

Consultant Advice



**Norman
Disney &
Young**
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From:	Michael Lewis	Date:	15 Apr. 19	File No:	S25504\148\00\21\ca190130s0001	Pages:	10
Project:	Qantas Flight Training Centre and Carpark	No:	G-006[2.0]				
Attention		Company		Email			
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General Services - SEARS Services Infrastructure Requirements

INTRODUCTION

Norman Disney & Young has been commissioned by Qantas Airways Ltd (Qantas) to prepare this report in accordance with the technical requirements of the Secretary's Environmental Assessment Requirements (SEARs), and in support of the **SSD 10154** for the development of a new flight training centre at 297 King Street, Mascot.

DESCRIPTION OF SITE AND LOCALITY

The site is located at 297 King Street, Mascot and comprises land known as Lots 2-5 DP 234489, Lot 1 DP 202747, Lot B DP 164829 and Lot 133 DP 659434. The site is identified in Figure 1.

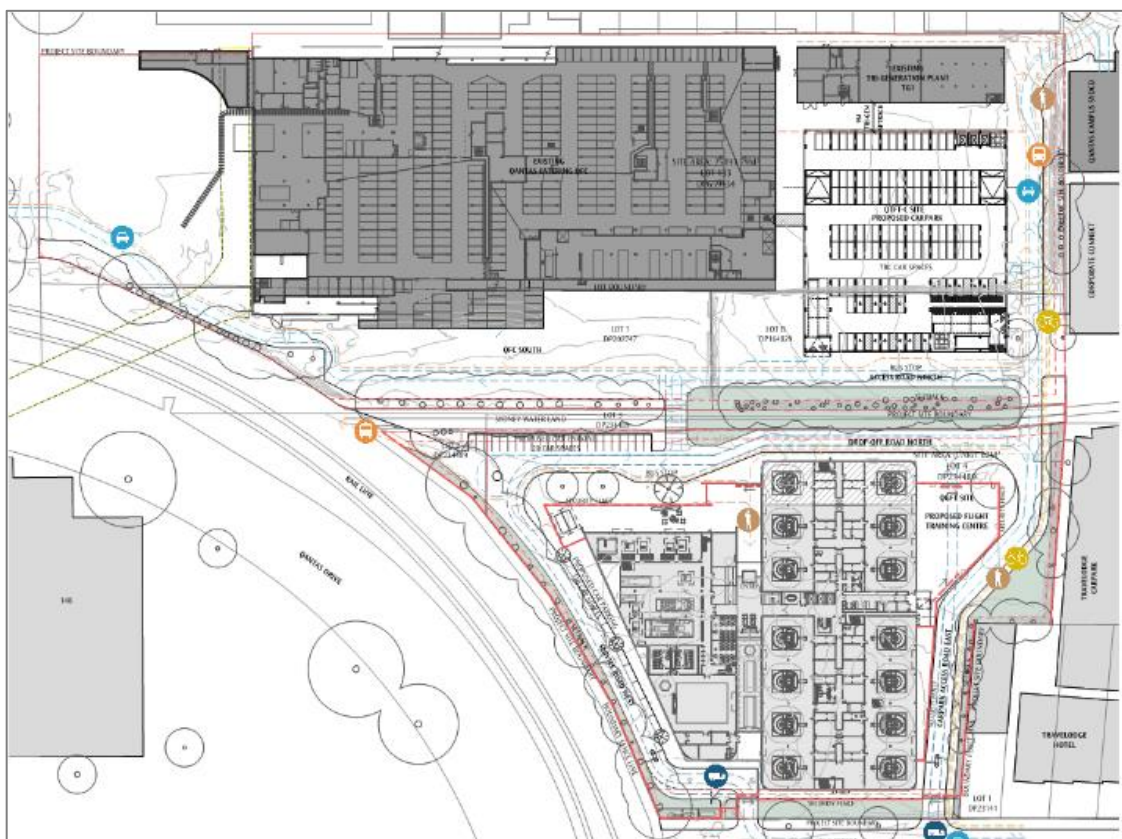


Figure 1. Site Plan



Key features of the site are as follows:

- The site is approximately 5.417ha and is an irregular shape. It is approximately 240m in length and maintains a variable width of between approximately 321m in the northern portion of the site and approximately 93m along the King Street frontage (refer to Figure 1).
- The site possesses a relatively level slope across the site. An open Sydney Water drainage channel bisects the northern portion of the site in an east-west direction. There are some isolated changes in level immediately adjacent to this channel. A Site Survey Plan accompanies the application which details the topographic characteristics of the site.
- Multiple mature Plane Trees are scattered throughout the site. A variety of native and exotic trees and vegetation also exist around the perimeter of the site which help screen the site from surrounding uses.
- Site improvements include at-grade car parking for Qantas staff, an industrial shed to store spare aviation parts, a substation, a disused gatehouse, a Sydney Water Asset with two driveways over it, the Qantas catering facility and Qantas tri-generation plant.
- The site forms part of a larger land holding under the ownership of Qantas that generally extends between Qantas Drive to the west, Ewan Street to the south, Coward Street to the north, with the Qantas “Corporate Campus” fronting Bourke Road.
- Vehicular access to the site from the local road network is available from King Street. The site has intra-campus connections along the northern boundary in the form of two connecting driveways in the north-eastern and north-western corner of the site along the northern boundary which link it to the broader Mascot Campus.
- The site is located within the Bayside LGA.

Key features of the locality are:

- **North:** The site is bounded to the north by low scale industrial development, beyond which is Coward Street. Further north of the site is the Mascot Town Centre which is characterised by transport-oriented development including high density mixed-use development focussed around the Mascot Train Station.
- **East:** The site is bordered to the east by commercial development including a newly completed Travelodge hotel which includes a commercial car park. Additional commercial development to the east includes the Ibis Hotel and Pullman Sydney Airport fronting O’Riordan Street.
- **South:** The site is bounded to the south by King Street, beyond which is Qantas owned at-grade car parking and other industrial uses. Further south is the Botany Freight Rail Line and Qantas Drive beyond which is the Domestic Terminal at Sydney Airport.
- **West:** The site is bordered to the west by the Botany Freight Rail Line and Qantas Drive, beyond which lies Sydney Kingsford Smith Airport and the Qantas Jetbase (location of the current Flight Training Centre).



PROJECT DESCRIPTION

Safety is Qantas' first priority. The flight training centre is a key pillar of this value. The facility enables pilots and flight crews to undertake periodic testing to meet regulatory requirements by simulating both aircraft and emergency procedural environments. The Project seeks consent for the construction and operation of a new flight training centre, and associated ancillary uses including a multi-deck car park. The Project is comprised of the following uses:

Flight Training Centre

The proposed flight training centre will occupy the southern portion of the site. It is a building that comprises 4 core elements as follows:

- An emergency procedures hall that contains;
 - cabin evacuation emergency trainers,
 - an evacuation training pool,
 - door trainers,
 - fire trainers
 - slide descent towers,
 - security room,
 - aviation medicine training and equipment rooms.
- A flight training centre that contains:
 - a flight training hall with 14 bays that will house aircraft simulators,
 - integrated procedures training rooms, computer rooms, a maintenance workshop, storerooms, multiple de-briefing and briefing rooms, pilot's lounge and a shared lounge.
- Teaching Space that contains
 - training rooms,
 - classrooms and two computer based exam rooms.
- Office Space
 - Office space for staff and associated shared amenities including multiple small, medium and large meeting rooms, think tank rooms, informal meeting spaces, a video room and lunch/tea room.
- Ancillary spaces including the reception area at the ground floor, toilets, roof plant and vertical circulation. The external ground floor layout will include a loading dock, at-grade car parking for approximately 35 spaces and a bus drop-off zone at the northern site boundary.

Car Park

The proposed multi-deck car park will be located to the north-east of the flight training centre and adjacent the existing Qantas catering facility and tri-generation plant. The car park is 13 Levels and will provide 2059 spaces for Qantas staff. Vehicle access to the car park will be provided via King Street, Kent Road and from Qantas Drive via the existing catering bridge.



HYDRAULIC INFRASTRUCTURE

Water

Flight Training Centre and Emergency Procedure Hall Building:

The site currently served by existing private water infrastructure as shown in Figure 2. The two water services – 150 mm and 40 mm will need to be reconfigured to suit the new development. The existing 150mm is connected into a 250mm water main within Kent Road in front of the Qantas Catering Building. Further to investigations conducted by NDY, we believe the existing 150mm water main coming into the site is in poor condition and has been abandoned.

As part of the proposed project, the existing 150mm water main will be demolished and a new 150mm water main will be installed for firefighting and domestic water services. The proposed new 150mm water main will be reticulated above ground at the boundary adjacent to the existing access road to the site.

Adequate pressure and flow was achieved during the pressure and flow conducted on the 250mm water main on Kent Road by Chubbs Fire (Fire maintenance contractor for Qantas).

All in-ground pipework will be non-metallic for protection of services from electrolysis due to the installation being close to a rail corridor.

Refer Figure 2 for Details.

Car Park:

A new 150mm water main will be extended from the proposed 150mm water main reticulating above ground to the Flight Training Centre building. The proposed 150mm water main to the car park will reticulate below ground to cross the Flight Training Centre building and then reticulate above ground to the car park building service firefighting and domestic water services. Refer Figure 2 for Details.

All in-ground pipework will be non-metallic for protection of services from electrolysis due to the installation being close to a rail corridor.

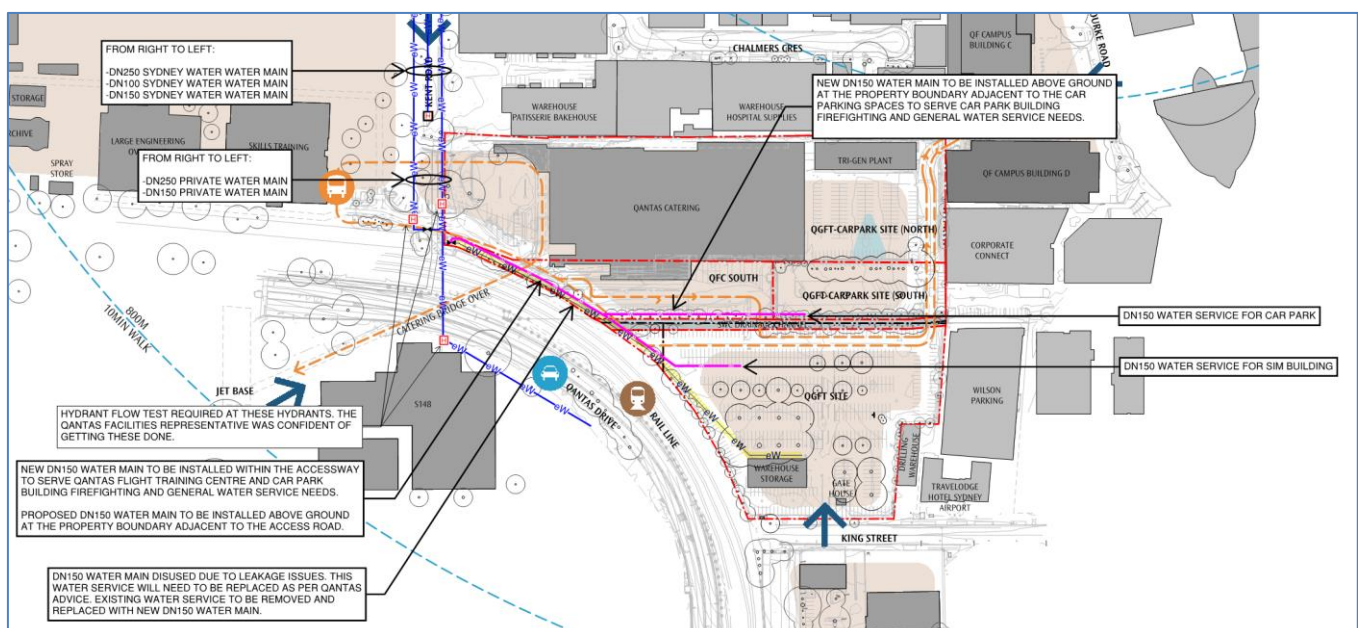


Figure 2. Water Infrastructure



Sewer

Flight Training Centre and Emergency Procedure Hall Building:

There appears to be no sewer infrastructure within the site. There is a sewer junction off the 200 mm CICL Sydney Water Sewer main 3.3 m deep (IL:2.38) within King Street as shown in Figure 2. A DN150 sewer main will make connection into the existing Sydney Water Sewer main within King Street. Written approval has been obtained from Sydney Water to make this connection. Once construction certificate is received, the contractor will need to liaise with Sydney Water for connection.

Sydney Water will need to confirm if a section 73 is required for this development. This will be part of the conditions of consent for the development.

All in-ground pipework will be non-metallic for protection of services from electrolysis due to the installation being close to a rail corridor.

Refer Figure 3 for details.

Car Park:

The existing Qantas Catering Building has a sewer pump out pit, with the DN150 sewer rising main (pressure sewer) reticulating within Kent Road and connecting into the Sydney Water sewer main located within the corner of Kent Road and Chalmers Crescent. There is currently a sewer pump out pit adjacent (to the South) to the Trigeneration Building serving the toilet/shower in the Trigeneration Building. The sewer pump out pit is located between the Trigeneration building and the proposed car park and is owned and operated by Enwave. The proposed sewer drainage from the toilet within the ground floor of the car park building will need to connect into the existing sewer pump out pit owned by Enwave. This will require further liaison between Qantas and Enwave during construction.

All in-ground pipework will be non-metallic for protection of services from electrolysis due to the installation being close to a rail corridor. Refer Figure 3 below for details.

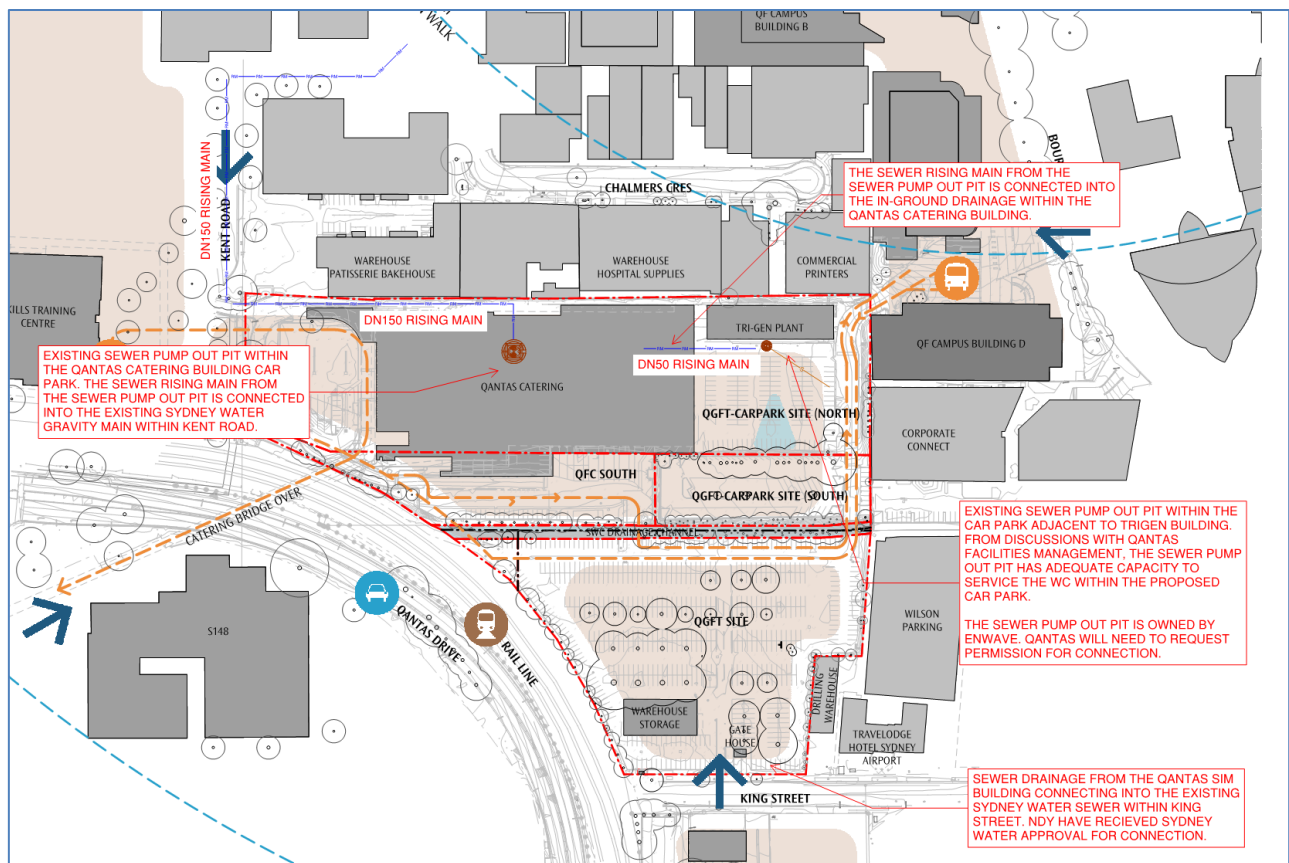


Figure 3. Sewer Infrastructure



Gas

There is a 50 mm gas main at 210 kPa in King Street owned by Jemena as shown in Figure 4. An application to extend this existing gas run to serve the site at peak demand of 2200 MJ/hr has been approved by Jemena.

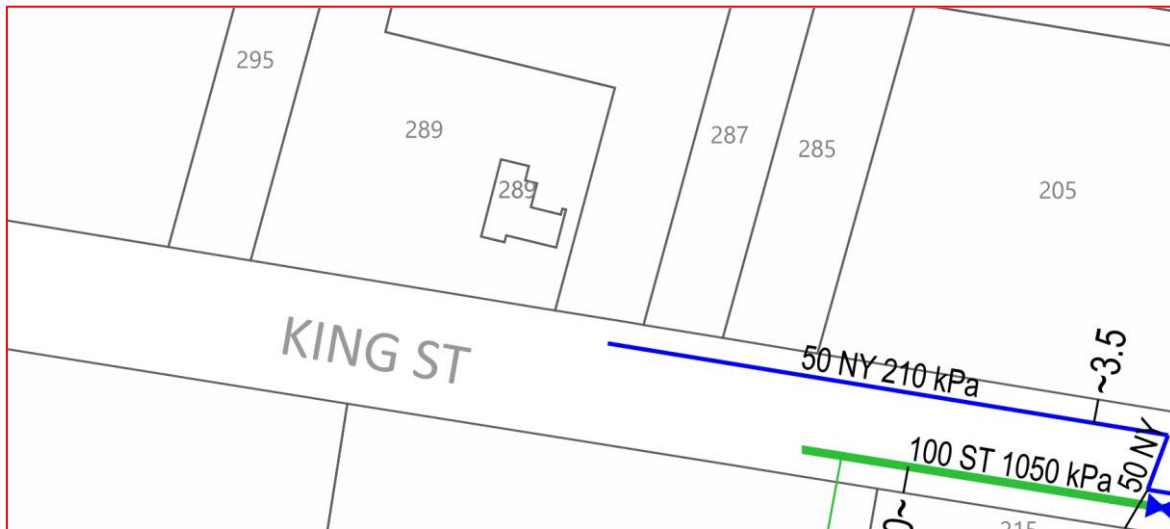


Figure 4. Gas Infrastructure

There is existing stormwater drainage on site that will need to be relocated/reconfigured to suit proposed building layout. Any advice in relation to relocation of in-ground stormwater shall be provided by civil engineer.

WATER BALANCE

Water-efficient appliances and fixtures and tapware (WELS rated) will be used in the proposed development. This shall be confirmed by the architect who is selecting the appliances and fixtures and tapware. A 2000 litre rainwater tank is proposed for the Flight Training Centre and Emergency Procedure Hall Building within the staff courtyard area. Rainwater is proposed to be re-used for irrigation.

The total average water consumption for the proposed building will be approx. 40 kilolitres per day and the total wastewater discharge from the proposed development will be approx. 30 kilolitres per day.

The main water usage and wastewater discharge within the building will be from the male / female amenities, café, fire trainer and pool. The wastewater discharge from the café is classified as tradewaste and a grease arrestor is being provided as a tradewaste treatment device in accordance with the requirements of Sydney Water.

The proposed building also has a pool for Emergency Procedure training. The pool plant incorporates a backwash filter and backwash storage tank which. The discharge from the backwash holding tank is connected into the Sydney Water wastewater system.



ELECTRICAL INFRASTRUCTURE

Substation and Incoming Electrical Supply

The Flight Training & Simulation Centre will be fed from the upstream existing substation P and the Multi-storey Car Park will be fed from existing main switchboard SYDTG1 located at the trigeneration plant TG1 owned and operated by Enwave. The location and proposed infrastructure routes are outlined in Figure 5 below. A new dedicated High Voltage (HV) substation will be provided to the Flight Training & Simulation Centre and the Multi-storey Car Park will be provided with a dedicated LV supply from the existing upstream SYDTG1 main switchboard.

Enwave will supply and install HV cables from existing Substation P into the new HV substations and LV cables from the existing SYDTG1 main switchboard into the new carpark LV switchboard. The incoming supply and substation fitouts will also be by Enwave.

The Flight Training & Simulation Centre will be served by two (2) x 2 MVA kiosk, linked via a bus tie for a duty/stand-by configuration (N+N). From the transformer, low voltage (LV) supply will reticulate into a dedicated LV switch room located within the ground floor of the Flight Training & Simulation Centre.

The Multi-storey Car Park will be provided with an LV supply from the existing SYDTG1 main switchboard via an 800A breaker. The LV supply will reticulate into the carpark LV switchroom and terminate into a dedicated carpark main switchboard.

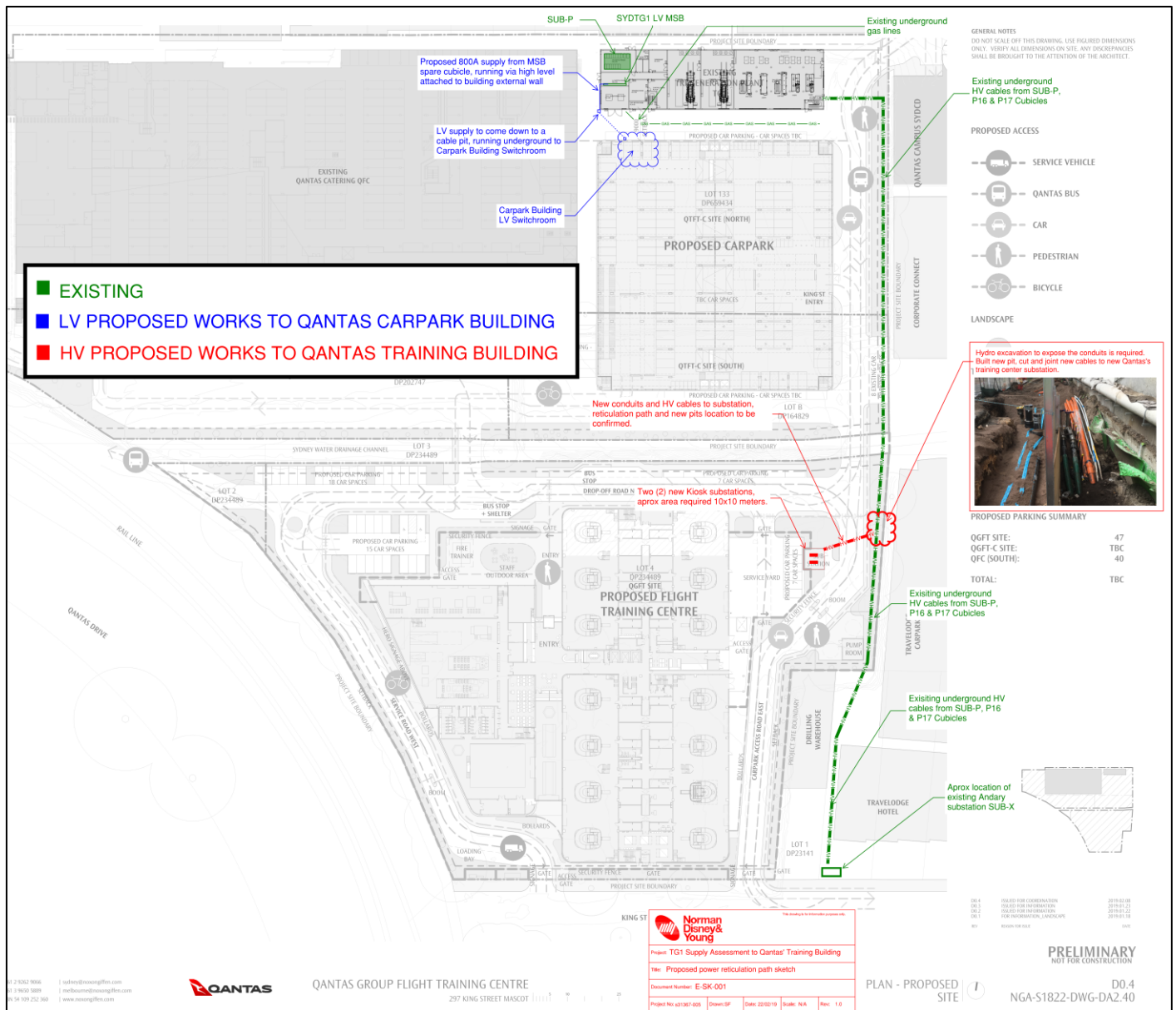


Figure 5. Electrical infrastructure

Emergency Power Generation (EPG) System

Enwave will provide continuous full load emergency backup power to the Flight Training & Simulation Centre and multi storey carpark from the Substation P Mascot trigeneration plant. The existing small island mode scheme will provide backup power to Flight Training & Simulation Centre and Carpark within 5 minutes



HEATING AND COOLING INFRASTRUCTURE

The site is adjacent to a private trigeneration/district heating and cooling plant (provided by Enwave) which the project will agree to connect to and extend into to meet the performance requirements of the Building. Figure 6 show the proposed extension of cooling and heating pipework from the existing in-ground infrastructure. Enwave are to provide plate type water-to-water heat exchangers within the heat exchanger plantroom shown in Figure 6 that will enable the transfer of heating and cooling provided from the trigeneration central plant.

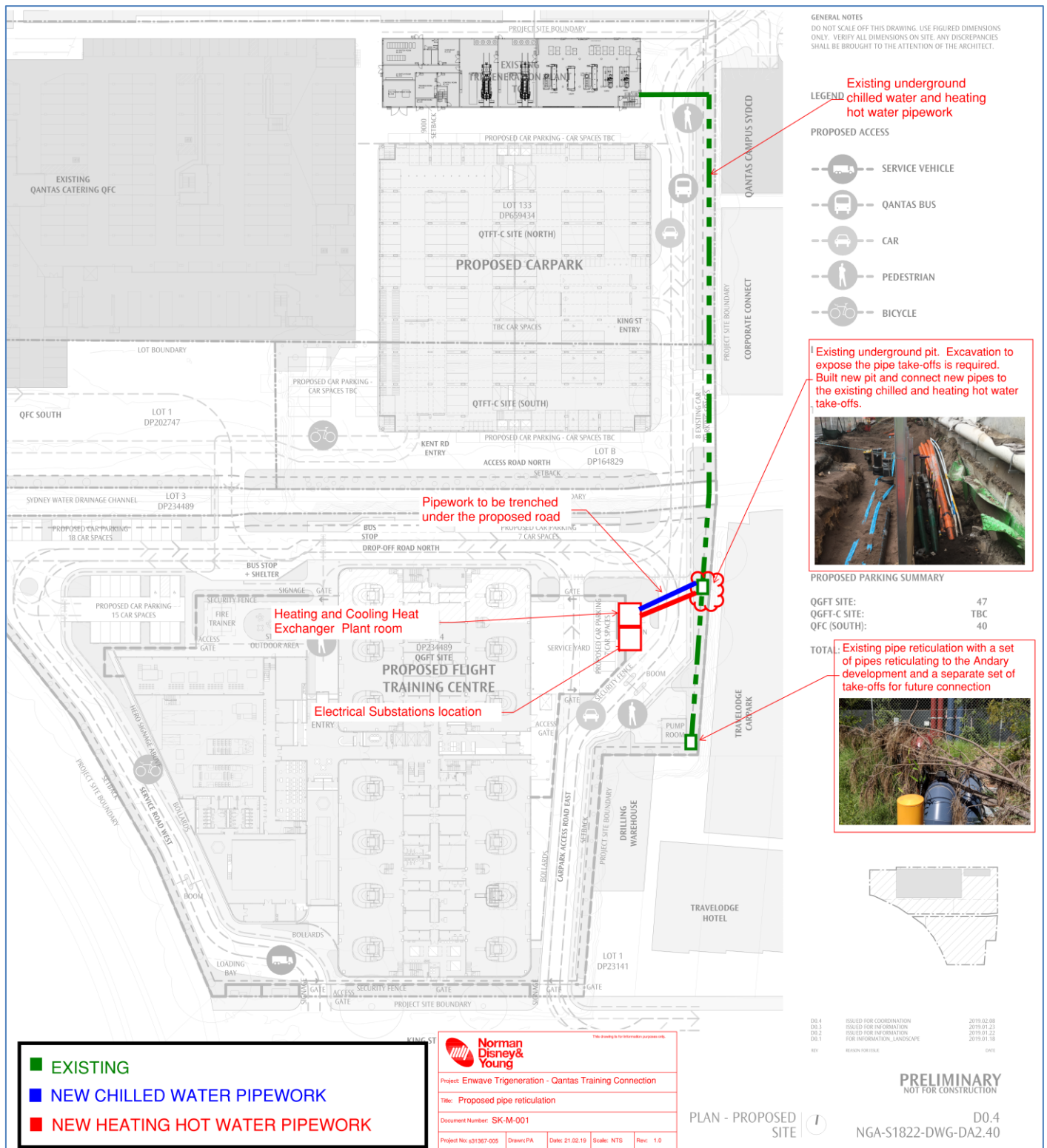


Figure 6. Trigeration Cooling and Heating infrastructure



The building will utilise Air Handling Units to provide cooling to mixed use office and aquatic spaces, with heating and cooling pipe work extended from the trigeneration plant, in a closed loop with heat exchangers at the interface between QANTAS and Enwave.

NORMAN DISNEY & YOUNG

A handwritten signature in black ink, appearing to read 'Michael Lewis'.

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