
SMITHFIELD REGENERATION CODE AMENDMENT INFRASTRUCTURE INVESTIGATIONS REPORT

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1. INTRODUCTION

Fyfe Pty Ltd (Fyfe) has been engaged by Planning Studio to undertake infrastructure investigations to support a Code Amendment seeking to rezone land at Smithfield. The medium-high density residential Code Amendment considers the red outlined area shown in Figure 1.

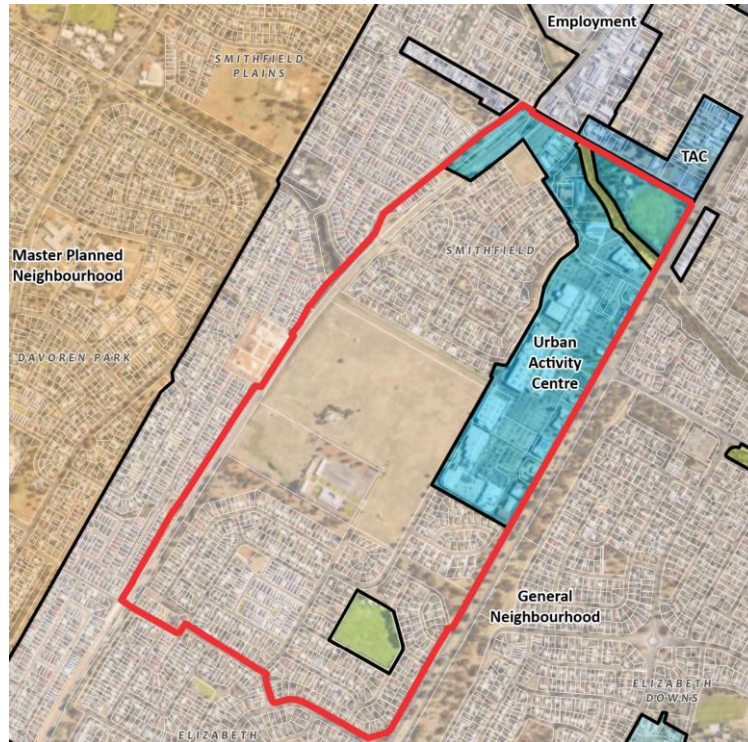


Figure 1 Site Locality

The separate "Smithfield Regeneration Structure Plan Report" prepared by Forum Studio on behalf of the Department of Housing and Urban Development (DHUD) has presented two density and yield options for consideration. Whilst the area currently yields 870 existing dwellings, the proposed development is aimed to ultimately yield either 3,000 or 5,000 total dwellings. Figure 2 shows the existing yield, whilst Figure 3 considers the two density and yield options.

EXISTING DENSITY AND YIELD

870
TOTAL DWELLINGS



Figure 2 Existing Site Yield and Density

DENSITY AND YIELD SCENARIOS

SCENARIO 1

3,000
TOTAL DWELLINGS
INCLUDING **2,130** NEW DWELLINGS
(1,500 RSA SITE AND 630 INFILL)

3.4X
EXISTING POPULATION



SCENARIO 2

5,000
TOTAL DWELLINGS
INCLUDING **4,130** NEW DWELLINGS
(3,000 RSA SITE AND 1,130 INFILL)

5.7X
EXISTING POPULATION

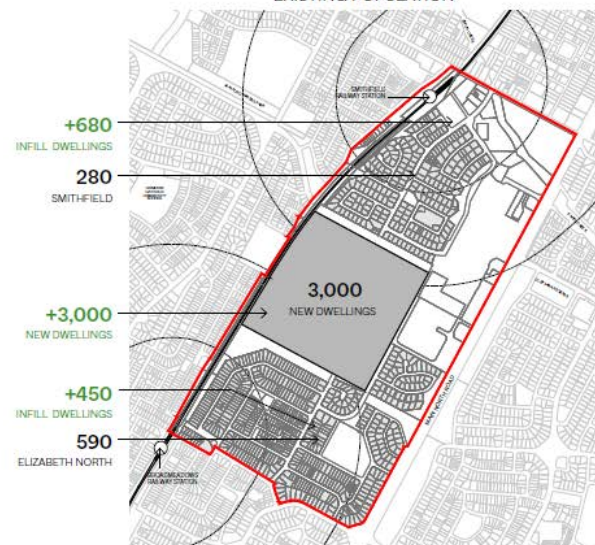


Figure 3 Site Yield and Density Options

2. SERVICES INFRASTRUCTURE

2.1 Sewer

2.1.1 Existing Infrastructure

The existing development within the site area is serviced by 100mm dia and 150mm dia PVC and VC mains. There appears to be two separate wastewater outlets from the site. The northern portion of development land (north of the undeveloped central square) gravitates across the railway at the southern-most point into a 225mm dia main. The southern portion of the development land (north of the undeveloped central square) outlets into a 225mm dia main to the south that continues to run through residential development before connecting to Bellchambers Road. The existing mains servicing the development site and surrounding areas flow towards the Bolivar Wastewater Treatment Plant (WWTP).

The existing SA Water sewer infrastructure within and surrounding the site is shown in Figure 4.

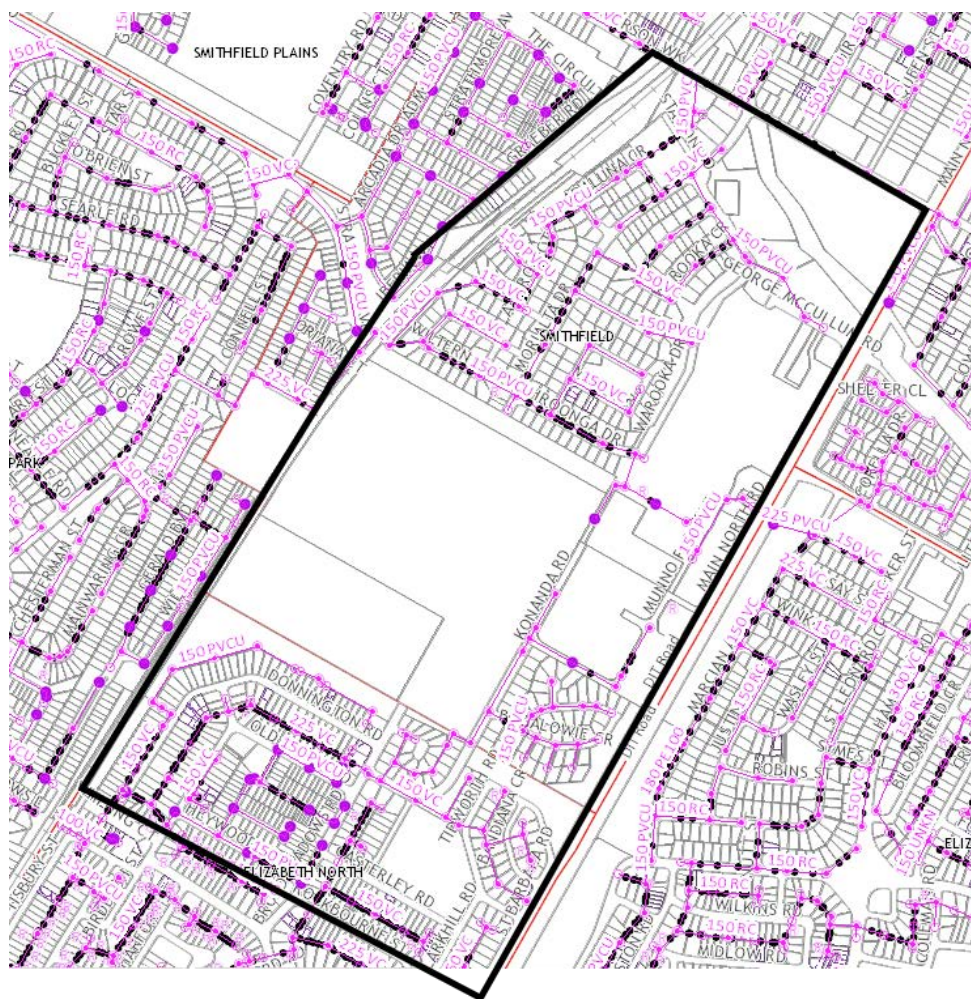


Figure 4 Existing Sewer Infrastructure

2.1.3 Proposed Infrastructure

SA Water provided wastewater planning advice in June 2025 based on the original site scope which included the only the undeveloped portion of the land, shown as the blue square in Figure 5. The advice received considered 1,500 dwelling and 3,000 dwelling yield options.

SA Water has advised the following headworks are required to service a yield of both 1,500 and 3,000 dwellings within the development area:

- 2,000m of 300mm dia new main, including rail crossing;
- 105m of existing 225mm dia upgraded to a 375mm dia main;
- Decommissioning 63m of existing 150mm dia main
- Four existing 150mm dia mains to be re-connected to the new 300mm and 375mm dia mains

SA Water is currently conducting wastewater master planning of the Bolivar North catchment which will inform any further downstream trunk infrastructure upgrades that will be required to service the development. Upgrades to the Bolivar Wastewater Treatment Plant are expected to be required following this master planning.

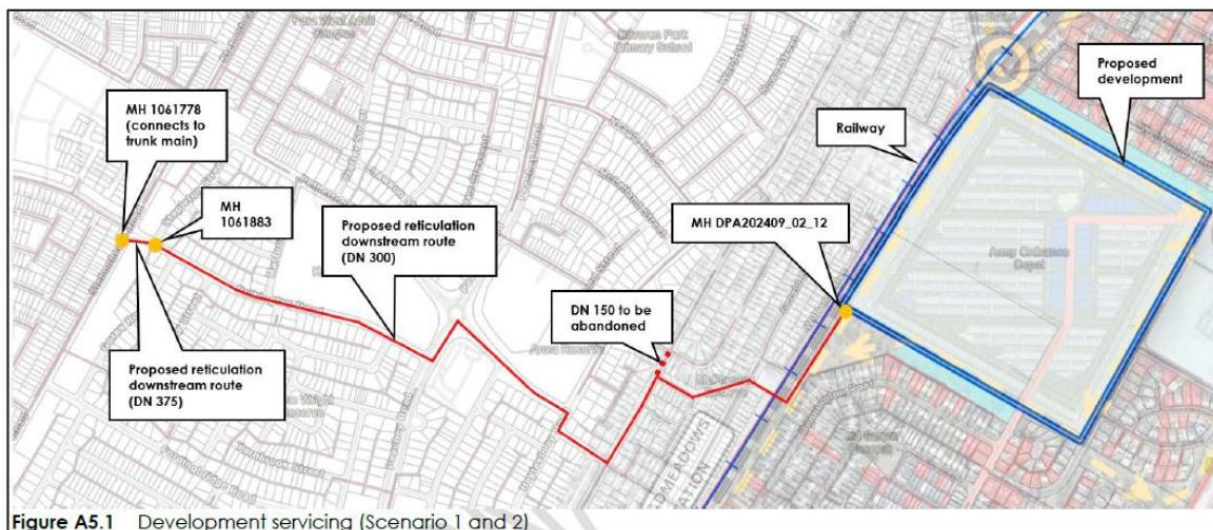


Figure 5 SA Water Sewer Servicing Strategy for 1,500 and 3,000 Dwelling Options

SA Water is currently undertaking additional modelling of the proposed extended developed area for both density option. This outcomes of the modelling and advice from SA Water has not been received at time of this report.

2.2 Potable Water

2.2.1 Existing Infrastructure

Existing potable water infrastructure surrounds the site from several SA Water mains serviced by the Metro EL103 potable water system. Key mains servicing the site area include the 300mm dia main running along Main North Road, which diverts into 250mm dia mains along Anderson Walk and Main North Road, along the site's north and east boundaries respectively.

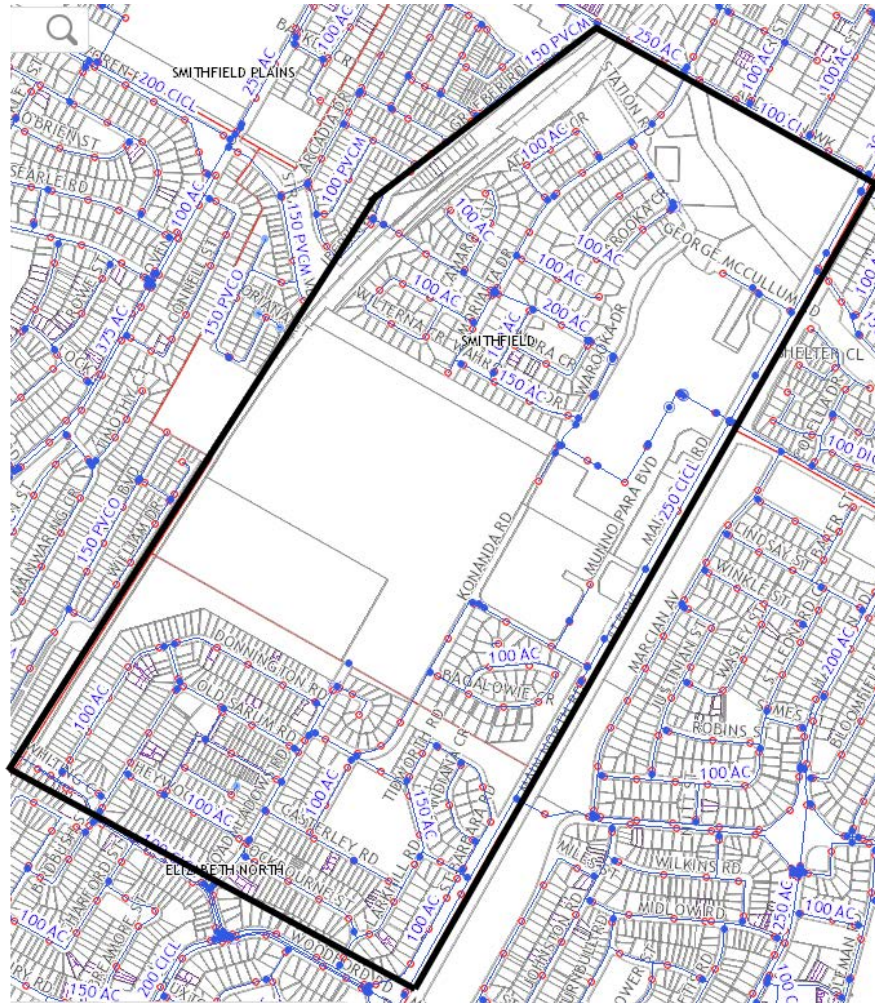


Figure 6 Existing Water Infrastructure

2.2.2 Proposed Infrastructure

SA Water provided potable water systems and planning advice in June 2025 for the undeveloped portion of the land only. The advice received looked at 1500 dwelling and 3000 dwelling yield options.

SA Water confirmed that there is capacity available at Barossa/Little Para Water Treatment Plant (WTP) and the associated reservoir to service a total of 3,000 new dwellings. SA Water has also stated they are investigating a new water source to support growth in the northern suburbs.

To support the 3,000 density option, the following water works are required:

- 800m of 150mm dia main upsized to 375mm dia main
- 500m of 200mm dia main upsized to 375mm dia main
- 160m of 100/150mm dia main upsized to 200mm dia main
- 700m of 300mm dia main upsized to 375mm dia main (external works required to reduce impact on Elizabeth Downs high ground elevation nodes)
- 820m of 200mm dia new main to be constructed
- 1,100m of 375mm dia new main to be constructed
- 200mm internal mains to abut strata multi-storey buildings
- 150mm internal mains to abut Torrens Title allotments

The locations of the above-mentioned upgrades can be seen in Figure 7.

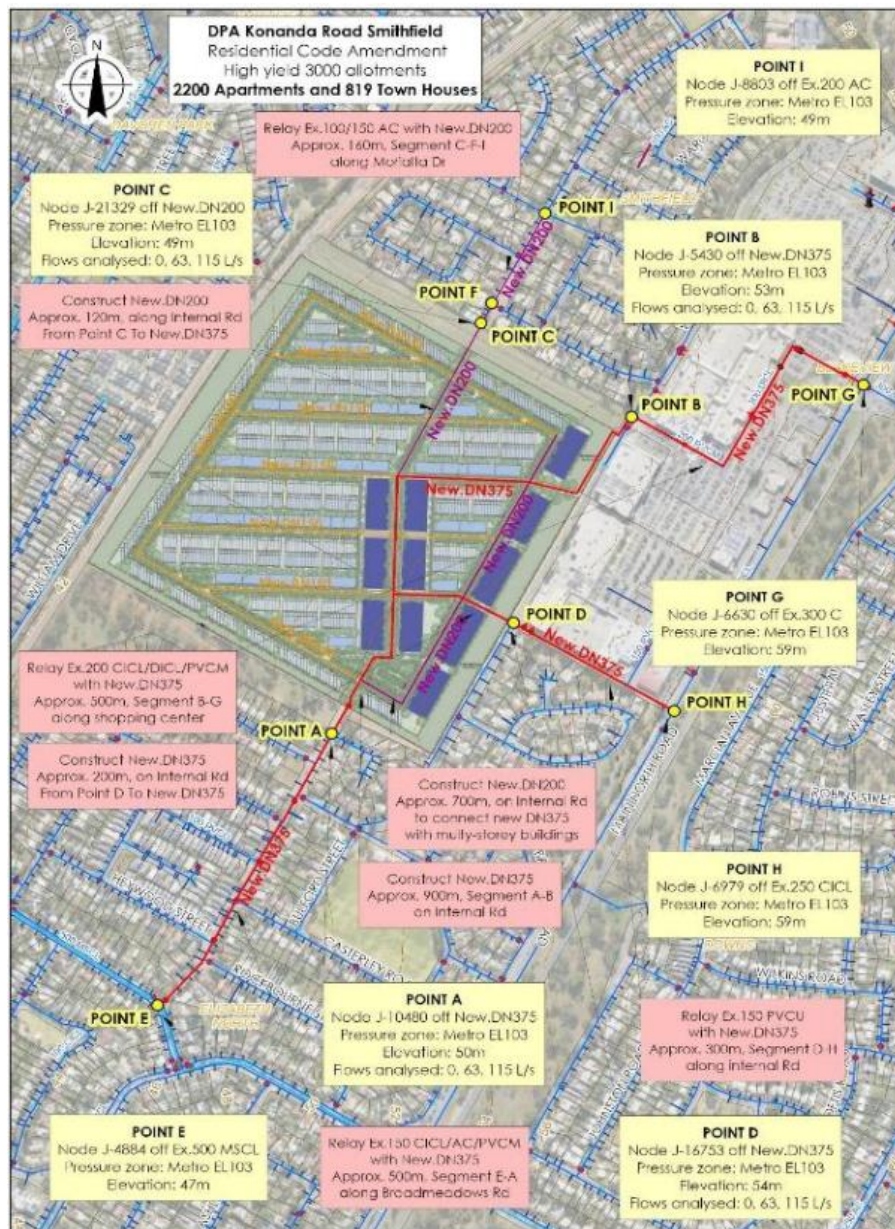


Figure 7 SA Water Required Upgrades to Service 3,000 Dwelling Option

Note: The yield scenario shown In Figure 7 is indicative only and does not represent the future development of the land.

To support the 1,500 density option, the following water works are required:

- 500m of 150mm dia main upsized to 250mm dia main
- 30m of 100mm dia main upsized to 200mm dia main
- 900m of 250mm dia new main to be constructed
- 320m of 200mm dia new main to be constructed
- 150mm internal mains to abut Torrens Title allotments

The locations of the above-mentioned upgrades can be seen in Figure 8.



Figure 8 SA Water Required Upgrades to Service 1,500 Dwelling Option

Note: The yield scenario shown In Figure 8 is indicative only and does not represent the future development of the land.

SA Water is currently undertaking additional modelling of the proposed the extended area for both density option. This outcomes of the modelling and advice from SA Water has not been received at time of this report.

2.3 Stormwater

The stormwater modelling considers only the central undeveloped site area. This outlined area can be seen in Figure 9.

There has been no review undertaken of the developed section to the north or south at this stage.

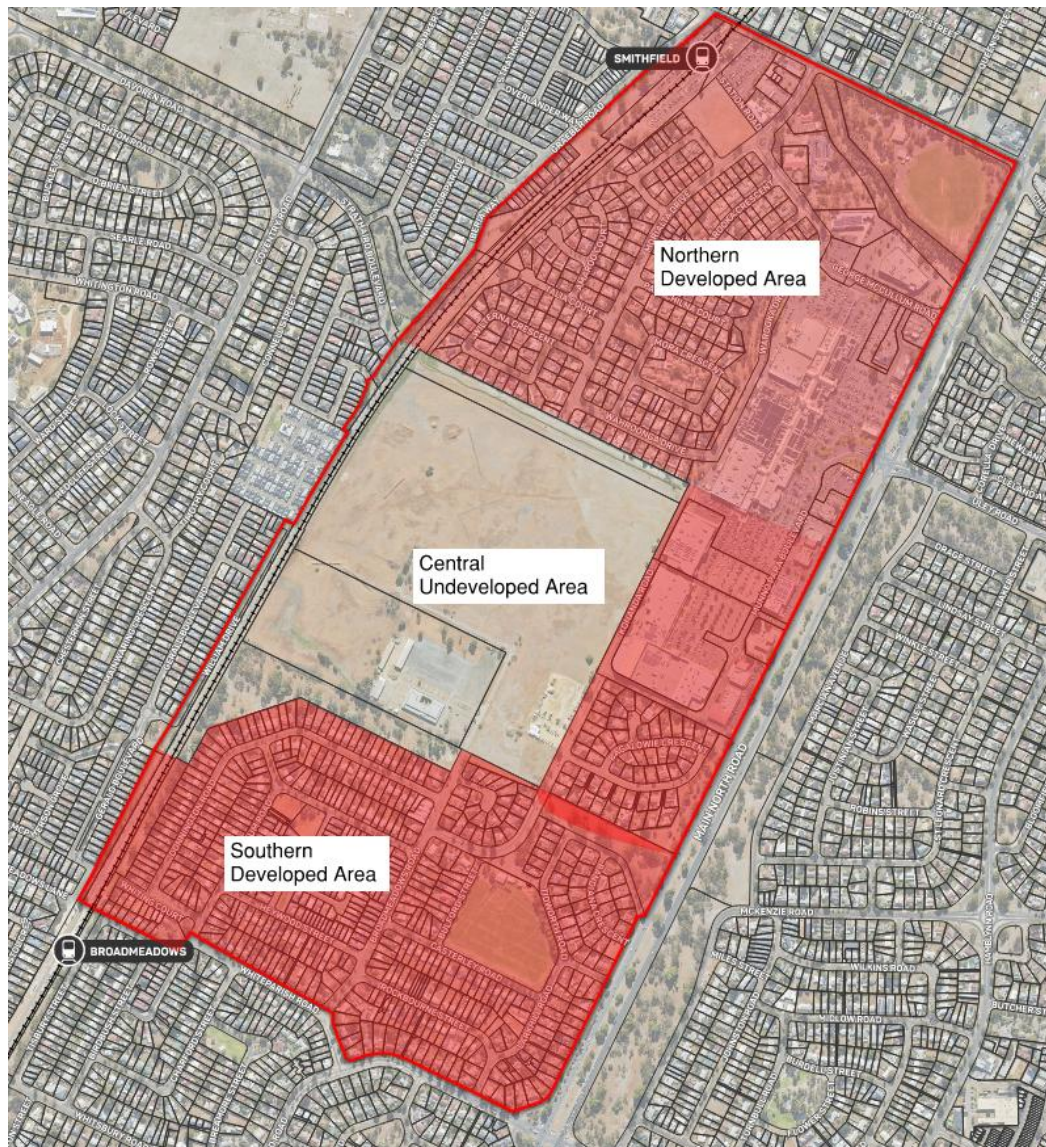


Figure 9 Stormwater Modelled Area

2.3.1 Existing Infrastructure

The site generally grades to the west, towards the rail corridor. The existing stormwater infrastructure in the northern developed site area is collected by a pit and pipe network, running through culverts underneath the railway line, discharging into Smith Creek to the west. An existing swale runs along the northern boundary of the undeveloped central portion of land that also discharges into the culverts underneath the railway line.

The existing stormwater infrastructure in the southern developed site area is collected by a pit and pipe network, discharging into an existing 900mm dia main along the rail corridor on the site's western boundary.

There is an existing 600mm dia stormwater pipe running approximately 150m along the southern boundary of the undeveloped land area. The pipe starts within the site on Bagalowie Crescent, before increasing to a 525mm dia and then 600mm dia main as it runs through the undeveloped land, eventually discharging into a swale within the site, where flows are picked up and conveyed towards the railway line at the site's western boundary. The swale connects into an existing swale running along the rail corridor towards the south.

Figure 10 shows existing stormwater infrastructure.

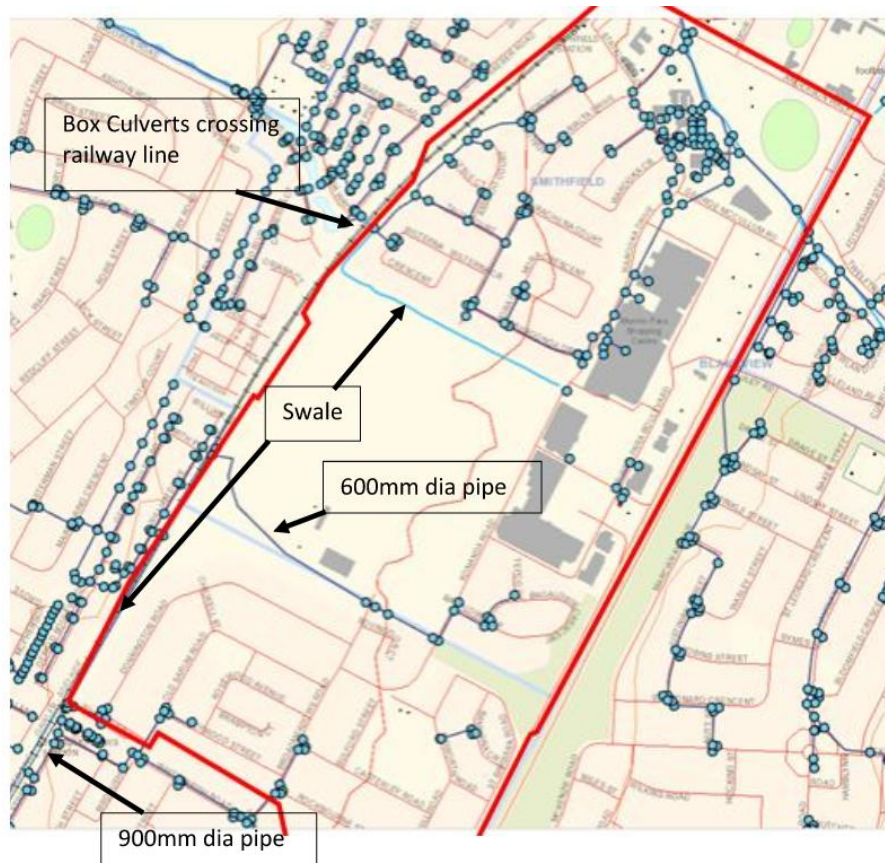


Figure 10 Existing Stormwater Infrastructure

2.3.2 Risk of Flooding

The SAPPA Flooding General Hazards overlay shows risk of flooding over the central undeveloped area, shown in Figure 11.

The Smith Creek Catchment Stormwater Management Plan details floodplain and flood hazard maps that indicate the expected flood depth and hazard for a number of storm events (including the 1% AEP) over the developable site in the pre development scenario. The 1% AEP flood hazard map is shown in Figure 12.



Figure 12 1% AEP Smith Creek Floodplain and Flood Hazard Study Map

The Smith Creek Management plan does not specifically discuss the site. One possible cause of the flooding identified in the report could be a capacity issue at the existing culverts running under the railway corridor into Smith Creek. The exact extent of the flooding would need to be investigated as a part of future master planning processes.

A preliminary review of the extent of the flooding was undertaken to identify the potential displaced volume, should future allotments be built up above this flood level.

The volume of flooding on the site was estimated using the area shown in the 1% AEP Smith Creek Floodplain and Flood Hazard Study Map, included in Appendix E of the Smith Creek Catchment Stormwater Management Plan. The volume assumed a flood depth of 0.2m across the entire area. The flood risk volume was estimated to be 13,950m³ across the site.

Future investigations should consider the following to mitigate the flood risk to the site and adjacent properties:

- Construct detention basin/local creek widening to hold displaced volume, to ensure no increased flood risk downstream
- Upsize rail culvert and confirm flows required to prevent flooding can be safely conveyed via Smith Creek
- Reduce flood volume by allowing ponding on future roads in 1% AEP storm event

2.3.3 Proposed Infrastructure

Stormwater modelling has only been undertaken on the central undeveloped area. As shown in Figure 3, the existing developed areas within the site will maintain the existing road alignment and locations where existing development is present. As a result, there will not be significant changes to impervious area and as such the change between pre and post development flows is expected to have minimal impact the existing stormwater pit and pipe network, subject to further stormwater investigation.

The proposed stormwater infrastructure is to include two detention basins in the locations shown in Figure 13.

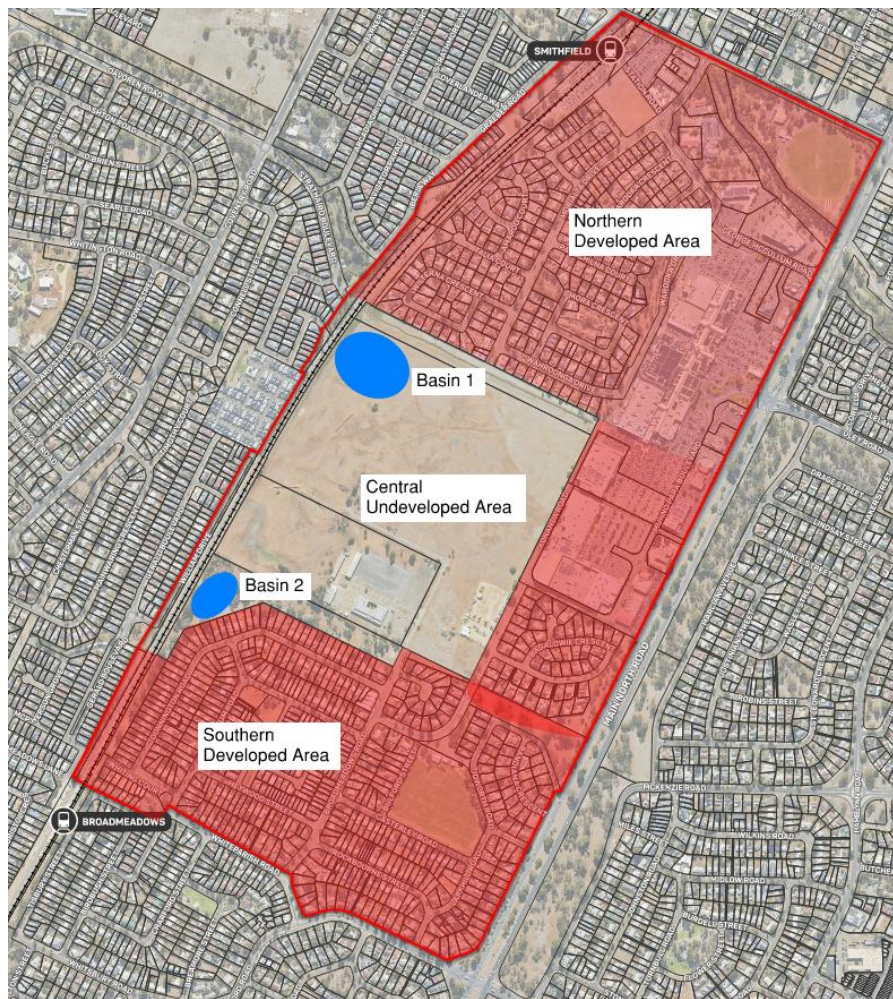


Figure 13 Proposed Detention Basin Locations

The estimated size of detention required for the central undeveloped portion of the site is summarised in the Table 1 based on a preliminary rational method review.

The size of the detention basins does not make allowance for capturing the displaced flood volume discussed in Section 2.3.2. However, flood mitigation measures could be incorporated within the basin as one possible option to manage this hazard.

The detention volume and area requirements based on 1.5m deep and 1:5 batters are summarised in Table 1.

Table 1 Total Required Detention Storage Requirements

Required detention volume	Required area (based on two basins)
12,120m ³	10,250m ²

2.4 Electrical

2.4.1 Existing Infrastructure

The site has existing underground and overhead infrastructure within and surrounding the area. The developed area within the site boundary is serviced by underground electrical infrastructure up to 11kV. Two 66kV overhead lines cross the site, one in the east boundary corner running through the Munno Para Shopping centre, the other through an existing reserve area alongside the southern boundary of the undeveloped portion of land.

The existing SA Power Networks (SAPN) electrical infrastructure is shown in Figure 14.

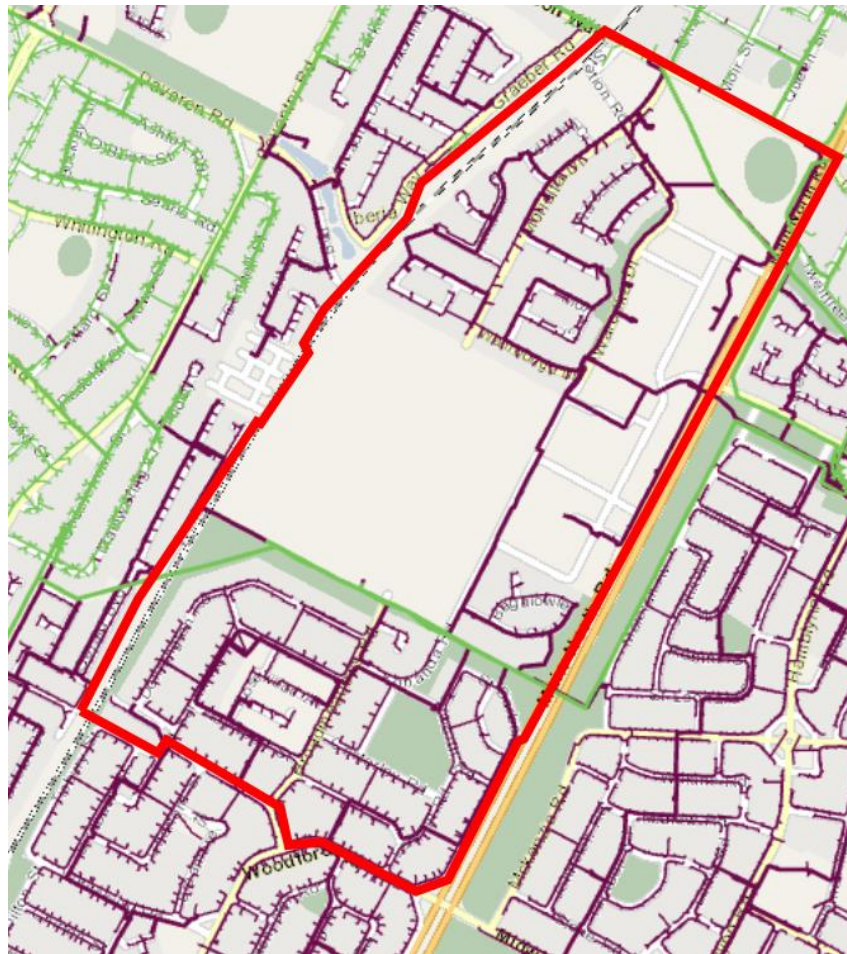


Figure 14 Existing Overhead (green) and Underground (purple) SAPN Infrastructure

2.4.2 Proposed Infrastructure

SAPN advice received in October 2025 provided preliminary load uptake estimates for the two density and yield options as follows:

- 3,000-dwelling yield option: Approximately 2,130 additional dwellings, with an estimated load uptake of 6–8.5 MVA
- 5,000-dwelling yield option: Approximately 4,130 additional dwellings, with an estimated load uptake of 10–15 MVA

For the 3,000-dwelling yield option, SAPN advise that no major network augmentation is expected to be required. Standard URD headworks, cabling, switching cubicles, padmount transformers etc will be required. Some network reconfigurations or feeder upgrades may be required to balance loads, depending on the scale of the proposed aged care and retail facilities. No major substation works are anticipated for this option.

For the 5,000-dwelling yield option, SAPN have indicated that major augmentation is likely to be required. This may include the installation of an additional 11 kV feeder from the Elizabeth Downs Substation, in addition to standard URD infrastructure for EL21 and EL14. The projected load increase may also trigger upgrades to the Elizabeth Downs Substation or require broader network reconfiguration to alleviate capacity constraints. Further detailed modelling and assessment will be necessary at later design stages to confirm the exact requirements.

2.5 Telecommunication

2.5.1 Existing Infrastructure

There are numerous telecommunication services within or surrounding the development site. NBN, Telstra, Optus, Nextgen, TPG and Vocus Group all have assets in the development vicinity.

2.5.2 Proposed Infrastructure

It is assumed the extensive telecommunications infrastructure within and surrounding the site will have sufficient capacity to service the development. The proposed telecommunications infrastructure shall connect into the existing networks, where connection locations and required network upgrades will be determined during detailed design.

2.6 Gas

2.6.1 Existing Infrastructure

APA plans show an existing high-pressure 150mm dia gas main that run along Anderson Walk and Main North Road. The developed areas are all serviced by high pressure gas mains between 18mm and 80mm diam mains along majority of the local roads, connecting to Anderson Walk and Main North Road.

2.6.2 Proposed Infrastructure

It is anticipated the developed lots are to be serviced with gas infrastructure. Connection into the existing network appears feasible and will be confirmed in detailed design.

3. SUMMARY

The existing and proposed infrastructure discussed in Section 2 is summarised in Table 2.

Table 2 Summary of Existing and Proposed Infrastructure

Service	Existing Infrastructure	Proposed Infrastructure	Recommendations / Additional Work
Sewer	Extensive existing network within developed areas within and surrounding the site	Capacity limited. Headworks required for both 1,500 and 3000 dwelling options include: — 2,000m of 300mm dia new main, including rail crossing; — 105m of existing 225mm dia upgraded to a 375mm dia main; — Decommissioning 63m of existing 150mm dia main — Four existing 150mm dia mains to be re-connected to the new 300mm and 375mm dia mains	SA Water to advise on headworks required to service wastewater to the north and south developed areas within the site based on discussed density options. SA Water undertaking wastewater master planning of the Bolivar North catchment. Upgrades to the Bolivar Wastewater Treatment Plant are expected to be required following this master planning.
Potable Water	Extensive existing network within developed areas within and surrounding the site	Capacity limited. Headworks required for 3,000 dwelling option include: — 800m of 150mm dia main upsized to 375mm dia main — 500m of 200mm dia main upsized to 375mm dia main — 160m of 100/150mm dia main upsized to 200mm dia main — 700m of 300mm dia main upsized to 375mm dia main (external works required to reduce impact on Elizabeth Downs high ground elevation nodes) — 820m of 200mm dia new main to be constructed	SA Water confirmed availability at Barossa/Little Para Water Treatment Plant (WTP) and the associated reservoir to service development. SA Water to advise on headworks required to service water to the north and south developed areas within the site based on discussed density options.

- 1,100m of 375mm dia new main to be constructed
- 200mm internal mains to abut strata multi-storey buildings
- 150mm internal mains to abut Torrens Title allotments

Headworks required for 1,500 dwelling option include:

- 500m of 150mm dia main upsized to 250mm dia main
- 30m of 100mm dia main upsized to 200mm dia main
- 900m of 250mm dia new main to be constructed
- 320m of 200mm dia new main to be constructed
- 150mm internal mains to abut Torrens Title allotments

Stormwater	Existing pit and pipe network in northern and southern developed site areas, outlet to the west. Minimal stormwater infrastructure in central undeveloped portion.	The proposed stormwater infrastructure is to include two detention basins to manage pre to post development flows. Only considers undeveloped central area.	Stormwater modelling has only been undertaken on the central undeveloped area. As shown in Figure 3, the existing developed areas within the site will maintain the existing road alignment and locations where existing development is present. As a result, there will not be significant changes to impervious area and as such the change between pre and post development flows is expected to have minimal impact the existing stormwater pit and pipe network, subject to Further stormwater investigations to be undertaken on the northern and southern developed
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			portion of the site. No significant changes to detention requirements anticipated.
Electrical	Extensive existing network within developed areas within and surrounding the site	For the 3,000-dwelling yield option, no major augmentation is expected. For the 5,000-dwelling yield option, major augmentation likely required, including a potential additional 11 kV feeder from the Elizabeth Downs Substation and broader network reconfiguration.	SAPN advice (October 2025) indicates further detailed modelling, and assessment will be required at later design stages to confirm exact augmentation and connection requirements.
Telecommunication	Extensive existing network within developed areas within and surrounding the site	Assumed extensive telecommunications network has sufficient capacity.	Correspondence with appropriate telecommunication service providers required at a later stage.
Gas	Extensive existing network within developed areas within and surrounding the site	Connecting into existing extensive gas network to service development appears feasible and will be confirmed in detailed design.	APA correspondence required at a later stage.