



**DALTON
CONSULTING
ENGINEERS**

Infrastructure Report

Stokes and Penola Streets, Preston

October 2019

DCE Ref: 19157

For



Health
and Human
Services



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Darebin City Council Received 21/05/2020

Disclaimer

Dalton Consulting Engineers Pty Ltd

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Executive Summary

This Infrastructure Report, prepared for MAB Corporation and the Department of Health & Human Services, outlines the servicing requirements for a proposed circa 1.55 hectares Public Housing Redevelopment as highlighted in Figure 1.0. The report focuses on the existing infrastructure currently in place as well as the services that are required to facilitate the development of this land.

The City of Darebin is the authority responsible for stormwater drainage within the area. Stormwater runoff will connect to the existing Council drainage infrastructure. On-site detention may be required where increased flow is present. Detention calculations will be undertaken during detailed design and must ensure that no convergence of minor and major peak flow occurs as a result. A flood impact assessment has been completed and it demonstrates that the redevelopment will not adversely impact surrounding properties, with only negligible changes in afflux present in the Council road reserve.

Stormwater quality treatment will occur through a combination of rainwater tanks and bioretention raingardens. Stormwater harvesting will reduce the total site runoff and volume of stormwater requiring treatment. Harvested stormwater will be utilised for toilet flushing and irrigation within the development. Permeable surfaces will be implemented within the development, where appropriate, to reduce the total impervious area of the development. Any treatment deficit will be addressed through a stormwater quality offset charge payable to Melbourne Water.

Yarra Valley Water is the responsible authority for sewerage and water supply services in the area. Yarra Valley Water has provided Preliminary Servicing Advice confirming the existing 150mm dia. sewer mains along Stokes Street and Penola Street and the 225mm dia. sewer main along Showers Street will provide the sewer outfall for the development. Yarra Valley Water has provided Preliminary Servicing Advice confirming the existing 100 mm dia potable water mains running along Stokes Street, Penola Street and Showers Street will provide the water supply to the development.

Jemena is the responsible authority for the provision of electricity supply to the area. It is expected that the existing high and low voltage cables surrounding the subject site can provide the electrical supply to the development.

NBN Co. will be the provider of telecommunications facilities for the area. MAB Corporation and Department of Health & Human Services will be required to install pit and pipe infrastructure as a part of the works.

APA Group is the service provider of gas supply services to the site. It is anticipated that gas servicing will be provided within the development. The extent of servicing will be confirmed by MAB Corporation and Department of Health & Human Services during detailed design.

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1. Introduction

The subject site as highlighted below is referred to as Stokes and Penola Streets, Preston. The site is approximately 1.55ha in total and is located approximately 10kms North of the Melbourne CBD. Part of the subject site is currently zoned as Residential Growth Zone (RGZ), while part is zoned Mixed Use Zone (MUZ).

The Victorian Government is committed to providing better homes and stronger communities for all Victorians and as such the subject site is to be redeveloped to provide private and public housing for the community. The development will be a joint venture between MAB Corporation and the Department of Health & Human Services.

This Infrastructure Report prepared for MAB Corporation and the Department of Health & Human Services will form part of the submission to seek approval for the proposed Development Plan.



Figure 1: Subject Site – Stokes and Penola Streets, Preston

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2. Roads

The City of Darebin is the authority responsible for the provision of road facilities for the area. The subject site is bounded by Stokes Street, Penola Street and Showers Street.

a) Stokes Street

Stokes Street in its current form is a 16m road reserve with 2 traffic lanes and on-street parking on either side. For further information relating to traffic flows, any road upgrade works please refer to the traffic engineers report prepared by GTA Consultants.



Figure 2: Existing Stokes Street

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b) Penola Street

Penola Street in its current form is a 16m road reserve with 2 traffic lanes and on-street parking on either side. For further information relating to traffic flows, any road upgrade works please refer to the traffic engineers report prepared by GTA Consultants..



Figure 3: Existing Penola Street

c) **Showers Street**

Showers Street in its current form is a 16m road reserve with 2 traffic lanes and on-street parking on either side. For further information relating to traffic flows, any road upgrade works please refer to the traffic engineers report prepared by GTA Consultants.



Figure 4: Existing Showers Street

d) **Newman Street**

Newman Street in its current form is a 16m road reserve with 2 traffic lanes and off-street parking on the western side. For further information relating to traffic flows, any road upgrade works please refer to the traffic engineers report prepared by GTA Consultants.



Figure 5: Existing Newman Street

3. Stormwater Drainage

The City of Darebin is the authority responsible for stormwater drainage facilities in the area.

Stormwater drainage from the subject site will connect into existing Council drainage infrastructure and the City of Darebin will need to confirm the legal point of discharge for the redevelopment. It will be ensured that minor drainage flows are not increased for the 10-year (10% AEP) storm event. Where increased flows are present, they may be required to be retarded back to flow rates that match the existing conditions of the subject sites. The impact of this detention will need to be assessed during detailed design to ensure the minor peaks do not converge with major peak flows.

Major drainage (flows greater than the 10% AEP storm event) will be discharged into the Council road network and conveyed into the Preston Main Drain, located downstream of the development within Newman Reserve and Oakover Road. On-site detention may be required in major rainfall events; however, modelling has indicated that greater flow due to increased density does not greatly impact flooding. If required stormwater retardation will occur through a combination of oversized pipes, internal roads, and underground storage tanks to retard flows back to existing runoff levels from the subject sites.

Stormwater quality treatment infrastructure will be included within the redevelopment at the subject site. This infrastructure will include a combination of rainwater tanks and bioretention raingarden systems with the possibility of additional treatment methods to be explored upon detailed design. Captured stormwater will be utilised for toilet flushing and irrigation within the development. All stormwater harvest reduces runoff volume and the quantity of runoff requiring treatment. Where possible, permeable surfaces will be implemented to reduce the total impervious area of the development. Any shortfall from Best Practice Environmental Management Guideline pollutant reduction requirements will be addressed through a stormwater quality offset contribution charge, payable to Melbourne Water. For more information on stormwater treatment refer to the ESD report.

Hydraulic modelling has been undertaken in TUFLOW for the development areas. The subject site is currently subject to flooding and contains a major storm event overland flow path through the development. This assessment has demonstrated the proposed redevelopment has no negative impact on upstream or downstream flooding of private property. There is a negligible change to very isolated areas within the Council road reserve. The proposed flood levels, site access and egress of the proposed redevelopment have all been assessed as safe and a significant improvement on the current situation. A plan demonstrating the flooding impact of the proposed development is included as Figure 6 and a high-resolution plan is included as Appendix B. A hydraulic impact assessment report has been prepared by DCE and will be submitted to Melbourne Water for review.

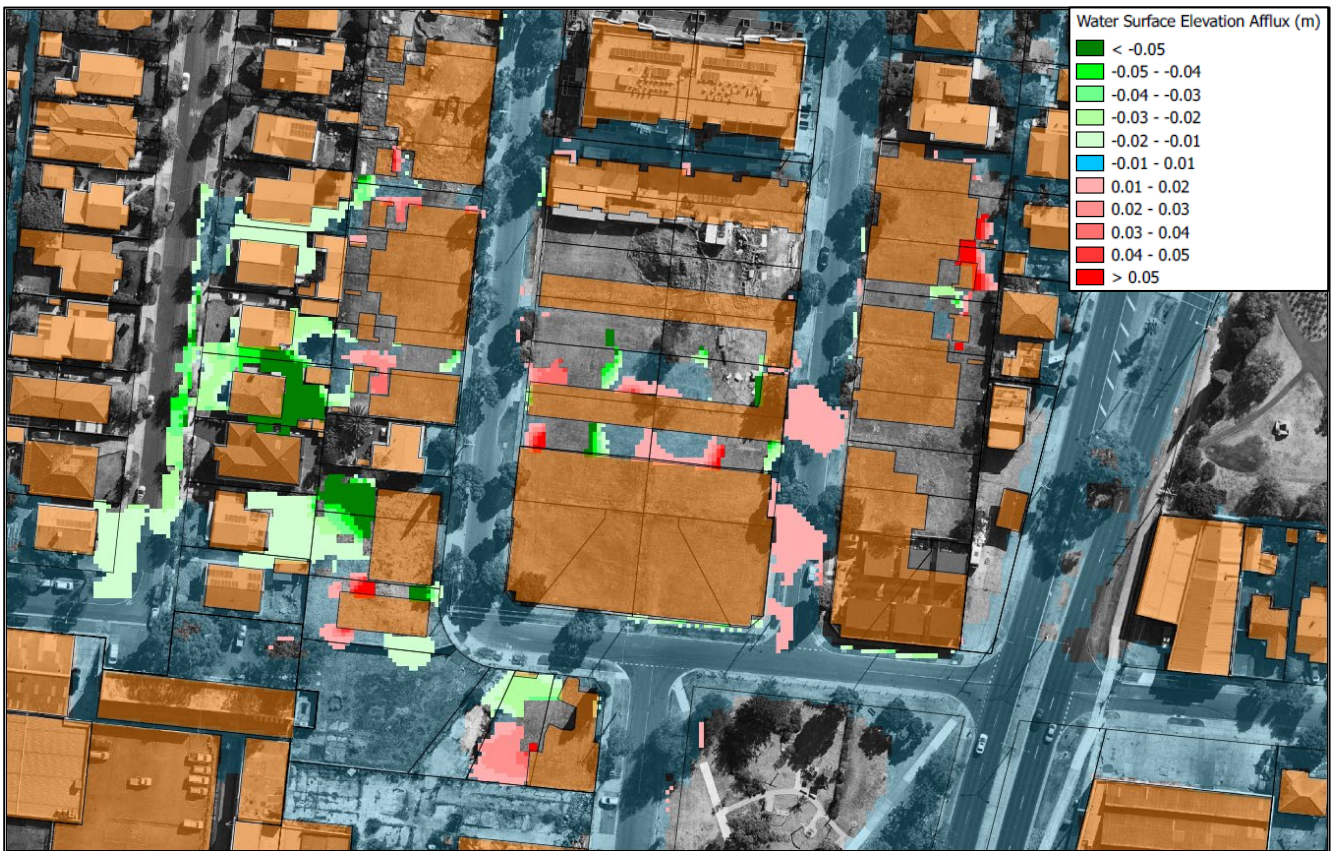


Figure 6: Developed condition 1% AEP storm event change in afflux (m).

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4. Sewer

Yarra Valley Water (YVW) is the authority responsible for the provision of sewerage services for the development.

YVW has provided Preliminary Servicing Advice confirming the existing 150mm dia. sewer mains along Stokes Street and Penola Street and a 225mm dia. sewer main along Showers Street will provide the sewer outfall for the development.

For further information please refer to YVW's Servicing Advice found in Appendix C.



Figure 7: Existing sewer information from Yarra Valley Water's GIS Software

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5. Water

Yarra Valley Water (YVW) is the authority responsible for the provision of potable water services for the development.

YVW has provided Preliminary Servicing Advice confirming the existing 100 mm dia potable water mains running along Stokes Street, Penola Street and Showers Street will provide the water supply to the development. New hydrants and divide valves will need to be installed to service to the site.

For further information please refer to YVW's Servicing Advice found in Appendix C.

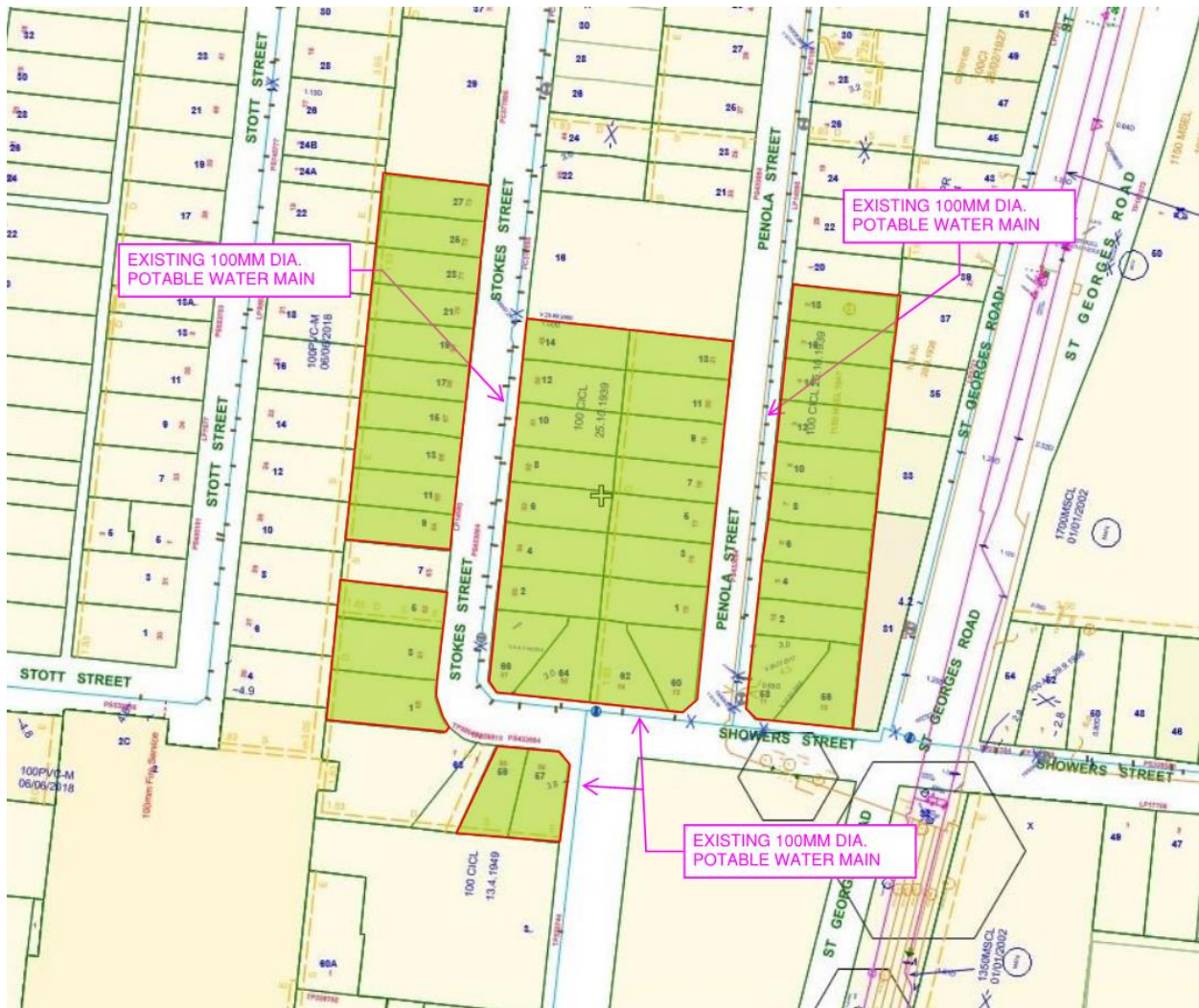


Figure 8: Existing water information from Yarra Valley Water's GIS Software

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6. Electricity

Jemena is the responsible authority for the provision of electricity supply in the area.

Existing authority asset plans show high and low voltage overhead cables exist within the road reserves surrounding the subject site. The high voltage cables are located in Newman Street connecting into a single pole substation.

Jemena has confirmed works on the new Preston Zone substation have commenced, with commissioning of the substation to occur in March 2020. The subject site will be supplied from the new zone substation.

Jemena will need to confirm the extent of works required internally to service the development. Proposed plans for the development will need to take into consideration electrical requirements and the need for new kiosk substation(s). It is likely, as a minimum 2 kiosks will be required.

Clearances to Jemena's existing electricity assets will need to be maintained as per the Electricity Safety (Installation) Regulations.

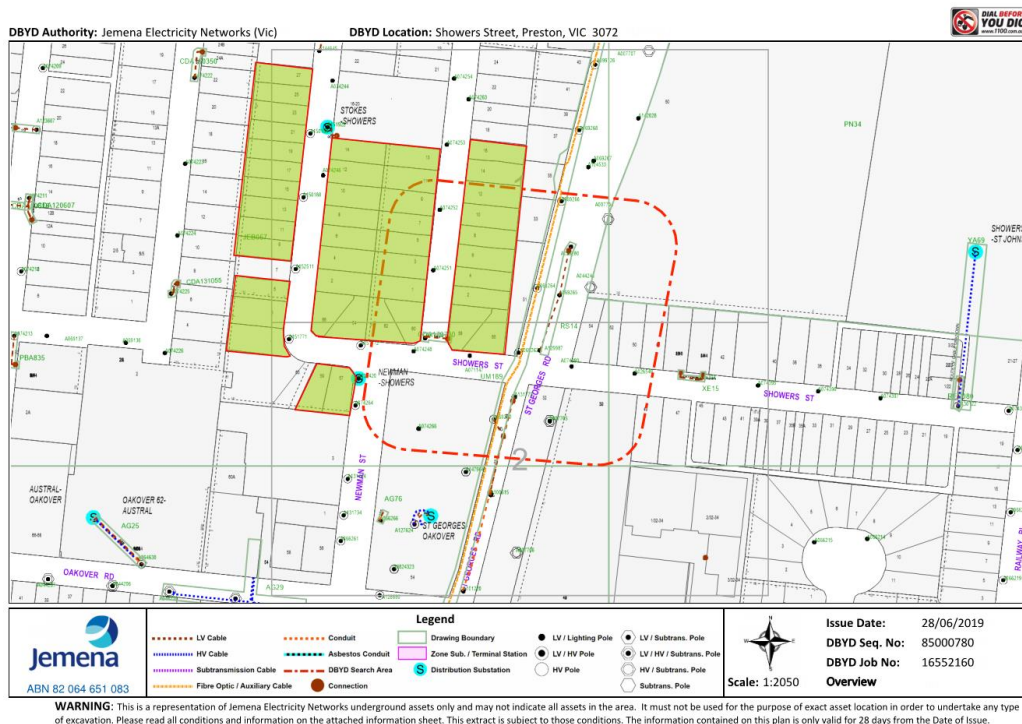


Figure 9: Existing Electricity Supply

7. Telecommunication Facilities

NBN Co will be the infrastructure provider of Telecommunication Facilities. As per information available through NBNCo's Rollout Map, NBN Co services currently exists in the area.

MAB Corporation and the Department of Health & Human Services will remain responsible for the cost and delivery of appropriate pit and pipe infrastructure to service the development. NBN Co will need to provide planning information specific to this site.

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8. Gas Facilities

APA Group is the authority responsible for the provision of gas supply facilities in the area.

Gas is not considered an essential service for usual subdivision; however, it is expected to be a prescribed service for this development. The final extent of servicing will need to be determined by MAB Corporation and the Department of Health & Human Services during detailed design.

Dial Before You Dig information shows a 150mm dia high pressure gas main exists along Stokes Street, Showers Street and Newman Street. A 50mm dia high pressure gas main exists along Penola Street. It is likely these main will have sufficient capacity to service the development.



Figure 10: Existing Gas Infrastructure

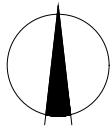
9. Appendix A – Existing Services

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PUBLIC HOUSING RENEWAL PROGRAM - PRESTON
EXISTING GAS, WATER AND SEWER SERVICES
SCALE: 1:250
REVISION: A
DATE: 05/08/2019
DRAWING No: 19157SK01
DRAWN BY: W.BURRELL

- | | | | |
|----------|-------------------------------|------------|---|
| — Ex W — | EXISTING WATER MAIN | — Ex T — | EXISTING TELECOMM. CABLE AND PIT |
| — Ex G — | EXISTING GAS MAIN | — Ex OHT — | EXISTING ELEC. POLE & O'HEAD TRANSMISSION LINES |
| — Ex E — | EXISTING ELECTRICAL CABLE | — Ex MWD — | EXISTING STORMWATER DRAIN & PIT |
| — Ex S — | EXISTING SEWER MAIN & MANHOLE | | EXISTING MW STORMWATER DRAIN & PIT |



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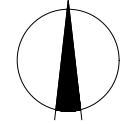


PUBLIC HOUSING RENEWAL PROGRAM - PRESTON
EXISTING ELECTRICAL AND COMMUNICATION SERVICES
SCALE: 1:250
REVISION: A
DATE: 05/08/2019
DRAWING No: 19157SK02
DRAWN BY: W.BURRELL

- | | | | |
|----------|-------------------------------|------------|---|
| — Ex W — | EXISTING WATER MAIN | — Ex T — | EXISTING TELECOMM. CABLE AND PIT |
| — Ex G — | EXISTING GAS MAIN | — Ex OHT — | EXISTING ELEC. POLE & O'HEAD TRANSMISSION LINES |
| — Ex E — | EXISTING ELECTRICAL CABLE | — Ex S — | EXISTING STORMWATER DRAIN & PIT |
| — Ex S — | EXISTING SEWER MAIN & MANHOLE | — Ex MWD — | EXISTING MW STORMWATER DRAIN & PIT |

LEGEND

- | | |
|---|-----------------------|
| — | PERMANENT SURVEY MARK |
| — | EXISTING TREES |
| — | ABANDONED MAIN |
| — | EXISTING FENCE |



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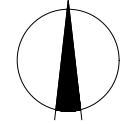


PUBLIC HOUSING RENEWAL PROGRAM - PRESTON
EXISTING MELBOURNE WATER AND COUNCIL DRAINAGE
SCALE: 1:250
REVISION: A
DATE: 05/08/2019
DRAWING No: 19157SK03
DRAWN BY: W.BURRELL

- | | | | |
|----------|-------------------------------|------------|---|
| — Ex W — | EXISTING WATER MAIN | — Ex T — | EXISTING TELECOMM. CABLE AND PIT |
| — Ex G — | EXISTING GAS MAIN | — Ex OHT — | EXISTING ELEC. POLE & O'HEAD TRANSMISSION LINES |
| — Ex E — | EXISTING ELECTRICAL CABLE | — Ex S — | EXISTING STORMWATER DRAIN & PIT |
| — Ex S — | EXISTING SEWER MAIN & MANHOLE | — Ex MWD — | EXISTING MW STORMWATER DRAIN & PIT |

LEGEND

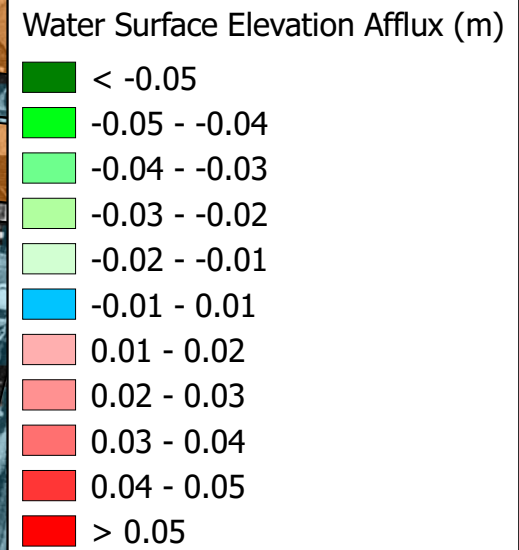
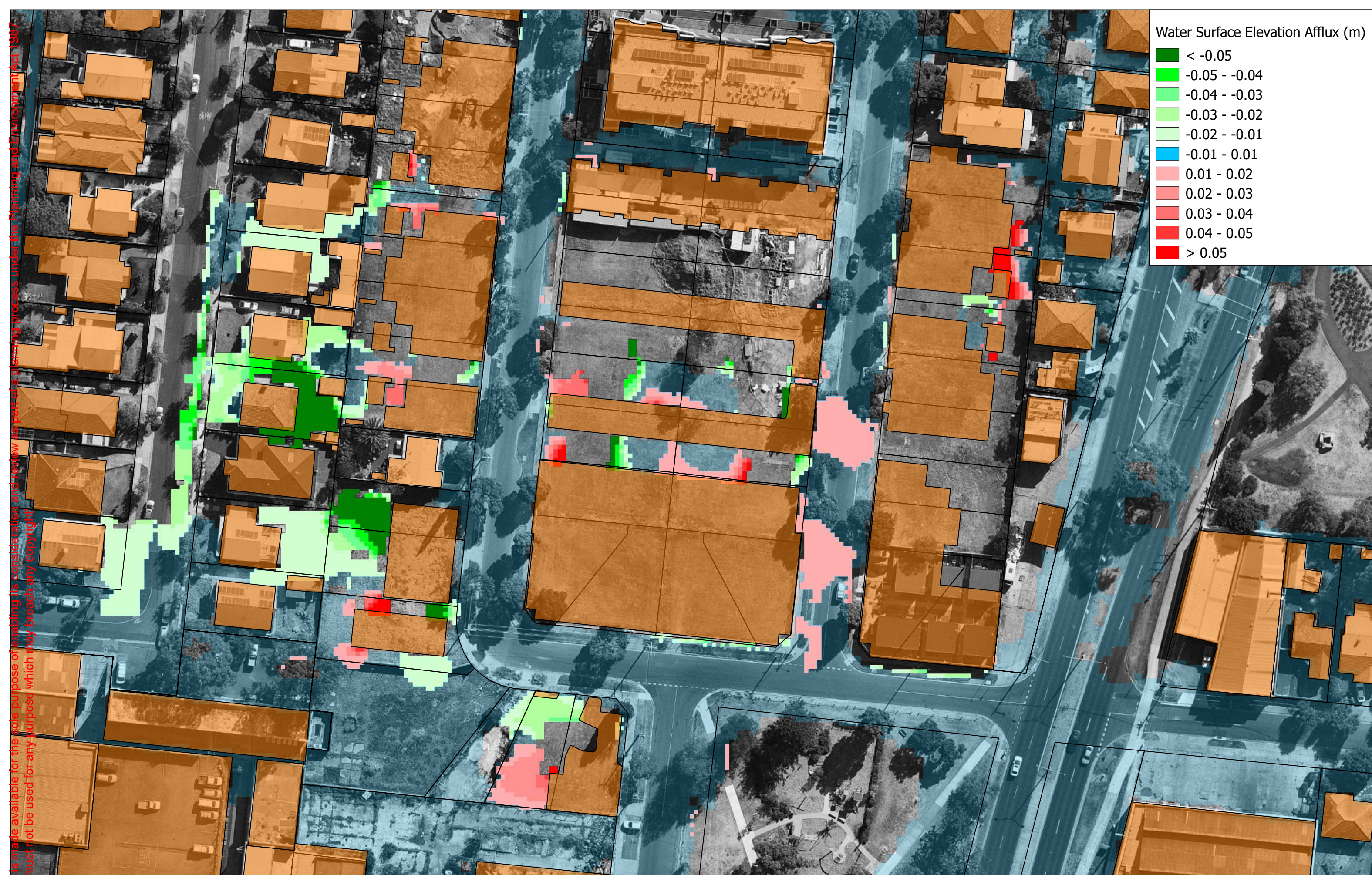
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| — | PERMANENT SURVEY MARK |
| — | EXISTING TREES |
| — | ABANDONED MAIN |
| — | EXISTING FENCE |



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10. Appendix B – Stormwater Afflux (Q100)

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DESIGNED: S Laity
CHECKED: J McGrath
DATE OF ISSUE: 03/09/2019
REVISION: 1



Hydraulic Impact Assessment 1% AEP Storm Event Afflux

September 2019

Advertised Document POD/1/2019 pages 22 of 31



Darebin City Council Received 21/05/2020

11. Appendix C – Preliminary Servicing Advice (YVW)



6 September 2019

Dalton Consulting Engineers

Attn: Grenville Correia

Application ID: 413251

Property Address: 1 Penola Street Preston

Preliminary Servicing Advice

The following information is preliminary servicing advice and does not constitute an offer.

This advice lapses within 3 months of the date of this letter.

This preliminary servicing advice is based on the information provided in your enquiry.

This advice may no longer be valid if there are any changes to the information provided.

This advice succeeds any prior written or verbal advice provided by Yarra Valley Water (YVW).

If you have any enquiries, please e-mail us at easyACCESS@yvw.com.au or visit our website

<https://www.yvw.com.au/help-advice/develop-build> for further information. Alternatively, you can contact us on 1300 651 511.

Yours sincerely,

A handwritten signature in grey ink that reads "Joe Gargaro".

Joe Gargaro

Divisional Manager, Development Services

Water Advice:

GENERAL

This Preliminary Service Advice, hereafter referred to as 'advice', is based on information provided within the developer's application. This advice may no longer be valid if information provided by the developer changes.

The following information is preliminary servicing advice and does not constitute an offer. This advice expires within 3 months of date of letter / advice to customer.

This advice succeeds any prior written or verbal advice provided by YVW. The designer should clarify any discrepancies between this and previous advice with YVW.

Any proposed changes to this advice must be approved in writing by the Manager Water Growth Planning.

For multi-unit/apartment developments, the development must have a main meter with individual meters for each dwelling/lot to be taken from this supply. If shared facilities are installed within the development, such as a swimming pool or a communal laundry, then a separate meter must also be installed at that facility.

The designer should note that Clause 1.2.3 of WSA 03-2011-3.1 Melbourne Retail Water Agencies Edition - Version 2 requires the designer to comply with YVW's Water Supply Servicing plans prior to any works.

A Concept Plan in accordance with Clause 1.2.3 of Water Supply Code WSAA 03-2011 3.1 has been provided.

The Water Supply Code WSA 03-2011-3.1 MRWA Edition - Version 2 requires that the designer shall ensure that pipework layout and sufficient divide valves are specified such that Shut Off Block sizes are in accordance with Table 8.2. In the event that this requirement cannot be met with the installation of divide valves, an alternate pipework layout will be required. This shall apply to both new and existing properties.

In order to service this development a break pressure tank and booster pump may need to be installed in order to provide supply to areas requiring higher than supplied pressure, such as for upper floors of apartments or for fire requirements. Booster pumping direct from the main is not preferred and a separate detailed application must be made to YVW for approval. If booster pumping is required, the development must not be supplied by a dead end main.

DRINKING WATER (DW) ADVICE

The TWL for the Water Supply Zone is 115 (m) AHD. Under normal operating conditions the maximum applicable HGRL for the proposed development is 115 (m) AHD and the minimum Dry Summer Day HGRL is 108.5 (m) AHD. For the purpose of water hammer, an additional 20m pressure is to be allowed for in the design of all water assets, including fixtures and thrust blocks.

The maximum allowable flow for the design of fire services is 25 L/s on single direction supply DN100 mains, 40 L/s on dual direction supply DN100 mains, 60 L/s on DN150 mains, and 75 L/s on DN225 mains and above, unless further limited by available pressure and flow. Fire services may not be directly supplied by mains smaller than DN100. A separate application for Pressure and Flow Information is required for design of fire services.

Please refer to the attached charts for pressure and flow information for assessment of general services. The information provided is for the point marked 'A' on the attached Water Supply Concept Plan, for a Peak Summer Day event.

All properties in this area require a domestic Pressure Reducing Valve (PRV) to be installed to ensure compliance with the plumbing code. A licensed plumber must install the PRV in an accessible location on all water outlets (other than a fire service outlet). The static pressure to this stage of the development is currently or will ultimately be greater than 50m in line with our servicing strategy for the supply zone. Should the developer not install a PRV as part of development works, the contract of sale document for allotments is to include a requirement for the new owner to install a PRV as part of their internal drinking water plumbing to ensure compliance with the plumbing code.

The development shall connect to the DN100 Stokes Street, DN100 Showers Street and DN100 Penola Street mains. Developer to also install new hydrants and divide valves as shown on the Water Concept Plan.

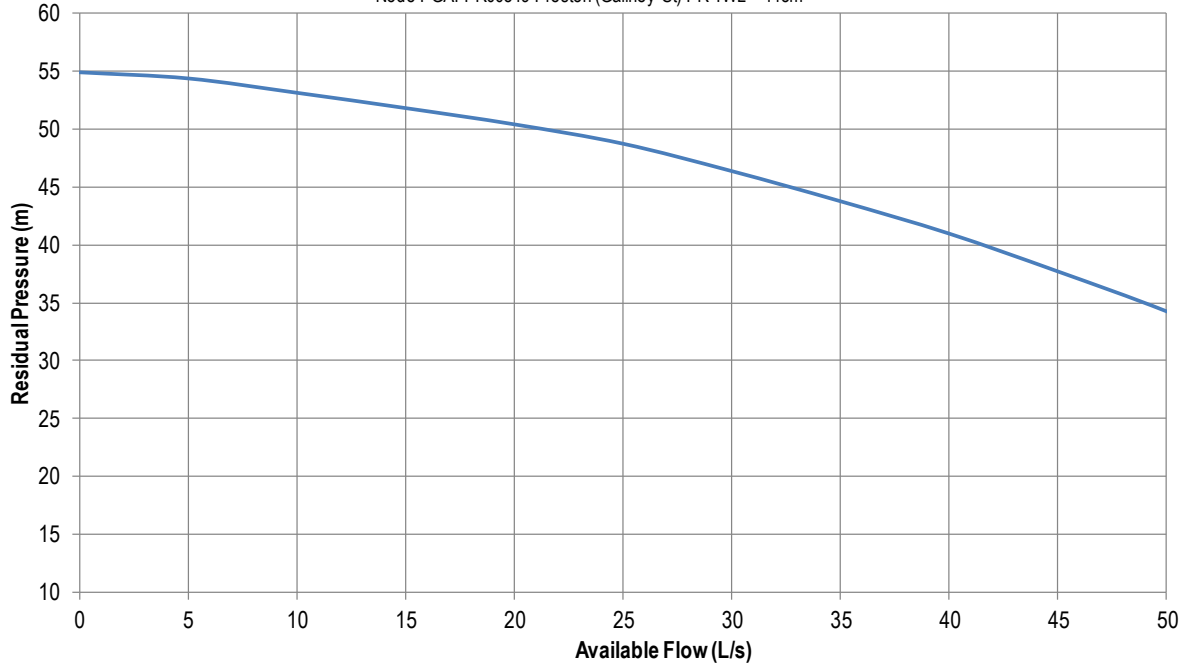
No developer constructed assets are required for this development.

All wet tapings on existing water mains must be undertaken by YVW's own tapping contractor.

Based on the information provided in your application no Melbourne Water assets are impacted by this proposal.

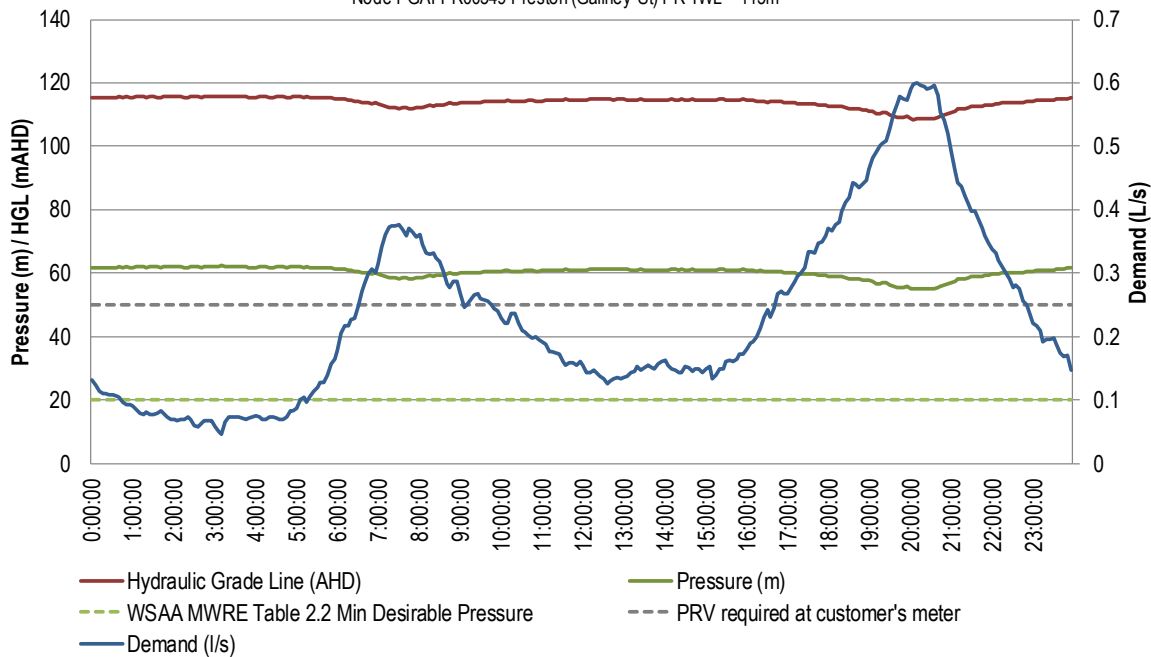
Peak Summer Day Hydrant Curve

1 PENOLA STREET PRESTON 3072 - 94 lot development - Drinking Water
 Model Infoworks Preston (Gaffney St) (2015) 2.21 PREGAF Referrals Model - 413251 - 1 PENOLA STREET PRESTON 3072
 Node PGAFPR00549 Preston (Gaffney St) PR TWL - 115m



Peak Summer Day Pressure/Flow Information

1 PENOLA STREET PRESTON 3072 - 94 lot development - Drinking Water
 Model Infoworks Preston (Gaffney St) (2015) 2.21 PREGAF Referrals Model - 413251 - 1 PENOLA STREET PRESTON 3072
 Node PGAFPR00549 Preston (Gaffney St) PR TWL - 115m



413251 Water Concept Plan



Address:
PENOLA STREET
PRESTON 3072

LOTS [95]

Notes:
MAIN ALIGNMENTS & OTHER DETAILS SHOWN ARE INDICATIVE ONLY
ALL ASSETS TO BE IN ACCORDANCE WITH WSAA (MRWA EDITION)
- ALL EXISTING CONNECTIONS TO THE SITES MUST BE CUT AND SEALED.

Sewer Advice:

General

- Upon application for a formal offer to undertake sewerage works and/or connect to the existing Yarra Valley Water system, conditions relating to the design and construction of the works in accordance with MRWA Standards and Codes will be provided via a Conditions of Connection Response, or a Development Deed.

Servicing Advice

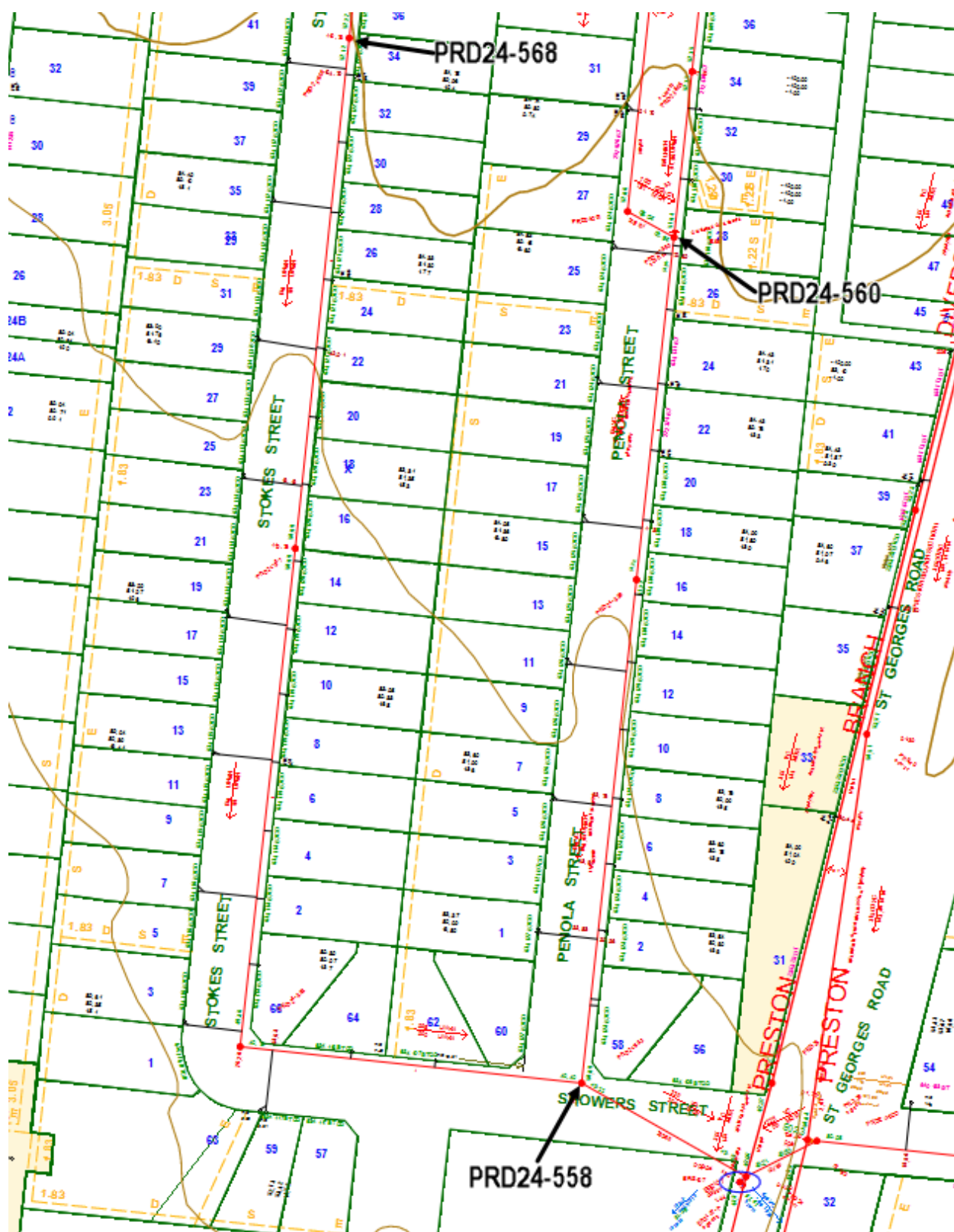
- The development shall connect between maintenance structures **PRD24-558 and PRD24-560.**
and
- The development shall connect between maintenance structures **PRD24-558 and PRD24-568.**

Refer attached plan of the existing system.

Partial Lot Control

Partial lot control is not allowed for this development. The developer may apply for partial lot control, however YVW reserves the right to deny the request.

Note that details of the required works and/or connection point as shown on the plan are outlined above.



Build Over Easement / Within Close Proximity to YVW Assets:

Please ensure all necessary clearances are maintained from YVW assets. [Click here to view the Build Over Easement Guidelines](#), these should be taken into consideration in the design stage of the development.

Application Forms:

To receive an offer from YVW, you will need to submit an application to us - [click here to submit an online application](#).

Fees Advice:

Application Fees, Products & Services, and New Customer Contributions may be applicable to this development. [Click here to view the current fees and charges](#).