
APPENDIX 2
SERVICING REPORT

SERVICING REPORT

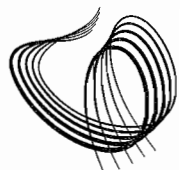
for

NORTH BALDIVIS (East of Baldivis Rd)

Prepared for: **Baldivis East Stakeholder Team**

Ref: 7542

Date: **February 2010**



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INTRODUCTION

This Report addresses the servicing issues that impact the development of the corridor of land located between Baldvis Rd and the Kwinana Freeway, in North Baldvis. This corridor extends northwards from Safety Bay Rd through to the rail reservation abutting the east-west portion of Baldvis Rd (or what used to be known as Millar Rd) - refer Figure E1.

This parcel of land (the Subject Area) is approximately 380 hectares in size. Whilst the Subject Area comprises a multitude of allotments, much of the area falls into the ownership of six parties who have come together under the auspices of the Baldvis East Stakeholders Team [B.E.S.T.] to formulate a District Structure Plan over the Subject Area.

This servicing report has been prepared in support of a District Structure Plan [DSP] for the Subject Area, and is intended to demonstrate that there are no unmanageable constraints in terms of servicing the type of development being promoted by the DSP.

1. ROAD & PEDESTRIAN NETWORK

The Subject Area abuts the Kwinana Freeway, with access to the Freeway being presently available through the interchanges at Safety Bay Rd and Mundijong Rd. The option of establishing limited access to the Freeway at Millar Rd has been previously entertained by Government, but it is unclear whether this will ever be acted on.

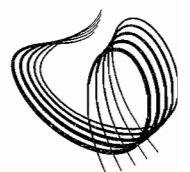
The City of Rockingham had intended to carry out a significant upgrade of Mundijong Rd, making this a key gateway for vehicular access into the City. It is understood that the City's plans for progressing this work have been delayed pending resolution of concerns that have been expressed by the operator of the tailing ponds located off Millar Rd.

Nairn Drive, which is intended to become the main north-south road connection through the North Baldvis area, is located approximately 800m west of the Subject Area.

The City has indicated that it plans to convert the existing (rural standard) road pavement in Baldvis Rd to a boulevard (i.e. a single vehicle lane in each direction, separated by a landscaped median) - and that this will be achieved through the collection and subsequent expenditure of developer contributions.

Within the Subject Area, an appropriate network (and hierarchy) of roads will be established to support the proposed urban structure. Appropriate traffic management measures will be considered at the next level of planning.

It is anticipated that the pathway infrastructure that will cater for pedestrian movements in the Subject Area will generally mimic the road network. The existing dual use path [DUP] in the Freeway reserve will be complimented by further major DUPs in the Tramway Reserve and Mundijong Rd. Various DUP connections between these pathways, together with a supporting network of footpaths in local streets, will provide the means for safe movement of pedestrians with the Subject Area.



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It is noted that the rail reservation located at the northern extremity of the Subject land is only used for freight purposes at this time.

2. STORMWATER MANAGEMENT

For the purpose of stormwater management, the Subject Area has been assessed in two separate 'precincts' - and District Water Management Strategies have been prepared for each. The portion of the Subject Area south of Zig Zag Rd makes up one precinct, with the balance area (being between Zig Zag Rd and the rail reservation) making up the second precinct.

Each of the District Water Management Strategies [the DWMSs] has been assessed and accepted by the Dept of Water. A copy of this advice is included in the Appendix to this Report.

The strategies propose to manage stormwater runoff (in terms of quantity and quality) in accordance with recommendations in the Dept's *Stormwater Management Manual for WA* - but they also recognised the extensive work that was being done (at the time of drafting the DWMSs) by the Dept and others on developing and adapting new policies in relation to development in Southern River and North Forrestdale.

Stormwater runoff is intended to be curtailed to acceptable levels through the construction of appropriate detention areas with the Subject Area, with subsequent discharges off-site under the Kwinana Freeway (through existing pipe culverts) and into the Peel Main Drain.

Water quality is intended to be addressed through the incorporation of appropriate treatment mechanisms within the urban streetscape (eg. rain gardens in applicable roadside locations and on the fringes of public open space). This infrastructure will be sized to address the runoff from the critical 1hr 1year Average Recurrence Interval [ARI] event.

As the Subject Area is prone to inundation following rainfall events, and also because parts of the area fall within the flood fringe of the Peel Main Drain - it will be necessary to fill much of the Subject Area to provide protection from flooding. Subsoil drainage infrastructure will also need to be installed across parts of the Subject Area to allow for the establishment of a controlled groundwater level [CGL] - to ensure there is sufficient separation from building levels to allow disposal of roof runoff within created lots is feasible.

It has been noted in the relevant DWMS that a portion of the Peel Main Drain traverses the north-eastern corner of the Subject Area. The DWMS identifies that appropriate filling and/or measures will need to be taken to ensure that development in that location occurs at a level which is free from threat of inundation.

3. WASTEWATER MANAGEMENT

The Water Corporation's planning calls the construction of conventional gravity sewers and four wastewater pumping stations to collect the wastewater flows from development within the Subject Area. The wastewater is intended to be ultimately conveyed to the proposed East Rockingham Wastewater Treatment Plant. This planning is illustrated in Figure E2.



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Two of these pumping stations already exist - the first [labelled as WWPS#2 in Figure E2] being located south of Zig Zag Rd. This pumping station was constructed in 2008/09 to service developments that have taken place west of Baldivis Rd. Whilst the 'shell' of this pumping station has been constructed to suit long-term requirements, only temporary works have been constructed in relation to its pumping capacity and its point of discharge. Sewerage flows are presently pumped northwards to existing sewerage infrastructure in Bertram, and eventually reach the Kwinana Wastewater Treatment Plant [the Kwinana WWTP]. There is a limitation on how much flow can be pumped into this system, hence the present arrangements do not allow for the servicing of the Subject Area - with the exception of the land immediately surrounding the pump station site.

A second pumping station [labelled as WWPS#1 in Figure E2] is proposed to be constructed south of this existing station, to service the southern 'extremity' of the Subject Area. Flows from this proposed pumping station are intended to be directed north to the existing pump station (WWPS #2).

The existing pumping station [WWPS #2] is intended to eventually direct sewerage flows west across Baldivis Rd to a further pumping station [labelled as WWPS#5 in Figure E2] located near the intersection of Fifty Rd & McDonald Rd. From there, the sewerage flows are intended to be directed northwards to a fourth pumping station [labelled as WWPS#6 in Figure E2], located north of Kerosene Lane. From there, the flows will be directed into infrastructure leading to the proposed East Rockingham Wastewater Treatment Plant.

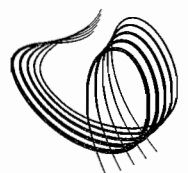
WWPS #5 is the second existing pumping station, but like WWPS #2 temporary arrangements have been constructed in relation to its pumping capacity and its point of discharge. Whilst in the long-term this pump station is intended to send sewerage flows northwards, these flows are presently being directed eastwards back to WWPS #2 (then out to the Kwinana WWTP).

A third wastewater pumping station [labelled as WWPS#4 in Figure E2] is proposed to be constructed at the far northern end of the Subject Area. This station is intended to direct flows southwards to the fourth pumping station proposed within the Subject Area [labelled as WWPS#3 in Figure E2], which will then direct the flows west to WWPS #6 and onwards to the East Rockingham Treatment Plant.

Whilst substantial expenditure will be required to establish the infrastructure within the Subject Area - more importantly, it is critical that key infrastructure remote from the Subject Area be in place. This infrastructure includes the East Rockingham Wastewater Treatment Plant [the WWTP], the major pumping station (WWPS #6 - being a Type 180 station) off Kerosene Lane that is proposed to receive all of the collected wastewater flow from the North Baldivis area, and the infrastructure needed to convey the sewerage from WWPS #6 to the WWTP.

The Water Corporation has suggested that the WWTP may be operational by 2015, but that developers may choose to fund alternative temporary works should they want to commence subdivision prior to the commissioning of the WWTP.

No timeline has been identified for the funding and construction of WWPS #6. Traditionally, the Water Corporation has recognised that the construction of pump stations of this size and capacity should be addressed by them.



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Once this key infrastructure is in place, however, development of the Subject Area can readily proceed.

The Water Corporation has informally indicated that support for further development in the North Baldivis area might be given once three key 'hurdles' are overcome, these being:

- i. securing relevant 'environmental approvals' for the WWTP site;
- ii. gaining approval for a 'concept design' (for the WWTP) from the City of Rockingham;
- iii. securing a service corridor in the north-western corner of the North Baldivis area (i.e. adjacent or within Old Mandurah Rd) for critical conveyance infrastructure.

The Corporation has intimated that once these issues have been resolved, it should be possible for them to work with developers to find interim solutions for dealing with sewerage flows whilst the WWTP and associated infrastructure are constructed and commissioned. The Corporation has confirmed that spare capacity exists at In Brownell Crescent pumping station in Medina.

B.E.S.T has commissioned a detailed engineering investigation aimed at determining exactly what works will be required to convey the wastewater from the Subject Area up to the Brownell Crescent WWPS.

4. POTABLE WATER SUPPLY

Whilst the Water Corporation's detailed planning for North Baldivis is currently subject to review, in broad terms their strategy entails the extension of large diameter mains to distribute water from the Tamworth Reservoir located off Eighty Rd - to deliver potable water supplies into the North Baldivis area.

The Corporation are presently investigating whether it would be more pragmatic to extend a single distribution main north from the reservoir, or retain earlier plans which documented the extension of two smaller distribution mains.

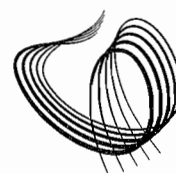
Details of the existing planning, together with an indication of what the revised scheme might look like, are shown in Figure E3.

It is noted that whilst limited urban development within the broader North Baldivis area has already occurred, this has been facilitated by the extension of small diameter reticulation which have limited capacity.

5. ELECTRICITY SUPPLY

It is not anticipated that Western Power will experience any difficulties in servicing the proposed development of the Subject Area.

Western Power will require the undergrounding of the existing aerial infrastructure in Baldivis Rd as a condition of development.



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6. GAS SUPPLY

It is not anticipated that Westnet Energy will experience any difficulties in servicing the proposed development of the Subject Area. Their gas reticulation infrastructure has already been extended along Baldivis Rd to a point close to the intersection with Zig Zag Rd (by others).

If development of the Subject Area was to commence at a point remote from this existing infrastructure (i.e. at the northern end), then Westnet Energy may seek a capital contribution from a developer to assist in the extension of its infrastructure. This is normal practice.

A major gas transmission line crosses through the Subject Area, and will need to be taken into consideration in planning the proposed subdivision in that location. Planning Bulletin 87 as published by the Western Australian Planning Commission [WAPC] addresses issues that need to be considered in relation to the gas main.

7. TELECOMMUNICATIONS

Telstra have an Exchange located on the edge of the Subject Area, near the intersection of Baldivis and Fifty Roads, therefore it is not anticipated that they will experience any difficulties in providing the basic telecommunications infrastructure to the proposed development.

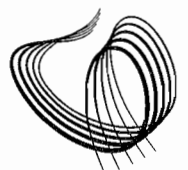
Telstra may want to enter into negotiations with the relevant land owner to acquire the necessary land for the accommodation of a more formal Exchange, but the land requirements involved are not significant.

An expanded telecommunications package (incl broadband services and cable TV) can be readily facilitated if required.

8. CONCLUSIONS

In terms of servicing issues, no impediment exists to the development of the Subject Area.

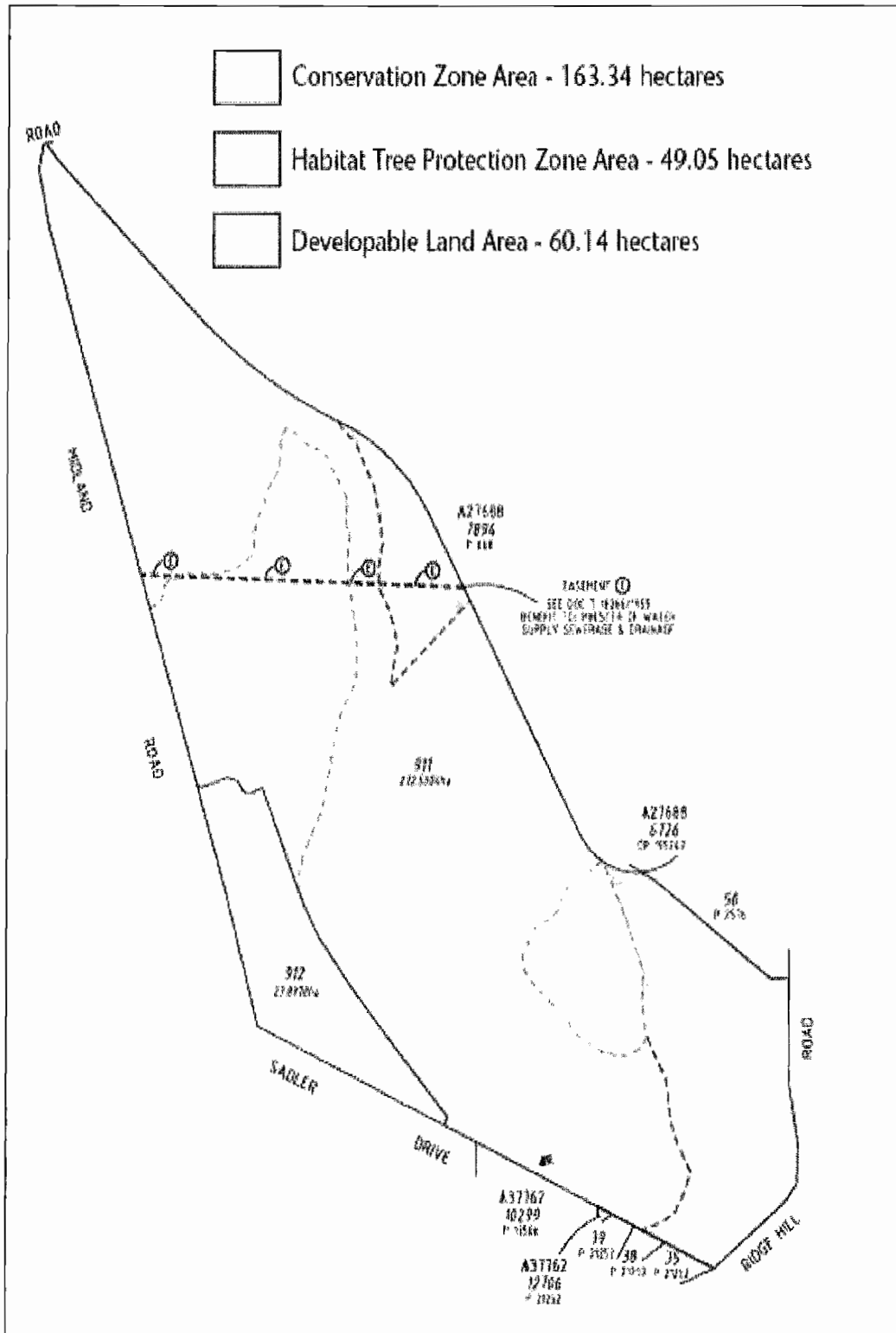
It is acknowledged that the temporary works are likely to be required to convey wastewater flows to the Kwinana Wastewater Treatment Plant until such time as the Water Corporation has successfully commissioned the East Rockingham Wastewater Treatment Plant and the planned regional pumping station in North Baldivis.

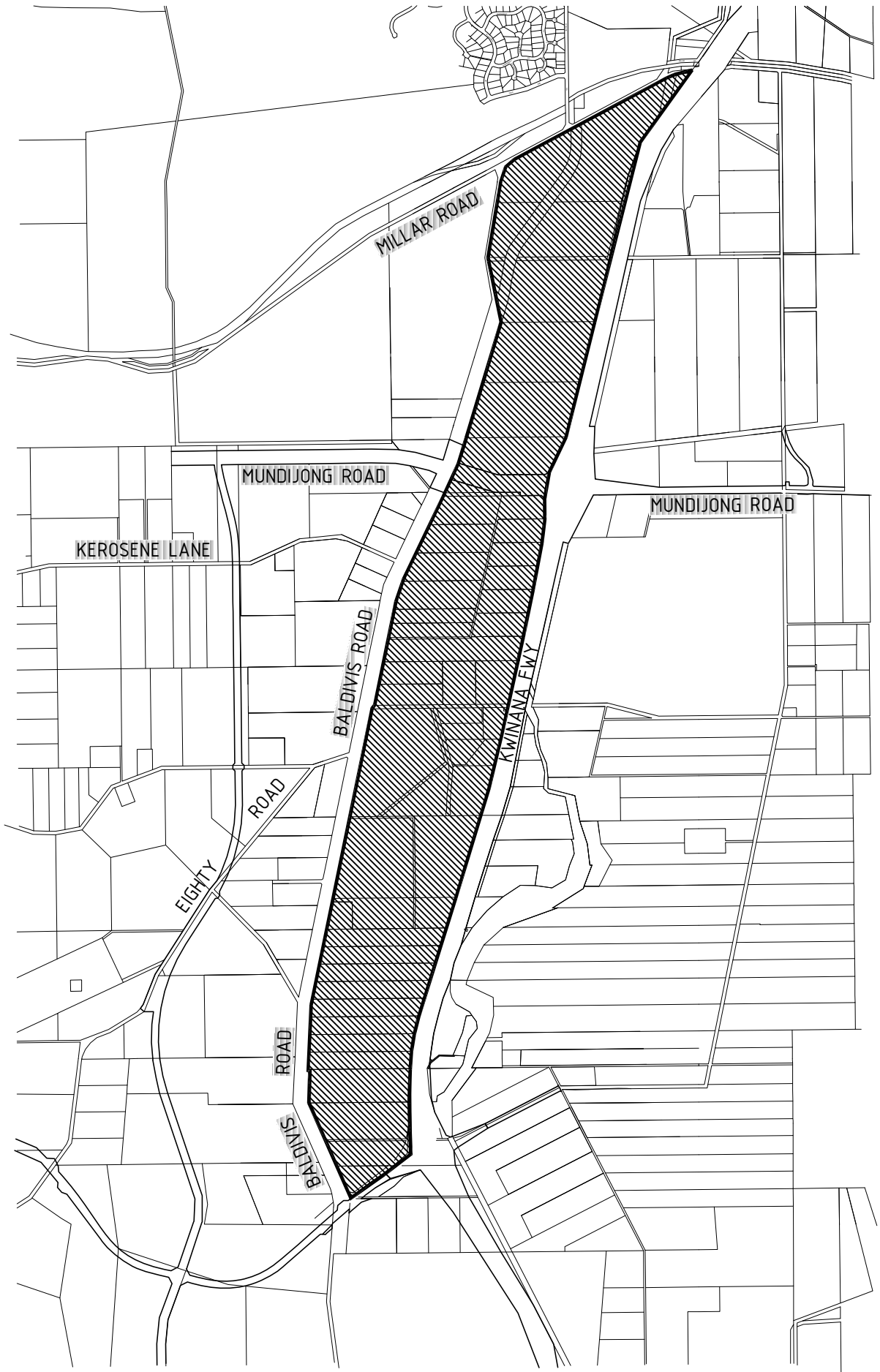


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photo 2 of 2





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TITLE
**FIGURE 1
SUBJECT AREA**

CLIENT
BALDIVIS EAST STAKE HOLDER TEAM

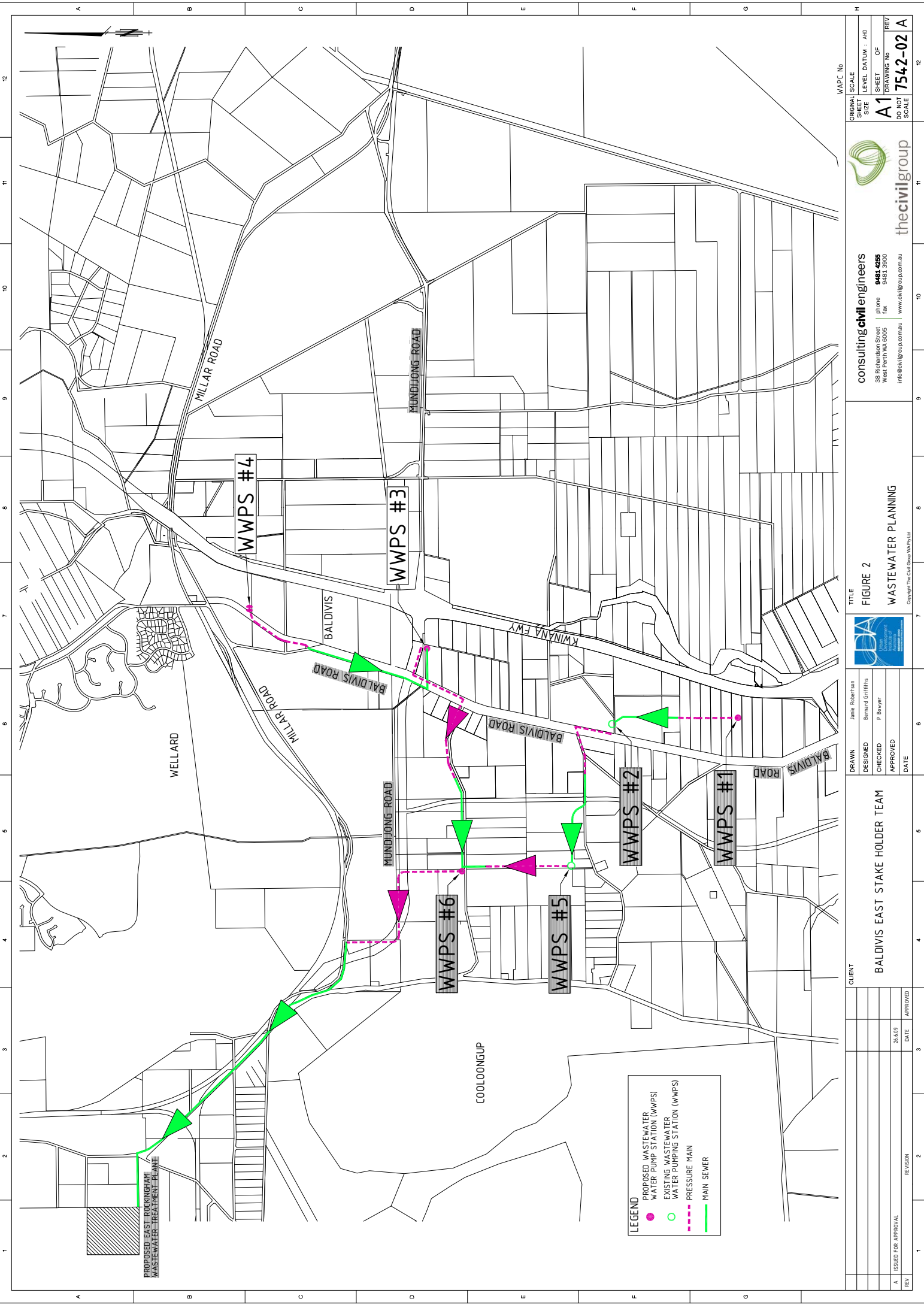
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FIGURE 2
WASTEWATER PLANNING
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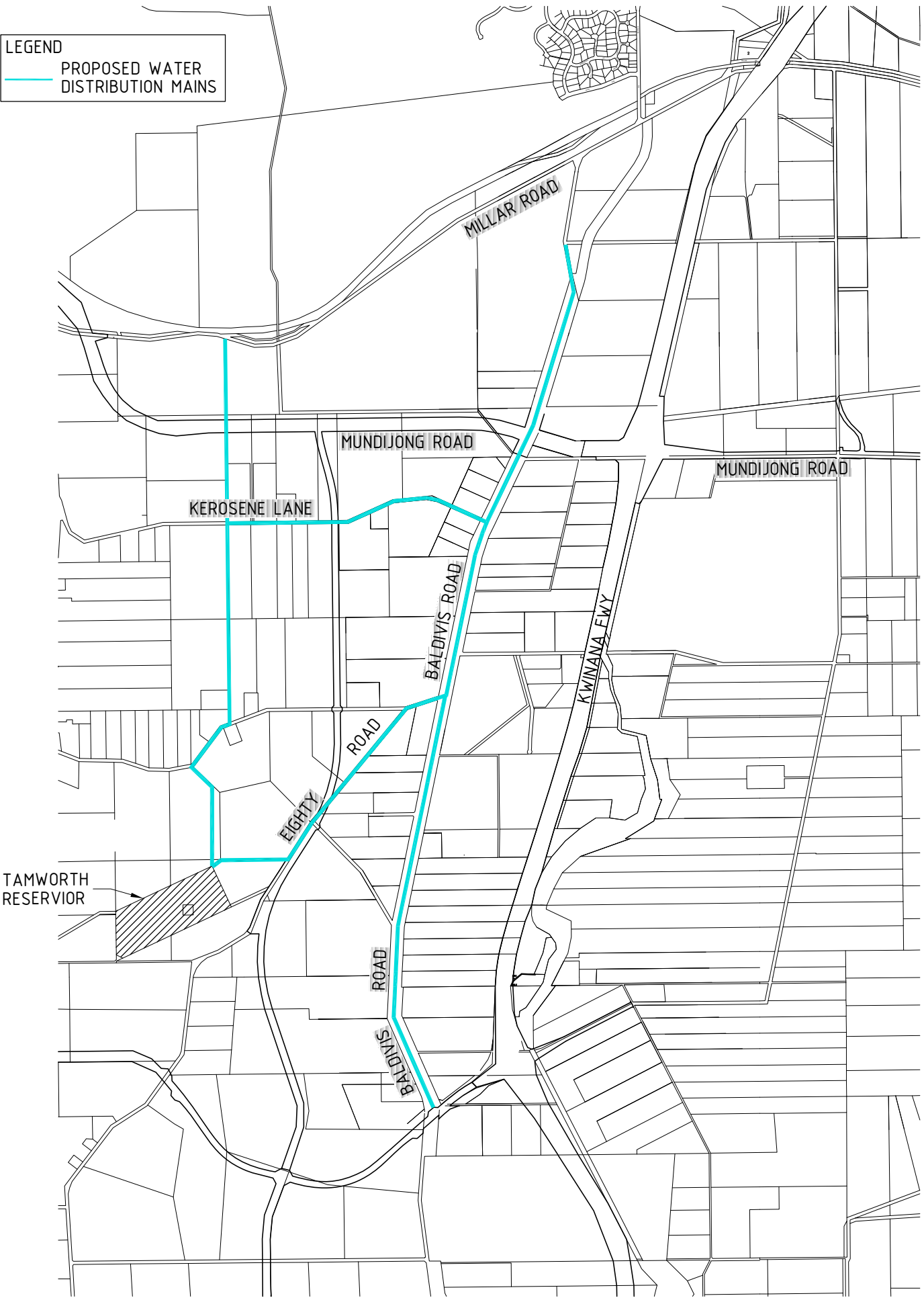


DRAWN	Jane Robertson
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APPROVED	
DATE	

CLIENT
 BALDIVIS EAST STAKE HOLDER TEAM

REV	ISSUED FOR APPROVAL	DATE	APPROVED
A		26.6.19	

LEGEND
 PROPOSED WATER DISTRIBUTION MAINS



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TITLE
FIGURE 3
POTABLE WATER SUPPLY
 CLIENT
BALDIVIS EAST STAKE HOLDER TEAM

SCALE N.T.S
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 SHEET 1 OF 1
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