



REPORT

Infrastructure Delivery, Management & Staging Plan

87-129 Pennant Hills Road – The King’s School Masterplan
Project

The King’s School

CONFIDENTIAL

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**Norman
Disney &
Young**

A TETRA TECH COMPANY

VERIFICATION

REVISION	DATE ISSUED	PREPARED BY	VERIFIED BY	AUTHORISED BY	COMMENT
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3.0	20.10.23	C Lam J ElAmmar	J Underwood	J Underwood	For Submission

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1 EXECUTIVE SUMMARY

NDY have been engaged by The King's School to complete an assessment of the impact of the proposed works outlined in the Master Plan, on the existing utilities infrastructure. This report has been prepared for submission as part of the Secretary's Environmental Assessment Requirements (SEARs). This report aims to provide a summary of the required increases/decreases in demand and associated changes to the existing water, sewer, gas, fire protection, electrical and communications infrastructure to support the proposed development.

This report outlines the outcomes of the initial assessment of the surrounding infrastructure and authority consultation where required, to determine the capacity of existing services available for the proposed development. This document is intended to provide sufficient information to demonstrate servicing can be provided to support the proposed development which includes all buildings of each stage. In general, it should be noted that formal applications to relevant authorities where required for site servicing/supply can only be made after Development Consent has been granted.

Based on the information available at the time of preparing this report, we confirm: -

- Various modifications and upgrades to power, communications, water and sewer utility infrastructure will be required to facilitate the proposed works;
- Further consultation will be required with utilities and authorities as the design for each stage progresses;
- Detailed design, documentation and formal applications will be required to any and all works proposed to utilities infrastructure;
- We see no significant items of concern that would prevent power, communications, water and sewer services being provided to the proposed building in either stage of this development application.

2 SITE & PROJECT DESCRIPTION

This State Significant Development Application (SSDA) seeks consent for the staged redevelopment of The King's School, including:

- **Concept Proposal for the provision of new and upgraded facilities, including:**
 - Building envelope for a new Sports Pavilion within the western sports field precinct (subject to further detailed approval).
 - Building envelope for a new Boarding House within the northern residential precinct to the north of the Doyle Sports Fields and adjacent building envelope for Staff Quarters (subject to further detailed approval).
 - Building envelope for a new Day Boy House between Dalmas House and Burkitt House, including the associated relocation of Ryrle Road (subject to further detailed approval).
 - Earthworks and the associated demolition of existing buildings and structures, and removal of trees and landscaping.
 - Staged increase in staff and student numbers.
 - Detailed Stage 1 works (as outlined below).
- **Detailed Stage 1 works, including:**
 - Earthworks and the associated demolition and existing buildings and structures.
 - Traffic upgrade works including the construction of a new vehicular entrance into the site from Masons Drive, new drop-off pick up facilities, internal access roads and increased car parking and bus parking.
 - The construction of a new Staff Residence Building comprising residences for staff and their families within the Senior School Boarding Precinct.
 - The construction of a new building for Science, Technology, Engineering, Arts and Maths (the 'STEAM building') within the Senior School and associated landscaping.
 - The staged construction of new buildings required to upgrade the Preparatory School, including:
 - Construction of a new Performing Arts and Music Centre comprising a dedicated performance space and music practice rooms to the northwest of Horrocks Road.
 - Construction of a new General Learning Unit building comprising additional classrooms / general learning spaces adjacent to the existing dam.
 - Upgrades to pedestrian access throughout the school.
 - Staged increase in staff and student numbers.
 - The removal and replacement of trees and associated landscaping.

3 INFRASTRUCTURE DEMANDS

The maximum demand for the site is as follows:

SL NO.	SERVICE	UNIT	MAXIMUM DEMAND	REMARKS
1.	Electricity			
1.1	HV Ring 1 (Main Campus)	A/Φ	2195	Preliminary maximum demand calculations based on the architectural Report receive 27 th July 2023
1.2	HV Ring 2(Prep School)	A/Φ	420	
2.	Potable Water	l/s	8 12	Average water usage Peak
3.	Sewer Drainage	FU	1390	Sydney Water Average Water Usage Data
		l/s	ADWF = 6.4	
		l/s	PDWF = 9	
4.	Fire Hydrant	l/s	20	Maximum per building AS2419.1-2005
5.	Fire Sprinklers	No sprinklers required		
6.	Fire Drenchers	No drenchers required		
7.	Natural Gas	MJ/h	N/A	Not Required

4 INFRASTRUCTURE OVERVIEW

4.1 POTABLE WATER SERVICES

The following information has been provided and sourced to inform this report and our assessment of the Potable Water Service.

- Dial Before You Dig
- Sewer Service Diagram
- Pressure and flow report received on 08/09/2022.
- Discussions with Sydney Water on the locations of the existing water meter on 06/03/2023
- Discussions with The King's School facilities representatives.
- Site inspection conducted on 20th of January 2023.

As per telephone correspondence with Sydney Water representatives on 06/03/2023, the King's School Site has six cold potable connections to Sydney water mains with two main DN 80 mm water meter on Pennant Hills Road.

The connection sizes are:

- 80mm – Located adjacent to the fire hydrant near 144 Pennant Hills Rd
- 80mm – Located at the traffic light, Russell Rd, The King's School.
- 20mm - Located at parking and service road.
- 40mm - Located close to the Potable and white dome.
- 32mm – Located at White GAZEBO Oval
- 25mm – Located at 114 Pennant Hills Rd

It is proposed that the water supplies to the new buildings will be connected to the existing private potable cold water main in their proximity. Refer to Figure 1 for the locations of the new buildings and the private water main running throughout the King's School site.

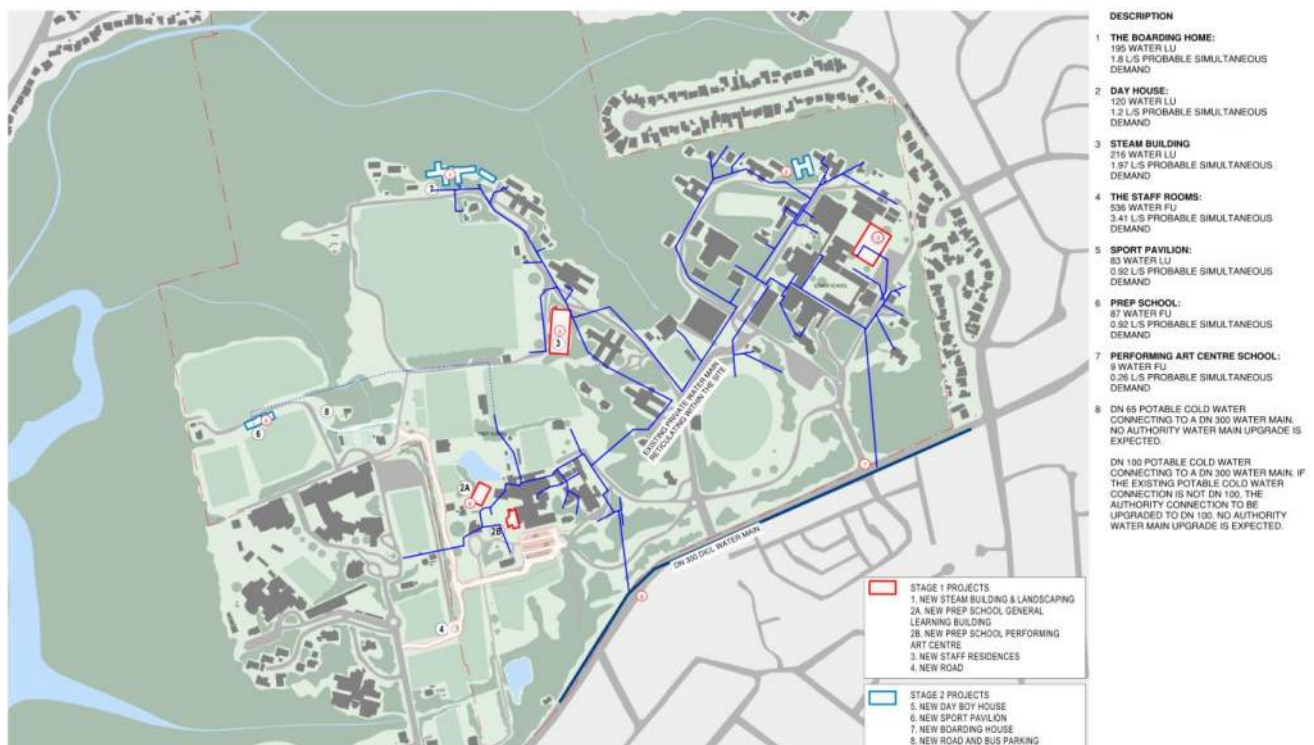


FIGURE 1 LOCATIONS OF THE NEW BUILDINGS AND THEIR ESTIMATE HYDRAULIC LOADS

Refer to table 1 for the estimated load for the new buildings and proposed pipe size for potable cold-water provision.

TABLE 1 SUMMARY OF POTABLE COLD -ATER LOAD FOR THE NEW BUILDINGS

NO.	BUILDING	POTABLE COLD-WATER LOAD	MINIMUM PIPE SIZE	REMARKS
1.	Boarding House	1.80 l/s	50 mm	DN 50 PCW connecting to the existing line in the proximity.
2.	Sport Pavilion	0.92 l/s	32 mm	DN 32 Potable cold-water provision extending to the potable cold-water provision near the prep school. Requirement for a potable cold-water pump will be subject to the detailed design.
3	Day House	1.20 l/s	40 mm	DN 40 PCW connecting to the existing line in the proximity.
4.	Preparatory School General Learning	0.92 l/s	32 mm	DN 32 PCW connecting to the existing line in the proximity.
5.	Staff Residences	3.41 l/s 12 l/s at peak hour	65 mm	DN 65 PCW connecting to the existing line in the proximity.
6.	Performing Art Centre School	0.26 l/s	25 mm	DN 25 PCW connecting to the existing line in the proximity.
7.	STEAM Building	1.97 l/s	50 mm	DN 50 PCW connecting to the existing line in the proximity.

No major upgrades are anticipated to the potable cold-water connections for the above works.

It has been noted there is a section of the DN 100 CICL Authority Water Main clashing with the proposed Stage 1 new road. The section is outside of the building boundary. A Building Plan Approval is to be lodged with Sydney water for the clashing of the Authority Water Main. Upon Sydney Water Advice and approval, Water Service Coordinator involvement might be required for further advice.



FIGURE 2 THE SECTION OF THE SYDNEY WATER POTABLE COLD-WATER MAIN THAT CLASHES WITH THE NEW ROAD.

4.2 SEWER DRAINAGE SERVICES

Gravity flow sewer drainage systems will collect waste and effluent from all fixtures, fittings and appliances from the proposed Day House.

Gravity drainage is unlikely to be achieved to the Boarding House, Sport Pavilion, Preparatory School General Learning Unit and Staff Residences. However there are two other suitable options which can be provided for these buildings:

Option 1:

Provide sewer pump out station for the sewer discharge. Pumped line will be discharging to the sewer main reticulating inside the school.

Option 2:

Provide septic system including the tank and pump for the building.

During detailed design the most effective option will be identified and implemented, and any sewer connection shall be complete with overflow relief gully and IPMF.

Refer to table 1 for the estimated load for the new buildings and proposed pipe size for sewer provision.

TABLE 2 SUMMARY OF SEWER LOAD FOR THE NEW BUILDINGS

NO.	BUILDING	SEWER FIXTURE UNIT LOADING	MINIMUM PIPE SIZE	REMARKS
1.	Boarding House	210 LU	50 mm pumped line	Option 1: Provide 5000l sewer pump out station for the sewer discharge. DN 50 pumped line will be discharging to the sewer main reticulating inside the school. Option 2: Provide septic system including the tank and pump for the building. Final selection will be subject to the section 73 application to Sydney water.
2.	Sport Pavilion	99 LU	40 mm pumped line	DN 100 Sewer line discharging to the existing sewer reticulating within the site in the close proximity.
3	Day House	126 LU	100 mm	Option 1: Provide 3000l sewer pump out station for the sewer discharge. DN 40 pumped line will be discharging to the sewer main reticulating inside the school. Option 2: Provide septic system including the tank and pump for the building. Final selection will be subject to the section 73 application to Sydney water.
4.	Preparatory School General Learning	96 LU	40 mm pumped line	Option 1: Provide 10 kl sewer pump out station for the sewer discharge. DN 65 pumped line will be discharging to the sewer main reticulating inside the school. Option 2: Provide septic system including the tank and pump for the building. Final selection will be subject to the section 73 application to Sydney water.
5.	Staff Residences	593 LU	65 mm pumped line	Option 1: Provide 5000l sewer pump out station for the sewer discharge. DN 50 pumped line will be discharging to the sewer main reticulating inside the school. Option 2: Provide septic system including the tank and pump for the building.

NO.	BUILDING	SEWER FIXTURE UNIT LOADING	MINIMUM PIPE SIZE	REMARKS
				Final selection will be subject to the section 73 application to Sydney water.
6	STEAM Building Performing Art Centre School	256 LU	100 mm	Provide 8000l sewer pump out station for the sewer discharge. DN 100 pumped line will be discharging to the sewer main reticulating inside the school.
7.	Performing Art Centre School	10 LU	40 mm pumped line	Option 1: Provide 3000l sewer pump out station for the sewer discharge. DN 40 pumped line will be discharging to the sewer main reticulating inside the school. Option 2: Provide septic system including the tank and pump for the building. Final selection will be subject to the section 73 application to Sydney water.

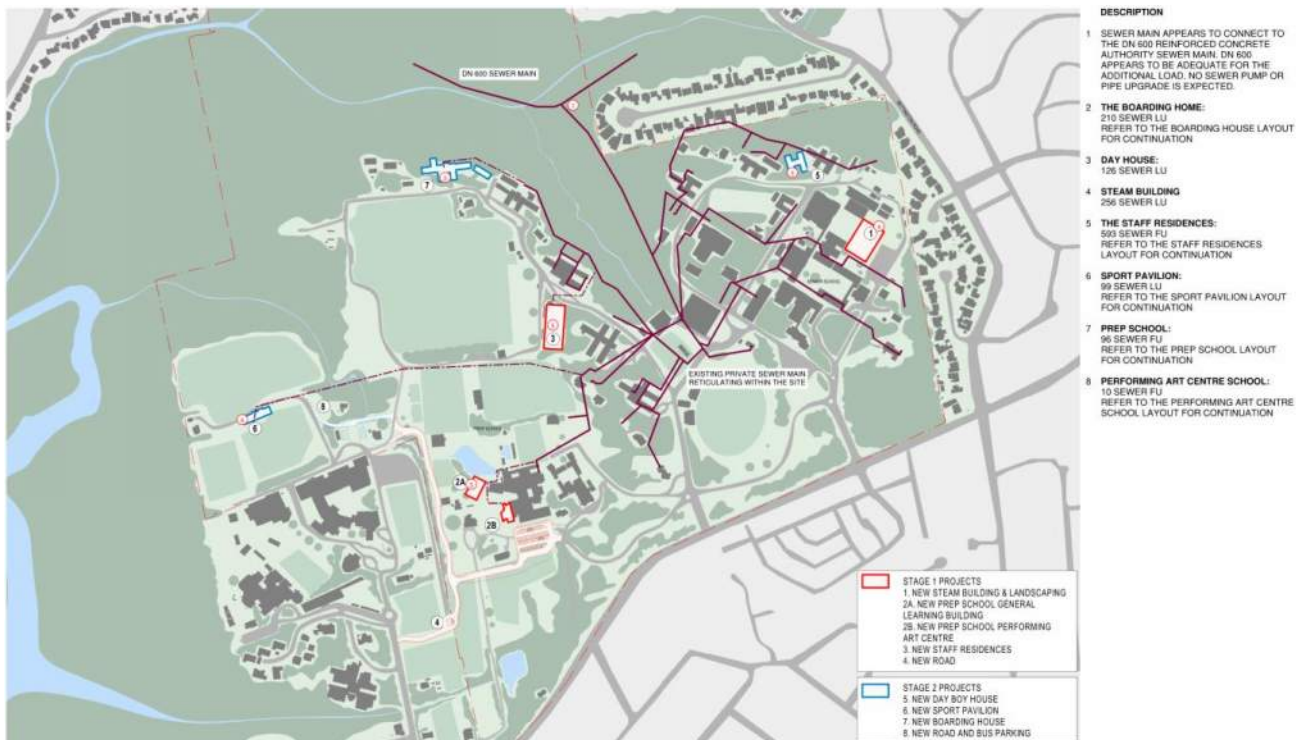


FIGURE 3 LOCATIONS OF THE NEW BUILDINGS AND THEIR ESTIMATE SEWER LOADS

No major upgrades are anticipated to the sewer connections for the above works.

4.3 NATURAL GAS SERVICES

A Natural Gas service is not required as part of services connections to the new buildings. All space heating and hot water production will utilise the electrical supply.

4.4 FIRE PROTECTION SERVICE

NO.	BUILDING	WATER MAIN SIZE FOR HYDRANT	FIRE HYDRANT DEMAND (L/S)	REMARKS
1.	Boarding House	100mm	20 l/s	Further fire protection calculation and design completion will be conducted upon the detailed design development of the architectural package. Requirement for additional fire hydrants and adequacy of water supply is to be confirmed at later design stage. No new fire potable cold water tank is expected to be required.
2.	Sport Pavilion	100mm	10 l/s	Further fire protection calculation and design completion will be conducted upon the detailed design development of the architectural package. Requirement for additional fire hydrants and adequacy of water supply is to be confirmed at later design stage. No new fire potable cold water tank is expected to be required.
3	Day Boy House	100mm	20 l/s	Further fire protection calculation and design completion will be conducted upon the detailed design development of the architectural package. Requirement for additional fire hydrants and adequacy of water supply is to be confirmed at later design stage. No new fire potable cold water tank is expected to be required.
4.	Preparatory School General Learning	100mm	10 l/s	Further fire protection calculation and design completion will be conducted upon the detailed design development of the architectural package. Requirement for additional fire hydrants and adequacy of water supply is to be confirmed at later design stage. No new fire potable cold water tank is expected to be required.
5.	Staff Residences	100mm	20 l/s	Further fire protection calculation and design completion will be conducted upon the detailed design development of the architectural package. Requirement for additional fire hydrants and adequacy of water supply is to be confirmed at later design stage. No new fire potable cold water tank is expected to be required.
6.	STEAM Building Performing Art Centre School	150 mm	20 l/s	No tank is required for the STEAM building hydrant System. Dual hydrant pumpsets with 20l/s at 600kPa is proposed to serve the STEAM Building
7.	Performing Art Centre School	100 mm	10 l/s	Further fire protection calculation and design completion will be conducted upon the detailed design development of the architectural package. Requirement for additional fire hydrants and adequacy of water supply is to be confirmed at later design stage. No new fire potable cold water tank is expected to be required.

No major upgrades are anticipated to the fire protection services for the above works that will affect utility infrastructure.

4.5 ELECTRICAL SERVICES

The following information has been provided and sourced to inform this report and our assessment of Electrical Services.

- Dial Before You Dig
- Existing electrical site plans
- Consultation with Endeavour Energy via phone and email
- Discussions with The King's School facilities representatives.
- Site inspection conducted on 20th of January 2023.

The King's School main campus is supplied through a HV Ring Main system, with the high voltage network entering the site along Russell Road and Sutton Road. The Preparatory School campus is fed from a separate HV feed entering the site along Gowan Brae Rd. The high voltage network reticulates through the King's School campus to several utility owned substations, which provide LV to the various buildings on campus. Refer to the proposed site plan included in the appendix for further detail.

TABLE 3 SUMMARY OF ELECTRICAL LOAD FOR THE NEW BUILDINGS

NO.	BUILDING	MAXIMUM DEMAND	REMARKS
1.	STEAM Building	1400 A/Φ	A new kiosk substation and main switchboard will be required to supply the STEAM building. Existing HV line to be extended to the proposed substation.
2.	Boarding House	320 A/Φ	Subject to receipt and assessment of historical maximum demand for existing utility substation 32369 when submitted during the next phase of schematic design, it is anticipated that the substation will require an upgrade to accommodate the new building loads.
2.	Sport Pavilion	50 A/Φ	Subject to receipt and assessment of historical maximum demand for existing supply network, it is anticipated that the existing supply to the site will be re-used. The existing Main switchboard will be replaced as the existing board appears to be at end-of-life.
3	Day Boys House	175 A/Φ	It is anticipated that the existing utility owned substation and the associated site main switchboard will be re-used to provide electrical supply to the Day House, subject to the receipt and assessment of historical maximum demand for existing supply network.
4.	Preparatory School Performing Art Centre	200 A/Φ	Based on the information received from Endeavour Energy, the existing substation (26312) appears to have sufficient space capacity to support the new Performing Arts building and General Learning Unit.
5.	Preparatory School General Learning	220 A/Φ	
6.	Staff Residences	250 A/Φ	Subject to receipt and assessment of historical maximum demand for existing utility substation 32369 when submitted during the next phase of schematic design, it is anticipated that the substation will require an upgrade to accommodate the new building loads.

Below is a description of works proposed for each portion of this staged redevelopment:

4.5.1 NEW STEAM (SCIENCE, TECHNOLOGY, ENGINEERING, ARTS & MATHS) BUILDING:

The new STEAM building will be located south of the existing Technology and Applied Science Centre.

Based on the latest maximum demand calculations, a new kiosk substation is required to supply to the STEAM building. The new substation is proposed near the existing substation 17763, HV line to be extended to the new substation.

A new main switchboard will be installed. Location to be confirmed once the final kiosk substation is established. The new substation and main switchboard will be dedicate to the STEAM building

The new building is proposed to be located clear of existing easements for HV services.

4.5.2 UPGRADES TO THE PREPARATORY SCHOOL:

- New Performing Arts Centre, located adjacent to the existing Performing Arts building and Horrock’s Hall.
- New General Learning building, located adjacent to the existing STEM building.

New dedicated LV electrical supplies are proposed for each new building, originating from the existing site Main Switchboard located in the Horrock’s Hall building. The associated utility owned pad mounted substation, located on Gowan Brae Avenue is approximately 110m to the south-east of the site.

Based on our preliminary enquiry with Endeavour Energy (power supply utility), the historic maximum demand for the substation has been made available, which indicates sufficient capacity to support the proposed redevelopment to the preparatory school. New sub mains cabling will reticulate via underground electrical conduits and pits from the main switchboard (MSB) to the new Building Main Distribution boards located internally within each new building.

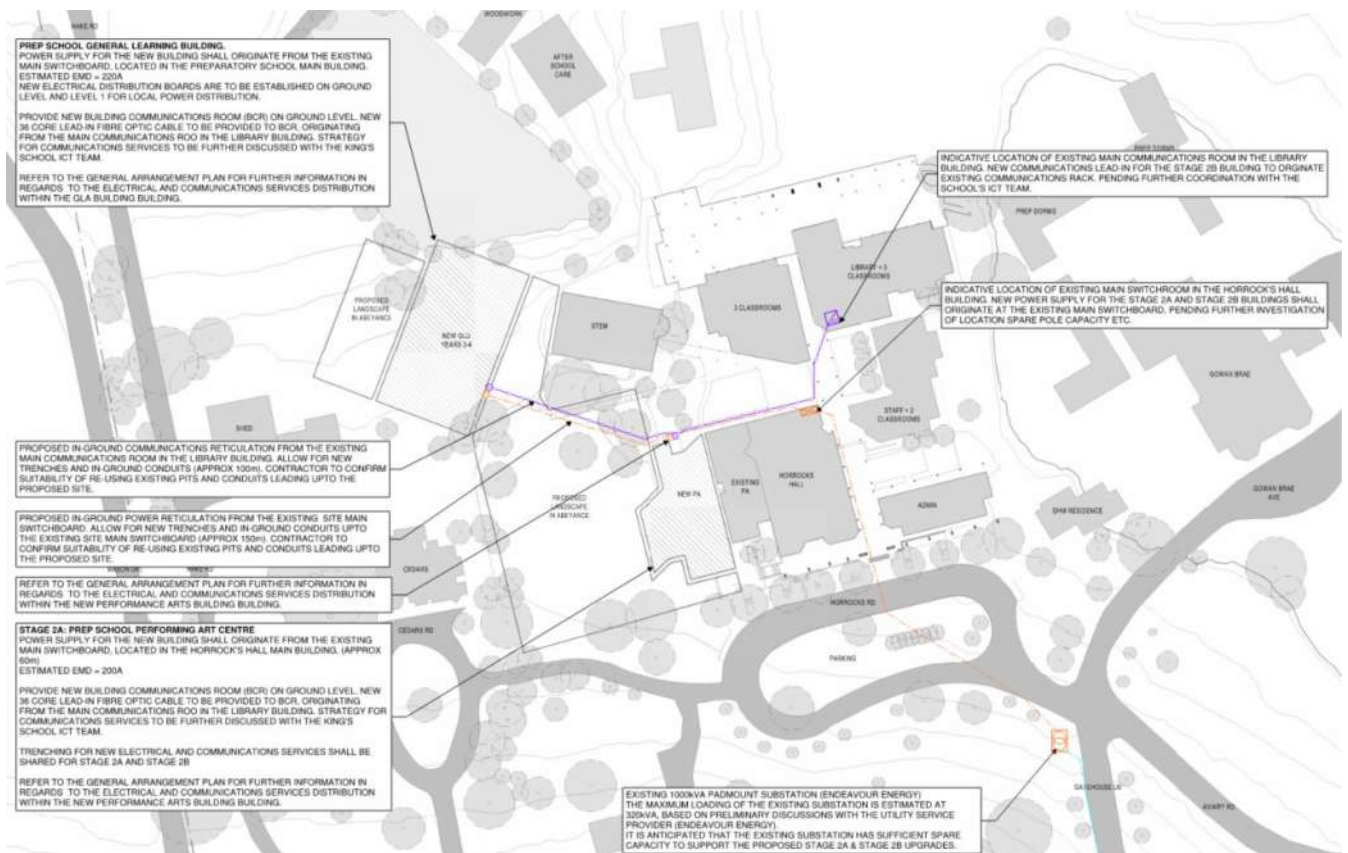


FIGURE 3: PREPARATORY SCHOOL ELECTRICAL INFRASTRUCTURE SITE PLAN

4.5.3 NEW VEHICULAR ENTRANCE INTO THE SITE FROM THE WEST

External pathway lighting will be designed to AS1158 requirements based on further design development and coordination with the client for functional requirements. The existing external lighting power and control circuits shall be modified and expanded up to support the new pathway lighting system, including provision of new electrical pits, conduits and associated trenching.

Due to the proximity of the substation 26312 with the proposed modifications to Gowan Brae road, the existing easements associated with the substation will need to be maintained. This will need to be coordinated with the utility and the civil works team on further design development.

4.5.4 NEW SPORTS PAVILLION BUILDING:

A new sports pavilion building is proposed at the western sports precinct. Supply to the existing buildings appear to originate from a utility pole (774097) locate within the sports precinct.

Based on our site inspection, the existing distribution appears to be at the end of life and will likely require replacement to accommodate the additional power supply to this new building. The historical maximum demand for the existing supply infrastructure has not yet been made available for our review and these will need to be obtained during the next phase of schematic design to confirm sufficient capacity.

New submains cabling will reticulate from the new main switchboard via underground electrical conduits and pits to the new Building Main Distribution board located internally within the new building.



FIGURE 5: SPORTS PAVILLION ELECTRICAL INFRASTRUCTURE SITE PLAN

4.5.5 NEW BOARDING HOUSE BUILDING:

The new Boarding house building is proposed within the northern residential precinct to the north of the Doyle Sports Fields. Existing buildings in this portion of the site are fed from a utility owned pad mounted substation

(#32369) via a site main switchboard located within an out-house electrical switch room, based on our site visit and discussions with the school's facilities management team.

Based on our site inspection, the existing site main switchboard appears to be lacking any spare pole capacity to accommodate the additional power supply to this new building, and may require an upgrade. The historical maximum demand for the aforementioned substation has not yet been made available for our review and these will need to be obtained during the next phase of schematic design to confirm sufficient capacity. The existing substation will likely require an upgrade due to the lack of physical capacity in the existing Site Main Switchboard. The substation upgrade works will ideally occur during Stage 1, in conjunction with road works associated with the new Western Entry. New access pathways and easements will need to be established to for utility access to the upgraded substation, in coordination with the utility and the traffic design team.

A new dedicated LV electrical supply is proposed for the new residence building, originating from the new Site Main Switchboard, located approximately 170m away from the proposed building site.

New sub mains cabling will reticulate from the site main switchboard via underground electrical conduits and pits to the new Building Main Distribution board located internally within the new building.



FIGURE 6: BOARDING HOUSE ELECTRICAL INFRASTRUCTURE SITE PLAN

4.5.6 NEW DAY BOY HOUSE BUILDING:

The new Day Boy House building is proposed between Dalmas House and Burkitt House. The existing buildings in this portion of the site are fed from two Utility owned pad mounted substations (#32370 & #21240) via a site main switchboard located adjacently.

A new dedicated LV electrical supply is proposed for the building, originating from the existing Site Main Switchboard, located approximately 170m away from the proposed building site.

Based on our site inspection, spare cubicles are available in the existing site main switchboard to accommodate the additional power supply to this new building, and is unlikely to require any modifications. The historical maximum demand for the aforementioned substation has not yet been made available for our review and these will need to be obtained to confirm sufficient capacity. Once received, an assessment will be made of the suitability of the existing substations for re-use with the proposed works.

New sub mains cabling will reticulate from the site main switchboard via underground electrical conduits and pits to the new Building Main Distribution board located internally within the new building. Re-use of the existing inground pit and conduit network will be assessed as the designs are developed further.

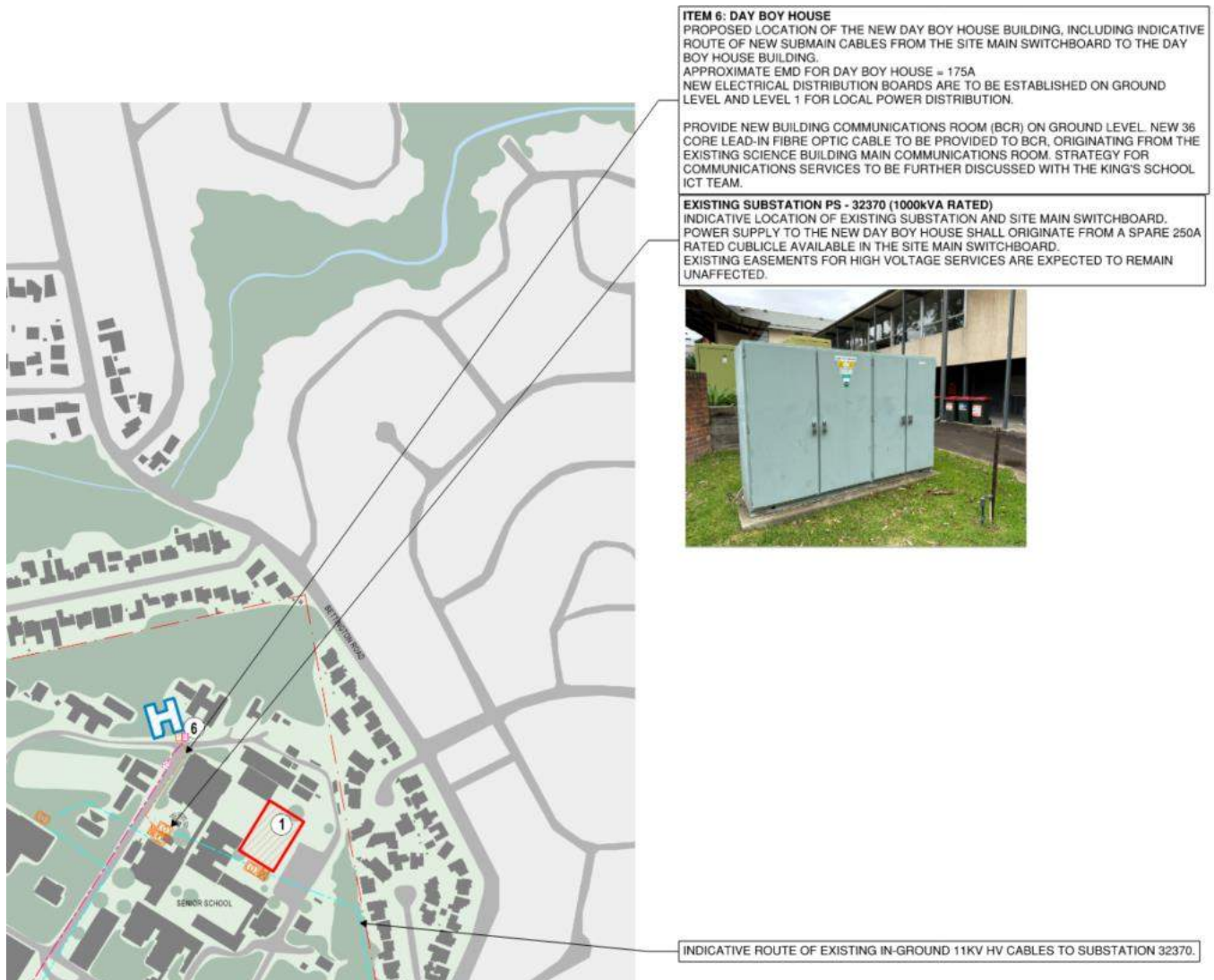


FIGURE 7: DAY BOY HOUSE ELECTRICAL INFRASTRUCTURE SITE PLAN

4.5.7 NEW STAFF RESIDENCE BUILDING:

The new Staff residence building is proposed to be installed between the existing Baker House building and Tennis Court. The existing buildings in this portion of the site are fed from a Utility owned pad mounted substation (#32369) via a site main switchboard located within an out-house electrical switch room, based on our site visit and discussions with the school's facilities management team.

Based on our site inspection, the existing site main switchboard appears to be lacking any spare pole capacity to accommodate the additional power supply to this new building, and may require an upgrade. The historical

maximum demand for the aforementioned substation has not yet been made available for our review and these will need to be obtained to confirm sufficient capacity. As part of Stage 1 works, the existing substation will likely require an upgrade due to the lack of physical capacity in the existing Site Main Switchboard.

A new dedicated LV electrical supply is proposed for the new residence building, originating from the new Site Main Switchboard, located approximately 100m away from the proposed building site.

New sub mains cabling will reticulate from the site main switchboard via underground electrical conduits and pits to the new Building Main Distribution board located internally within the new building.

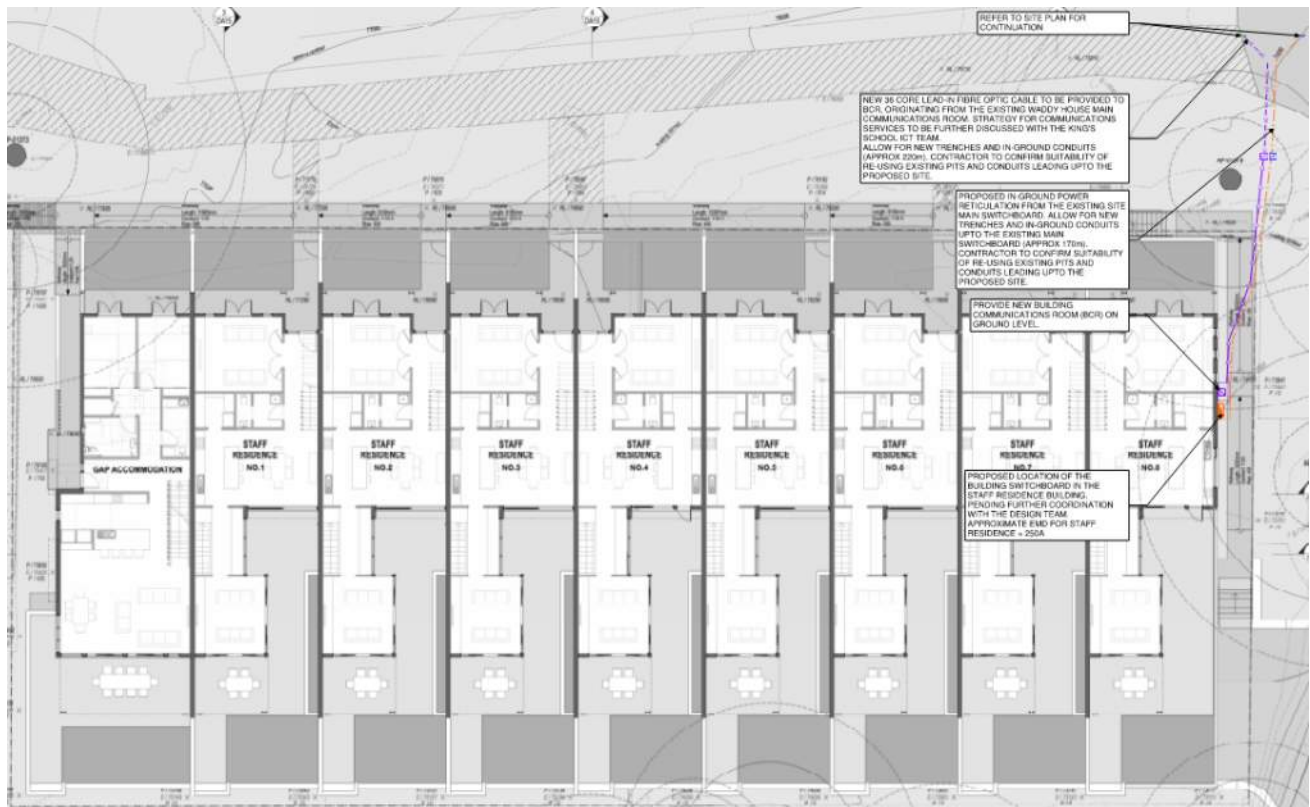


FIGURE 8: STAFF RESIDENCES ELECTRICAL INFRASTRUCTURE SITE PLAN

4.5.8 AUTHORITIES

As the electrical infrastructure will be connecting to utility owned electrical network, a technical review of the proposed upgrade works by the utility provider and a formal authority application for connection will be required. Existing easement allowances around pad mount substation and inground cable pathways shall be maintained (subject to review and assessment of historical maximum demand information noted above).

Additionally, as noted above, it is anticipated that works associated with the Boarding House and the Staff Residences will likely require an upgrade to the existing substation. As part of this upgrade, new access pathways and easements will need to be established to for utility access to the upgraded substation, in coordination with the utility and the traffic design team.

4.5.9 CONCLUSION

Based on the above and our correspondence with Endeavour Energy, initiated with a technical review request, we conclude that the existing infrastructure is likely to have the capacity to accommodate the proposed works without requiring major upgrade to the existing HV infrastructure. Adding one substation and upgrading the above mentioned substations can be carried out by extending the existing HV infrastructure within the school boundary. All clearances around substations and HV infrastructure can be achieved as per Endeavour Energy guidelines.

4.6 COMMUNICATION SERVICES

4.6.1 INCOMING COMMUNICATION SERVICES

This project aims to re-use existing communications services distribution infrastructure to integrate the proposed new buildings with the existing King's School communications network.

Based on our site investigation and DBYD documentation, there are existing Telstra/NBN communications services pits across the site in close proximity to each of the proposed building sites as shown on the site plan drawings. The proposed buildings are not expected to affect existing Telstra/NBN pit and conduits.

Each new building will be provided with an Optical Fibre connection to the existing Main campus distributors as shown on the site plan, via a private pit and conduit network. This shall be organised by the communications contractor in coordination with the King's School's ICT team and is understood to service:

- Connectivity from the building communications room in the proposed buildings to the school's network for internet access.
- telephone services using SIP and VOIP phones

The existing private communications pit and conduit network will be expanded upon as per the site plans included in section 4.4, to facilitate reticulation of new lead-in fibre cables to the proposed buildings.

All the above-mentioned works can be carried out without having an impact of the services provider infrastructure outside the school boundary.

5 INFRASTRUCTURE DELIVERY AND STAGING

The below table outlines the approval pathways, timelines and funding responsibilities of the different authority approvals required for the Project.

SERVICE	AUTHORITY	PROCESS	FUNDING RESPONSIBILITY
Power	Endeavour Energy	<p>Prior to commencing construction, the below needs to be completed:</p> <ul style="list-style-type: none"> • Receive and assess historical maximum demand information for Endeavour Energy owned assets. • Engage an ASPL3 Design Consultants to design and document the proposed High Voltage Design. • Submit ASPL3 applications as required. • Organise Council notifications at design stage. Allow 40 days for the council to review the project proposal and comment. • Organise Resident Notifications. Allow 21 days for review and feedback. • Engage an ASPL1 contractor for construction and liaison with the utility. • ASPL1 to obtain certification by the utility prior to commencement of works on site. <p>Concept proposal:</p> <ul style="list-style-type: none"> • The new Boarding House building will be connected to the newly upgraded substation 32369 (part of Stage 1 works). • The following building will be connected to existing private LV distribution network and we envisage no impact to utility: <ul style="list-style-type: none"> ○ Boy Day House ○ Sports Pavilion <p>Stage 1:</p> <ul style="list-style-type: none"> • Installation of a new kiosk substation to supply the new STEAM building. • Following the above, substation 32369 will be upgraded to allow connection to the new Staff Residence building. The substation upgrade works shall occur in conjunction with the proposed road works, including modifications to existing HV easements and utility access as required. • The following building will be connected to existing private LV distribution network and we envisage no impact to utility: <ul style="list-style-type: none"> ○ Preparatory School buildings 	Project / Builder

SERVICE	AUTHORITY	PROCESS	FUNDING RESPONSIBILITY
Communications	NBN, Telstra, AARnet	<p>There are existing Telstra/NBN in-ground conduits throughout the site, based on DBYD documentation. These existing conduits also contain cabling for other carriers.</p> <p>New fibre optic cables will be used to connect the new buildings to the school's Main communications room, all reticulated within a private pit and conduit network.</p> <p>Any changes to carrier fibre optic communication cabling within Telstra conduits will be undertaken by separate application with Telstra, however not envisaged under these works.</p> <p>The proposed road may affect AARNET network that is currently located in the footprint of the proposed road, further investigations are required to determine if the AARNET network will require relocation or can remain and be protected. This will happen in consultation with AARNET and the civil Engineer during schematic design phase.</p>	Project / Builder
Water & Sewer	Sydney Water	<p>Concept Proposal</p> <ul style="list-style-type: none"> • Consultation with Sydney Water <p>Formal Application if upgrade is required.</p> <p>Stage 1:</p> <ul style="list-style-type: none"> • Consultation with Sydney Water • Building Plan Approval is lodged with Sydney water for the clashing of the Authority Water Main. • Upon Sydney Water Advice and approval, Water Service Coordinator involvement might be required for further advice. • Formal Application if upgrade is required. • 	Project / Builder
Natural Gas	N/A	<ul style="list-style-type: none"> • Nil required 	N/A

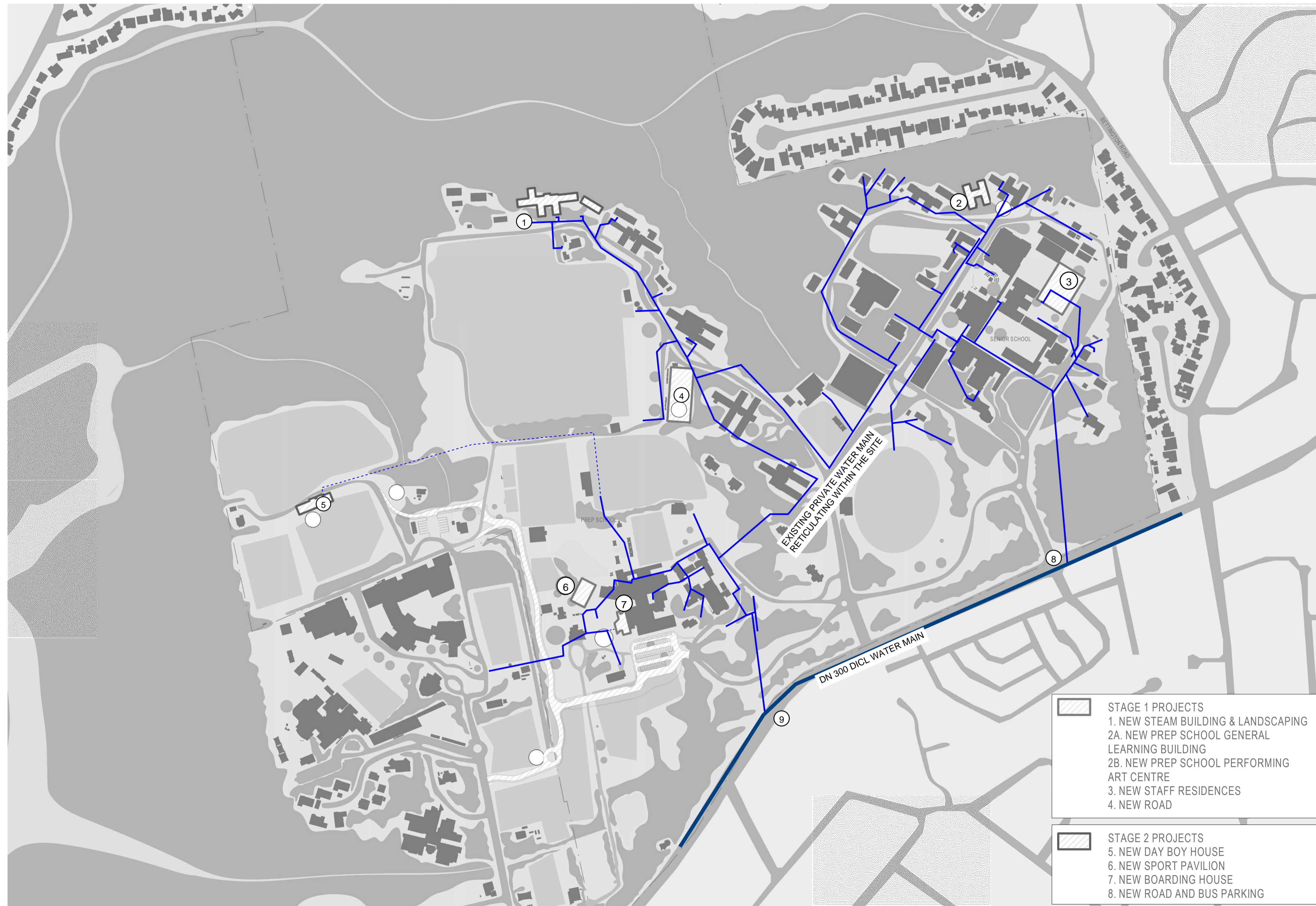
APPENDIX A – HYDRAULIC DRAWINGS

GENERAL KEY NOTES

DETAILED SIZE AND LOCATION OF THE PIPE CONNECTION WILL BE CONFIRMED IN DETAIL DESIGN PHASE.

PIPE SIZE IS CALCULATED BASED ON THE REQUIREMENT OF AS 3500-2013 SERIES.

THE WATER AND AND SEWER LOAD IS ASSUMED BASED ON THE PROVIDED ARCHITECTURAL BACKGROUND PROVIDED TO NDY ON 04/08/2023.



DESCRIPTION

- 1 **THE BOARDING HOME:**
195 WATER LU
1.8 L/S PROBABLE SIMULTANEOUS DEMAND
- 2 **DAY HOUSE:**
120 WATER LU
1.2 L/S PROBABLE SIMULTANEOUS DEMAND
- 3 **STEAM BUILDING**
216 WATER LU
1.97 L/S PROBABLE SIMULTANEOUS DEMAND
- 4 **THE STAFF ROOMS:**
536 WATER FU
3.41 L/S PROBABLE SIMULTANEOUS DEMAND
- 5 **SPORT PAVILION:**
83 WATER LU
0.92 L/S PROBABLE SIMULTANEOUS DEMAND
- 6 **GENERAL LEARNING UNIT:**
87 WATER FU
0.92 L/S PROBABLE SIMULTANEOUS DEMAND
- 7 **PERFORMING ART CENTRE SCHOOL:**
9 WATER FU
0.26 L/S PROBABLE SIMULTANEOUS DEMAND
- 8 DN 80 POTABLE COLD WATER CONNECTING TO A DN 300 WATER MAIN. NO AUTHORITY WATER MAIN UPGRADE IS EXPECTED.
- 9 DN 80 POTABLE COLD WATER CONNECTING TO A DN 300 WATER MAIN. IF THE EXISTING POTABLE COLD WATER CONNECTION IS NOT DN 100, THE AUTHORITY CONNECTION TO BE UPGRADED TO DN 100. NO AUTHORITY WATER MAIN UPGRADE IS EXPECTED.

LEGEND

- EXISTING AUTHORITY WATER MAIN
- PROPOSED WATER MAIN
- EXISTING PRIVATE WATER LINE

- STAGE 1 PROJECTS**
- 1. NEW STEAM BUILDING & LANDSCAPING
- 2A. NEW PREP SCHOOL GENERAL LEARNING BUILDING
- 2B. NEW PREP SCHOOL PERFORMING ART CENTRE
- 3. NEW STAFF RESIDENCES
- 4. NEW ROAD

- STAGE 2 PROJECTS**
- 5. NEW DAY BOY HOUSE
- 6. NEW SPORT PAVILION
- 7. NEW BOARDING HOUSE
- 8. NEW ROAD AND BUS PARKING

Rev	Description	Date	Rev	Description	Date	Rev	Description	Date
2	ISSUE FOR INFORMATION	23.08.16						

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Project
THE KING'S SCHOOL MASTERPLAN PARRAMATTA

Title
HYDRAULIC SERVICES MASTERPLAN PHASE 2 -PROPOSED

Scale @ A1 | Project Commencement | Design CL | Project No. S00000 CS

Revisi Version 2022

Drawing No. SK-HYD-001 | Revision 01



- DESCRIPTION**
- 1 SEWER MAIN APPEARS TO CONNECT TO THE DN 600 REINFORCED CONCRETE AUTHORITY SEWER MAIN. DN 600 APPEARS TO BE ADEQUATE FOR THE PROPOSED DEVELOPMENT
 - 2 **THE BOARDING HOME:**
210 SEWER LU
REFER TO THE BOARDING HOUSE LAYOUT FOR CONTINUATION
 - 3 **DAY HOUSE:**
126 SEWER LU
 - 4 **STEAM BUILDING**
256 SEWER LU
 - 5 **THE STAFF RESIDENCES:**
593 SEWER LU
REFER TO THE STAFF RESIDENCES LAYOUT FOR CONTINUATION
 - 6 **SPORT PAVILION:**
99 SEWER LU
REFER TO THE SPORT PAVILION LAYOUT FOR CONTINUATION
 - 7 **PREP SCHOOL:**
96 SEWER FU
REFER TO THE PREP SCHOOL LAYOUT FOR CONTINUATION
 - 8 **PERFORMING ART CENTRE SCHOOL:**
10 SEWER FU
REFER TO THE PERFORMING ART CENTRE SCHOOL LAYOUT FOR CONTINUATION

- LEGEND**
- EXISTING AUTHORITY SEWER MAIN
 - PROPOSED SEWER MAIN
 - PRIVATE WATER LINE
 - EXISTING AUTHORITY WATER MAIN
 - PROPOSED WATER MAIN
 - EXISTING PRIVATE WATER LINE

- STAGE 1 PROJECTS**
1. NEW STEAM BUILDING & LANDSCAPING
 - 2A. NEW PREP SCHOOL GENERAL LEARNING BUILDING
 - 2B. NEW PREP SCHOOL PERFORMING ART CENTRE
 3. NEW STAFF RESIDENCES
 4. NEW ROAD
- STAGE 2 PROJECTS**
5. NEW DAY BOY HOUSE
 6. NEW SPORT PAVILION
 7. NEW BOARDING HOUSE
 8. NEW ROAD AND BUS PARKING

GENERAL KEY NOTES

DETAILED SIZE AND LOCATION OF THE PIPE CONNECTION WILL BE CONFIRMED IN DETAIL DESIGN PHASE.

PIPE SIZE IS CALCULATED BASED ON THE REQUIREMENT OF AS 3500-2013 SERIES.

THE WATER AND AND SEWER LOAD IS ASSUMED BASED ON THE PROVIDED ARCHITECTURAL BACKGROUND PROVIDED TO NDY ON 04/08/2023.

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Project: **THE KING'S SCHOOL MASTERPLAN PARRAMATTA**

Title: **HYDRAULIC SERVICES MASTERPLAN PHASE 2 -PROPOSED**

Scale: @ A1

Project Commencement: _____

Drawn: _____

Design: CL

Project No: S00000 CS

Drawing No: **SK-HYD-001**

Revision: **01**

DESCRIPTION

- 1 REFER TO SITE PLAN FOR CONTINUATION
- 2 OPTION 1:
PROVIDE 3000L SEWER PUMP OUT STATION FOR THE SEWER DISCHARGE. DN 40 PUMPED LINE WILL BE DISCHARGING TO THE SEWER MAIN RETICULATING INSIDE THE SCHOOL.
- OPTION 2:
PROVIDE SEPTIC SYSTEM INCLUDING THE TANK AND PUMP FOR THE BUILDING.
- 3 OPTION WILL BE SUBJECT TO THE SECTION 73 APPLICATION TO SYDNEY WATER.
- 4 GENERAL LEARNING UNIT:
87 WATER FU
0.92 L/S
96 SEWER FU
- 5 PROVIDE DN 32 POTABLE COLD WATER PROVISION FOR THE NEW PREP SCHOOL - GENERAL LEARNING.

GENERAL KEY NOTES

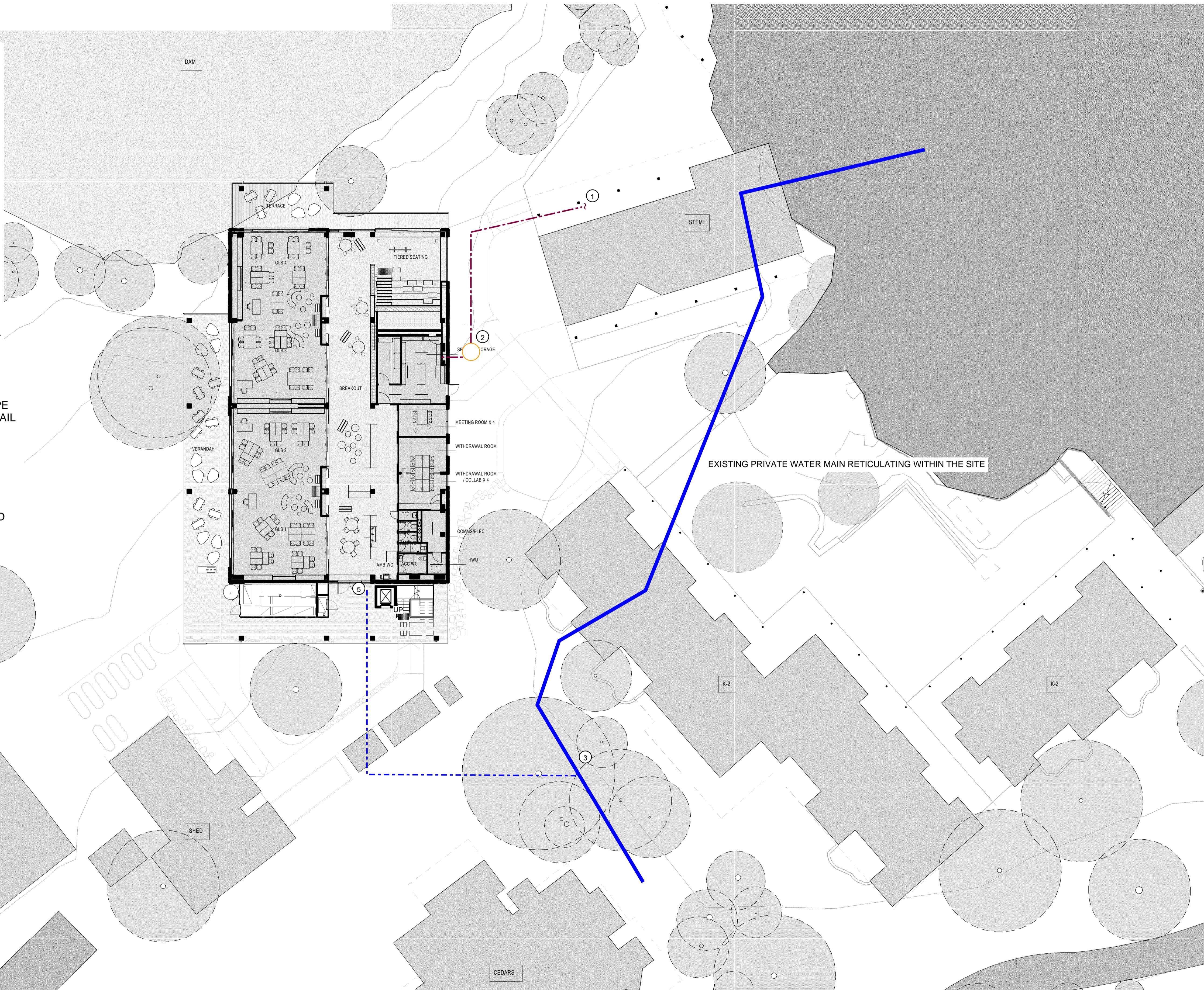
DETAILED SIZE AND LOCATION OF THE PIPE CONNECTION WILL BE CONFIRMED IN DETAIL DESIGN PHASE.

PIPE SIZE IS CALCULATED BASED ON THE REQUIREMENT OF AS 3500-2013 SERIES.

THE WATER AND AND SEWER LOAD IS ASSUMED BASED ON THE PROVIDED ARCHITECTURAL BACKGROUND PROVIDED TO NDY ON 04/08/2023.

LEGEND

- EXISTING AUTHORITY SEWER MAIN
- - - PROPOSED SEWER MAIN
- PRIVATE WATER LINE
- EXISTING AUTHORITY WATER MAIN
- - - PROPOSED WATER MAIN
- EXISTING PRIVATE WATER LINE



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Project
**THE KING'S SCHOOL MASTERPLAN
PARRAMATTA**

Title
**HYDRAULIC SERVICES
GENERAL LEARNING UNIT**

Scale
@ A1

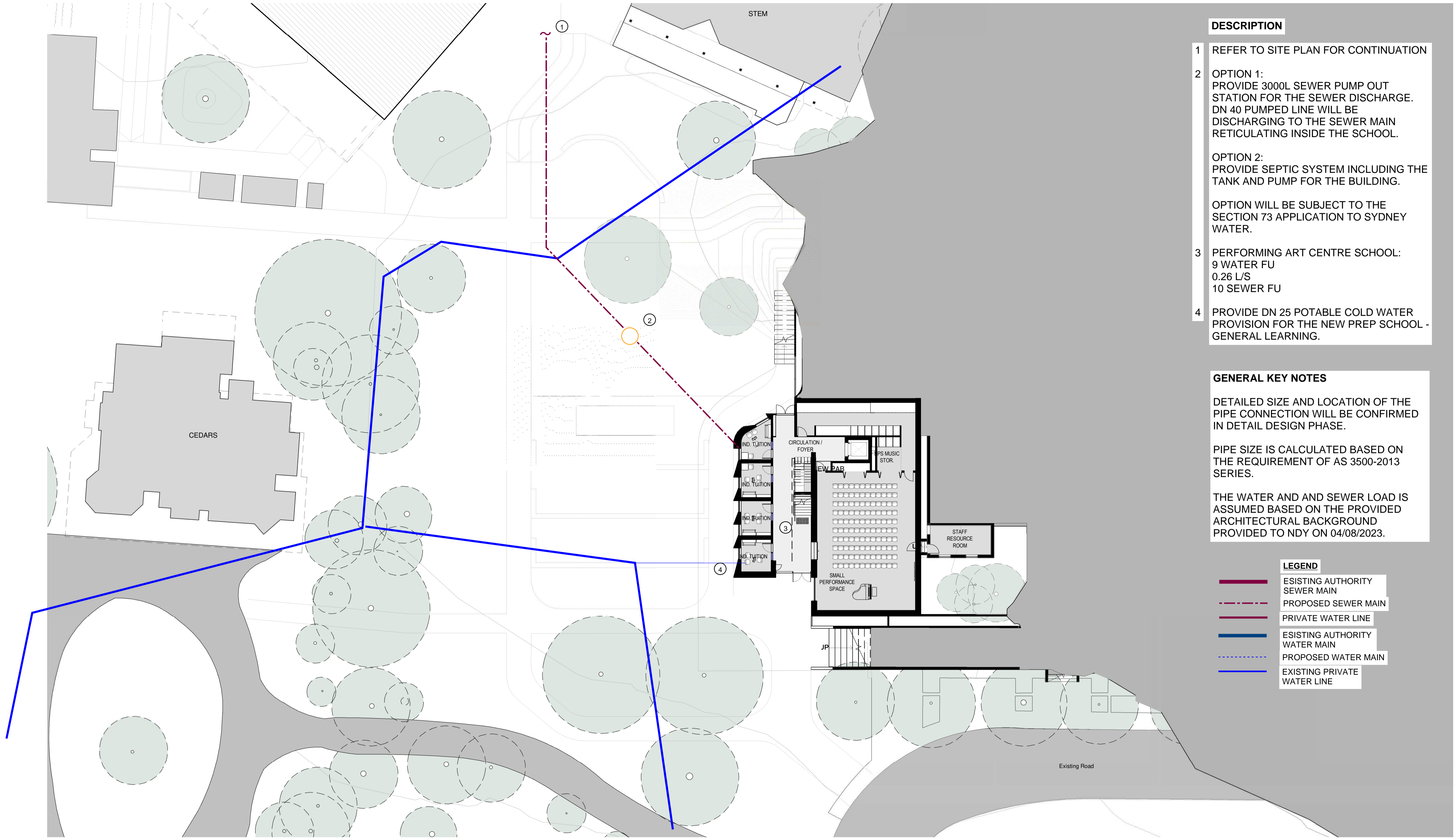
Project Commencement
Drawn
Design
CL

Project No.
S00000 CS

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2022

Drawing No.
SK-HYD-001

Revision
01



DESCRIPTION

- 1 REFER TO SITE PLAN FOR CONTINUATION
- 2 **OPTION 1:**
PROVIDE 3000L SEWER PUMP OUT STATION FOR THE SEWER DISCHARGE. DN 40 PUMPED LINE WILL BE DISCHARGING TO THE SEWER MAIN RETICULATING INSIDE THE SCHOOL.
- OPTION 2:**
PROVIDE SEPTIC SYSTEM INCLUDING THE TANK AND PUMP FOR THE BUILDING.
- OPTION WILL BE SUBJECT TO THE SECTION 73 APPLICATION TO SYDNEY WATER.**
- 3 **PERFORMING ART CENTRE SCHOOL:**
9 WATER FU
0.26 L/S
10 SEWER FU
- 4 **PROVIDE DN 25 POTABLE COLD WATER PROVISION FOR THE NEW PREP SCHOOL - GENERAL LEARNING.**

GENERAL KEY NOTES

DETAILED SIZE AND LOCATION OF THE PIPE CONNECTION WILL BE CONFIRMED IN DETAIL DESIGN PHASE.

PIPE SIZE IS CALCULATED BASED ON THE REQUIREMENT OF AS 3500-2013 SERIES.

THE WATER AND AND SEWER LOAD IS ASSUMED BASED ON THE PROVIDED ARCHITECTURAL BACKGROUND PROVIDED TO NDY ON 04/08/2023.

LEGEND

- EXISTING AUTHORITY SEWER MAIN
- - - PROPOSED SEWER MAIN
- PRIVATE WATER LINE
- EXISTING AUTHORITY WATER MAIN
- - - PROPOSED WATER MAIN
- EXISTING PRIVATE WATER LINE

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Project
**THE KING'S SCHOOL MASTERPLAN
PARRAMATTA**

Title
**HYDRAULIC SERVICES
PERFORMING ARTS CENTRE**

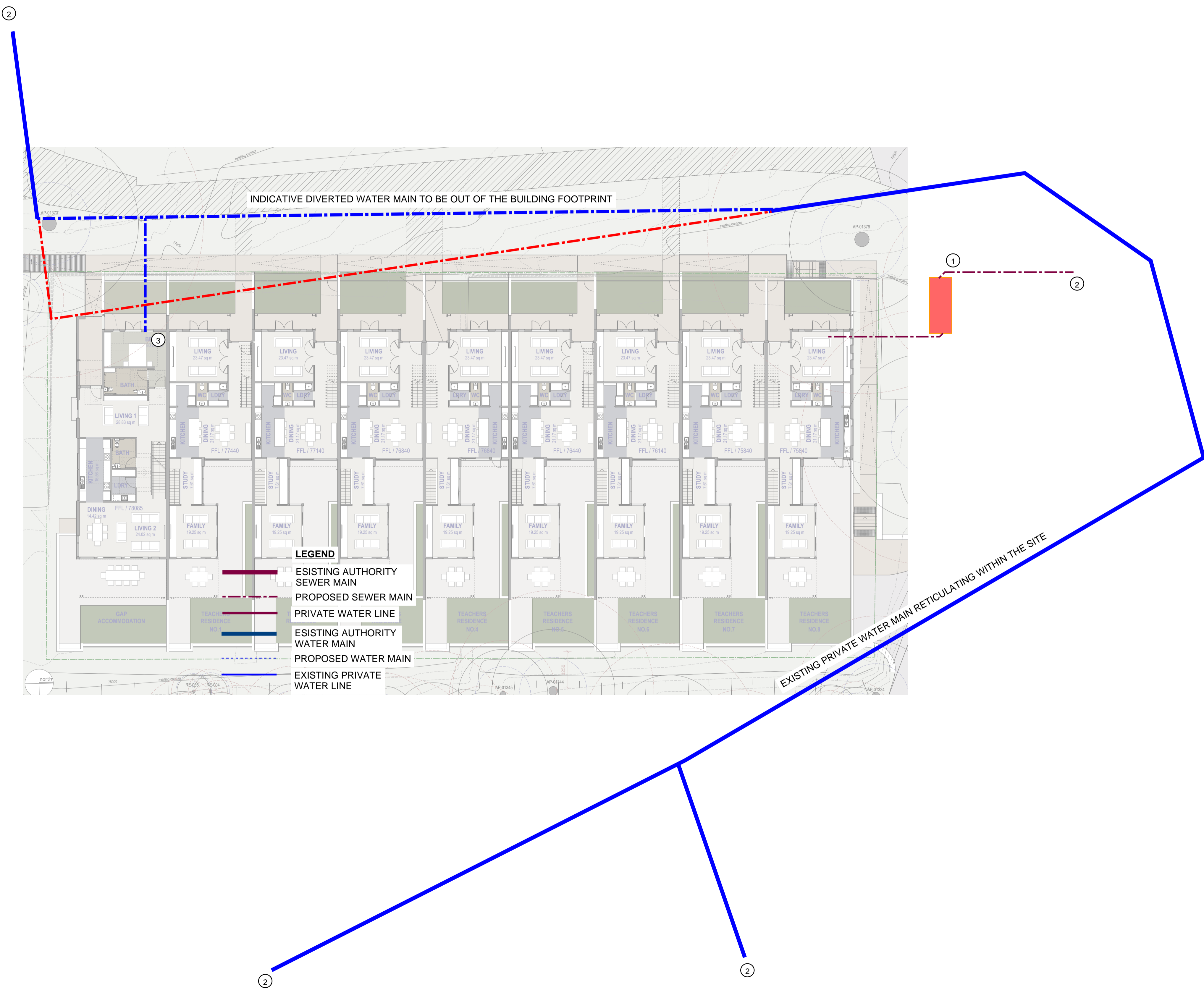
Scale
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Project Commencement
Design
CL

Project No.
S00000 CS

Revisi Version
2022

Drawing No. Revision
SK-HYD-001 01



LEGEND

- - - DEMOLISHED ESISTING AUTHORITY SEWER MAIN
- . - . - PROPOSED SEWER MAIN
- PRIVATE WATER LINE
- ESISTING AUTHORITY WATER MAIN
- . - . - PROPOSED WATER MAIN
- EXISTING PRIVATE WATER LINE

DESCRIPTION

1 OPTION 1:
 PROVIDE 10 KL SEWER PUMP OUT STATION FOR THE SEWER DISCHARGE. DN 65 PUMPED LINE WILL BE DISCHARGING TO THE SEWER MAIN RETICULATING INSIDE THE SCHOOL.

OPTION 2:
 PROVIDE SEPTIC SYSTEM INCLUDING THE TANK AND PUMP FOR THE BUILDING.

OPTION WILL BE SUBJECT TO THE SECTION 73 APPLICATION TO SYDNEY WATER.

2 REFER TO SITE PLAN FOR CONTINUATION

3 **THE STAFF ROOMS:**
 536 WATER FU
 3.41 L/S
 593 SEWER FU

PROVIDE DN 65 POTABLE COLD WATER PROVISION FOR THE NEW STAFF RESIDENCES

GENERAL KEY NOTES

DETAILED SIZE AND LOCATION OF THE PIPE CONNECTION WILL BE CONFIRMED IN DETAIL DESIGN PHASE.

PIPE SIZE IS CALCULATED BASED ON THE REQUIREMENT OF AS 3500-2013 SERIES.

THE WATER AND AND SEWER LOAD IS ASSUMED BASED ON THE PROVIDED ARCHITECTURAL BACKGROUND PROVIDED TO NDY ON 04/08/2023.

LEGEND

- ESISTING AUTHORITY SEWER MAIN
- . - . - PROPOSED SEWER MAIN
- PRIVATE WATER LINE
- ESISTING AUTHORITY WATER MAIN
- . - . - PROPOSED WATER MAIN
- EXISTING PRIVATE WATER LINE

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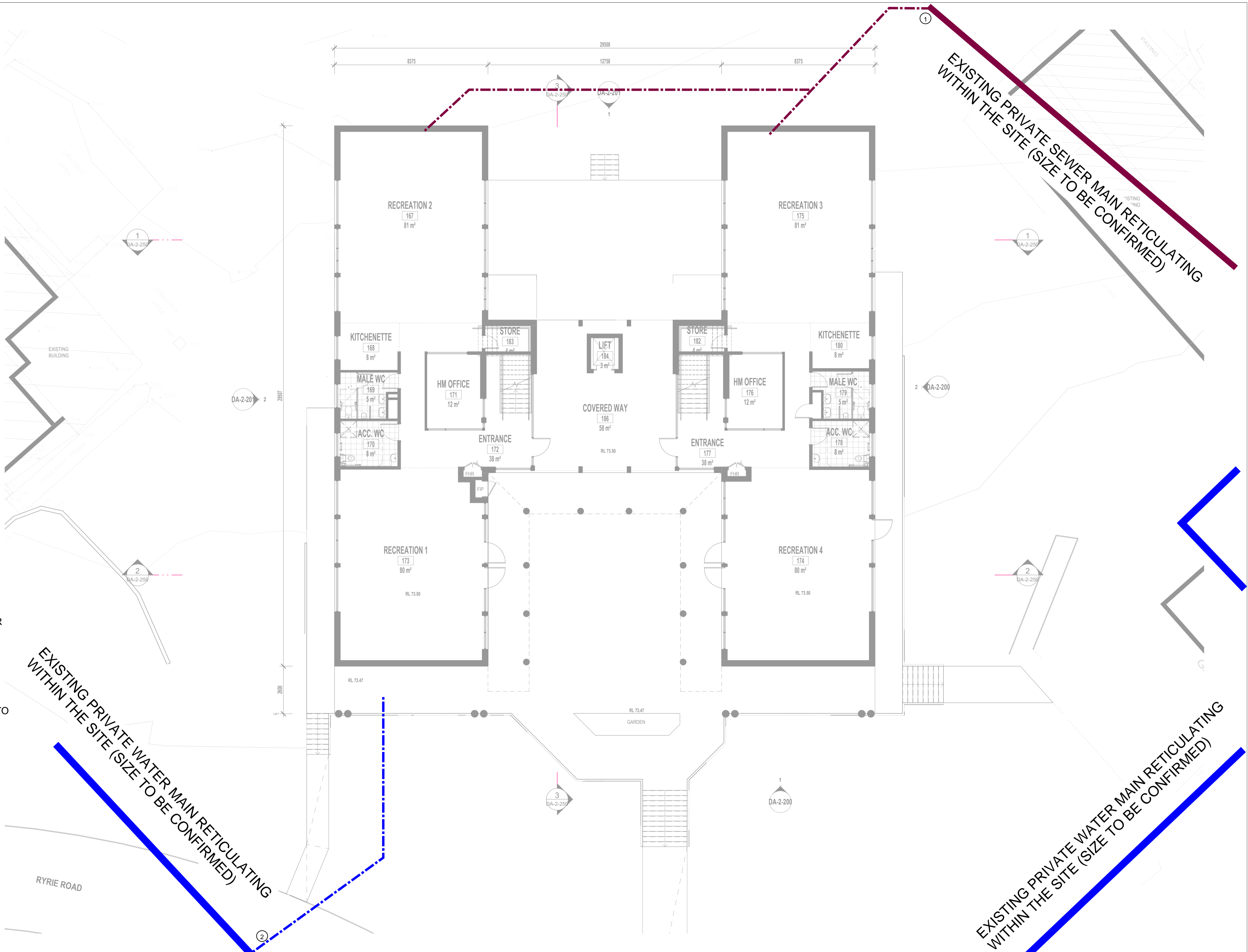
Project
THE KING'S SCHOOL MASTERPLAN PARRAMATTA

Title
HYDRAULIC SERVICES Staff Residences

Scale @ A1
 Project Commencement
 Design CL
 Project No. S00000 CS

Revised Version 2022

Drawing No. SK-HYD-001
 Revision 01



LEGEND

- ESISTING AUTHORITY SEWER MAIN
- - - PROPOSED SEWER MAIN
- PRIVATE WATER LINE
- ESISTING AUTHORITY WATER MAIN
- - - PROPOSED WATER MAIN
- EXISTING PRIVATE WATER LINE

DESCRIPTION

- 1 PROVIDE DN 100 SEWER LINE DISCHARGING TO THE EXISTING SEWER RETICULATING WITHIN THE SITE.
- 2 DAY HOUSE:
120 WATER LU
1.2 L/S
126 SEWER LU

PROVIDE DN 40 PCW TO CONNECTING TO THE EXISTING LINE.

GENERAL KEY NOTES

DETAILED SIZE AND LOCATION OF THE PIPE CONNECTION WILL BE CONFIRMED IN DETAIL DESIGN PHASE.

PIPE SIZE IS CALCULATED BASED ON THE REQUIREMENT OF AS 3500-2013 SERIES.

THE WATER AND AND SEWER LOAD IS ASSUMED BASED ON THE PROVIDED ARCHITECTURAL BACKGROUND PROVIDED TO NDY ON 04/08/2023.

EXISTING PRIVATE WATER MAIN RETICULATING WITHIN THE SITE (SIZE TO BE CONFIRMED)

EXISTING PRIVATE WATER MAIN RETICULATING WITHIN THE SITE (SIZE TO BE CONFIRMED)

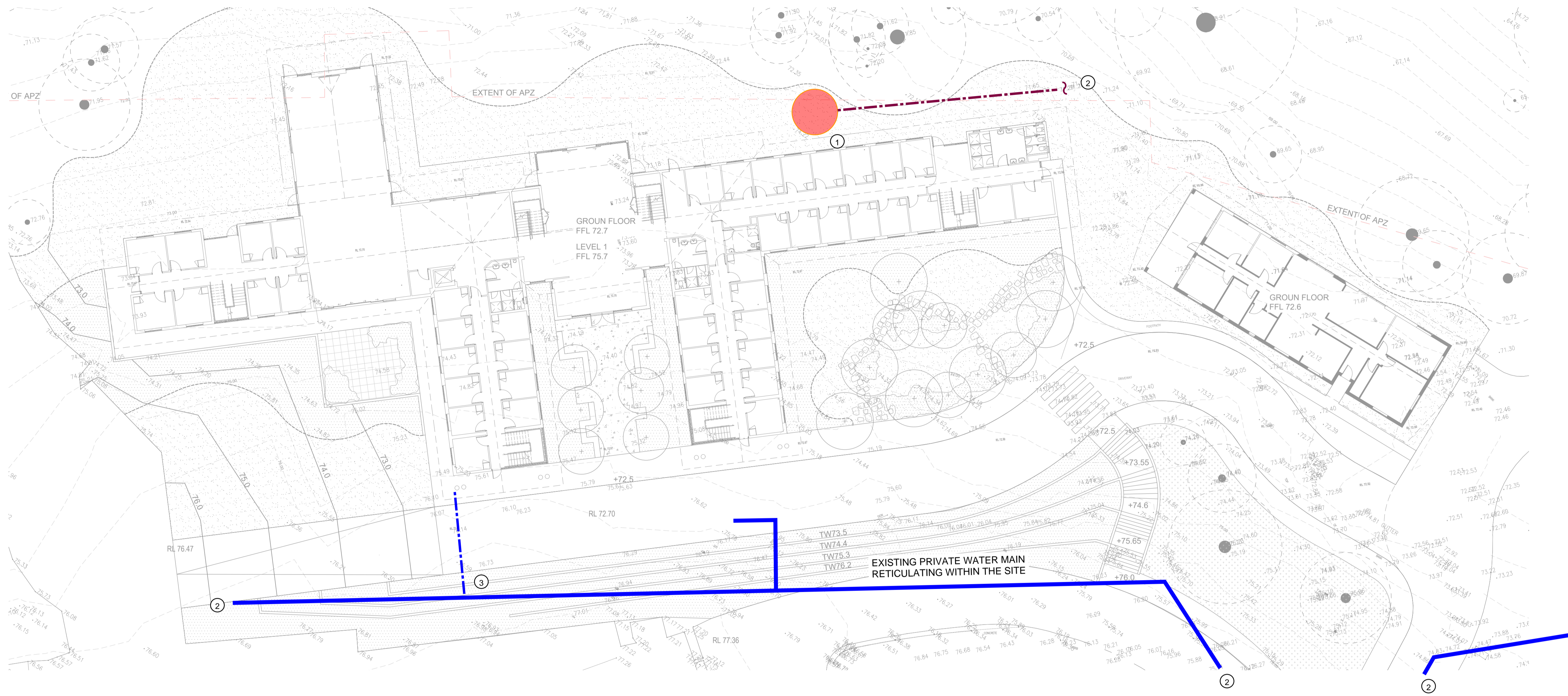
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Project THE KING'S SCHOOL MASTERPLAN PARRAMATTA		 Drawing No. SK-HYD-001 Revision 01
Title HYDRAULIC SERVICES DAY HOUSE		
Scale @ A1	Project Commencement	Drawn CL
Design CL	Project No. S00000 CS	Revised Version 2022



DESCRIPTION

- 1 **OPTION 1:**
 PROVIDE 5000L SEWER PUMP OUT STATION FOR THE SEWER DISCHARGE. DN 50 PUMPED LINE WILL BE DISCHARGING TO THE SEWER MAIN RETICULATING INSIDE THE SCHOOL.

OPTION 2:
 PROVIDE SEPTIC SYSTEM INCLUDING THE TANK AND PUMP FOR THE BUILDING.

 OPTION WILL BE SUBJECT TO THE SECTION 73 APPLICATION TO SYDNEY WATER.
- 2 REFER TO SITE PLAN FOR CONTINUATION
- 3 **THE BOARDING HOME:**
 195 WATER LU
 1.8 L/S
 210 SEWER LU

 PROVIDE DN 50 POTABLE COLD WATER PROVISION FOR THE NEW SPORT PAVILION
 PROVIDE DN 100 SEWER CONNECTION TO THE NEW BUILDING

GENERAL KEY NOTES

DETAILED SIZE AND LOCATION OF THE PIPE CONNECTION WILL BE CONFIRMED IN DETAIL DESIGN PHASE.

PIPE SIZE IS CALCULATED BASED ON THE REQUIREMENT OF AS 3500-2013 SERIES.

THE WATER AND AND SEWER LOAD IS ASSUMED BASED ON THE PROVIDED ARCHITECTURAL BACKGROUND PROVIDED TO NDY ON 04/08/2023.

LEGEND

- EXISTING AUTHORITY SEWER MAIN
- - - PROPOSED SEWER MAIN
- PRIVATE WATER LINE
- EXISTING AUTHORITY WATER MAIN
- - - PROPOSED WATER MAIN
- EXISTING PRIVATE WATER LINE

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Project
**THE KING'S SCHOOL MASTERPLAN
 PARRAMATTA**

Title
**HYDRAULIC SERVICES
 THE BOARDING HOUSE**

Scale
 @ A1

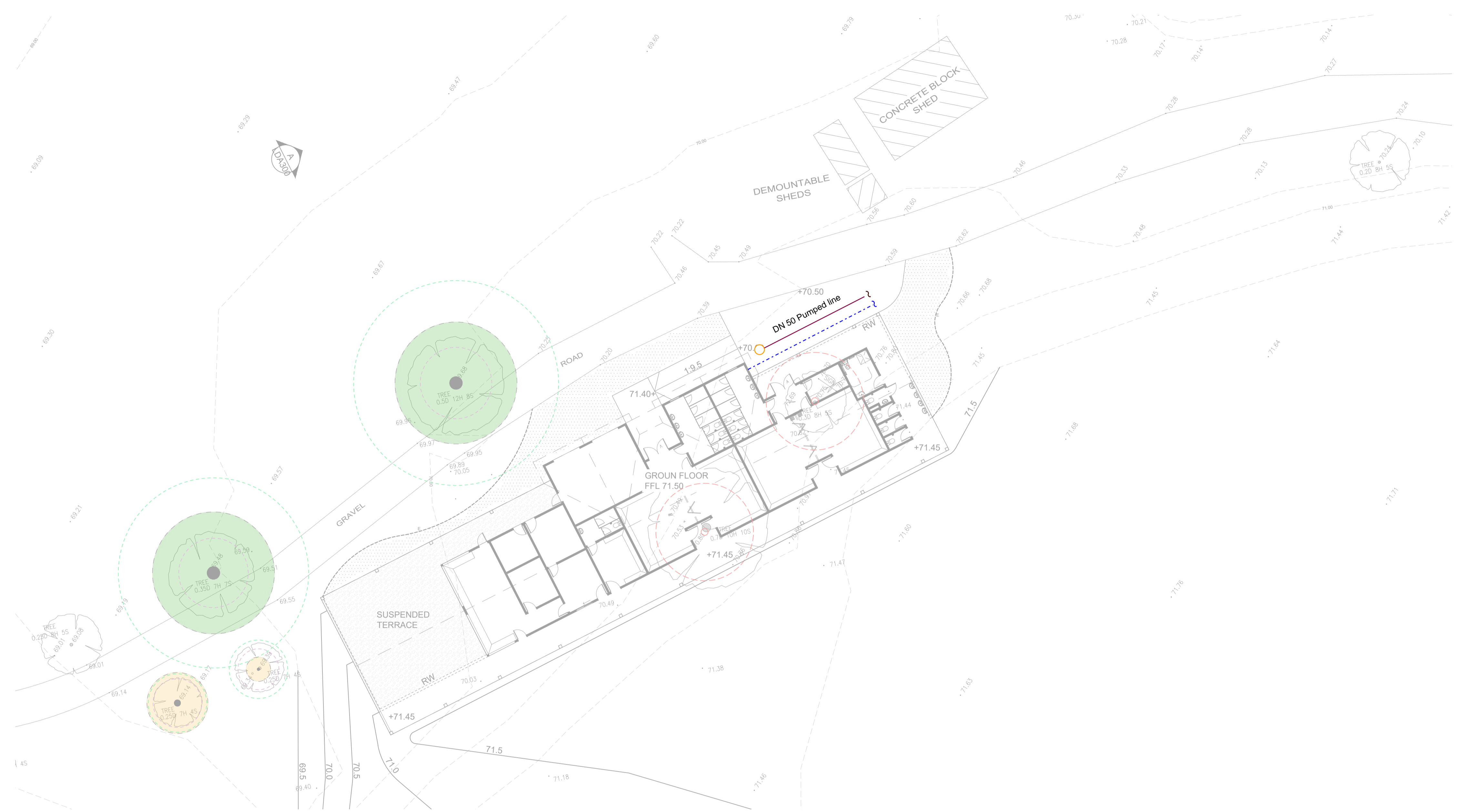
Project Commencement
 Drawn
 Design
 CL

Project No.
 S00000 CS

Drawing No.
SK-HYD-001

Revision
 01

Revised Version
 2022



DESCRIPTION

- 1 REFER TO SITE PLAN FOR CONTINUATION
- 2 SPORT PAVILION:
83 WATER LU
0.92 L/S
99 SEWER LU

PROVIDE DN 32 POTABLE COLD WATER PROVISION FOR THE NEW SPORT PAVILION. DOMESTIC WATER PUMP MIGHT BE REQUIRED FOR SPORT PAVILION WATER PROVISION
- 3 OPTION 1:
PROVIDE 5000L SEWER PUMP OUT STATION FOR THE SEWER DISCHARGE. DN 50 PUMPED LINE WILL BE DISCHARGING TO THE SEWER MAIN RETICULATING INSIDE THE SCHOOL.
OPTION 2:
PROVIDE SEPTIC SYSTEM INCLUDING THE TANK AND PUMP FOR THE BUILDING. OPTION WILL BE SUBJECT TO THE SECTION 73 APPLICATION TO SYDNEY WATER.

GENERAL KEY NOTES

DETAILED SIZE AND LOCATION OF THE PIPE CONNECTION WILL BE CONFIRMED IN DETAIL DESIGN PHASE.

PIPE SIZE IS CALCULATED BASED ON THE REQUIREMENT OF AS 3500-2013 SERIES.

THE WATER AND AND SEWER LOAD IS ASSUMED BASED ON THE PROVIDED ARCHITECTURAL BACKGROUND PROVIDED TO NDY ON 04/08/2023.

LEGEND

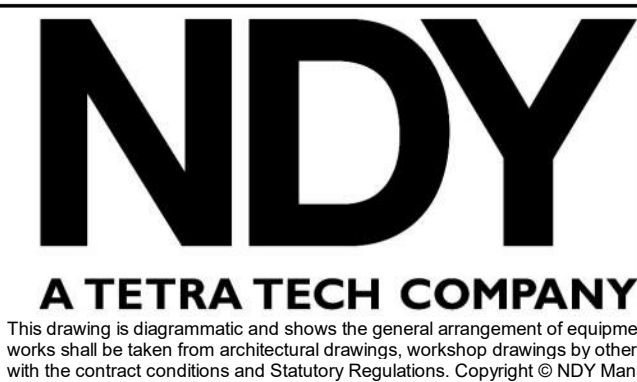
- EXISTING AUTHORITY SEWER MAIN
- - - PROPOSED SEWER MAIN
- PRIVATE WATER LINE
- EXISTING AUTHORITY WATER MAIN
- - - PROPOSED WATER MAIN
- EXISTING PRIVATE WATER LINE

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Project
**THE KING'S SCHOOL MASTERPLAN
PARRAMATTA**

Title
**HYDRAULIC SERVICES
SPORT PAVILION**

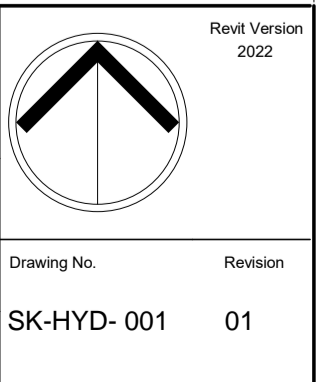
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Drawing No.
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No. DESCRIPTION

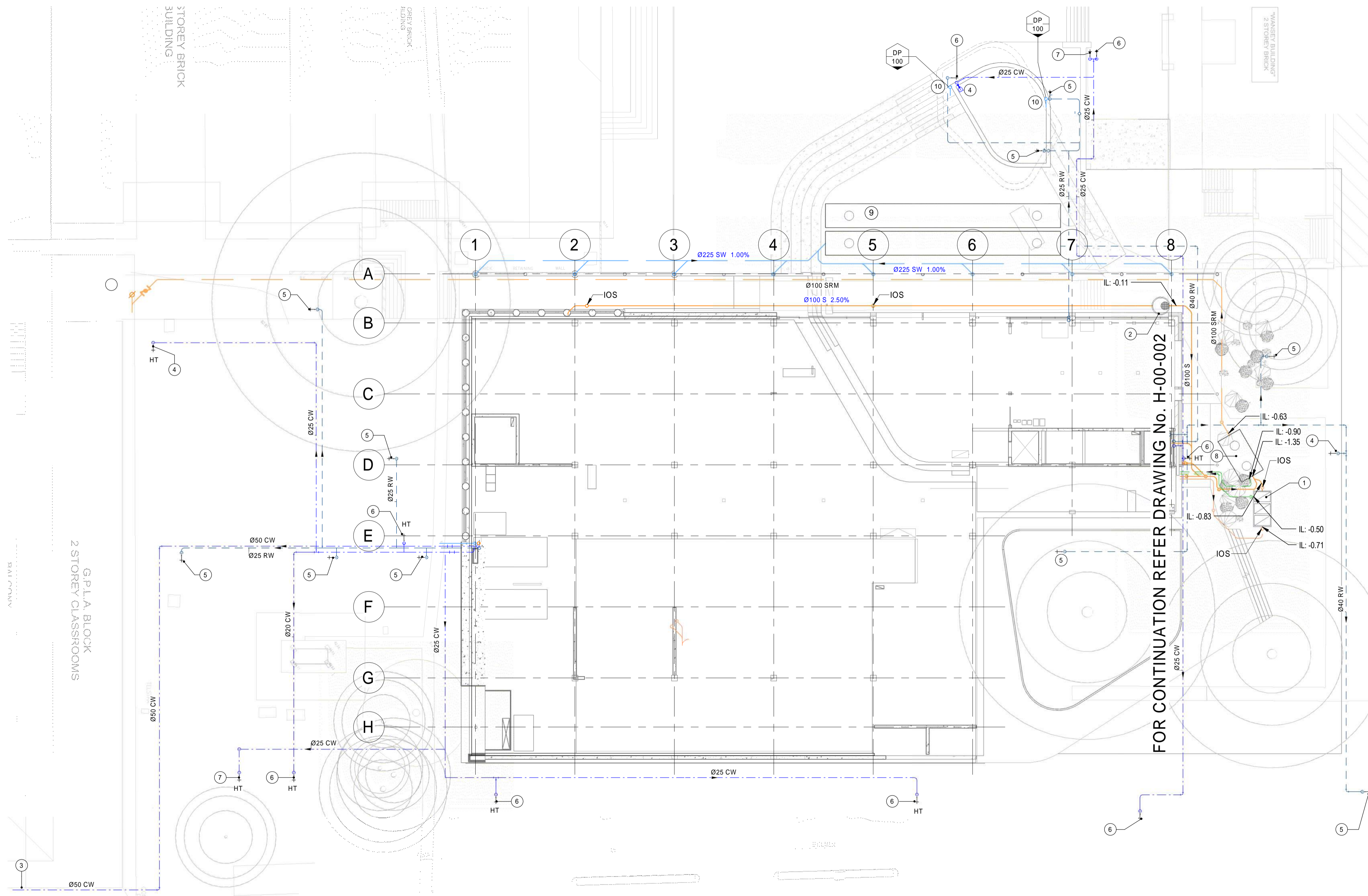
- 1 INDICATIVE LOCATION OF THE GREASE ARRESTOR (INGROUND) WITH ACCESS PANELS. PROVIDE REFLUX VALVE AT THE OUTLET AND IOS AT THE INLET AND OUTLET OF THE GREASE TRAP. THE RAINWATER TANK: 2M (D) X 3M(L) X 1.5M(W). ACCESS PANEL: 800(D)
- 2 PROVIDE SEWER MANHOLE WITH CLASS C LID
- 3 ALLOW TO LOCATE EXISTING PRIVATE WATER MAIN AND EXTEND NEW CONNECTION TO THE DEVELOPMENT FROM IT. INDICATIVE LOCATION OF THE INSPECTED PRIVATE WATER MAIN LINE ON SITE.
- 4 ~~PROVIDE~~ PROVIDE PROVISION FOR THE GREEN ROOF IRRIGATION.
- 5 IRRIGATION POINT. PROVIDE TAG 'DO NOT DRINK'. VANDAL PROOF HOSE TAP.
- 6 WATER REFILL STATION. VANDAL PROOF HOSETAP.
- 7 EXTERNAL HOSE TAP. VANDAL PROOF HOSETAP.
- 8 INDICATIVE LOCATION OF THE EFFECTIVE VOLUME 8000L SEWER PUMP OUT PIT WITH ACCESS PANEL (TO BE COMPLIED WITH AS 1428). SIZE: 2500MM DEEP X 4000MM (OUTER)/2100MM, 800MM ACCESS HOLE
- 9 PROVIDE 2 X 50KL RAINWATER TANK IN PARALLEL. CIVIL TO CAPTURE THE OVERFLOW FROM THE TANK. SIZE OF EACH TANK: 2680 H X 2020 W X 19870 L
- 10 DOWNPIPE FROM THE PAVILION ROOF. CIVIL TO CAPTURE THE ROOF DRAINAGE TO STORM WATER SYSTEM

GENERAL KEY NOTES

DETAILED SIZE AND LOCATION OF THE PIPE CONNECTION WILL BE CONFIRMED IN DETAIL DESIGN PHASE.

PIPE SIZE IS CALCULATED BASED ON THE REQUIREMENT OF AS 3500-2013 SERIES.

THE WATER AND AND SEWER LOAD IS ASSUMED BASED ON THE PROVIDED ARCHITECTURAL BACKGROUND PROVIDED TO NDY ON 04/08/2023.



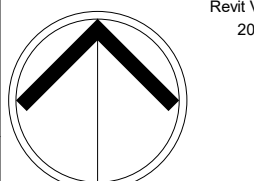
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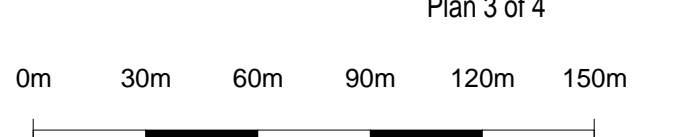
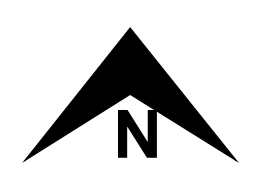
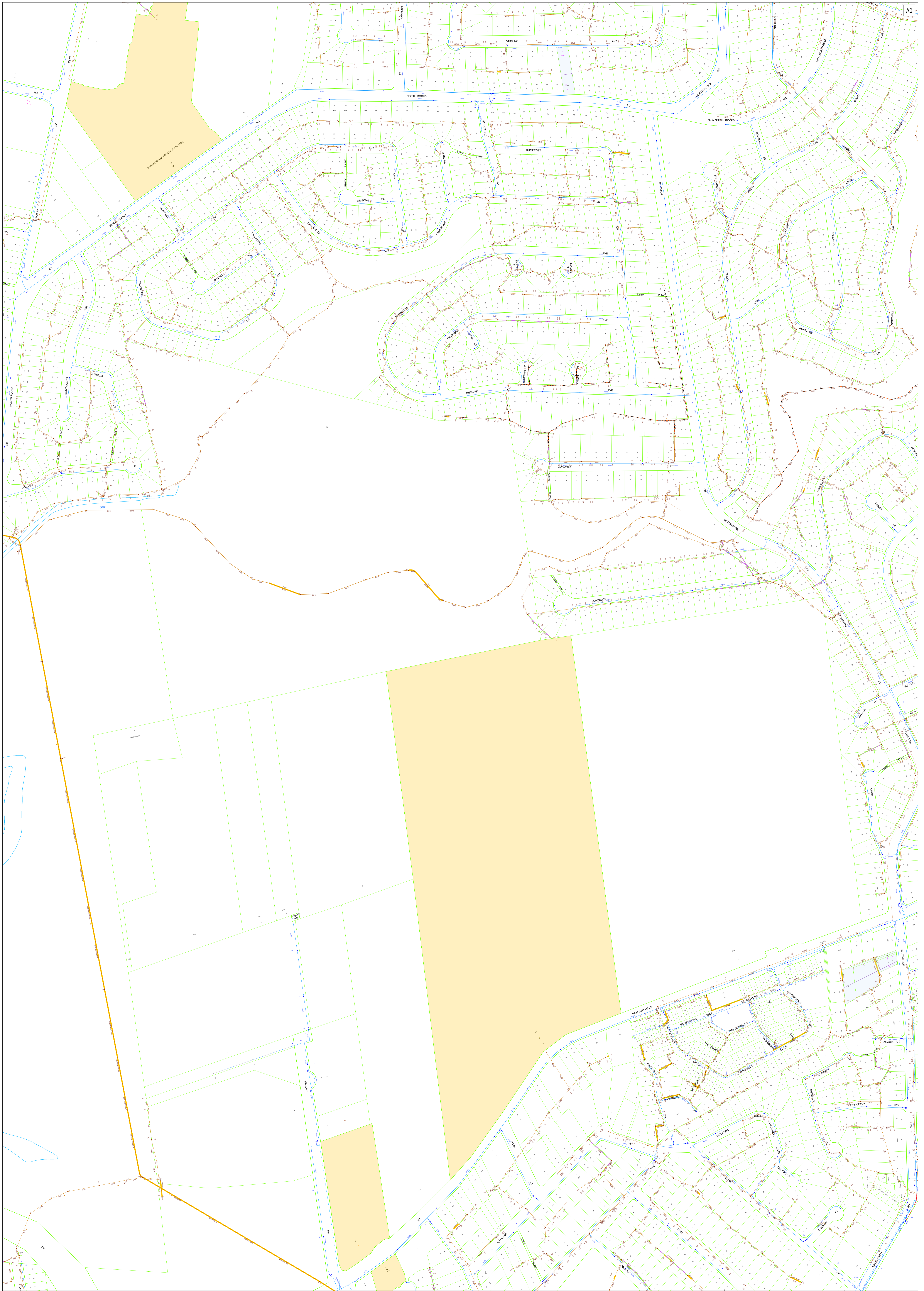
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Project THE KING'S SCHOOL MASTERPLAN PARRAMATTA		 Revit Version 2022				
Title HYDRAULIC SERVICES SPORT PAVILION						
Scale @ A1	Project Commencement	Drawn	Design CL	Project No. S00000 CS	Drawing No. SK-HYD-001	Revision 01

APPENDIX B – SYDNEY WATER UNDERGROUND SERVICES DRAWINGS

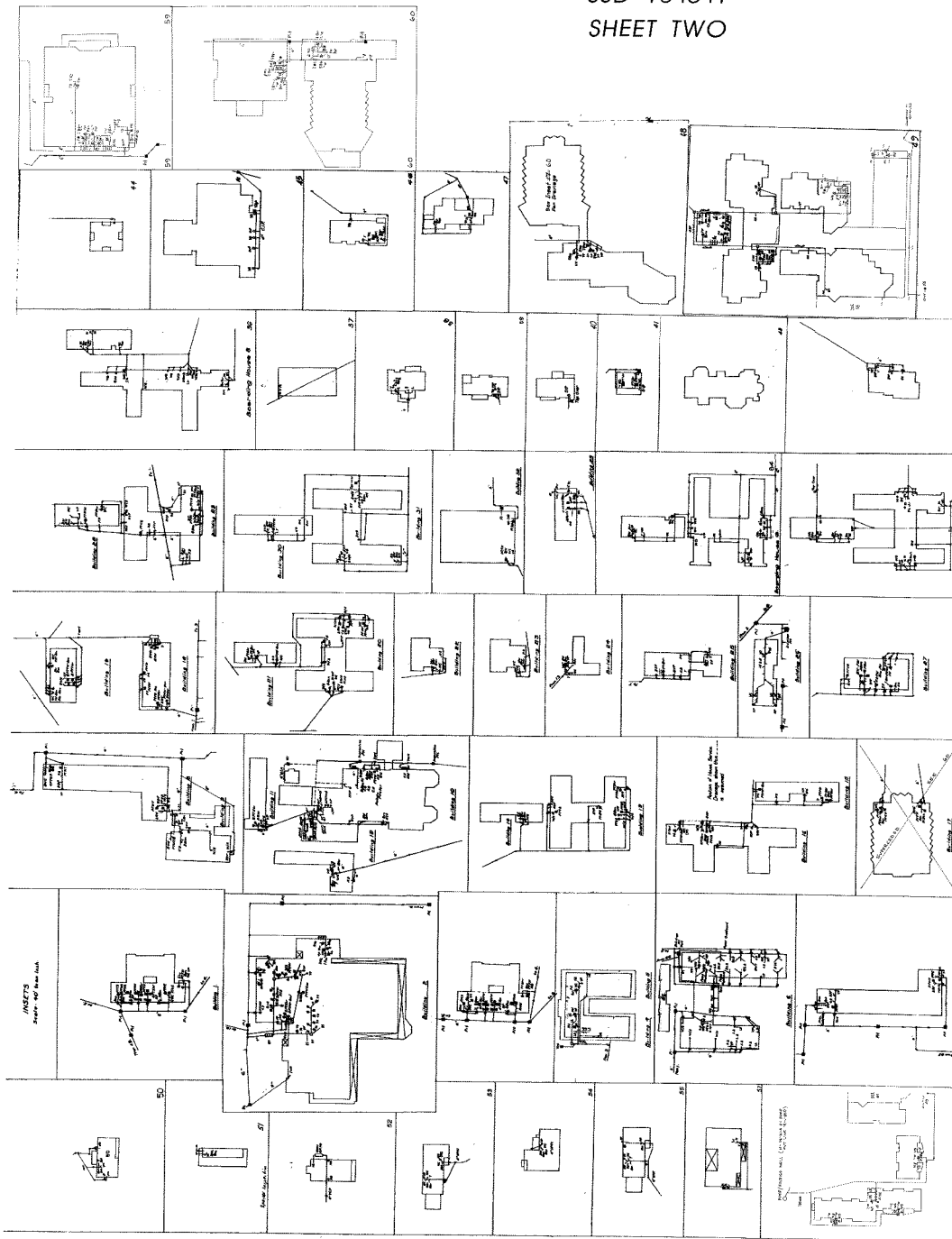


APPENDIX C – SEWER SERVICES DIAGRAM

Sewer Service Diagram

Application Number: 1503205

SSD 184041
SHEET TWO



SYMBOLS AND ABBREVIATIONS		SYDNEY WATER	
MANHOLE	SEWER SERVICE CONNECTION	SEWER SERVICE DIAGRAM	
VALVE	SEWER SERVICE CONNECTION	CITY OF Baulkham Hills, City of NORTH Parramatta	
PIPE	SEWER SERVICE CONNECTION	This diagram is for the use of the City of Baulkham Hills and the City of North Parramatta. It is not to be used for any other purpose without the written consent of the City of Baulkham Hills and the City of North Parramatta.	
...	...	SSD 184041	
CORRECTION DATE		SHEET TWO	

Disclaimer

The information in this diagram shows the private wastewater pipes on this property. It may not be accurate or to scale and may not show our pipes, structures or all property boundaries. If you'd like to see these, please buy a **Service location print**.

APPENDIX D – SYDNEY WATER PRESSURE AND FLOW STATEMENT

Statement of Available Pressure and Flow

Mukta Rajpathak
60 Miller Street
North Sydney, 2000

Attention: Mukta Rajpathak

Date: 08/09/2022

Pressure & Flow Application Number: 1489675

Your Pressure Inquiry Dated: 2022-09-01

Property Address: 87-129 Pennant Hills Road, North Parramatta 2151

The expected maximum and minimum pressures available in the water main given below relate to modelled existing demand conditions, either with or without extra flows for emergency fire fighting, and are not to be construed as availability for normal domestic supply for any proposed development.

ASSUMED CONNECTION DETAILS

Street Name: Pennant Hills Road	Side of Street: South
Distance & Direction from Nearest Cross Street	20 metres East from Russell Road
Approximate Ground Level (AHD):	85 metres
Nominal Size of Water Main (DN):	300 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	57 metre head
Minimum Pressure	42 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	42
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	10	44
	15	44
	20	43
	25	43
	30	42
	40	41
	50	40
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	60	39
	10	41
	15	41
	20	40
	25	40
	30	39
Maximum Permissible Flow	40	38
	50	36
	60	35
	99	27

(Please refer to reverse side for Notes)

For any further inquiries regarding this application please email :

swtapin@sydneywater.com.au

General Notes

This report is provided on the understanding that (i) the applicant has fully and correctly supplied the information necessary to produce and deliver the report and (ii) the following information is to be read and understood in conjunction with the results provided.

1. Under its Act and Operating Licence, Sydney Water is not required to design the water supply specifically for fire fighting. The applicant is therefore required to ensure that the actual performance of a fire fighting system, drawing water from the supply, satisfies the fire fighting requirements.
2. Due to short-term unavoidable operational incidents, such as main breaks, the regular supply and pressure may not be available all of the time.
3. To improve supply and/or water quality in the water supply system, limited areas are occasionally removed from the primary water supply zone and put onto another zone for short periods or even indefinitely. This could affect the supply pressures and flows given in this letter. This ongoing possibility of supply zone changes etc, means that the validity of this report is limited to one (1) year from the date of issue. It is the property owner's responsibility to periodically reassess the capability of the hydraulic systems of the building to determine whether they continue to meet their original design requirements.
4. Sydney Water will provide a pressure report to applicants regardless of whether there is or will be an approved connection. Apparent suitable pressures are not in any way an indication that a connection would be approved without developer funded improvements to the water supply system. These improvements are implemented under the Sydney Water 'Urban Development Process'.
5. Pumps that are to be directly connected to the water supply require approval of both the pump and the connection. Applications are to be lodged online via Sydney Water Tap in™ system - Sydney Water Website – www.sydneywater.com.au/tapin/index.htm. Where possible, on-site recycling tanks are recommended for pump testing to reduce water waste and allow higher pump test rates.
6. Periodic testing of boosted fire fighting installations is a requirement of the Australian Standards. To avoid the risk of a possible 'breach' of the Operating Licence, flows generated during testing of fire fighting installations are to be limited so that the pressure in Sydney Water's System is not reduced below 15 metres. Pumps that can cause a breach of the Operating Licence anywhere in the supply zone during testing will not be approved. This requirement should be carefully considered for installed pumps that can be tested to 150% of rated flow.

Notes on Models

1. Calibrated computer models are used to simulate maximum demand conditions experienced in each supply zone. Results have not been determined by customised field measurement and testing at the particular location of the application.
2. Regular updates of the models are conducted to account for issues such as urban consolidation, demand management or zone change.
3. Demand factors are selected to suit the type of fire-fighting installation. Factor 1 indicates pressures due to system demands as required under Australian Standards for fire hydrant installations. Factor 2 indicates pressures due to peak system demands.
4. When fire-fighting flows are included in the report, they are added to the applicable demand factor at the nominated location during a customised model run for a single fire. If adjacent properties become involved with a coincident fire, the pressures quoted may be substantially reduced.
5. Modelling of the requested fire fighting flows may indicate that local system capacity is exceeded and that negative pressures may occur in the supply system. Due to the risk of water contamination and the endangering of public health, Sydney Water reserves the right to refuse or limit the amount of flow requested in the report and, as a consequence, limit the size of connection and/or pump.
6. The pressures indicated by the modelling, at the specified location, are provided without consideration of pressure losses due to the connection method to Sydney Water's mains.

APPENDIX E – ELECTRICAL DRAWINGS



EXISTING SUBSTATION PS - 32369 (1000kVA RATED)
INDICATIVE LOCATION OF EXISTING SUBSTATION AND SITE MAIN SWITCHBOARD.
POWER SUPPLY TO THE NEW STAFF RESIDENCE BUILDING AND NEW BOARDING HOUSE BUILDINGS IS PROPOSED TO ORIGINATE FROM THIS SITE MAIN SWITCHBOARD.
THE EXISTING SITE MAIN SWITCHBOARD IS LACKING SPARE POLE CAPACITY BASED ON VISUAL INSPECTION OF THE SITE MSB AND AN UPGRADE IS LIKELY REQUIRED. SUBJECT TO FURTHER INVESTIGATION.

ITEM 6: DAY BOY HOUSE
PROPOSED LOCATION OF THE NEW DAY BOY HOUSE BUILDING, INCLUDING INDICATIVE ROUTE OF NEW SUBMAIN CABLES FROM THE SITE MAIN SWITCHBOARD TO THE DAY BOY HOUSE BUILDING.
APPROXIMATE EMD FOR DAY BOY HOUSE = 175A
NEW ELECTRICAL DISTRIBUTION BOARDS ARE TO BE ESTABLISHED ON GROUND LEVEL AND LEVEL 1 FOR LOCAL POWER DISTRIBUTION.

EXISTING SUBSTATION PS - 32370 (1000kVA RATED)
INDICATIVE LOCATION OF EXISTING SUBSTATION AND SITE MAIN SWITCHBOARD.
POWER SUPPLY TO THE NEW DAY BOY HOUSE SHALL ORIGINATE FROM A SPARE 250A RATED CUBICLE AVAILABLE IN THE SITE MAIN SWITCHBOARD.
EXISTING EASEMENTS FOR HIGH VOLTAGE SERVICES ARE EXPECTED TO REMAIN UNAFFECTED.



ITEM 8: NEW BOARDING HOUSE
PROPOSED LOCATION FOR THE NEW BOARDING HOUSE BUILDING, INCLUDING INDICATIVE ROUTE OF NEW SUBMAIN CABLES FROM THE EXISTING SITE MAIN SWITCHBOARD. (APPROXIMATELY 200m)
APPROXIMATE EMD FOR BOARDING HOUSE BUILDING = 320A
NEW EDBs ARE TO BE ESTABLISHED ON GROUND LEVEL AND LEVEL 1 FOR LOCAL POWER DISTRIBUTION.

PROVIDE NEW BUILDING COMMUNICATIONS ROOM (BCR) ON GROUND LEVEL. NEW 36 CORE LEAD-IN FIBRE OPTIC CABLE TO BE PROVIDED TO BCR, ORIGINATING FROM THE CLOSEST MAIN COMMUNICATIONS ROOM. STRATEGY FOR COMMUNICATIONS SERVICES TO BE FURTHER DISCUSSED WITH THE KING'S SCHOOL ICT TEAM.

ITEM 3: STAFF RESIDENCE BUILDING
PROPOSED LOCATION OF THE STAFF RESIDENCE BUILDING, INCLUDING INDICATIVE ROUTE OF NEW SUBMAIN CABLES (APPROX 100m).
APPROXIMATE EMD FOR STAFF RESIDENCE = 250A
NEW ELECTRICAL DISTRIBUTION BOARDS ARE TO BE ESTABLISHED ON GROUND LEVEL AND LEVEL 1 FOR LOCAL POWER DISTRIBUTION.

PROVIDE NEW BUILDING COMMUNICATIONS ROOM (BCR) ON GROUND LEVEL. NEW 36 CORE LEAD-IN FIBRE OPTIC CABLE TO BE PROVIDED TO BCR, ORIGINATING FROM THE EXISTING WADDY HOUSE MAIN COMMUNICATIONS ROOM. STRATEGY FOR COMMUNICATIONS SERVICES TO BE FURTHER DISCUSSED WITH THE KING'S SCHOOL ICT TEAM.

ADDITIONAL LIGHTING TO BE PROVIDED TO INTERNAL PATHWAYS TO AS/NZS 1158 REQUIREMENTS.

ITEM 7: NEW SPORT PAVILLION
EXISTING BUILDINGS IN THE SPORTS FIELD ARE SUPPLIED FROM A LOCAL DISTRIBUTION BOARD, LOCATED AT THE EXISTING PROPERTY POLE (774097) AS SHOWN INDICATIVELY. THE EXISTING DISTRIBUTION BOARD SHALL BE UPGRADED, INCLUDING PROTECTION FUSES AND CONSUMER MAIN CABLING.
POWER SUPPLY TO THE NEW SPORTS PAVILLION TO ORIGINATE FROM THE UPGRADED DISTRIBUTION BOARD.
NEW ELECTRICAL DISTRIBUTION BOARD IS TO BE ESTABLISHED ON GROUND LEVEL FOR LOCAL POWER DISTRIBUTION.
PROVIDE NEW BUILDING COMMUNICATIONS ROOM (BCR) ON GROUND LEVEL. STRATEGY FOR COMMUNICATIONS SERVICES TO BE FURTHER DISCUSSED WITH THE KING'S SCHOOL ICT TEAM. EXISTING TELSTRA PIT ADJACENT TO THE SITE CAN BE RE-USED.



ITEM 2B: PREP SCHOOL GENERAL LEARNING BUILDING.
POWER SUPPLY FOR THE NEW BUILDING SHALL ORIGINATE FROM THE EXISTING MAIN SWITCHBOARD, LOCATED IN THE HORROCK'S HALL MAIN BUILDING. (APPROX 100m)
ESTIMATED EMD FOR THE NEW BUILDING = 220A
NEW EDBs ARE TO BE ESTABLISHED ON GROUND LEVEL AND LEVEL 1 FOR LOCAL POWER DISTRIBUTION.

PROVIDE NEW BUILDING COMMUNICATIONS ROOM (BCR) ON GROUND LEVEL. NEW 36 CORE LEAD-IN FIBRE OPTIC CABLE TO BE PROVIDED TO BCR, ORIGINATING FROM THE MAIN COMMUNICATIONS ROOM IN THE LIBRARY BUILDING. STRATEGY FOR COMMUNICATIONS SERVICES TO BE FURTHER DISCUSSED WITH THE KING'S SCHOOL ICT TEAM.

ITEM 2A: PREP SCHOOL PERFORMING ART CENTRE
POWER SUPPLY FOR THE NEW BUILDING SHALL ORIGINATE FROM THE EXISTING MAIN SWITCHBOARD, LOCATED IN THE HORROCK'S HALL MAIN BUILDING. (APPROX 60m)
ESTIMATED EMD = 200A

PROVIDE NEW BUILDING COMMUNICATIONS ROOM (BCR) ON GROUND LEVEL. NEW 36 CORE LEAD-IN FIBRE OPTIC CABLE TO BE PROVIDED TO BCR, ORIGINATING FROM THE MAIN COMMUNICATIONS ROOM IN THE LIBRARY BUILDING. STRATEGY FOR COMMUNICATIONS SERVICES TO BE FURTHER DISCUSSED WITH THE KING'S SCHOOL ICT TEAM.
TRENCHING FOR NEW ELECTRICAL AND COMMUNICATIONS SERVICES SHALL BE SHARED FOR STAGE 2A AND STAGE 2B

INDICATIVE LOCATION OF EXISTING SUBSTATION # PS-26312. (1000kVA RATED).
BASED ON DISCUSSIONS DATING BACK TO 2022, THE MAXIMUM DEMAND FOR THIS SUBSTATION WAS ESTABLISHED AT 320kVA PEAK.
EXISTING EASEMENTS FOR HIGH VOLTAGE SERVICES ARE EXPECTED TO REMAIN UNAFFECTED.

INDICATIVE ROUTE OF EXISTING IN-GROUND 11KV HV CABLES TO SUBSTATION 26312, ALONG GOWAN BRAE ROAD.

PROVIDE NEW BUILDING COMMUNICATIONS ROOM (BCR) ON GROUND LEVEL. NEW 36 CORE LEAD-IN FIBRE OPTIC CABLE TO BE PROVIDED TO BCR, ORIGINATING FROM THE EXISTING SCIENCE BUILDING MAIN COMMUNICATIONS ROOM. STRATEGY FOR COMMUNICATIONS SERVICES TO BE FURTHER DISCUSSED WITH THE KING'S SCHOOL ICT TEAM.

ITEM 1: STEAM BUILDING
PROPOSED LOCATION OF THE NEW STEAM BUILDING, INCLUDING INDICATIVE LOCATION OF THE EXISTING SUBSTATION 11753 AND MAIN SWITCHBOARD PROPOSED FOR ELECTRICAL SUPPLY.
APPROXIMATE EMD FOR DAY BOY HOUSE = 1100A
THE EXISTING 1000kVA SUBSTATION WILL REQUIRE UPGRADE, INCLUDING THE REPLACEMENT OF THE EXISTING SITE MAIN SWITCHBOARD TO ACCOMMODATE THE ADDITIONAL ELECTRICAL LOAD.

PROVIDE NEW BUILDING COMMUNICATIONS ROOM (BCR) ON GROUND LEVEL. NEW 36 CORE LEAD-IN FIBRE OPTIC CABLE TO BE PROVIDED TO BCR, ORIGINATING FROM THE EXISTING ROBERT LLOYD MEMORIAL BUILDING MAIN COMMUNICATIONS ROOM.

INDICATIVE ROUTE OF EXISTING IN-GROUND 11KV HV CABLES TO SUBSTATION 32370.

INDICATIVE ROUTE OF EXISTING IN-GROUND 11KV HV CABLES TO SUBSTATION 32369.

LEGEND

- UTILITY OWNED KIOSK SUBSTATION
- SITE MAIN SWITCHBOARD
- NEW ELECTRICAL PIT
- EXISTING ELECTRICAL PIT
- NEW COMMUNICATIONS PIT
- EXISTING COMMUNICATIONS PIT
- NEW IN-GROUND LOW VOLTAGE CABLE RETICULATION
- NEW IN-GROUND COMMUNICATIONS RETICULATION
- EXISTING IN-GROUND TELSTRA/NBN RETICULATION
- EXISTING IN-GROUND HIGH VOLTAGE RETICULATION

GENERAL NOTES

- 1) DETAILED CABLE SIZES TO BE CONFIRMED DURING DETAILED DESIGN.
- 2) BUILDING LOCATIONS AND ELECTRICAL LOADS HAVE BEEN ESTIMATED BASED ON ARCHITECTURAL LAYOUTS PROVIDED TO NDY ON 17/02/2023.

- STAGE 1 PROJECTS**
 1. NEW STEAM BUILDING & LANDSCAPING (BY OTHERS)
 - 2A. NEW PREP SCHOOL PERFORMING ART CENTRE (BY OTHERS)
 - 2B. NEW PREP SCHOOL GENERAL LEARNING BUILDING (BY OTHERS)
 3. NEW STAFF RESIDENCES (BY OTHERS)
 4. NEW ROAD (BY OTHERS)
- CONCEPT PROPOSAL**
 5. PREP SCHOOL MASTERPLAN (BY OTHERS)
 6. NEW DAY BOY HOUSE
 7. NEW SPORT PAVILLION
 8. NEW BOARDING HOUSE

EXISTING DISTRIBUTION BOARD DB-T
DISTRIBUTION BOARD AND ASSOCIATED PITS ARE LOCATED IN THE PROPOSED STAFF RESIDENCE SITE AND WILL REQUIRE RELOCATION, INCLUDING THE ASSOCIATED EXTENSION AND RE-ROUTING OF OUT-GOING SUBMAIN CABLES.

Rev	Description	Date	Rev	Description	Date
2	ISSUE FOR INFORMATION	23.08.16			

NDY QA SYSTEM
Reason For Issue

Authorisation

By _____

Verification Of Latest Amendment

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ABN 29 003 234 571

Project **THE KING'S SCHOOL MASTERPLAN PARRAMATTA**

Title **ELECTRICAL SERVICES MASTERPLAN PHASE 2 -PROPOSED**

Scale @ A1

Project Commencement _____

Drawn _____

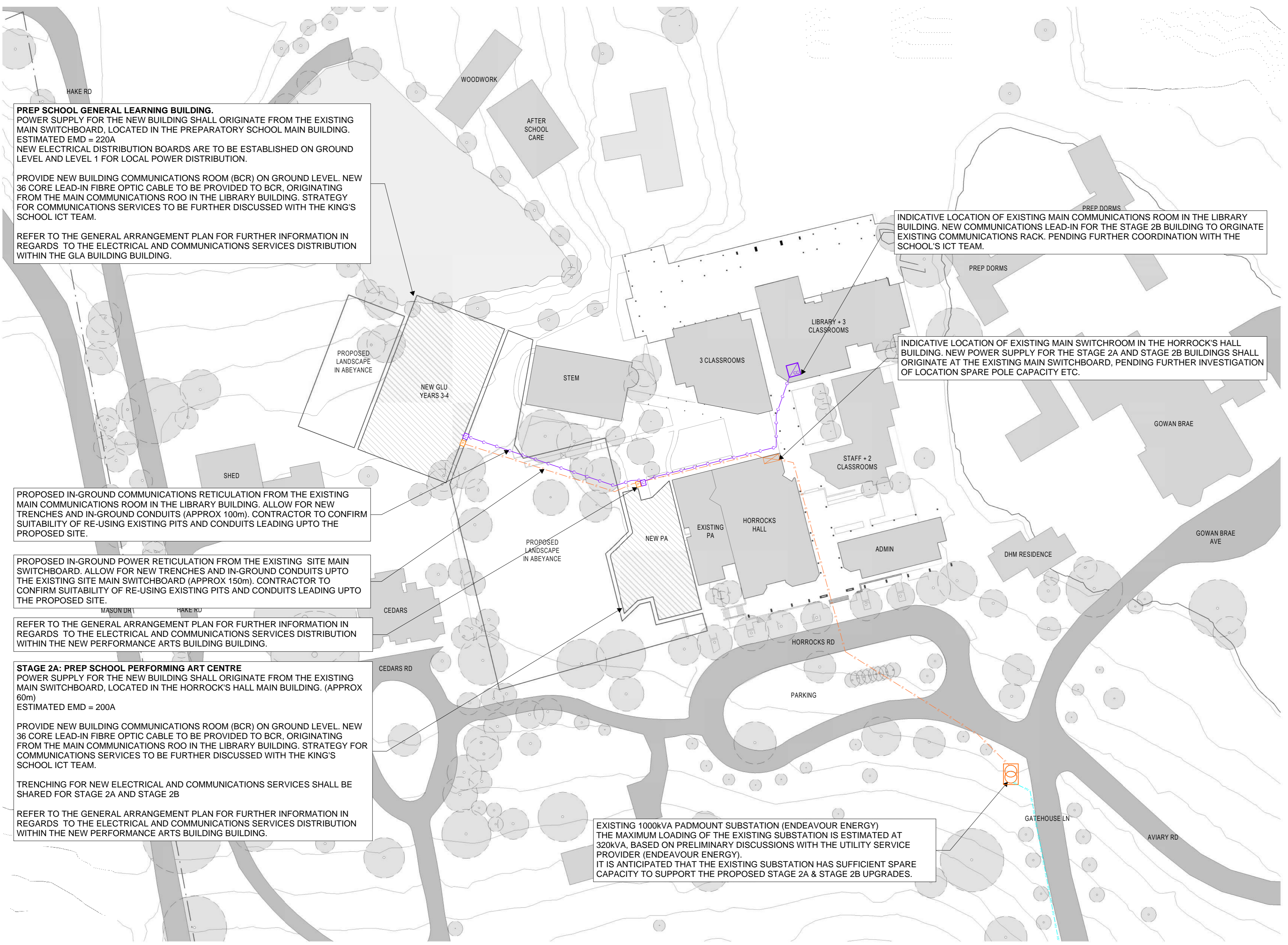
Design **JEA**

Project No. **S00000 CS**

Revisi Version 2022

Drawing No. **SK-EL-001**

Revision **01**



PREP SCHOOL GENERAL LEARNING BUILDING.
 POWER SUPPLY FOR THE NEW BUILDING SHALL ORIGINATE FROM THE EXISTING MAIN SWITCHBOARD, LOCATED IN THE PREPARATORY SCHOOL MAIN BUILDING. ESTIMATED EMD = 220A
 NEW ELECTRICAL DISTRIBUTION BOARDS ARE TO BE ESTABLISHED ON GROUND LEVEL AND LEVEL 1 FOR LOCAL POWER DISTRIBUTION.

PROVIDE NEW BUILDING COMMUNICATIONS ROOM (BCR) ON GROUND LEVEL. NEW 36 CORE LEAD-IN FIBRE OPTIC CABLE TO BE PROVIDED TO BCR, ORIGINATING FROM THE MAIN COMMUNICATIONS ROO IN THE LIBRARY BUILDING. STRATEGY FOR COMMUNICATIONS SERVICES TO BE FURTHER DISCUSSED WITH THE KING'S SCHOOL ICT TEAM.

REFER TO THE GENERAL ARRANGEMENT PLAN FOR FURTHER INFORMATION IN REGARDS TO THE ELECTRICAL AND COMMUNICATIONS SERVICES DISTRIBUTION WITHIN THE GLA BUILDING BUILDING.

INDICATIVE LOCATION OF EXISTING MAIN COMMUNICATIONS ROOM IN THE LIBRARY BUILDING. NEW COMMUNICATIONS LEAD-IN FOR THE STAGE 2B BUILDING TO ORGINATE EXISTING COMMUNICATIONS RACK. PENDING FURTHER COORDINATION WITH THE SCHOOL'S ICT TEAM.

INDICATIVE LOCATION OF EXISTING MAIN SWITCHROOM IN THE HORROCK'S HALL BUILDING. NEW POWER SUPPLY FOR THE STAGE 2A AND STAGE 2B BUILDINGS SHALL ORIGINATE AT THE EXISTING MAIN SWITCHBOARD, PENDING FURTHER INVESTIGATION OF LOCATION SPARE POLE CAPACITY ETC.

PROPOSED IN-GROUND COMMUNICATIONS RETICULATION FROM THE EXISTING MAIN COMMUNICATIONS ROOM IN THE LIBRARY BUILDING. ALLOW FOR NEW TRENCHES AND IN-GROUND CONDUITS (APPROX 100m). CONTRACTOR TO CONFIRM SUITABILITY OF RE-USING EXISTING PITS AND CONDUITS LEADING UP TO THE PROPOSED SITE.

PROPOSED IN-GROUND POWER RETICULATION FROM THE EXISTING SITE MAIN SWITCHBOARD. ALLOW FOR NEW TRENCHES AND IN-GROUND CONDUITS UP TO THE EXISTING SITE MAIN SWITCHBOARD (APPROX 150m). CONTRACTOR TO CONFIRM SUITABILITY OF RE-USING EXISTING PITS AND CONDUITS LEADING UP TO THE PROPOSED SITE.

REFER TO THE GENERAL ARRANGEMENT PLAN FOR FURTHER INFORMATION IN REGARDS TO THE ELECTRICAL AND COMMUNICATIONS SERVICES DISTRIBUTION WITHIN THE NEW PERFORMANCE ARTS BUILDING BUILDING.

STAGE 2A: PREP SCHOOL PERFORMING ART CENTRE
 POWER SUPPLY FOR THE NEW BUILDING SHALL ORIGINATE FROM THE EXISTING MAIN SWITCHBOARD, LOCATED IN THE HORROCK'S HALL MAIN BUILDING. (APPROX 60m) ESTIMATED EMD = 200A
 PROVIDE NEW BUILDING COMMUNICATIONS ROOM (BCR) ON GROUND LEVEL. NEW 36 CORE LEAD-IN FIBRE OPTIC CABLE TO BE PROVIDED TO BCR, ORIGINATING FROM THE MAIN COMMUNICATIONS ROO IN THE LIBRARY BUILDING. STRATEGY FOR COMMUNICATIONS SERVICES TO BE FURTHER DISCUSSED WITH THE KING'S SCHOOL ICT TEAM.

TRENCHING FOR NEW ELECTRICAL AND COMMUNICATIONS SERVICES SHALL BE SHARED FOR STAGE 2A AND STAGE 2B

REFER TO THE GENERAL ARRANGEMENT PLAN FOR FURTHER INFORMATION IN REGARDS TO THE ELECTRICAL AND COMMUNICATIONS SERVICES DISTRIBUTION WITHIN THE NEW PERFORMANCE ARTS BUILDING BUILDING.

EXISTING 1000kVA PADMOUNT SUBSTATION (ENDEAVOUR ENERGY)
 THE MAXIMUM LOADING OF THE EXISTING SUBSTATION IS ESTIMATED AT 320kVA, BASED ON PRELIMINARY DISCUSSIONS WITH THE UTILITY SERVICE PROVIDER (ENDEAVOUR ENERGY).
 IT IS ANTICIPATED THAT THE EXISTING SUBSTATION HAS SUFFICIENT SPARE CAPACITY TO SUPPORT THE PROPOSED STAGE 2A & STAGE 2B UPGRADES.

LEGEND

- UTILITY OWNED KIOSK SUBSTATION
- SITE MAIN SWITCHBOARD
- NEW ELECTRICAL PIT
- EXISTING ELECTRICAL PIT
- NEW PRIVATE COMMUNICATIONS PIT
- EXISTING PRIVATE COMMUNICATIONS PIT
- NEW IN-GROUND LOW VOLTAGE CABLE RETICULATION
- NEW IN-GROUND COMMUNICATIONS RETICULATION
- EXISTING IN-GROUND HIGH VOLTAGE RETICULATION

GENERAL NOTES

- 1) SIZES FOR CABLE, CONDUITS ETC TO BE CONFIRMED DURING DETAILED DESIGN.
- 2) BUILDING LOCATIONS AND ELECTRICAL LOADS HAVE BEEN ESTIMATED BASED ON ARCHITECTURAL LAYOUTS PROVIDED TO NDY ON 17/02/2023.

Rev	Description	Date	Rev	Description	Date	Rev	Description	Date
2	ISSUE FOR INFORMATION	23.08.16						

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 Reason For Issue
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 By

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Project: **THE KING'S SCHOOL MASTERPLAN PARRAMATTA**

Title: **ELECTRICAL SERVICES SITE PLAN - BUILDINGS 2A & 2B**

Scale: @ A1

Project Commencement: Design: JEA










Project No: S00000 CS

Drawing No: SK-EL-002

Revision: 01

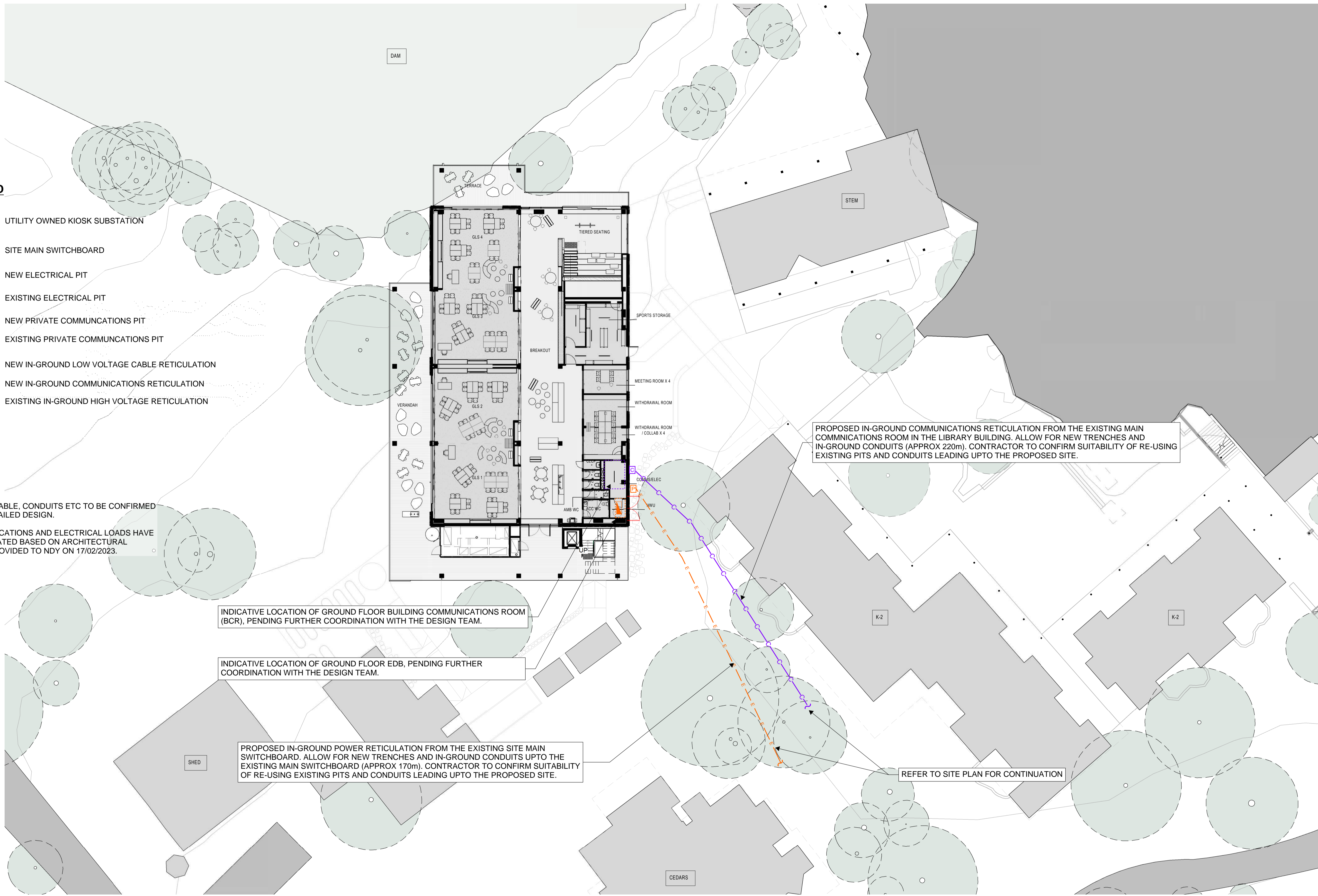
Revised Version: 2022

LEGEND

-  UTILITY OWNED KIOSK SUBSTATION
-  SITE MAIN SWITCHBOARD
-  NEW ELECTRICAL PIT
-  EXISTING ELECTRICAL PIT
-  NEW PRIVATE COMMUNICATIONS PIT
-  EXISTING PRIVATE COMMUNICATIONS PIT
-  NEW IN-GROUND LOW VOLTAGE CABLE RETICULATION
-  NEW IN-GROUND COMMUNICATIONS RETICULATION
-  EXISTING IN-GROUND HIGH VOLTAGE RETICULATION

GENERAL NOTES

- 1) SIZES FOR CABLE, CONDUITS ETC TO BE CONFIRMED DURING DETAILED DESIGN.
- 2) BUILDING LOCATIONS AND ELECTRICAL LOADS HAVE BEEN ESTIMATED BASED ON ARCHITECTURAL LAYOUTS PROVIDED TO NDY ON 17/02/2023.



INDICATIVE LOCATION OF GROUND FLOOR BUILDING COMMUNICATIONS ROOM (BCR), PENDING FURTHER COORDINATION WITH THE DESIGN TEAM.

INDICATIVE LOCATION OF GROUND FLOOR EDB, PENDING FURTHER COORDINATION WITH THE DESIGN TEAM.

PROPOSED IN-GROUND POWER RETICULATION FROM THE EXISTING SITE MAIN SWITCHBOARD. ALLOW FOR NEW TRENCHES AND IN-GROUND CONDUITS UP TO THE EXISTING MAIN SWITCHBOARD (APPROX 170m). CONTRACTOR TO CONFIRM SUITABILITY OF RE-USING EXISTING PITS AND CONDUITS LEADING UP TO THE PROPOSED SITE.

REFER TO SITE PLAN FOR CONTINUATION

Rev	Description	Date	Rev	Description	Date
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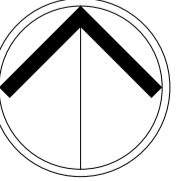
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Project
**THE KING'S SCHOOL MASTERPLAN
PARRAMATTA**

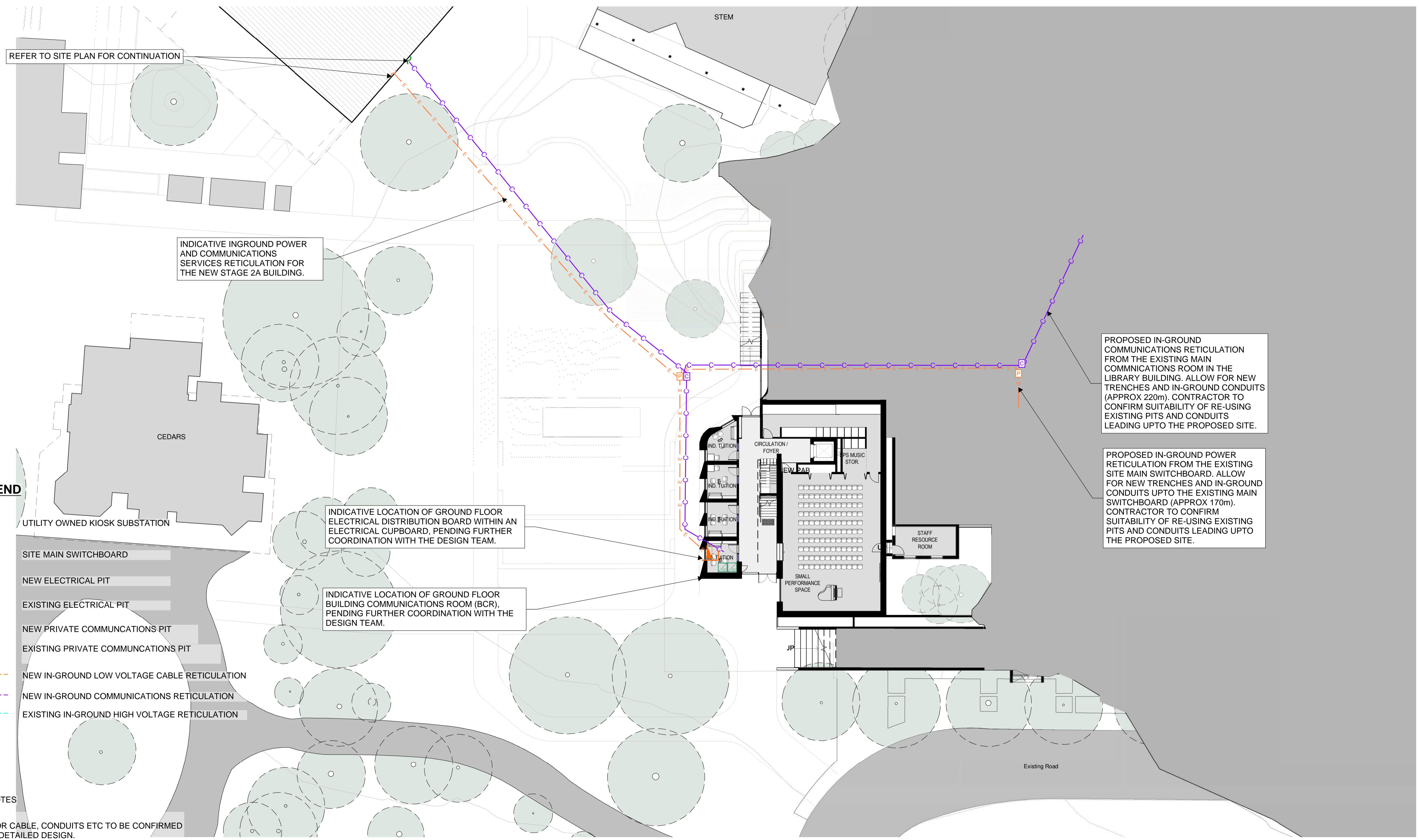
Title
**ELECTRICAL SERVICES
GENERAL LEARNING**

Scale @ A1
Project Commencement
Drawn
Design JEA
Project No. S00000 CS

Revised Version 2022



Drawing No. SK-EL-003
Revision 01









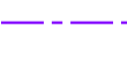


REFER TO SITE PLAN FOR CONTINUATION

INDICATIVE INGROUND POWER AND COMMUNICATIONS SERVICES RETICULATION FOR THE NEW STAGE 2A BUILDING.

PROPOSED IN-GROUND COMMUNICATIONS RETICULATION FROM THE EXISTING MAIN COMMUNICATIONS ROOM IN THE LIBRARY BUILDING. ALLOW FOR NEW TRENCHES AND IN-GROUND CONDUITS (APPROX 220m). CONTRACTOR TO CONFIRM SUITABILITY OF RE-USING EXISTING PITS AND CONDUITS LEADING UP TO THE PROPOSED SITE.

PROPOSED IN-GROUND POWER RETICULATION FROM THE EXISTING SITE MAIN SWITCHBOARD. ALLOW FOR NEW TRENCHES AND IN-GROUND CONDUITS UP TO THE EXISTING MAIN SWITCHBOARD (APPROX 170m). CONTRACTOR TO CONFIRM SUITABILITY OF RE-USING EXISTING PITS AND CONDUITS LEADING UP TO THE PROPOSED SITE.

LEGEND

-  UTILITY OWNED KIOSK SUBSTATION
-  SITE MAIN SWITCHBOARD
-  NEW ELECTRICAL PIT
-  EXISTING ELECTRICAL PIT
-  NEW PRIVATE COMMUNICATIONS PIT
-  EXISTING PRIVATE COMMUNICATIONS PIT
-  NEW IN-GROUND LOW VOLTAGE CABLE RETICULATION
-  NEW IN-GROUND COMMUNICATIONS RETICULATION
-  EXISTING IN-GROUND HIGH VOLTAGE RETICULATION

INDICATIVE LOCATION OF GROUND FLOOR ELECTRICAL DISTRIBUTION BOARD WITHIN AN ELECTRICAL CUPBOARD, PENDING FURTHER COORDINATION WITH THE DESIGN TEAM.

INDICATIVE LOCATION OF GROUND FLOOR BUILDING COMMUNICATIONS ROOM (BCR), PENDING FURTHER COORDINATION WITH THE DESIGN TEAM.

GENERAL NOTES

- 1) SIZES FOR CABLE, CONDUITS ETC TO BE CONFIRMED DURING DETAILED DESIGN.
- 2) BUILDING LOCATIONS AND ELECTRICAL LOADS HAVE BEEN ESTIMATED BASED ON ARCHITECTURAL LAYOUTS PROVIDED TO NDY ON 17/02/2023.

Rev	Description	Date	Rev	Description	Date
2	ISSUE FOR INFORMATION	23.08.16			

NDY QA SYSTEM
Reason For Issue
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Project: **THE KING'S SCHOOL MASTERPLAN PARRAMATTA**

Title: **ELECTRICAL SERVICES**

Scale: @ A1 | Project Commencement: | Drawn: | Design: JEA | Project No: S00000 CS

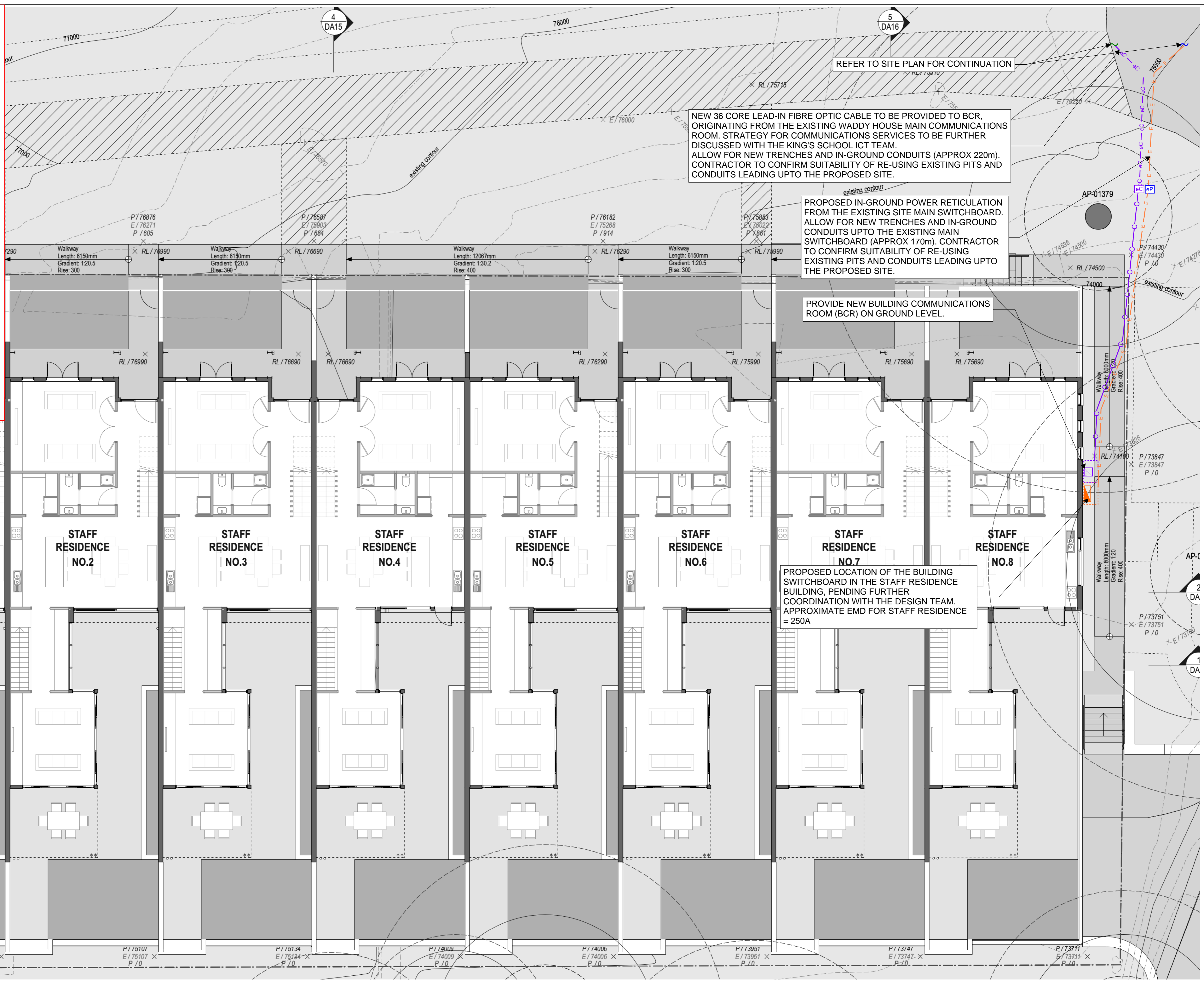
Drawing No: **SK-EL-004** | Revision: **01**

LEGEND

-  UTILITY OWNED KIOSK SUBSTATION
-  SITE MAIN SWITCHBOARD
-  NEW ELECTRICAL PIT
-  EXISTING ELECTRICAL PIT
-  NEW PRIVATE COMMUNICATIONS PIT
-  EXISTING PRIVATE COMMUNICATIONS PIT
-  NEW IN-GROUND LOW VOLTAGE CABLE RETICULATION
-  NEW IN-GROUND COMMUNICATIONS RETICULATION
-  EXISTING IN-GROUND HIGH VOLTAGE RETICULATION

GENERAL NOTES

- 1) SIZES FOR CABLE, CONDUITS ETC TO BE CONFIRMED DURING DETAILED DESIGN.
- 2) BUILDING LOCATIONS AND ELECTRICAL LOADS HAVE BEEN ESTIMATED BASED ON ARCHITECTURAL LAYOUTS PROVIDED TO NDY ON 17/02/2023.



Rev	Description	Date	Rev	Description	Date	Rev	Description	Date
2	ISSUE FOR INFORMATION	23.08.16						


NDY QA SYSTEM
Reason For Issue

Authorisation

By _____

Verification Of Latest Amendment

By _____



A TETRA TECH COMPANY

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www.ndy.com
NDY Management Pty Ltd
ABN 29 003 234 571

Project: **THE KING'S SCHOOL MASTERPLAN PARRAMATTA**

Title: **ELECTRICAL SERVICES STAFF RESIDENCES**

Scale: @ A1

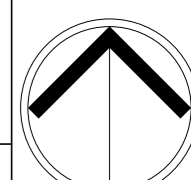
Project Commencement: _____

Drawn: _____

Design: JEA

Project No: S00000 CS

Revised Version 2022



Drawing No: SK-EL-005

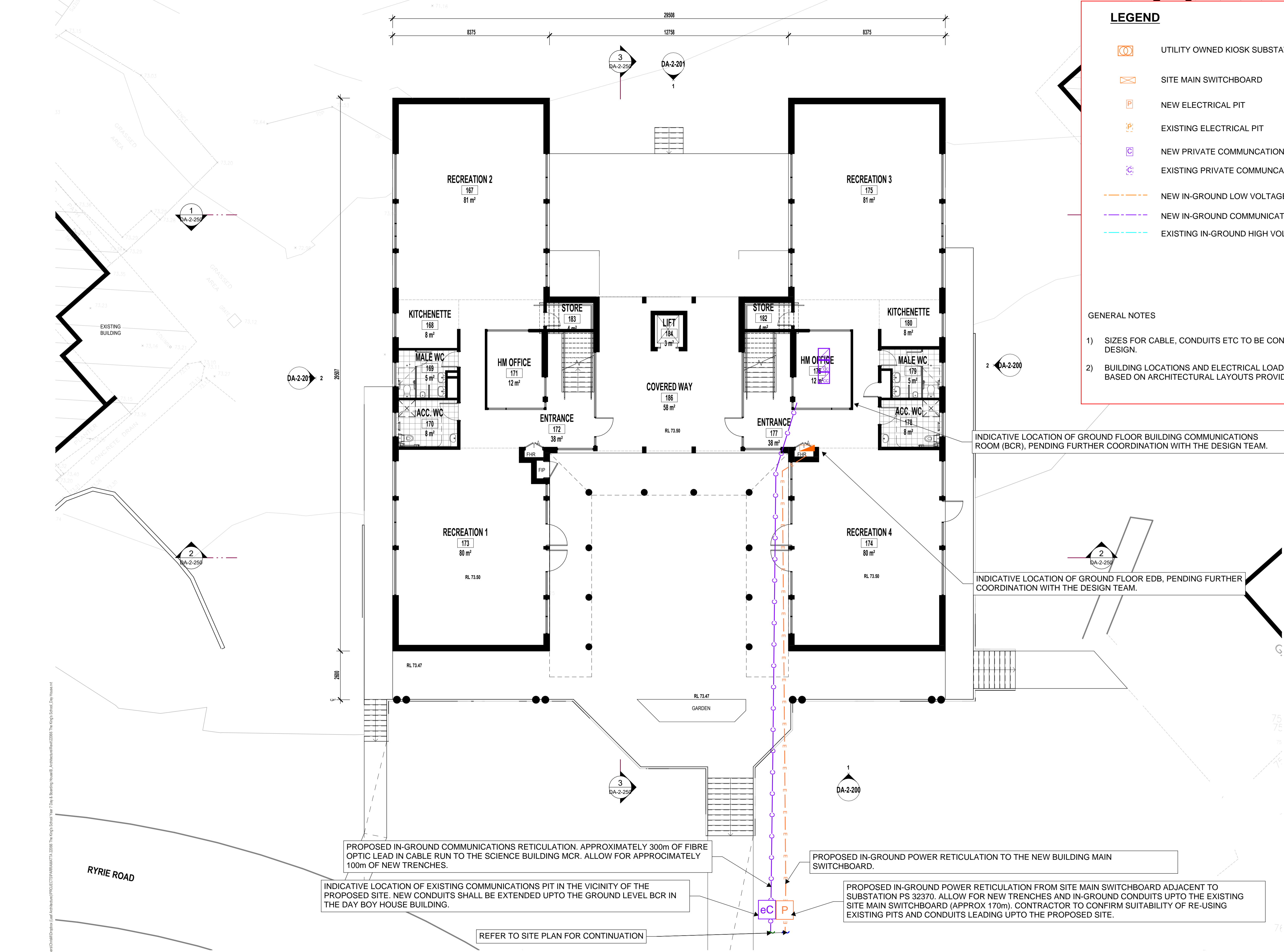
Revision: 01

LEGEND

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- SITE MAIN SWITCHBOARD
- NEW ELECTRICAL PIT
- EXISTING ELECTRICAL PIT
- NEW PRIVATE COMMUNICATIONS PIT
- EXISTING PRIVATE COMMUNICATIONS PIT
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- NEW IN-GROUND COMMUNICATIONS RETICULATION
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Rev	Description	Date	Rev	Description	Date
2	ISSUE FOR INFORMATION	23.08.16			

NDY QA SYSTEM
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By
Verification Of Latest Amendment
By

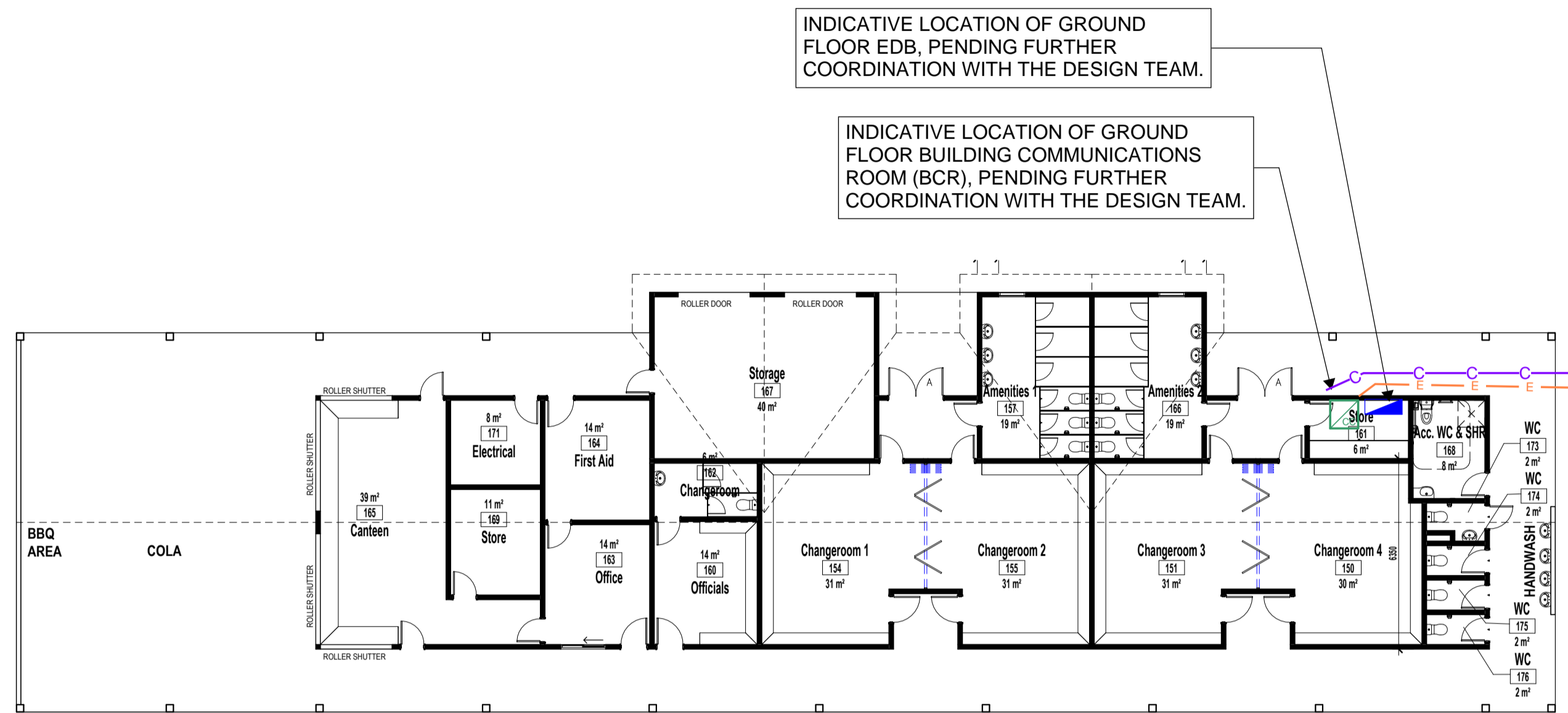
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Project: **THE KING'S SCHOOL MASTERPLAN PARRAMATTA**
Title: **ELECTRICAL SERVICES DAY HOUSE**

Scale: @ A1
Project Commencement: []
Drawn: []
Design: JEA
Project No: S00000CS

Revised Version: 2022
Drawing No: SK-EL-006
Revision: 01



INDICATIVE LOCATION OF GROUND FLOOR EDB, PENDING FURTHER COORDINATION WITH THE DESIGN TEAM.

INDICATIVE LOCATION OF GROUND FLOOR BUILDING COMMUNICATIONS ROOM (BCR), PENDING FURTHER COORDINATION WITH THE DESIGN TEAM.

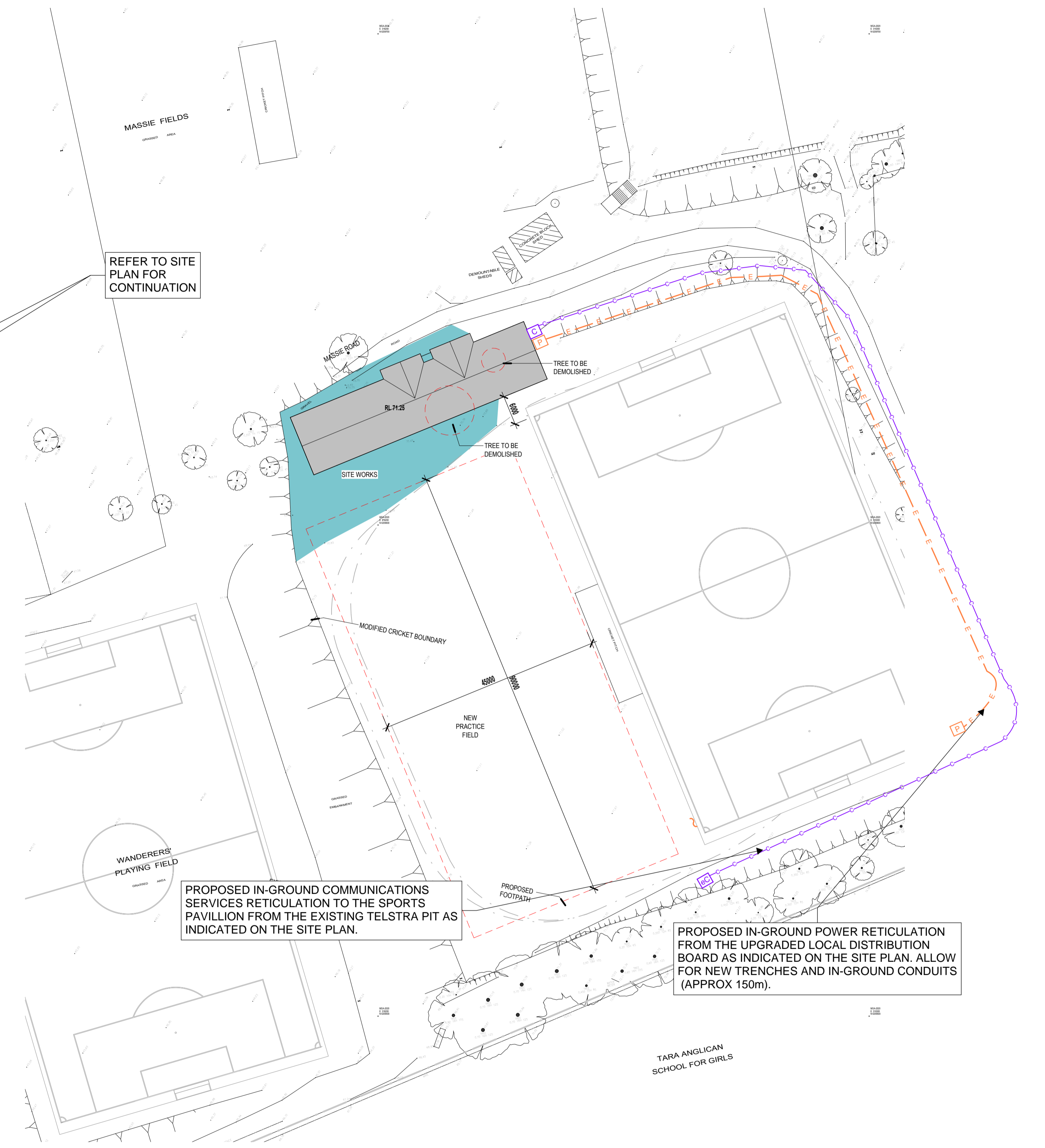
REFER TO SITE PLAN FOR CONTINUATION

LEGEND

- UTILITY OWNED KIOSK SUBSTATION
- SITE MAIN SWITCHBOARD
- NEW ELECTRICAL PIT
- EXISTING ELECTRICAL PIT
- NEW PRIVATE COMMUNICATIONS PIT
- EXISTING PRIVATE COMMUNICATIONS PIT
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- NEW IN-GROUND COMMUNICATIONS RETICULATION
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- 3) SERVICES MARK-UPS ARE NOT DRAWN TO SCALE



PROPOSED IN-GROUND COMMUNICATIONS SERVICES RETICULATION TO THE SPORTS PAVILLION FROM THE EXISTING TELSTRA PIT AS INDICATED ON THE SITE PLAN.

PROPOSED IN-GROUND POWER RETICULATION FROM THE UPGRADED LOCAL DISTRIBUTION BOARD AS INDICATED ON THE SITE PLAN. ALLOW FOR NEW TRENCHES AND IN-GROUND CONDUITS (APPROX 150m).

Rev	Description	Date	Rev	Description	Date	Rev	Description	Date
2	ISSUE FOR INFORMATION	23.08.16						

NDY QA SYSTEM Reason For Issue Authorisation By _____ Verification Of Latest Amendment By _____	 A TETRA TECH COMPANY <small>This drawing is diagrammatic and shows the general arrangement of equipment. Any information involving measurement of the works shall be taken from architectural drawings, workshop drawings by others and conditions at the site. The works shall comply with the contract conditions and Statutory Regulations. Copyright © NDY Management Pty Limited.</small>	CONSULTING ENGINEERS 60 MILLER STREET NORTH SYDNEY NSW 2060 AUSTRALIA T +61 2 9929 8800 F +61 2 9955 6900 www.ndy.com NDY Management Pty Ltd ABN 29 003 234 571	Project THE KING'S SCHOOL MASTERPLAN PARRAMATTA Title ELECTRICAL SERVICES SPORTS PAVILLION	 Drawing No. SK-EL-007 Revision 01
		Scale @ A1 Project Commencement Drawn Design JEA Project No. S00000 CS		

INDICATIVE ROUTE OF NEW SUBMAIN CABLES FROM THE EXISTING SITE MAIN SWITCHBOARD.

PROPOSED LOCATION FOR BUILDING MAIN SWITCHBOARD IN THE NEW BOARDING HOUSE BUILDING.
APPROXIMATE EMD FOR BOARDING HOUSE BUILDING = 320A
INCLUDING INDICATIVE ROUTE OF NEW SUBMAIN CABLES FROM THE EXISTING SITE MAIN SWITCHBOARD.

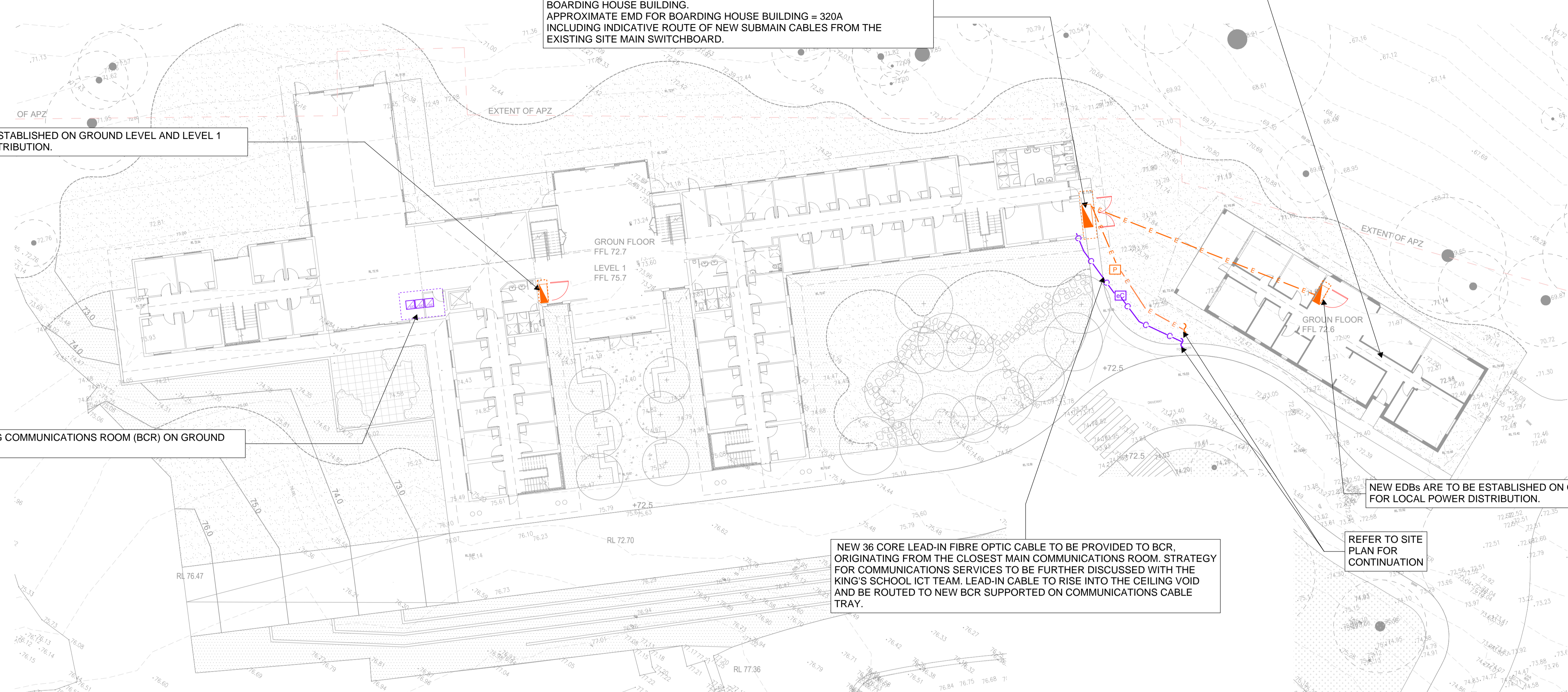
NEW EDBs ARE TO BE ESTABLISHED ON GROUND LEVEL AND LEVEL 1 FOR LOCAL POWER DISTRIBUTION.

PROVIDE NEW BUILDING COMMUNICATIONS ROOM (BCR) ON GROUND LEVEL.

NEW 36 CORE LEAD-IN FIBRE OPTIC CABLE TO BE PROVIDED TO BCR, ORIGINATING FROM THE CLOSEST MAIN COMMUNICATIONS ROOM. STRATEGY FOR COMMUNICATIONS SERVICES TO BE FURTHER DISCUSSED WITH THE KING'S SCHOOL ICT TEAM. LEAD-IN CABLE TO RISE INTO THE CEILING VOID AND BE ROUTED TO NEW BCR SUPPORTED ON COMMUNICATIONS CABLE TRAY.

NEW EDBs ARE TO BE ESTABLISHED ON GROUND LEVEL AND LEVEL 1 FOR LOCAL POWER DISTRIBUTION.

REFER TO SITE PLAN FOR CONTINUATION



Rev	Description	Date	Rev	Description	Date	Rev	Description	Date
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NDY QA SYSTEM
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Project	THE KING'S SCHOOL MASTERPLAN PARRAMATTA
Title	ELECTRICAL SERVICES BOARDING HOUSE
Scale	@ A1
Project Commencement	Drawn
Design	JEA
Project No.	S00000 CS

North Arrow

Drawing No. SK-EL-008
Revision 01

APPENDIX F – ELECTRICAL UNDERGROUND SERVICES DRAWINGS

WARNING

- **All electrical apparatus shall be regarded as live until proved de-energised.** Contact with live electrical apparatus will cause severe injury or death.
- Underground assets may be congested at the approach to bridges and other structures. Typical asset depths and alignment may vary substantially, rising and falling sharply and at much shallower depths than elsewhere as they are channelled into shared allocated spaces on bridges and other structures. Additional precautions and underground asset location methods will be required in proximity to bridges and other structures.
- In accordance with the *Electricity Supply Act 1995*, you are obliged to report any damage to Endeavour Energy Assets immediately by calling **131 003**.
- The customer must obtain a new set of plans from Endeavour Energy if work has not been started or completed within twenty (20) working days of the original plan issue date.
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- Organo-Chloride Pesticides (OCP) may be present in some sub-transmission trenches.
- All plans must be made available at the worksite where excavation is to be undertaken in either printed or electronic format. If the plans are in an electronic format, they must be in a format visible on a screen size 10 inches or greater. Plans must be reviewed and understood by the crew on site prior to commencing excavation.
- Non-destructive water excavation must be operated at or below 2000PSI. Any operation exceeding 2000PSI must be classed and treated as a destructive excavation practice

INFORMATION PROVIDED BY ENDEAVOUR ENERGY

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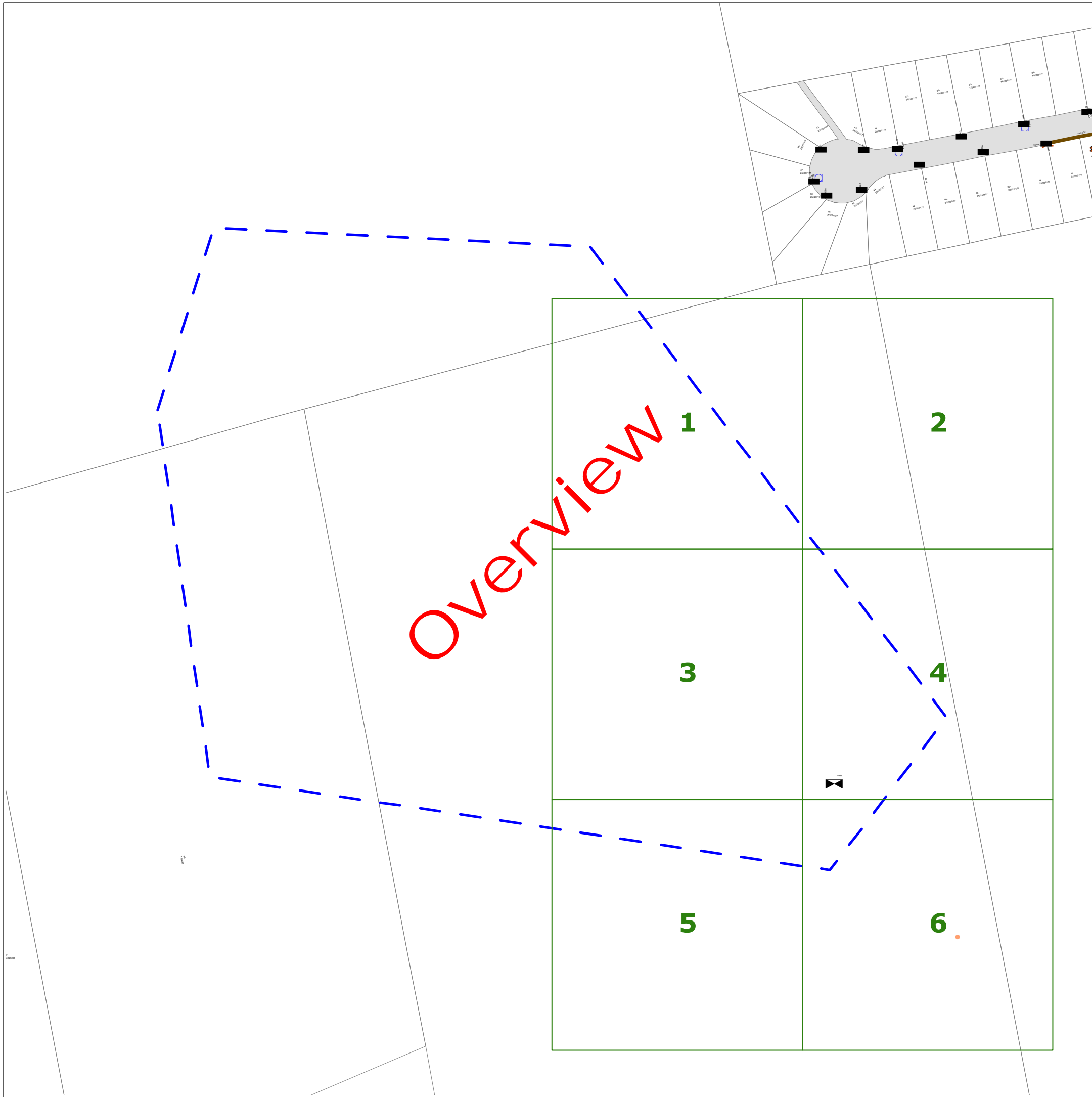
- or ■ Street light column
- ▭ Padmount substation
- ▭ or ■ Overground pillar (O.G.Box)
- ⊠ Underground pit
- Duct run
- Cable run
- ⊙ Typical duct section
- ▲ Asbestos warning



NOT TO SCALE

DBYD Sequence No.:	221838979
Issued Date:	02/03/2023

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2

WARNING

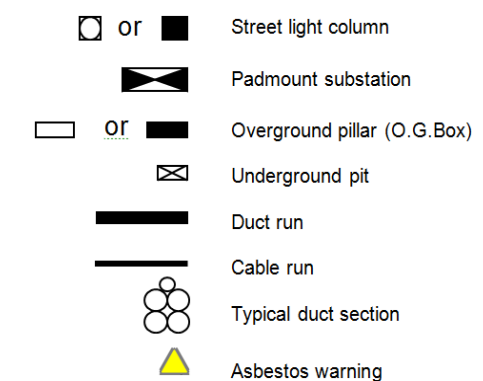
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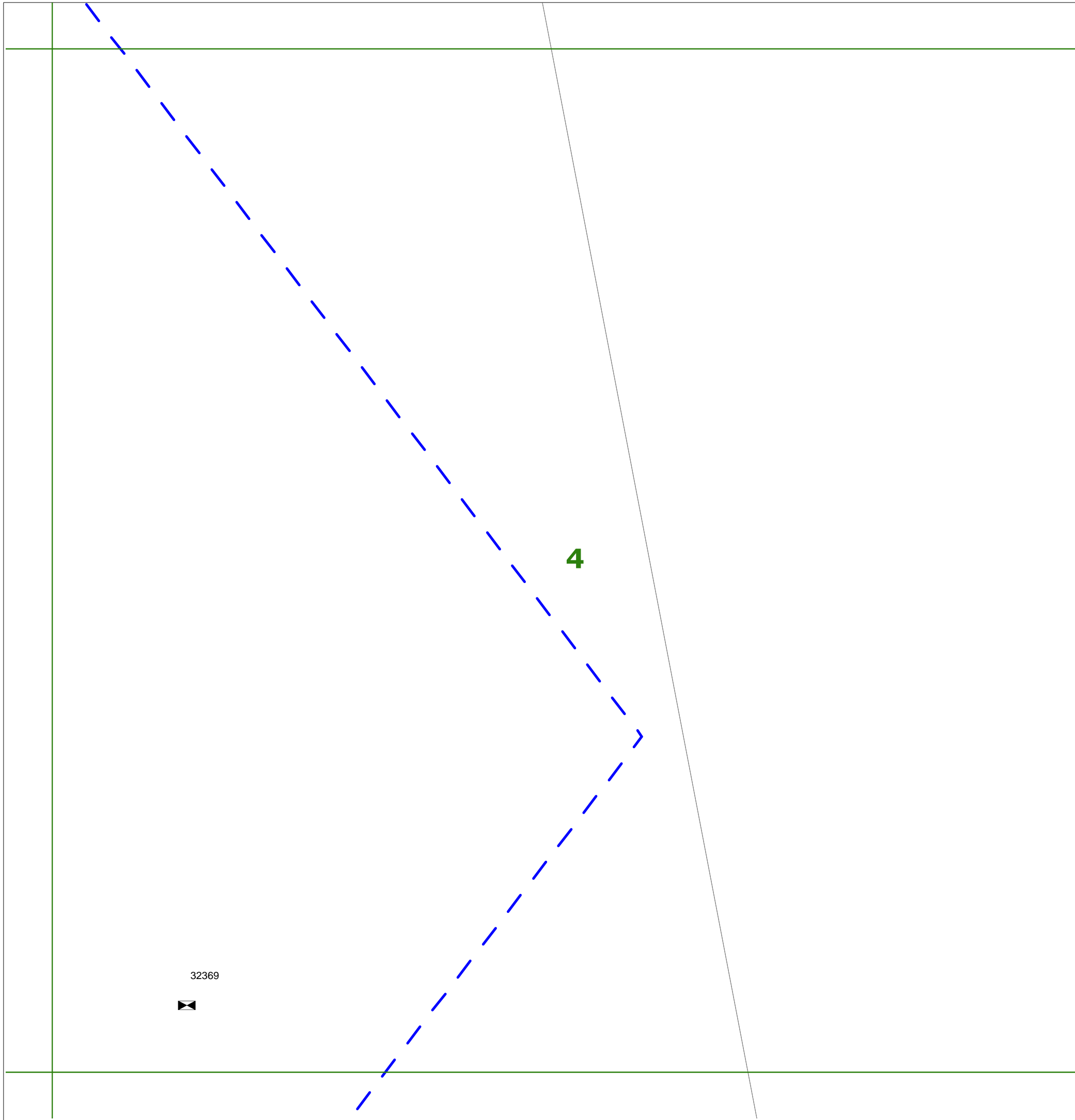
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- All enquiry details and results are kept in a register.

DISCLAIMER

Whilst Endeavour Energy has taken all reasonable steps to ensure that the information contained in the plans is as accurate as possible it will accept no liability for inaccuracies in the information shown on such plans.

- ◻ or ◼ Street light column
- ▭ Padmount substation
- ◻ or ◼ Overground pillar (O.G.Box)
- ▭ Underground pit
- ▬ Duct run
- ▬ Cable run
- ⊙ Typical duct section
- ▲ Asbestos warning



NOT TO SCALE

DBYD Sequence No.:	221838979
Issued Date:	02/03/2023

6



DECOMMISSION & REMOVE SWITCHING STATION NO.17263 & INDOOR SUBSTATION NO.1820 (500KVA)

ESTABLISH PADMOUNT SUBSTATION NO.21240 ADJACENT TO SWITCHING STATION NO.17263
TRANSFORMER SIZE : 1000KVA
HV SWITCHGEAR : 12kV, TWO-FEEDER TRANSFORMER UNIT
LV SWITCHGEAR : 2500A CIRCUIT BREAKER
EARTHING REQUIREMENT : ASSUME COMMON

PMS NO.00/9068/1

TO SW NO.X903 PM SUB 17264 KINGS SCHOOL (END OF LINE)



FINAL H.V. CIRCUIT (NOT TO SCALE)

EXISTING U.G. CABLE
LAY 240 mm² AL 3C 11kV XLPE CABLE
R.L. 5m C.L. 10m
DISCONNECT & ABANDON CABLE

TO SW NO.11889 PM SUB 17753 KINGS SCHOOL.

UBD MAP REF.191 L6

ENDEAVOUR ENERGY WARNING

This plan shows the approximate location of underground cables relative to fixtures existing when the cables were laid, and has been prepared solely for Endeavour Energy's own use. Endeavour Energy has taken all reasonable steps to ensure that the information is accurate as possible but will accept no liability for inaccuracies in the information shown on such plans from any cause whatsoever arising.

Persons excavating are expected to exercise all due care in the vicinity where cables are indicated and will be held responsible for any damage caused to Endeavour Energy's property.

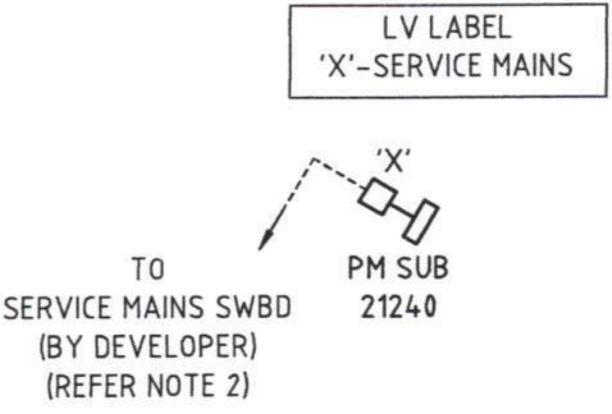
All electrical apparatus shall be considered live until proved de-energised. Contact with live electrical apparatus will cause severe injury or death.

Underground assets may be congested at the approach to bridges and other structures. Typical asset depths and alignment may vary substantially, rising and falling sharply and at much shallower depths than elsewhere as they are channelled into shared allocated spaces on bridges and other structures. Additional precautions and underground asset location methods will be required in proximity to bridges and other structures.

Those excavating near Endeavour Energy's cables should be aware that ASBESTOS OR ASBESTOS - CONTAINING MATERIAL MAY BE PRESENT in Endeavour Energy's underground assets and that

Organo-Chloride Pesticides (OCP) may be present in some sub-transmission trenches. Non-destructive water excavation must be operated at or below 2000PSI. Any operation exceeding 2000PSI must be classed and treated as a destructive excavation practice.

FB 260633
COMM 4-05-01 COMP 20/3/2001
SHEET 0060-7.4.3.4
DUCT
RECORDED BY R. SCHUBERT
INSTALLED BY ASSET MANAGEMENT

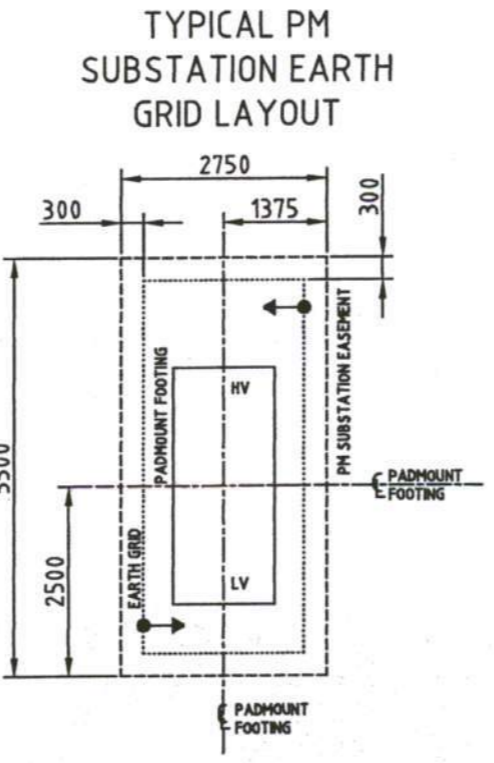


FINAL L.V. CIRCUIT (PM SUB.21240) (NOT TO SCALE)

NEW SERVICE MAINS (BY OTHERS)

WARNING
LIVE ELECTRICAL CABLES & OTHER SERVICES IN THIS AREA
PLEASE CONTACT DIAL-BEFORE-YOU-DIG
ON TEL:1100 OR FAX :1300 652 077
FOR SEARCHES PRIOR TO EXCAVATION

ATTENTION
SERVICE PROVIDER TO NOTIFY NETWORK DATA DAILY WHEN CABLE WORK IS IN PROGRESS. PHONE: 9853 4161



TYPICAL PM SUBSTATION EARTH GRID LAYOUT

SCOPE OF WORKS		
INTEGRAL ENERGY FUNDED	CUSTOMER FUNDED	WORKS BY DEVELOPER
1. COST OF 1000KVA TRANSFORMER.	NON-CONTESTABLE	1. ESTABLISH THE FINAL LEVELS PRIOR TO COMMENCEMENT OF WORK. 2. PEG & CREATE SUBSTATION EASEMENT.
	SWITCHING, INSPECTION & COMMISSIONING COSTS.	
	CONTESTABLE	3. LOCATE ALL EXISTING UNDERGROUND SERVICES IN THE WORK AREA.
	THE BALANCE OF THE WORK.	

WORKS COMPLETED	
CONSTRUCTED BY	-----
WORKS COMPLETED	----- NAME ----- SIGNED ----- DATE
INSPECTED BY	----- NAME ----- SIGNED ----- DATE
FORWARDED TO CONTESTABLE WORKS ADMINISTRATOR (CWA)	
LOCATION	----- SIGNED ----- DATE

AMENDMENTS	DATE	DESCRIPTION	BY
1	1-2-01	ISSUE	RSC
2	13-12-2000	REVISION	CK

GEN PROJ. No.	UCL0710	FILE No.	
IEC PROJ. No.	INS67	LG AREA	PARRAMATTA
HV SWITCHING		HV GEO MAP	
OVERHEAD MAINS		GIS MAP No	0060-7434
UNDERGROUND MAINS		UBD REF	191 L6
SUBSTATIONS		HV OP DIAG	DUNDAS Z13

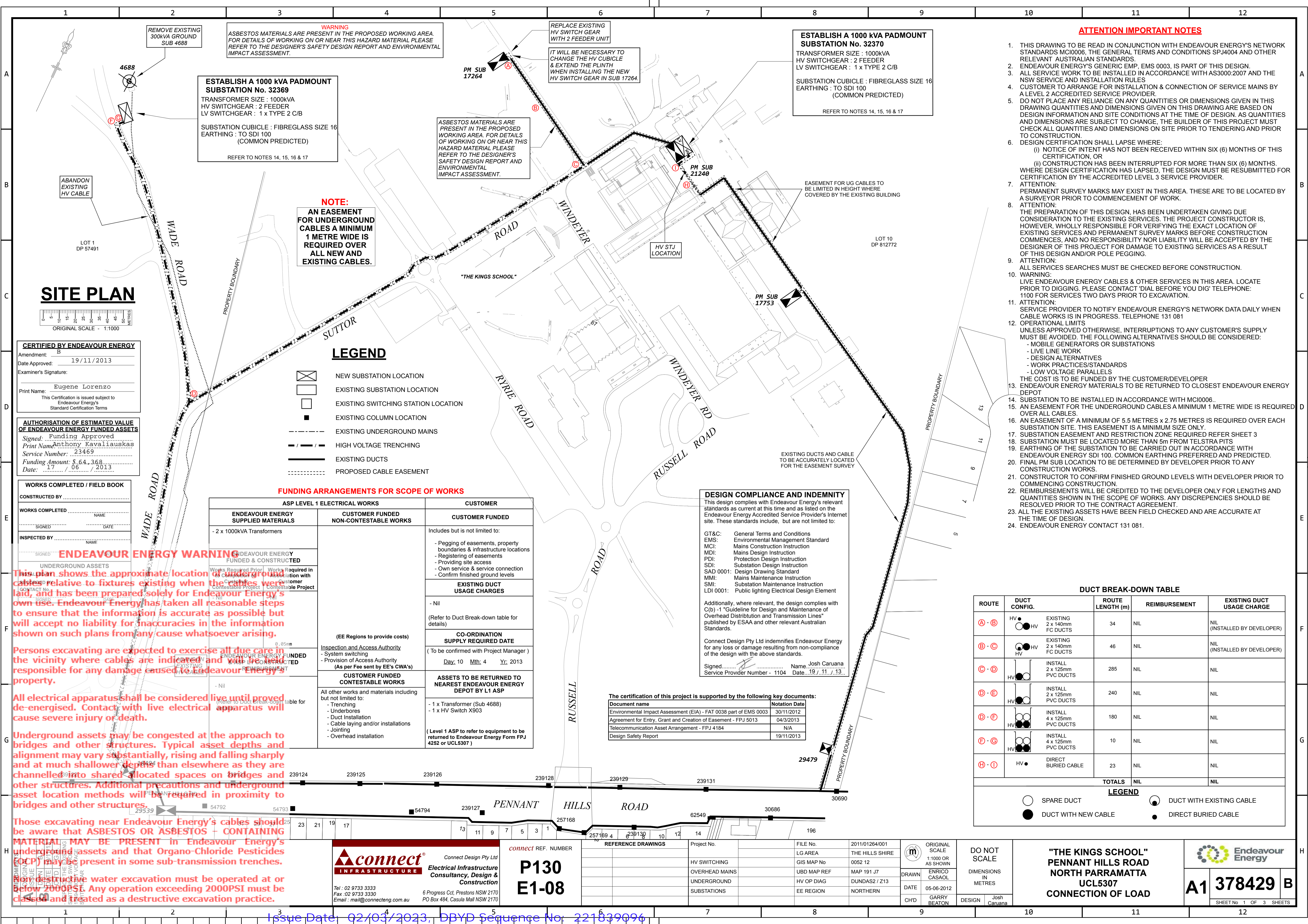
ORIGINAL SCALE	1:1000
DRAWN	RSC
DATE	13-12-2000
CH'D	DESIGN CK

INTEGRAL ENERGY CONTRACTING

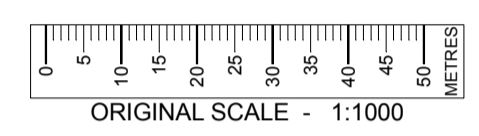
PENNANT HILLS RD (THE KINGS SCHOOL)
NORTH PARRAMATTA
CAP NO.UCL0710
NEW 1000KVA PM SUBSTATION

A2 260633 A

SHEET No 1 OF 1 SHEETS



SITE PLAN



CERTIFIED BY ENDEAVOUR ENERGY
 Amendment: B
 Date Approved: 19/11/2013
 Examiner's Signature: Eugene Lorenzo
 Print Name: Eugene Lorenzo
 This Certification is issued subject to Endeavour Energy's Standard Certification Terms

AUTHORISATION OF ESTIMATED VALUE OF ENDEAVOUR ENERGY FUNDED ASSETS
 Signed: Funding Approved
 Print Name: Anthony Kavaliuskas
 Service Number: 23469
 Funding Amount: \$ 64,368
 Date: 17/06/2013

WORKS COMPLETED / FIELD BOOK
 CONSTRUCTED BY: _____
 WORKS COMPLETED: _____
 INSPECTED BY: _____

ENDEAVOUR ENERGY WARNING
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 Persons excavating are expected to exercise all due care in the vicinity where cables are indicated and will be responsible for any damage caused to Endeavour Energy's property.
 All electrical apparatus shall be considered live until proved de-energised. Contact with live electrical apparatus will cause severe injury or death.
 Underground assets may be congested at the approach to bridges and other structures. Typical asset depths and alignment may vary substantially, rising and falling sharply and at much shallower depths than elsewhere as they are channelled into shared allocated spaces on bridges and other structures. Additional precautions and underground asset location methods will be required in proximity to bridges and other structures.
 Those excavating near Endeavour Energy's cables should be aware that ASBESTOS OR ASBESTOS + CONTAINING MATERIAL MAY BE PRESENT IN Endeavour Energy's underground assets and that Organo-Chloride Pesticides (OCP) may be present in some sub-transmission trenches.
 Before constructing the water excavation must be operated at or below 2000PSI. Any operation exceeding 2000PSI must be closed and treated as a destructive excavation practice.

Remove existing 300kVA ground sub 4688
 ASBESTOS MATERIALS ARE PRESENT IN THE PROPOSED WORKING AREA. FOR DETAILS OF WORKING ON OR NEAR THIS HAZARD MATERIAL PLEASE REFER TO THE DESIGNER'S SAFETY DESIGN REPORT AND ENVIRONMENTAL IMPACT ASSESSMENT.
 ESTABLISH A 1000 kVA PADMOUNT SUBSTATION No. 32369
 TRANSFORMER SIZE : 1000kVA
 HV SWITCHGEAR : 2 FEEDER
 LV SWITCHGEAR : 1 x TYPE 2 C/B
 SUBSTATION CUBICLE : FIBREGLASS SIZE 16
 EARTHING : TO SDI 100 (COMMON PREDICTED)
 REFER TO NOTES 14, 15, 16 & 17
 AN EASEMENT FOR UNDERGROUND CABLES A MINIMUM 1 METRE WIDE IS REQUIRED OVER ALL NEW AND EXISTING CABLES.
 REPLACE EXISTING HV SWITCH GEAR WITH 2 FEEDER UNIT
 IT WILL BE NECESSARY TO CHANGE THE HV CUBICLE & EXTEND THE PLINTH WHEN INSTALLING THE NEW HV SWITCH GEAR IN SUB 17264.
 ASBESTOS MATERIALS ARE PRESENT IN THE PROPOSED WORKING AREA. FOR DETAILS OF WORKING ON OR NEAR THIS HAZARD MATERIAL PLEASE REFER TO THE DESIGNER'S SAFETY DESIGN REPORT AND ENVIRONMENTAL IMPACT ASSESSMENT.
 ESTABLISH A 1000 kVA PADMOUNT SUBSTATION No. 32370
 TRANSFORMER SIZE : 1000kVA
 HV SWITCHGEAR : 2 FEEDER
 LV SWITCHGEAR : 1 x TYPE 2 C/B
 SUBSTATION CUBICLE : FIBREGLASS SIZE 16
 EARTHING : TO SDI 100 (COMMON PREDICTED)
 REFER TO NOTES 14, 15, 16 & 17
 EASEMENT FOR UG CABLES TO BE LIMITED IN HEIGHT WHERE COVERED BY THE EXISTING BUILDING
 HV STJ LOCATION
 EASEMENT FOR UG CABLES TO BE ACCURATELY LOCATED FOR THE EASEMENT SURVEY
 EXISTING DUCTS AND CABLE TO BE ACCURATELY LOCATED FOR THE EASEMENT SURVEY

LEGEND
 [Symbol] NEW SUBSTATION LOCATION
 [Symbol] EXISTING SUBSTATION LOCATION
 [Symbol] EXISTING SWITCHING STATION LOCATION
 [Symbol] EXISTING COLUMN LOCATION
 [Symbol] EXISTING UNDERGROUND MAINS
 [Symbol] HIGH VOLTAGE TRENCHING
 [Symbol] EXISTING DUCTS
 [Symbol] PROPOSED CABLE EASEMENT

FUNDING ARRANGEMENTS FOR SCOPE OF WORKS

ENDEAVOUR ENERGY SUPPLIED MATERIALS	CUSTOMER FUNDED NON-CONTESTABLE WORKS	CUSTOMER FUNDED
- 2 x 1000kVA Transformers	(EE Regions to provide costs) Inspection and Access Authority - System switching - Provision of Access Authority (As per Fee sent by EE's CWA's)	Includes but is not limited to: - Pegging of easements, property boundaries & infrastructure locations - Registering of easements - Providing site access - Own service & service connection - Confirm finished ground levels
- Nil	(Refer to Duct Break-down table for details)	EXISTING DUCT USAGE CHARGES - Nil
- Nil	(To be confirmed with Project Manager) Day: 10 Mth: 4 Yr: 2013	CO-ORDINATION SUPPLY REQUIRED DATE
- Nil	ASSETS TO BE RETURNED TO NEAREST ENDEAVOUR ENERGY DEPOT BY L1 ASP	ASSETS TO BE RETURNED TO NEAREST ENDEAVOUR ENERGY DEPOT BY L1 ASP - 1 x Transformer (Sub 4688) - 1 x HV Switch X903
- Nil	All other works and materials including but not limited to: - Trenching - Underbores - Duct Installation - Cable laying and/or installations - Jointing - Overhead installation	(Level 1 ASP to refer to equipment to be returned to Endeavour Energy Form FPJ 4252 or UCL5307)

ASP LEVEL 1 ELECTRICAL WORKS	CUSTOMER FUNDED
ENDEAVOUR ENERGY SUPPLIED MATERIALS	CUSTOMER FUNDED
CUSTOMER FUNDED NON-CONTESTABLE WORKS	CUSTOMER FUNDED
CUSTOMER FUNDED CONTESTABLE WORKS	CUSTOMER FUNDED

DESIGN COMPLIANCE AND INDEMNITY
 This design complies with Endeavour Energy's relevant standards as current at this time and as listed on the Endeavour Energy Accredited Service Provider's internet site. These standards include, but are not limited to:
 GT&C: General Terms and Conditions
 EMS: Environmental Management Standard
 MCI: Mains Construction Instruction
 MDI: Mains Design Instruction
 PDI: Protection Design Instruction
 SDI: Substation Design Instruction
 SAD 0001: Design Drawing Standard
 MMI: Mains Maintenance Instruction
 SMI: Substation Maintenance Instruction
 LDI 0001: Public Lighting Electrical Design Element
 Additionally, where relevant, the design complies with C(b)-1 "Guideline for Design and Maintenance of Overhead Distribution and Transmission Lines" published by ESAA and other relevant Australian Standards.
 Connect Design Pty Ltd indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.
 Signed: Josh Caruana
 Service Provider Number - 1104 Date: 19/11/13

The certification of this project is supported by the following key documents:

Document name	Notation Date
Environmental Impact Assessment (EIA) - FAT 0038 part of EMS 0003	30/11/2012
Agreement for Entry, Grant and Creation of Easement - FPJ 5013	04/3/2013
Telecommunication Asset Arrangement - FPJ 4184	N/A
Design Safety Report	19/11/2013

ATTENTION IMPORTANT NOTES
 1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ENDEAVOUR ENERGY'S NETWORK STANDARDS MCI0006, THE GENERAL TERMS AND CONDITIONS SPJ4004 AND OTHER RELEVANT AUSTRALIAN STANDARDS.
 2. ENDEAVOUR ENERGY'S GENERIC EMP, EMS 0003, IS PART OF THIS DESIGN.
 3. ALL SERVICE WORK TO BE INSTALLED IN ACCORDANCE WITH ASS3000:2007 AND THE NSW SERVICE AND INSTALLATION RULES.
 4. CUSTOMER TO ARRANGE FOR INSTALLATION & CONNECTION OF SERVICE MAINS BY A LEVEL 2 ACCREDITED SERVICE PROVIDER.
 5. DO NOT PLACE ANY RELIANCE ON ANY QUANTITIES OR DIMENSIONS GIVEN IN THIS DRAWING QUANTITIES AND DIMENSIONS GIVEN ON THIS DRAWING ARE BASED ON DESIGN INFORMATION AND SITE CONDITIONS AT THE TIME OF DESIGN. AS QUANTITIES AND DIMENSIONS ARE SUBJECT TO CHANGE, THE BUILDER OF THIS PROJECT MUST CHECK ALL QUANTITIES AND DIMENSIONS ON SITE PRIOR TO TENDERING AND PRIOR TO CONSTRUCTION.
 6. DESIGN CERTIFICATION SHALL LAPSE WHERE:
 (i) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN SIX (6) MONTHS OF THIS CERTIFICATION, OR
 (ii) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN SIX (6) MONTHS. WHERE DESIGN CERTIFICATION HAS LAPSED, THE DESIGN MUST BE RESUBMITTED FOR CERTIFICATION BY THE ACCREDITED LEVEL 3 SERVICE PROVIDER.
 7. ATTENTION: PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED BY A SURVEYOR PRIOR TO COMMENCEMENT OF WORK.
 8. ATTENTION: THE PREPARATION OF THIS DESIGN, HAS BEEN UNDERTAKEN GIVING DUE CONSIDERATION TO THE EXISTING SERVICES. THE PROJECT CONSTRUCTOR IS, HOWEVER, WHOLLY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF EXISTING SERVICES AND PERMANENT SURVEY MARKS BEFORE CONSTRUCTION COMMENCES, AND NO RESPONSIBILITY NOR LIABILITY WILL BE ACCEPTED BY THE DESIGNER OF THIS PROJECT FOR DAMAGE TO EXISTING SERVICES AS A RESULT OF THIS DESIGN AND/OR POLE PEGGING.
 9. ATTENTION: ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION.
 10. WARNING: LIVE ENDEAVOUR ENERGY CABLES & OTHER SERVICES IN THIS AREA. LOCATE PRIOR TO DIGGING. PLEASE CONTACT DIAL BEFORE YOU DIG TELEPHONE: 1100 FOR SERVICES TWO DAYS PRIOR TO EXCAVATION.
 11. ATTENTION: SERVICE PROVIDER TO NOTIFY ENDEAVOUR ENERGY'S NETWORK DATA DAILY WHEN CABLE WORKS IS IN PROGRESS. TELEPHONE 131 081
 12. OPERATIONAL LIMITS UNLESS APPROVED OTHERWISE, INTERRUPTIONS TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
 - MOBILE GENERATORS OR SUBSTATIONS
 - LIVE LINE WORK
 - DESIGN ALTERNATIVES
 - WORK PRACTICES/STANDARDS
 - LOW VOLTAGE PARALLELS
 THE COST IS TO BE FUNDED BY THE CUSTOMER/DEVELOPER
 13. ENDEAVOUR ENERGY MATERIALS TO BE RETURNED TO CLOSEST ENDEAVOUR ENERGY DEPOT
 14. SUBSTATION TO BE INSTALLED IN ACCORDANCE WITH MCI0006..
 15. AN EASEMENT FOR THE UNDERGROUND CABLES A MINIMUM 1 METRE WIDE IS REQUIRED OVER ALL CABLES.
 16. AN EASEMENT OF A MINIMUM OF 5.5 METRES x 2.75 METRES IS REQUIRED OVER EACH SUBSTATION SITE. THIS EASEMENT IS A MINIMUM SIZE ONLY.
 17. SUBSTATION EASEMENT AND RESTRICTION ZONE REQUIRED REFER SHEET 3
 18. SUBSTATION MUST BE LOCATED MORE THAN 5m FROM TELSTRA PITS
 19. EARTHING OF THE SUBSTATION TO BE CARRIED OUT IN ACCORDANCE WITH ENDEAVOUR ENERGY SDI 100. COMMON EARTHING PREFERRED AND PREDICTED.
 20. FINAL PM SUB LOCATION TO BE DETERMINED BY DEVELOPER PRIOR TO ANY CONSTRUCTION WORKS.
 21. CONSTRUCTOR TO CONFIRM FINISHED GROUND LEVELS WITH DEVELOPER PRIOR TO COMMENCING CONSTRUCTION.
 22. REIMBURSEMENTS WILL BE CREDITED TO THE DEVELOPER ONLY FOR LENGTHS AND QUANTITIES SHOWN IN THE SCOPE OF WORKS. ANY DISCREPANCIES SHOULD BE RESOLVED PRIOR TO THE CONTRACT AGREEMENT.
 23. ALL THE EXISTING ASSETS HAVE BEEN FIELD CHECKED AND ARE ACCURATE AT THE TIME OF DESIGN.
 24. ENDEAVOUR ENERGY CONTACT 131 081.

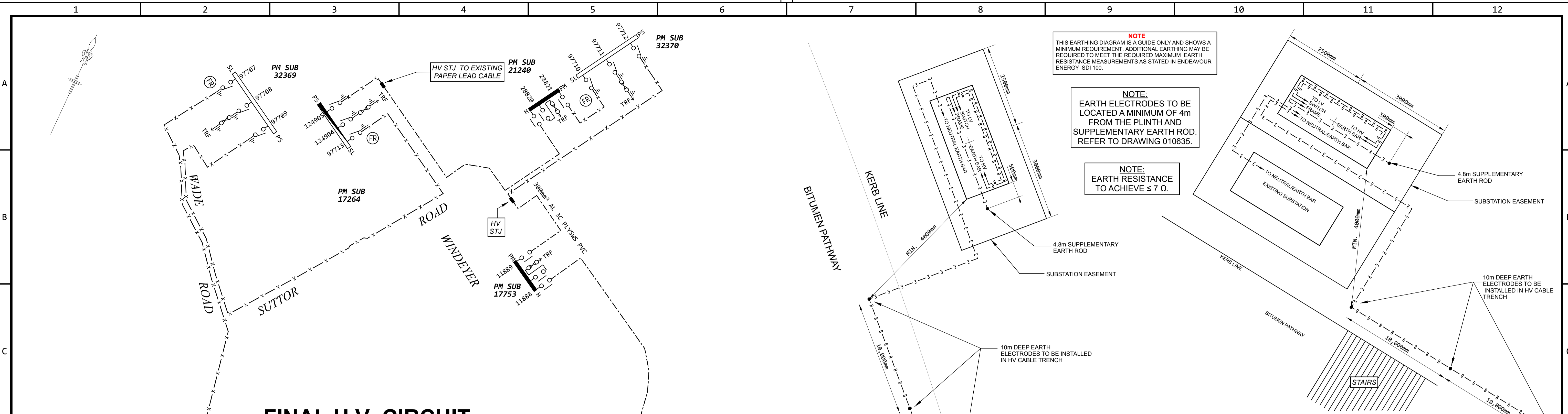
DUCT BREAK-DOWN TABLE

ROUTE	DUCT CONFIG.	ROUTE LENGTH (m)	REIMBURSEMENT	EXISTING DUCT USAGE CHARGE
A-B	EXISTING 2 x 140mm FC DUCTS	34	NIL	NIL (INSTALLED BY DEVELOPER)
B-C	EXISTING 2 x 140mm FC DUCTS	46	NIL	NIL (INSTALLED BY DEVELOPER)
C-D	INSTALL 2 x 125mm PVC DUCTS	285	NIL	NIL
D-E	INSTALL 2 x 125mm PVC DUCTS	240	NIL	NIL
E-F	INSTALL 4 x 125mm PVC DUCTS	180	NIL	NIL
F-G	INSTALL 4 x 125mm PVC DUCTS	10	NIL	NIL
G-H	DIRECT BURIED CABLE	23	NIL	NIL
TOTALS		NIL	NIL	NIL

LEGEND
 [Symbol] SPARE DUCT
 [Symbol] DUCT WITH EXISTING CABLE
 [Symbol] DUCT WITH NEW CABLE
 [Symbol] DIRECT BURIED CABLE

connect REF. NUMBER P130 E1-08
 Project No. HV SWITCHING OVERHEAD MAINS UNDERGROUND SUBSTATIONS
 FILE No. 2011/01264/001
 LG AREA THE HILLS SHIRE
 GIS MAP No. 0052 12
 UBD MAP REF. MAP 191 J7
 HV OP DIAG DUNDA2 / Z13
 EE REGION NORTHERN
 ORIGINAL SCALE 1:1000 OR AS SHOWN
 DRAWN ENRICO CASAOL
 DATE 05-06-2012
 CHD GARRY BEATON
 DESIGN Josh Caruana
 DO NOT SCALE DIMENSIONS IN METRES
"THE KINGS SCHOOL" PENNANT HILLS ROAD NORTH PARRAMATTA UCL5307 CONNECTION OF LOAD
A1 378429 B
 SHEET No. 1 OF 3 SHEETS

Issue Date: 02/03/2023, DBYD Sequence No: 221839096



FINAL H.V. CIRCUIT

SCALE: NONE
 --- EXISTING O.H. CABLE
 - - - EXISTING U.G. CABLE
 - x - LAY 240sq mm Al 3c XLPE/PVC/HDPE Cable
 R.L. = 1000 m C.L. = 1100m

1000 kVA PADMOUNT SUBSTATION 32369 COMMON EARTHING LAYOUT DIAGRAM AND DESIGN DETAILS

NOT TO SCALE
 - e - e - e - 70mm² Cu SC DI BLACK PVC CABLE (19/2.14 Cu OR EQUIVALENT)
 R.L. = 12m C.L. = 14m
 - b - b - b - 70mm² BARE Cu CONDUCTOR (19/2.14 Cu OR EQUIVALENT)
 R.L. = 28m C.L. = 30m
 • EARTH ELECTRODE LOCATION

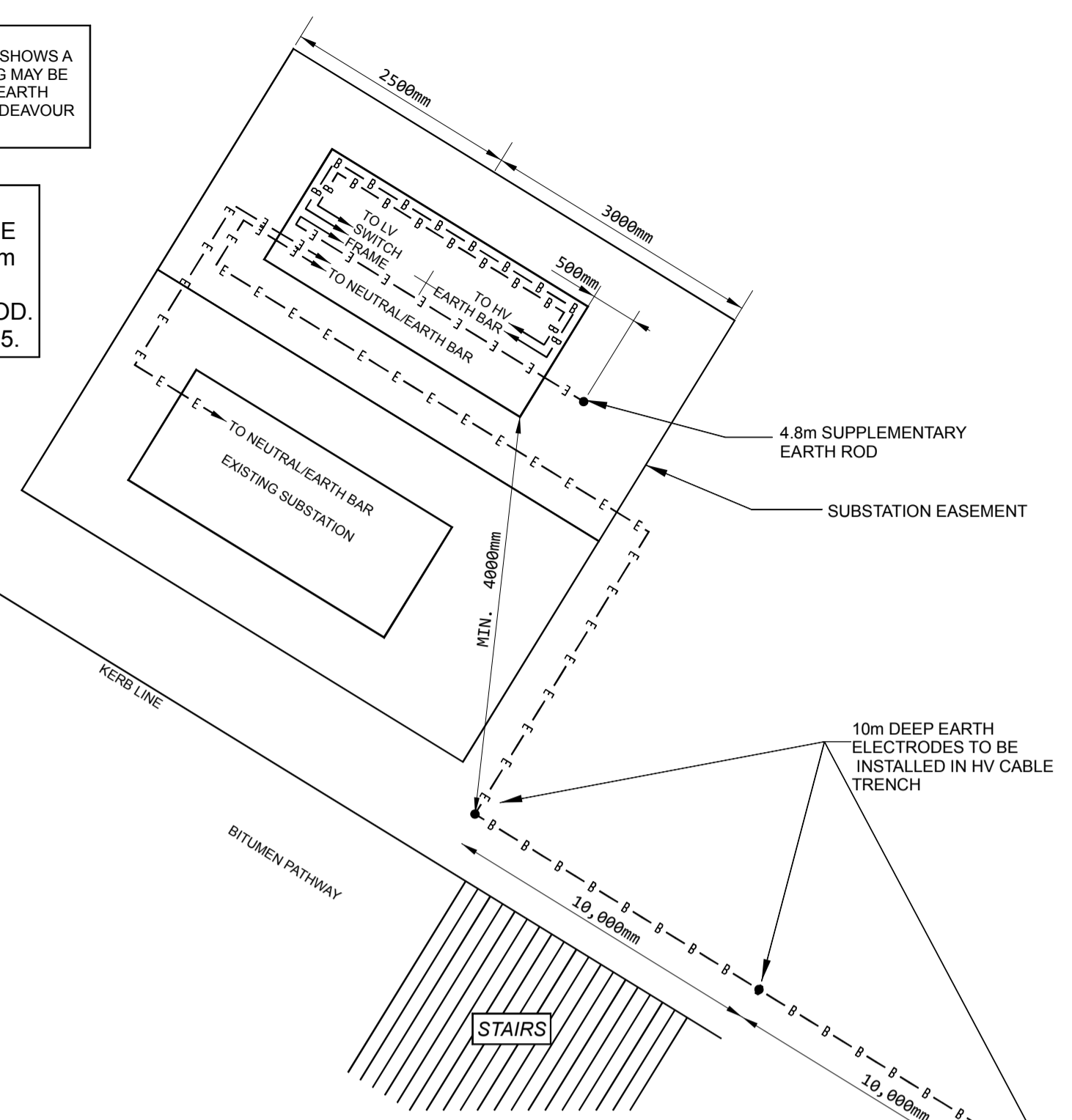
EARTHING DATA CAPTURE TO GIS

EQUIPMENT No:	32369
INSTALLATION TYPE	UNDERGROUND
EARTHING SYSTEM TYPE	COMMON
SOIL RESISTIVITY AVERAGE IN OHMS	85 OHM METRES.
HV SEPARATE EARTHING GRID RESISTANCE (SEPARATE EARTHING ONLY)	N/A
SIZE/No. OF HV ELECTRODES (SEPARATE EARTHING ONLY)	N/A
LV SEPARATE EARTHING GRID RESISTANCE (SEPARATE EARTHING ONLY)	N/A
SIZE/No. OF LV ELECTRODES (SEPARATE EARTHING ONLY)	N/A
COMBINED EARTH RESISTANCE IN OHMS (FOR COMMON EARTHING)	4.41 Ohms
SIZE/No. OF COMBINED ELECTRODES (COMMON EARTHING)	10m / 3
SIZE/No. OF THE SUPPLEMENTARY ELECTRODE	4.8m / 1
BONDING CONDUCTOR SIZE IN SMM (INSULATED/BARE)	70mm ² BLACK SDI Cu CONDUCTOR (19/2.14 Cu OR EQUIVALENT)
CONNECTION TYPE (CAD OR CRIMP)	CAD
AMBIENT TEMP/WEATHER CONDITION	22°C
DATE OF SOIL TEST	25/7/13
INSULATED DEPTH FROM GROUND LEVEL (IN METRES)	N/A
LENGTH OF MEN CONNECTION CABLE IN METRES	N/A
TOTAL LENGTH OF EARTH ELECTRODE SYSTEM CABLE (INCL. INSULATED AND BARE IN METRES)	27 m
MEASURED EARTH RESISTANCE IN OHMS (BY L1 ASP ON COMMISSIONING)	Ohms

NOTE
 THIS EARTHING DIAGRAM IS A GUIDE ONLY AND SHOWS A MINIMUM REQUIREMENT. ADDITIONAL EARTHING MAY BE REQUIRED TO MEET THE REQUIRED MAXIMUM EARTH RESISTANCE MEASUREMENTS AS STATED IN ENDEAVOUR ENERGY SDI 100.

NOTE
 EARTH ELECTRODES TO BE LOCATED A MINIMUM OF 4m FROM THE PLINTH AND SUPPLEMENTARY EARTH ROD. REFER TO DRAWING 010635.

NOTE
 EARTH RESISTANCE TO ACHIEVE ≤ 7 Ω.



1000 kVA PADMOUNT SUBSTATION 32370 COMMON EARTHING LAYOUT DIAGRAM AND DESIGN DETAILS

NOT TO SCALE
 - e - e - e - 70mm² Cu SC DI BLACK PVC CABLE (19/2.14 Cu OR EQUIVALENT)
 R.L. = 12m C.L. = 14m
 - b - b - b - 70mm² BARE Cu CONDUCTOR (19/2.14 Cu OR EQUIVALENT)
 R.L. = 28m C.L. = 30m
 • EARTH ELECTRODE LOCATION

EARTHING DATA CAPTURE TO GIS

EQUIPMENT No:	32370
INSTALLATION TYPE	UNDERGROUND
EARTHING SYSTEM TYPE	COMMON
SOIL RESISTIVITY AVERAGE IN OHMS	85 OHM METRES.
HV SEPARATE EARTHING GRID RESISTANCE (SEPARATE EARTHING ONLY)	N/A
SIZE/No. OF HV ELECTRODES (SEPARATE EARTHING ONLY)	N/A
LV SEPARATE EARTHING GRID RESISTANCE (SEPARATE EARTHING ONLY)	N/A
SIZE/No. OF LV ELECTRODES (SEPARATE EARTHING ONLY)	N/A
COMBINED EARTH RESISTANCE IN OHMS (FOR COMMON EARTHING)	4.41 Ohms
SIZE/No. OF COMBINED ELECTRODES (COMMON EARTHING)	10m / 3
SIZE/No. OF THE SUPPLEMENTARY ELECTRODE	4.8m / 1
BONDING CONDUCTOR SIZE IN SMM (INSULATED/BARE)	70mm ² BLACK SDI Cu CONDUCTOR (19/2.14 Cu OR EQUIVALENT)
CONNECTION TYPE (CAD OR CRIMP)	CAD
AMBIENT TEMP/WEATHER CONDITION	22°C
DATE OF SOIL TEST	25/7/13
INSULATED DEPTH FROM GROUND LEVEL (IN METRES)	N/A
LENGTH OF MEN CONNECTION CABLE IN METRES	N/A
TOTAL LENGTH OF EARTH ELECTRODE SYSTEM CABLE (INCL. INSULATED AND BARE IN METRES)	27 m
MEASURED EARTH RESISTANCE IN OHMS (BY L1 ASP ON COMMISSIONING)	Ohms

ENDEAVOUR ENERGY WARNING

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When constructing the water excavation must be operated at or below 2000PSI. Any operation exceeding 2000PSI must be closed and treated as a destructive excavation practice.

CERTIFIED BY ENDEAVOUR ENERGY
 19/11/2013
 Eugene Lorenzo
 Print Name: Eugene Lorenzo
 This Certification is issued subject to the Standard Certification Terms
 WORKS COMPLETED / FIELD BOOK
 CONSTRUCTED BY
 WORKS COMPLETED
 INSTALLED BY
 RECORDED BY

connect INFRASTRUCTURE
 Connect Design Pty Ltd
 Electrical Infrastructure Consultancy, Design & Construction
 Tel: 02 9733 3333
 Fax: 02 9733 3330
 Email: mail@connecteng.com.au
 6 Progress Cct, Prestons NSW 2170
 PO Box 484, Casula Mall NSW 2170

connect REF. NUMBER
P130 E2-08

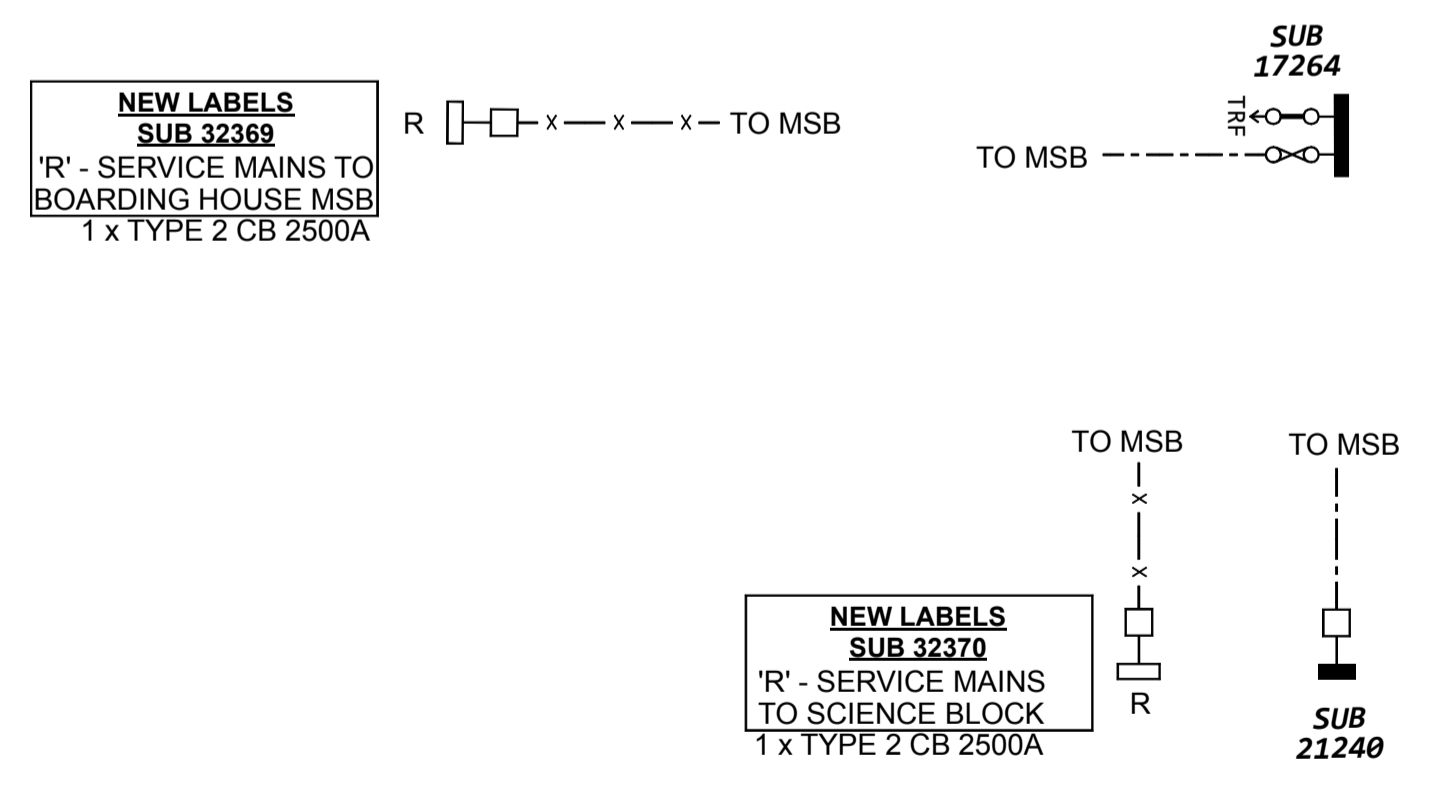
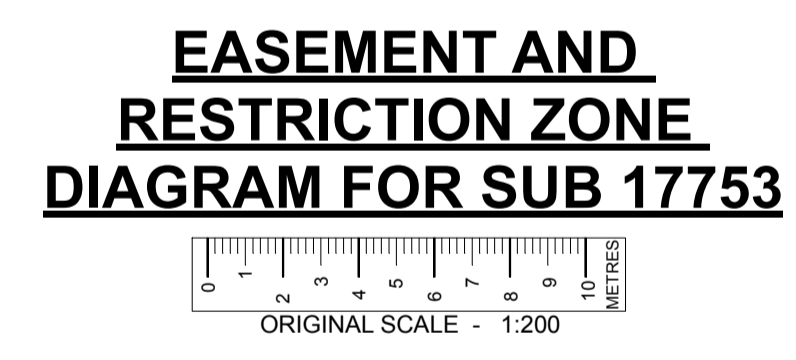
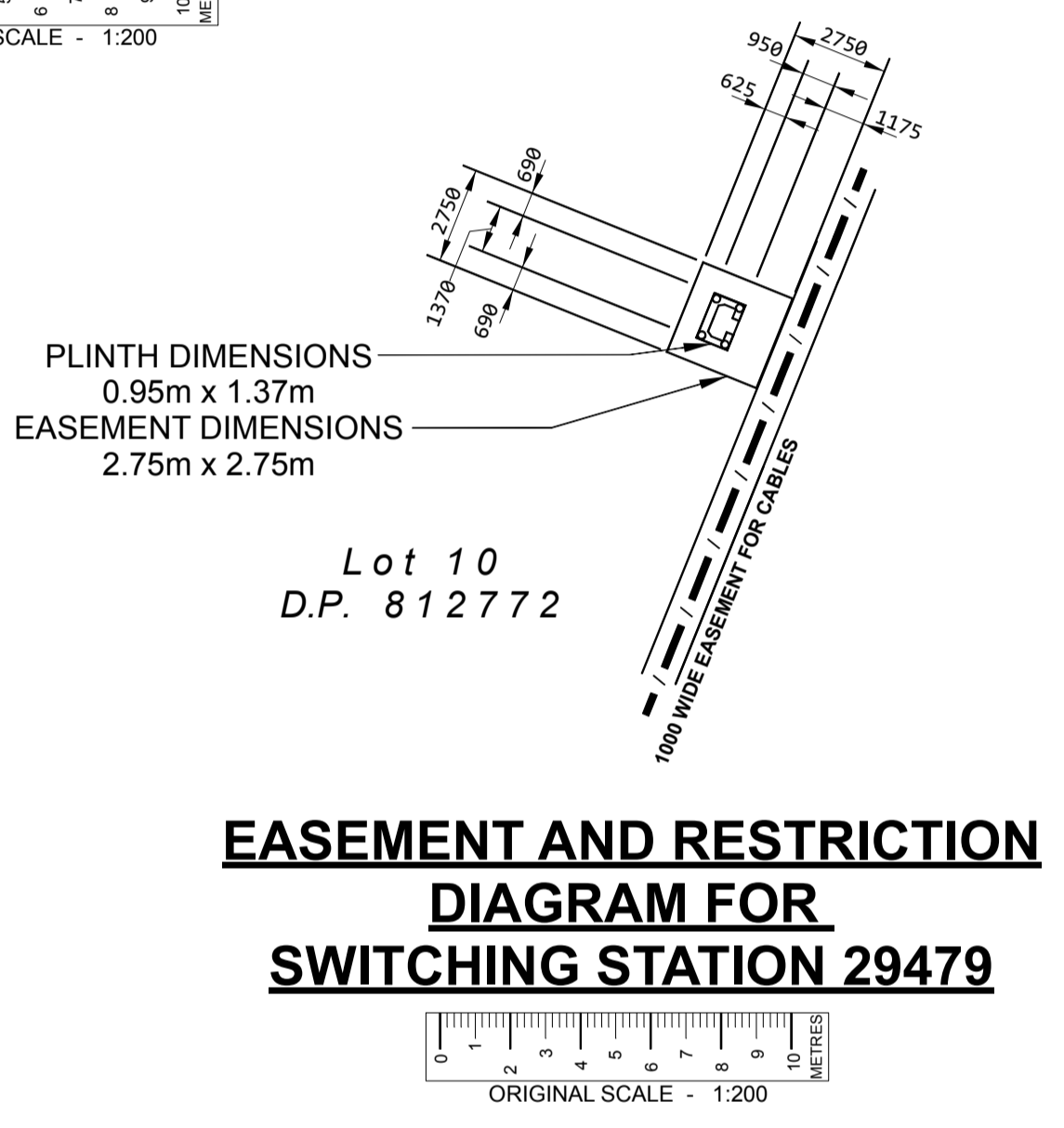
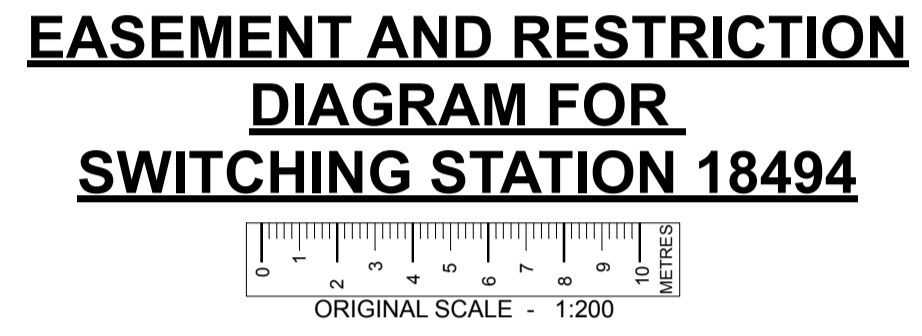
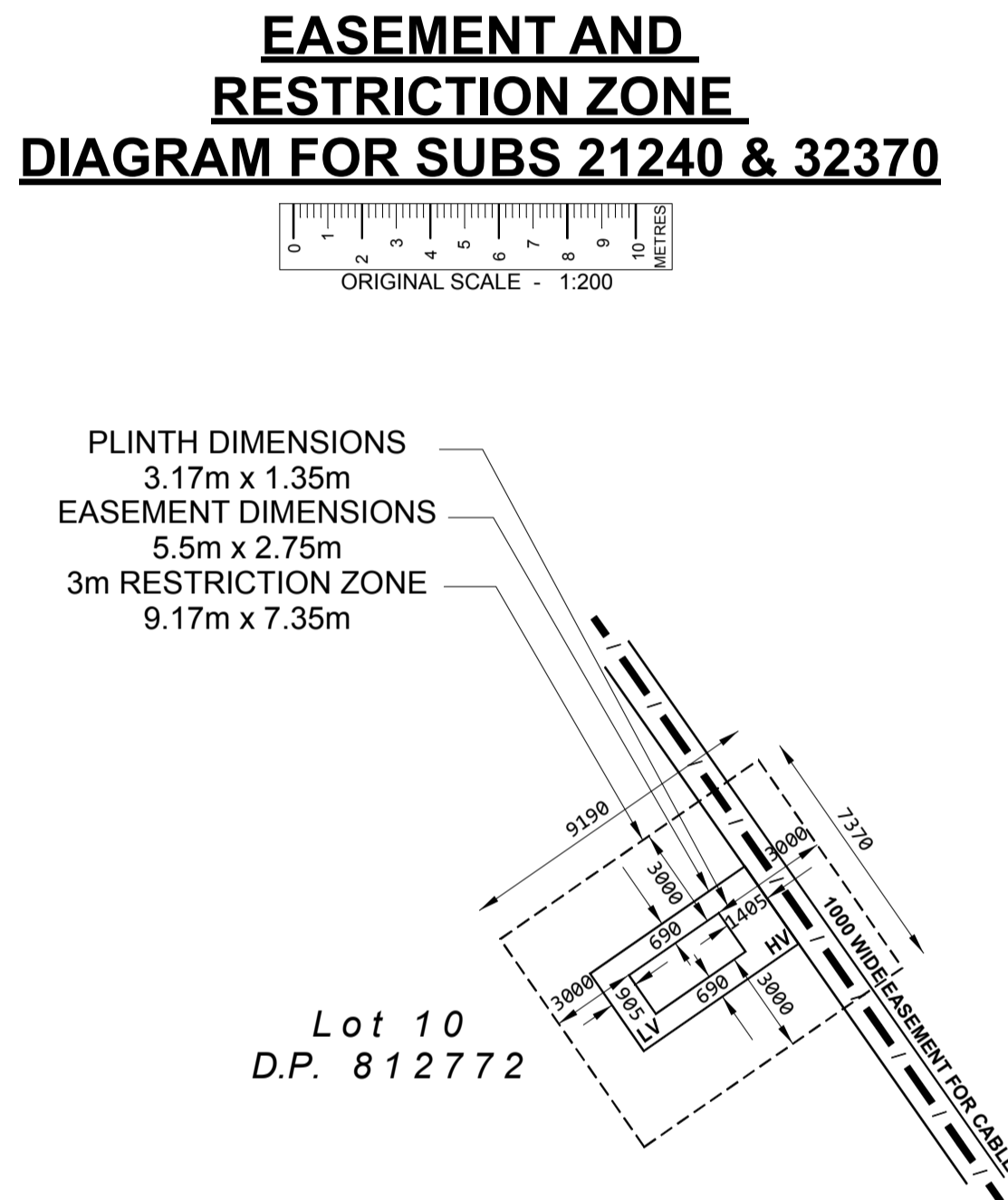
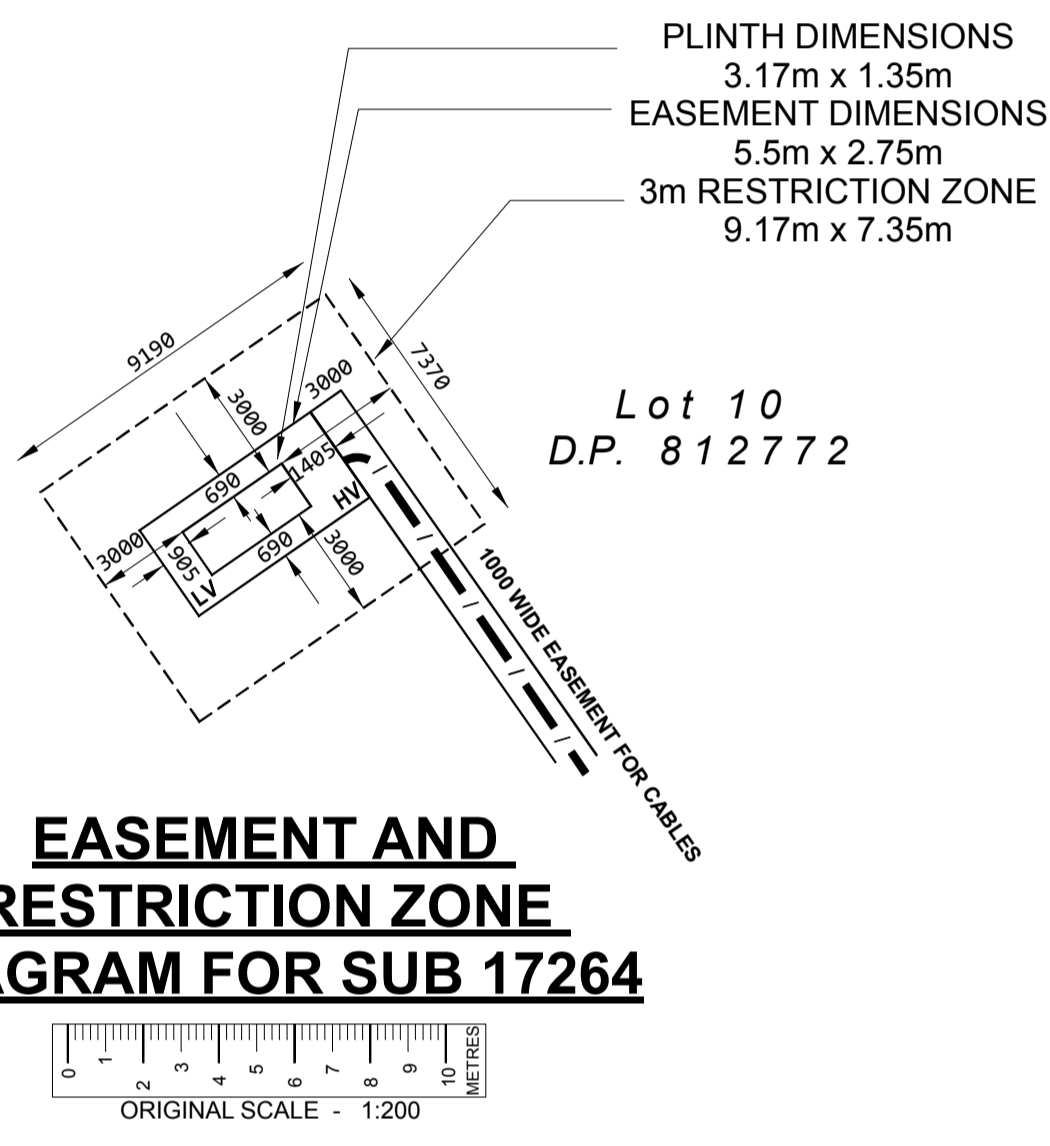
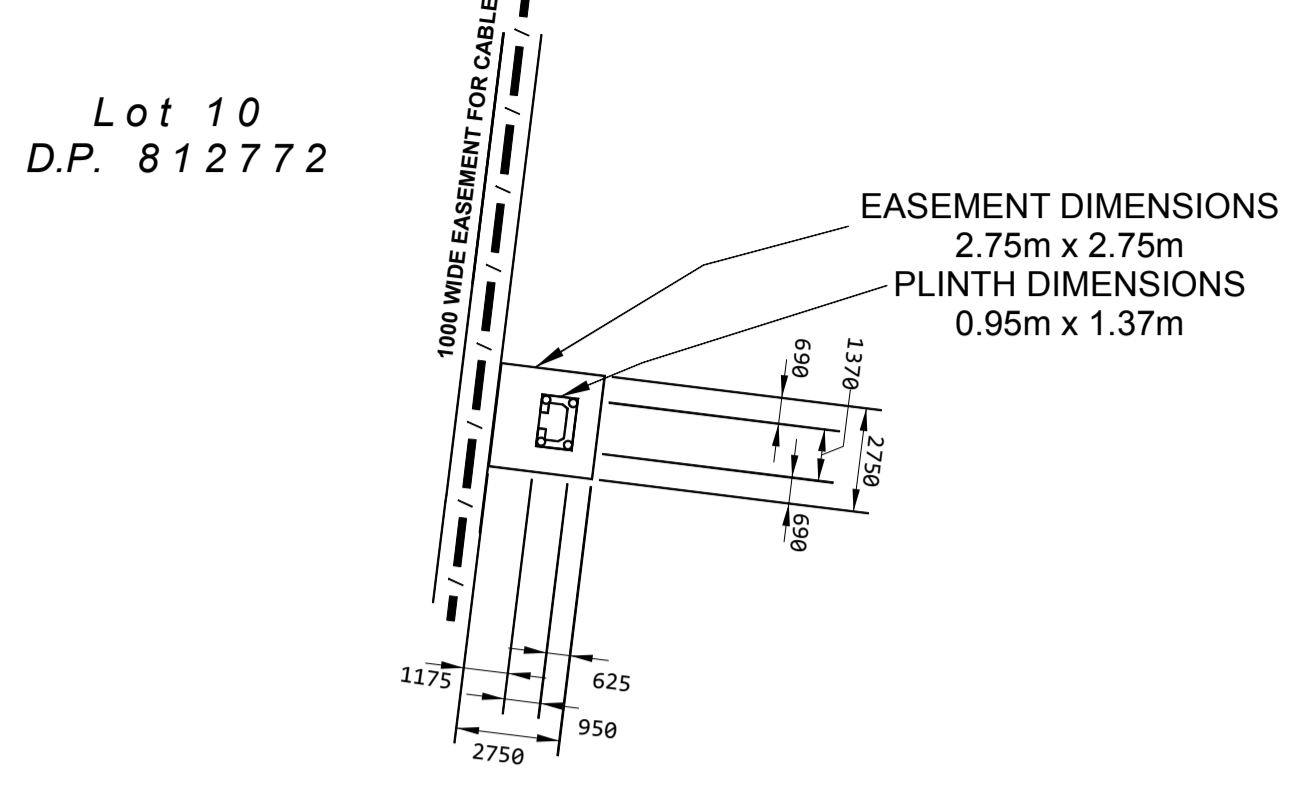
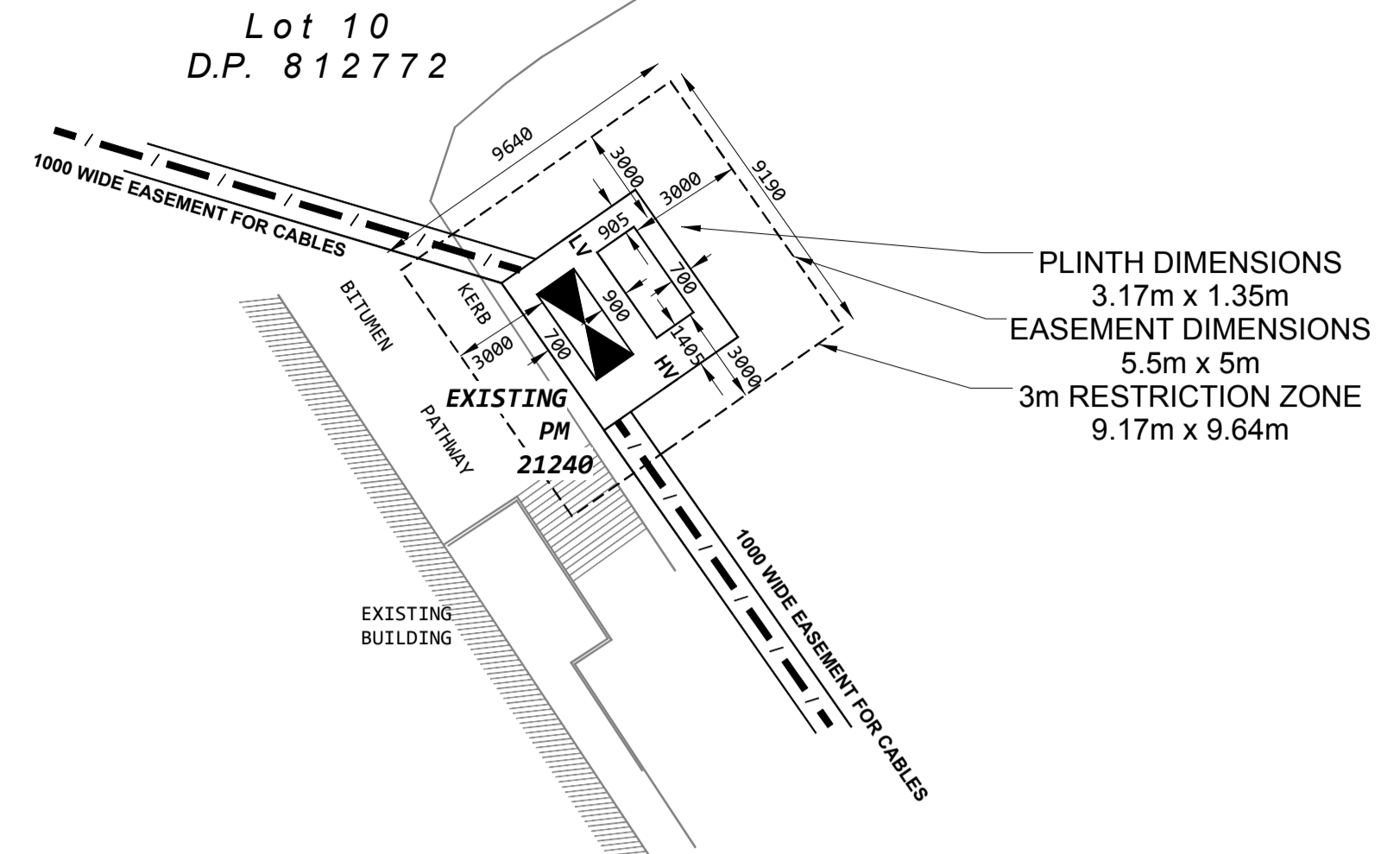
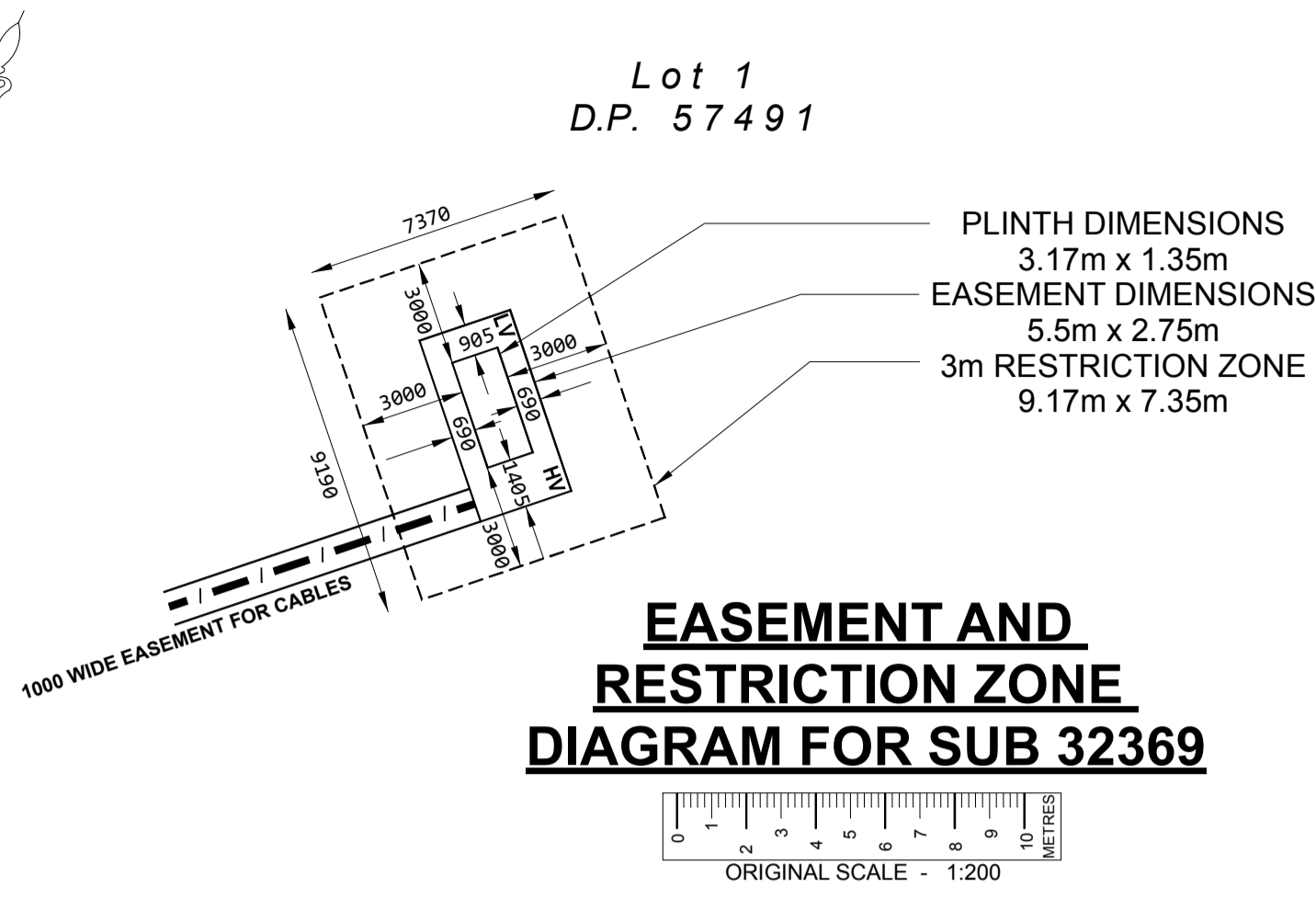
REFERENCE DRAWINGS	Project No.
	HV SWITCHING
	OVERHEAD MAINS
	UNDERGROUND
	SUBSTATIONS

FILE No.	2011/ THE HILLS SHIRE
LG AREA	0052 12
GIS MAP No	MAP 191 J7
UBD MAP REF	DUNDA2 / Z13
HV OP DIAG	NORTHERN
EE REGION	

ORIGINAL SCALE 1:1000 OR AS SHOWN
 DO NOT SCALE
 DIMENSIONS IN METRES
 DRAWN ENRICO CASAOL
 DATE 05-06-2012
 CHD GARRY BEATON
 DESIGN Josh Caruana

"THE KINGS SCHOOL"
PENNANT HILLS ROAD
NORTH PARRAMATTA
UCL5307
CONNECTION OF LOAD

Endeavour Energy
A1 378429 B
 SHEET No. 2 OF 3 SHEETS



ENDEAVOUR ENERGY WARNING

This plan shows the approximate location of underground cables relative to fixtures existing when the cables were laid, and has been prepared solely for Endeavour Energy's own use. Endeavour Energy has taken all reasonable steps to ensure that the information is accurate as possible but will accept no liability for inaccuracies in the information shown on such plans from any cause whatsoever arising.

Persons excavating are expected to exercise all due care in the design, planning and implementation of any works indicated and will be held responsible for any damage caused to Endeavour Energy's property.

All electrical work shall be considered live until proved otherwise. Contact with live electrical apparatus will cause severe injury or death.

Underground assets may be congested at the approach to bridges and other structures. Typical asset depths and alignment may vary substantially, rising and falling sharply and at much shallower depths than elsewhere as they are channelled into specially allocated spaces on bridges and other structures. Additional precautions and underground asset location methods will be required in proximity to bridges and other structures.

Those excavating near Endeavour Energy's cables should be aware that ASBESTOS OR ASBESTOS - CONTAINING MATERIAL MAY BE PRESENT in Endeavour Energy's underground assets and that Organo-Chloride Pesticides (OCP) may be present in some sub-transmission trenches.

For destructive water excavation must be operated at or below 2000PSI. Any operation exceeding 2000PSI must be classed and treated as a destructive excavation practice.

CERTIFIED BY ENDEAVOUR ENERGY

Signature: Eugene Lorenzo

Print Name: Eugene Lorenzo

Works Completed / Field Book

Constructed by

Works Completed

Installed by

Recorded by

connect INFRASTRUCTURE

Connect Design Pty Ltd
Electrical Infrastructure Consultancy, Design & Construction

Tel: 02 9733 3333
Fax: 02 9733 3330
Email: mail@connecteng.com.au

6 Progress Cct, Prestons NSW 2170
PO Box 484, Casula Mall NSW 2170

connect REF. NUMBER

P130 E3-08

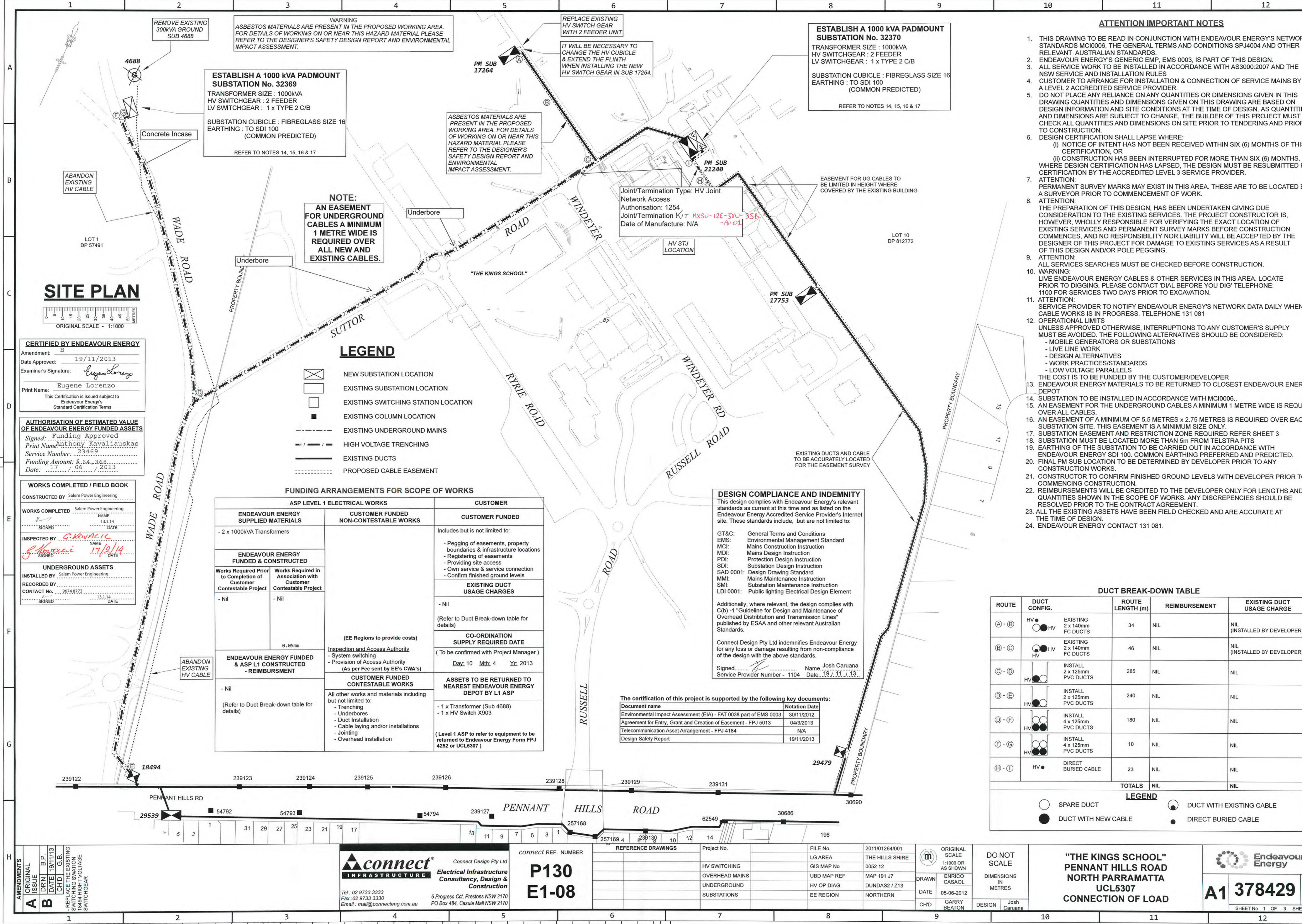
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	HV SWITCHING	LG AREA	THE HILLS SHIRE
	OVERHEAD MAINS	GIS MAP No	0052 12
	UNDERGROUND	UBD MAP REF	MAP 191 J7
	SUBSTATIONS	HV OP DIAG	DUNDAS 2 / Z13
		EE REGION	NORTHERN

ORIGINAL SCALE	DO NOT SCALE	"THE KINGS SCHOOL"
1:1000 OR AS SHOWN	DIMENSIONS IN METRES	PENNANT HILLS ROAD
ENRICO CASAOL		NORTH PARRAMATTA
DATE: 05-06-2012		UCL5307
CHD: GARRY BEATON	DESIGN: Josh Caruana	CONNECTION OF LOAD

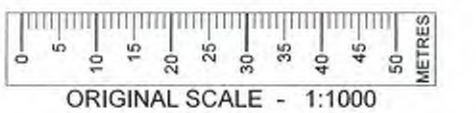
Endeavour Energy

A1 378429 B

SHEET No. 3 OF 3 SHEETS



SITE PLAN



CERTIFIED BY ENDEAVOUR ENERGY
 Amendment: B
 Date Approved: 19/11/2013
 Examiner's Signature: Eugene Lorenzo
 Print Name: Eugene Lorenzo
 This Certification is issued subject to Endeavour Energy's Standard Certification Terms

AUTHORISATION OF ESTIMATED VALUE OF ENDEAVOUR ENERGY FUNDED ASSETS
 Signed: Funding Approved
 Print Name: Anthony Kavaliuskas
 Service Number: 23469
 Funding Amount: \$ 64,368
 Date: 17/06/2013

WORKS COMPLETED / FIELD BOOK
 CONSTRUCTED BY: Salem Power Engineering
 WORKS COMPLETED: Salem Power Engineering
 INSPECTED BY: G. Kovacic
 UNDERGROUND ASSETS
 INSTALLED BY: Salem Power Engineering
 RECORDED BY: 9674.8773
 CONTACT No. 9674.8773

LEGEND

- NEW SUBSTATION LOCATION
- EXISTING SUBSTATION LOCATION
- EXISTING SWITCHING STATION LOCATION
- EXISTING COLUMN LOCATION
- EXISTING UNDERGROUND MAINS
- HIGH VOLTAGE TRENCHING
- EXISTING DUCTS
- PROPOSED CABLE EASEMENT

FUNDING ARRANGEMENTS FOR SCOPE OF WORKS

ASP LEVEL 1 ELECTRICAL WORKS		CUSTOMER
ENDEAVOUR ENERGY SUPPLIED MATERIALS	CUSTOMER FUNDED NON-CONTESTABLE WORKS	CUSTOMER FUNDED
- 2 x 1000kVA Transformers		Includes but is not limited to: - Pegging of easements, property boundaries & infrastructure locations - Registering of easements - Providing site access - Own service & service connection - Confirm finished ground levels
ENDEAVOUR ENERGY FUNDED & CONSTRUCTED	ENDEAVOUR ENERGY FUNDED & CONSTRUCTED	EXISTING DUCT USAGE CHARGES
Works Required Prior to Completion of Customer Contestable Project	Works Required in Association with Customer Contestable Project	- Nil
- Nil	- Nil	(Refer to Duct Break-down table for details)
ENDEAVOUR ENERGY FUNDED & ASP L1 CONSTRUCTED - REIMBURSEMENT	ENDEAVOUR ENERGY FUNDED & ASP L1 CONSTRUCTED - REIMBURSEMENT	CO-ORDINATION SUPPLY REQUIRED DATE
- Nil	- Nil	(To be confirmed with Project Manager) Day: 10 Mth: 4 Yr: 2013
(Refer to Duct Break-down table for details)	(Refer to Duct Break-down table for details)	ASSETS TO BE RETURNED TO NEAREST ENDEAVOUR ENERGY DEPOT BY L1 ASP
		- 1 x Transformer (Sub 4688) - 1 x HV Switch X903
		(Level 1 ASP to refer to equipment to be returned to Endeavour Energy Form FPJ 4252 or UCL5307)

DESIGN COMPLIANCE AND INDEMNITY

This design complies with Endeavour Energy's relevant standards as current at this time and as listed on the Endeavour Energy Accredited Service Provider's Internet site. These standards include, but are not limited to:

GT&C: General Terms and Conditions
 EMS: Environmental Management Standard
 MCI: Mains Construction Instruction
 MDI: Mains Design Instruction
 PDI: Protection Design Instruction
 SDI: Substation Design Instruction
 SAD 0001: Design Drawing Standard
 MMI: Mains Maintenance Instruction
 SMI: Substation Maintenance Instruction
 LDI 0001: Public Lighting Electrical Design Element

Additionally, where relevant, the design complies with C(b)-1 "Guideline for Design and Maintenance of Overhead Distribution and Transmission Lines" published by ESAA and other relevant Australian Standards.

Connect Design Pty Ltd indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed: Josh Caruana
 Service Provider Number - 1104 Date: 19/11/13

The certification of this project is supported by the following key documents:

Document name	Notation Date
Environmental Impact Assessment (EIA) - FAT 0038 part of EMS 0003	30/11/2012
Agreement for Entry, Grant and Creation of Easement - FPJ 5013	04/3/2013
Telecommunication Asset Arrangement - FPJ 4184	N/A
Design Safety Report	19/11/2013

ATTENTION IMPORTANT NOTES

- THIS DRAWING TO BE READ IN CONJUNCTION WITH ENDEAVOUR ENERGY'S NETWORK STANDARDS MCI006, THE GENERAL TERMS AND CONDITIONS SPJ4004 AND OTHER RELEVANT AUSTRALIAN STANDARDS.
- ENDEAVOUR ENERGY'S GENERIC EMP, EMS 0003, IS PART OF THIS DESIGN.
- ALL SERVICE WORK TO BE INSTALLED IN ACCORDANCE WITH AS3000:2007 AND THE NSW SERVICE AND INSTALLATION RULES
- CUSTOMER TO ARRANGE FOR INSTALLATION & CONNECTION OF SERVICE MAINS BY A LEVEL 2 ACCREDITED SERVICE PROVIDER.
- DO NOT PLACE ANY RELIANCE ON ANY QUANTITIES OR DIMENSIONS GIVEN IN THIS DRAWING QUANTITIES AND DIMENSIONS GIVEN ON THIS DRAWING ARE BASED ON DESIGN INFORMATION AND SITE CONDITIONS AT THE TIME OF DESIGN. AS QUANTITIES AND DIMENSIONS ARE SUBJECT TO CHANGE, THE BUILDER OF THIS PROJECT MUST CHECK ALL QUANTITIES AND DIMENSIONS ON SITE PRIOR TO TENDERING AND PRIOR TO CONSTRUCTION.
- DESIGN CERTIFICATION SHALL LAPSE WHERE:
 - NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN SIX (6) MONTHS OF THIS CERTIFICATION, OR
 - CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN SIX (6) MONTHS. WHERE DESIGN CERTIFICATION HAS LAPSED, THE DESIGN MUST BE RESUBMITTED FOR CERTIFICATION BY THE ACCREDITED LEVEL 3 SERVICE PROVIDER.
- ATTENTION: PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED BY A SURVEYOR PRIOR TO COMMENCEMENT OF WORK.
- ATTENTION: THE PREPARATION OF THIS DESIGN, HAS BEEN UNDERTAKEN GIVING DUE CONSIDERATION TO THE EXISTING SERVICES. THE PROJECT CONSTRUCTOR IS, HOWEVER, WHOLLY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF EXISTING SERVICES AND PERMANENT SURVEY MARKS BEFORE CONSTRUCTION COMMENCES, AND NO RESPONSIBILITY NOR LIABILITY WILL BE ACCEPTED BY THE DESIGNER OF THIS PROJECT FOR DAMAGE TO EXISTING SERVICES AS A RESULT OF THIS DESIGN AND/OR POLE PEGGING.
- ATTENTION: ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION.
- WARNING: LIVE ENDEAVOUR ENERGY CABLES & OTHER SERVICES IN THIS AREA. LOCATE PRIOR TO DIGGING. PLEASE CONTACT 'DIAL BEFORE YOU DIG' TELEPHONE: 1100 FOR SERVICES TWO DAYS PRIOR TO EXCAVATION.
- ATTENTION: SERVICE PROVIDER TO NOTIFY ENDEAVOUR ENERGY'S NETWORK DATA DAILY WHEN CABLE WORKS IS IN PROGRESS. TELEPHONE 131 081
- OPERATIONAL LIMITS UNLESS APPROVED OTHERWISE, INTERRUPTIONS TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
 - MOBILE GENERATORS OR SUBSTATIONS
 - LIVE LINE WORK
 - DESIGN ALTERNATIVES
 - WORK PRACTICES/STANDARDS
 - LOW VOLTAGE PARALLELS
 THE COST IS TO BE FUNDED BY THE CUSTOMER/DEVELOPER
- ENDEAVOUR ENERGY MATERIALS TO BE RETURNED TO CLOSEST ENDEAVOUR ENERGY DEPOT
- SUBSTATION TO BE INSTALLED IN ACCORDANCE WITH MCI0006.
- AN EASEMENT FOR THE UNDERGROUND CABLES A MINIMUM 1 METRE WIDE IS REQUIRED OVER ALL CABLES.
- AN EASEMENT OF A MINIMUM OF 5.5 METRES x 2.75 METRES IS REQUIRED OVER EACH SUBSTATION SITE. THIS EASEMENT IS A MINIMUM SIZE ONLY.
- SUBSTATION EASEMENT AND RESTRICTION ZONE REQUIRED REFER SHEET 3
- SUBSTATION MUST BE LOCATED MORE THAN 5m FROM TELSTRA PITS
- EARTHING OF THE SUBSTATION TO BE CARRIED OUT IN ACCORDANCE WITH ENDEAVOUR ENERGY SDI 100. COMMON EARTHING PREFERRED AND PREFERRED.
- FINAL PM SUB LOCATION TO BE DETERMINED BY DEVELOPER PRIOR TO ANY CONSTRUCTION WORKS.
- CONSTRUCTOR TO CONFIRM FINISHED GROUND LEVELS WITH DEVELOPER PRIOR TO COMMENCING CONSTRUCTION
- REIMBURSEMENTS WILL BE CREDITED TO THE DEVELOPER ONLY FOR LENGTHS AND QUANTITIES SHOWN IN THE SCOPE OF WORKS. ANY DISCREPANCIES SHOULD BE RESOLVED PRIOR TO THE CONTRACT AGREEMENT.
- ALL THE EXISTING ASSETS HAVE BEEN FIELD CHECKED AND ARE ACCURATE AT THE TIME OF DESIGN.
- ENDEAVOUR ENERGY CONTACT 131 081.

DUCT BREAK-DOWN TABLE

ROUTE	DUCT CONFIG.	ROUTE LENGTH (m)	REIMBURSEMENT	EXISTING DUCT USAGE CHARGE
(A) - (B)	HV EXISTING 2 x 140mm FC DUCTS	34	NIL	NIL (INSTALLED BY DEVELOPER)
(B) - (C)	HV EXISTING 2 x 140mm FC DUCTS	46	NIL	NIL (INSTALLED BY DEVELOPER)
(C) - (D)	HV INSTALL 2 x 125mm PVC DUCTS	285	NIL	NIL
(D) - (E)	HV INSTALL 2 x 125mm PVC DUCTS	240	NIL	NIL
(D) - (F)	HV INSTALL 4 x 125mm PVC DUCTS	180	NIL	NIL
(F) - (G)	HV INSTALL 4 x 125mm PVC DUCTS	10	NIL	NIL
(H) - (I)	HV DIRECT BURIED CABLE	23	NIL	NIL
TOTALS			NIL	NIL

LEGEND

- SPARE DUCT
- DUCT WITH NEW CABLE
- DUCT WITH EXISTING CABLE
- DIRECT BURIED CABLE

AMENDMENTS

ORIGINAL ISSUE	DATE	BY	REASON
A	19/11/13	B.P.	ISSUE
B	19/11/13	G.B.	REPLACE THE EXISTING SWITCHING SWITACH 18484 HIGH VOLTAGE SWITCHGEAR

connect INFRASTRUCTURE
 Connect Design Pty Ltd
 Electrical Infrastructure Consultancy, Design & Construction
 Tel: 02 9733 3333
 Fax: 02 9733 3330
 Email: mail@connecteng.com.au
 6 Progress Cct, Prestons NSW 2170
 PO Box 484, Casula Mail NSW 2170

connect REF. NUMBER
P130 E1-08

REFERENCE DRAWINGS

Project No.	FILE No.
HV SWITCHING	2011/01264/001
OVERHEAD MAINS	THE HILLS SHIRE 0052 12
UNDERGROUND	UBD MAP REF MAP 191 J7
SUBSTATIONS	HV OP DIAG DUNDAS2 / Z13
	EE REGION NORTHERN

DO NOT SCALE DIMENSIONS IN METRES

DATE	DESIGN	DATE	DESIGN
05-06-2012	Josh Caruana	05-06-2012	Josh Caruana
	GARRY BEATON		

ORIGINAL SCALE 1:1000 OR AS SHOWN

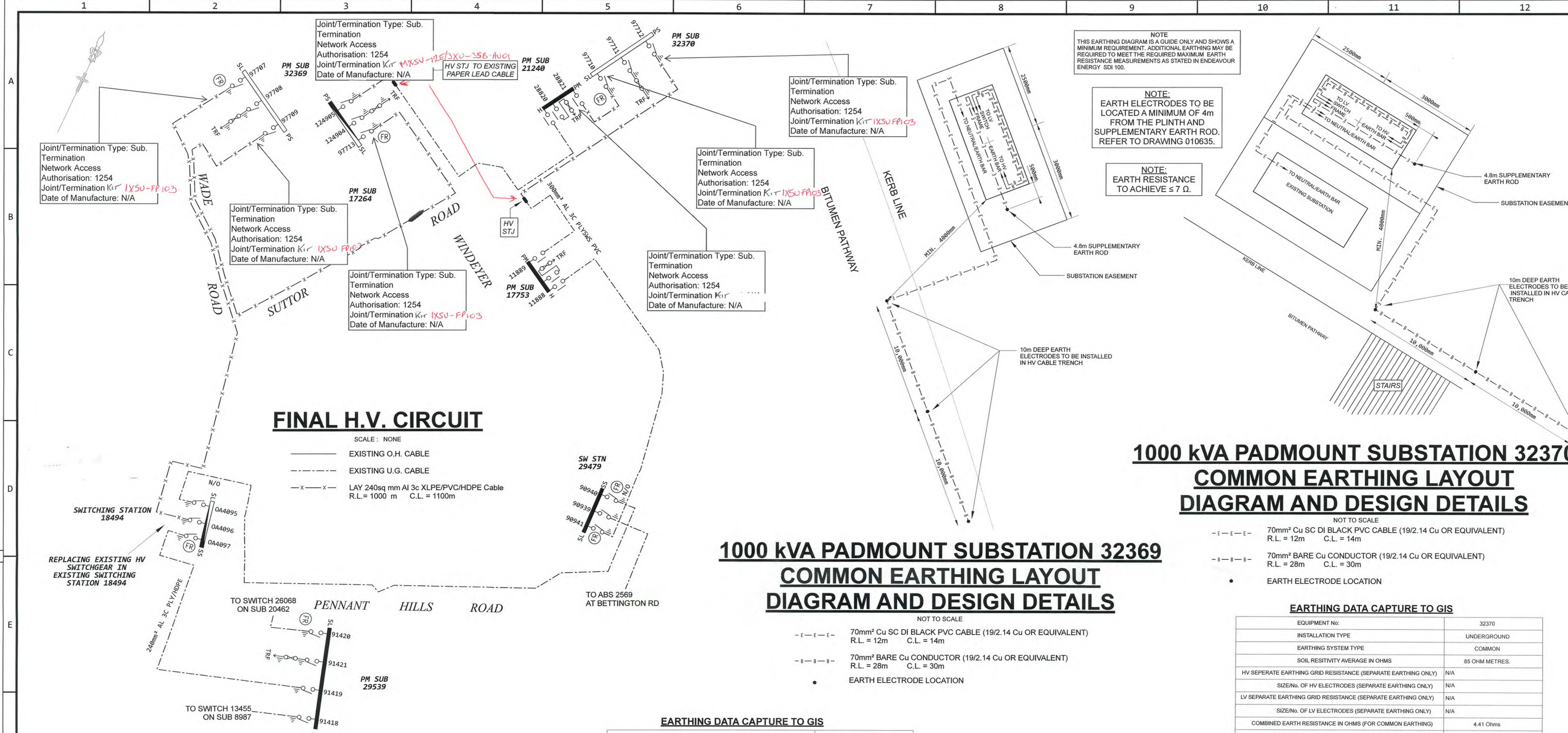
FILE No.	DATE	SCALE
2011/01264/001	05/06/2012	1:1000 OR AS SHOWN

"THE KINGS SCHOOL" PENNANT HILLS ROAD NORTH PARRAMATTA UCL5307 CONNECTION OF LOAD

Endeavour Energy

A1 378429 B

SHEET No 1 OF 3 SHEETS



FINAL H.V. CIRCUIT

SCALE: NONE
 ——— EXISTING O.H. CABLE
 - - - - - EXISTING U.G. CABLE
 - x - x - LAY 240sq mm Al 3c XLPE/PVC/HDPE Cable
 R.L.= 1000 m C.L.= 1100m

**1000 kVA PADMOUNT SUBSTATION 32370
 COMMON EARTHING LAYOUT
 DIAGRAM AND DESIGN DETAILS**

- NOT TO SCALE
- - - - - 70mm² Cu SC DI BLACK PVC CABLE (19/2.14 Cu OR EQUIVALENT)
R.L. = 12m C.L. = 14m
 - - - - - 70mm² BARE Cu CONDUCTOR (19/2.14 Cu OR EQUIVALENT)
R.L. = 28m C.L. = 30m
 - EARTH ELECTRODE LOCATION

**1000 kVA PADMOUNT SUBSTATION 32369
 COMMON EARTHING LAYOUT
 DIAGRAM AND DESIGN DETAILS**

- NOT TO SCALE
- - - - - 70mm² Cu SC DI BLACK PVC CABLE (19/2.14 Cu OR EQUIVALENT)
R.L. = 12m C.L. = 14m
 - - - - - 70mm² BARE Cu CONDUCTOR (19/2.14 Cu OR EQUIVALENT)
R.L. = 28m C.L. = 30m
 - EARTH ELECTRODE LOCATION

EARTHING DATA CAPTURE TO GIS

EQUIPMENT No:	32369
INSTALLATION TYPE	UNDERGROUND
EARTHING SYSTEM TYPE	COMMON
SOIL RESISTIVITY AVERAGE IN OHMS	85 OHM METRES.
HV SEPERATE EARTHING GRID RESISTANCE (SEPERATE EARTHING ONLY)	N/A
SIZE/No. OF HV ELECTRODES (SEPERATE EARTHING ONLY)	N/A
LV SEPERATE EARTHING GRID RESISTANCE (SEPERATE EARTHING ONLY)	N/A
SIZE/No. OF LV ELECTRODES (SEPERATE EARTHING ONLY)	N/A
COMBINED EARTH RESISTANCE IN OHMS (FOR COMMON EARTHING)	4.41 Ohms
SIZE/No. OF COMBINED ELECTRODES (COMMON EARTHING)	10m / 3
SIZE/No. OF THE SUPPLEMENTARY ELECTRODE	4.8m / 1
BONDING CONDUCTOR SIZE IN SSMM (INSULATED/BARE)	70mm ² BLACK SDI Cu CONDUCTOR (19/2.14 Cu OR EQUIVALENT)
CONNECTION TYPE (CAD OR CRIMP)	CAD
AMBIENT TEMP/WEATHER CONDITION	22°C
DATE OF SOIL TEST	25/7/13
INSULATED DEPTH FROM GROUND LEVEL (IN METRES)	N/A
LENGTH OF MEN CONNECTION CABLE IN METRES	N/A
TOTAL LENGTH OF EARTH ELECTRODE SYSTEM CABLE (INCL. INSULATED AND BARE IN METRES)	27 m
MEASURED EARTH RESISTANCE IN OHMS (BY L1 ASP ON COMMISSIONING)	Ohms

EARTHING DATA CAPTURE TO GIS

EQUIPMENT No:	32370
INSTALLATION TYPE	UNDERGROUND
EARTHING SYSTEM TYPE	COMMON
SOIL RESISTIVITY AVERAGE IN OHMS	85 OHM METRES.
HV SEPERATE EARTHING GRID RESISTANCE (SEPERATE EARTHING ONLY)	N/A
SIZE/No. OF HV ELECTRODES (SEPERATE EARTHING ONLY)	N/A
LV SEPERATE EARTHING GRID RESISTANCE (SEPERATE EARTHING ONLY)	N/A
SIZE/No. OF LV ELECTRODES (SEPERATE EARTHING ONLY)	N/A
COMBINED EARTH RESISTANCE IN OHMS (FOR COMMON EARTHING)	4.41 Ohms
SIZE/No. OF COMBINED ELECTRODES (COMMON EARTHING)	10m / 3
SIZE/No. OF THE SUPPLEMENTARY ELECTRODE	4.8m / 1
BONDING CONDUCTOR SIZE IN SSMM (INSULATED/BARE)	70mm ² BLACK SDI Cu CONDUCTOR (19/2.14 Cu OR EQUIVALENT)
CONNECTION TYPE (CAD OR CRIMP)	CAD
AMBIENT TEMP/WEATHER CONDITION	22°C
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TOTAL LENGTH OF EARTH ELECTRODE SYSTEM CABLE (INCL. INSULATED AND BARE IN METRES)	27 m
MEASURED EARTH RESISTANCE IN OHMS (BY L1 ASP ON COMMISSIONING)	Ohms

CERTIFIED BY ENDEAVOUR ENERGY
 Amendment: B
 Date Approved: 19/11/2013
 Examiner's Signature: *Eugene Lorenzo*
 Print Name: Eugene Lorenzo
 This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED / FIELD BOOK
 CONSTRUCTED BY: Salem Power Engineering
 WORKS COMPLETED: Salem Power Engineering
 NAME: 13.1.14
 SIGNED: DATE

INSPECTED BY: *G. KOVACIC*
 NAME: 13/12/14
 SIGNED: DATE

UNDERGROUND ASSETS
 INSTALLED BY: Salem Power Engineering
 RECORDED BY: 9674 8773
 CONTACT No. 13.1.14
 SIGNED: DATE

DESIGN COMPLIANCE AND INDEMNITY
 This design complies with Endeavour Energy's relevant standards as current at this time and as listed on the Endeavour Energy Accredited Service Provider's Internet site. These standards include, but are not limited to:

- GT&C: General Terms and Conditions
- EMS: Environmental Management Standard
- MCI: Mains Construction Instruction
- MDI: Mains Design Instruction
- PDI: Protection Design Instruction
- SDI: Substation Design Instruction
- SAD 0001: Design Drawing Standard
- MMI: Mains Maintenance Instruction
- SMI: Substation Maintenance Instruction
- LDI 0001: Public lighting Electrical Design Element

Additionally, where relevant, the design complies with C(b)-1 "Guideline for Design and Maintenance of Overhead Distribution and Transmission Lines" published by ESAA and other relevant Australian Standards.

Connect Design Pty Ltd indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed: Josh Caruana
 Service Provider Number - 1104 Date: 19/11/13

AMENDMENTS	ORIGINAL	ISSUE
A	DRN	B.P.
B	DATE	19/11/13
	CHD	G.B.
	DATE	19/11/13
	DATE	19/11/13
	DATE	19/11/13
	DATE	19/11/13

connect Infrastructure
 Connect Design Pty Ltd
 Electrical Infrastructure Consultancy, Design & Construction
 Tel: 02 9733 3333
 Fax: 02 9733 3330
 Email: mail@connecteng.com.au
 6 Progress Cct, Prestons NSW 2170
 PO Box 484, Casula Mail NSW 2170

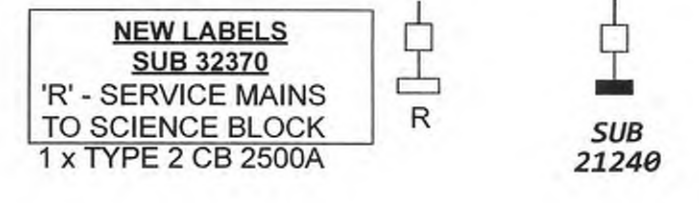
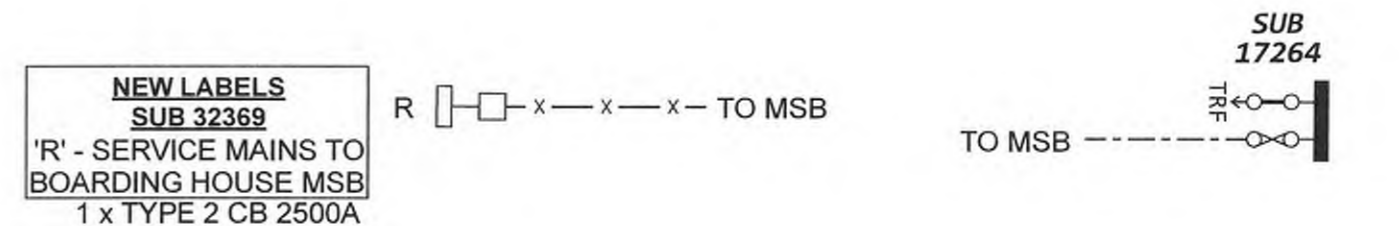
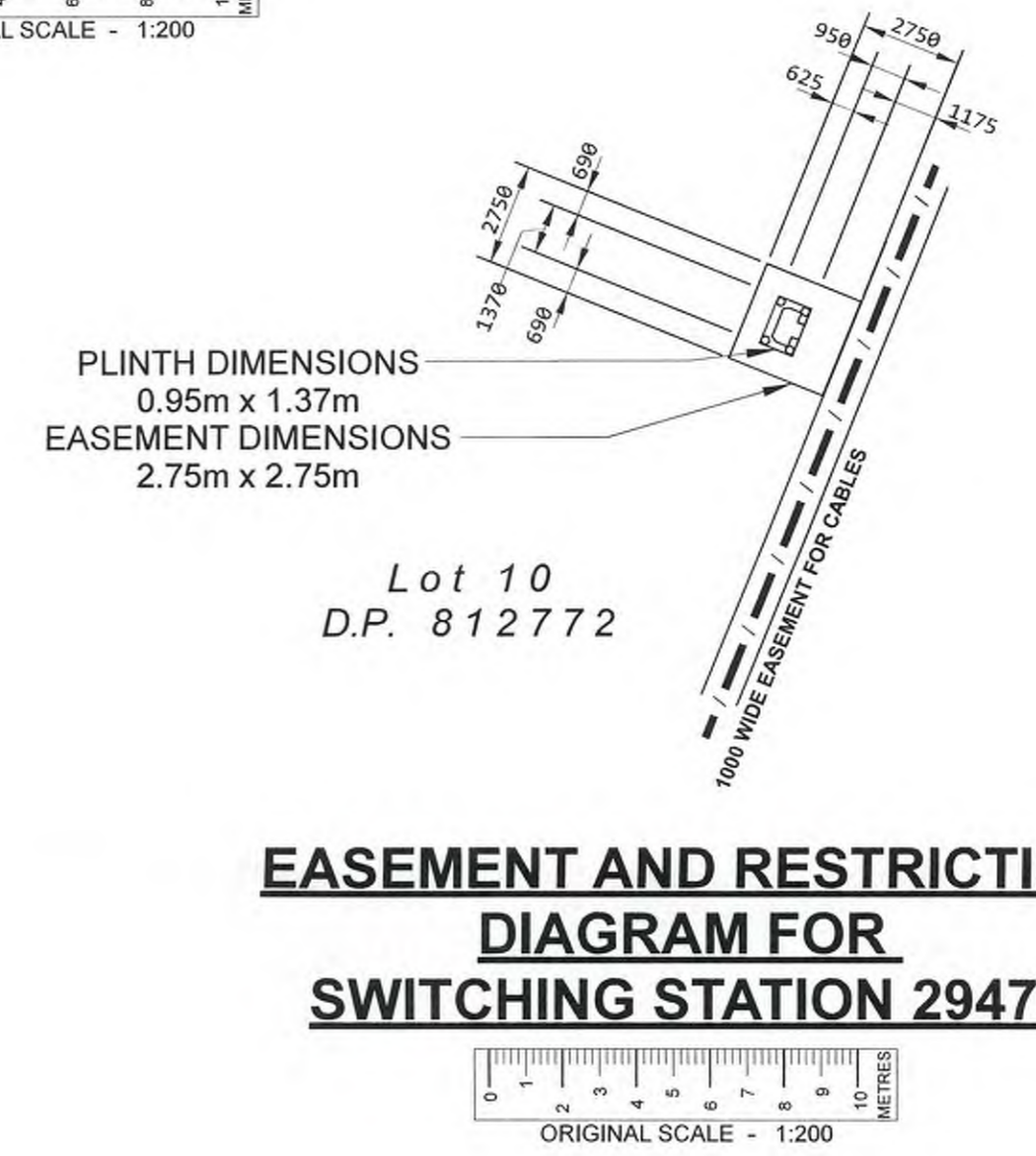
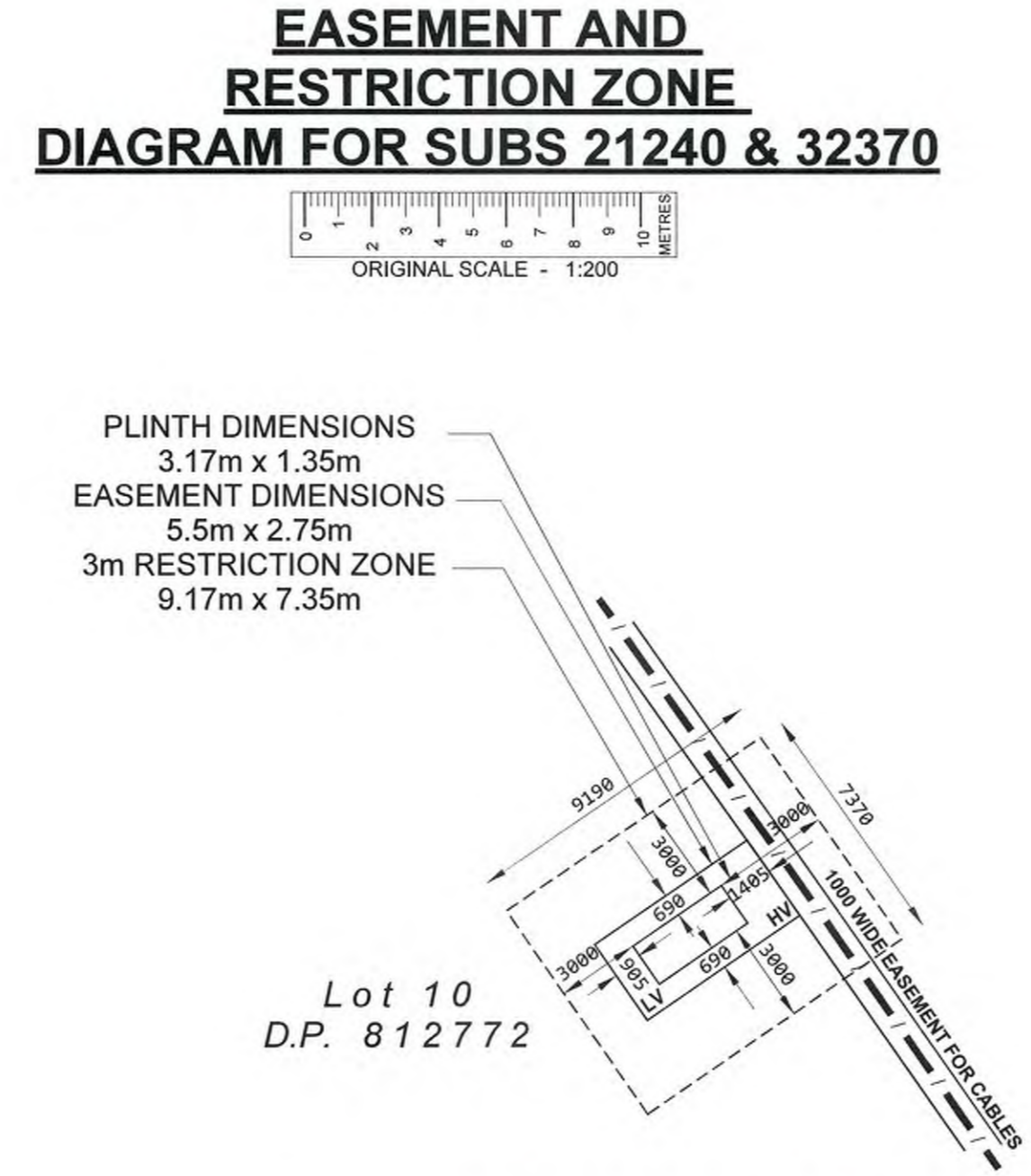
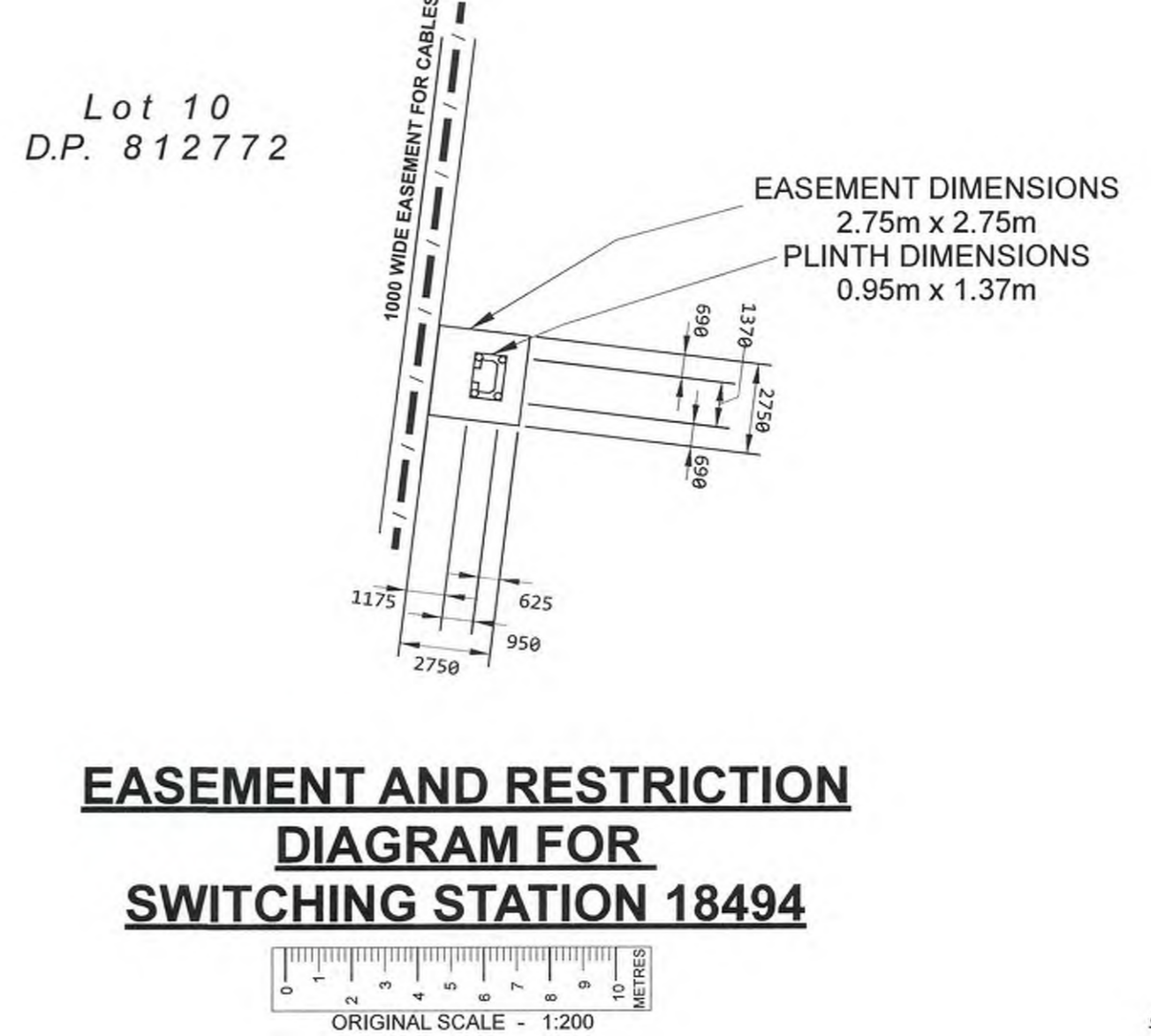
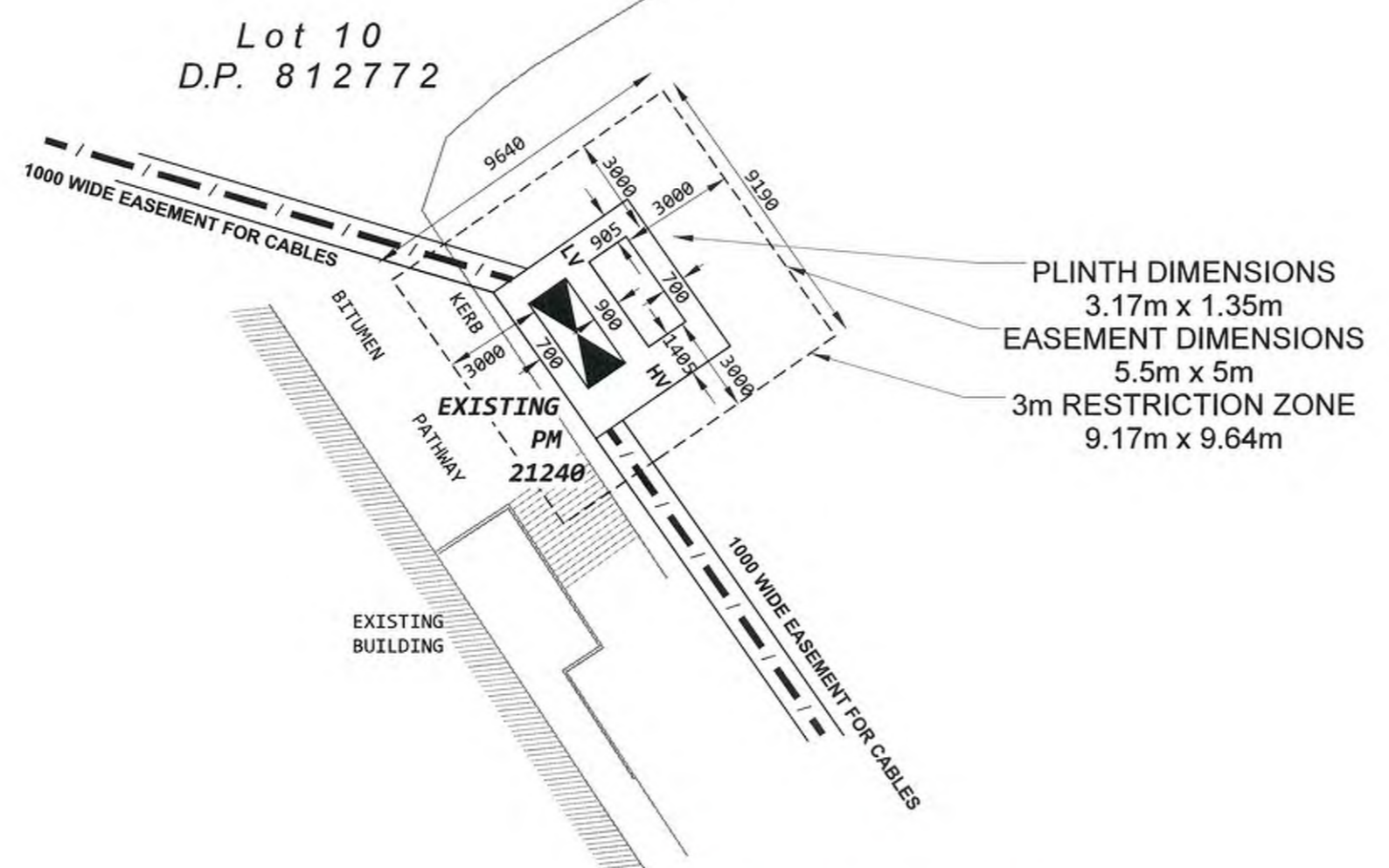
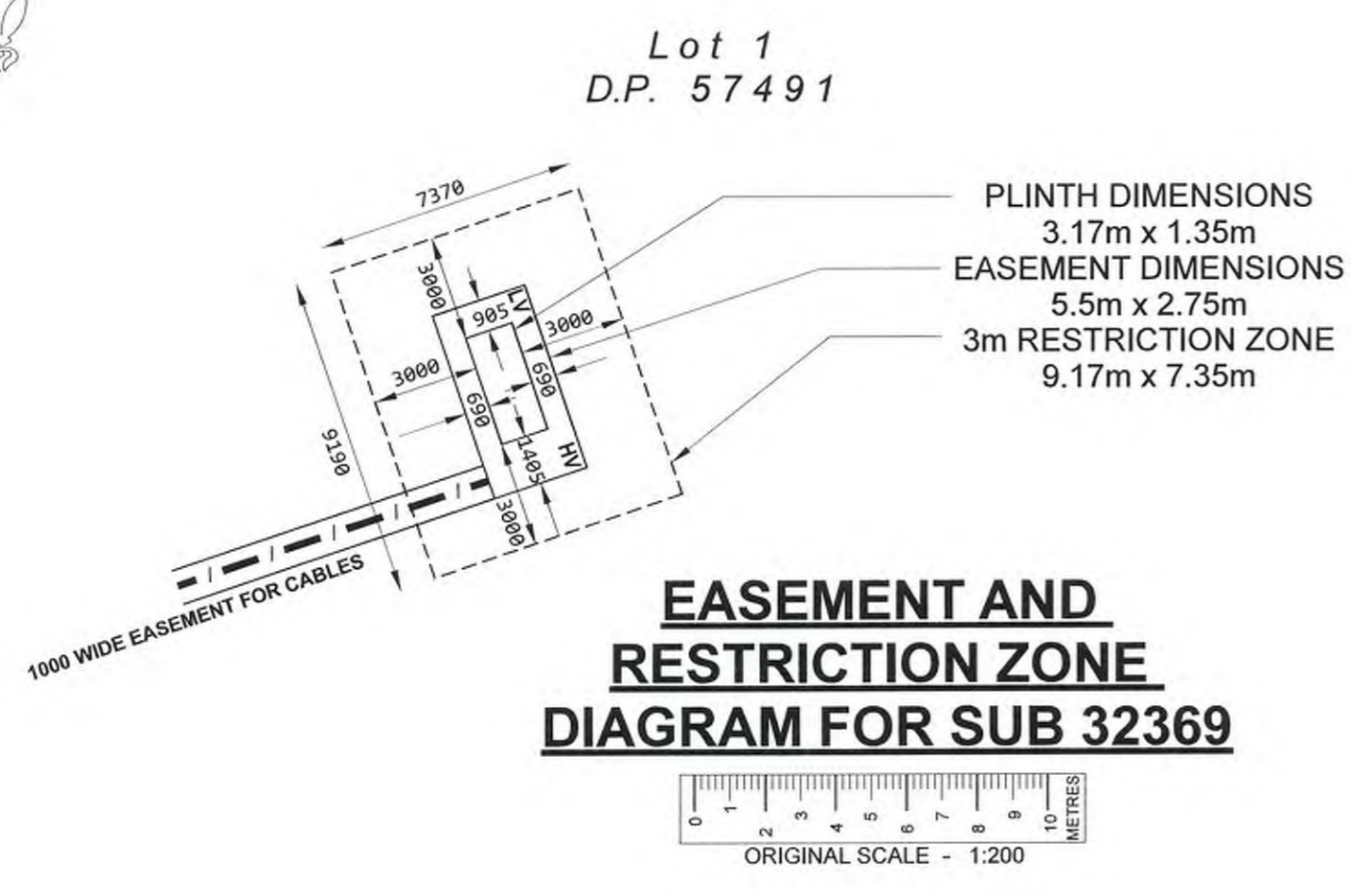
connect REF. NUMBER	PROJECT No.	FILE No.	2011/
P130	HV SWITCHING	LG AREA	THE HILLS SHIRE
E2-08	OVERHEAD MAINS	GIS MAP No	0052 12
	UNDERGROUND	UBD MAP REF	MAP 191 J7
	SUBSTATIONS	HV OP DIAG	DUNDAS2 / Z13
		EE REGION	NORTHERN

"THE KINGS SCHOOL"
 PENNANT HILLS ROAD
 NORTH PARRAMATTA
 UCL5307
 CONNECTION OF LOAD

Endeavour Energy

A1 378429 B

SHEET No 2 OF 3 SHEETS



FINAL L.V. CIRCUIT

SCALE: NONE

----- EXISTING U.G. CABLE

-x-x-x- SERVICE MAINS - BY ASP2

DESIGN COMPLIANCE AND INDEMNITY
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SDI: Substation Design Instruction
SAD 0001: Design Drawing Standard
MMI: Mains Maintenance Instruction
SMI: Substation Maintenance Instruction
LDI 0001: Public lighting Electrical Design Element

Additionally, where relevant, the design complies with C(b) -1 "Guideline for Design and Maintenance of Overhead Distribution and Transmission Lines" published by ESAA and other relevant Australian Standards.

Connect Design Pty Ltd indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed: *[Signature]* Name: Josh Caruana
Service Provider Number - 1104 Date: 19/11/13

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: B
Date Approved: 19/11/2013
Examiner's Signature: *[Signature]*
Print Name: Eugene Lorenzo

This Certification is issued subject to Endeavour Energy's Standard Certification Terms

WORKS COMPLETED / FIELD BOOK

CONSTRUCTED BY: Salem Power Engineering

WORKS COMPLETED

NAME	DATE
S. [Signature]	13.11.14

INSPECTED BY: *G. Kovacic*
NAME: G. KOVACIC
DATE: 17/11/14

UNDERGROUND ASSETS

INSTALLED BY: Salem Power Engineering

RECORDED BY: [Signature]
CONTACT No. 96748773
DATE: 13.11.14

AMENDMENTS	ORIGINAL ISSUE	DATE	BY
A	DRN	19/11/13	B.P.
B	CHD	19/11/13	G.B.

- REPLACE THE EXISTING SWITCHING STATION 18494-HIGH VOLTAGE SWITCHGEAR

connect
INFRASTRUCTURE

Connect Design Pty Ltd
Electrical Infrastructure Consultancy, Design & Construction

Tel : 02 9733 3333
Fax : 02 9733 3330
Email : mail@connecteng.com.au

6 Progress Cct, Prestons NSW 2170
PO Box 484, Casula Mall NSW 2170

connect REF. NUMBER	REFERENCE DRAWINGS	Project No.	FILE No.
P130 E3-08	HV SWITCHING OVERHEAD MAINS UNDERGROUND SUBSTATIONS		2011/01264/001 THE HILLS SHIRE 0052 12 MAP 191 J7 DUNDAS 2 / Z13 NORTHERN

ORIGINAL SCALE	DO NOT SCALE
1:1000 OR AS SHOWN	DIMENSIONS IN METRES
DRAWN: ENRICO CASAOL DATE: 05-06-2012 CH'D: GARRY BEATON	DESIGN: Josh Caruana

**"THE KINGS SCHOOL"
PENNANT HILLS ROAD
NORTH PARRAMATTA
UCL5307
CONNECTION OF LOAD**

Endeavour Energy

A1 378429 B

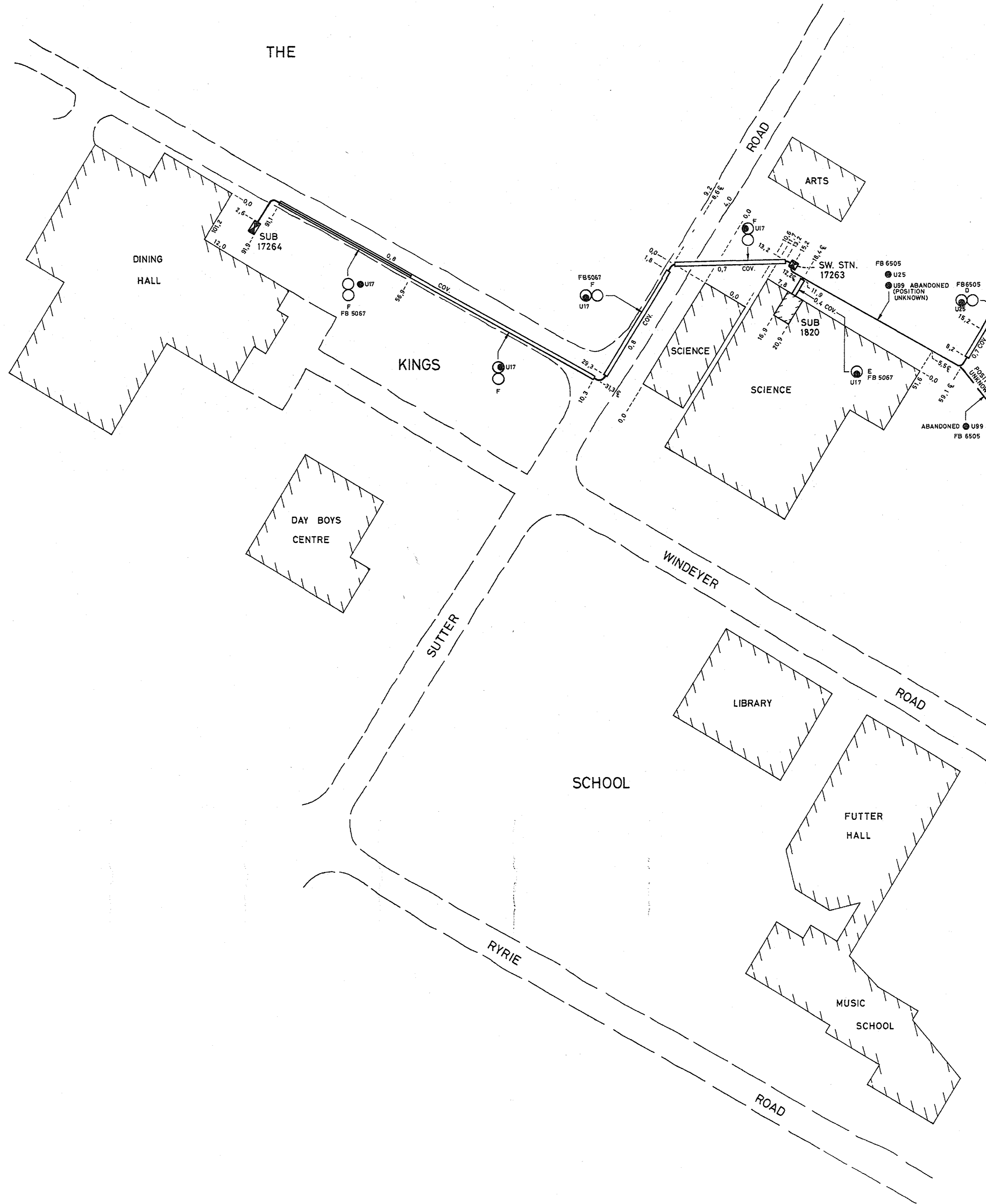
SHEET No 3 OF 3 SHEETS

1 260 313 N
302 250 E

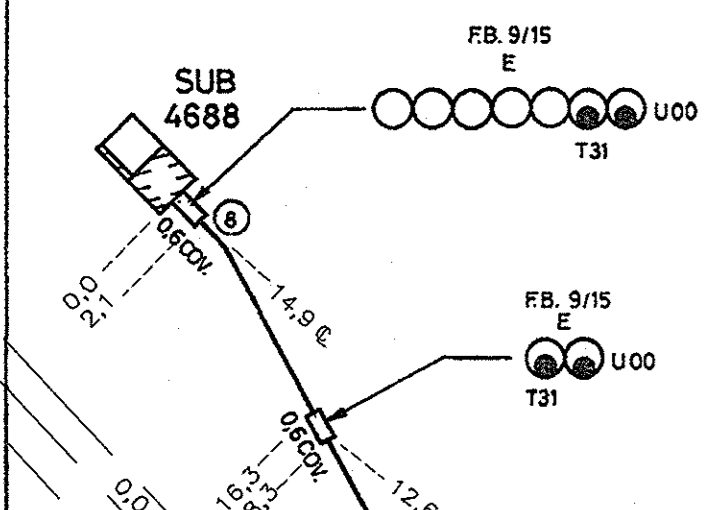
NOTES:
1. CABLES 0.6 FROM PROPERTY LINE, 0.6 COVER UNLESS OTHERWISE SHOWN.
2. LENGTHS IN METRES.

CABLE LEGEND		DUCT LEGEND	
SL	STREET LIGHT CONDUCTOR	B	50 PVC CONDUIT
SC	SERVICE CABLE	C	100 PVC CONDUIT
		D	125 PVC CONDUIT
		E	100 FIBRO CONDUIT
		F	140 FIBRO CONDUIT

CABLE SCHEDULE			
CODE	TYPE	CODE	TYPE
U12	150 mm 11 kV AL PLYSWS	T26	50 mm LV PVC PVC
U13	150 mm 11 kV AL XLPE	T30	150 mm LV AL XLPE
U17	240 mm 11 kV AL PLYSWS	T53	185 mm LV AL XLPE
U18	4 SQ IN 11 kV AL PLYSWS	T52	240 mm LV AL XLPE
U24	300 mm 11 kV AL PLYSWS	T57	240 mm LV AL PLYSWS
U25	300 mm 11 kV AL PLYSWS/PVC	T64	4 SQ IN LV AL PLYSWS
U64	120 mm 11 kV AL PLYSWS	T31	15 SQ IN LV C PLYSWS
U99	UNKNOWN 11 kV	T99	UNKNOWN LV
U00	0225 SQ IN 11 kV C PLYSWS		



SCANNED



ENDEAVOUR ENERGY WARNING

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Persons excavating are expected to exercise all due care in the vicinity where cables are indicated and will be held responsible for any damage caused to Endeavour Energy's property.

All electrical apparatus shall be considered live until proved de-energised. Contact with live electrical apparatus will cause severe injury or death.

Underground assets may be congested at the approach to bridges and other structures. Typical asset depths and alignment may vary substantially, rising and falling sharply and at much shallower depths than elsewhere as they are channelled into shared allocated spaces on bridges and other structures. Additional precautions and underground asset location methods will be required in proximity to bridges and other structures.

Those excavating near Endeavour Energy's cables should be aware that ASBESTOS OR ASBESTOS - CONTAINING MATERIAL MAY BE PRESENT in Endeavour Energy's underground assets and that Organo-Chloride Pesticides (OCP) may be present in some sub-transmission trenches.

Non-destructive water excavation must be operated at or below 2000PSI. Any operation exceeding 2000PSI must be classed and treated as a destructive excavation practice.

1 260 000 N

NO.	LOCATION	DR	N	CH	D	DATE
9138	THE KINGS SCHOOL	W.P.	W.R.			13.10.92
4/21-23	THE KINGS SCHOOL	W.P.	W.R.			13.10.92
9/15	THE KINGS SCHOOL	W.P.	W.R.			13.10.92

AMENDMENTS						
NO.	LOCATION	DR	N	CH	D	DATE

THE PROSPECT COUNTY COUNCIL
U.G. RETICULATION
CARLINGFORD

DRAWN	G.S.M.	SCALE	DATE
CHECKED	D.L.B.	1: 500	30/6/88
CO-ORD		0060 - 7.4.3.4	Pa.
D'SERV.			

own use. Endeavour Energy has taken all reasonable steps to ensure that the information is accurate as possible but will accept no liability for inaccuracies in the information shown on such plans from any cause whatsoever arising.

Persons excavating are expected to exercise all due care in the vicinity where cables are indicated and will be held responsible for any damage caused to Endeavour Energy's property.

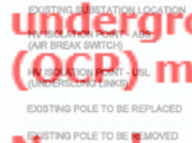
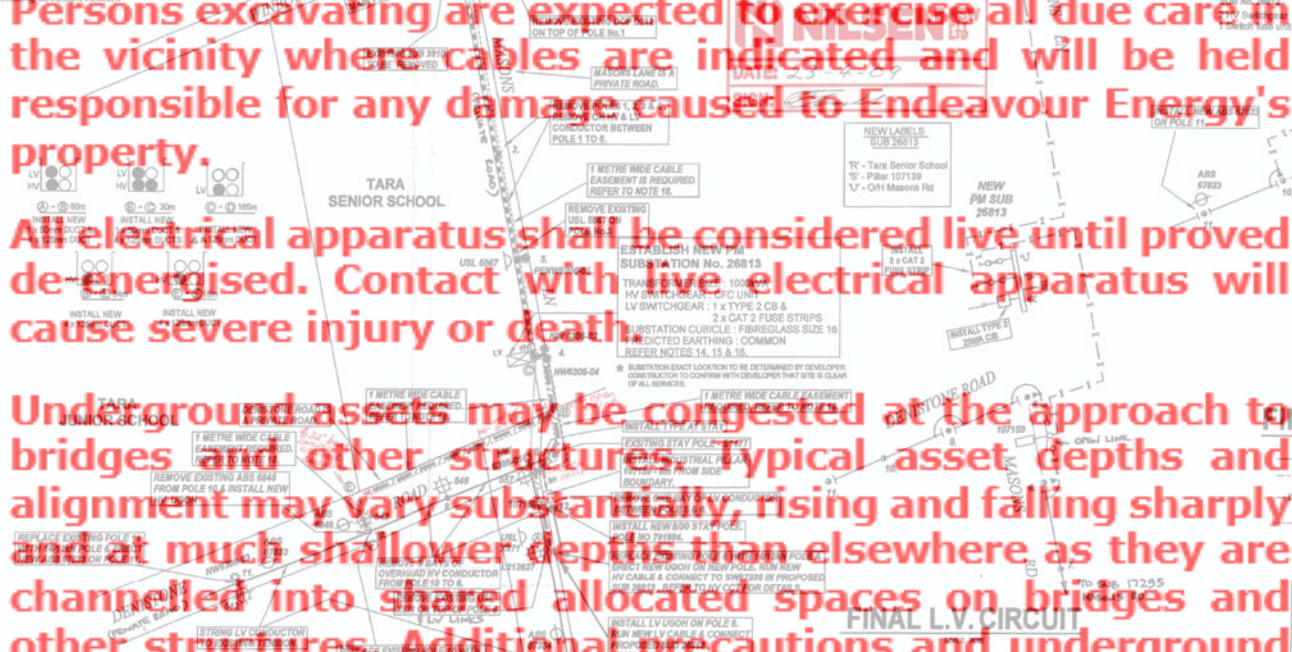
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Note -
1. All electrical apparatus shall be considered live until proved de-energised.
2. Contact with live electrical apparatus will cause severe injury or death.
3. The lighting circuit is not to be connected to Integrals.
4. The lighting circuit is not to be connected to Integrals.



- ### ATTENTION IMPORTANT NOTES
- THIS DRAWING TO BE READ IN CONJUNCTION WITH INTEGRAL ENERGY'S NETWORK STANDARDS AND THE GENERAL TERMS AND CONDITIONS.
 - ALL SERVICE WORK TO BE INSTALLED IN ACCORDANCE WITH AS3000:2008 AND THE NEW SERVICE AND INSTALLATION RULES.
 - THE PREPARATION OF THIS DESIGN, HAS BEEN UNDERTAKEN GIVING DUE CONSIDERATION TO THE EXISTING SERVICES. THE PROJECT CONTRACTOR IS, HOWEVER, WHOLLY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF EXISTING SERVICES AND PERMANENT SURVEY MARKS BEFORE CONSTRUCTION COMMENCES, AND NO RESPONSIBILITY NOR LIABILITY WILL BE ACCEPTED BY THE DESIGNER OF THIS PROJECT FOR DAMAGE TO EXISTING SERVICES AS A RESULT OF THIS DESIGN AND/OR POLE POSITIONING.
 - UNLESS APPROVED OTHERWISE, INTERRUPTIONS TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
 - MOBILE GENERATORS OR SUBSTATIONS
 - LINE WORK
 - DESIGN ALTERNATIVES
 - WORK PRACTICES/STANDARDS
 - LOW VOLTAGE PARALLELS
 - THE COST IS TO BE FUNDED BY THE CUSTOMER/DEVELOPER.
 - PERMANENT SURVEY MARKS MAY EXIST IN THIS AREA. THESE ARE TO BE LOCATED BY A SURVEYOR PRIOR TO COMMENCEMENT OF WORK.
 - ALL SERVICES SEARCHES MUST BE CHECKED BEFORE CONSTRUCTION.
 - LIVE INTEGRAL ENERGY CABLES & SERVICES IN THIS AREA. LOCATE PRIOR TO DIGGING. CONTACT DIAL BEFORE YOU DIG! TELEPHONE 1100 FOR SERVICES TWO DAYS PRIOR TO EXCAVATION.
 - TELSTRA AND OPTUS TO BE NOTIFIED OF PROPOSED WORK PRIOR TO CONSTRUCTION. CONTACTS: TELSTRA - STEVE HUGGETT (9377 9625 PH) 1500 507 573 (FAX) 8004107@inet.telstra.com (EMAIL) OPTUS - CHRIS STEELE (9737 9625 PH) 8737 9625 (FAX) 8004124 394 (M)
 - SERVICE PROVIDER TO NOTIFY INTEGRAL ENERGY NETWORK DATA DAILY WHEN CABLE WORKS IS IN PROGRESS. TELEPHONE 131 091.
 - DESIGN CERTIFICATION SHALL LAPSE WHERE:
 - (i) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN SIX (6) MONTHS OF THIS CERTIFICATION, OR
 - (ii) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN SIX (6) MONTHS. WHERE DESIGN CERTIFICATION HAS LAPSED, THE DESIGN MUST BE REQUALIFIED FOR CERTIFICATION BY THE ACCREDITED LEVEL 3 SERVICE PROVIDER.
 - INTEGRAL ENERGY MATERIALS TO BE RETURNED TO CLOSEST INTEGRAL ENERGY DEPOT.
 - DO NOT PLACE ANY RELIANCE ON ANY QUANTITIES OR DIMENSIONS GIVEN IN THIS DRAWING. QUANTITIES AND DIMENSIONS GIVEN ON THIS DRAWING ARE BASED ON DESIGN INFORMATION AND SITE CONDITIONS AT THE TIME OF DESIGN. AS QUANTITIES AND DIMENSIONS ARE SUBJECT TO CHANGE, THE BUILDER OF THIS PROJECT MUST CHECK ALL QUANTITIES AND DIMENSIONS ON SITE PRIOR TO TENDERING AND PRIOR TO CONSTRUCTION.
 - SUBSTATION TO BE INSTALLED IN ACCORDANCE WITH 601.104.
 - AN EASEMENT OF A MINIMUM OF 5.5 METRES & 2.75 METRES IS REQUIRED OVER THE SUBSTATION SITE. THIS EASEMENT IS A MINIMUM SIZE ONLY AND WILL NEED TO BE INCREASED TO CATER FOR OTHER SERVICES. SUBSTATION EASEMENT AND RESTRICTION ZONE REQUIRED REFER DETAIL.
 - SUBSTATION MUST BE LOCATED MORE THAN 5m FROM TELSTRA PITS.
 - EARTHING OF THE SUBSTATION TO BE CARRIED OUT IN ACCORDANCE WITH INTEGRAL ENERGY DCI 100. COMMON EARTHING PREFERRED AND PREFERRED.
 - CONTRACTOR TO CONFIRM FINISHED GROUND LEVELS WITH DEVELOPER PRIOR TO COMMENCING CONSTRUCTION.
 - 1 METRE WIDE CABLE EASEMENT IS REQUIRED INSIDE THE CUSTOMER'S PROPERTY AS PER SITE PLAN - IN LINE WITH INTEGRAL ENERGY AUSTRALIA.

Design Compliance and Indemnity

This design complies with Integral Energy's relevant standards as current at the time and as listed on the Integral Energy Accredited Service Provider's internet site. These standards include, but are not limited to:

- General Terms and Conditions
- Environmental Management Standard
- Main Construction Instruction
- Main Design Instruction
- Protection Design Instruction
- Substation Design Instruction
- Design Drawing Standard
- Main Maintenance Instruction
- Substation Maintenance Instruction

Additionally, when relevant, the design complies with:

- AS/NZS 4439:2004 (Code of Practice for Design and Maintenance of Overhead Distribution and Transmission Lines) published by EASA and other relevant Australian Standards.

Contract Design Pty Ltd indemnifies Endeavour Energy for any loss of damage resulting from non-compliance of the design with the above standards.

Signature: *Michael Adams*
 Name: Michael Adams
 Service Provider Number: 1104 Date: 02/03/2022

WORKS COMPLETED

FILED IN: NLS/EN

CONTRACTED BY: NLS/EN

WORKS COMPLETED BY: D. Daniels

DATE: 23-4-09

IMPORTED BY: D. Daniels

DATE: 23-4-09

FORWARDED TO: CONTRACTOR

NON-ADMINISTRATIVE

LOCATION: MASON'S LN

DATE: 23-4-09

NEW POLE NUMBER	FIELD POLE NUMBER	FIELD POLE TYPE	EXISTING	RELOCATE	RELOCATE LANTERN	RELOCATE BRACKET	RELOCATE LENGTH	RELOCATE DIAMETER	RELOCATE DEPTH	RELOCATE TYPE	RELOCATE DATE	RELOCATE NUMBER
719164	48											
719165	49	X										
719166	50	X										
719167	51	X										
719168	52	X										
719169	53	X										
719170	54	X										
719171	55	X										
719172	56	X										
719173	57	X										
719174	58	X										
719175	59	X										
719176	60	X										
719177	61	X										
719178	62	X										
719179	63	X										
719180	64	X										
719181	65	X										
719182	66	X										
719183	67	X										
719184	68	X										
719185	69	X										
719186	70	X										

ASP Level 1 Electrical Works	Customer Funded Non-Contestable works	Customer Funded Contestable works	Customer Funded
<ul style="list-style-type: none"> 1 x 1000 kVA Transformer Integral Energy Funded and Constructed Replace Pole 1 Supply Install ABS on Pole 7. (Op Quins Provision) (As per the Letter sent by E's OMS) Integral Energy Funded and ASP L1 Constructed Reimbursement 	<ul style="list-style-type: none"> Inspection and Access Authority System Reliability Provision of Access Authority (As per the Letter sent by E's OMS) Customer Funded Contestable works All other works and materials including but not limited to: <ul style="list-style-type: none"> Installation and establishment of the Pin substation Trenching Underdrains Duct installation Cable laying and/or installation Jacking Overhead installation 	<ul style="list-style-type: none"> Includes but not limited to: <ul style="list-style-type: none"> Provision of assessments, property boundaries & infrastructure locations Relocating of assessments Providing site access Construction & service coordination Confirm finished ground levels Co-ordination Supply Requisition Data (To be confirmed with Project Manager) Date: APRIL 2008 Material Reimbursement to Recover Integral Energy Work Order by Level 1 ASP 1 x 1000VA Transformer 1 x Type 1 CB 5 x Taper Pole 2 x 25mm Metal Hable Lights & Brackets 2 x 400V Metal Hable Lights & Brackets 	<ul style="list-style-type: none"> 330m - C-D INSTALL 12mm wires @ \$14m = \$4620

NEW POLE NUMBER	FIELD POLE NUMBER	FIELD POLE TYPE	EXISTING	RELOCATE	RELOCATE LANTERN	RELOCATE BRACKET	RELOCATE LENGTH	RELOCATE DIAMETER	RELOCATE DEPTH	RELOCATE TYPE	RELOCATE DATE	RELOCATE NUMBER
719164	48											
719165	49	X										
719166	50	X										
719167	51	X										
719168	52	X										
719169	53	X										
719170	54	X										
719171	55	X										
719172	56	X										
719173	57	X										
719174	58	X										
719175	59	X										
719176	60	X										
719177	61	X										
719178	62	X										
719179	63	X										
719180	64	X										
719181	65	X										
719182	66	X										
719183	67	X										
719184	68	X										
719185	69	X										
719186	70	X										

DATE: 02/03/2023 BY: D. Daniels Sequence No: 221830202

WAC 0903612 AA 4-05-2009

CONTRACT ENGINEERING PTY LTD
 11000 OAK ST
 NORTH ROCKS NSW 2151
 TEL: 9733 3330
 FAX: 9733 3330
 EMAIL: info@connect.com.au

CONTRACT REF NUMBER: H453B E1-11

REFERENCE DRAWINGS: ORIGINAL SCALE 1:1000 OR AS SHOWN SHEET 1 OF 1 A1 I.E. DRG No. 318848

PROJECT: MASON'S LANE (OFF MASON'S ROAD) NORTH PARRAMATTA (TARA SENIOR SCHOOL) UCL4129 CONNECTION OF LOAD

NOTES

- IT IS EXPECTED THAT COMMON EARTHING WILL MEET THE NEEDS OF SDI 100 HOWEVER THE LEVEL 1 SERVICE PROVIDER MUST CHECK TO VERIFY THAT ALL REQUIREMENTS ARE MET. IN ACCORDANCE WITH IE SDI 100 AND SDI 104 - IF LESS THAN 1 OHM CANNOT BE ACHIEVED UTILISING HV CABLE SHEATHS WITH INTERCONNECTION WITH AT LEAST 5 OTHER SUBSTATIONS THEN A SEPARATE EARTH OR LV CABLE MAY NEED TO BE INSTALLED FROM THE SUB TO THE STREET. HENCE A RE-DESIGN MAY BE REQUIRED AT THAT TIME. IT IS THEREFORE RECOMMENDED THAT SUITABLE EARTH TESTS BE CARRIED OUT BY THE L1SP PRIOR TO COMMENCING WORK TO DETERMINE IF SUCH CABLING IS REQUIRED.
- OPERATIONAL LIMITATIONS** UNLESS APPROVED OTHERWISE, INTERRUPTIONS TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
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 - THE COST TO BE FUNDED BY THE CUSTOMER
- THE LOCATION OF THE EXISTING UG HV CABLE IS UNCERTAIN. STEPS SHOULD BE TAKEN BY THE LEVEL 1 SERVICE PROVIDER TO LOCATE IT PRIOR TO CARRYING OUT ANY CONSTRUCTION WORK ALONG WITH ANY OTHER SERVICES.
- THIS CABLE MAY BE 150MMsq PLYSWS. IF THE CABLE CANNOT BE CUT & TURNED INTO NEW SUB THEN A TTJ MAY BE NEEDED TO A LENGTH OF 240mm 2 HV XLPE CABLE INTO THE SUB.

- AN EASEMENT FOR EARTHING IS REQUIRED TO BE CREATED BY THE CUSTOMER IN FAVOUR OF INTEGRAL ENERGY AND MUST ENCOMPASS THE INSTALLED EARTHING INSTALLATION OUTSIDE OF THE PADMOUNT SUBSTATION EASEMENT.
- EARTHING SHOULD BE IN ACCORDANCE WITH SDI 100 CL. 5.7.1. THIS MEANS THAT A EARTH OF 30 OHMS FOR BOTH HV AND LV MUST BE OBTAINED. THIS SHOULD BE POSSIBLE BY INSTALLING 4 X 4.8M RODS ON THE HV AND LV SIDE. THEN UNLESS AN EARTH RESISTANCE OF LESS THAN 1 OHM TO REMOTE EARTH CAN BE ACHIEVED UTILISING HV CABLE SHEATHS THE EARTHING DESIGN SHOWN HERE MAY NEED TO BE INSTALLED OR A SEPARATE EARTHING CONDUCTOR OR LV CABLE WILL NEED TO BE INSTALLED BACK TO THE STREET AND THIS MAY INVOLVE A REVISION OF THE OVERALL PROJECT DESIGN

ESTABLISH 1000kVA PM 11KV SUBSTATION No. 26312
HV SW/GR: 11KV CFC SAFELINK

11 kV HV CIRCUIT -- N.T.S

LAY 240 mm²- 11 Kv 3c AL XLPE CABLE

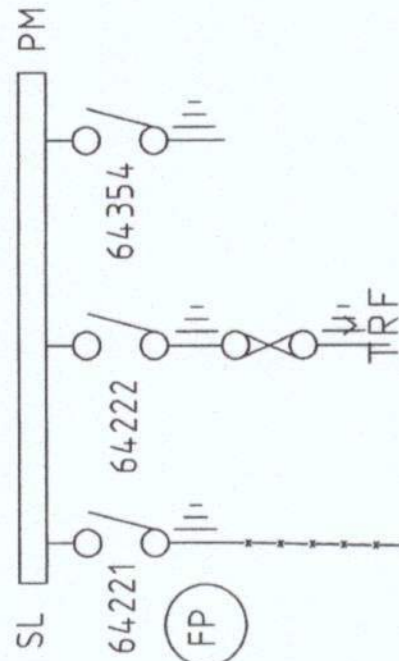
RL. 20M CL 25M (SUBJECT TO EXISTING CABLE LOCATION SEE NOTES 3 & 4)

EXISTING HV CABLE

REFER TO NOTES 3 & 4.

TO SW 13456 IN SUB 8987

NEW PM SUB No. 26312.



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(ESTIMATED EARTHING REQUIREMENTS (FOR QUOTING PURPOSES ONLY))

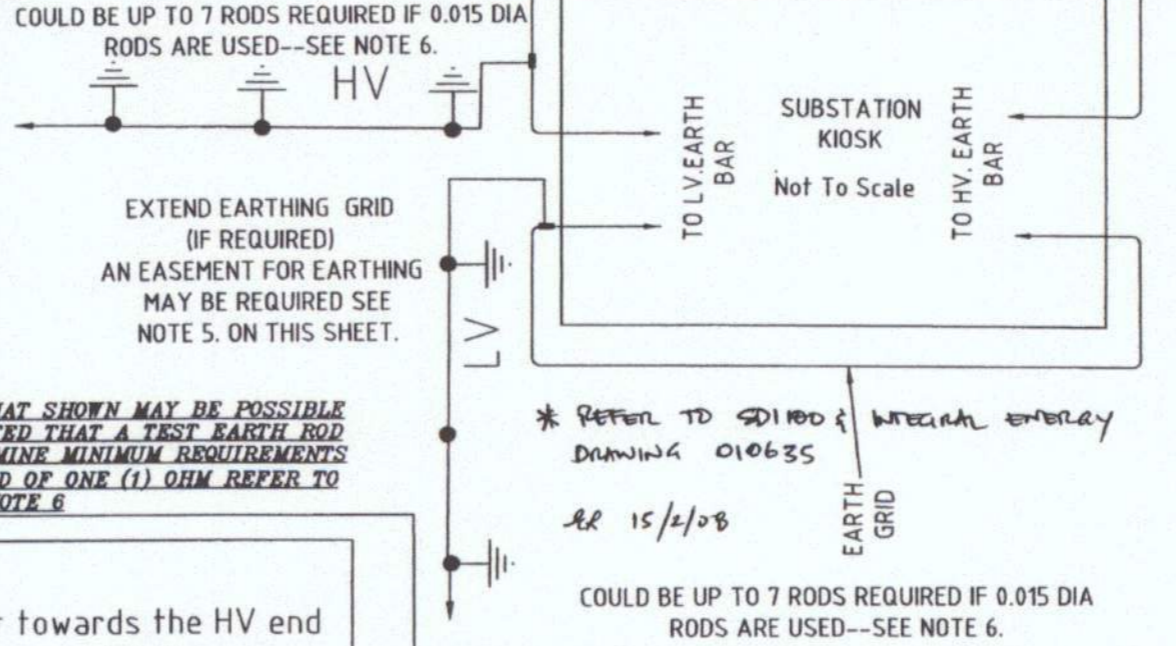
TYPICAL OF COMMON EARTHING REQUIRED FOR PM SUB 26312 --- NTS
REFER TO SDI 100
NOTE: REFER TO CL 5.7.1 regarding earth BOND to customers water service

NOTE: THIS EARTHING DIAGRAM IS ONLY TO BE USED AS A GUIDE. THE FINAL EARTHING REQUIREMENTS WILL ONLY BE KNOWN AT THE TIME OF CONSTRUCTION & WILL DEPEND ON GROUND & WEATHER CONDITIONS AT THAT TIME. THE EARTHING REQUIREMENTS MAY BE SUBSTANTIALLY GREATER THAN THAT DEPICTED & COSTS MAY BE EXPECTED TO RISE SIGNIFICANTLY IF THIS IS THE CASE.

EARTH TESTS WILL BE REQUIRED. REFER TO NOTE 1.
THE APPOINTED LEVEL 1 SERVICE PROVIDER SHOULD ENSURE THAT VARIATIONS CAN BE APPLIED IN HIS CONTRACT FOR CONSTRUCTION SHOULD THE EARTHING REQUIRE MORE THAN SHOWN ON THIS DESIGN.

LESS EARTHING THAN THAT SHOWN MAY BE POSSIBLE IT IS STRONGLY SUGGESTED THAT A TEST EARTH ROD BE INSTALLED TO DETERMINE MINIMUM REQUIREMENTS TO SATISFY IE STANDARD OF ONE (1) OHM REFER TO NOTE 6

IMPORTANT.
REFER TO NOTE 6.
EARTH ELECTRODES 30m DEEP ON BOTH HV AND LV. MIN SEPARATION 30M
CABLES TO BE INSULATED IN ACCORDANCE WITH SDI 104 & 100 IF IN SAME TRENCH.



Padmount substations require separation from neighbouring areas and buildings that are subject to fire risk. Separation may be by means of adequate clearances or building components having minimum fire resistance level (FRL) as set out in Figure 7.3.1B of MCI0006

EARTHING DESIGN DETAILS
Test Taken = Wenner 4Pin Method
Apparent Resistivity = 110 ohm metres.
Combined Earth Grid Resistance = 1 ohm
Weather Conditions : Fine
Date of Test : 21-2-07

COMBINATION WAE / FB

CERTIFIED BY INTEGRAL ENERGY
Amendment: A
Date Approved: 15/2/08
Examiner's Signature: [Signature]
This Certification is issued subject to Integral Energy's Standard Certification Terms.

PAT GARDNER ELECTRICAL CONSULTING
LEVEL 3 SERVICE PROVIDER NO. 2382 ABN 35 107 174 694
PHONE/FAX NO. 47825721 MOBILE 0414820858 patgardner@optusnet.com.au
PO BOX 506 KATOOMBA 2780 email

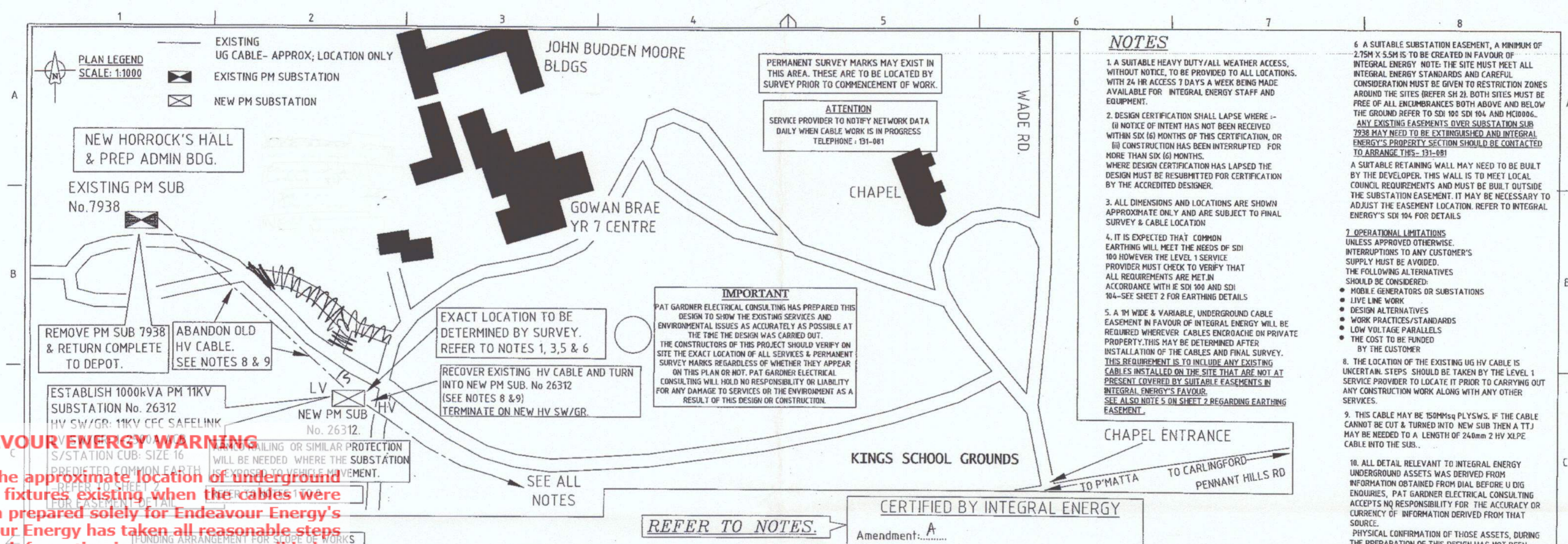
KINGS SCHOOL -- UCL 3874
OFF PENNANT HILLS RD NORTH PARRAMATTA
REPLACE WITH NEW 1X 300kVA PM SUBSTATION & 1X 1000kVA PM SUBSTATION

CAP NO.	UCL 3874	FILE No.	
IEC PROJ. No.		LG AREA	PARRAMATTA CC
HV SWITCHING		HV GEO MAP	
OVERHEAD MAINS		GIS MAP No	
UNDERGROUND MAINS SUBSTATIONS		DATE	1-2-08
		CH'D	

ORIGINAL SCALE	1:1000
DO NOT SCALE	
DIMENSIONS IN METRES	
DESIGN	JPG

A2 **310636** A
SHEET No 2 OF 2 SHEETS

SHT. 2/2
WAE-0906256 AA 20-07-2009



- NOTES**
- A SUITABLE HEAVY DUTY/ALL WEATHER ACCESS, WITHOUT NOTICE, TO BE PROVIDED TO ALL LOCATIONS, WITH 24 HR ACCESS 7 DAYS A WEEK BEING MADE AVAILABLE FOR INTEGRAL ENERGY STAFF AND EQUIPMENT.
 - DESIGN CERTIFICATION SHALL LAPSE WHERE -- (i) NOTICE OF INTENT HAS NOT BEEN RECEIVED WITHIN SIX (6) MONTHS OF THIS CERTIFICATION, OR (ii) CONSTRUCTION HAS BEEN INTERRUPTED FOR MORE THAN SIX (6) MONTHS. WHERE DESIGN CERTIFICATION HAS LAPSED THE DESIGN MUST BE RESUBMITTED FOR CERTIFICATION BY THE ACCREDITED DESIGNER.
 - ALL DIMENSIONS AND LOCATIONS ARE SHOWN APPROXIMATE ONLY AND ARE SUBJECT TO FINAL SURVEY & CABLE LOCATION
 - IT IS EXPECTED THAT COMMON EARTHING WILL MEET THE NEEDS OF SDI 100 HOWEVER THE LEVEL 1 SERVICE PROVIDER MUST CHECK TO VERIFY THAT ALL REQUIREMENTS ARE MET IN ACCORDANCE WITH IE SDI 100 AND SDI 104-SEE SHEET 2 FOR EARTHING DETAILS
 - A 1M WIDE & VARIABLE, UNDERGROUND CABLE EASEMENT IN FAVOUR OF INTEGRAL ENERGY WILL BE REQUIRED WHEREVER CABLES ENCROACHE ON PRIVATE PROPERTY. THIS MAY BE DETERMINED AFTER INSTALLATION OF THE CABLES AND FINAL SURVEY. THIS REQUIREMENT IS TO INCLUDE ANY EXISTING CABLES INSTALLED ON THE SITE THAT ARE NOT AT PRESENT COVERED BY SUITABLE EASEMENTS IN INTEGRAL ENERGY'S FAVOUR. SEE ALSO NOTE 5 ON SHEET 2 REGARDING EARTHING EASEMENT.
 - A SUITABLE SUBSTATION EASEMENT, A MINIMUM OF 2.75M X 5.5M IS TO BE CREATED IN FAVOUR OF INTEGRAL ENERGY. NOTE: THE SITE MUST MEET ALL INTEGRAL ENERGY STANDARDS AND CAREFUL CONSIDERATION MUST BE GIVEN TO RESTRICTION ZONES AROUND THE SITES (REFER SH 2). BOTH SITES MUST BE FREE OF ALL ENCUMBRANCES BOTH ABOVE AND BELOW THE GROUND REFER TO SDI 100 SDI 104 AND MC10006. ANY EXISTING EASEMENTS OVER SUBSTATION SUB 7938 MAY NEED TO BE EXTINGUISHED AND INTEGRAL ENERGY'S PROPERTY SECTION SHOULD BE CONTACTED TO ARRANGE THIS- 131-081
 - A SUITABLE RETAINING WALL MAY NEED TO BE BUILT BY THE DEVELOPER. THIS WALL IS TO MEET LOCAL COUNCIL REQUIREMENTS AND MUST BE BUILT OUTSIDE THE SUBSTATION EASEMENT. IT MAY BE NECESSARY TO ADJUST THE EASEMENT LOCATION. REFER TO INTEGRAL ENERGY'S SDI 104 FOR DETAILS
 - OPERATIONAL LIMITATIONS UNLESS APPROVED OTHERWISE. INTERRUPTIONS TO ANY CUSTOMER'S SUPPLY MUST BE AVOIDED. THE FOLLOWING ALTERNATIVES SHOULD BE CONSIDERED:
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 - LIVE LINE WORK
 - DESIGN ALTERNATIVES
 - WORK PRACTICES/STANDARDS
 - LOW VOLTAGE PARALLELS
 - THE COST TO BE FUNDED BY THE CUSTOMER
 - THE LOCATION OF THE EXISTING UG HV CABLE IS UNCERTAIN. STEPS SHOULD BE TAKEN BY THE LEVEL 1 SERVICE PROVIDER TO LOCATE IT PRIOR TO CARRYING OUT ANY CONSTRUCTION WORK ALONG WITH ANY OTHER SERVICES.
 - THIS CABLE MAY BE 150Msq PLYSWS. IF THE CABLE CANNOT BE CUT & TURNED INTO NEW SUB THEN A TTJ MAY BE NEEDED TO A LENGTH OF 240mm 2 HV XLPE CABLE INTO THE SUB.
 - ALL DETAIL RELEVANT TO INTEGRAL ENERGY UNDERGROUND ASSETS WAS DERIVED FROM INFORMATION OBTAINED FROM DIAL BEFORE U DIG ENQUIRIES. PAT GARDNER ELECTRICAL CONSULTING ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OR CURRENCY OF INFORMATION DERIVED FROM THAT SOURCE. PHYSICAL CONFIRMATION OF THOSE ASSETS, DURING THE PREPARATION OF THIS DESIGN HAS NOT BEEN UNDERTAKEN AS THEY ARE UNDERGROUND OR ARE NOT READILY ACCESSIBLE.

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This plan shows the approximate location of underground cables relative to fixtures existing when the cables were laid, and has been prepared solely for Endeavour Energy's own use. Endeavour Energy has taken all reasonable steps to ensure that the information is accurate as possible but will accept no liability for inaccuracies in the information shown on such plans from any cause whatsoever arising.

Persons excavating are expected to exercise all due care in the vicinity where cables are indicated and will be held responsible for any damage caused to Endeavour Energy's property.

All electrical apparatus shall be considered live until proved de-energised. Contact with live electrical apparatus will cause severe injury or death.

Underground assets may be congested at the approach to bridges and other structures. Typical asset depths and alignment may vary substantially, rising and falling sharply and at much shallower depths than elsewhere as they are channelled into shared allocated spaces on bridges and other structures. Additional precautions and underground asset location methods will be required in proximity to bridges and other structures.

Those excavating near Endeavour Energy's cables should be aware that ASBESTOS OR ASBESTOS - CONTAINING MATERIAL MAY BE PRESENT in Endeavour Energy's underground assets and that Organo-Chloride Pesticides (OCP) may be present in some sub-transmission trenches.

Non-destructive water excavation must be operated at or below 2000PSI. Any operation exceeding 2000PSI must be classed and treated as a destructive excavation practice.

IMPORTANT
PAT GARDNER ELECTRICAL CONSULTING HAS PREPARED THIS DESIGN TO SHOW THE EXISTING SERVICES AND ENVIRONMENTAL ISSUES AS ACCURATELY AS POSSIBLE AT THE TIME THE DESIGN WAS CARRIED OUT. THE CONSTRUCTORS OF THIS PROJECT SHOULD VERIFY ON SITE THE EXACT LOCATION OF ALL SERVICES & PERMANENT SURVEY MARKS REGARDLESS OF WHETHER THEY APPEAR ON THIS PLAN OR NOT. PAT GARDNER ELECTRICAL CONSULTING WILL HOLD NO RESPONSIBILITY OR LIABILITY FOR ANY DAMAGE TO SERVICES OR THE ENVIRONMENT AS A RESULT OF THIS DESIGN OR CONSTRUCTION.

ATTENTION
SERVICE PROVIDER TO NOTIFY NETWORK DATA DAILY WHEN CABLE WORK IS IN PROGRESS
TELEPHONE : 131-081

CUSTOMER FUNDED NON-CONTESTABLE WORKS		CUSTOMER FUNDED
Includes but not limited to: Pegging of cable & Substation and earthing easements, property boundaries and infrastructure locations. Registration of easements. Providing site access. ALL WORKS AS SHOWN		
CUSTOMER to pay cost difference between a 500kVA & a 1000kVA Transformer i.e. 1000kVA = \$33651 500kVA = \$18662 Cost to Customer = \$14,989		
CO-ORDINATION SUPPLY REQUIRED DATE (To be confirmed with Project Mgr.) Day Mth Yr		
ASSET TO BE RETURNED TO NEAREST INTEGRAL ENERGY DEPOT BY L1SP		
1-COMplete 300kVA PM SUB No. 7938 COMPRISING TYPE 14 FIBREGLASS ENCLOSURE 1-300kVA TRF-PM TYPE 1- HAZ ACE UNIT 1- CAT 2 LV FUSE STRIP 1- CONCRETE PLINTH (IF POSSIBLE) MDI'S & SUNDRY EQUIP.		

CERTIFIED BY INTEGRAL ENERGY
Amendment: A
Date Approved: 15 / 2 / 08
Examiner's Signature: *[Signature]*
This Certification is issued subject to Integral Energy's Standard Certification Terms.

WORKS COMPLETED

CONSTRUCTED BY *[Signature]* NAME DATE
WORKS COMPLETED *[Signature]* NAME DATE
INSPECTED BY *[Signature]* NAME DATE
FORWARDED TO CONTESTABLE WORKS ADMINISTRATOR (CWA)

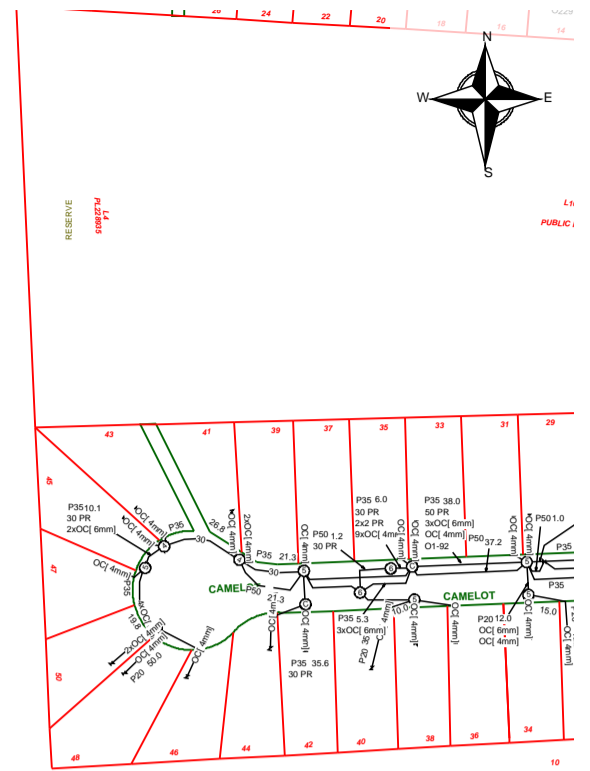
DESIGN COMPLIANCE AND INDEMNITY
THIS DESIGN COMPLIES WITH INTEGRAL ENERGY'S RELEVANT STANDARDS AS CURRENT AT THIS TIME AND AS LISTED ON THE INTEGRAL ENERGY ACCREDITED SERVICE PROVIDER'S INTERNET SITE. THESE STANDARDS INCLUDE, BUT ARE NOT LIMITED TO:
GT&C: GENERAL TERMS AND CONDITIONS
EMS: ENVIRONMENTAL MANAGEMENT STANDARD
MC: MAINS CONSTRUCTION STANDARD
PDI: PROTECTION DESIGN STANDARD
SDI: SUBSTATION DESIGN STANDARD
SAD0001: DESIGN DRAWING STANDARD
MM: MAINS MAINTENANCE STANDARD
SM: SUBSTATION MAINTENANCE STANDARD
ADDITIONALLY, WHERE RELEVANT, THE DESIGN COMPLES WITH (G/E)-1 GUIDELINES FOR DESIGN AND MAINTENANCE OF OVERHEAD DISTRIBUTION AND TRANSMISSION LINES PUBLISHED BY ESAA AND OTHER RELEVANT AUSTRALIAN STANDARDS.
PAT GARDNER ELECTRICAL CONSULTING INDEMNIFIES INTEGRAL ENERGY FOR ANY LOSS OR DAMAGE RESULTING FROM NON-COMPLIANCE OF THE DESIGN WITH THE ABOVE STANDARDS.
SIGNED: *[Signature]* NAME: PAT GARDNER
SERVICE PROVIDER NUMBER 2382 DATE: 12/08

Authorisation of Estimated Value of Integral Energy Funded Assets.
Signed: *[Signature]*
Print Name: *[Name]*
Service Number: 37497
Funding Amount: \$ 18,662.00
Date: 15 / 2 / 08

PAT GARDNER ELECTRICAL CONSULTING
LEVEL 3 SERVICE PROVIDER NO. 2382
ABN 35 107 174 694
PHONE/FAX NO. 47825721 MOBILE 0414820858
KINGS SCHOOL -- UCL 3874
OFF PENNANT HILLS RD NORTH PARRAMATTA
REMOVE 1 X 300kVA PM SUBSTATION & REPLACE WITH NEW 1X 1000kVA PM SUBSTATION

CAP NO.	UCL 3874	FILE No.		ORIGINAL SCALE	1:1000	DO NOT SCALE	
IEC PROJ. No.		LG AREA	PARRAMATTA CC	DRAWN	JPG	DIMENSIONS IN METRES	
HV SWITCHING		HV GEO MAP		DATE	1-2-08		
OVERHEAD MAINS		GIS MAP No		DESIGN	JPG		
UNDERGROUND MAINS		UBD REF	19117				
SUBSTATIONS		HV OP DIAG	DUNDAS SH 2 17Z				

Cable Plan



Report Damage: <https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment>
 Ph - 13 22 03
 Email - Telstra.Plans@team.telstra.com
 Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries

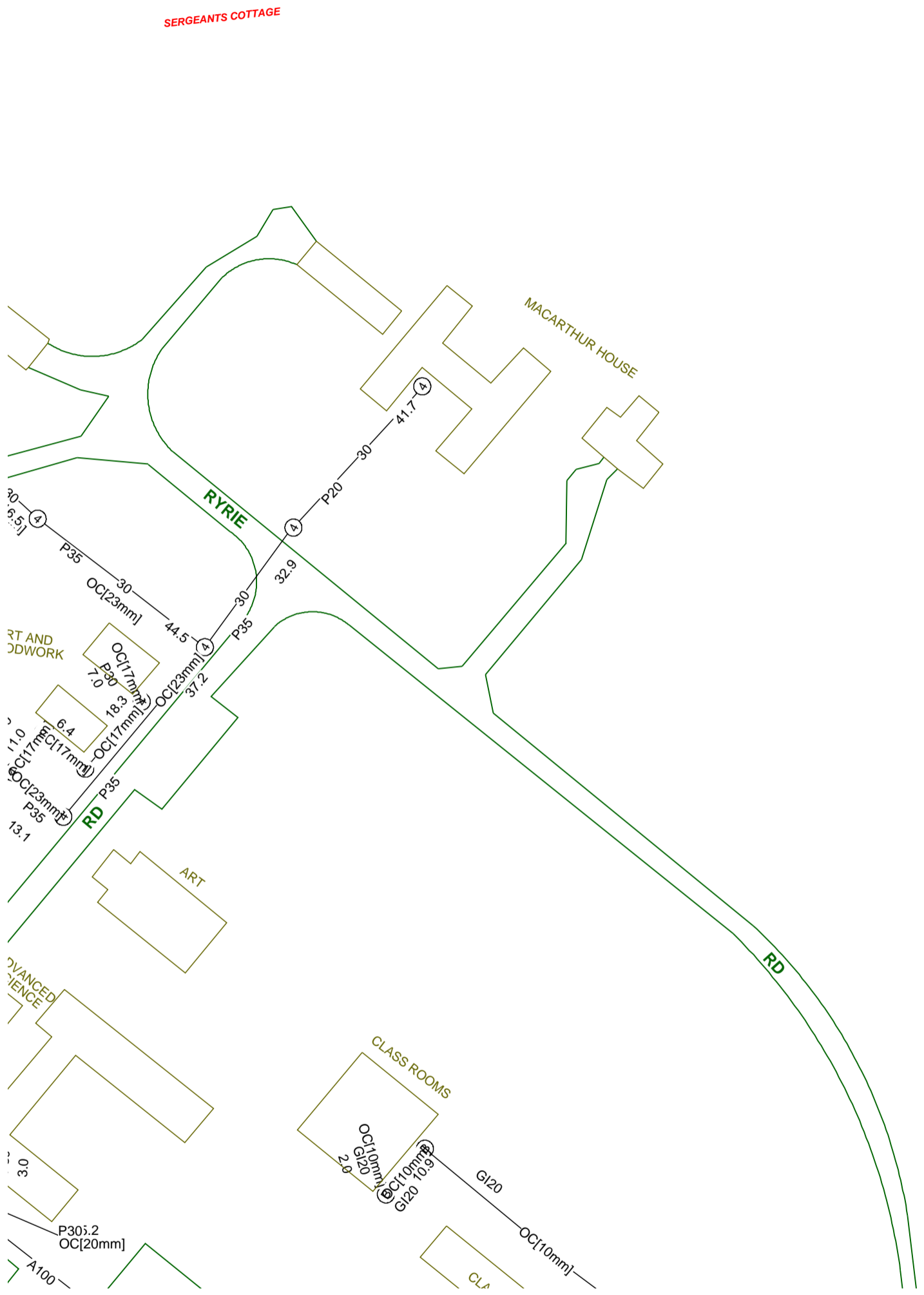
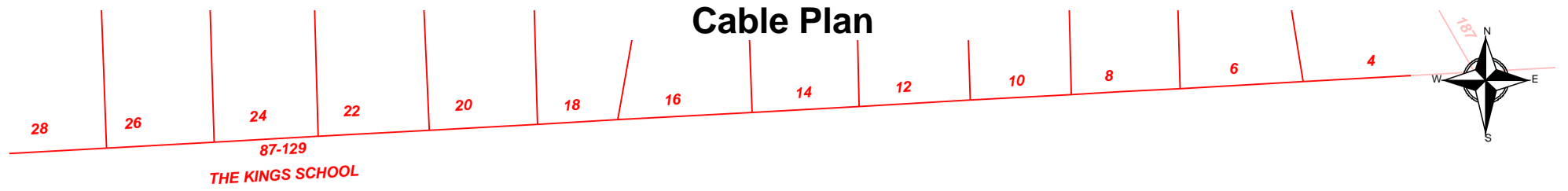
Sequence Number: 221838980
 Please read Duty of Care prior to any excavating

TELSTRA LIMITED A.C.N. 086 174 781

Generated On 02/03/2023 13:12:23

WARNING
 Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy. Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work. A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.
 See the Steps- Telstra Duty of Care that was provided in the email response.

Cable Plan



Report Damage: <https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment>
 Ph - 13 22 03
 Email - Telstra.Plans@team.telstra.com
 Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries

Sequence Number: 221839097

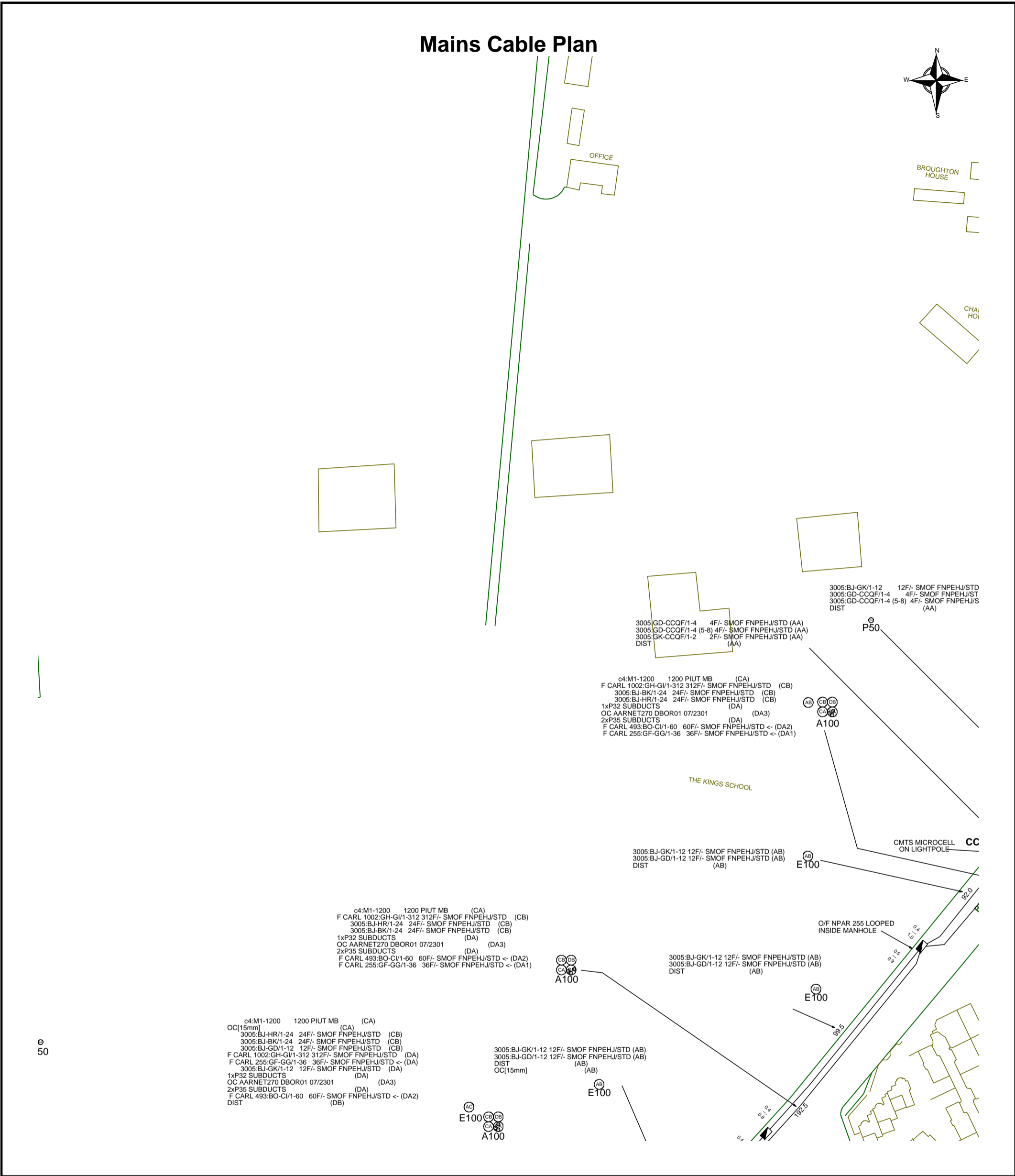
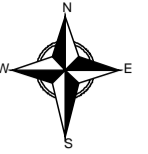
Please read Duty of Care prior to any excavating

TELSTRA LIMITED A.C.N. 086 174 781

Generated On 02/03/2023 13:12:50

WARNING
 Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy. Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work. A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.
 See the Steps- Telstra Duty of Care that was provided in the email response.

Mains Cable Plan



Report Damage: <https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment>
 Ph - 13 22 03
 Email - Telstra.Plans@team.telstra.com
 Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries

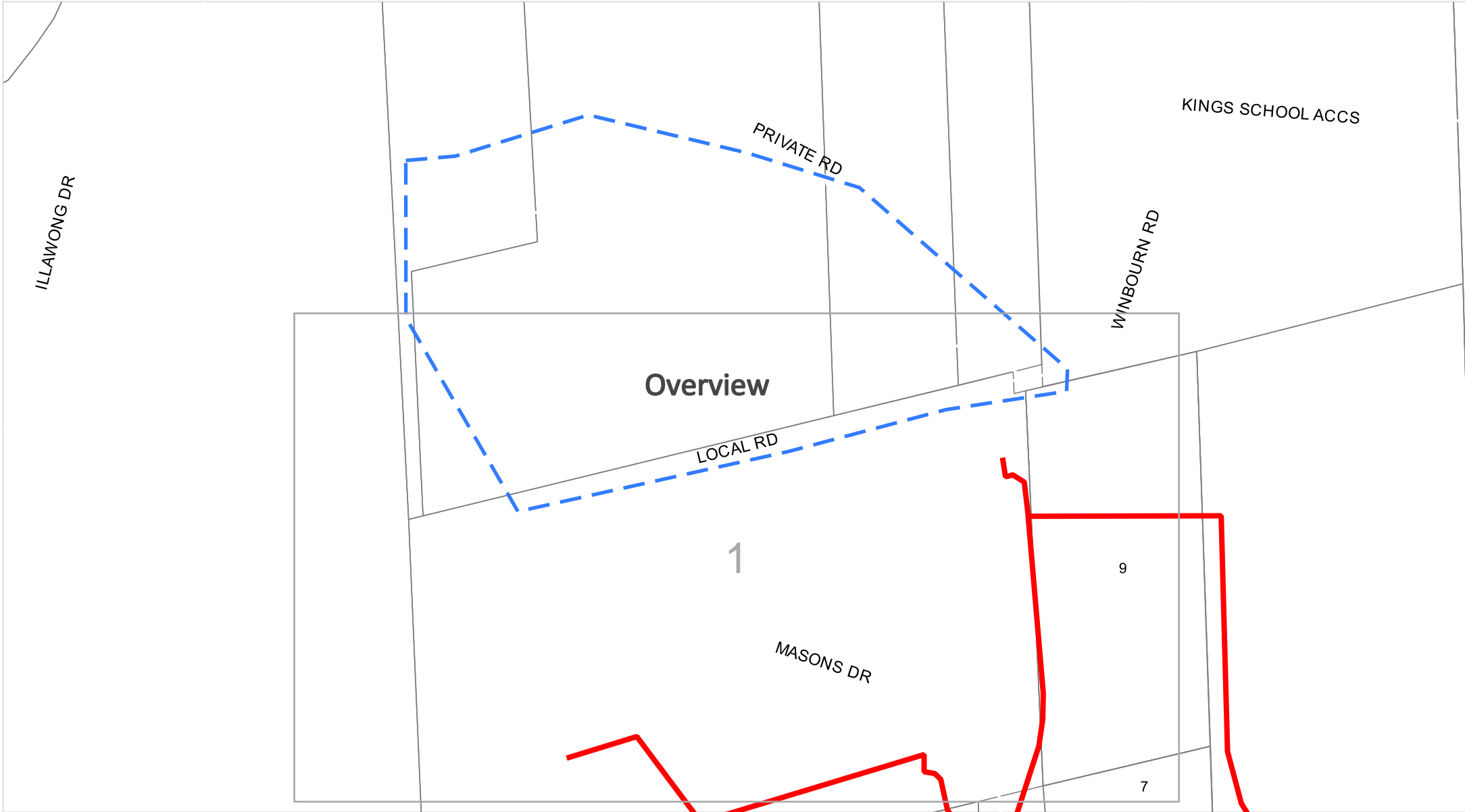
Sequence Number: 221839304

CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

TELSTRA LIMITED A.C.N. 086 174 781

Generated On 02/03/2023 13:18:14

WARNING
 Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy. Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work. A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.
 See the Steps- Telstra Duty of Care that was provided in the email response.



Legend | Scale: 1:2485



- Enquiry Area
- AARNET Fibre Optic Assets
- AARNET Power Assets
- Cadastre

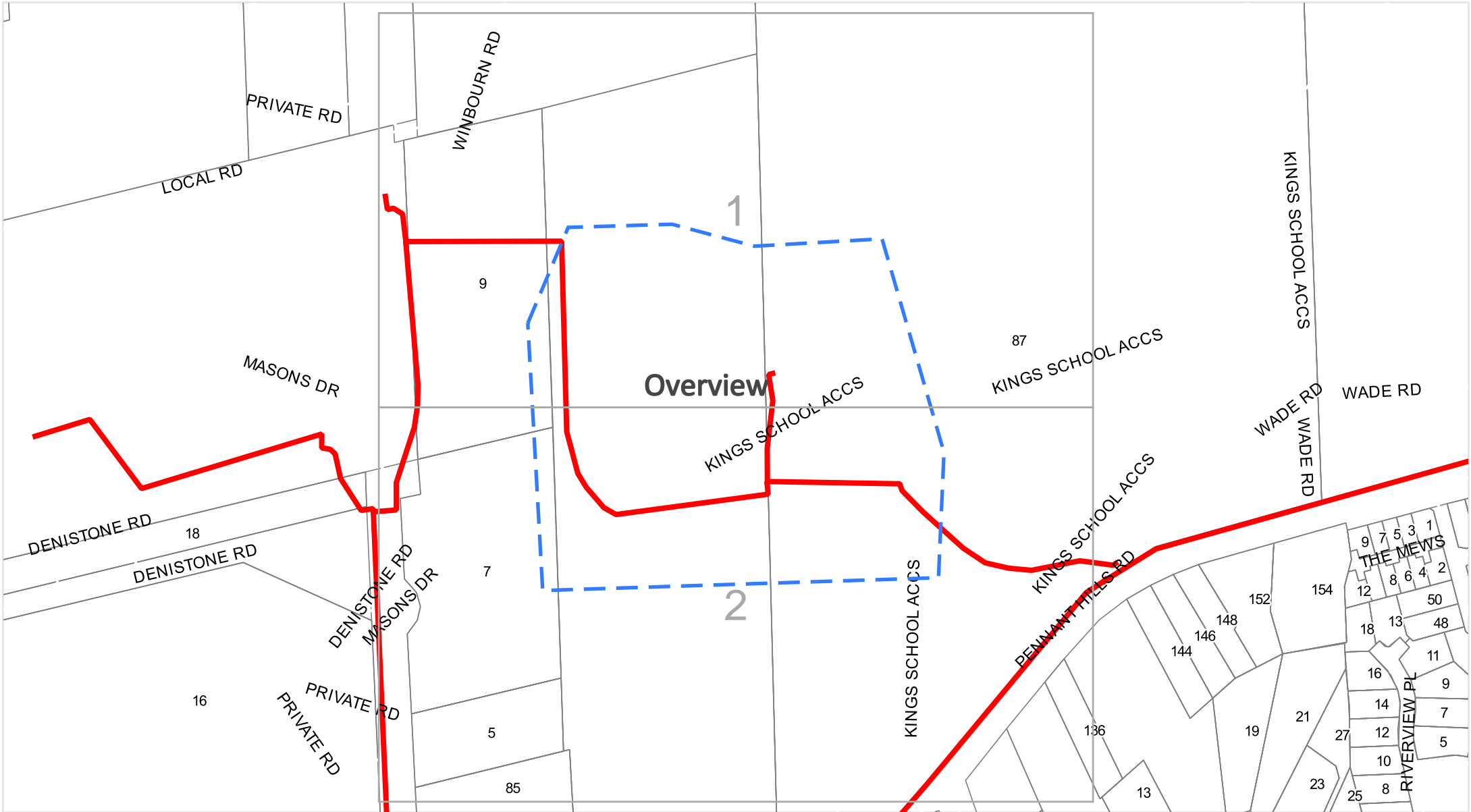
DISCLAIMER: While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither AARNET or PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.



Legend | Scale: 1:1500

-  Enquiry Area
-  AARNet Fibre Optic Assets
-  AARNet Power Assets
-  Cadastre

DISCLAIMER: While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither AARNet or PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.



Legend | Scale: 1:3075

- Enquiry Area
- AARNet Fibre Optic Assets
- AARNet Power Assets
- Cadastre

DISCLAIMER: While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither AARNet or PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.



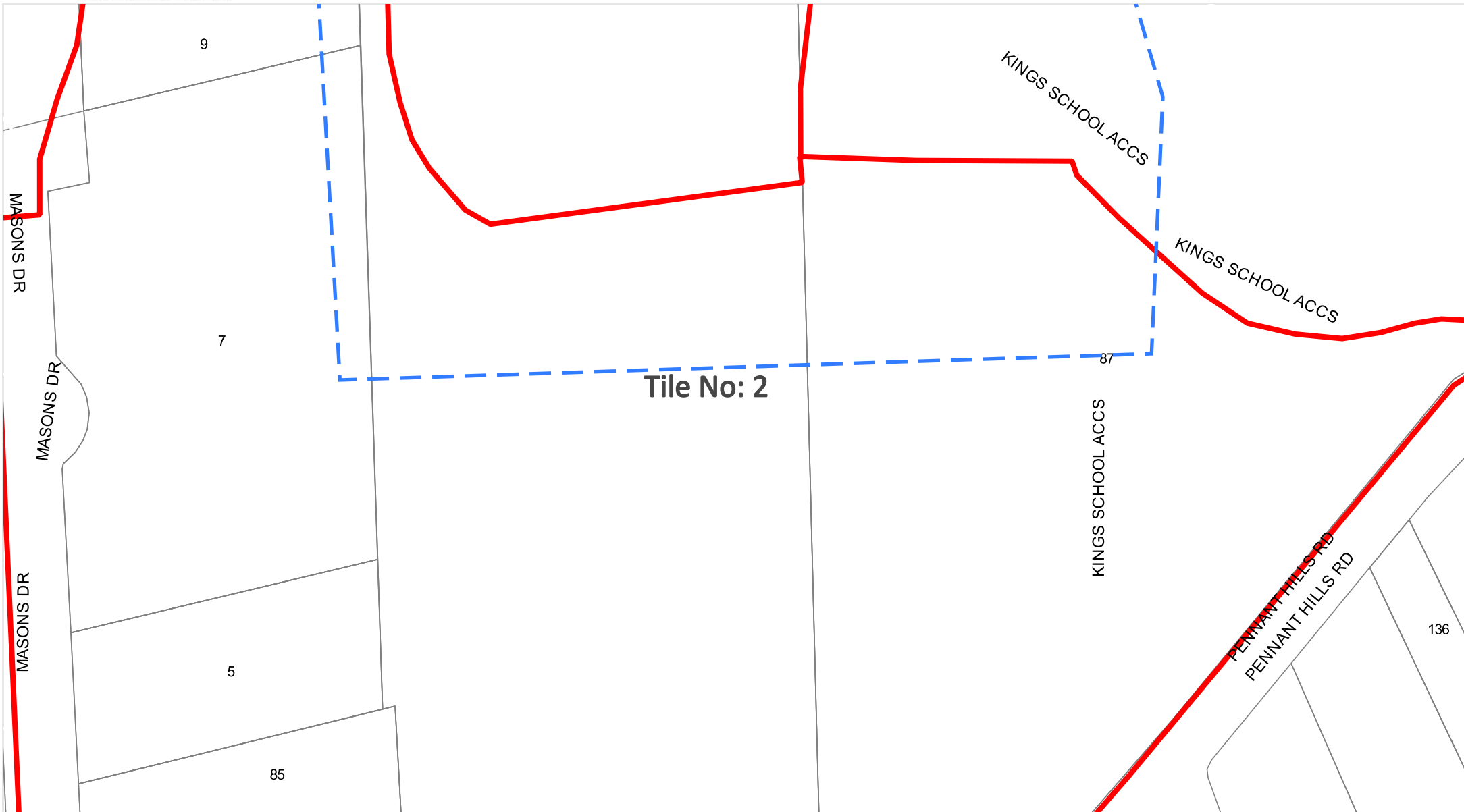


Legend | Scale: 1:1500



- Enquiry Area
- AARNet Fibre Optic Assets
- AARNet Power Assets
- Cadastrate

DISCLAIMER: While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither AARNet or PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.




Legend | Scale: 1:1500



- Enquiry Area
- AARNET Fibre Optic Assets
- AARNET Power Assets
- Cadastre

DISCLAIMER: While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither AARNET or PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.

To: Ryan Aiman
Phone: Not Supplied
Fax: Not Supplied
Email: r.aiman@ndy.com

Dial before you dig Job #:	33729606	
Sequence #	221838976	
Issue Date:	02/03/2023	
Location:	87-129 Pennant Hills Road , North Parramatta , NSW , 2151	

Indicative Plans

1	4
2	5
3	6

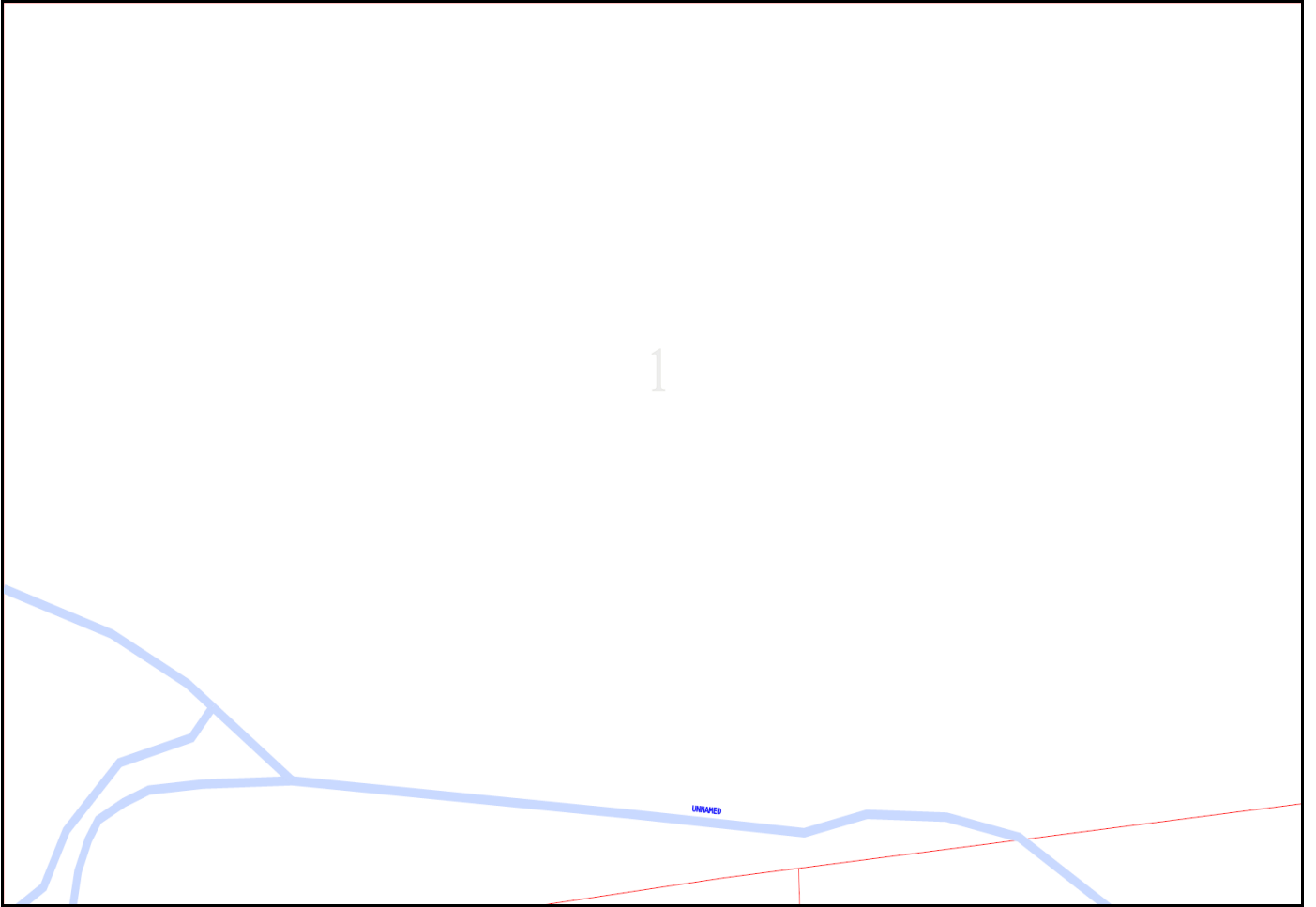


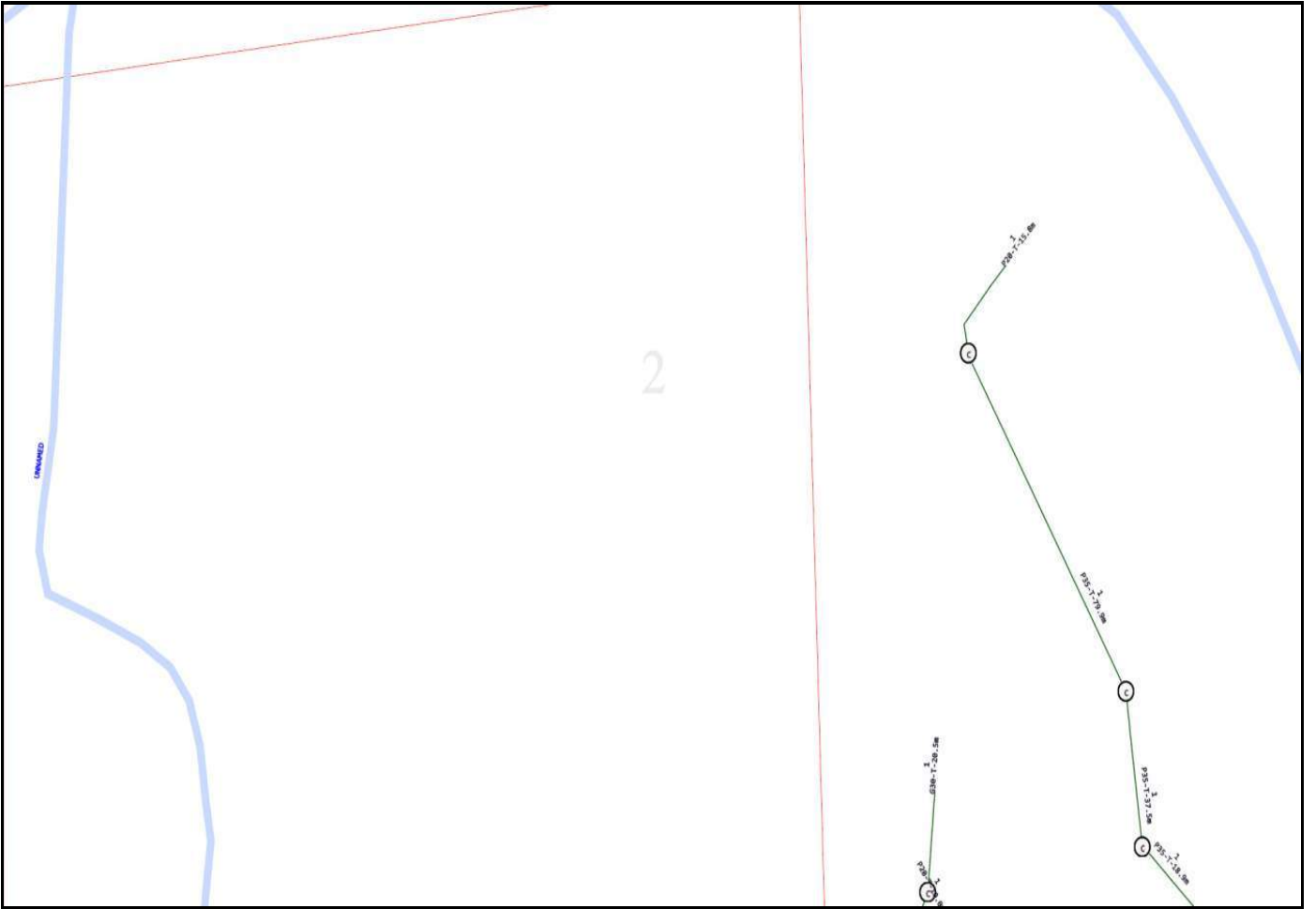
LEGEND

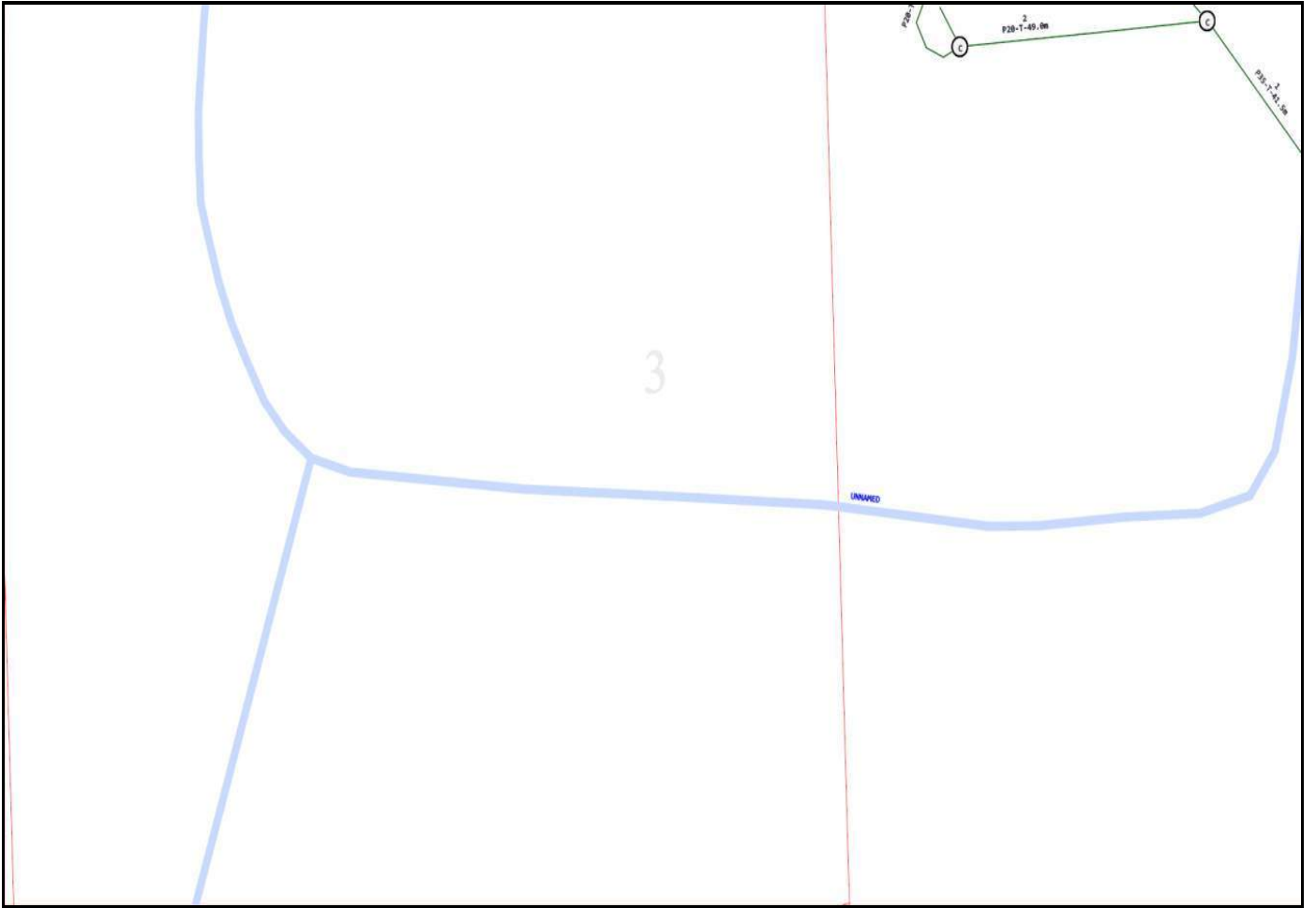


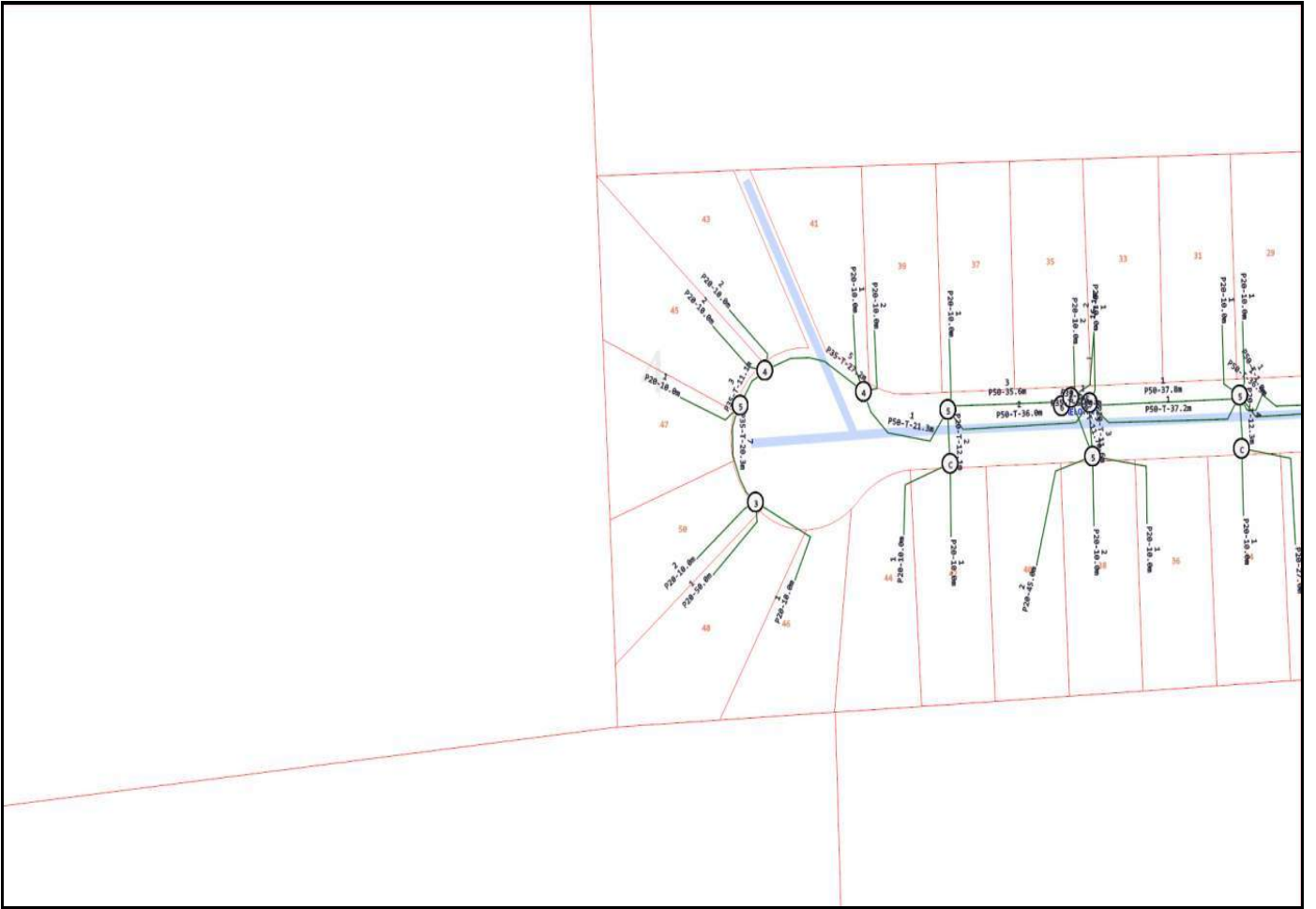
	Parcel and the location
	Pit with size "5"
	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
	2 Direct buried cables between pits of sizes, "5" and "9" are 10.0m apart.
	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m

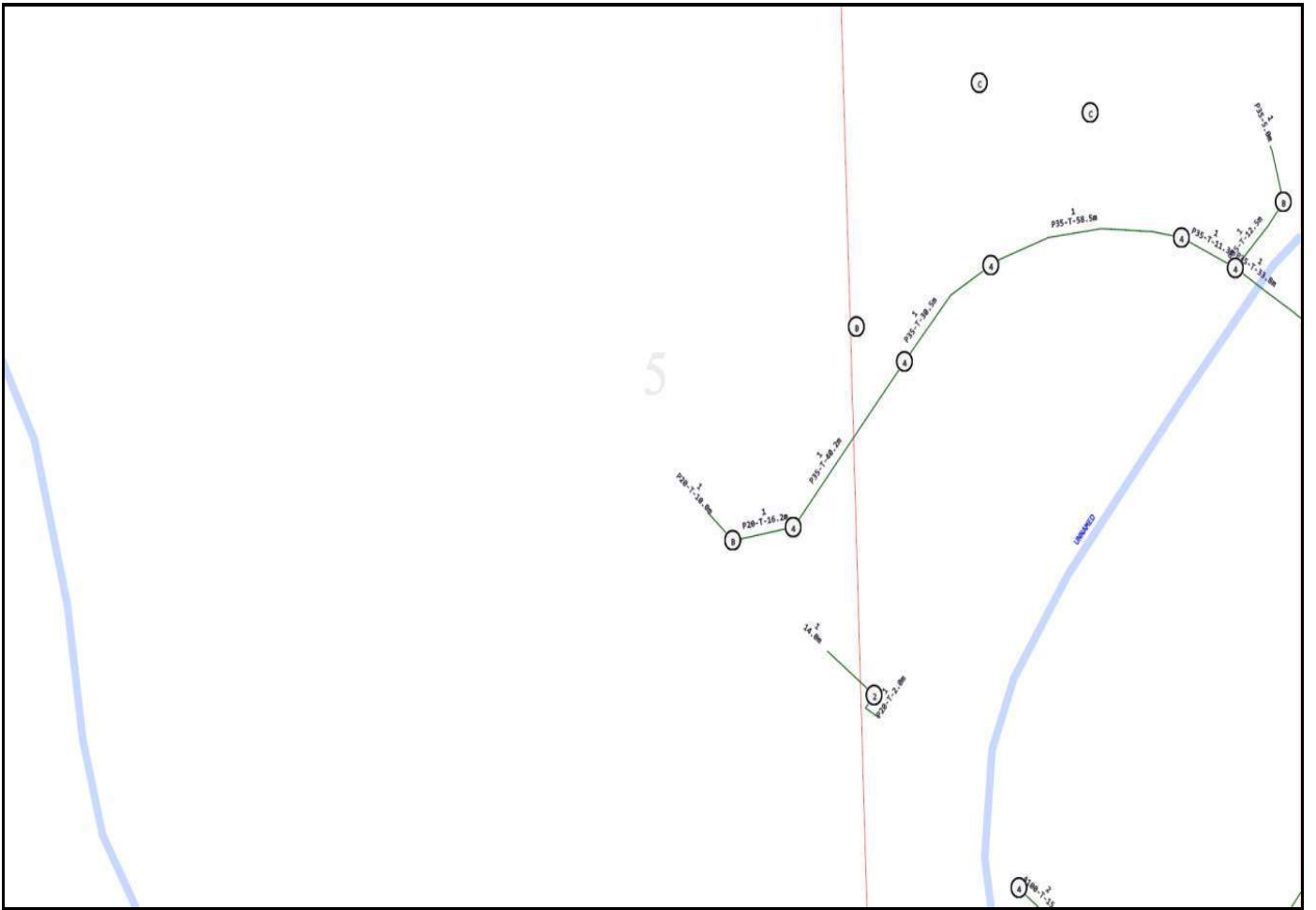
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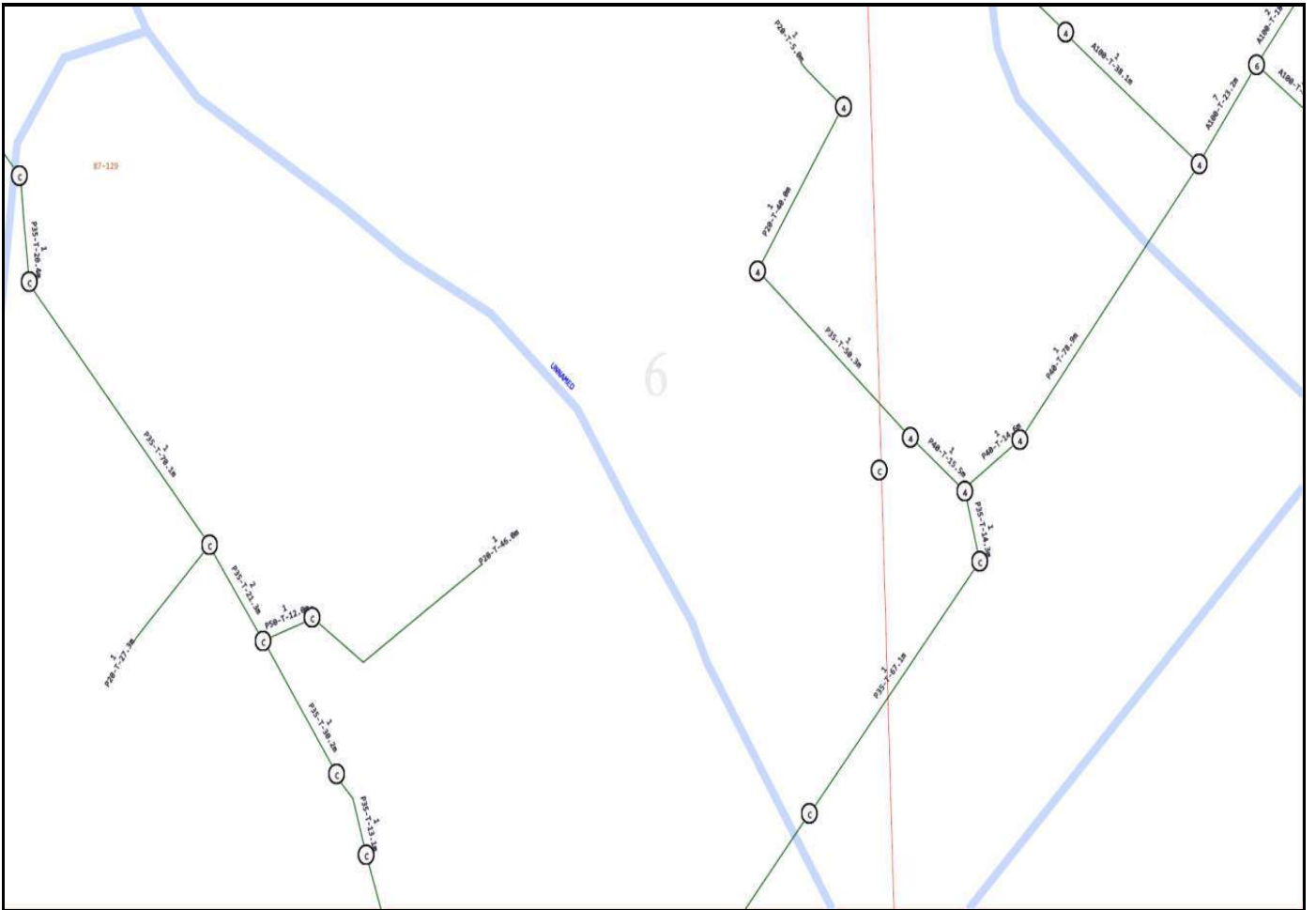













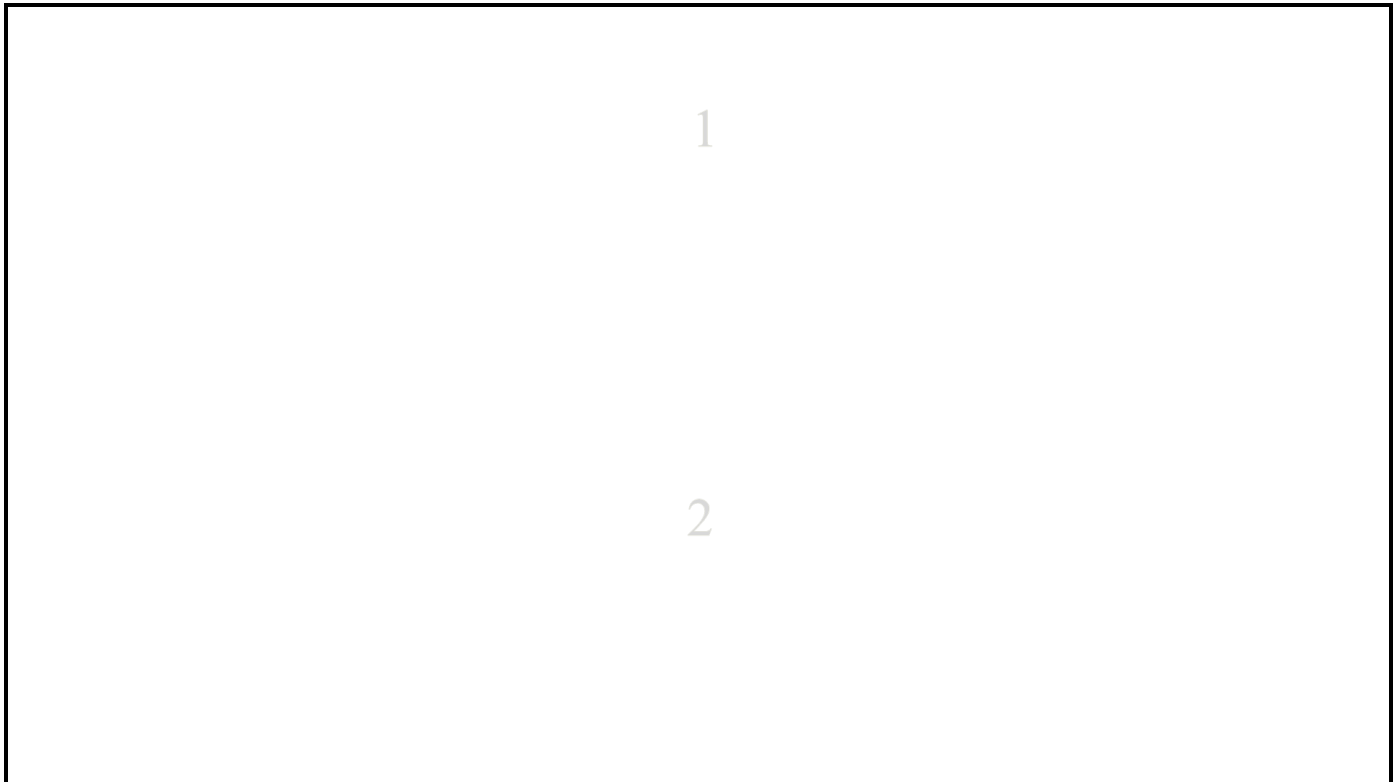
Emergency Contacts

You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.

To: Ryan Aiman
Phone: Not Supplied
Fax: Not Supplied
Email: r.aiman@ndy.com

Dial before you dig Job #:	33729628	
Sequence #	221839093	
Issue Date:	02/03/2023	
Location:	16 Camelot Court , Carlingford , NSW , 2118	

Indicative Plans

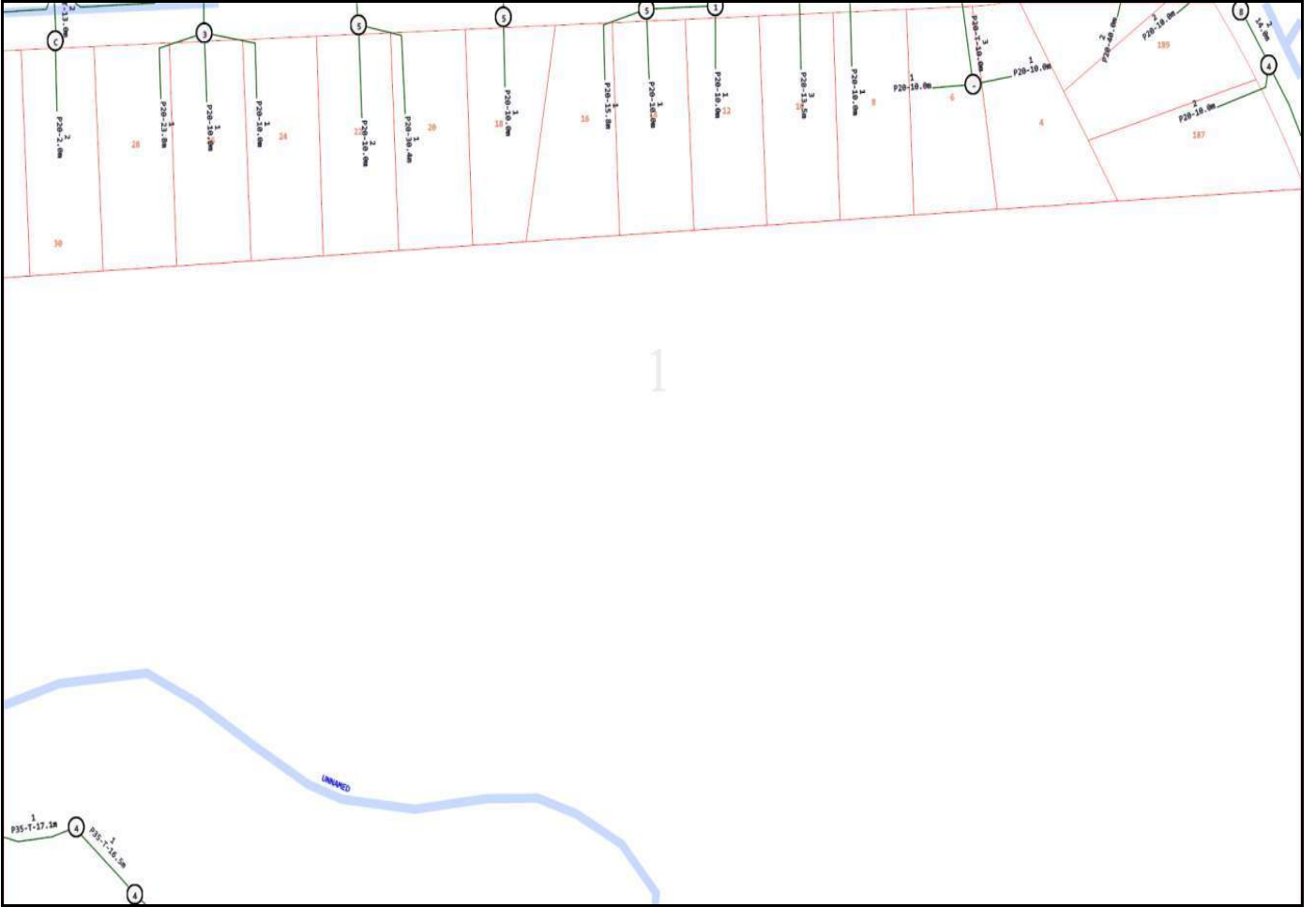


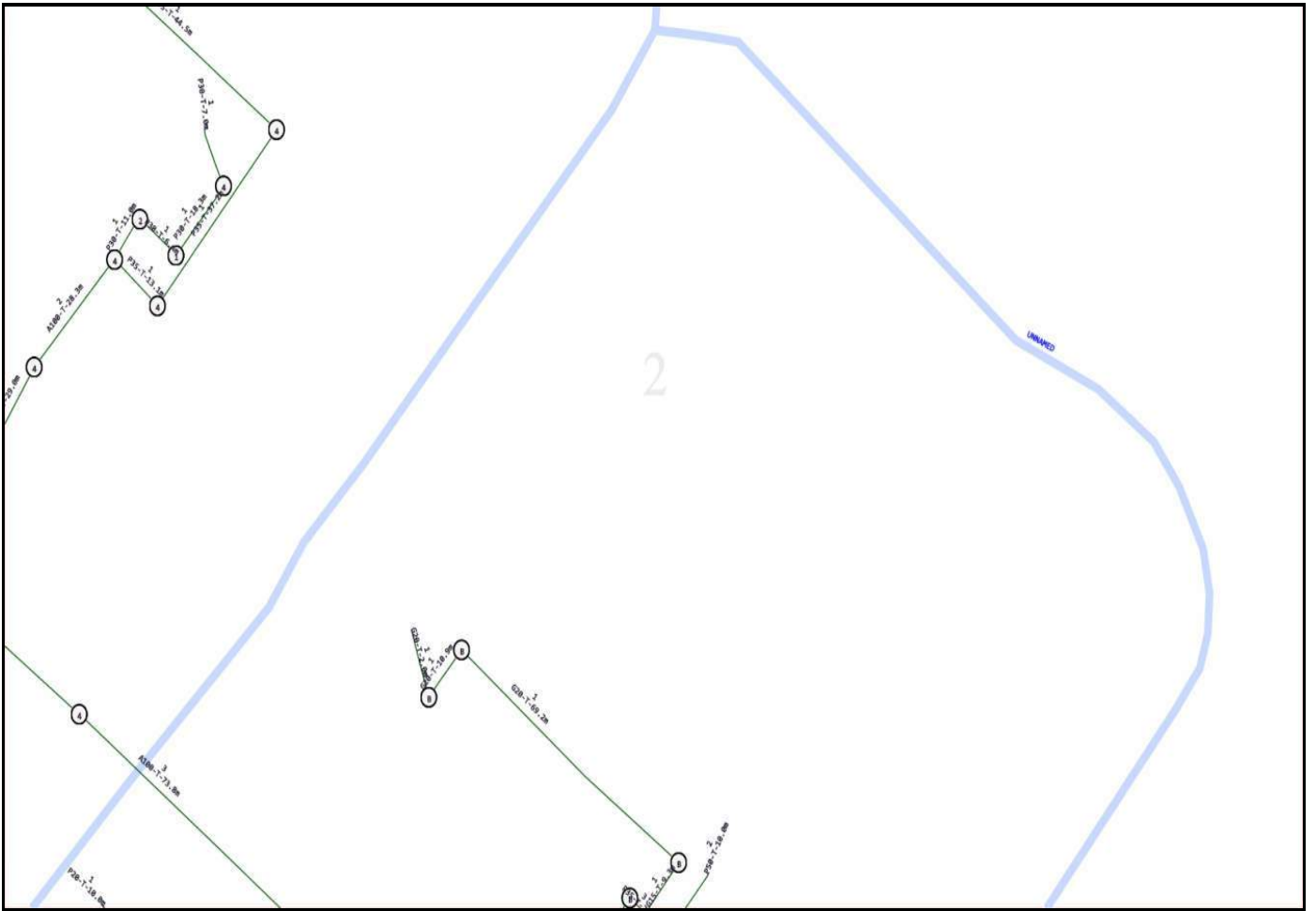


LEGEND



	Parcel and the location
	Pit with size "5"
	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
	2 Direct buried cables between pits of sizes, "5" and "9" are 10.0m apart.
	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m






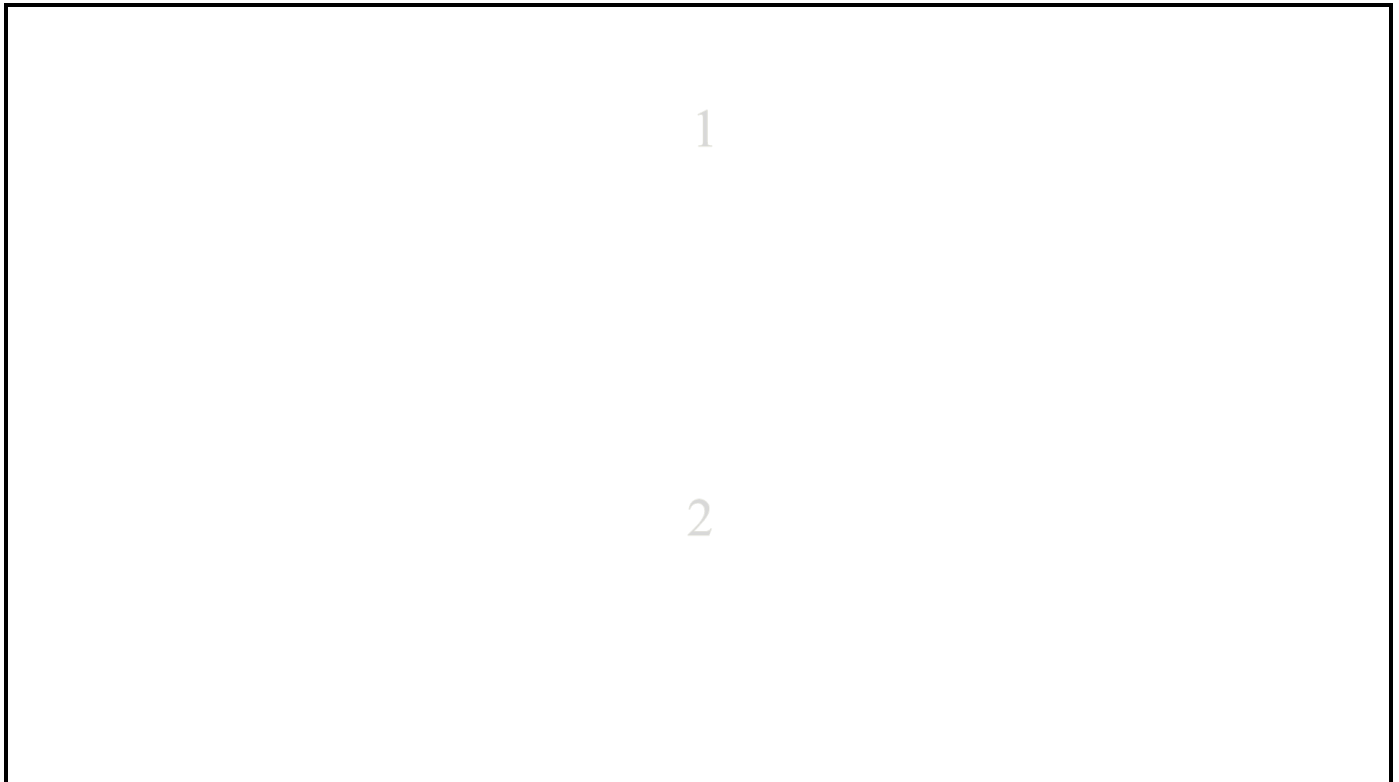
Emergency Contacts

You must immediately report any damage to the **nbn**TM network that you are/become aware of. Notification may be by telephone - 1800 626 329.

To: Ryan Aiman
Phone: Not Supplied
Fax: Not Supplied
Email: r.aiman@ndy.com

Dial before you dig Job #:	33729664	 DIAL BEFORE YOU DIG www.1100.com.au
Sequence #	221839299	
Issue Date:	02/03/2023	
Location:	9 Masons Drive , North Parramatta , NSW , 2151	

Indicative Plans

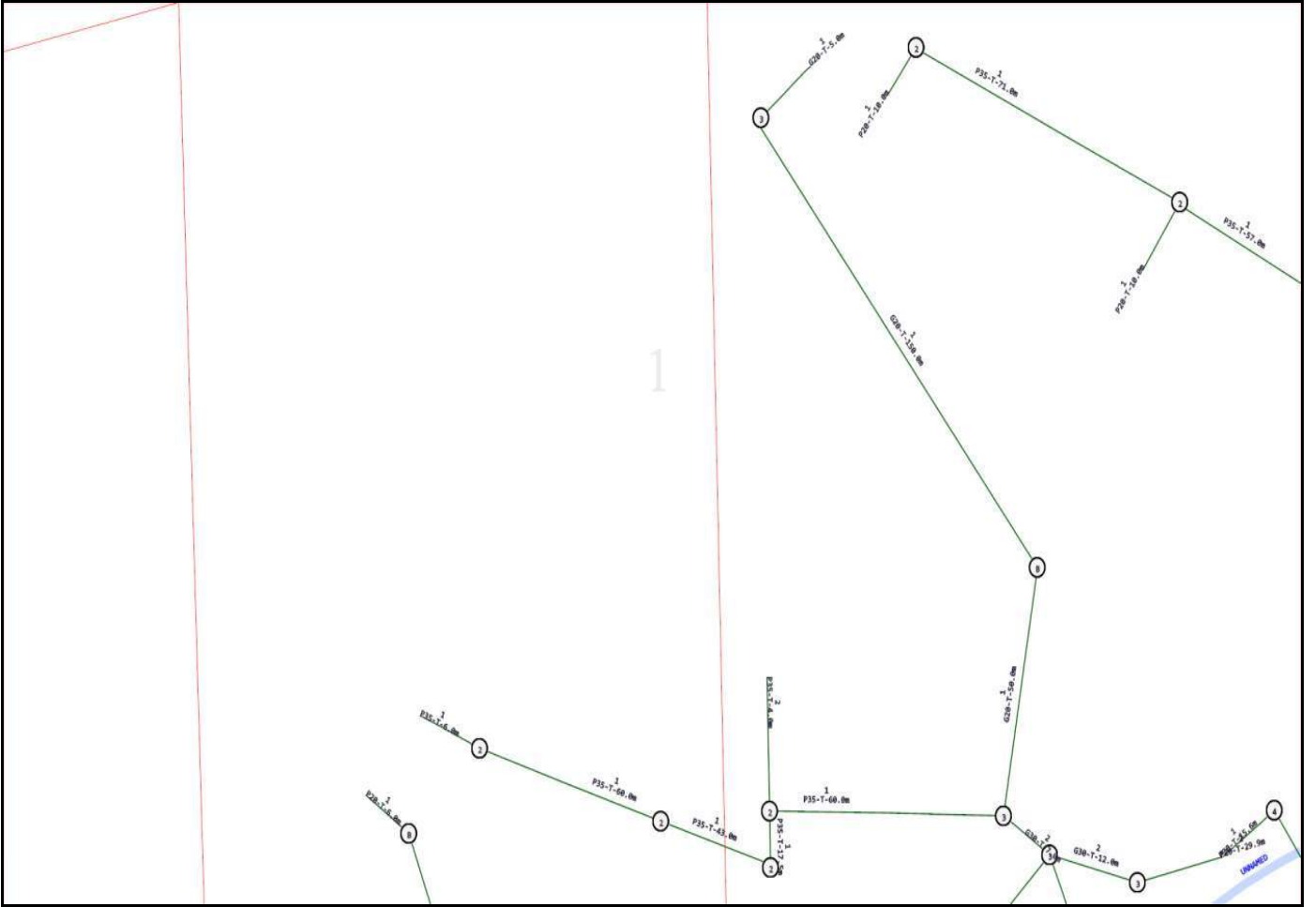




LEGEND



	Parcel and the location
	Pit with size "5"
	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
	2 Direct buried cables between pits of sizes, "5" and "9" are 10.0m apart.
	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m





Emergency Contacts

You must immediately report any damage to the **nbn**TM network that you are/become aware of. Notification may be by telephone - 1800 626 329.

APPENDIX G – CORRESPONDENCE WITH ENDEAVOUR ENERGY

Aiman, Ryan

From: Aiman, Ryan
Sent: Monday, 27 February 2023 10:36 AM
To: cwadmin@endeavourenergy.com.au
Subject: Preliminary Inquiry - King's School Parramatta
Attachments: Endeavour Energy Preliminary Request Form.pdf; Preliminary Enquiry - Endeavour Energy - 20230227.pdf

Hi Team,

As part of a Master Planning project for the King's School – North Parramatta, I'd like to make a preliminary inquiry on a few Endeavour Energy kiosk substations that we have observed on site and the associated spare capacity available for future expansion.

I've attached the inquiry form with details of the associated substations and a site plan including the relevant information.

Can you please make an assessment and let me know if you need any further information?

Thank you,



Ryan Aiman | Project Engineer
T +61 2 9928 6800 | D +61 2 9928 6800 | M 0420672576
E r.aiman@ndy.com | www.ndy.com
Norman Disney & Young A Tetra Tech Company
Level 1, 60 Miller Street, North Sydney, NSW 2060, Australia
TETRA TECH HIGH PERFORMANCE BUILDING GROUP

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Technical Review Request



Please return completed form along with all attachments to: Endeavour Energy, PO Box 811 Seven Hills NSW 1730
Email: cwadmin@endeavourenergy.com.au | Fax: 02 9853 7925 | For enquiries about this form, please contact 02 9853 7977

This form can be used for requesting technical assistance to determine preliminary connection requirements prior to lodging a formal application for large or complex developments including master planning for major projects or subdivisions, embedded networks, asset relocations and embedded generator connections.

Site Details

Lot / DP No. _____ / _____ Street No. 57-129 Street Name Pennant Hills Road
Suburb/Town North Parramatta Postcode 2151 UBD Ref _____
32370, 21240, 32369,
Nearest Substation: 26312 Pole/Pillar 774097 Cross Street _____
Retailer NMI for Existing Sites: _____ (Can be found on your electricity bill)

Retail Customer or Developer Details

Name / Company The Kings School Parramatta Contact Person _____
Street No. 87-129 Street Name Pennant Hills Road
PO Box _____ Suburb / Town North Parramatta Post Code 2151
Phone _____ Mobile _____ Fax _____
Email: _____

Applicant / Applicant's Representative Details

Name / Company Norman Disney & Young, Sydney Contact Person Ryan Aiman
Street No. 60 Street Name Miller Street
PO Box _____ Suburb / Town North Sydney Post Code 2060
Phone +61 2 9928 6800 Mobile _____ Fax _____
Email: r.aiman@ndy.com
Preferred method of contact: Mail Phone Email

Nature of Request

Preliminary Inquiry

As part of a Master Planning project, The King's School is proposing new buildings across the North Paramatta campus as indicated in the attached overall site plan, including the estimated electrical load for each building, locations of existing supply infrastructure etc.

We are looking to inquire the following information for the above mentioned substations:

- 1) Confirmation of size of each existing substation.
- 2) HV connection arrangements.
- 3) LV connection arrangements and details of outgoing circuits.
- 4) Existing easement details.
- 5) Confirmation of maximum demand, as noted in the site plan.

Please Note: To ensure an accurate and meaningful response, please provide detailed information describing the proposed development and attachments to support this request. Endeavour Energy will use all reasonable endeavours to keep confidential any information provided as part of this request as required under Clause 8.6 of the National Electricity Rules.

The Customer/Developer is the Landowner: Yes No

I am authorised by the customer/proponent to make enquiry to Endeavour Energy for this development.

Important Information

Planning for supply to large or complex developments including master planning for major projects, subdivisions or establishment of embedded networks, asset relocations or connection of large embedded generators, these often involve options analysis and consideration of longer term network development. Preliminary information regarding conditions of supply can be obtained prior to lodging an application for connection services by submitting a Technical Review Request.

A technical review may involve a simple or complex enquiry or the provision of a detailed planning study. A corresponding ancillary network service charge, Preliminary Enquiry Service fee for the provision of these services applies and can be found in our Network Price List Ancillary Network Services (ANS). ANS fees are approved annually by the Australian Energy Regulator and typically change each financial year.

If you are able to submit an application for connection service, this may represent a more cost-effective option as an application will require a similar review of supply availability or connection/network requirements in order to receive a binding offer to proceed.

Simple requests for technical review are basic reviews of existing data systems to provide a summary response. Complex requests require input from Endeavour Energy internal stakeholders and specialist project management services to determine likely connection voltage, connection point, available capacity and/or required connection assets provided in a detailed response. The table below generally represents minimum hours applied for typical requests.

Common types of requests for technical review	Preliminary Enquiry Service fee category	Minimum hours
All simple	Simple	1
Connection of Load at LV	Complex	5
Subdivision up to 300 lots	Complex	5
Asset Relocations without Transmission	Complex	5
Master Planning without Transmission	Complex	9
Master Planning with Transmission	Complex	11

CONTACT US

AUSTRALIA

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E: adelaide@ndy.com

BRISBANE

T: +61 7 3120 6800
E: brisbane@ndy.com

CANBERRA

T: +61 2 6295 1788
E: canberra@ndy.com

GOLD COAST

T: +61 7 5512 1235
E: goldcoast@ndy.com

MELBOURNE

T: +61 3 9862 6800
E: melbourne@ndy.com

PERTH

T: +61 8 9281 6800
E: perth@ndy.com

SYDNEY

T: +61 2 9928 6800
E: sydney@ndy.com

CANADA

VANCOUVER

T: +1 604 734 9338
E: vancouver@ndy.com

NEW ZEALAND

AUCKLAND

T: +64 9 307 6596
E: auckland@ndy.com

WELLINGTON

T: +64 4 471 0151
E: wellingtonadmin@ndy.com

UNITED KINGDOM

LONDON

T: +44 20 7553 9494
E: london@ndy.com

IRELAND

DUBLIN

T: +353 1 264 6995
E: dublin@ndy.com

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