

2. Project descriptions and justification

2.1 Description of the approved Project

The approved Project is located approximately 25 km south-west of the Sydney central business district, as shown Figure 2-1. It traverses four local government areas (Fairfield, Bankstown, Holroyd and Parramatta) and two water catchments, namely the Parramatta River catchment and the Georges River catchment.

Woodville Road runs through the middle of project area, with Prospect Creek and Burns Creek within the southern part of the existing project area. The Cumberland rail line runs along the south-western edge of approved Project area to the western boundary of the Smithfield industrial area. The north-eastern extremity of the project area is bounded by the Rosehill and Camellia industrial area.

The approved Project comprised the following major components:

- a connection to the Liverpool to Ashfield pipeline (LAP) — the source of feed effluent for the recycled water treatment process
- an RWTP, feed effluent storage tank, recycled water storage tank, pumping station and other equipment at North Street, Fairfield (known as the Fairfield RWTP)
- a distribution system, including:
 - an elevated surface reservoir at Woodville Golf Course on Barbers Road, Guildford
 - two surface reservoirs and one pumping station on the south-eastern corner of Durham Street and Grand Avenue, Rosehill
 - a distribution pipeline approximately 20 km long.

Liverpool to Ashfield pipeline

SWC is commissioning a new 24 km pipeline from Liverpool sewage treatment plant (STP) to an existing sewer at Ashfield (known as the LAP). The LAP will be the backbone of a future recycled water grid and provide off-takes at a number of locations for connection to other recycled water pipelines. Construction of the LAP began in November 2006. Secondary effluent is expected to be available for recycling after August 2010.

When the approved Camellia and Rosehill Recycled Water project begins operation, the LAP will supply secondary treated effluent to the proposed Fairfield RWTP for processing and then use as recycled water for industrial premises within western Sydney.

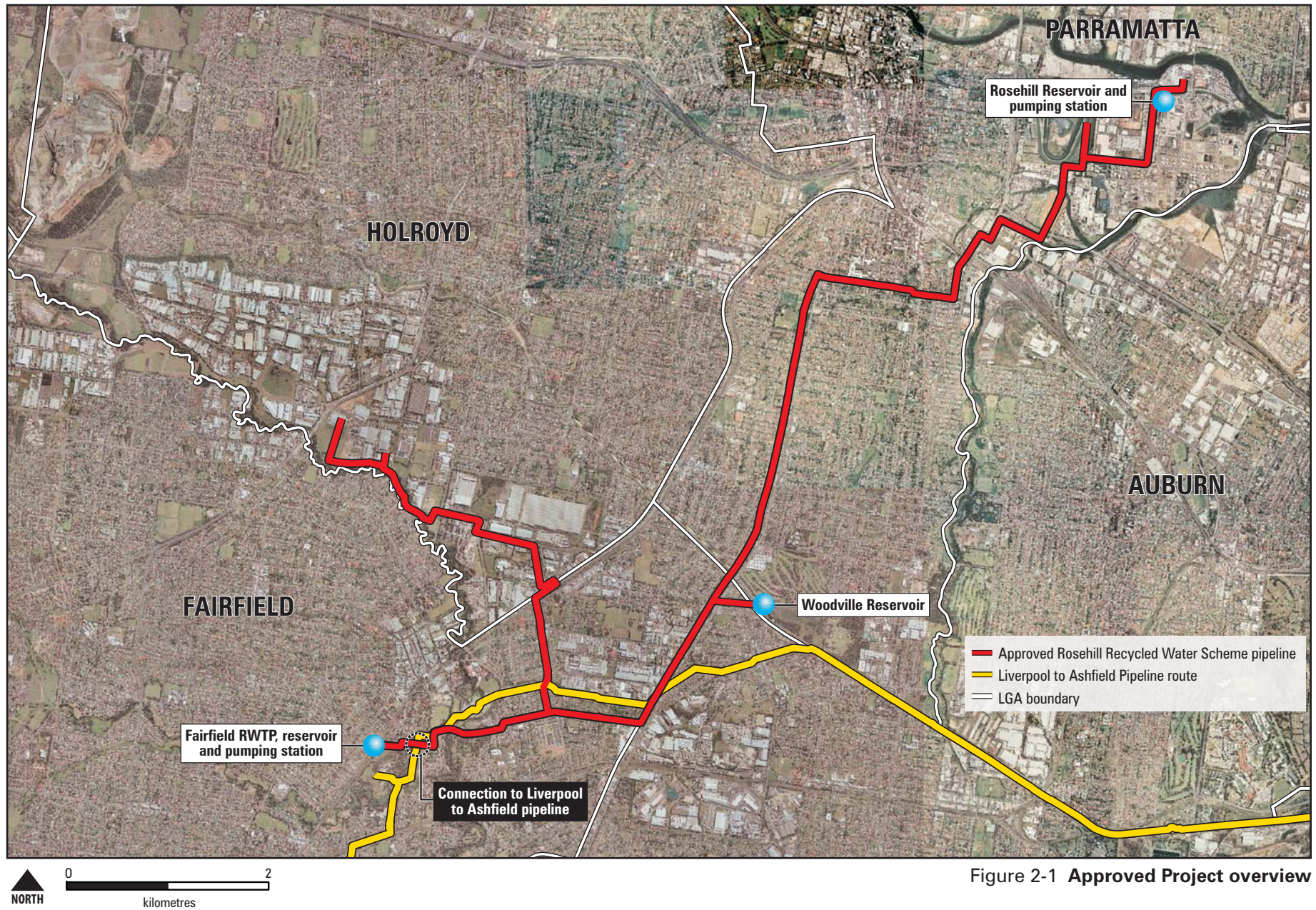


Figure 2-1 Approved Project overview

2.2 Proposed modifications and justifications — summary

This modification EA has been prepared to support six modifications of the approved Camellia and Rosehill Recycled Water project (approval No. 07_0121). This section of the EA describes and justifies each of the proposed modifications and discusses the alternatives considered during the development of the modifications.

In summary, the modifications include:

- Modification 1 — modification to the route of the approved pipeline distribution system between Fairfield Park and Normanby Street
- Modification 2 — modification to the approved electricity transformers associated with the Fairfield RWTP
- Modification 3 — minor modification to the current wording of Condition of Approval 2.37
- Modification 4 — inclusion of the sewer connection from the Fairfield RWTP to the SWC sewer line south of the RWTP
- Modification 5 — modification to the elevated surface reservoir at the proposed Woodville reservoir site
- Modification 6 — modification of the existing two elevated surface reservoirs at the proposed Rosehill reservoir site.

2.2.1 Land use adjacent to the scheme

The site area for the Camellia and Rosehill Recycled Water project is generally urbanised with predominantly low and medium density residential land uses, partially vegetated open space parkland, as well as areas of industrial land, particularly within Rosehill, Camellia and Guildford. The specific land uses nearby each of the proposed modifications have been detailed below as part of the description of each modification.

2.3 Modification 1 — Fairfield Park to Normanby Street recycled water pipeline route modification

2.3.1 Description of the proposed modification

The approved Project EA and PPR describe the alignment of the approved recycled water distribution pipeline network between the Fairfield RWTP and the proposed Rosehill Reservoir and pumping station site within the industrial area east of Rosehill racecourse. The initial section of the approved pipeline travels in an easterly direction from the Fairfield RWTP along North Street and McIntosh Street, through Fairfield Park and then traverses east along Gordon Street and Tangerine Street. From here, the pipeline traverses north along Woodville Road before continuing under Woodville Road to Rosehill. This section of approved pipeline travels through a combination of open spaces/parklands, vegetated woodland and urban streets.

The modification to the pipeline route would involve the deviation of approximately 1.16 km of the approved pipeline between Fairfield Park and Normanby Street (refer Figure 2-2). The pipeline would vary in diameter between approximately 400 and 450 mm within the length of the modification. This is consistent with the approved pipeline.

The proposed realignment of the approved pipeline would also include a creek crossing, as shown in Figure 2-3. The route of the modified pipeline alignment is discussed below.

Fairfield Park to Landon Street

Trenching of the modified pipeline route would start in Fairfield Park, generally following the existing internal roadways and disturbed tracks behind the Fairfield Leisure Centre. The pipeline would then use a trenchless construction technique (thrust boring) to cross under Vine Street to Makepeace Oval. Open trenching would then continue following the access track around Makepeace Oval, crossing under Prospect Creek and Burns Creek to Landon Street. Another trenchless construction technique would be used to cross this sensitive area (horizontal directional drilling – HDD). This section of the modified pipeline route would be approximately 640 m long.

Landon Street to Normanby Street

From Landon Street, open trenching would continue in an easterly direction before crossing connecting with the approved pipe at Normanby Street. Trenching along this section of the alignment would generally occur on the southern side of Landon Street. This section of the modified pipeline route would be approximately 520 m long.

The modification to the pipeline route would result in reduced environmental impacts within Fairfield Park. Construction activities will occur near existing riparian corridors within the vicinity of Prospect Creek and would use trenchless drilling techniques to avoid impact on these areas. The realignment of the pipeline would involve one creek crossing at the intersection of Prospect Creek and Burns Creek. The realigned pipeline route would not result in any additional major road crossings to the approved route.

The environmental impact of the modification in this area has been assessed in Section 4 of this modification EA. Photos 2-1 to 2-4 indicate the type of terrain and land uses within this section of the pipeline realignment.



Photo 2-1 Fairfield Park looking north towards the Fairfield Leisure Centre

Source: Parsons Brinckerhoff Australia. October 2009.



Photo 2-2 View towards Vine Street looking east behind the Fairfield Leisure Centre

Source: Parsons Brinckerhoff Australia. October 2009.



Photo 2-3 The track around Makepeace Oval looking west towards Vine Street

Source: Parsons Brinckerhoff Australia. October 2009.



Photo 2-4 Proposed crossing at Prospect and Burns creeks

Source: Parsons Brinckerhoff Australia. October 2009.

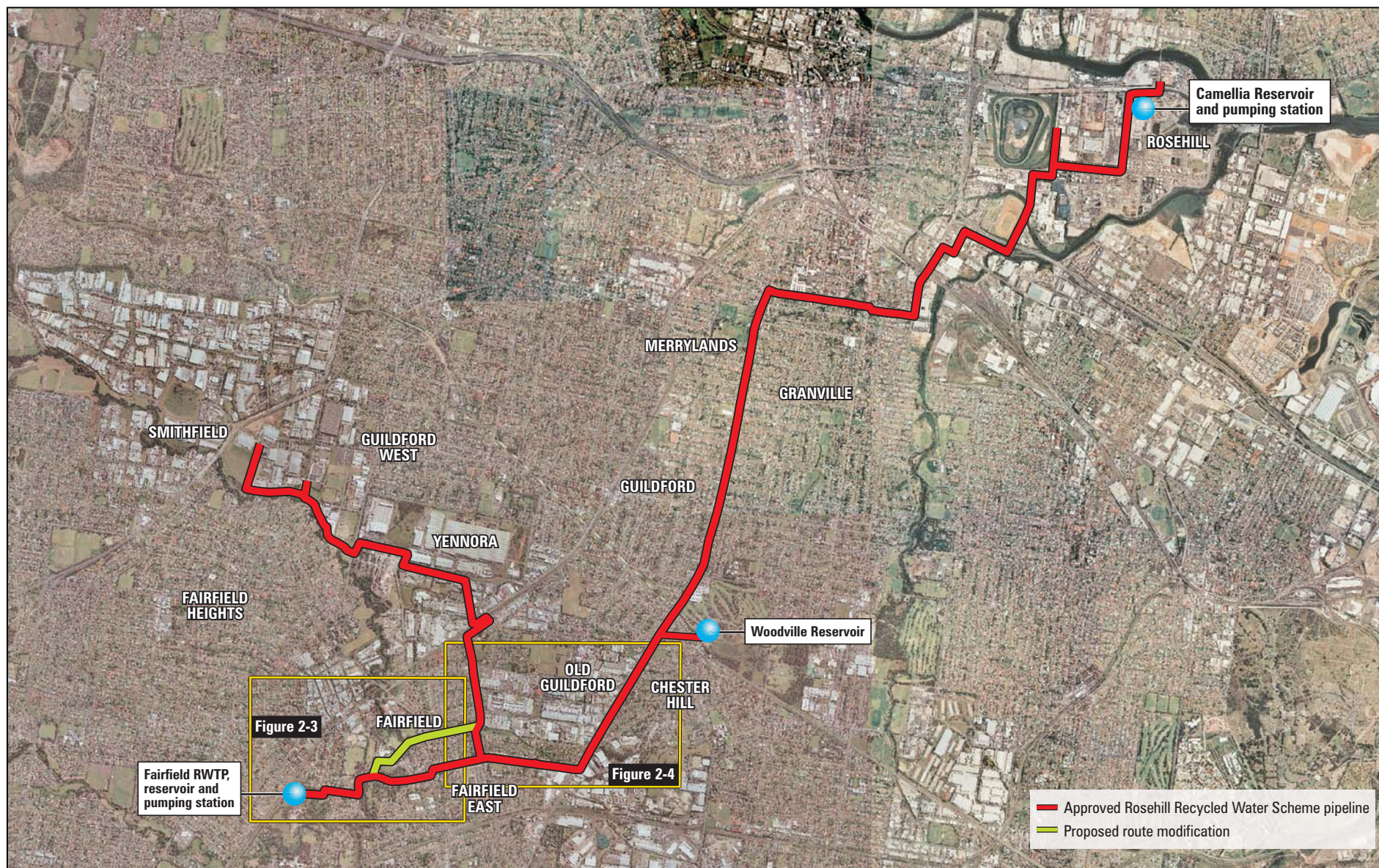
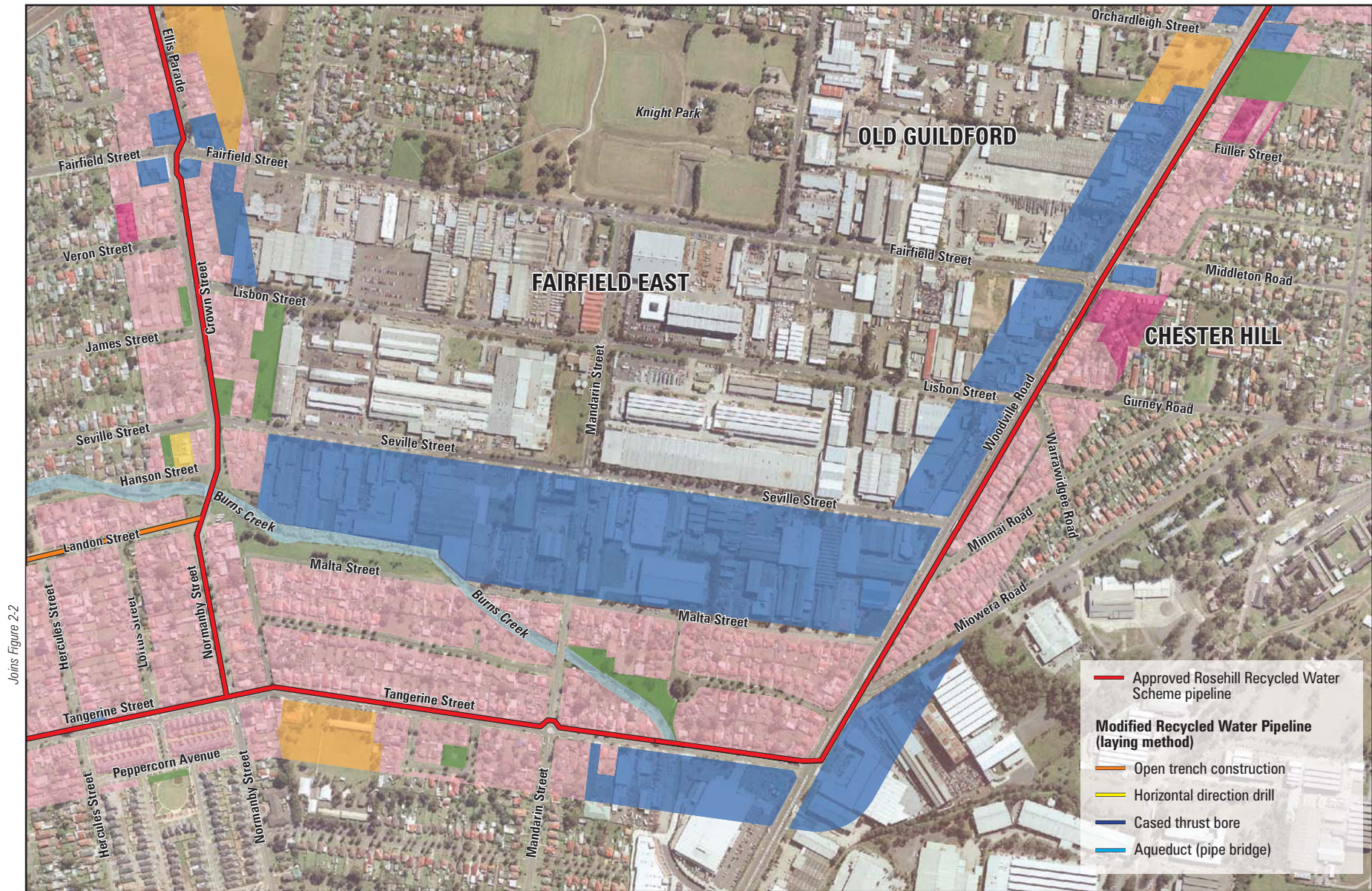


Figure 2-2 Distribution system overview including modification

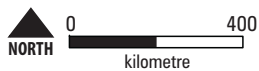


Joins Figure 2-3

Figure 2-3 Existing and proposed pipeline detail with existing land uses (west)



Joins Figure 2-2



- | | | |
|------------------------------|-----------------------|--------------|
| Residential (single density) | Commercial/Industrial | Special uses |
| Residential (medium density) | Utilities | Waterways |
| Recreation/Open space | | |

Figure 2-4 Existing and proposed pipeline detail with existing land uses (east)

2.3.2 Land use adjacent to trenching construction method

Fairfield Park generally consists of open space and recreation facilities (tennis courts and sporting facilities) and includes open parkland and the Fairfield Leisure Centre/swimming pool. After crossing Vine Street, trenching would continue around Makepeace Oval before crossing under Prospect Creek and Burns Creek to Landon Street.

Along Landon Street, trenching would mainly occur in the roadway adjacent to residential dwellings (to the north and south of the street) prior to connection with Normanby Street. As described, this area has been subject to previous trenching activities, including the LAP.

Figures 2-3 and 2-4 identifies the current land uses surrounding the approved pipeline route and the land uses surrounding the route of the proposed realignment.

2.3.3 Justification for the modification to the route

The proposed realignment of the approved pipeline would result in a number of benefits, including fewer potential impacts to vegetation, traffic and commercial and educational premises near the approved pipeline route.

The proposed alignment has been modified in consideration of the potential impacts of the approved pipeline route on the existing vegetation within Fairfield Park. The revised alignment generally follows existing roadways and previously disturbed environments. The revised alignment will, therefore, avoid any potential adverse effects on significant trees and vegetation within the south-east corner of Fairfield Park; refer to Section 4 and Appendix E.

The proposed route modification would also allow for construction within previously disturbed areas of land and, as such, would minimise the environmental impact of the pipeline on vegetation corridors in the local area. To achieve this, the proposed realignment of the pipeline would generally follow the existing LAP, which was constructed along a similar alignment within the last two to three years.

The proposed route modification would avoid construction within Gordon Street, along The Horsley Drive and the eastern part of Tangerine Street. These streets are important local and regional roads that are subject to high volumes of traffic. Additionally, the section of Tangerine Street which will no longer be affected as a result of the proposed modification features a number of bus routes and bus stops and some small retail businesses that would be adversely affected by construction works within this area. Refer to Section 4 and Appendix C for further information.

Overall, the proposed alignment would result in less disruption to the surrounding community during construction.

2.4 Modification 2 — additional transformer at the Fairfield RWTP

2.4.1 Description of the proposed modification

The approved Project provided for the construction of 2 x 1,500 kVA and 1 x 500 kVA transformers at the Fairfield RWTP located at the corner of North Street and East Parade, Fairfield. This combination of transformers was included in operational noise modelling and compliance assessment in the PPR (March 2009) and their location was approved near the western boundary of the site off East Parade (refer Figure 2-5).

This modification proposes to construct 3 x 1,500 kVA transformers at this site by replacing the approved 1 x 500 kVA transformer with an additional 1,500 kVA transformer. This will provide additional power redundancy for the operation of the pumping station.

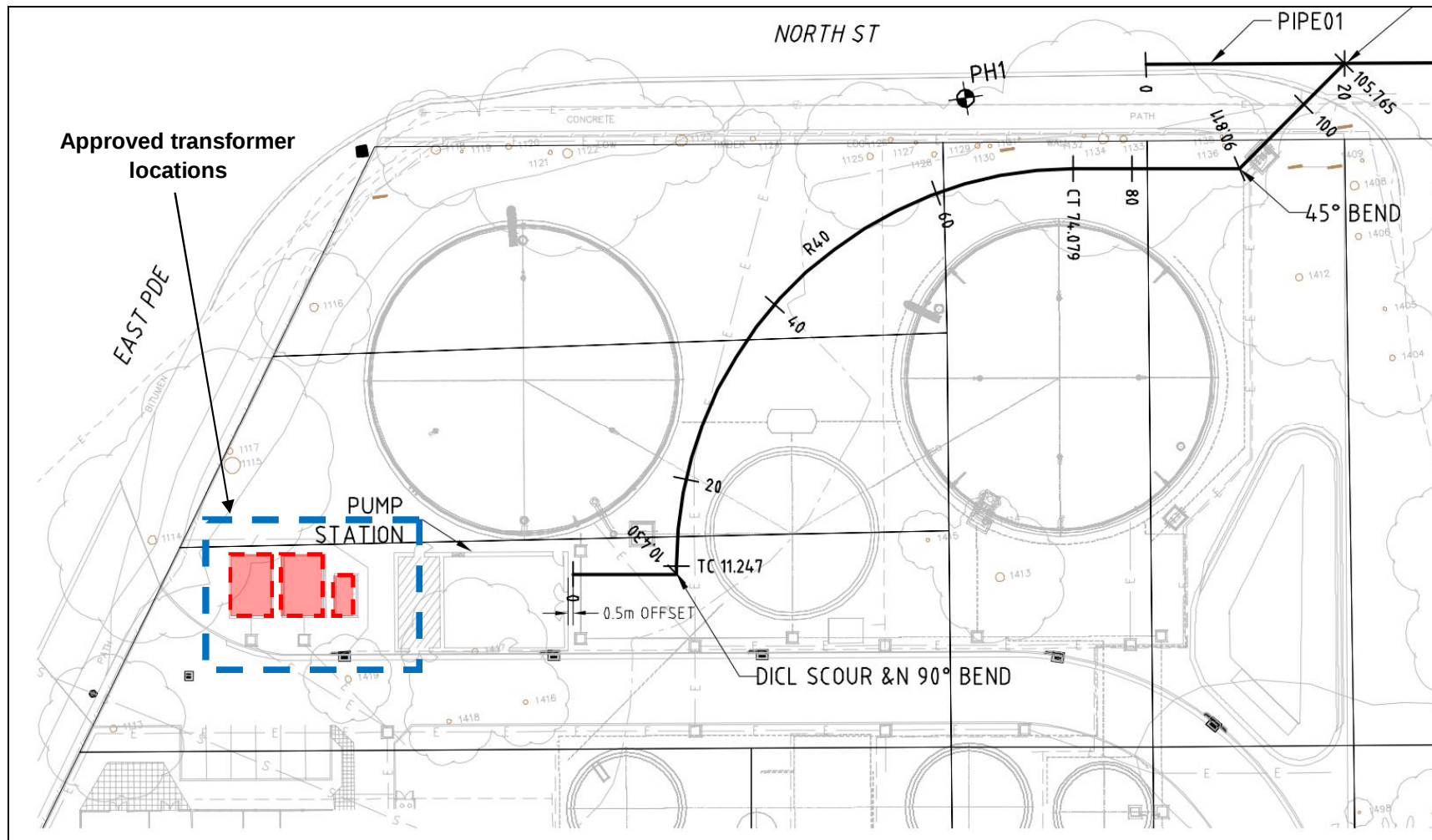
The location of the transformers will also be slightly amended to reflect the needs of the power supply service, Salem Engineering Power Services. The transformers are located near the East Parade boundary of the site (refer Figure 2-5); they will be relocated to an area closer to the boundary of the Fairfield RWTP along East Parade. Figure 2-6 shows the modified location of the transformers.



Photo 2-5 Proposed transformer location within the Fairfield RWTP

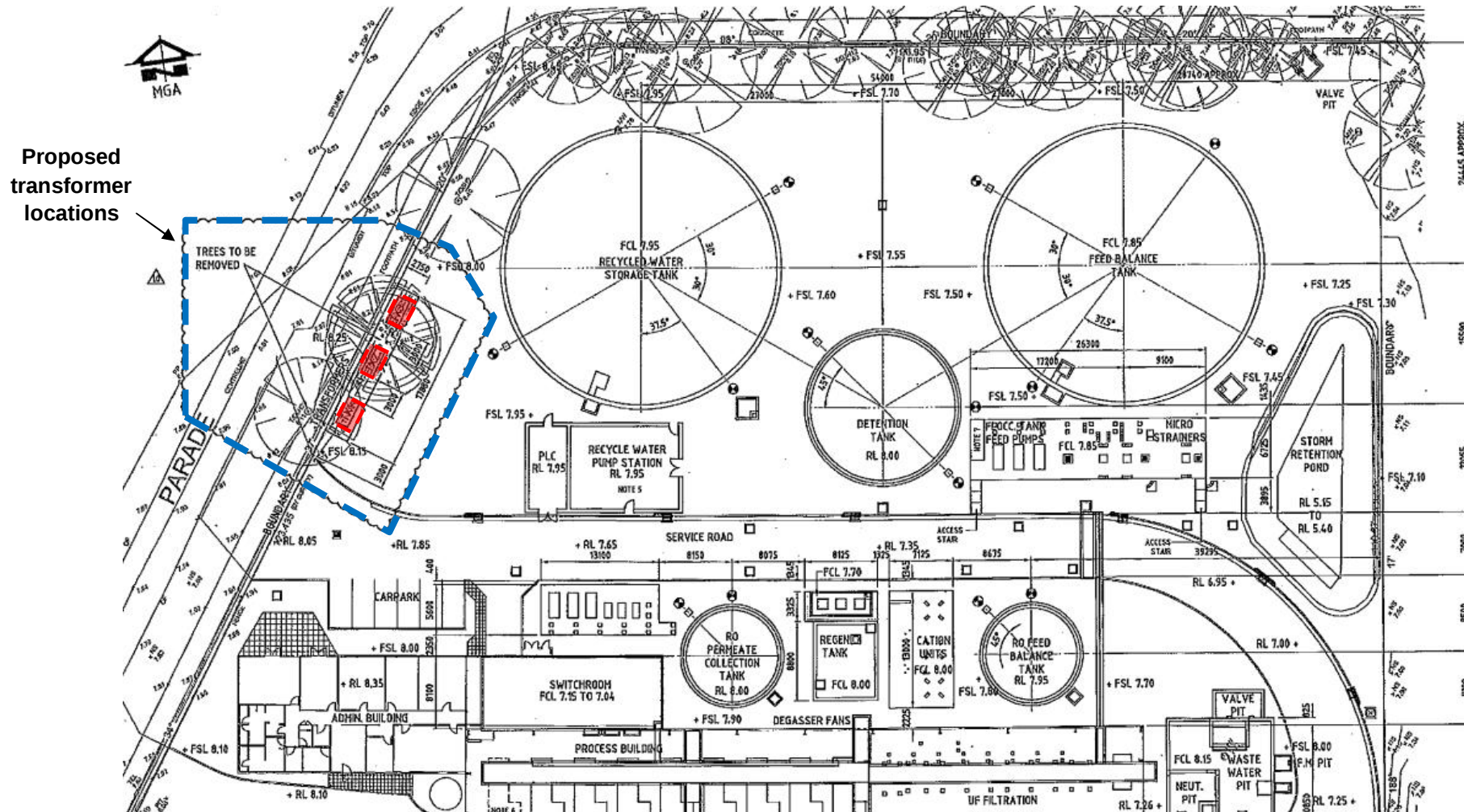
Source: Parsons Brinckerhoff Australia. October 2009.

Figure 2-5 Original plant layout (as approved) within the Fairfield RWTP



Source: Jemena Asset Management Pty Ltd.

Figure 2-6 Revised transformer location within the Fairfield RWTP



Source: Jemena Asset Management Pty Ltd.

2.4.2 Land use at the Fairfield RWTP reservoir and pumping station

The approved Fairfield RWTP reservoir and pumping station is within a generally open space (zoned as Special Uses 5a – Water Board) under the Fairfield Local Environment Plan 1994. This site has already been cleared after the project was approved in June 2009. Immediately south of the Fairfield RWTP is SWC's Fairfield storm sewage treatment plant (Fairfield SSTP). To the north, the main land use is single detached residential dwellings along North Street. The South Sydney rail line also lies to the west of the Fairfield RWTP site on the opposite side of East Parade.

2.4.3 Justification for the modification

Transformer location

Salem Power Engineering Services identified the approved location of the padmount substation transformers within the Fairfield RWTP (in correspondence with Veolia Water Solutions & Technologies (Australia) Pty Ltd dated 15 October 2009 — refer Appendix B) as 'not suitable to meet the additional requirements as requested by Integral Energy for the use of 1,500 kVA padmount stations'.

Salem Power Engineering Services recommended that 'the most suitable location to meet Integral Energy's additional requirements is along the front property boundary alongside the entrance gateway'. The proposed modification, therefore, includes the minor relocation of the bank of transformers within the site, however, they will remain along the western boundary of the site off East Parade (refer Photo 2-8 and Figure 2-6).

Noise

Modelling for the transformers during the approved Project EA predicted the pumping station would be the main contributor to operational noise levels and that the transformers would make little overall contribution to operational noise emissions. A commitment was made to provide solid façade walls to attenuate noise from the pump equipment and achieve compliance with operational noise goals.

Additional noise level predictions have been made to assess the proposed modification to the approved transformer configuration as part of the overall assessment of the identified modifications, refer to Section 4 and Appendix D. This has identified that operation of the reconfigured transformers would comply with the adopted 40 dB(A) $L_{Aeq, 15min}$ operational noise goal at all potential sensitive receivers on North Street and Lyndon Street.