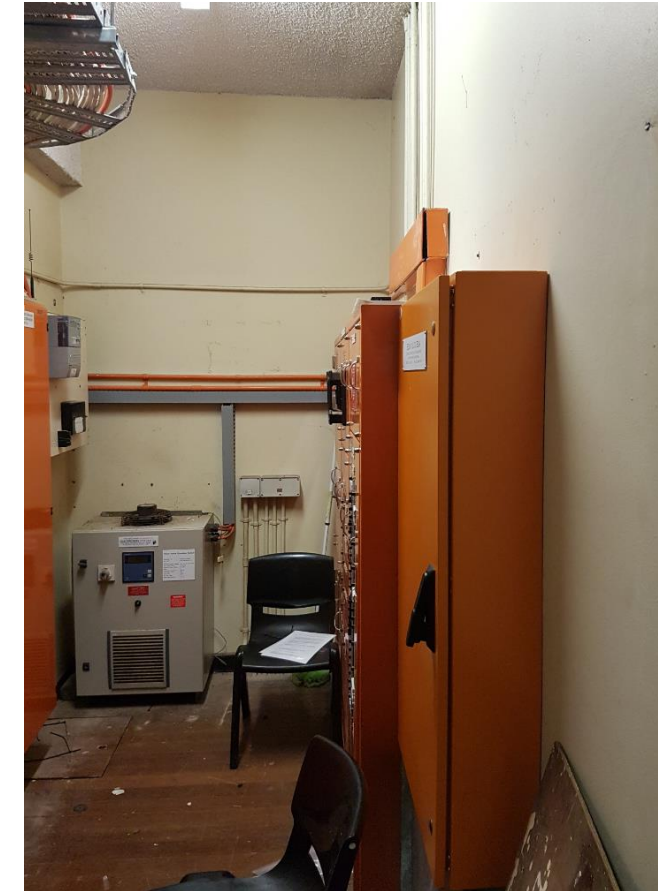


Figure 5.4 – Existing Main Switchboard and Switch room.

#### Existing Demand

From the Concept report performed by GHD they have received the electrical bills from the school which revealed that existing maximum demand was over the period of August 2018 to July 2019. This figure was 145 kVA. Allowing for a growth / Safety factor of 20% to allow to the true load to this point in time. The maximum demand on this main switchboard can be considered to be 250 Amp over three phases.

It should be noted that from speaking to the school staff there is very little A/C installed throughout the school.

5.3 ELECTRICAL SUPPLY - MAXIMUM DEMAND

A maximum demand has been completed for the new proposed works on the school site which will also involve the inclusion of A/C into the new classrooms as per the EFSG requirements. As part of this process SINSW has also requested that we make a provision on the electrical load application for existing classrooms to have A/C under the cooler classroom initiative.

Maximum Demand	Amps per phase
Existing Site Maximum Demand (Power Bills)	250
Additional Load for New Works	229.31
Existing Buildings (Cooler Classrooms Upgrade Allowance)	139.34
Total	618.65

Table 5.1 – Preliminary Maximum Demand Calculations

We can see from the above overall electrical load and the fact that the existing infrastructure can only support 350Amps we need to upgrade our main switchboard and substation to accommodate the new load. To avoid any abortive costs to SINSW it will be documented for the new external main switchboard and substation upgrade works to be completed in stage 1. This will then ensure there is sufficient electrical infrastructure in place for the SSDA portion of the works.

In addition to the above maximum demand there is an additional scope of works that is currently not confirmed as proceeding. This is for a new PCYC building on the north side of the site. We have completed a separate maximum demand for this building. This is 142 Amps per phase. Please note that this demand figure may change if the overall size of the PCYC increase.

This PCYC build if confirmed to proceed will have its own separate supply from the network on own street and its own separate Main switchboard and Authority meter.

5.4 ELECTRICAL SUPPLY - SUBSTATION

The new substation shall be an Essential Energy substation serviced and maintained by Essential Energy. The initial capital cost of the substation shall be funded by the project.

Essential Energy have particular requirements in relating to substation positioning on a site. A level 3 certified designer will produce a design for Essential Energy to certify as part of the design development phase.

As mentioned in the above section this will be required to be completed in stage 1 of the works (Before the SSDA) to reduce or remove any aborting costs to SINSW.

5.5 MAIN ELECTRICAL SWITCHBOARD.

As we can see from the existing electrical services section of this report. The existing main switchboard is not suitable sized to handle the new required load for our proposed works. As such this will require that we introduce a new site main switchboard.

This new site main switchboard is proposed to be located externally along the wall of block A near the location of the existing substation to reduce consumer main size.

The new Site Main Switchboards to be provided with the following:

- Form 3b board
- Free Standing
- IP 56 (Externally Located)
- Minimum fault current rating of 50kA
- Be equipped with surge protection

- Possess a minimum of 30% spare capacity (Busbar ratings & Spare MCCB slots)
- 30 years design life expectancy
- The colour of the board is to be 'Storm Grey; or a colour advised by the architect.
- Supply Authority Meters and Private Energy Meters
- Busbars to be sized to accommodate a minimum of 25% spare future load growth
- Provide a minimum of 25% spare spaces of MCCB's
- Fire rated consumers mains from the substation low voltage board to the MSBs. Coordinate route on site with all other services and structures.
- All cable trays, conduits etc. as required for installation of consumers mains

5.6 SUPPLY AUTHORITY METERS

One off new supply authority meter is to be provided as part of the works. This meter can be installed within the site main switchboard within its own compartment. The existing Authority meter on the existing main switchboard will need to be removed as part of these works.

All supply authority meters shall be via removable current transformer links to allow future modifications to the metering configurations.

Meter will be arranged to the requirements of the supply authority and also the requirements stipulated within the NSW services and installation rules.

5.7 SURGE PROTECTION

New surge protection in the main switchboards (built into the board) equivalent to Erico Critec SES200.

5.8 CONSUMERS MAINS AND SUBMAINS CABLING

New mains and sub-mains cabling shall be such as to ensure a maximum of 7% voltage drop is achieved at the furthest point. Generally, this will consist of 1.5% consumer mains drop, 3% submains drop and 2.5% sub-circuit drops.

Mains and sub-mains cabling to be sized to suit maximum demand assessments plus an allocation of spare capacity.

Mains and sub-mains cabling will be assigned spare capacity ranging from 10% to 30% depending on whether the submains are shared or dedicated, or on the nature of loads and areas supported.

All mains and sub-mains cabling shall be XLPE / PVC with the exception of NCC essential services which will have the appropriate level fire rating.

Mains and sub-mains cabling shall be predominantly reticulated in cable pits, conduits in underground trench and throughout the ceiling voids in trefoil arrangement in/on appropriately sized cable supports to minimize derating.

Supply Fire rated consumers mains and Fire rated mains to all essential services. Provide fire rated trays which support fire rated cabling.

5.9 PIT AND PIPE EXTERNAL WORKS

New underground Pit and Pipe for new power and comms services will be installed in accordance with the EFSG underground conduit/pit Standards. Please see Appendix C for the proposed Electrical and communication site works. It should be noted that this would be considered the minimum about of pit and pipe involved and is likely though design development for extra scope to be required.

You can see from the proposed electrical and communications site works plan that the Pit and pipe infrastructure has been designed to support all workings as part of these works. The portions of these works will be divided up as per the staging. However you can see that similar to the electrical MSB and substation some of these works will need to be completed in stage prior (Prior to the SSDS) to avoid and reduce any abortive costs to SINSW.

Power and Communications Pits will be of the polymer concrete structure type in line with the requirements set out in the Electrical services design guideline (DG61) of the EFSG. Pits will be sized to facilitate the installation of cabling without damaging the integrity of the cables.

Power and Communications Pit lids will be lockable type with flush recessed locking system, concealed by a flat lockable recessed plate. Pit lid locking mechanism will be padlockable or screw lockable. Pits will be sourced from local manufacturers such as Aco or Mascot pits.

Pits will be provided with a brass engraved plate labelling at each corner of the pit with labels either 'Communications' or 'Electrical' (size 100mm x 80mm). Each plate label, will have arrows pointing in the direction of conduits entering/ exiting. I.e. if conduits are entering/exiting in 2 directions, provide 2 engraved labels. Pit labels will be adequately bolted/ riveted into the pit lid.

Pit lids will be load rated to suit the trafficability in the areas in which they are installed. Generally, pits will have a load rating of Type A where located in gardens or walkways. Pits that are located in trafficable areas where tractors or passing vehicles are likely to traverse across will be sized in accordance with the relevant load classifications stipulated in AS3996.

Pit walls will be drilled with individual hole cavities for each individual conduit entering the pit.

Pits will be installed, bedded, and concrete collared and encased (where applicable) in accordance the manufacturer's installation instructions for the load class installed.

The pit will be bedded on top of a minimum 50mm sand cement bed or to the requirements of the manufacturer, whichever is greater.

Class C/D pits and lids will be encased in cement concrete (base and surround) in accordance with manufacturer's installation instructions where required.

Each pit will be provided with three 25mm drainage holes or one 50mm drainage (dependent upon available pit wall space) hole cast/bored into lower portion of the nominated pit wall and piped away to the local stormwater system to disperse accumulated water. Where stormwater connections are not available, a rubble drain of 300 x 100 deep will be provided and graded away from the pit 2 metres.

Conduit runs will be sized to facilitate the installation of cables for the initial installation. Additional spare conduits will be supplied to each of the pits as outlined in the EFSG design guidelines. All conduit routes will be provided with draw cords to facilitate the pulling of future cables.



## 6.1 EXISTING LEAD IN TELECOMMUNICATIONS INFRASTRUCTURE

[illegible]

Main Communications room.

- Three full height communication racks
- Fibre distribution hub to feed all other distributors throughout the school
- Incoming Telephony Fibre

The DBYD also showed a Telstra/NBN Fibre plan. This is shown in Figure 4.6 below. We can see that there is a separate communication lead in for a dedicated fibre to the school. Its location is not shown on the plan however we know this fibre does reticulate through to the campus distributor located on the first floor of building L.

## 6.2 TELECOMMUNICATIONS INFRASTRUCTURE

The main Campus distribution room for telecommunications is already established and in an area that is to be unaffected by any works of the SSDA or others. All new buildings or refurbished areas of the SSDA works will be provided with a new building distributor room as per the requirements of the EFSG.

The new building distributors will be connected back to the existing communications and telecommunications infrastructure already installed at the campus distributor room via new fibres as per the requirements of the EFSG. Please see appendix C for the overall site works showing the pipe and pipe network for these connections.

It should be noted that these connections will be completed for the SSDA works as per the Staging plan in Appendix A.

As the PCYC building is proposed to be part of the SSDA works it should be noted that new incoming telecommunications infrastructure will be co-ordinated to this building. This shall be via a separate application to NBN that will require dedicated conduits and pits to NBN requirements. Once the PCYC scope has been confirmed to proceed the works can commence.

# 7 HYDRAIC SERVICES

## 7.1 GENERAL

The purpose of this section is to review the conditions of the following existing site wide hydraulic installations:

- Potable Hot and Cold Water;
- Gas (Liquefied Petroleum Gas);
- Sanitary Plumbing and Drainage;
- Fire Hydrant Services;
- Roof Drainage and rainwater reuse.

## 7.2 POTABLE COLD WATER

Port Macquarie Hastings Council are the Network Utility Operators (NUO) for the water mains in Port Macquarie. The following water mains are currently surround the site:

- DN150 uPVC water main – located western side of Owen Street; and
- DN150 uPVC water main – located southern side of Burrawan Street.

The site is supplied with potable water through two (2) separate connection to the 150mm water main on Owen Street. These connections are as follows:

- DN50 potable water connection and meter fronting Owen Street, adjacent MPC. It is understood this is dedicated to the MPC building
- DN50 potable water connection and meter at the site main entry. It is understood that this meter services the rest of the campus.

It is noted that backflow prevention devices are not currently installed on the incoming water meters.



Figure 7.1: Master water meter (site main entry)

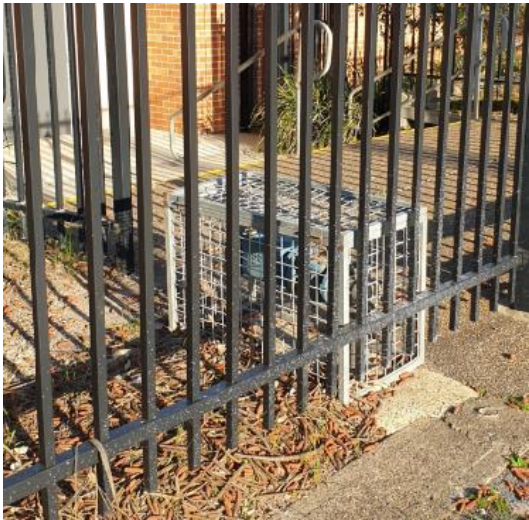


Figure 7.2: Water meter (adjacent MPC)

It is noted that there are no water pressure pumping equipment on site. As such, the entire site will be served off town's main pressure. Refer to Figure 7.3 for the location of these NUO mains.

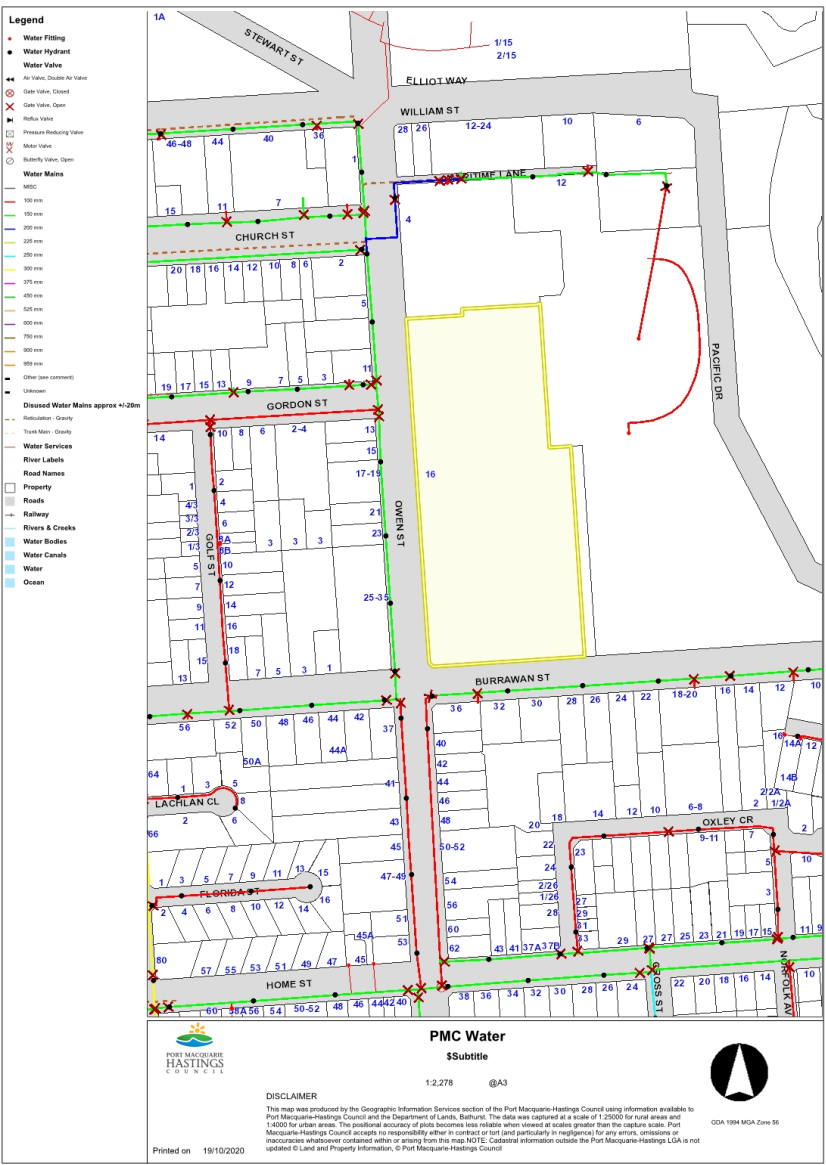


Figure 7.3: Port Macquarie Council Water Diagram

## 7.3 GAS (LPG)

Port Macquarie campus is outside of Jemena's gas distribution network, and therefore does not have a dedicated connection into a natural gas supply main.

To service the various gas requirements, Liquefied Petroleum Gas (LPG) storage is utilised to serve the campus hot water heaters, cooktops and laboratory gas turrets. The campus currently has the following LPG storage installed:

- 1 Tonne Bulk LPG storage vessel – Located south of existing MPC, fronting Owen Street;
- 3x 210kg LPG cylinders – Located within an enclosure on the south eastern corner of building A;
- 2x 45kg LPG cylinders – Located within an enclosure on the north eastern corner of building B;
- 1x 45kG gas cylinder – Located within an enclosure north of building L;
- 1x 45kG gas cylinder – Located within an enclosure east of building L;





Figure 7.4: 1 Tonne Bulk LPG Storage vessel adjacent MPC building

## 7.4 SANITARY PLUMBING AND DRAINAGE

Port Macquarie Hastings Council are the Network Utility Operators (NUO) for the sewer mains in Port Macquarie. The following sewer mains are currently located within the site:

- DN150 UPVC sewer main – Located northern boundary (approx. 2.1m deep from surface level)
- DN150 Asbestos Cement sewer main – Located eastern boundary (approx. 1.87m deep from surface level)

The existing hydraulic services as-builts indicate the main site sewer reticulation connects into the 150mm service at the eastern boundary adjacent to building L.

Refer to Figure 7.5 for the location of these NUO mains.



Figure 7.5: Port Macquarie Council Sewer Services Diagram

## 7.5 FIRE HYDRANT SERVICES

Port Macquarie campus currently does not have an on-site fire hydrant system in accordance with BCA Clause E1.3 and AS2419.1-2005. Partial fire hydrant coverage may be achieved through the existing street hydrants located on the western side of Owen Street, however, compliant coverage to the entire site cannot be achieved with street hydrant alone.

Refer to Appendix G: 'Statement of Available Pressure' for flow and pressure test results for the site.

## 8 PROPOSED HYDRAULIC WORKS

### 8.1 POTABLE COLD WATER

To serve the proposed redevelopment, a 65mm water supply will be required to supply the simultaneous potable water demand for the site.

The pressure and flow performance of the 150mm authority water main on Owen Street nominates a maximum flow rate of 30.0 L/s @ 52 m/head (520kPa). This indicates there is sufficient pressure available to reticulate throughout the site to provide a hydrant flow demand of 10 L/s @ a minimum 250kPa at each outlet.

The potable water system will require an upgrade in water connection from the Own Street water main. The water supply is proposed to reticulate throughout the site and reconnect into the existing and new buildings.

As the main existing water connection into the council water main is to be upgraded, and a new potable water main reticulated throughout the campus, the existing buildings which are not being refurbished (Building A, L and B) will need to have its incoming water supply reconnected into the new water main reticulation system.

The existing water meter adjacent the MPC will be capped off and intercepted so that the water supply to the MPC will be back fed off the new water supply

Private metering will be provided to each building, which is proposed to have pulse output capabilities for future potential connection to a monitoring system.

For the PCYC building, the disused water supply from the MPC will be repurposed to serve the new PCYC building.

### 8.2 GAS (LPG)

All existing LP gas storage vessels throughout the site are proposed to be replaced with a single 2.5 tonne LP gas storage tank located at the south eastern side of the site. The storage tank will have adequate access and be installed within an enclosure as per suppliers' requirements for current and future gas requirements.

Off the new LP gas storage tank, the gas is proposed to reticulate throughout the site at 2.75kPa to the existing and new buildings.

Building isolation and installation is to be provided in accordance with AS 1596 - 2014 DG 54.

The new gas service will be reticulated in ground throughout the site in non-metallic pipework with copper trace wire.

The natural gas service will be reticulated to serve the gas fired hot water plants in the new buildings, and the various gas requirements in Building L and A, with capped provisions (terminated with a path valve in ground) for future extension into all buildings.

For the PCYC building, the LP gas line will be extending into a private gas meter within the PCYC building to monitor the volume of gas used within the building for billing purposes.

### 8.3 SANITARY PLUMBING AND DRAINAGE

The existing sanitary drainage connections into the Port Macquarie Hastings Council sewer system is proposed to be retained. New building drainage is proposed to connect into the existing private gravity drainage system where possible.

An in-ground dilution pit for the TAS outdoor workshop and a dilution tank will be provided under the dark room sink as pre-treatment requirements under ESFG requirements. This dilution pit will then be discharged into the gravity sewer system

Plaster arrestors will be provided as pre-treatment requirements for the Visual Arts Learning Spaces located on the CAPA building. These plaster arrestors will then be discharged into the gravity sewer system.

#### 8.3.1 SEWER INVESTIGATIONS - CCTV INSPECTIONS

As part of a separate scope of works, CCTV investigations on the existing external sewer services was conducted to determine its condition, depth and size, and primarily to determine suitability for reuse. These investigations had been prompted as it had been advised that there are frequent blockages experienced within the existing sewer system.

Result of the CCTV investigations determined that there are portions of the existing sewer system that are currently in disrepair due to tree roots damaging the pipe.

As a result, these sewer sections of disrepair will be replaced with new sewer lines to alleviate the issues experienced on site.

For the PCYC building, the proposed foot print of the building encroaches within the Port Macquarie Hastings council sewer asset currently on the north boundary of the lot.

It is anticipated that the extent of the sewer line, 1.0m beyond the footprint either side of the building, will need to be concrete encased, as per the authority's requirements. The final requirements are to be confirmed and directed by the council

Furthermore, the existing private sewer main serving the MPC building will need to be rediverted away from the footprint of the proposed PCYC building, and a new sewer connection made into the NUO sewer

### 8.4 FIRE HYDRANT SERVICES

Port Macquarie Campus currently does not have a compliant fire hydrant system in accordance to BCA Clause E1.3 and AS2419.1-2005. As outlined within the latest BCA report, the new buildings (TAS and CAPA) will require fire hydrant coverage, triggering the requirement for a new fire water connection into the Port Macquarie Hastings Council water main on Owen Street.

The design flow for the site will be two (2) hydrants operating simultaneously (20L/s).

A new fire brigade booster assembly will be required to be installed fronting Owen Street.

From the booster assembly, the new fire hydrant services will be reticulated in ground in non-metallic pipework with copper trace wire and form a ring main to reduce the pressure loss in the pipework. The pipe reticulation will be design to ensure the 150kPa maximum friction loss due to pipework is not surpassed.

The pressure and flow performance of the 150mm authority water main on Owen Street indicates there is sufficient pressure available to reticulate throughout the site to serve external fire hydrants.

Note that it is assumed that the fire hydrant system is required to protect the existing and refurbished buildings only. It is noted that confirmation on the existing buildings (which are not being refurbished) and their requirement to be protected is to be confirmed by the BCA consultant.

### 8.5 FIRE HOSE REEL SERVICES

It is assumed that the proposed buildings/rooms are not required to have fire hose reels under the NCC E1.4 iv "classrooms and associated corridors in a primary or secondary school." It is noted that the BCA consultant is to confirm building/room classification.

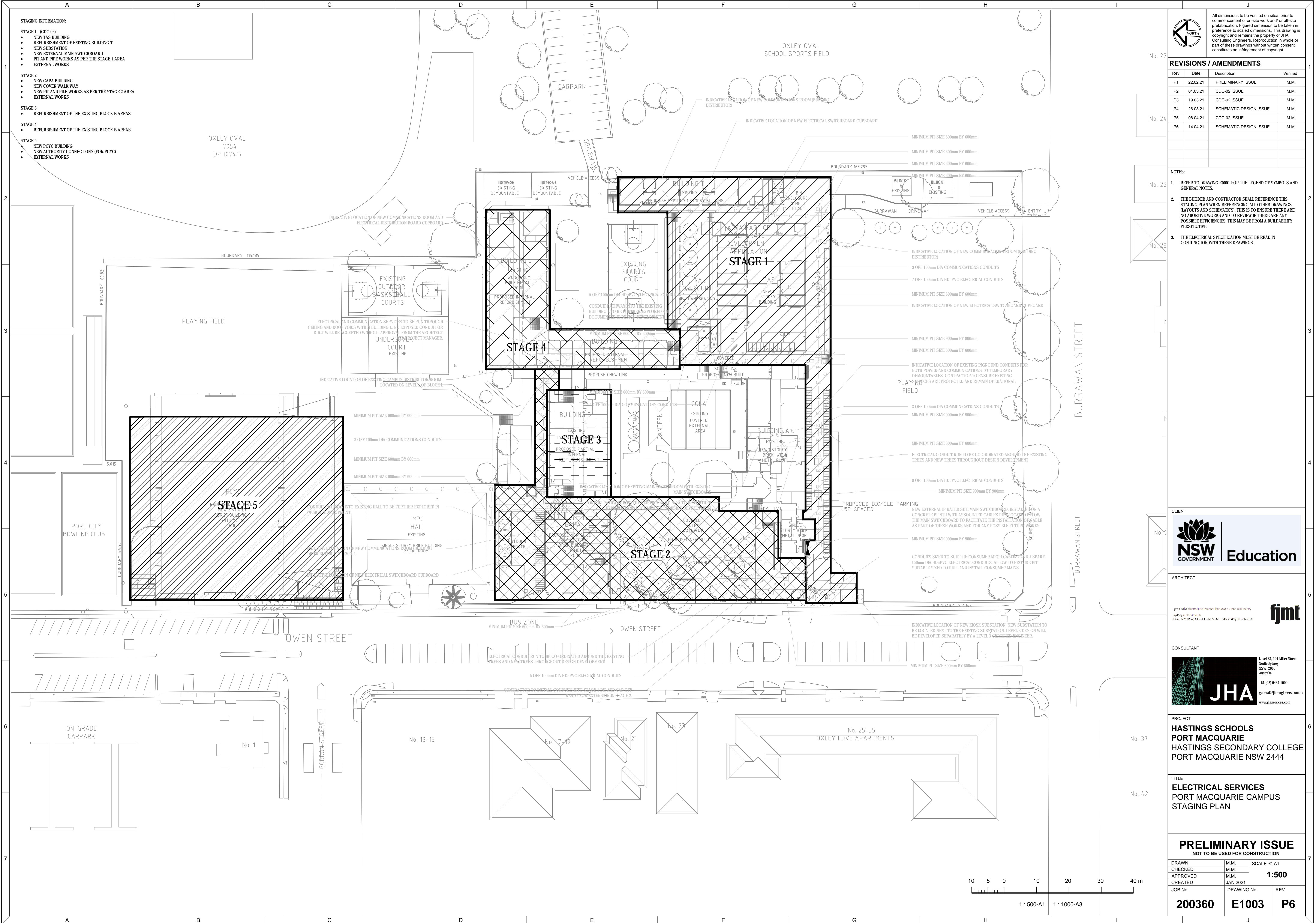
Furthermore, FHR's are typically omitted in schools where this classification is not applied and replaced with fire extinguishers under a fire engineering performance solution.

For the PCYC building, fire hose reels will be installed to provide 100% to the building. Fire hose reels are to be supplied from the potable cold water system and provide coverage to required areas in accordance with the BCA report and AS2441.

## APPENDIX A – ELECTRICAL STAGING PLAN

---





All dimensions to be verified on site/s prior to commencement of on-site work and/or off-site prefabrication. Figured dimension to be taken in preference to scaled dimensions. This drawing is copyright and remains the property of JHA Consulting Engineers. Reproduction in whole or part of these drawings without written consent constitutes an infringement of copyright.

#### REVISIONS / AMENDMENTS

Rev	Date	Description	Verified
P1	22.02.21	PRELIMINARY ISSUE	M.M.
P2	01.03.21	CDC-02 ISSUE	M.M.
P3	19.03.21	CDC-02 ISSUE	M.M.
P4	26.03.21	SCHEMATIC DESIGN ISSUE	M.M.
P5	08.04.21	CDC-02 ISSUE	M.M.
P6	14.04.21	SCHEMATIC DESIGN ISSUE	M.M.

#### NOTES:

- REFER TO DRAWING E0001 FOR THE LEGEND OF SYMBOLS AND GENERAL NOTES.
- THE BUILDER AND CONTRACTOR SHALL REFERENCE THIS STAGING PLAN WHEN REFERENCE ALL OTHER DRAWINGS (LAYOUTS AND SCHEMATICS). THIS IS TO ENSURE THERE ARE NO ABORTIVE WORKS AND TO REVIEW IF THERE ARE ANY POSSIBLE EFFICIENCIES. THIS MAY BE FROM A BUILDABILITY PERSPECTIVE.
- THE ELECTRICAL SPECIFICATION MUST BE READ IN CONJUNCTION WITH THESE DRAWINGS.

#### CLIENT



#### ARCHITECT



#### CONSULTANT



#### PROJECT

**HASTINGS SCHOOLS**  
**PORT MACQUARIE**  
**HASTINGS SECONDARY COLLEGE**  
**PORT MACQUARIE NSW 2444**

#### TITLE

**ELECTRICAL SERVICES**  
**PORT MACQUARIE CAMPUS**  
**STAGING PLAN**

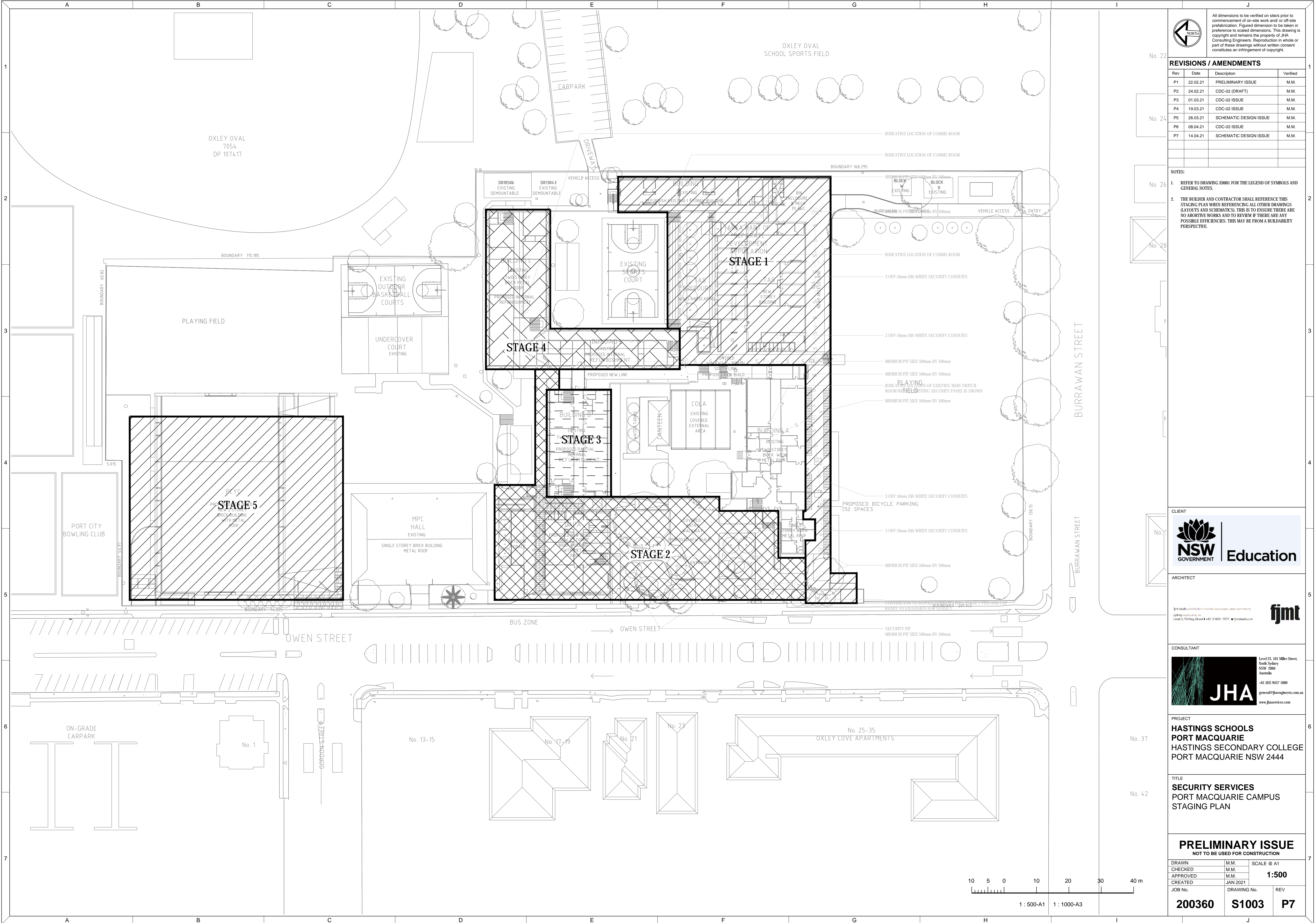
#### PRELIMINARY ISSUE

NOT TO BE USED FOR CONSTRUCTION

DRAWN	M.M.	SCALE @ A1
CHECKED	M.M.	1:500
APPROVED	M.M.	
CREATED	JAN 2021	
JOB No.	DRAWING No.	REV
200360	E1003	P6







All dimensions to be verified on site/s prior to commencement of on-site work and/or off-site prefabrication. Figured dimension to be taken in preference to scaled dimensions. This drawing is copyright and remains the property of JHA Consulting Engineers. Reproduction in whole or part of these drawings without written consent constitutes an infringement of copyright.

#### REVISIONS / AMENDMENTS

Rev	Date	Description	Verified
P1	22.02.21	PRELIMINARY ISSUE	M.M.
P2	24.02.21	CDC-02 (DRAFT)	M.M.
P3	01.03.21	CDC-02 ISSUE	M.M.
P4	19.03.21	CDC-02 ISSUE	M.M.
P5	26.03.21	SCHEMATIC DESIGN ISSUE	M.M.
P6	08.04.21	CDC-02 ISSUE	M.M.
P7	14.04.21	SCHEMATIC DESIGN ISSUE	M.M.

#### NOTES:

- REFER TO DRAWING E0001 FOR THE LEGEND OF SYMBOLS AND GENERAL NOTES.
- THE BUILDER AND CONTRACTOR SHALL REFERENCE THIS STAGING PLAN WHEN REFERENCE ALL OTHER DRAWINGS (LAYOUTS AND SCHEMATICS). THIS IS TO ENSURE THERE ARE NO ABORTIVE WORKS AND TO REVIEW IF THERE ARE ANY POSSIBLE EFFICIENCIES. THIS MAY BE FROM A BUILDABILITY PERSPECTIVE.

#### CLIENT



#### ARCHITECT

fynt studio architects | Partners | landscape | urban | community  
Level 5, 70 King Street | +61 2 9651 7077 | [fyntstudio.com](http://fyntstudio.com)



#### CONSULTANT



#### PROJECT

**HASTINGS SCHOOLS**  
**PORT MACQUARIE**  
**HASTINGS SECONDARY COLLEGE**  
**PORT MACQUARIE NSW 2444**

#### TITLE

**SECURITY SERVICES**  
**PORT MACQUARIE CAMPUS**  
**STAGING PLAN**

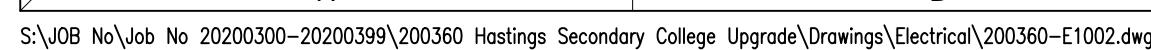
#### PRELIMINARY ISSUE

NOT TO BE USED FOR CONSTRUCTION

DRAWN	M.M.	SCALE @ A1
CHECKED	M.M.	1:500
APPROVED	M.M.	
CREATED	JAN 2021	
JOB No.	DRAWING No.	REV
200360	S1003	P7







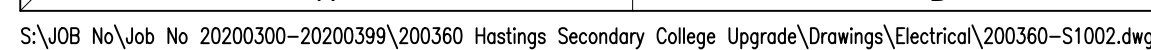
All dimensions to be verified on site/s prior to commencement of on-site work and/ or off-site prefabrication. Figured dimension to be taken in preference to scaled dimensions. This drawing is copyright and remains the property of JHA Consulting Engineers. Reproduction in whole or part of these drawings without written consent constitutes an infringement of copyright.

200360	E1002	10
--------	-------	----

1 : 500-A1	1 : 1000-A3
------------	-------------







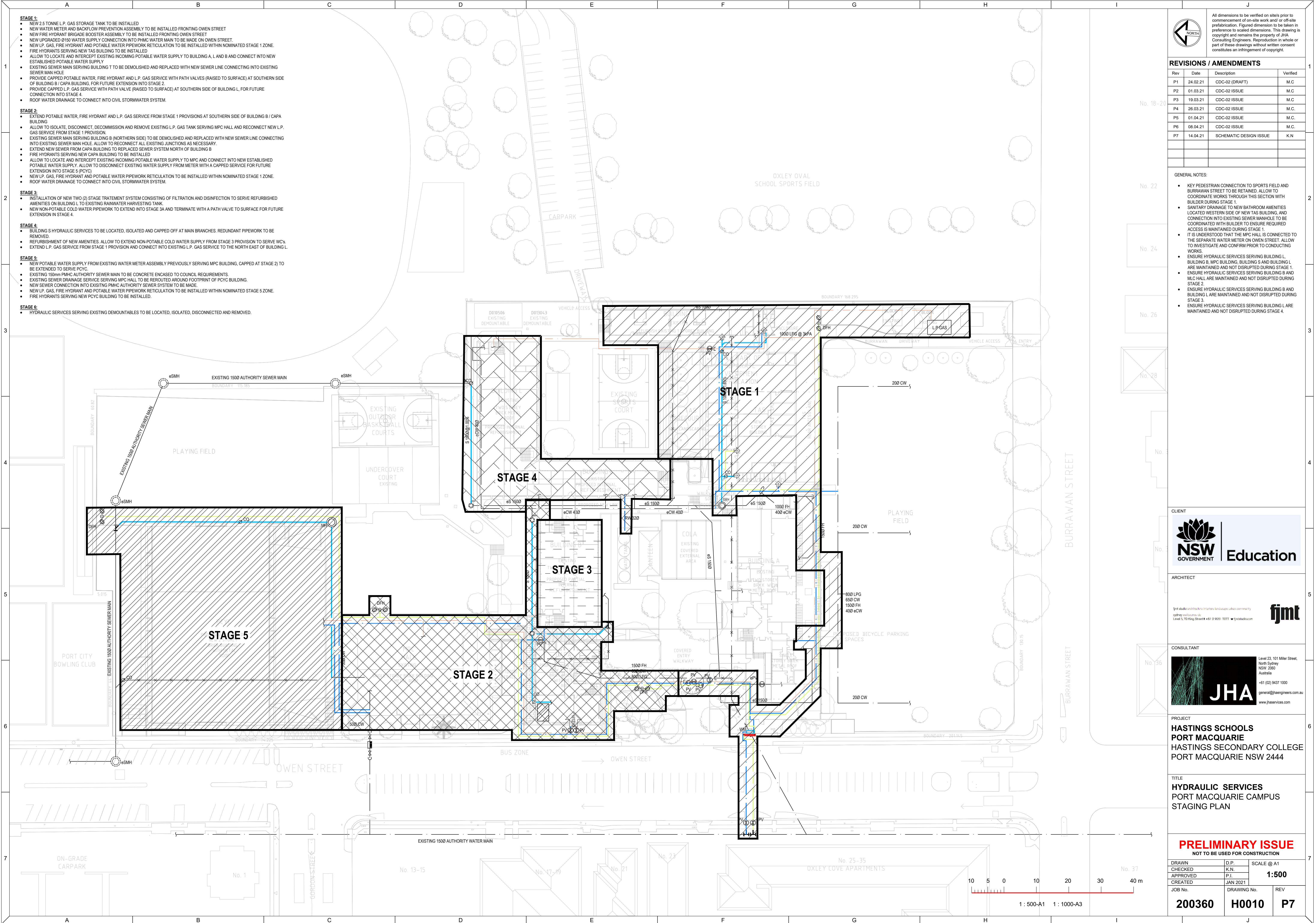
All dimensions to be verified on site/s prior to commencement of on-site work and/ or off-site prefabrication. Figured dimension to be taken in preference to scaled dimensions. This drawing is copyright and remains the property of JHA Consulting Engineers. Reproduction in whole or part of these drawings without written consent constitutes an infringement of copyright.

200360	S1002	P
--------	-------	---

1 : 500-A1	1 : 1000-A3
------------	-------------







All dimensions to be verified on site/s prior to commencement of on-site work and/or off-site prefabrication. Figure dimension to be taken in preference to scaled dimensions. This drawing is copyright and remains the property of JHA Consulting Engineers. Reproduction in whole or part of these drawings without written consent constitutes an infringement of copyright.

#### REVISIONS / AMENDMENTS

Rev	Date	Description	Verified
P1	24.02.21	CDC-02 (DRAFT)	M.C
P2	01.03.21	CDC-02 ISSUE	M.C
P3	19.03.21	CDC-02 ISSUE	M.C
P4	26.03.21	CDC-02 ISSUE	M.C.
P5	01.04.21	CDC-02 ISSUE	M.C.
P6	08.04.21	CDC-02 ISSUE	M.C.
P7	14.04.21	SCHEMATIC DESIGN ISSUE	K.N

#### GENERAL NOTES:

- KEY PEDESTRIAN CONNECTION TO SPORTS FIELD AND BURRAWAN STREET TO BE RETAINED. ALLOW TO COORDINATE WORKS THROUGH THIS SECTION WITH BUILDER DURING STAGE 1.
- SANITARY DRAINAGE TO NEW BATHROOM AMENITIES LOCATED WESTERN SIDE OF NEW TAS BUILDING, AND CONNECTION INTO EXISTING SEWER MANHOLE TO BE COORDINATED WITH BUILDER TO ENSURE REQUIRED ACCESS IS MAINTAINED DURING STAGE 1.
- IT IS UNDERSTOOD THAT THE MPC HALL IS CONNECTED TO THE SEPARATE WATER METER ON OWEN STREET. ALLOW TO INVESTIGATE AND CONFIRM PRIOR TO CONDUCTING WORKS.
- ENSURE HYDRAULIC SERVICES SERVING BUILDING L, BUILDING B, MPC BUILDING, BUILDING S AND BUILDING L ARE MAINTAINED AND NOT DISRUPTED DURING STAGE 1.
- ENSURE HYDRAULIC SERVICES SERVING BUILDING B AND MLC HALL ARE MAINTAINED AND NOT DISRUPTED DURING STAGE 2.
- ENSURE HYDRAULIC SERVICES SERVING BUILDING B AND BUILDING L ARE MAINTAINED AND NOT DISRUPTED DURING STAGE 3.
- ENSURE HYDRAULIC SERVICES SERVING BUILDING L ARE MAINTAINED AND NOT DISRUPTED DURING STAGE 4.



PROJECT  
**HASTINGS SCHOOLS  
PORT MACQUARIE  
HASTINGS SECONDARY COLLEGE  
PORT MACQUARIE NSW 2444**

TITLE  
**HYDRAULIC SERVICES  
PORT MACQUARIE CAMPUS  
STAGING PLAN**

**PRELIMINARY ISSUE**  
NOT TO BE USED FOR CONSTRUCTION

DRAWN	D.P.	SCALE @ A1
CHECKED	K.N.	1:500
APPROVED	P.I.	
CREATED	JAN 2021	
JOB No.	DRAWING No.	REV
<b>200360</b>	<b>H0010</b>	<b>P7</b>











## APPENDIX G – STATEMENT OF AVAILABLE PRESSURE

---



24th January 2019

Our Ref: PIN 67892

Brent Reynolds  
GHD  
24 Honeysuckle Drive  
Newcastle, 2300

Dear Brent

**Water pressure enquiry dated 24th of January 2019 for 16 Owen Street Port Macquarie**

In reference to your enquiry, please find below the maximum and minimum pressure available in the water main, as well as other flow requirements requested, in accordance with current Australian Standards where applicable:

**Approximate Ground Level (AHD):** 11 metres  
**Nominal Size of Water Main (DN):** 150 mm

**Available Pressures:**

- Maximum Pressure:** (AS 3500.1, Zero demand) 58 m.head  
**Minimum Pressure:** (AS 3500-2003, Peak demand) 53 m.head
- Fire Hydrant Installations:** (AS 2419.1-2005. Minimum pressures are based on the design pressure expected to be maintained for 95% of the time).

Flow Rate l/s	10	20	30
Pressure (m.head)	53	52	52