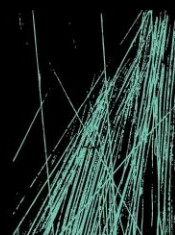




SERVICES INFRASTRUCTURE MANGEMENT PLAN REPORT

TAFE MEADOWBANK

ELECTRICAL AND HYDRAULIC SERVICES



JHA

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DOCUMENT CONTROL SHEET

Project Number	200131/190224
Project Name	TAFE Meadowbank Combined Multi-Trades and Digital Technology Hub + Multi Storey Carpark
Description	Services Infrastructure Management Plan Report for SEARS
Key Contact	Marc Estimada

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1 EXECUTIVE SUMMARY

This services infrastructure management plan is to address Item 14 Utilities of the SEAR for SSDA reporting which includes the following:

- Item 14.1 Prepare an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation and easement requirements of the development for the provision of utilities including staging of infrastructure
- Item 14.2 Identify any potential impacts of the proposed construction and operation on the existing utility infrastructure and service provider assets, and demonstrate how these will be protected or impacts mitigated.
- Item 14.3 Prepare an Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non- potable water, and water sensitive urban design.

This document provides a reference to agreements between JHA and the Client and/or their representatives.

JHA in developing the services infrastructure management plan will endeavour to provide value added advice, providing suitable solutions to cost benefits and build-ability, performance, maintenance, flexibility or other requirements of the project.

The document is designed to achieve a summarised, succinct and coherent written description detailing information on the existing capacity, any augmentation and easement requirements of the development for the provision of utilities including staging of infrastructure. The document will also identify any potential impacts of the proposed construction and operation on the existing utility infrastructure and service provider assets, and demonstrate how these will be protected or impacts mitigated.

The document is not designed as a specification or bill of materials, nor is it intended to provide detail of the equipment, fitting or services selection.

2 PROJECT DESCRIPTION

TAFE Meadowbank is one of the largest TAFE facilities in Sydney, which offers an extensive range of educational services. TAFE Meadowbank is located at See St, Meadowbank NSW 2114 adjacent to Meadowbank Train Station, in the local government area of City of Ryde Council.

The project consists of a New Combined Multi-Trades and Digital Technology Hub Building and a Multi Storey Carpark – part of the SSDA scope.



Figure: Proposed New Combined Multi-Trades and Digital Technology Hub Building + Multi Storey Carpark

3 ELECTRICAL SERVICES

3.1 EXISTING ELECTRICAL SERVICES DESCRIPTION

The site is currently being served by three substations (two outdoor kiosk substation and one chamber substation). The substations are being served by a Zone substation located adjacent to TAFE Meadowbank along Rhodes Street.

The demarcation zone for the electrical services of the site are as follow:

- Block H Electrical Chamber Substation S789 serves Block H Electrical Main Switchboard (MSB1). Block H MSB1 serves Block H, A, B, D, E via a mixture of underground along walkway and overhead submain cabling running across a walkway awning/bridge.
- Electrical Kiosk Substation S8665 adjacent to Block A serves an external Electrical Main Switchboard (MSB3). MSB3 serves Block K & J via underground submains across driveway.
- Electrical Kiosk Substation S35438 adjacent to Block N (carpark) serves an Electrical Main Switchboard (MSB4). MSB4 serves Block N, P, Z. G, F via underground submains across carpark and retaining walls.

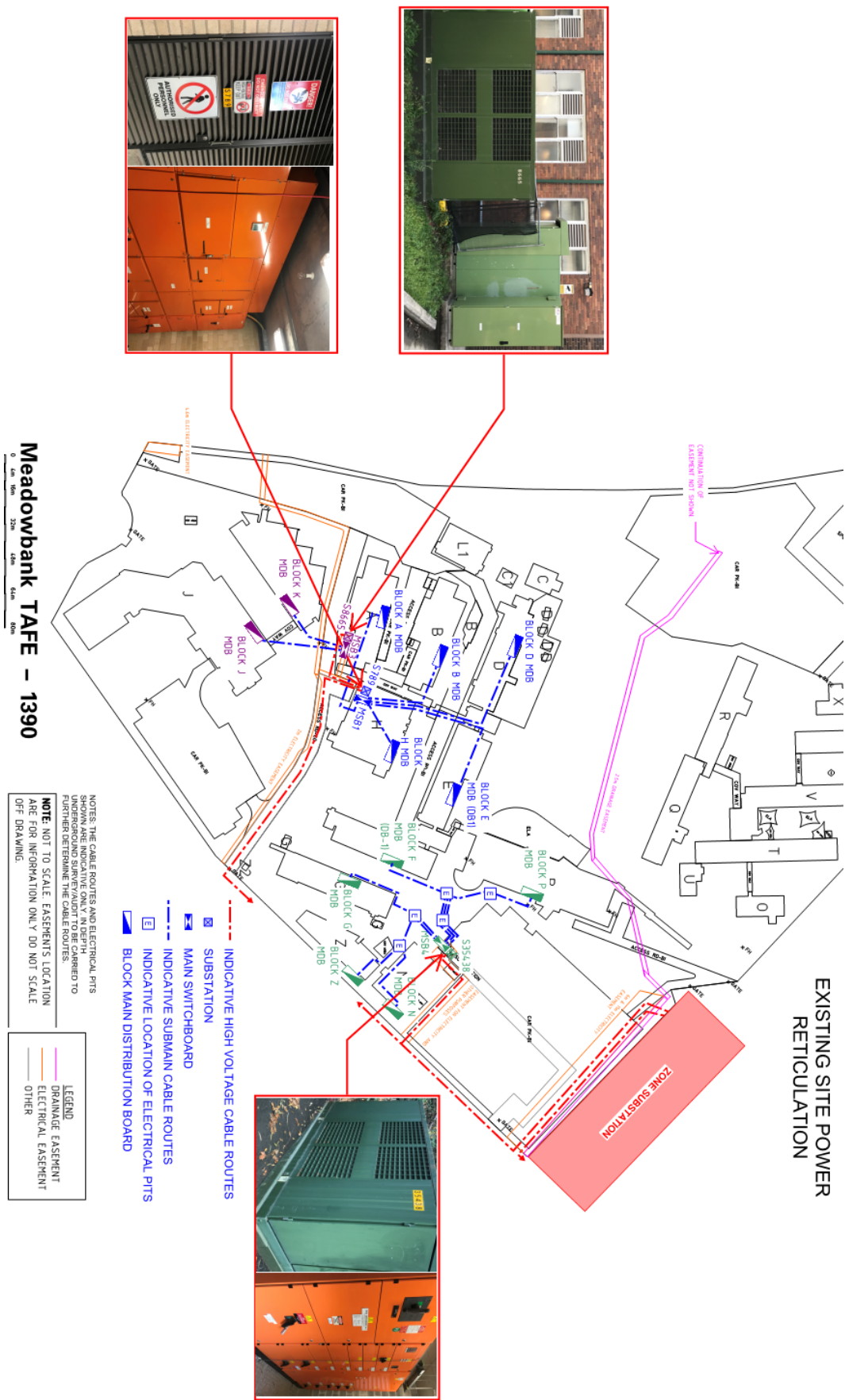
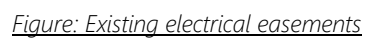


Figure: Existing electrical services demarcation zone

- Easement 1: Zone Substation
- Easement 2: Kiosks Substation S35438
- Easement 3: Kiosks Substation S8665 and Chamber Substation S789



3.2 PROPOSED ELECTRICAL WORKS

3.2.1 ENABLING WORKS

Note: The enabling works do not form part of the SSDA scope and are being undertaken under a separate planning approval process. Details of enabling works below have been provided for information purposes only.

Decommissioning and removal of existing substation S35438 and MSB4

The existing kiosks substation S35438 is currently located within the proposed new combined Multi-Trades and Digital Technology Hub development. Hence, the existing kiosks substation need to be decommissioned and removed, resulting in abolishment of the existing S35438 substation's easement (Easement 2).

Main Switchboard 4 (MSB 4) is also located within the new combined Multi-Trades and Digital Technology Hub development and is required to be removed to allow for the development. All equipment within the Main Switch room including meters, power factor correction etc will need to be removed accordingly.

Establishment of new Kiosk Substation and new Main Switchboard

A maximum demand for the loads proposed to be connected to the new kiosk substation have been calculated as shown below.

Maximum Demand

TAFE Meadowbank - Relocation of S35438

By: JF

Rev : 01 (DRAFT ONLY)

Date: 4/05/2020



BUILDING	LOAD (AMPS)	
Block Z - Existing	62.35	
Block G - Existing	266.48	
Block P - Existing	579.71	
Block F - Existing	139.13	
New Multi Storey Carpark	108.84	
Total TAFE Meadowbank Substation S35438 Max Demand	1156.51	

Figure: Maximum Demand Calculation for the new kiosk substation

A new 1000kVA kiosk substation and new main switchboard are proposed to be installed in the location as shown in the figure below. Ausgrid Level 3 Design was submitted on the 06/01/2020 and the drawings have been certified with the certification number of 3240599. The new 1000kVA substation that is proposed to be established will have the substation number S31668.

The new kiosk substation S31668 and main switchboard are proposed to be built prior to decommissioning and removal of the existing S35438 substation. This is to avoid prolonged disruption to the existing site and allow for a planned outage and duration of the power supply from the existing electrical infrastructure to the new.

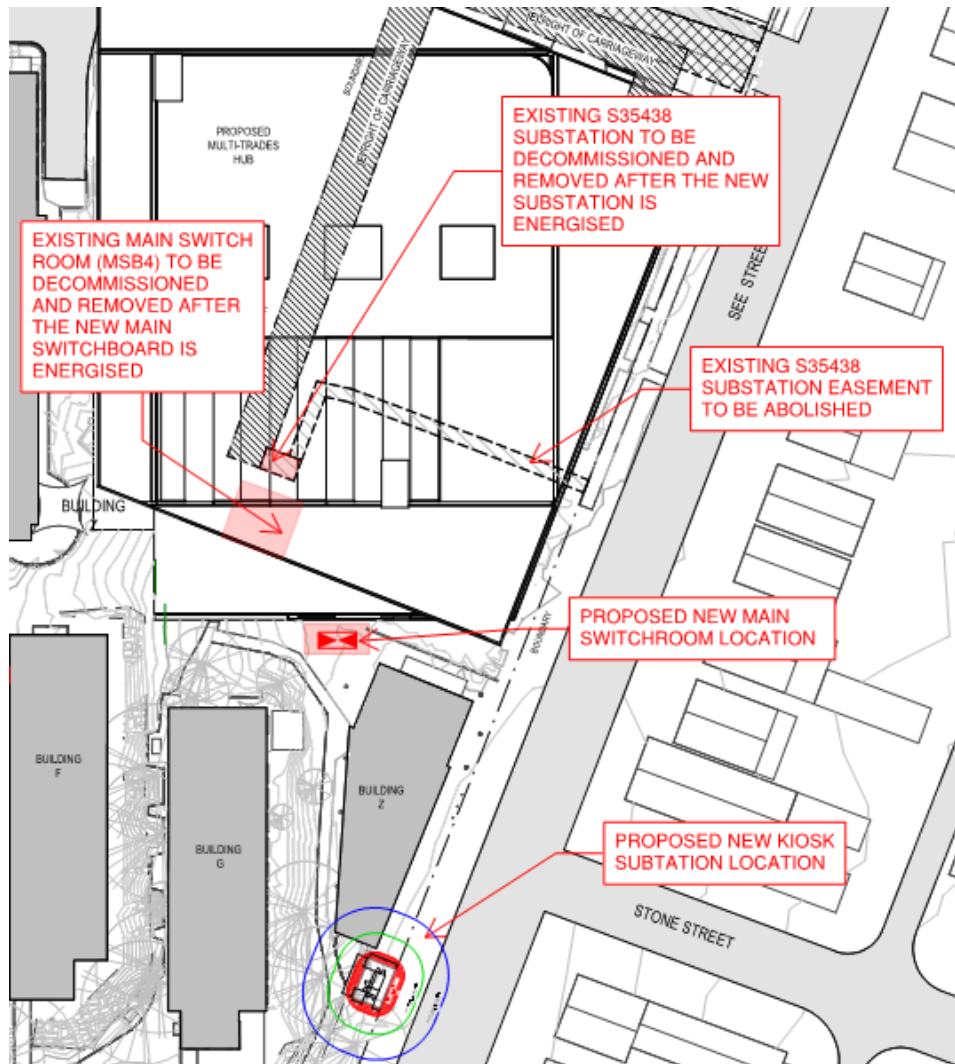


Figure: Proposed substation S34538 replacement works

AUSGRID CERTIFIED DRAWINGS

Ausgrid Level 3 Design was submitted on the 06/01/2020 and the drawings have been certified with the certification number of 3240599. The new 1000kVA substation that is proposed to be established will have the substation number S31668.

Details of the Ausgrid Certified Drawings are appended to the rear of this document (Appendix A).

The Ausgrid Level 3 Design proposes the following infrastructure provisions for the project (replacement works):

- Installation of a new 1000kVA Kiosk Type substation; and
- Decommission and remove redundant existing substation S35438 (existing substation in carpark);

Note, this is for the replacement of the existing substation S35438 only. A separate Ausgrid Application for connection has been submitted for the new Combined Multi Trades and Digital Technology hub.

3.2.2 NEW MULTI STOREY CARPARK

Based on preliminary load calculations (architecture areas revision P2 dated 15/04/2020), the new Multi Storey Carpark development will require a three-phase power supply of 93 Amps (approx. 65kVA).

Maximum Demand

TAFE Meadowbank - Multi Storey Carpark
By: JF

Rev : 01 (DRAFT ONLY)



Date: 4/05/2020
Arch Drawings Revision P2

15/04/2020

	AREA (m2)	VA/sqm		VA	
		Lighting + Power	Mechanical		
Multi Storey Carpark					
Ground Floor - C1300					
Carpark	2395	10	0	23950	
Comms Cupboard	2	35	10	90	
Electrical Cupboard	2	35	10	90	
Level 1 - C1310					
Carpark	2546	10	0	25460	
Comms Cupboard	2	35	10	90	
Electrical Cupboard	2	35	10	90	
Level 2 - C1320					
Carpark	2546	10	0	25460	
Comms Cupboard	2	35	10	90	
Electrical Cupboard	2	35	10	90	
	7499			75410	VA
	Total			108.84	A/Phase
Total TAFE Meadowbank - Multi Storey Carpark Max Demand					75.41 kVA

Figure: Maximum Demand Calculation for the new Multi Storey Carpark

The new Multi Storey Carpark is proposed to be served from either of the following:

- The new 1000kVA kiosks substation S31668 and the new main switchboard

The max demand calculation table in section 3.2.1 shows that the new 1000kVA kiosks substation S31668 and the new main switchboard can accommodate the new multi storey carpark load.

- The existing external Electrical Main Switchboard (MSB3)

MSB3 appears to have spare space 'N1' to accommodate the new multi storey carpark. We recommend load monitoring of the existing MSB3 to further determine spare capacity of the board to ensure that the new multi storey carpark load can be accommodated.



Figure: Spare space 'N1' on the existing MSB3

- **The existing Block J Main Distribution Board**

Further investigation along with load monitoring of the existing Block J Main Distribution board is required to determine if the board can accommodate the new multi storey carpark load.

3.2.3 NEW COMBINED MULTI-TRADES AND DIGITAL TECHNOLOGY HUB DEVELOPMENT

Establishment of two new kiosks substations

The establishment of two new kiosk substation is based on preliminary load calculations (architecture areas revision P1 dated 16/04/2020). The new combined Multi Trades Hub development will require a three phase power supply of 1800 Amps (approx. 1250kVA).

Maximum Demand

TAFE Meadowbank - Trade Hub (New Building)

By: JF

Rev : 01 (DRAFT ONLY)

Date: 4/05/2020
Arch Drawings Revision P1

21/04/2020



	AREA (m2)	VA/sqm		VA
		Lighting + Power	Mechanical	
Multi Trade Hub				
Level 01 - M1310				
Stairs	47.8	10	10	956
Workshop	904	70	20	81360
Amenities	34.5	10	10	690
Circulation	211.2	10	10	4224
Store	11.9	10	10	238
General Learning Space	236.9	50	40	21321
Kitchenette/Breakout	25.1	50	40	2259
Comms room	9.6	300	150	4320
Comms cupboard	1.35	35	10	60.75
Electrical cupboard	3.2	35	10	144
Level 02 - M1320				
Enclosed Carpark	1406.3	5	15	28126
Stairs	66.9	10	10	1338
Workshop	238.8	70	20	21492
Amenities	87.4	10	10	1748
Circulation	204.1	10	10	4082
Store	96.1	10	10	1922
Seminar	18.6	50	40	1674
Self Directed Learning	141.3	50	40	12717
General Learning Space	67	50	40	6030
Switch Room	32.5	35	35	2275
Plant Room	181	35	35	12670
Comms room	12.4	300	150	5580
Comms cupboard	1.35	35	10	60.75
Electrical cupboard	3.2	35	10	144
Level 03 - M1330				
Outdoor Workshop	1007.2	50	10	60432
Workshop	2345.9	70	20	211131
Electro Technology Workshop	197.7	80	20	19770
Machine Room	137.6	35	35	9632
General Learning Space	546.4	50	40	49176
Seminar	54.2	50	40	4878
Stairs	119	10	10	2380
Circulation	414.7	10	10	8294
Amenities	108	10	10	2160
Loading Dock	523.1	10	10	10462
Store	56.7	10	10	1134
Kitchenette/Breakout	49	50	40	4410
Workshop Storage	450.4	10	10	9008
Comms room	29.1	300	150	13095
Comms cupboard	1.35	35	10	60.75
Electrical cupboard	9.6	35	10	432
Plant Room	19.7	35	35	1379
Level 04 - M1340				
Cafe	35.1	300	40	11934
Store	23	10	10	460
Stairs	90.7	10	10	1814
Amenities	58.8	10	10	1176
Circulation	532.5	10	10	10650
General Learning Space	496	50	40	44640
Seminar	24.3	50	40	2187
Industry Engagement	394	50	40	35460
Self Directed Learning	139.8	50	40	12582
Kitchenette/Breakout	67.5	50	40	6075
Comms room	29.1	300	150	13095
Comms cupboard	1.35	35	10	60.75
Electrical cupboard	3.84	35	10	172.8
Level 05 - M1350				
Workplace	640.5	50	40	57645
Meeting	124.4	50	40	11196
Kitchenette/Breakout	79.3	50	40	7137
Stairs	91.2	10	10	1824
Amenities	59.8	10	10	1196
Circulation	705.7	10	10	14114
General Learning Space	202.6	50	40	18234
Seminar	121.48	50	40	10933.2
Industry Engagement	742.4	50	40	66816
Large Group Delivery	196.5	50	40	17685
Self Directed Learning	41.3	50	40	3717
Kitchenette/Breakout	33.9	50	40	3051
Comms cupboard	1.35	35	10	60.75
Electrical cupboard	5.12	35	10	230.4
Comms room	27.4	300	150	12330
Level 06 - M1360				
Outdoor Workshop	202.8	50	10	12168
Roof Plant Area	476.9	35	0	16691.5
Workshop	87.5	70	20	7875
Stairs	47.8	10	10	956
Amenities	51	10	10	1020
Circulation	30	10	10	600
CSOC Learning	199.6	60	60	23952
General Learning Space	135.2	50	40	12168
Seminar	31.9	50	40	2871
Digital Enabled Learning	429	60	60	51480
Industry Engagement	489.5	50	40	44055
Plant Room	8.5	35	35	595
Comms cupboard	1.35	35	10	60.75
Electrical cupboard	2.56	35	10	115.2
Comms room	9.6	300	150	4320
Comms room	20.3	300	150	9135
Switch room	2.56	35	35	179.2
Sub Total	17307.16			1177982.8 VA
				1700.27 A/Phase
Electric Car Charger (37 Car Space - 5% = 2 Units)	No. of Units	Amps per Charger, 1 Phase	Watts per Charger	
	2	32.00	7360	23.61 A/Phase
Lifts	No. of Lift	Watts per Lift	Diversified Watts	
	3	20000	50000	80.19 A/Phase
Total				1804.07 A/Phase
Total TAFE Meadowbank - Trade Hub (New Building) Max Demand				1249.89 kVA

Figure: Maximum Demand Calculation for the new combined Multi-Trades and Digital Technology Hub development

As such two new 1000kVA Ausgrid kiosks substations are proposed to be installed to serve the new combined Multi-Trades and Digital Technology Hub development. Proposed location of the two kiosks substations are as shown in the figure below. Final location pending Ausgrid's approval.

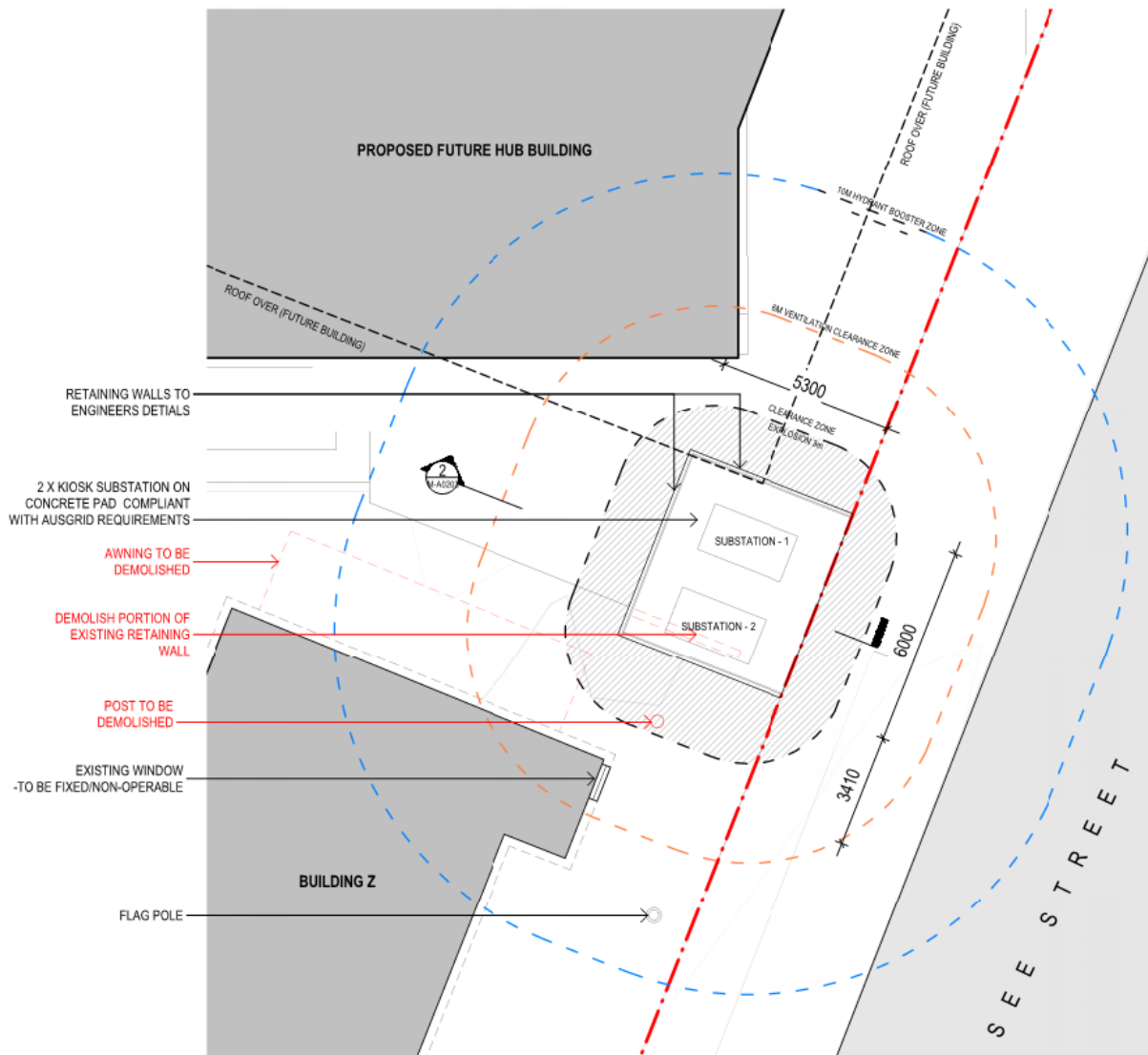


Figure: Proposed location of two new 1000kVA substations

AUSGRID APPLICATION FOR CONNECTION

An Ausgrid Application for Connection (ref 0029281) has been submitted on the 28th August 2019 for the revised site maximum demand, which factors in the New combined Multi-Trade and Digital Technology Hub building.

Details of the Application for Connection is appended to the rear of this document (Appendix B).

Ausgrid have acknowledged the offer and have submitted a 'Connection Offer' back to the applicant. (webform Ref 29281, AP ref 800279579). Refer to extract below.

The Connection Offer from Ausgrid proposes the following infrastructure provisions for the project:

- Installation of 2 x Kiosk Type substations

OFFER to provide DESIGN RELATED SERVICES



DESIGN RELATED SERVICES OFFER

Premises address: 19 SEE STREET, MEADOWBANK 2114

NMI - Number:

Webform Ref 29281

MC Reference: 1900094898

AP Reference: 800279579

This offer is made on 07-09-2019

By Ausgrid of 24 Campbell St, Haymarket NSW 2000.

To the **connection applicant** named in the *connection application* received on 28/08/2019 in respect of the *premises* referred to above.

Ausgrid has determined that network alterations are required to connect your development and we cannot proceed to a connection or relocation offer at this stage. To enable Ausgrid to further consider and process your application you will require a certified design and associated certification number. Your application remains technically incomplete until you have been issued a certification number.

This Design Related Services Offer provides guidance on how to obtain a certified design and associated certification number.

Scope of Network Alterations

Ausgrid has determined that the following works are likely to be required:

- Installation of 2 x Kiosk type substations.

These works are classified as contestable, which means that you are required to fund the design and some or all of the construction works. If you have not already done so, you will need to engage and manage suitably qualified contractors, known as Accredited Service Providers (ASPs) to undertake the design and construction.

For further details, the Connection Offer is appended to the rear of this document (Appendix C).

The Ausgrid Level 3 Design is currently in progress and will be submitted to Ausgrid for certification once completed.

3.2.4 PROTECTION OF THE EXISTING TO REMAIN EASEMENTS

3.2.4.1 Zone Substation Easement (Easement 1)

The Zone substation is proposed to remain as existing to serve the site. Hence, the zone substation easement (Easement 1) will need to be protected and taken into account as part of the combined Multi-Trades and Digital Technology Hub development. There will be a strategic distance between the zone substation and the combined Multi-Trades and Digital Technology hub to allow for the required zone substation easement. Note that no structural building of the combined Multi-Trades and Digital Technology Hub will be within the easement of the zone substation.

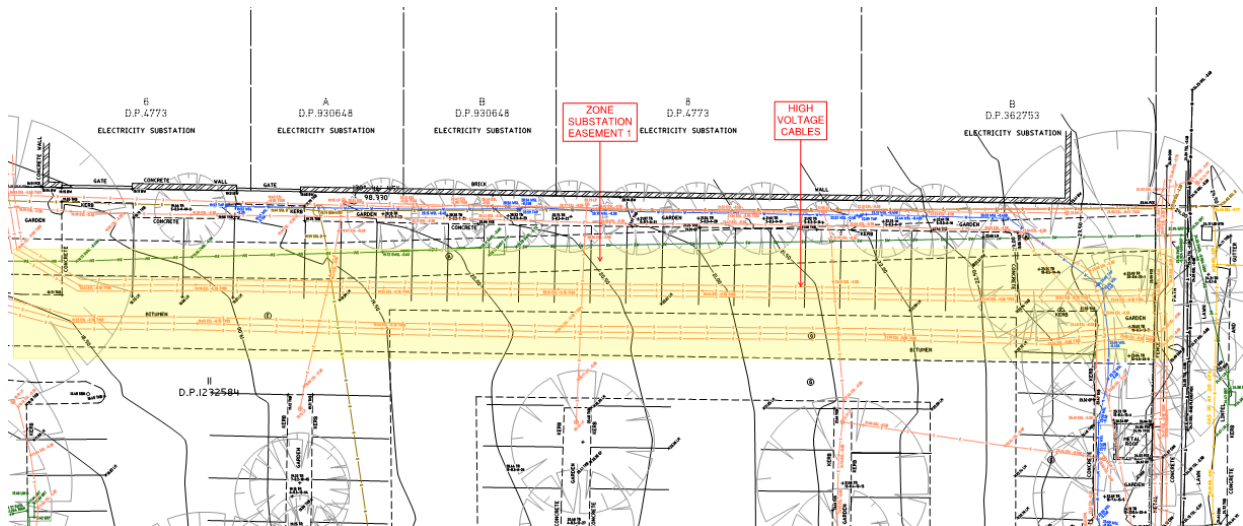


Figure: Survey Drawing noting high voltage cables running along zone substation easement

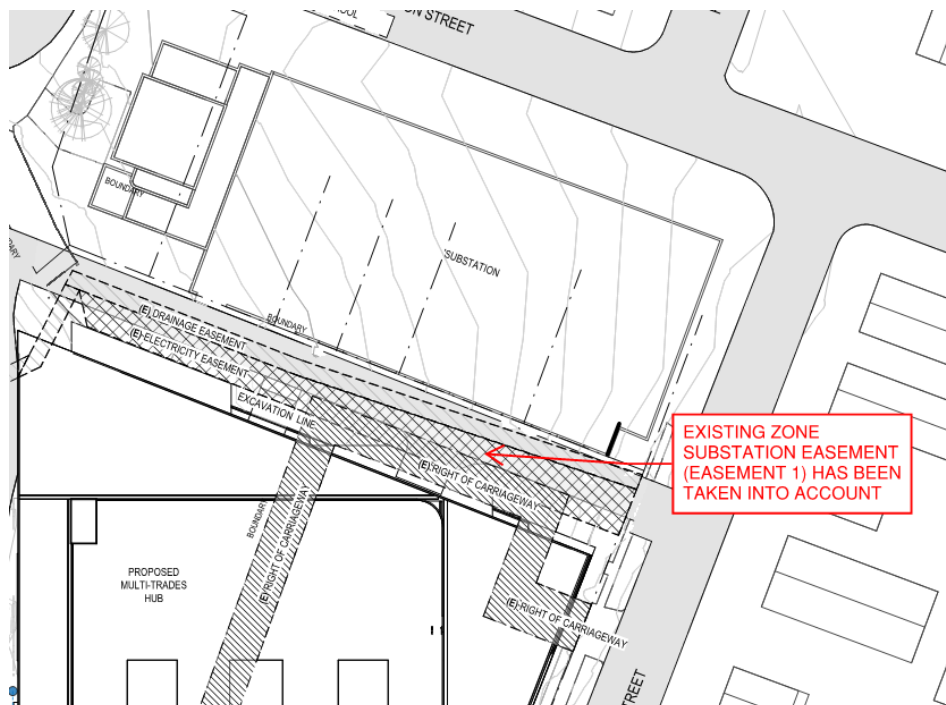


Figure: Existing zone substation easement (easement 1) being taken into account

3.2.4.2 Kiosks Substation S8665 and Chamber Substation S789 Easement (Easement 3)

Kiosks Substation S8665 and Chamber Substation S789 are also proposed to remain as existing to serve the remainder of the site. Hence, the associated easement (Easement 3) will need to be protected, retained and taken into account as part of the Multi Storey Carpark development. Note that no structural building of the Multi Storey Carpark will be within the easement of the substations.

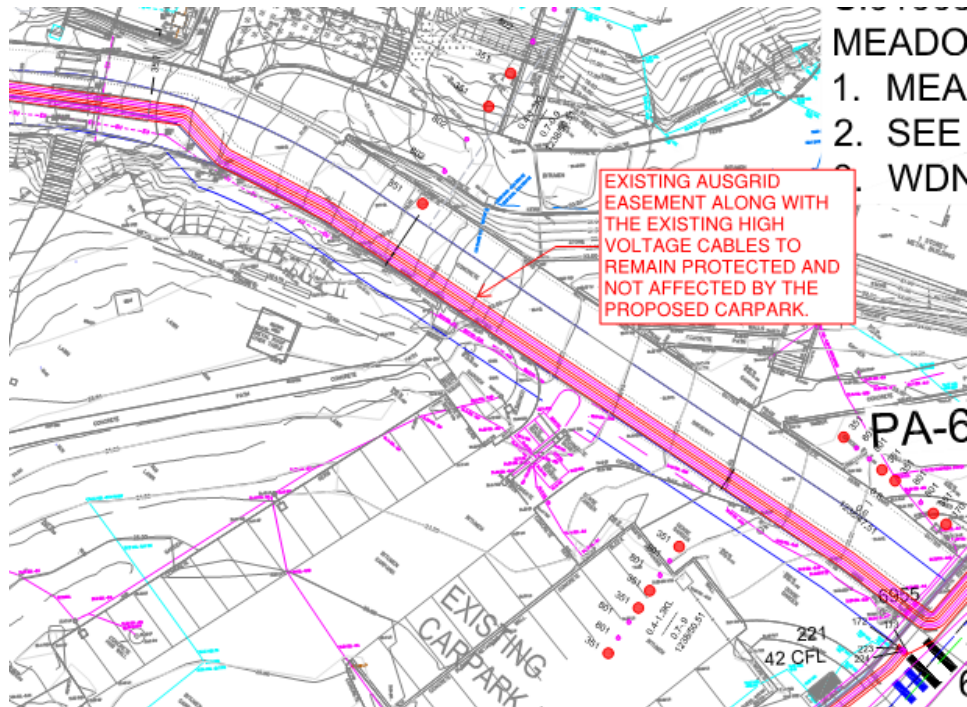


Figure: Survey Drawing noting high voltage cables running along substations easement

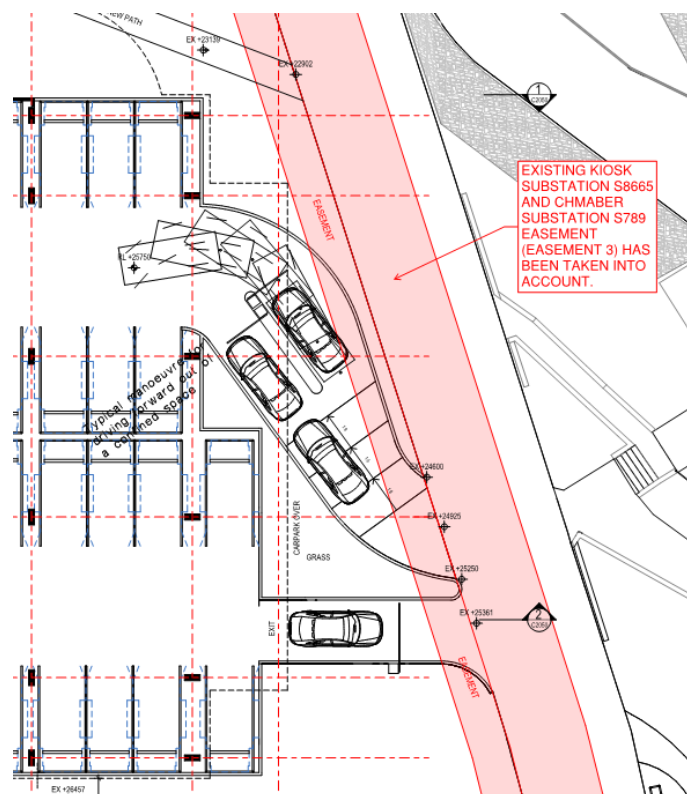


Figure: Existing substations easement (easement 3) being taken into account

3.3 ELECTRIC AND MAGNETIC FIELDS (1HZ-100KHZ)

Electric and Magnetic fields, in particular source from the zone substation have been considered in line with the INCIRP, 2010 standards. Refer to JHA's Electric and Magnetic Fields report (EMF report) for further information.

3.4 EXISTING COMMUNICATIONS SERVICES DESCRIPTION

The TAFE Meadowbank Site currently is serviced by a Telstra GWIP fibre connection with 200MBps Up /200MBps Down.

The main comms fibre incoming feeds enter from See Street into Block J, where the campus distributor racks are currently located.



Figure below shows a high level representative of the ICT / Fibre backbone reticulation through the site that will be affected by the proposed works. Note that the routes shown are indicative.

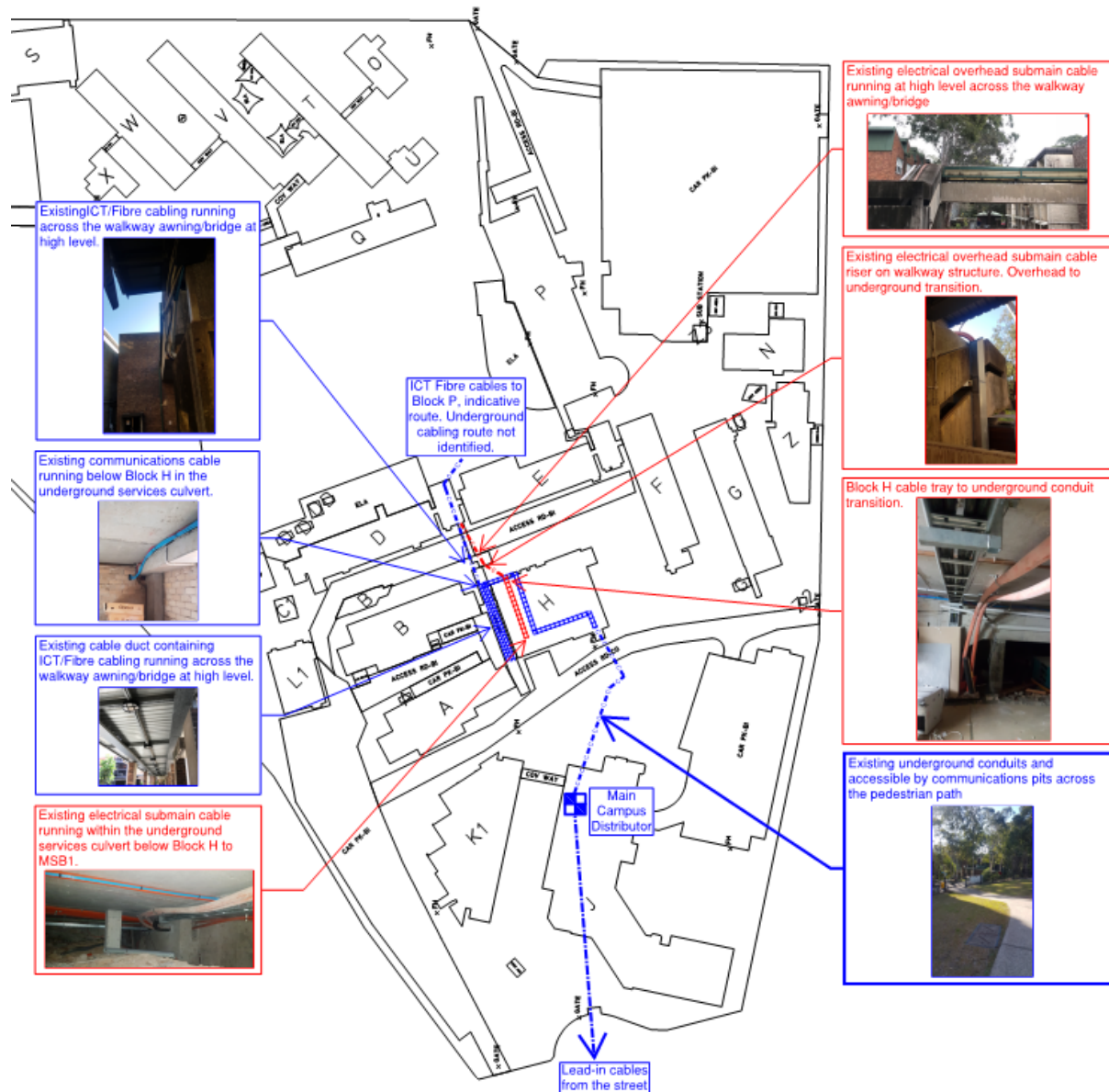


Figure: Existing ICT/Fibre and security reticulation

3.5 PROPOSED COMMUNICATIONS WORKS

3.5.1 SITE WIDE COMMUNICATIONS SERVICES RETICULATION

New fibre will be run, connecting the new combined multi-trades and digital technology hub to the Block J campus distributor (for dedicated intranet connections). The new fibre cables are proposed to be run underground in conduit and pits, with an indicative cabling route as shown below.

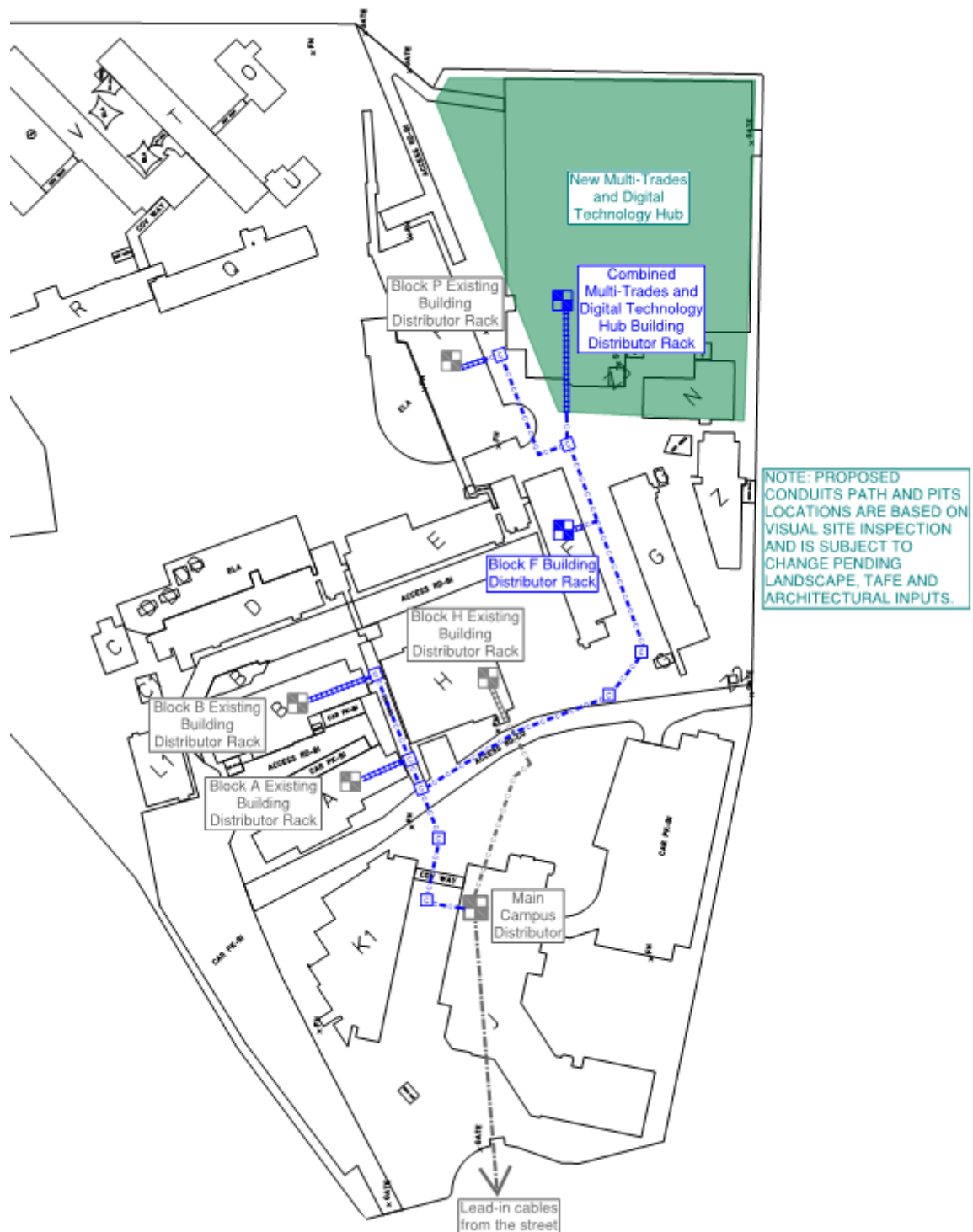


Figure: Proposed new fibre route

As the communications cabling connecting Block J to Block P is running at high level across the existing walkway awning/bridge that is proposed to be removed, new underground fibre needs to be run to Block P as shown above. It is proposed that the new underground fibre, conduits and pits to be run to Block P prior to removal/demolishment of the existing walkway awning/bridge and any overhead cables/cable containments in accordance to the site wide staging plan to minimise disruption to the remaining of the site during construction.

Similar to the combined Multi-Trades and Digital Technology Hub, new fibres will be run, connecting the Multi Storey Carpark back to the Block J campus distributor (for dedicated intranet connections). Refer to figure above for indicative fibre connection route.

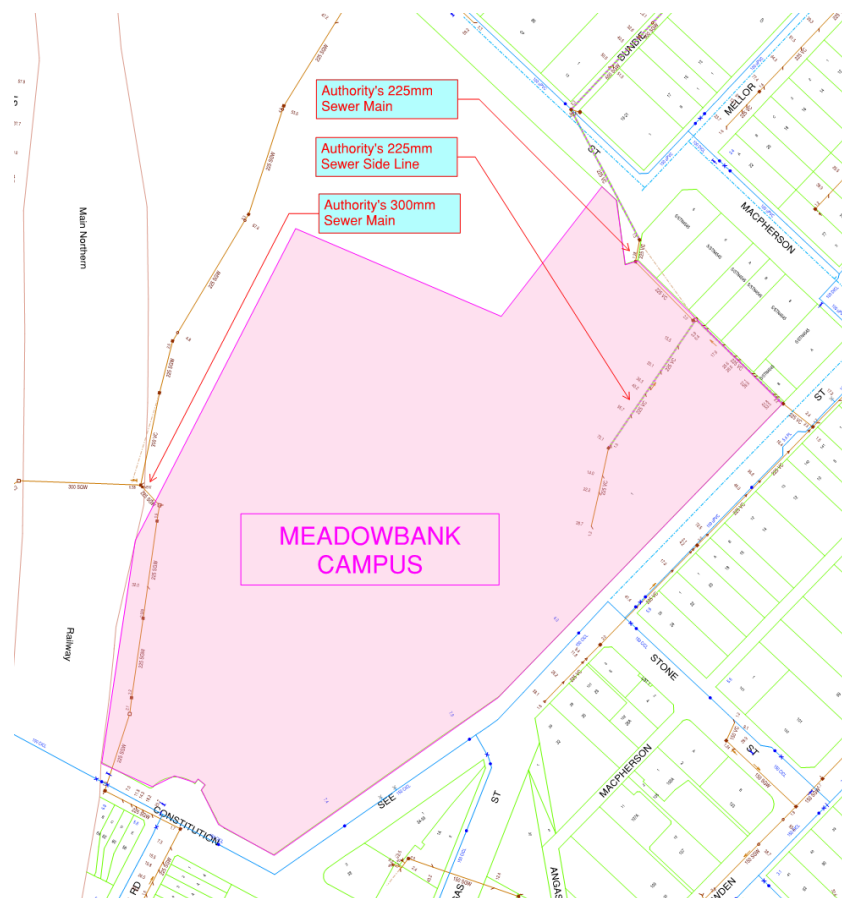
4 HYDRAULIC SERVICES

4.1 EXISTING SERVICES DESCRIPTION

4.1.1 SEWER SYSTEM

There are several Sydney Water sewer mains currently servicing the site, located adjacent to and within the college which facilitate multiple private sewer connections as shown in the figure below.

A 225mm Sydney Water sewer main exists within the North Eastern carpark directly within the proposed footprint of the new MTH/DTH. This sewer line is understood to serve Block N. Block N is to be demolished during the main works and as such, the existing authority can be disused.



The authority's 300mm sewer main West of the college receives sewer discharge from two (2) of the college's main private sewer lines serving the majority of buildings.

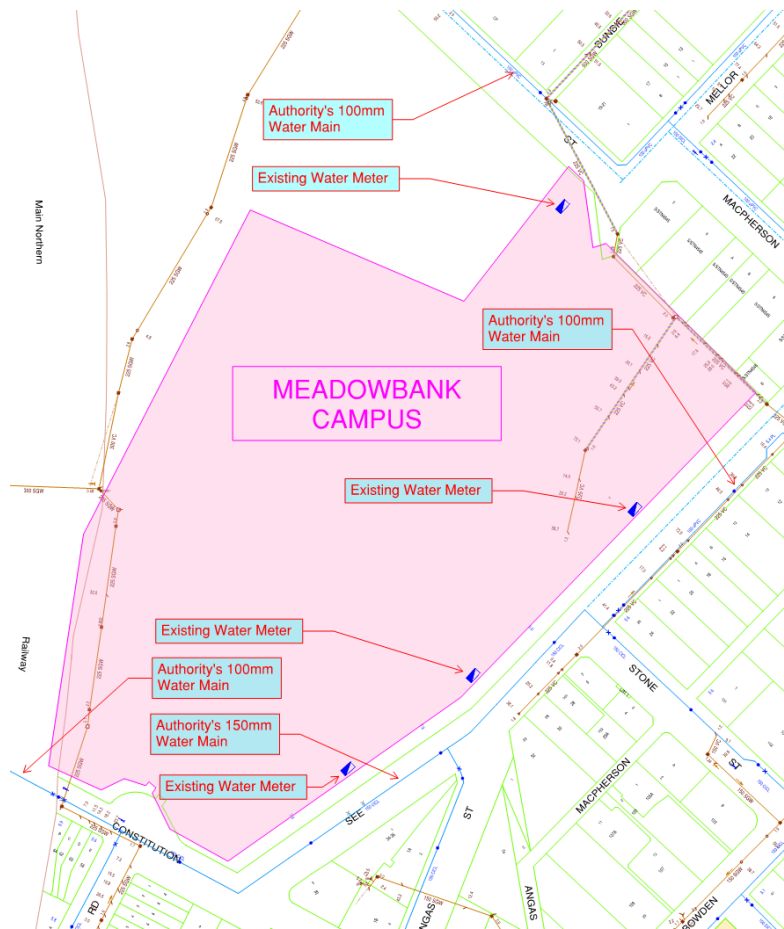
4.1.2 WATER SERVICES

The college is bound by three (3) authority's water mains located in See Street (100 to 150mm main), Constitution Road (100mm main) and Rhodes Street (100mm main). There are several water supplies to the college coming of the See Street main and another potable water and fire hydrant connection of the Rhodes Street main.

Based on survey information and site observations the following incoming water supplies have been noted:

- Rhodes Street – 100mm to water meter and fire hydrant booster for Block P and surrounding areas;
- See St (North) – 20mm to 2 x water meters to carpark water and Block N;
- See St (Central) – 100mm to water meter to several buildings through the central area;
- See St (Central) – 100mm to fire hydrant booster for Blocks J and K; and

- See St (South) – 150mm to water meter for Block J and carpark and fire hydrant booster for Blocks A, B, D, E and F.



4.1.3 FIRE SERVICES

As noted above, there are several water mains with the streets around the college. Based on site inspections and the Lucid Fire Hydrant Report, there appears to be three fire hydrant connections as follows:

- Rhodes Street – 100mm, 4 point booster for Block P;
- See St (Central) – 100mm, 4 point booster to a pump assembly for Blocks J and K; and
- Carpark (South at Block J) – 150mm, 4 point booster for Blocks A, B, D, E and F.

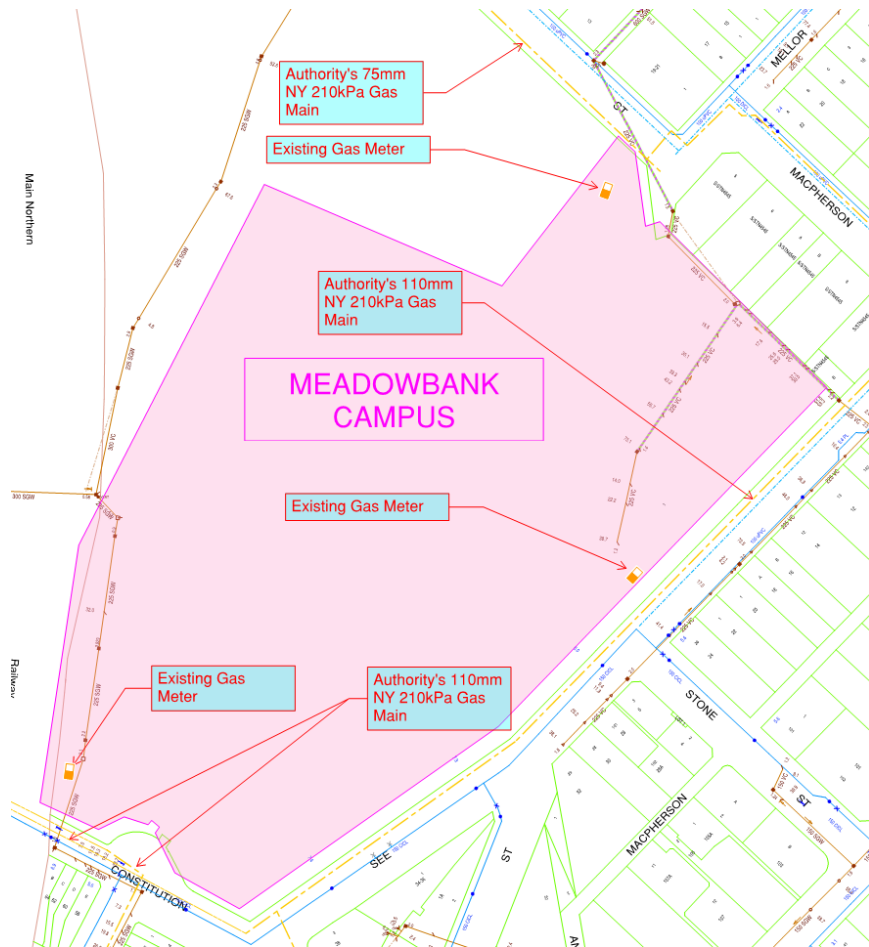
A fourth fire hydrant system is located in Block H and is a dry hydrant system with no direct water supply.

4.1.4 NATURAL GAS SERVICES

Authority's gas mains are located in See Street (110mm@210kpa), Constitution Road (110mm@210kpa) and Rhodes Street (75mm@210kpa).

Similar to water services, the college has multiple gas supplies as follows:

- Constitution Road – main supply to the majority of buildings;
- See St (Central) – 20mm supply to Block Z; and
- Rhodes Street – 25mm to Block P with second stage regulator at the rear of the building,



4.2 PROPOSED WORKS

4.2.1 SEWER SYSTEM

The development of the new MT/DT Hub will require the following works from the existing sewer service:

- Decommission of the existing Sydney Water sewer main; and
- Connection of the new sewer system into the existing campus system

The development of the new MTH/DTH will require the decommissioning of the existing Sydney Water sewer main along the existing carpark to enable the excavation of the basement levels. These works shall form part of an early works.

Sydney Water has issued a confirmation for the disuse of sewer within the current carpark. The sewer system is to be capped off 1.0m from the existing sewer manhole.

Note: The early works do not form part of the SSDA scope and are being undertaken under a separate planning approval process. Details of early works have been provided for information purposes only.

Connection of the new sewer drainage system from the MT/DT Hub shall be made to the existing sewer manhole located to the south-east of Block P. This service has sufficient depth to allow gravity drainage for the new development

Design criteria

Application	Criteria
Standard Pipe Gradients	40-65 -2.5% 100 - 1.65% 150 – 1% 225 – 0.85%

4.2.2 ROOF DRAINAGE

The proposed roof layout consists of multiple areas requiring various rainwater collection methods. The roof consists of surface drainage for the plant room areas, box gutters for the sawtooth roof, and eaves gutters for the remaining roof areas.

A syphonic drainage system is proposed for the development, to discharge into a rainwater harvesting tank for collection and potential reuse. The rainwater tank shall then overflow into the civil stormwater system.

For courtyards, balconies and other areas where syphonic drainage may not be possible, conventional stormwater drainage shall be utilised to discharge into the civil stormwater system.

Design criteria

Application	Criteria
Average Recurrence Interval/ Rainfall Intensity	1:100yr – 224mm/hr 1:20yr – 174mm/hr
Standard Pipe Gradients	100 - 1.00% 150 – 1.00% 225 – 0.65% 300 – 0.40%

4.2.3 WATER SERVICES

To serve the new MT/DT Hub, the water supply will be extended from the existing 100mm supply off See Street, south of Block Z at the See Street boundary. Due to the location of the proposed new substation (adjacent to the Block Z), the route of the new water supply will need to divert around the substation exclusion zone. This works will form part of an early works package and do not form part of the SSDA works package.

The water supply will reticulate to a new water meter assembly and pump assembly to serve the MTH/DTH fixtures, plant and equipment.

A Water Servicing Coordinator (WSC) will need to be engaged to conduct a Section 73 application to Sydney Water

Design criteria

Application	Criteria
Operating pressures at fixture outlets.	Minimum - 250kpa Maximum – 500kpa
Operating Velocities through pipework.	Minimum – 1.5m/sec Maximum – 3m/sec

4.2.4 HOT WATER SERVICE

The hot water service for the new MTH/DTH shall be a gas fired centralised hot water reticulation plant with solar pre-heat serving all ablution fixtures within the development.

Hot water for kitchenettes and tea points throughout the MTH/DTH shall be generated via a ZIP 4-in-1 boiling, chilled and hot unit located beneath the sink, within the joinery cupboard.

4.2.5 GAS SERVICES

A natural gas audit on the existing campus has been conducted by JHA, as requested by Jemena. The existing loads within the campus, as well as the proposed loads had been tabled and provided to Jemena to determine if there was sufficient capacity within the Jemena network.

Results from the audit and discussions with Jemena had confirmed sufficient capacity is available. Jemena had noted that the existing can meter (located adjacent the train station) would need to be upgraded to supply the campus inclusive of the additional load from the MT/DT Hub.

To serve the new MT/DT Hub, the existing gas supply will need to be extended, south of block P and reticulate to the new development. The gas pipe infrastructure is sufficiently sized to serve the new development without the need to upgrade pipe sizes

4.2.6 FIRE SERVICES

To serve the new MTH/DTH, it is proposed to upgrade the existing 100mm domestic cold water supply and connection at See Street, adjacent to Block Z, to a 150mm supply, and extend the pipework to serve both the fire systems (fire hydrant and fire sprinkler systems) and domestic cold water supply. These works shall form part of the early works package.

As mentioned within section 4.2.3, a Water Servicing Coordinator will need to be engaged to conduct a Section 73 application to Sydney Water

Design criteria

Application	Criteria
Operating pressures at fixture outlets.	Minimum - 250kpa Maximum – 1200kpa
Operating Velocities through pipework.	Maximum – 4m/sec
Minimum number of Hydrants to operate simultaneously	(2)
Minimum operating flow rate	20l/s

5 APPENDIX A: AUSGRID CERTIFIED DRAWING #3240599 (SUBSTATION S35438 REPLACEMENT WORKS)

Note: The enabling works – Appendix A do not form part of the SSDA scope and are being undertaken under a separate planning approval process. Details of enabling works – Appendix A below have been provided for information purposes only.



1. CLAIM FOR VARIATIONS TO THE COST OF NON-CONTESTABLE WORKS, INCLUDING ROCK EXCAVATION WILL NOT BE ACCEPTED UNLESS VERIFIED ON SITE BY THE AUSGRID WHILE THE WORKS ARE IN PROGRESS.
2. THE ASP1 IS RESPONSIBLE FOR UNDERTAKING SATISFACTORY CONSULTATION WITH ALL LOCAL CUSTOMERS WHO MAY POTENTIALLY BE AFFECTED BY THE CONSTRUCTION WORKS INCLUDING ALL ALTERATIONS TO SERVICE MAINS.
3. THE ASP1 MUST MINIMISE THE IMPACT OF THE WORKS ON THE ELECTRICITY SUPPLY TO CUSTOMERS AND INTERRUPTIONS TO SUPPLY MUST BE AVOIDED WHEREVER POSSIBLE. AT LEAST FOUR (4) CLEAR BUSINESS DAYS NOTICE MUST BE PROVIDED TO ALL AFFECTED CUSTOMERS PRIOR TO ANY PLANNED INTERRUPTIONS TO THE ELECTRICITY SUPPLY. NOTICE MUST BE IN WRITING IN ACCORDANCE WITH CLAUSE 90 OF THE NATIONAL ENERGY RETAIL RULES.
4. SPECIFIC PRIOR APPROVAL MUST BE SOUGHT FROM AUSGRID FOR ANY PLANNED ELECTRICITY SUPPLY INTERRUPTIONS WHERE THE INTERRUPTION WILL EXCEED ONE (1) HOUR IN DURATION OR THE DURATION WILL BE LESS THAN ONE HOUR, BUT A SUITABLE TIME FOR THE INTERRUPTION CANNOT BE MUTUALLY AGREED TO WITH THE AFFECTED CUSTOMER(S).
5. THE ASP1 IS TO MAINTAIN ADEQUATE PUBLIC LIGHTING LEVELS FOR THE DURATION OF THE WORKS. IF NECESSARY, THE ASP1 IS TO ARRANGE FOR SUITABLE TEMPORARY STREET LIGHTING TO BE PROVIDED UNTIL PERMANENT LIGHTING IS RE-ESTABLISHED.
6. THE ASP1 IS TO CO-ORDINATE THE MODIFICATION AND TESTING OF ANY REQUIRED PROTECTION RELAY WITH THE AUSGRID TECHNICAL SERVICES GROUP.
7. THE ASP1 IS REQUIRED TO COMPLY WITH THE CORRECT PROCEDURE(S) FOR WORKING WITH AND/OR NEAR ASBESTOS MATERIAL (REFER TO AUSGRID NSW211 - WORKING WITH ASBESTOS PRODUCTS).
8. ALL REDUNDANT EQUIPMENT TO BE REMOVED FROM SERVICE AND RETURNED TO AUSGRID NEAREST DEPOT.
9. FOR IDENTIFICATION AND JOINTING PURPOSES, ALL CABLE ENDS SHALL BE LABELLED AT THE TERMINATIONS AND IN JOINT BAYS DURING CABLE INSTALLATION. THE CABLES MUST BE LABELLED AS PER THE CERTIFIED DESIGN.
10. ALL WORKS TO BE IN ACCORDANCE WITH LATEST AUSGRID NETWORK STANDARD & AUSGRID STANDARD DRAWINGS.
11. THIS INFORMATION INCLUDES DATA FROM THE NSW DIGITAL CADASTRAL DATABASE BY LAND AND PROPERTY INFORMATION © 2016, USED UNDER CREATIVE COMMONS LICENCE VERSION 4.0.
12. **USE OF SPARE CONDUITS:**
 - 12.1. SPARE CONDUITS EXIST. IN ORDER TO MINIMISE EXCAVATION AND REINSTATEMENT, AUSGRID WILL ALLOW EXISTING SPARE CONDUITS TO BE USED FOR WORKS IN ACCORDANCE WITH AUSGRID NETWORK STANDARD 130.
 - 12.2. AUSGRID IS NOT AWARE OF THE CURRENT STATE OF THE DUCT LINE AND DOES NOT WARRANT THAT THE EXISTING CONDUITS ARE SUITABLE FOR USE (eg. HAVE ENOUGH SUFFICIENT COVER FOR THE CABLES/ TO BE PULLED THROUGH THEM, ARE NOT FULLY OR PARTLY BLOCKED OR DISTORTED, ARE NOT LIKELY TO CAUSE DAMAGE TO THE CABLES/ AS THEY ARE PULLED THROUGH THROUGH THE CONDUIT). THIS SHOULD BE DETERMINED ON SITE BY THE ASP1 PRIOR TO UNDERTAKING ANY CABLE PULL THROUGH THE EXISTING CONDUITS/
 - 12.3. THE ASP1 WILL BE REQUIRED TO TEST THE CONDUITS PRIOR TO USE IN ACCORDANCE WITH AUSGRID NETWORK STANDARD 130. THIS TESTING MUST BE UNDERTAKEN IN THE RESENCE OF AN AUSGRID COMPLIANCE OFFICER.
 - 12.4. AUSGRID WILL NOT BE RESPONSIBLE FOR ANY PENALTIES, COSTS OR CONSEQUENTIAL LOSSES ASSOCIATED WITH THE INTENDED USE OF THE EXISTING SPARE CONDUITS SHOULD THEY FOR ANY REASON PROVE TO BE UNSUITABLE FOR THE CONSTRUCTION WORKS.
 - 12.5. THE INTEGRITY OF ADJACENT CONDUITS MUST BE MAINTAINED.

ALL LEVEL 2 ASP WORK DEPICTED ON THIS DRAWING IS SHOWN FOR INFORMATION PURPOSES ONLY AND DOES NOT FORM PART OF THE CERTIFIED DESIGN.

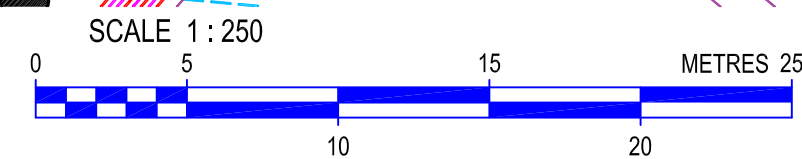
- THIS DESIGN CANNOT BE USED FOR CONSTRUCTION PURPOSES UNTIL THE LOCATION OF ALL EXISTING SERVICES IS VERIFIED.
- THE INFORMATION PROVIDED IN THIS DESIGN MUST BE CHECKED ON SITE AND THE MOST CURRENT INFORMATION ON THE CONFIGURATION OF ALL SERVICES, INCLUDING AUSGRID'S NETWORK, MUST BE VERIFIED IMMEDIATELY BEFORE CONSTRUCTION COMMENCES BY CONTACTING DIAL-BEFORE-YOU-DIG BY TELEPHONE ON 1100 OR AT www.1100.com.au.
- DIAL-BEFORE-YOU-DIG INFORMATION MUST NOT BE OLDER THAN 20 BUSINESS DAYS AT THE TIME OF CONSTRUCTION.
- DUE CONSIDERATION OF EXISTING SERVICES HAS BEEN CARRIED OUT IN DESIGN. HOWEVER, THE PROJECT CONSTRUCTOR IS WHOLLY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF EXISTING SERVICES & SURVEY WORKS BEFORE CONSTRUCTION. NO RESPONSIBILITY OR LIABILITY WILL BE ACCEPTABLE OF INFORMATION GIVEN OR DAMAGE TO EXISTING SERVICES IN THE VICINITY OF THE WORKS.
- DO NOT PLACE ANY RELIANCE ON ANY QUANTITIES OR DIMENSIONS GIVEN IN THIS DRAWING. QUANTITIES AND DIMENSIONS GIVEN ON THIS DRAWINGS ARE 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 CONSTRUCTION.

	132kV UG MAINS - EXISTING		LV OH LINK - EXISTING
	AUX OH MAINS - EXISTING		KIOSK SUBSTATION - EXISTING
	AUX UG MAINS - EXISTING		KIOSK SUBSTATION - PROPOSED
	HV UG MAINS - EXISTING		GROUND SUBSTATION - EXISTING
	HV UG MAINS - PROPOSED		CONDUITS - EXISTING
	HV UG MAINS - TO BE REMOVED		CONDUITS - PROPOSED
	HV / AUX UG MAINS - ABANDONED		STREETLIGHT CONTROL POINT - EXISTING
	LV OH MAINS - EXISTING		STREETLIGHT - EXISTING
	LV UG MAINS - EXISTING		CABLE JOINT - EXISTING / PROPOSED
	LV UG MAINS - TO BE REMOVED		SEALED END - EXISTING
	SERVICE OH MAINS - EXISTING		POT END - EXISTING
	SERVICE UG MAINS - EXISTING		UGOH - EXISTING
	SL OH MAINS - EXISTING		POLE - EXISTING

WORKING NEAR TRANSMISSION CABLES. CONTACT AUSGRID ON (02) 4951 9200 AT LEAST TWO WEEKS BEFORE WORK COMMENCES. SEE AUSGRID NETWORK STANDARD NS156.

EXISTING ROAD CROSSING CONDUITS ARE RECORDED AS 150 FS WHICH ARE 150mm FIBRE CEMENT CONDUITS AND MAY CONTAIN ASBESTOS.
THE ASP1 IS REQUIRED TO COMPLY WITH THE CORRECT PROCEDURE(S) FOR WORKING WITH AND/OR NEAR ASBESTOS MATERIAL.
(REFER TO AUSGRID NUS 211 - WORKING WITH ASBESTOS PRODUCTS).

CONSTRUCTION PLAN



JHA

ASP REF.	190224
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DESIGNED BY	Rasana Patachaianand
AUTH NO.	3342/1
SUBMIT DATE	SUBMITTED 6/01/2020
LGA	CITY OF RYDE
MAP REF.	UBD 213F2
AUSGRID REF.	PA62
PRJTRAK No.	XCH014662

Est. new 1000kVA Kiosk Sub S.31668
and Decommission of S.35438
TAFE NSW Meadowbank
See Street,
MEADOWBANK

9	SIZE A1	AUSGRID PROJECT No. AN-20283	SHEETS 1 of 5	AMD. 0
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CHECK FOR OTHER SERVICES BEFORE BORING OR EXCAVATING

CAD DRAWING
DO NOT MANUALLY AMEND
AMENDMENTS

ASSOCIATED DRAWINGS

<i>CERTIFICATION NUMBER</i>	3240599/20200109	SIZE A1
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	SIZE
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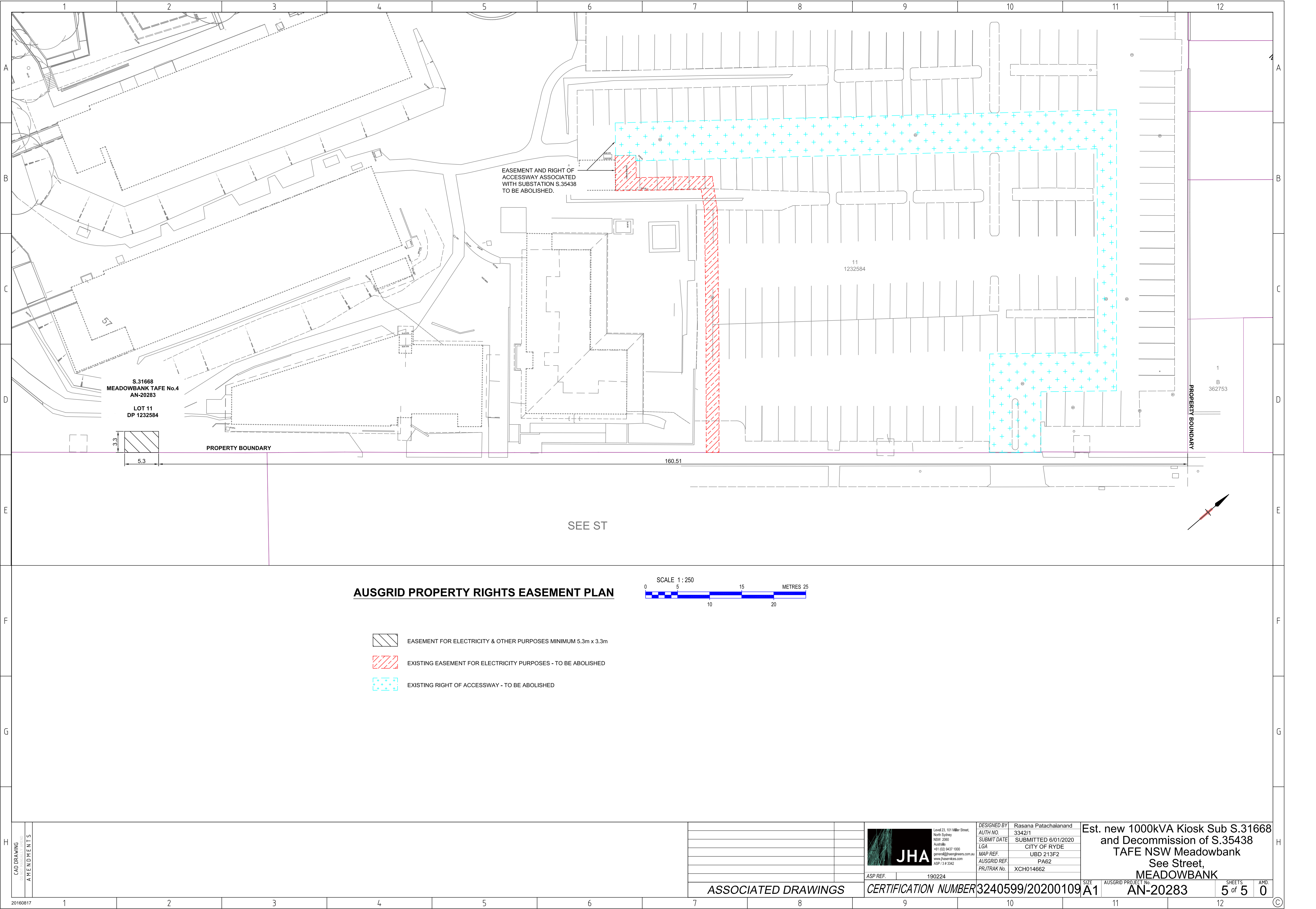
AUSGRID PROJECT No	
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PROJECT No.
AN-20283

SHEETS
1 of 5
AMD
0

AMD.

©



6 APPENDIX B: APPLICATION FOR CONNECTION (MULTI-TRADES AND DIGITAL TECHNOLOGY HUB BUILDING)

 New Connection

LOCATION

[Land Title Type](#)

Strata

[Street Number/RMB](#)

19

[Lot/DP Number](#)

11/1232584

[Location Address](#)

See Street, Meadowbank, 2114

[Land Zoning](#)

Urban

[Location Diagram](#)

File name

[TAFE Meadowbank Site Location.pdf](#)

Ausgrid filename reference

LocationAttachmentFilePath_1

Size

0.244 MB

APPLICANT

[Applicant Type](#)

Asp On Behalf Of A Retail Customer Or Real Estate Developer

[Full Name](#)

Miss Jocelynn Foo

[Email Address](#)

jocelynn.foo@jhaengineers.com.au

[ABN/ACN](#)

48612666172

[Company Name](#)

Jha Consulting Engineers

[Floor Number](#)

23

[Unit/Shop Number](#)

Level 23

[Street Number/RMB](#)

101

[Nearest Cross Street](#)

Pacific Highway

[Applicant Address](#)

Miller Street North Sydney 2060

[Phone Number](#)

0294371000

[Asp Number](#)

3342

[Asp Level](#)

Level 3

CUSTOMER

Customer Type

Real Estate Developer

Full Name

Mr Cameron Huxley

Email Address

cameron.huxley1@tafensw.edu.au

Phone Number

0418210110

Company Name

Tafe Nsw

LOAD DETAILS

Proposed Point Of Common Coupling

Substation

Proposed Asset Identifier

Unknown

Proposed Connection Point

Main Switchboard

Proposed Service Length

50

Proposed Service Type

Underground To Overhead Transition (Ugoh)

Service Voltage

Low Voltage 230/400v

Service Size

Other (2100)

Proposed Maximum Demand

Number Of Phases:

Phase A:

2075

Phase B:

2075

Phase C:

2075

3

Proposed Maximum Demand Calculation

File name	Ausgrid filename reference	Size
190224_TAFE Meadowbank_Max Demand_(3.0) 20190822.pdf	WFAMaxDemandCalc_1	0.053 MB

Are You Intending To Connect Controlled Load At This Premises?
No

ADDITIONAL DEVELOPMENT DETAILS

HOUSE SERVICES

Number Of House Service Premises:

1

Proposed Maximum Demand Number Of Phases:

3

Phase A:

2075

Phase B:

2075

Phase C:

2075

Total Number Of Premises:

1

I Will Be Installing Equipment At The Premises That May Result In Non Linear / Fluctuating Loads
No

Construction Of The Premises Connection Assets Will Commence
29-Sep-2020
When Do You Wish To Electrify The Premises?
29-Nov-2020
Ausgrid Has Provided A Certified Design Number(Cdn) For A Network Augmentation Project Associated With The Premises

No

Asp 1 Has Been Appointed

No

Do You Have Development Consent (Da) For Your Proposal?

No

Do You Wish To Underground / Relocate Electricity Assets In Conjunction With This Connection Application?

No

Comments

A New Combined Multi-Trades And Digital Technology Hub Is Proposed To Be Built For Tafe Meadowbank. The Maximum Demand Is For The New Development Is Calculated To Be Approximately 2075 Amps. Two 1000kva Kiosks Substations Are Proposed To Be Built For The New Development. Refer To Attachment Below For The Proposed Two 1000kva Kiosks Substations Location.

Please attach any documents that are relevant to your connection for example Proposed Design, sketch of the building, Photos etc

File name	Ausgrid filename reference	Size
Proposed New Substations Location.pdf	AdditionalAttachment_1	0.966 MB

EXPEDITED CONNECTION

Do you want to expedite your connection offer for all premises?

☐ Yes ☒ No

Ausgrid will send you an offer that meets your supply requirements.

DECLARATION

Applicant Name

Miss Jocelynn Foo

Application Date

28-Aug-2019

Price Description

Above 100 Amps Connection Offer - Technical Assessment required 1 x 452.80

Price Including GST

AUD \$452.80

Total Price

AUD \$452.80

Terms and Conditions:

In submitting this application you are engaging Ausgrid to provide you with a connection offer. Once submitted the fee charged is consumed. Ausgrid will aim to provide you with a written response within 10 business days. If additional work and/or fees are required, we will contact you to advise prior to providing the response.

Where this application requests an expedited connection, I declare that I have read and understood the terms and conditions of the connection offer and agree that if the connection is expedited that a contract based on that offer will be formed with Ausgrid on the date that Ausgrid receives the application. Where this application is being made on behalf of a retail customer or real estate developer, I declare that I have obtained the authority of that person to make this application of their behalf, including where applicable, making a request for expedition of the connection application.

*I acknowledge the terms & conditions.

☒

7 APPENDIX C: CONNECTION OFFER (COMBINED MULTI-TRADES AND DIGITAL TECHNOLOGY HUB BUILDING)

OFFER to provide DESIGN RELATED SERVICES



DESIGN RELATED SERVICES OFFER

Premises address: 19 SEE STREET, MEADOWBANK 2114

NMI - Number:

Webform Ref 29281

MC Reference: 1900094898

AP Reference: 800279579

This offer is made on 07-09-2019

By Ausgrid of 24 Campbell St, Haymarket NSW 2000.

To the **connection applicant** named in the *connection application* received on 28/08/2019 in respect of the premises referred to above.

Ausgrid has determined that network alterations are required to connect your development and we cannot proceed to a connection or relocation offer at this stage. To enable Ausgrid to further consider and process your application you will require a certified design and associated certification number. Your application remains technically incomplete until you have been issued a certification number.

This Design Related Services Offer provides guidance on how to obtain a certified design and associated certification number.

Scope of Network Alterations

Ausgrid has determined that the following works are likely to be required:

- Installation of 2 x Kiosk type substations.

These works are classified as contestable, which means that you are required to fund the design and some or all of the construction works. If you have not already done so, you will need to engage and manage suitably qualified contractors, known as Accredited Service Providers (ASPs) to undertake the design and construction.

Initially, your ASP Level 3 (ASP/3) will undertake the design, and then your ASP Level 1 (ASP/1) will undertake construction in accordance with the design and Ausgrid's policies and standards. The timeframe for the works will vary depending on factors such as the complexity and the way in which you manage your ASP's.

Once the works have been satisfactorily completed and electrified, the premises connection assets will be owned and maintained by Ausgrid as part of the electricity distribution network.

Contract for Design Related Services

This letter is an offer for the Applicant to enter into a Contract for Design Related Services with Ausgrid. It remains open for acceptance for 45 business days. No work will be undertaken by Ausgrid until a Design Contract is in place.

You are encouraged to contact ASP/3's and ASP/1's to understand the likely overall costs you will incur for design and construction before you accept and commit to the Contract for Design Related Services.

IMPORTANT: The contractual arrangements provide the framework for a design to be prepared by your ASP/3, and NOT by Ausgrid. Ausgrid's fees as outlined below are for the design related network services we provide during the design phase, and are IN ADDITION to the fees charged by your ASP/3 in preparing the design.

Acceptance Fees

The acceptance fees relating to the Contract for Design Related Services are outlined in the attached Acceptance Fee Summary and also detailed on the Ausgrid Portal page. Ausgrid will invoice **the Applicant** once we receive acceptance via the Ausgrid Portal. The Contract will commence when you pay the invoiced fee.

The acceptance fees are an estimate for the Ausgrid services required and are payable up front by the **Applicant**. Further fees may apply for any additional services required and these will be quoted via the Ausgrid Portal on each occasion.

Ausgrid's published rates for our services are amended from time to time in our Alternative Control Services Fee Schedule Publication, and in accordance with the Contract, Ausgrid reserves the right to charge the rates that are applicable at the time the service is provided.

Fees for Ausgrid's services are in addition to the design and construction costs charged by your ASP's, and some fees may not be refundable if the service has already been provided. Fees and rates are set by the Australian Energy Regulator:

WHAT TO DO NEXT

- To move ahead, please accept the offer (see below) outlined in this document and then pay the invoice that will be forwarded to you
- Engage an ASP Level 3 designer
 - On the Ausgrid Portal, nominate the ASP/3 as the designer for this project
 - Advise the ASP/3 that the Design Information Category for this project is **Standard**

Enclosures:

Contract terms – via website at:

<https://www.ausgrid.com.au/-/media/Documents/Technical-Documentation/Contracts-and-Deeds/Contract-for-Design-Related-Services/Design-Contract-2017.pdf>.

Acceptance Fee Summary – attached

PLEASE REVIEW THE OFFER OUTLINED IN THIS LETTER, ALONG WITH THE TERMS LINKED ABOVE, THEN PROCEED TO THE AUSGRID PORTAL

IF YOU WISH TO ACCEPT THIS OFFER

SELECT "ACCEPT" AGAINST THE OFFER ON THE AUSGRID PORTAL WITHIN 45 BUSINESS DAYS

IF YOU WISH TO DECLINE THE OFFER

SELECT "DECLINE" AGAINST THE OFFER ON THE AUSGRID PORTAL.

Should you wish to proceed in the future, a new connection application will need to be lodged.

DESIGN RELATED SERVICES OFFER

ACCEPTANCE FEE SUMMARY

Service Description	Unit	Quantity	Price per unit	Total Price
Design Service Package 04	Service	1.00000		\$0.00
Administration of Contestable Works - General - Design	Service	1.00000	\$236.71	\$236.71
Design Information - Standard	Hour	7.00000	\$196.39	\$1,374.73
Design Certification - Other - R3	Hour	16.00000	\$196.39	\$3,142.24
SUBTOTAL				\$4,753.68
GST (10%)				\$475.37
TOTAL				\$5,229.05

These fees are an **initial estimate** for the services we will require to provide throughout the design contract and are payable up front by the **Applicant**, on acceptance of the contract.

IMPORTANT: **Additional** services may be required through the course of the design contract (e.g. asset number requests, specialist services, consultancy services). The fee for such services will be billed to the **Applicant** in accordance with the contract, and are payable prior to design certification. Typical examples include, but are not limited to, fees for asset creation, additional certification effort and requests to vary network standards.