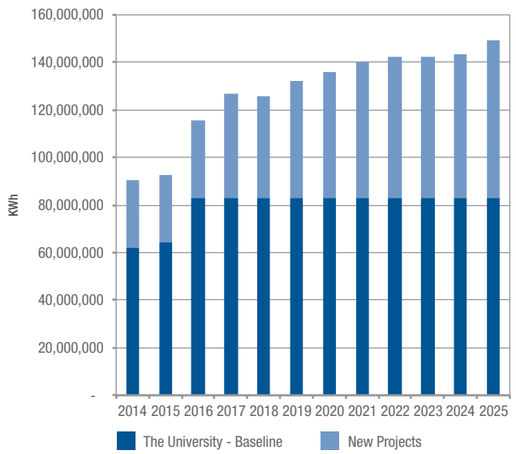
# Infrastructure

This section addresses the impacts of CIP developments upon energy, water, sewerage and stormwater infrastructure.

**Electricity Consumption Forecast (2014–2025)**




**Gas Consumption Forecast (2014–2025)**

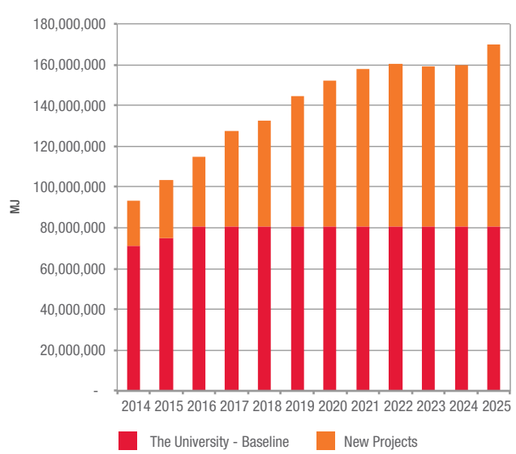



**FIGURE 1** FORECAST ELECTRICITY AND GAS CONSUMPTION 2014-2025

## ENERGY

The CIP precincts will significantly increase energy consumption of electricity and gas at the Camperdown-Darlington Campus.

**Significant substation augmentation will be needed to supply electricity for growth planned by the CIP. Augmentation of the Ausgrid high voltage supply to the University is likely.**

To address future energy supply security, the University is preparing an Energy Master Plan with the objectives of:

- Securing energy supply to support future growth planned by the CIP.
- Identifying efficient and cost-effective energy supply and distribution infrastructure.
- Reducing the carbon intensity and improving environmental sustainability of energy supply and distribution.
- Identifying capital investment for augmentation of energy supply and distribution infrastructure, including distributed energy centres and centralised mechanical services plant to service precincts or building clusters.
- Limiting demand impacts on Ausgrid's and distribution network.

To address the aforementioned objectives, the Energy Master Plan will assess:

- Energy supply and distribution requirements to sustain growth at the Camperdown, Darlington and Mallet Street Campuses.
- Feasibility of developing and operating a University-owned HV distribution network.
- Feasibility of embedding distributed energy generation using a range of low carbon energy sources such as co/tri-generation, solar, micro-wind, thermal (hot/chilled water) networks, and geothermal energy.
- Feasibility of centralised/precinct-based mechanical services plant for heating, ventilation and air conditioning.
- Opportunities to integrate to external energy networks such as the City of Sydney, Royal Prince Alfred Hospital or surrounding developments.

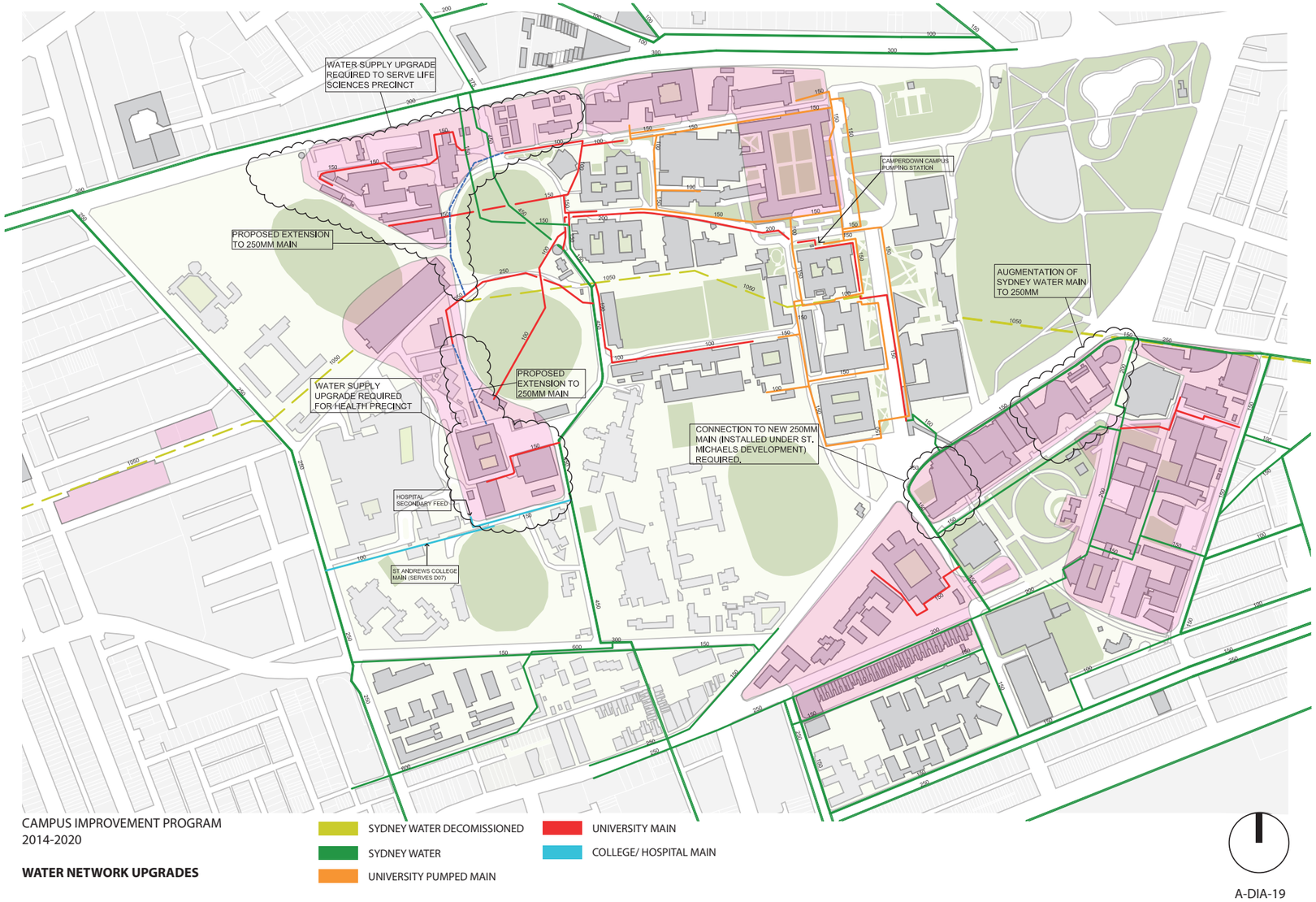



**FIGURE 2** WATER NETWORK UPGRADES

## WATER

Upgrades to water supply mains will be required to provide secure supply for the existing and proposed developments. These include:

- Augmentation of SWC's watermains supplying multistorey buildings higher than 27 metres to satisfy fire safety water supply requirements.
- Augmentation of the second water supply main from City Road to the Camperdown Campus to ensure adequate back-up supply redundancy.

Areas requiring water supply upgrades are shown in **Figure 2**.

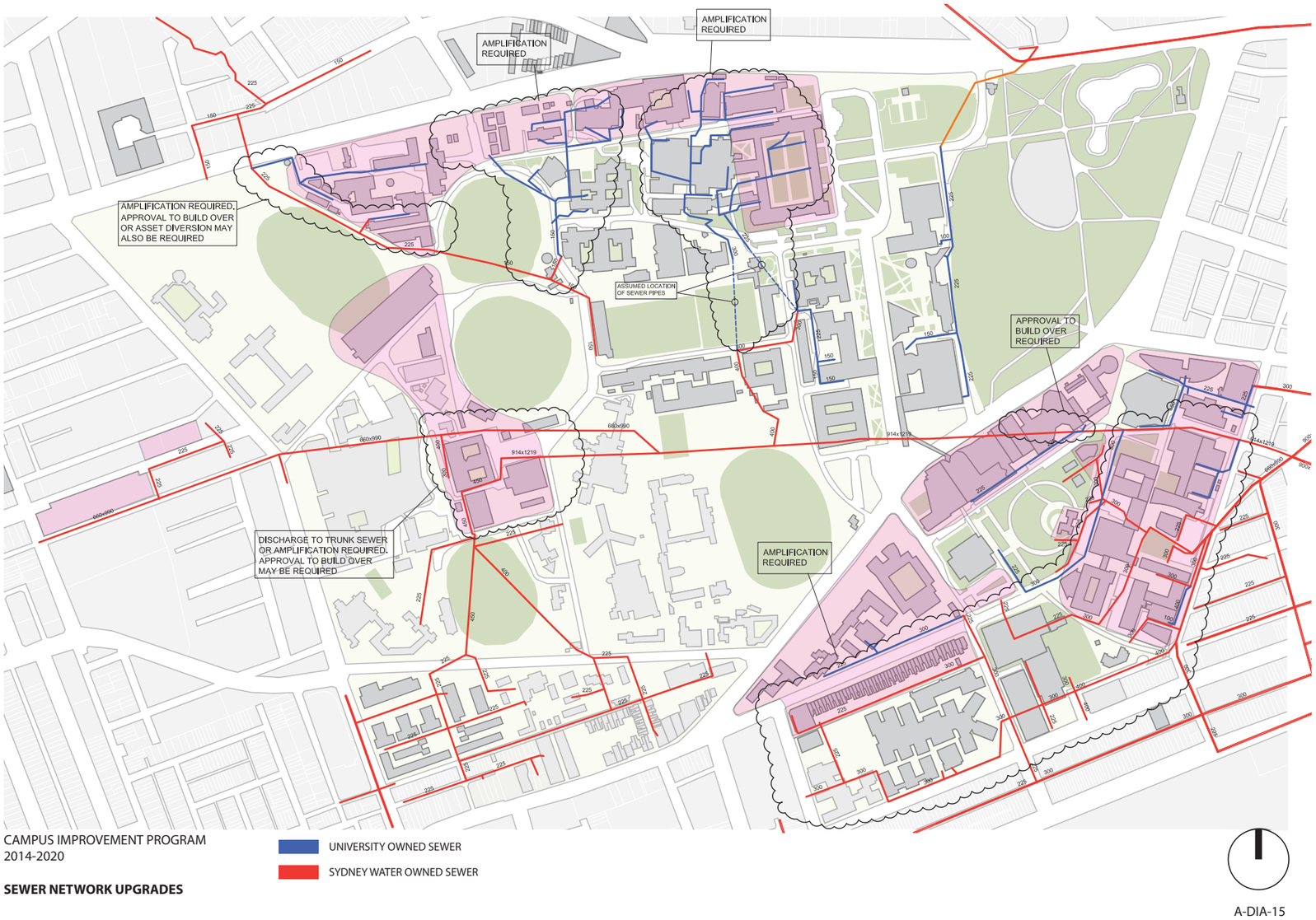



**FIGURE 3** SEWER NETWORK UPGRADES

## SEWERAGE

Parts of the sewerage network throughout the University's Camperdown-Darlington Campus will require localised amplification, redirection and safeguards. The following works are identified:

- Sewer realignment and diversion in the Engineering, City Road and Health precincts.
- Sewer protection works where foundation loads from deep footings and basements in the Engineering and City Road precincts impact on the underlying major SWC trunk sewer.

**Figure 3** shows areas where sewers will be impacted.

## FLOOD IMPACTS AND DEVELOPMENT CONTROLS

The CIP developments involve buildings in areas that are currently prone to flooding in the 100 year ARI flood. Future development provides an opportunity to mitigate existing and known flood threats to the University's assets and infrastructure through better design whilst also ensuring flood impacts on surrounding areas are not exacerbated.

Proposed developments will implement site-specific development controls on the design of buildings and infrastructure. Key controls include:

- Designing the floor levels and above ground car parks are set above the 100 year ARI peak flood levels.
- Critical facilities like electricity substations must be placed above the 100 year ARI flood level + 0.5 metres or the probable maximum flood level, whichever is higher.

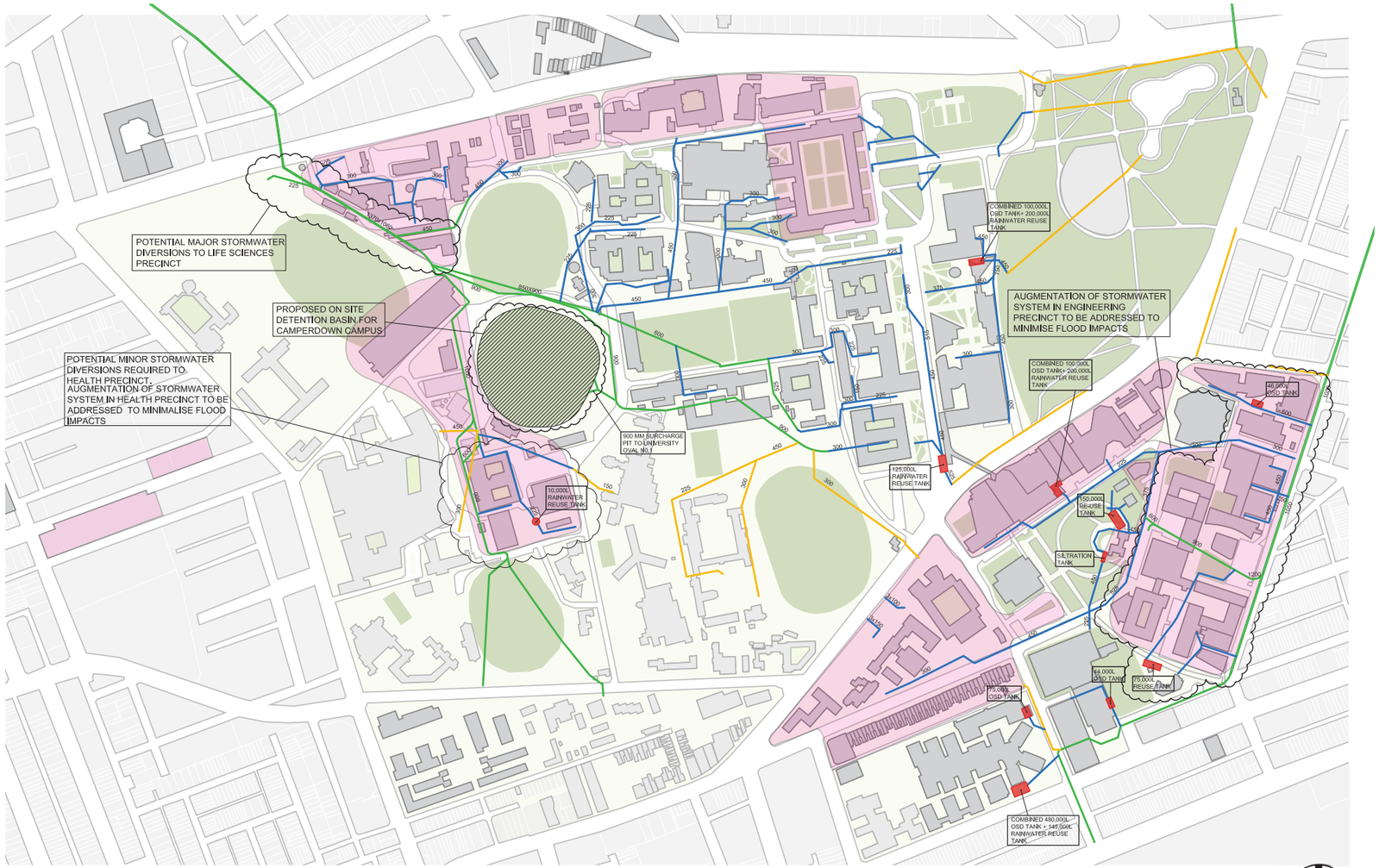



**FIGURE 4** STORMWATER NETWORK UPGRADES