

MARSHALL PRECINCT STRUCTURE PLAN

SERVICING PLAN

13 September 2018

Rev 02

TGM GROUP PTY. LTD.

Level 1, 27-31 Myers Street

Geelong, Victoria 3220

Phone: (03) 5202 4600

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TGM Group Pty Ltd

27-31 Myers Street
Geelong VIC 3220
Phone: (03) 5202 4600
Fax: (03) 5202 4691

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APPENDIX A – SERVICE AUTHORITY ADVICE

1. EXECUTIVE SUMMARY

TGM has been engaged by the City of Greater Geelong to undertake a servicing plan for the Marshall Precinct.

This document is to support the Marshall Precinct Structure Plan (MPSP) currently being prepared by the City of Greater Geelong.

The purpose of this assessment is to recognise and review existing infrastructure and services to identify future infrastructure required to service the proposed precinct. Services that have been investigated include potable and recycled water, sewer, electricity, gas, and telecommunications. Drainage and flood modelling will be commented on in a separate report. Major infrastructure projects planned in the vicinity by VicRoads and VicTrack have also been reviewed as they impact on the precinct.

Development and design responses have been formulated for each respective service to ensure the subdivision can be serviced in an economical, efficient and sustainable manner. Recommendations on staging of the precinct has also been made.

2. BACKGROUND

The City of Greater Geelong is preparing the Marshall Precinct Structure Plan (MPSP) which will be the final residential precinct within the Armstrong Creek Urban Growth Area. TGM has been engaged by the City of Greater Geelong to investigate utility servicing opportunities within the study area with respect to sewerage, water, power, gas, high voltage transmission lines and telecommunications. Drainage has been excluded from this report at the request of the City of Greater Geelong as it is subject to a separate report.

The Servicing Plan will inform strategic decisions to developing the MPSP and determine opportunities for deliverability and staging of the development.

The Marshall Precinct area is made up of a collection of over forty (40) separate parcels of land covering approximately 80 hectares of land. The precinct is roughly bounded by Barwon Heads Road, Reserve Round (proposed Geelong Ring Road Extension - Bellarine Link alignment) and the Waurin Ponds railway line. There is a small area of land included to the east of Barwon Heads Road.

The Marshall Precinct has been recognized in the Armstrong Creek Framework Plan (adopted in 2012) as an area which can feature mixed uses, including diverse housing densities, parkland, active open space, and a potential activity centre in the vicinity of Marshall Railway Station. Walkability to public transport should be considered in the planning.

It is proposed that the precinct will eventually consist of approximately 1300 residential lots, in addition to some mixed use lots.

Services include:

- Potable Water
- Sewerage
- Recycled Water
- Electricity
- High Voltage Transmissions Lines
- Gas
- Telecommunications

Contact was made to all Servicing Responsible Authorities to determine the current infrastructure and get comments on the future provision of essential services. Their responses have been reviewed and the impacts and constraints discussed within this report.

Copies of the responses are provided in Appendix A at the end of this document.

3. EXISTING SITE CONDITIONS

The Marshall Precinct is approximately 80 hectares in area bounded by Barwon Heads Road, Reserve Road and the Railway line. The area is shown in Figure 1. The proposed site is currently zoned Urban Growth Zone (UGZ)

The land is a relatively flat plain, parts of which are subject to inundation in peak rainfall periods. Although the report does not cover stormwater the areas prone to flooding in existing conditions are noted as they will affect staging. The land generally falls towards the Barwon River to the north.

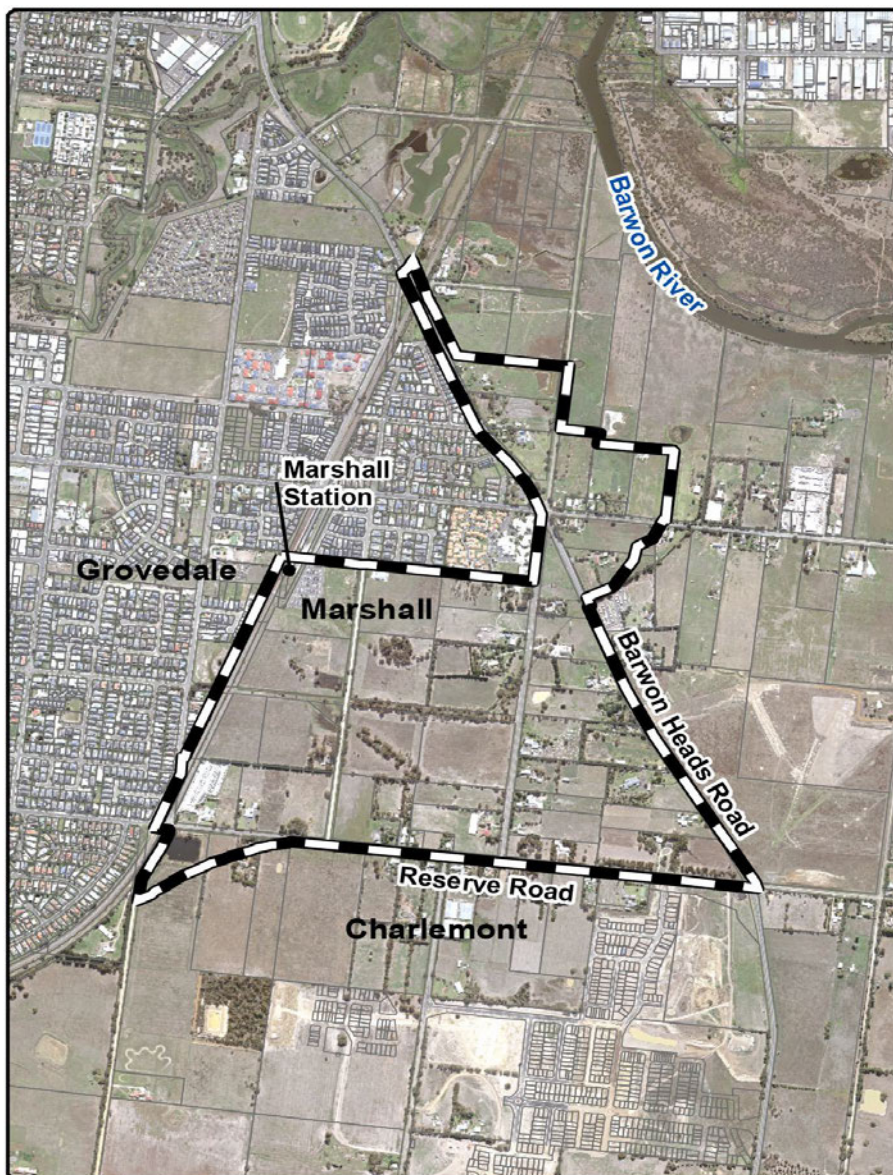


Figure 1: Marshall Precinct

The Marshall Precinct is the last precinct to be developed in the Armstrong Creek Urban Growth Area. To the east of the Marshall Precinct is the North East Industrial Precinct. To the south is the Horseshoe Bend Precinct. To the north and west of the Marshall Precinct are areas of existing residential development.

4. POTABLE WATER

Barwon Water provides reticulated potable water supply to residential and industrial customers within its designated region and is responsible for water supply in Marshall and Armstrong Creek. Barwon Water have provided details on the existing infrastructure in the Marshall Precinct.

A DN960 MSCL transfer main known as the Bellarine Transfer Main (BTM) runs along Marshalltown Road/Tannery Road, and then along the Waurin Ponds Railway line. This main is not available to supply the north eastern area of the Marshall Precinct however will feed the backup pressure reducing valve (PRV) located to the east of the precinct in Tannery Road. Given the large size of this water main there may be restrictions in what can be developed adjacent to this asset. This is to protect the asset. A section of DN1085 MSCL was laid in the vicinity of the Marshall Station with the intention of ultimately extending this asset to the north and south along the railway line. This would run along the western perimeter of the Marshall Precinct and tie into an existing DN1085 MSCL at Torquay Road. A reserve has been set aside for this purpose, with work scheduled for the 2023/24 financial year.

There is a DN225 running along Reserve Road east which is available now for servicing the Marshall Precinct. Other mains in the precinct are older and will progressively need to be upgraded/replaced as the development progresses and the demand increases. These include a 150mm Asbestos Cement (AC) water main along Barwon Heads Road which will need to be removed and replaced when the Barwon Heads Road is duplicated. Any existing connections would need to be reinstated. There is a 100mm PVC water main along Horseshoe Bend Road. Although there is some capacity now it will eventually need to be upgraded to a DN225mm. There is a 100mm PVC in Reserve Road west which was constructed in 1998 and hence can remain however the location may not be compatible with the proposed Bellarine Link.

Barwon Water have identified where they currently anticipate shared mains will be required when this precinct is developed. Shared water mains are designed and built by the developer, but on completion Barwon Water reimburse the developer for the cost of these major assets. A DN225 water main extending along Horseshoe Bend Road is planned, which will then run eastwards to Barwon Heads Road. There is also a DN225 water main proposed along the existing Reserve Road (west).

The existing water mains will be sufficient to service early stages of the development in the Marshall Precinct (approximately 100 lots) however it is anticipated that the water mains be upgraded progressively by the developers for the ultimate supply.

A Barwon Water ProFIS clip was reviewed for the Marshall Precinct. It identifies known hazards in its assets such as cracked asbestos pipe, asbestos wrapping etc. No hazards have been identified in this area to date.

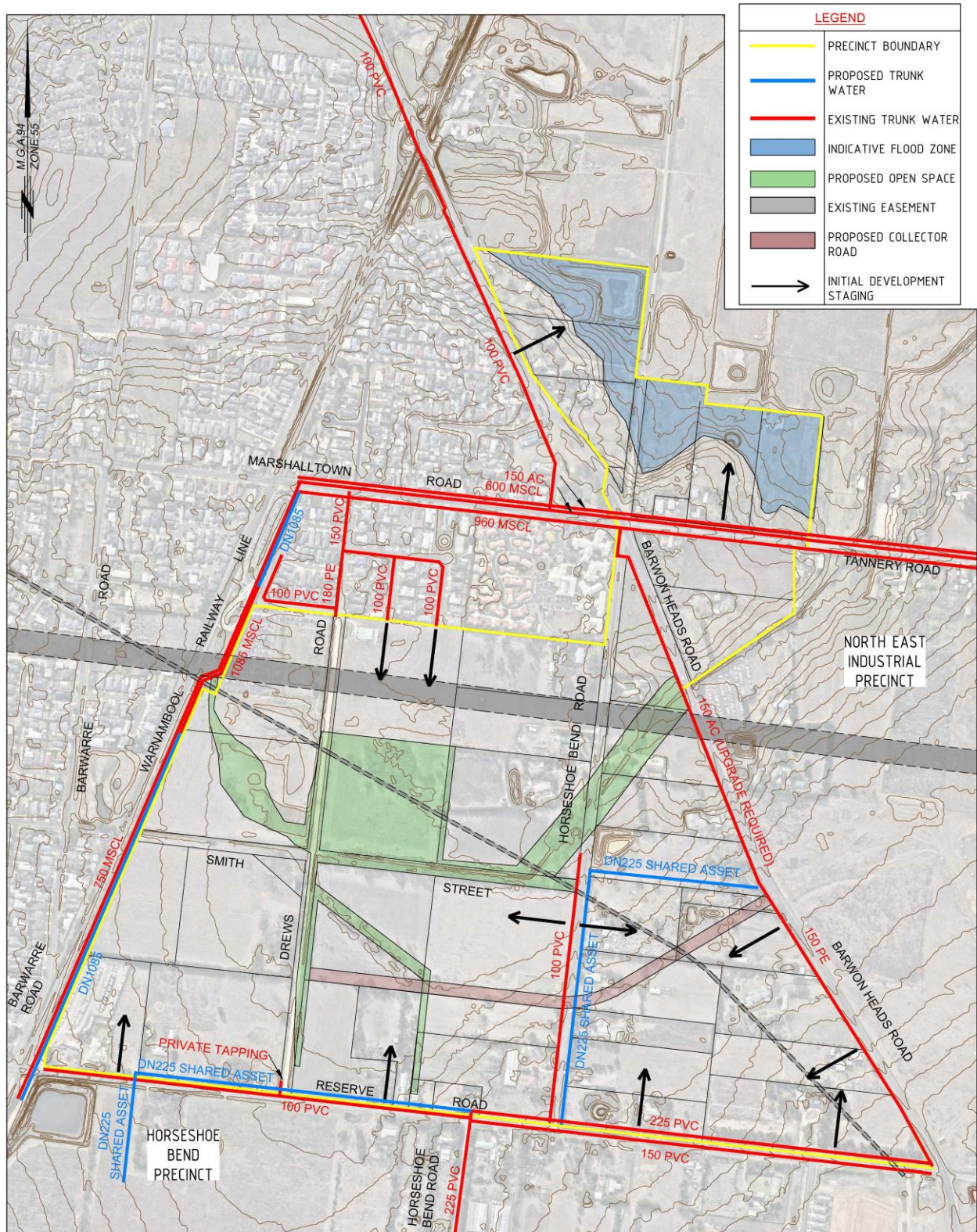


Figure 2: Services Plan – Potable Water

5. SEWERAGE

Barwon Water is the responsible authority for the collection, pumping, treatment and disposal of sewerage to all customers within their designated region and is responsible for all sewerage collection within Geelong.

Barwon Water currently have a main outfall sewer (MOS) running diagonally through the precinct. It is of considerable size with a diameter of 1,274mm. The MOS has an easement of 6 meters. This easement will need to be converted to a minimum 6 meter wide reserve as development occurs in the Marshall Precinct. Having the MOS running through the middle of the Marshall Precinct enables the precinct to be relatively easily serviced for sewerage.

At the south east corner of the Marshall Precinct the MOS joins the Ovoid Sewer. The confluence of these two major sewers is in Reserve Road. Barwon Water are proposing to realign the MOS and Ovoid Sewer confluence to make way for the future widening of Barwon Heads Road and the Geelong Ring Road Extension (Bellarine Link). A new pump station will ultimately be required to facilitate the duplication of the MOS downstream of the confluence.

These works will not occur until either the Barwon Heads Road widening or the Bellarine Link is constructed. The relocation of this confluence is anticipated to be partly funded by the North Eastern Industrial Precinct (NEIP) Developer Contribution Plan (DCP). It is not proposed that any of the developers involved in the Marshall Precinct fund these works. Sections of the MOS diversion may be built earlier to assist in scheduling works but not made live.

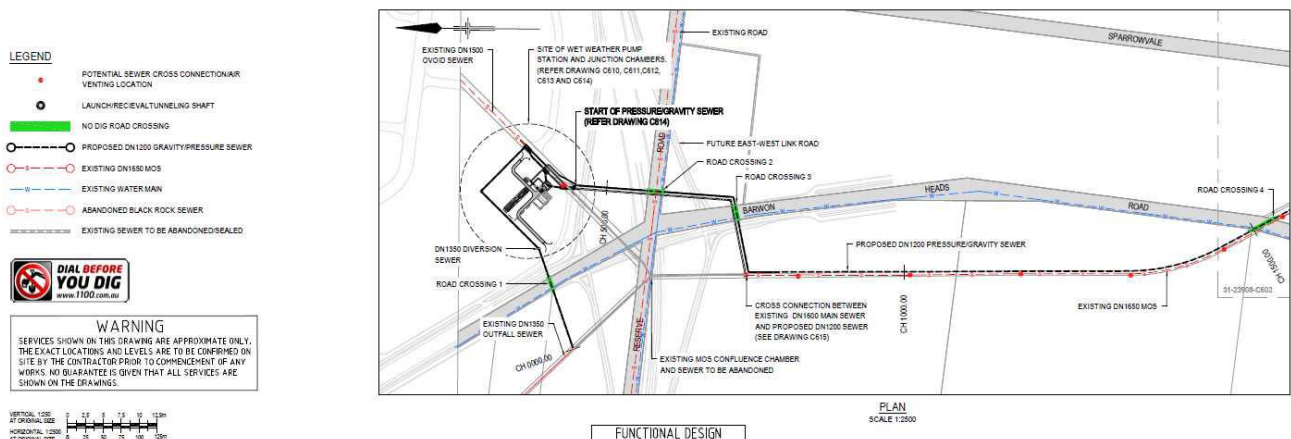


Figure 3: Proposed MOS Realignment, Confluence and Pump Station Layout

There are numerous Barwon Water sewer assets in the area apart from the MOS. In the vicinity of Marshall Station the sewer lines are very shallow (1.2m-1.4m deep) and there is therefore limited opportunity to extend however would be sufficient to service development north of the electrical easement.

In the south-west corner of the Marshall Precinct there is a deep DN375 mm sewer (3-4m) in Barwarre Road on the west side of the railway line in the vicinity of Reserve Road. Connection into this would require boring under the Waurn Ponds railway line, at considerable expense.

In the northern edge of the Marshall Precinct near pump station SPS 090 the sewer is 2.9m deep and could potentially extend across Barwon Heads Road but may require an additional pump station due to the lie of the land.

The proposed pump station PS5, which would service the northern edge of the Marshall Precinct has been indicatively located in what has been identified as a flood zone by Barwon Water so should be moved further south.

Barwon Water have provided a plan of proposed trunk sewers to service the Marshall Precinct, connecting into the MOS. The alignment of these sewers is indicative only. Barwon Water are open to alternative alignments of proposed sewers to suit the development of this precinct, with early discussion critical. One limitation is that sewer connections into the MOS should be limited in number due to the critical nature of the MOS infrastructure, and the potential for high levels of hazardous gases. It is for this reason that any connections to the MOS would require gas check manholes. At this stage Barwon Water have indicatively shown three (3) proposed connections into the MOS. Any road crossings over the MOS would need sufficient clearances as outlined in the WSAA standards, and may require sleeving or other protection works.

Barwon Water has also advised that there are a number of potential extensions to their sewer network being looked at. The pump station PS5 rising mains could connect to the Ovoid Sewer by running along Horseshoe Bend Road. Potential sewer extensions could also extend from Reserve Road and Drews Road. These projects are only likely to occur in conjunction with the Barwon Heads Road widening, or construction of the Bellarine Link.

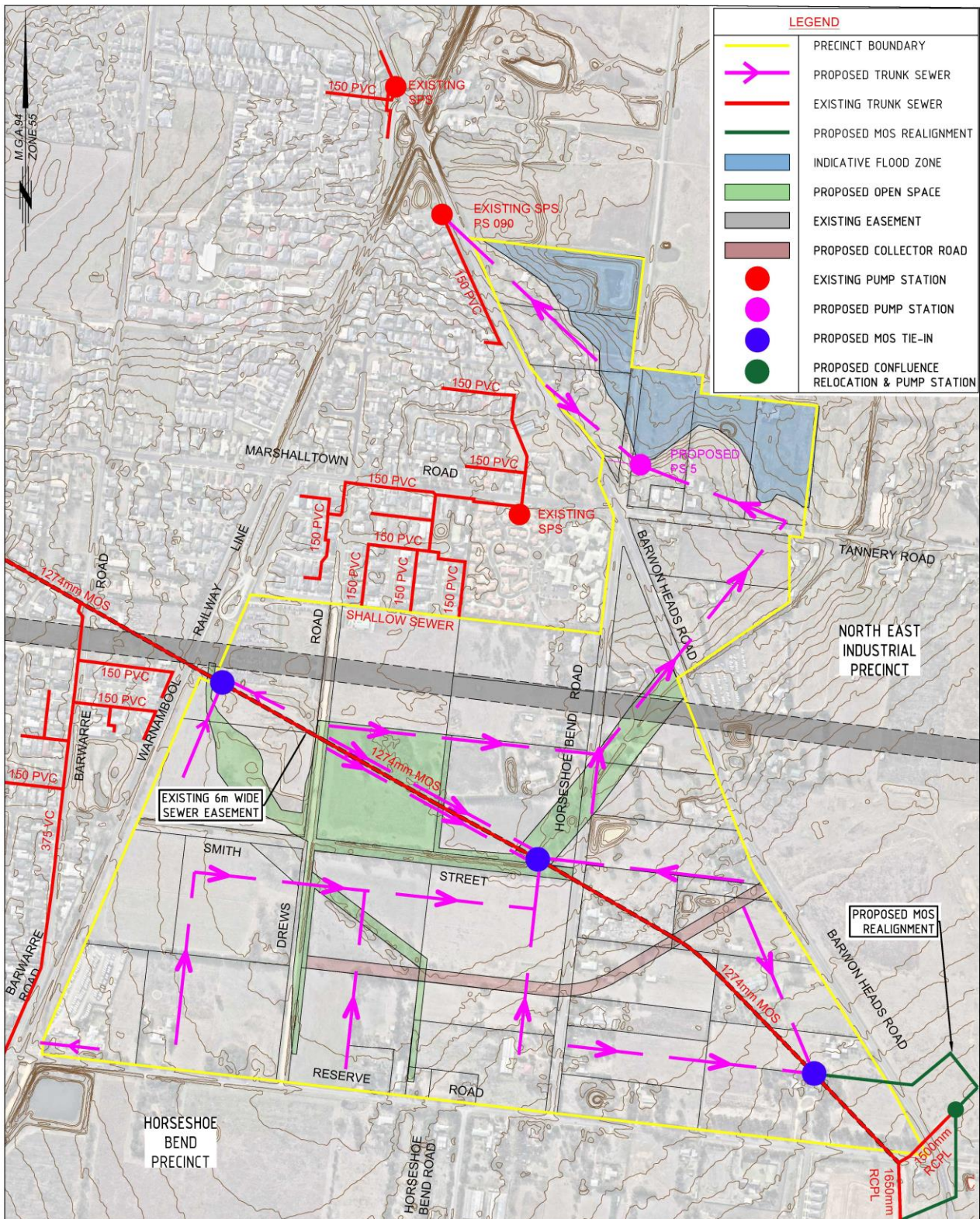


Figure 4: Services Plan - Sewer

6. RECYCLED WATER

Barwon Water are committed to providing recycled water to growth areas of Geelong. Areas that have already been developed (north of Marshalltown Road) are not intended to be provided with recycled water infrastructure.

The Marshall Precinct will ultimately be serviced by a low level recycled water system (class A) fed from the pressure reducing valve (PRV) located on Horseshoe Bend Road. A backup PRV will be located on Boundary Road. Both of these PRV's are outside the Marshall Precinct. There is an existing DN225 recycled water main located in Reserve Road.

Barwon Water have proposed shared assets to be constructed as part of the development of this precinct include a DN225 running along Horseshoe Bend Road from Reserve Road north, and then running east to Barwon Heads Road. A further DN225 shared asset is proposed running west along Reserve Road. Shared assets would be developer constructed, and then reimbursed by Barwon Water on completion.

There are currently no recycled water mains in the Marshall Precinct, with the exception of Reserve Road. Hence until the shared assets are constructed recycled water can only be offered in a limited capacity in this precinct. There is no opportunity for cross connection with the potable water network.

The proposed shared assets will be sufficient to service all the Marshall Precinct with the exception of the small area of land to the east of Barwon Heads Road.

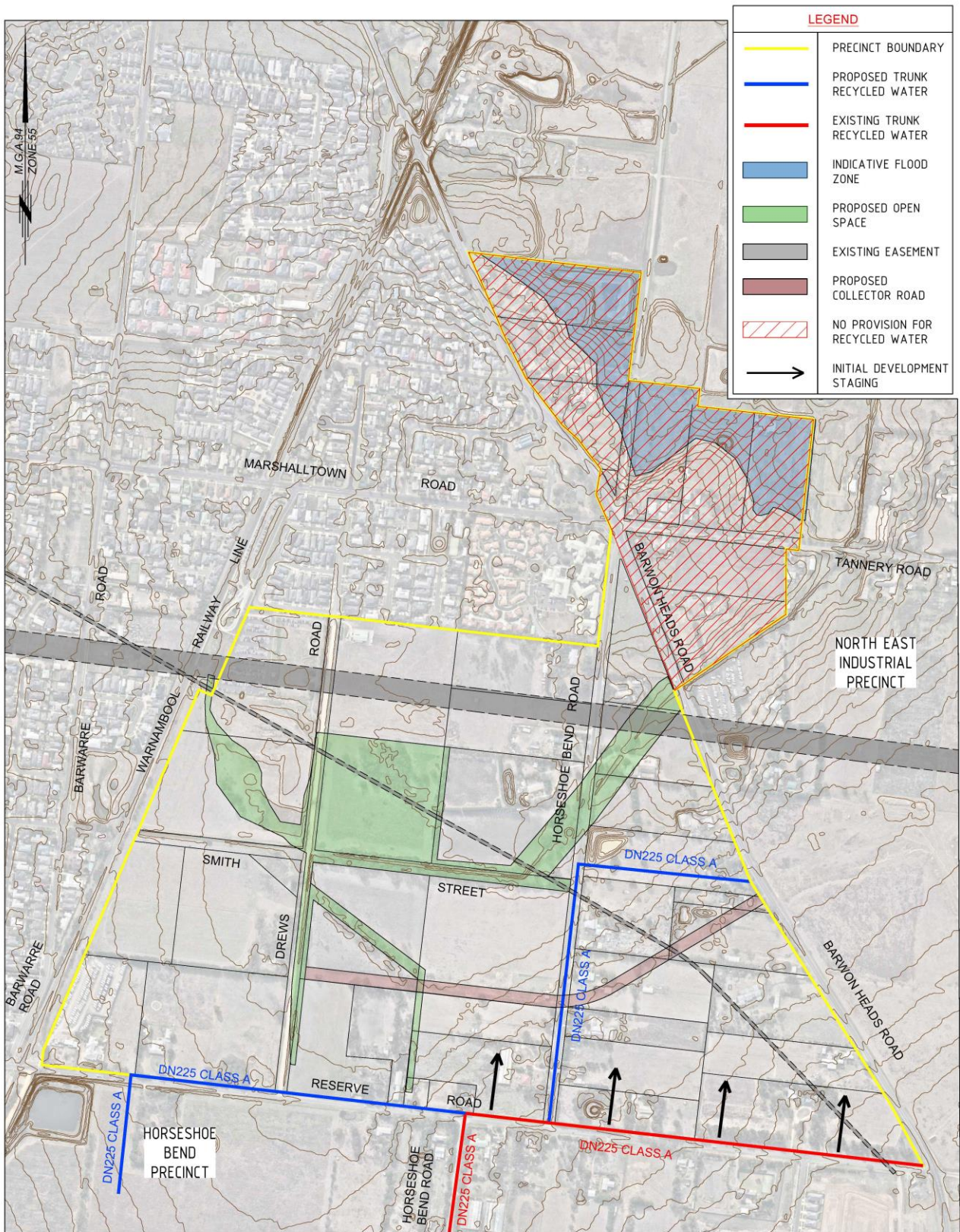


Figure 5: Services Plan - Recycled Water

7. ELECTRICITY

Powercor is the supply service authority for power supply in the region and is responsible for building, operating and maintaining the electricity network within the Geelong region.

Powercor advise that the existing network can supply the Marshall Precinct. Powercor have advised that the proposed development would be serviced by underground systems connected into the existing overhead services in the adjacent existing roads. There are however some limitations to the existing services in some locations which will affect staging of the precinct. There are two types of services in the area. Overhead 66kV (GTS – GLE No. 2) pass through this precinct parallel to the high voltage transmission line. Access to the overhead 66kV poles needs to be maintained in the development of this precinct. The remainder of the services in the precinct are GLE13 22kV feeders.

Details of the existing 22kV services are outlined below:

- Overhead 22kV line in Marshalltown Road is GLE13 feeder backbone conductor and suitable for connecting to.
- Overhead 22kV line in Tannery Road is GLE13 feeder backbone conductor and suitable for connecting to.
- Overhead 22kV line in Horseshoe Bend Road is GLE13 feeder backbone conductor and suitable for connecting to.
- Overhead 22kV line in Reserve Road is GLE13 feeder backbone conductor and suitable for connecting to.
- Overhead 22kV line in Drews Road off Marshalltown Road is GLE13 feeder backbone conductor and suitable for connecting to.
- Overhead 22kV line in Drews Road off Reserve Road is steel conductor and would need upgrading to connect to.
- Overhead 22kV line in Barwon Heads Road is single phase high voltage conductor and would need upgrading to connect to.
- Existing overhead lines within this precinct could be replaced with new underground assets.
- Connecting to the 22kV underground for new housing estates on the south side of Reserve Road may provide opportunities to retire some of the overhead line in Reserve Road.

Powercor were consulted regarding the process and timeline for upgrading assets that are not adequate for connecting in to. Typically any changes to Powercor assets have a lead time of 9+ months so discussions need to commence early, with the job lodged on Powercor's MySupply website. Powercor have advised that any upgrade would need to be partially funded by the developer.

As noted above the overhead 22kV overhead line in Barwon Heads Road is a single phase conductor and needs to be upgraded prior to feeding any additional services into. The upgrade of Barwon Heads Road is the optimum time for this upgrade to occur. It also enables flexibility in the road design as it is not tied to the existing location of power poles. VicRoads would fund the relocation/upgrade of these assets if done at this time. If the development timing predates the road widening the developer would need to contribute to the funding of these electrical upgrade works.

Once an overall development plan has been prepared for the Marshall Precinct Powercor will develop a scope of high voltage and low voltage underground cables to service the precinct. Powercor will also

determine the location of kiosks required. The kiosks will require electrical reserves measuring 4.8m x 7.2m. All underground works, connections to existing assets and kiosks will be developer funded.

There is opportunity to underground existing overhead services but it is anticipated that the costs of such works would be prohibitive so would only considered if the existing service needs upgrading.

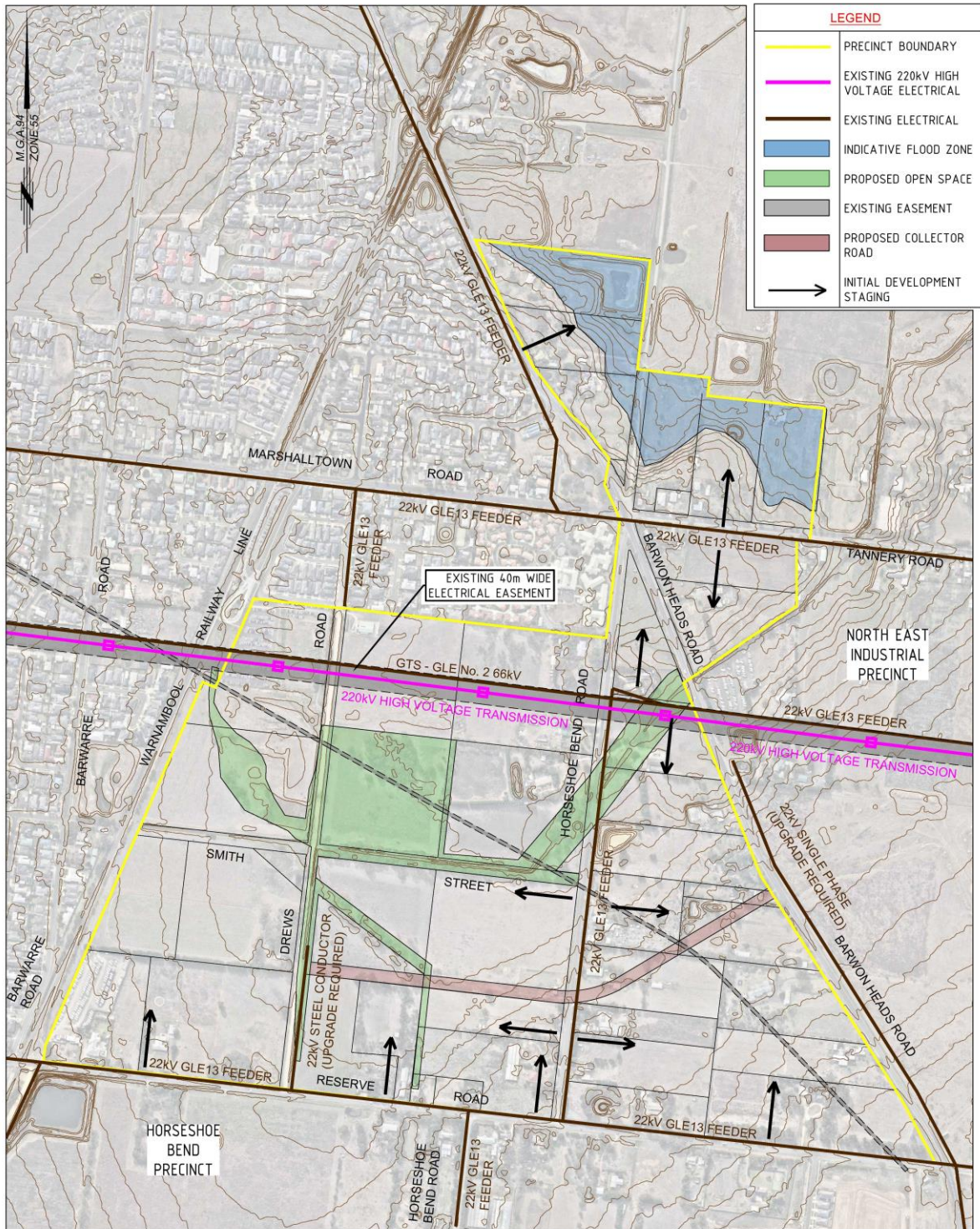


Figure 6: Services Plan - Electrical

8. HIGH VOLTAGE TRANSMISSION LINES

AusNet Services are the asset owner of the 220kV high voltage transmission lines running through the Marshall Precinct. The transmission line run parallel to the 66kV line. The transmission line formally provided electricity to the now decommissioned Alcoa Aluminium Smelter at Point Henry. Although the transmission line is currently de-energised and there are no immediate plans to re-energise the lines there is a requirement to retain the infrastructure and associated easements as they form part of a longer term strategic transmission network design. Hence AusNet Services have no intention of removing the transmission towers or surrendering the easement rights.

AusNet Services is not the freehold owner of the land which the towers are located on so are unable to provide approval for the use of the land for any other purpose. However, in principal AusNet Services would not object to co-usage of the easement provided any proposed use of the land, for example for public open space or drainage, is compliant with electrical safety regulations and clearances can be maintained should the transmission lines be energised in the future. Co-usage should be referred to AusNet Services Land Management Group for assessment on a case by case basis. The transmission line towers must remain accessible to service vehicles.

When energised the transmission line is rated to 220 kV which has an easement of 40 meters. The 66kV power line running parallel to the transmission towers shares the electrical easement.

AusNet Services provides guidelines on the use of this easement. Planting should grow to a maximum height of 3 meters, and vegetation should cover no more than 10 percent of the easement area. Fencing can be constructed within the easement provided approval is granted but must be maximum 3 meters in height and earthed and sectionalised if constructed of metal. Sewerage, drainage and water pipes may be constructed in the easement provided they are plastic or earthenware. Retention basins are permitted within the easement provided there is sufficient clearance from the towers and the effect on the water table has been considered. Carparking is permitted provided there is guard fence or similar protecting the legs of the tower.

Easement requirements to a 220kV line are slightly more flexible than higher rated services. Domestic garages, carports and garden sheds are permitted a limited distance onto the easement provided the structures are no more than 3 meters in height, constructed of non-flammable materials, and the structure is not attached to a dwelling.

9. GAS SUPPLY

AusNet Services are the local gas distributor for reticulated gas supply in the Geelong region. They have confirmed that the existing gas network has sufficient capacity to supply the Marshall Precinct.

There is currently an existing PN 180mm service running along Marshalltown Road and then running south along Horseshoe Bend Road to Reserve Road. The gas service then runs along west along Reserve Road for a short section before continuing to the southern portion of Horseshoe Bend Road. There is currently no gas supply along Barwon Heads Road.

AusNet Services have confirmed that a potential supply option for the Marshall Precinct is to run a 125mm dia service along Drews Road and Reserve Road. A further extension to the supply network is to run a 125mm dia service along Tannery Road and the northern end of Horseshoe Bend Road past Marshalltown Road. These existing and proposed trunk lines would then provide feeds to the new reticulated mains installed within each development.

The proposed duplication of Barwon Heads Road would affect the proposed gas alignment supplied by AusNet Services as Horseshoe Bend Road is proposed to be truncated both north and south of the intersection with Marshalltown Road. A single gas road crossing should be constructed under Barwon Heads Road with sufficient depth and width for the ultimate road alignment. The service can then run parallel to Barwon Heads Road before proceeding up Horseshoe Bend Road.



Figure 7: Proposed Barwon Heads Road Duplication – Intersection with Marshalltown Road

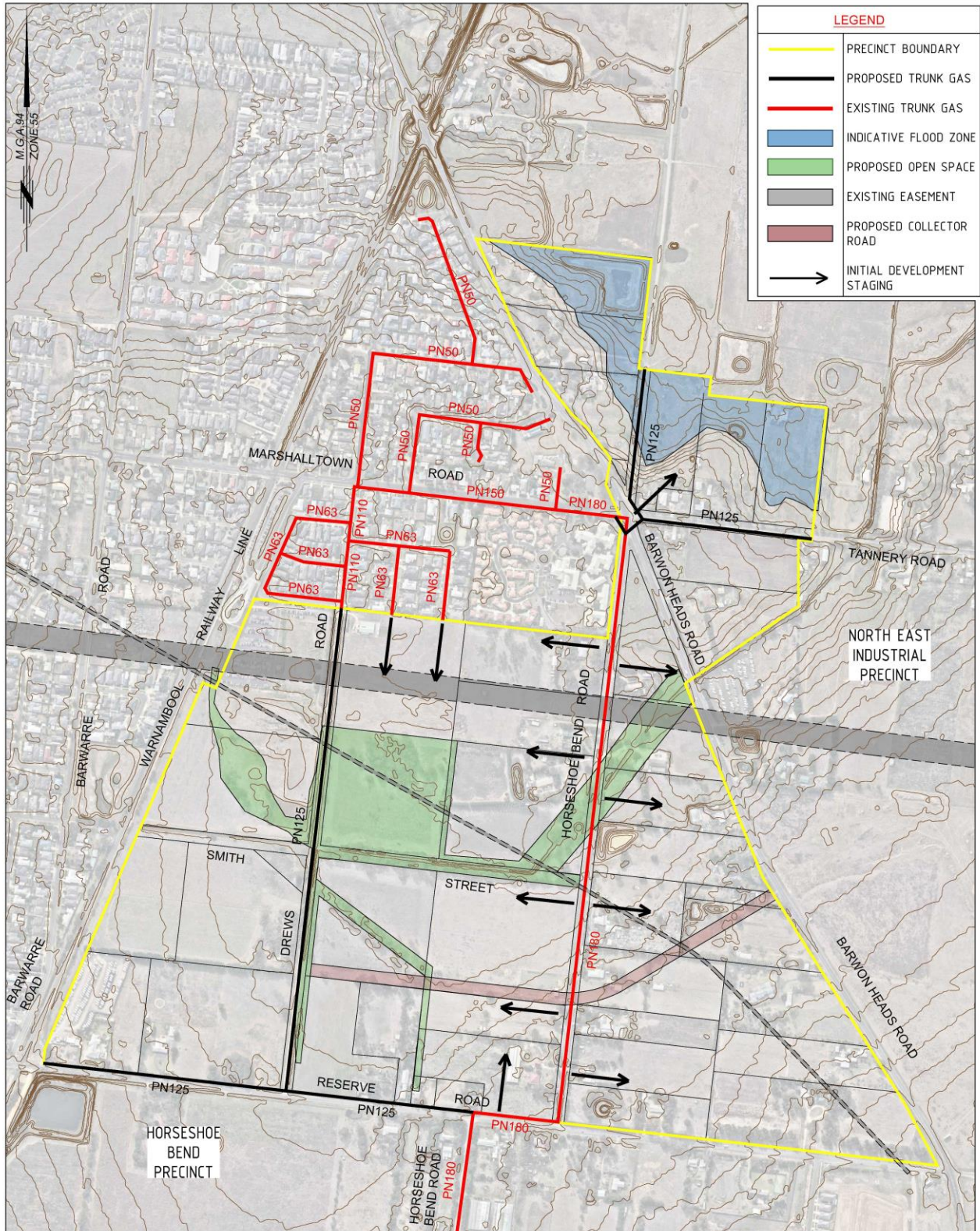


Figure 8: Services Plan – Gas

10. TELECOMMUNICATIONS

NBN were contacted to see if it was feasible to supply NBN to the proposed development. They have confirmed that they can service the Marshall Precinct. Typically NBN charge \$600 per lot connection fee in a new development. NBN also require a backhaul contribution to be paid which is based on the distance from the existing infrastructure to the new development. The backhaul charge is calculated from the development boundary to the closest network access point.

The NBN Ready Website details areas which are ready for service at any point in time. This information has been included in the figure for communications (as at 30th August 2018). The majority of the Marshall Precinct is NBN ready.

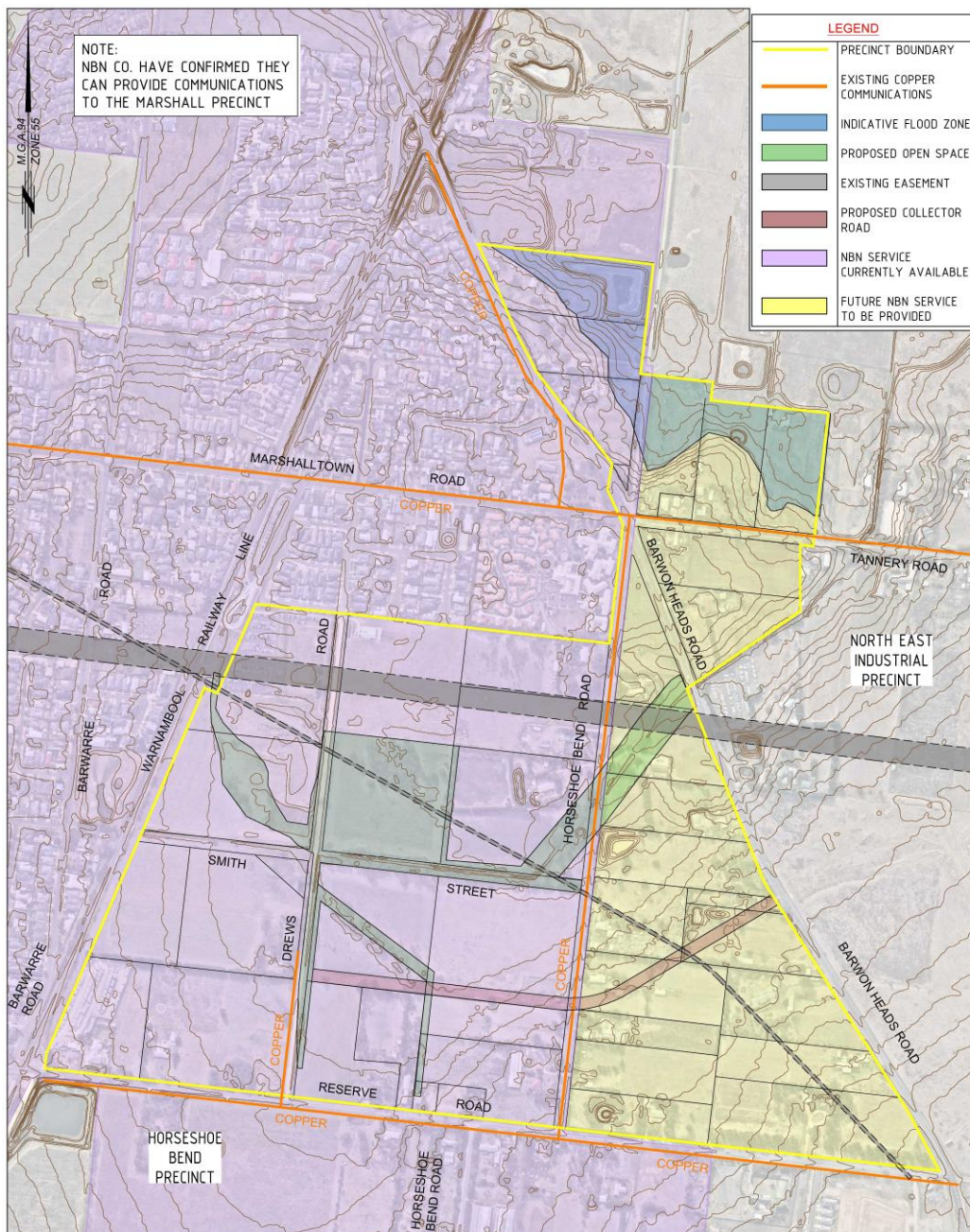


Figure 9: Services Plan – Telecommunications

11. VICROADS

VicRoads have a number of projects in the planning stage that will impact the Marshall Precinct. These include the widening of Barwon Heads Road and the extension of the Geelong Ring Road (Bellarine Link).

The widening of Barwon Heads Road would increase the current road reserve of 20m to 40m providing a dual carriageway. The additional 20m would be to the east of the existing road, outside the Marshall Precinct. At this stage only a planning budget has been committed, with updated functional drawings due to be issued in September 2018. The total length of the proposed widening works is 9.5km, most of which forms the boundary of the Marshall Precinct. No additional land has been acquired to date however some overlays exist south of Marshalltown Road. Three (3) signalised intersections are proposed along Barwon Heads Road – at Marshalltown Road, Reserve Road (Ultimate Bellarine Link) and a new intersection is proposed to connect into the North East Industrial Precinct. The typical cross section is shown in the PSP with a 2m wide on road bike lane. Horseshow Bend Road is proposed be terminated north and south of Barwon Heads Road.

Access to Barwon Heads Road in the Marshall Precinct will be limited to the 3 intersections as noted above. It is anticipated that service roads will run parallel to Barwon Heads Road in a 10m wide easement either side of the proposed Barwon Heads Road. The service road would be developer funded.

The second project which will have a major impact on the Marshall Precinct is the extension of the Geelong Ring Road, which is also known as the Bellarine Link or East West Road. The project is still in the planning phase but the corridor has been set aside in the planning scheme. Drawings have been prepared to present the business case for the infrastructure project. The timing of this project could be up to 10 years. The Bellarine Link is expected to follow the same alignment as the existing Reserve Road, with developer funded service roads parallel to the Bellarine Link to provide vehicle movement through the Marshall Precinct. The current typical cross section shows off road shared user paths on either side of the Bellarine Link, and is dual carriageway. VicRoads are currently exploring the possibility of a staged delivery of the Bellarine Link with one lane built each way (interim) and the full 2 lanes each way constructed in the future (ultimate). Retention basins and water sensitive drainage swales are proposed parallel with the alignment to treat the road reserve water. Some of the retention basins may be co-located with development retention basins. A typical cross section is shown in figure 10 with a minimum width of 62m between right of way boundaries.

Signalised intersections are proposed at Barwon Heads Road and Drews Road, with an on and off ramp at Horseshoe Bend Road (North) and Bramley Avenue to the south of the Bellarine Link. The construction of the Bellarine Link would require Barwarre Road to be terminated with a courtbowl either side. Horseshoe Bend Road to the south of the Bellarine Link would also be terminated with a courtbowl, however the City of Greater Geelong has proposed a pedestrian link over or under the Bellarine Link at this location. A large number of service relocations will be required to facilitate this project so early planning is critical given the long lead times.

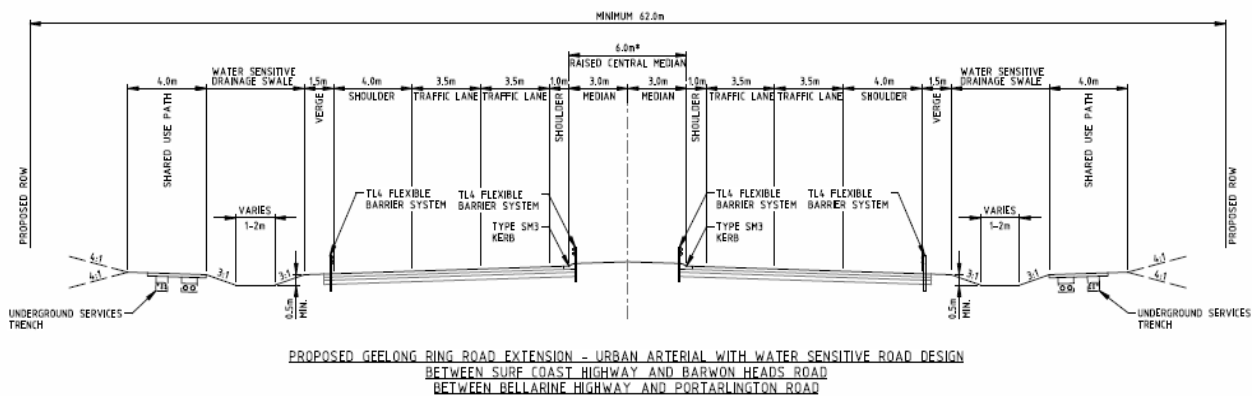


Figure 10: Typical Cross Section – Ultimate Bellarine Link

12. VICTRACK

VicTrack is the agency responsible for the maintenance and upgrade of rail infrastructure within Victoria. VicTrack have a number of projects in the planning and construction phase that will impact on the Marshall Precinct.

The carpark at Marshall Station is currently being upgraded. 50 additional car spaces are being constructed. This will extend the carpark through to Drews Road, providing an alternative entry point into the carpark. Construction is expected to be completed in August 2018. The current high voltage transmission lines currently cross over the carparking at Marshall Station.

The proposed future rail duplication between South Geelong and Waurin Ponds Station is in the planning phase. This will enable more train services to be provided between Geelong and Melbourne and increase the frequency of these services. This will make the Marshall Precinct more attractive as its accessibility increases. The second line may be accommodated in the current VicTrack corridor as additional land is available.

A further future direction is to construct a second platform at Marshall Station.

13. DEVELOPMENT STAGING

The staging of the Marshall Precinct development should take into consideration a number of factors:

- Location of existing services
- Location of proposed feeder mains and shared assets
- Slope of existing land
- Timing of Barwon Water MOS realignment project
- Proposed drainage and flood impact study (not part of this scope)
- 40+ individual land owners
- Timing of VicRoads infrastructure projects
- Location of proposed open space
- Proximity to Marshall Station

Commencing works radiating out from Horseshoe Bend Road enables developers to connect into existing and proposed services whilst staying clear of future VicRoads infrastructure projects. The Barwon Water proposed shared assets (potable water and recycled water) along Horseshoe Bend Road should be constructed early in the development of the Marshall Precinct to ensure adequate supply. A gas pipeline already exists along Horseshoe Bend Road. Powercor's 22kV Feeder along Horseshoe Bend Road is also adequate for connection into. Two connections into the main outfall sewer (MOS) should be established early which will service the majority of Marshall Precinct.

Constructing the proposed collector road between Drews Road, Horseshoe Bend Road and the Barwon Heads Road should occur relatively early to provide clear access into the Marshall Precinct which is independent of Reserve Road which will be severely disrupted when the Bellarine Link is constructed. When the Barwon Heads Road is duplicated the termination of Horseshoe Bend Road to the north and south will also affect access into the precinct,

The northern area of the Marshall Precinct is encumbered by the existing electrical easements which will remain. These easements greatly impact on the lot size and use of this land. Part of the electrical easement has already been utilised for the Marshall Station carpark which has now been extended through to Drews Road. A lower density development will need to occur around this easement due to restrictions in how this land can be developed.

The area around the station carpark could be used for medium density development given excellent access to public transport, but the area available for this type of development is limited due to the electrical easement. Connection into existing services to the north is simple, although the existing sewer is shallow so there are would be a limit to the number of services that can be connected before minimum service cover is reached. Access to recycled water would be dependant on the land to the south being developed first.

The location of public open space, influenced by existing significant native vegetation and drainage easements, are shown on the precinct plans however did not form part of this servicing report. Development in the vicinity of this open space is subject to finalising the extent.

The small area of the Marshall Precinct to the north of Barwon Heads Road has been indicated in information provided to date as subject to flooding. Hence the area would require significant drainage infrastructure to be constructed prior to any development taking place. The area is more suitable to light industrial use.

Major infrastructure projects planned for the Marshall Precinct include the duplication of Barwon Heads Road, the construction of the Bellarine Link, and the proposed Barwon Water Confluence and Pump Station. As these projects are still in preliminary stages development adjacent to these areas should be scheduled later to allow details to be finalised.

Each of the services plans provided in this report contains arrows radiating out from existing services which are adequate for tapping in to. The development of land adjacent to these existing services can be staged earlier.

14. CONCLUSION

The Servicing Plan undertaken and presented in this report has identified that the Marshall Precinct can be readily serviced and infrastructure provided for water supply, recycled water, sewer, gas, electricity, and telecommunications. The relevant service authorities have confirmed supply capacity available from current assets or additional infrastructure requirements to service the overall development. More details will be provided by service authorities once overall development plans are available showing number of lots and detailed staging.

Early discussions with service providers are vital to ensuring that development is not held up by delays in service upgrades or relocations.

TGM notes that additional fees and charges will apply for the provision of infrastructure and essential services from the relevant authorities at the time of development. The Developer will be responsible for these costs. Fees will vary depending on the relevant authority and will be confirmed under formal supply applications.

APPENDIX A – *Service Authority Responses*

Barwon Water

From: [REDACTED]
Sent: Thursday, 30 August 2018 12:08 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: 18158-01 Marshall Precinct - Barwon Water Consultation

[REDACTED]

Yes, the water and RW are the same sorry.

Regards,

[REDACTED]

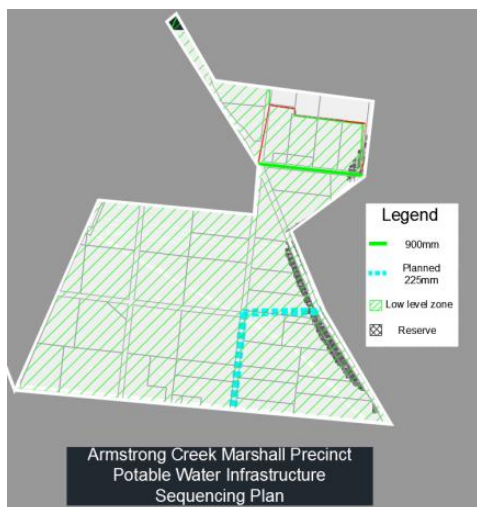
Co-ordinator Network Planning | Barwon Water
55-67 Ryrie Street Geelong VIC 3220
T (03) 5226 2328 | M 0410 302 708 | W www.barwonwater.vic.gov.au

From: [REDACTED]
Sent: Thursday, 30 August 2018 12:02 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: 18158-01 Marshall Precinct - Barwon Water Consultation

[REDACTED]

I've just read your e-mail more closely.

Only Figure 7 has been updated (recycled water) but in the written description you talk about a potable water heading west along Reserve Road. Does this mean that Figure 6 should also be amended? See current figure 6 below:



Thanks,

[REDACTED]

From: [REDACTED]

Sent: Tuesday, 28 August 2018 4:01 PM

To: [REDACTED]

[REDACTED]

Subject: RE: 18158-01 Marshall Precinct - Barwon Water Consultation

Hi [REDACTED]

Yes, within the precinct, the water and recycled water is sufficient. Upon looking at the plans, we noticed we had not shown the DN225mm potable or recycled water mains heading west along Reserve Road from Horseshow Bend Road. See revised plan.

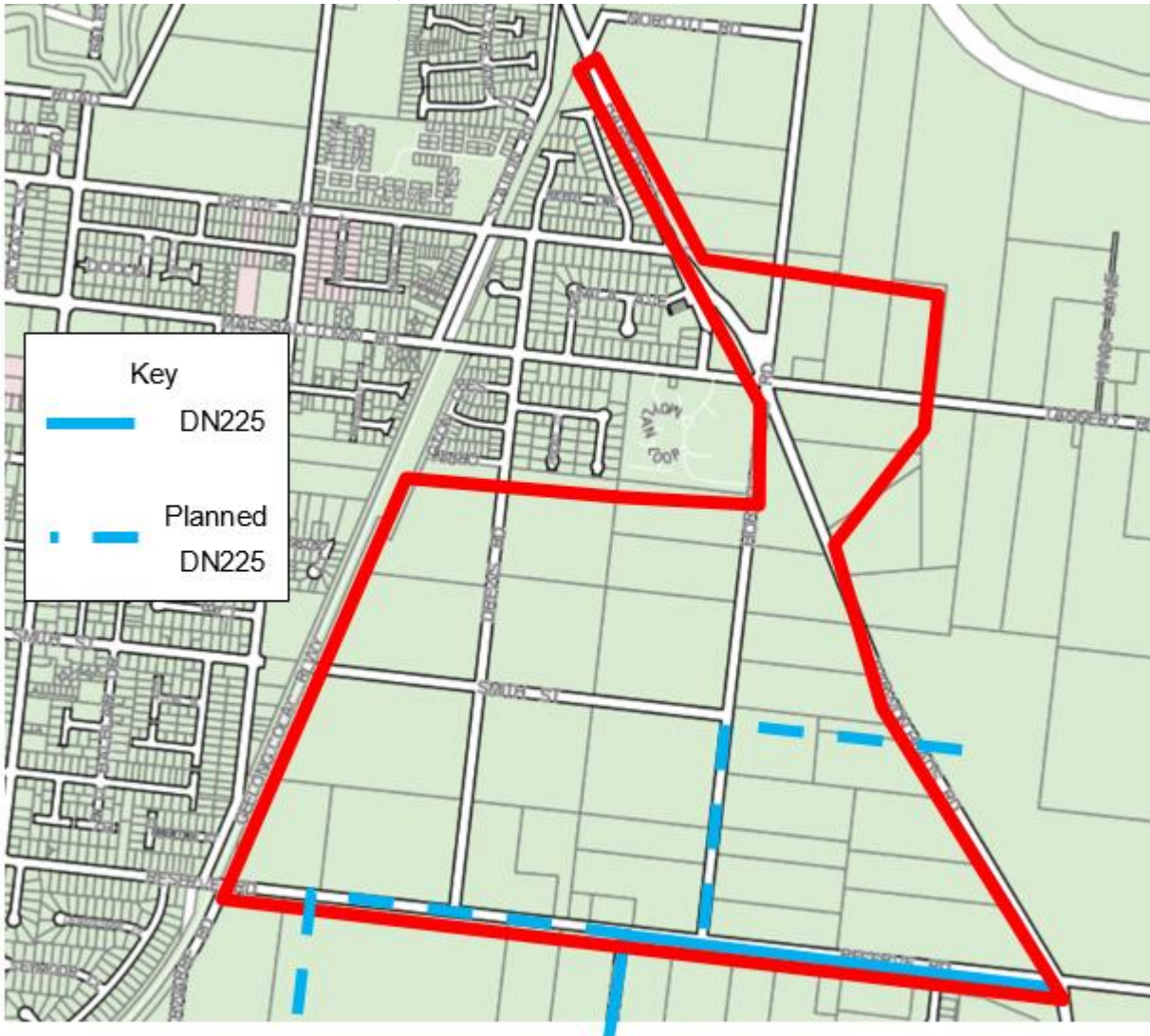


Figure 7: Recycled Water Supply – Shared Asset Layout

[REDACTED]

Planning | Barwon Water

55-67 Ryrie Street Geelong VIC 3220

T (03) 5226 2328 | M 0410 302 708 | W www.barwonwater.vic.gov.au

From: [REDACTED]
Sent: Monday, 27 August 2018 12:23 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: 18158-01 Marshall Precinct - Barwon Water Consultation

[REDACTED]

CoGG have one query regarding Barwon Water's report on the Marshall Precinct.

Will the proposed 225mm shared asset for recycled water be sufficient to service all the Marshall Precinct west of Barwon Heads Road?

Many thanks,

[REDACTED] [REDACTED]
[REDACTED] Pty Ltd



[REDACTED] [REDACTED]
[REDACTED]
[REDACTED] w: www.tgmgroup.com

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The Barwon Water logo consists of a stylized blue and green wave icon to the left of the text 'Barwon Water' in a blue, sans-serif font.

Barwon Water
Technical Memo

To: [REDACTED]
From: [REDACTED]
Date: 10 July 2018
Subject: Marshall Precinct – TGM Servicing Request

In response to the servicing request from TGM dated 2nd July 2018 and regarding the proposed Marshall Precinct Structure Plan. Barwon Water's Asset Planning Department has investigated the servicing requirements for this area and provides the following updated advice.

Background

The CoGG has commenced the preparation of the Marshall Precinct Structure Plan. This area is generally east of the Geelong-Warrnambool railway line and north of Reserve Road as shown white in figure 1 below.

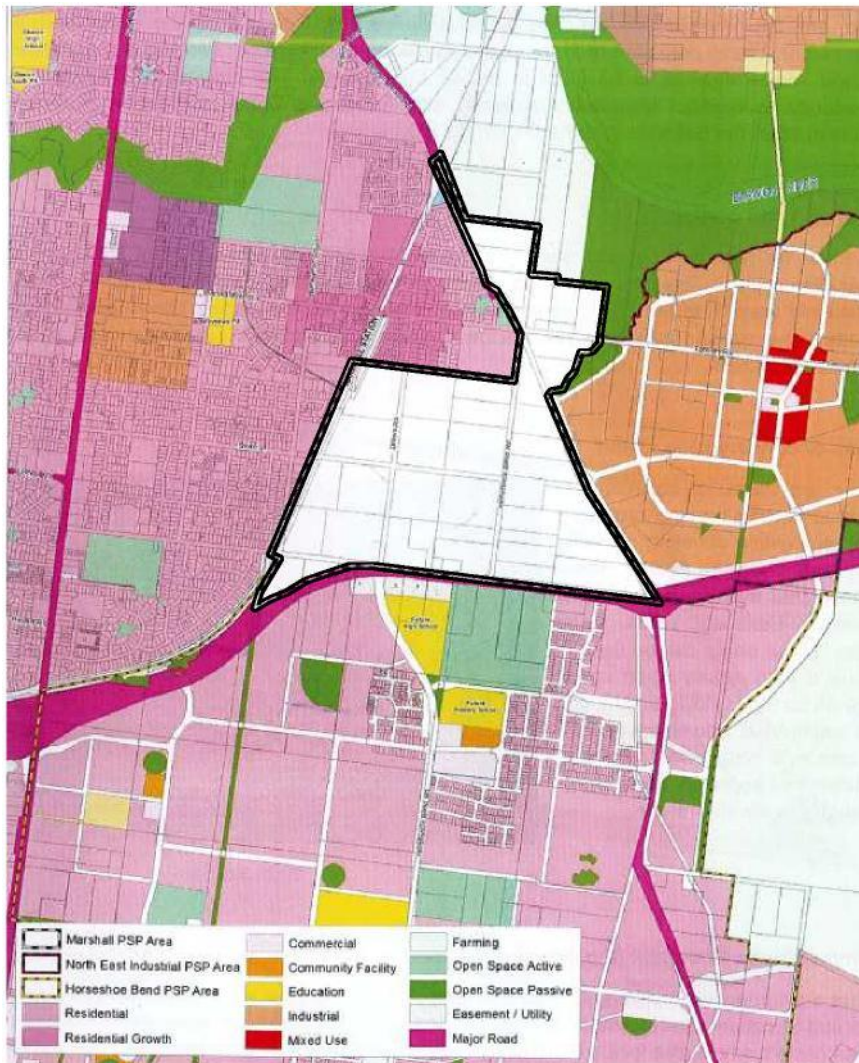


Figure 1: Marshall Precinct – Land Use Context

The CoGG has subsequently appointed TGM to prepare an infrastructure servicing report on the proposed precinct. TGM meet with Barwon Water on 26 June and outlined the extent of their investigation. TGM is now seeking further detail on servicing the proposed precinct.

Sewerage

2008 Strategy

In 2008 Barwon Water prepared high level concept designs for the proposed Armstrong Creek Urban Growth Zone. In regard to the proposed Marshall Precinct, the land is quite flat and generally falls to the north. Preliminary sewer alignments were prepared as shown in Figure 2.

The precinct (bordered yellow) is bisected by Barwon Waters Main Outfall Sewer (MOS), which is shown by the dark red line in Figure 2. The MOS is currently covered by a 6m wide easement. The MOS easement would need to be converted to a 6m wide reserve as development occurs in the precinct.

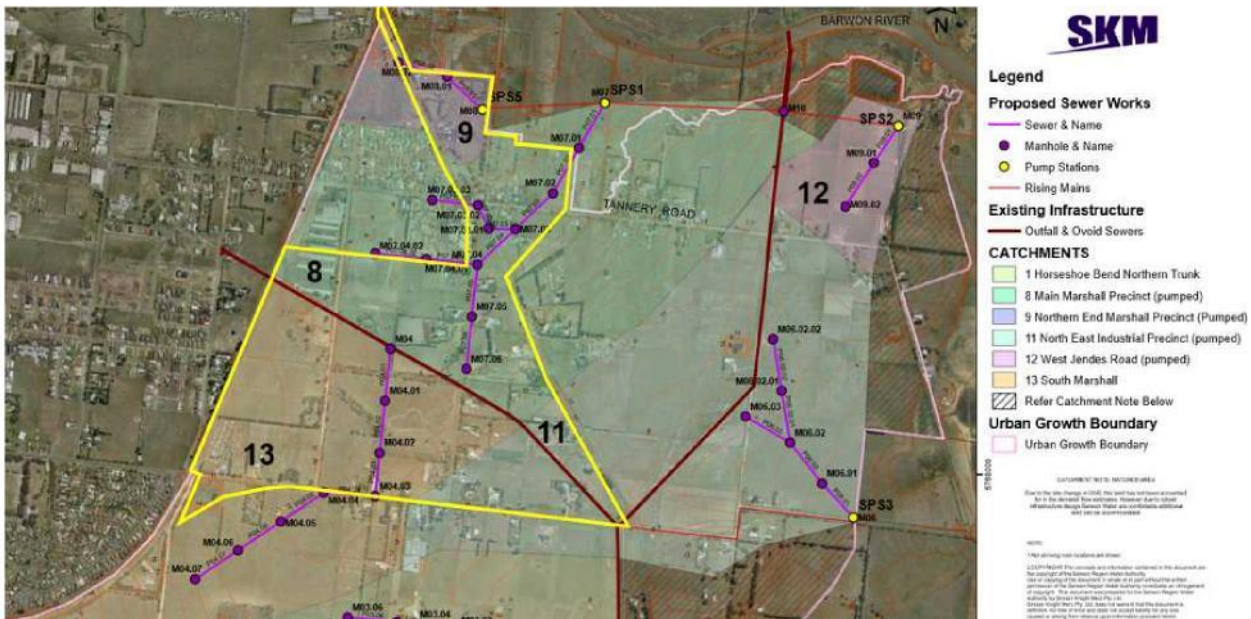


Figure 2: Preliminary Sewerage Layout

Since the strategy was first developed in 2008, two adjacent precinct structure plans, the Horseshoe Bend Precinct and the North East Industrial Precinct (NEIP) have been prepared as shown in figure 1. Also along the southern boundary of the Marshall precinct the Geelong Ring Road extension (Bellarine Link) is proposed. In addition to this, much of the north west corner of the Marshall area has been serviced necessitating a need to review the servicing requirements.

Main Outfall Sewer (MOS) - Ovoid Sewer Confluence

At the south east corner of the precinct, the MOS joins the Ovoid Sewer. The confluence of these two major sewers is in Reserve Road. Due to the proposed Geelong Ring Road extension (Bellarine Link) along Reserve Road and the proposed intersection with Barwon Heads Road and its duplication, the MOS confluence needs to be relocated. The diverted MOS would need to be within a 6m reserve. A new sewer pump station will also be ultimately required near the new confluence, to facilitate duplication of the MOS downstream of the confluence. A preliminary layout of this facility is shown in figure 3.

The confluence relocation is not expected to be undertaken until the Bellarine Link, and or the Barwon Heads duplication is constructed. Sections of the MOS diversion may be built earlier on, but not made live, to avoid major construction in developed areas. The confluence relocation is partly funded via the NEIP DCP and it is not proposed that Marshall Precinct developers fund any of these works.

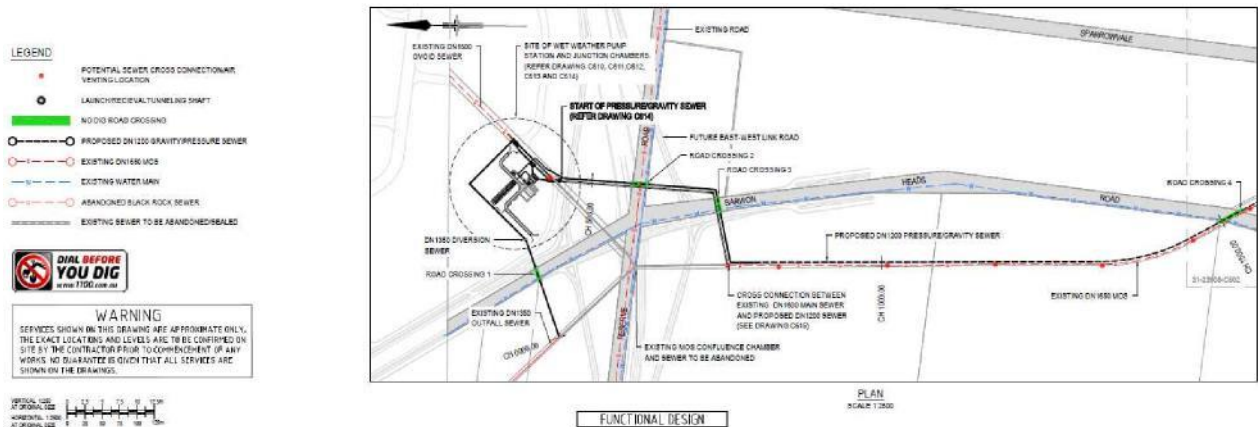


Figure 3: Preliminary Confluence and Pump Station Layout

Sewerage Reticulation Infrastructure

Apart from the MOS that bisects the precinct, Barwon Water has reticulation sewers that service land adjacent to the north-western part of the Marshall precinct where development exists. The sewers in the south of the existing development near the railway station are very shallow (1.2 - 1.4m deep) and as such, extension opportunities are very limited.

Near the south-west corner of the proposed precinct, there is a relatively deep DN375 sewer (3 – 4m) in Barwarre Road on the west side of the railway line around Reserve Road and extension off this is possible, but would require a bore under the railway line.

At the northern extent of the existing reticulation system near pump station SPS090, the sewer is 2.9m deep (IL 2.9m) and could possibly be extended across Barwon Heads Road. However, the land on the east side of Barwon Heads Road falls to the east and may accordingly need to be serviced in part by a future pump station. DN225 sewers on the west side of the railway line in Station Street are deeper (3.3m deep, IL 1.0m) and could potentially service land on the east side of Barwon Heads Road. Both the SPS090 pump station and the DN225 sewer in Station Street would have adequate capacity for at least 100 additional lots. Figure 4 shows the location existing, proposed and potential sewers.

The pump stations PS1 and PS5 shown in the 2008 Strategy are in the future flood zone and could be moved south out of the flood zone. PS1 was also intended to service both the Marshall and North Eastern Industrial Precinct. Alternative potential locations for PS1 and PS5 are shown in figure 4.

The current strategy for PS1 and PS5 rising mains is to connect to the Ovoid sewer. However, with the suggested alternative locations, it is possible for the PS5 rising main to connect to the MOS via an alignment along Horseshoe Bend Road as shown in figure 4. Barwon Water is open to modifications of this strategy to suit development staging requirements of CoGG. Any suggestions or modifications proposed should be discussed with Barwon Water.

Sewer main connections to the MOS will be limited due to the critical nature of the MOS and the high levels of H₂S in the main which requires high level risk mitigation. The connections will also require gas check manholes and would only be permitted at existing manhole structures. The PWWF HGL of the reticulation sewers should match the PWWF HGL in the MOS (1.8m above invert).

Any proposed road crossings of the MOS would need sufficient clearance in accordance with WSAA standards and there would need to be liaison with Barwon Water regarding road designs etc. Special requirements may be required.



Potable Water

Ultimate Servicing

At ultimate development this land will be serviced from the low level pressure system fed from the PRV located in Horseshoe Bend Road. A backup PRV will be constructed off the Bellarine Transfer Main (BTM) near Sparrowvale Road. Both of these PRVs are located outside of the precinct.

Shared mains within this precinct include:

- A DN225 main will extend along Horseshoe Bend Road then eastward as shown in figure 6 (approximate alignment).
- A DN225 main already constructed in Reserve Road.

Existing Infrastructure

A DN900 transfer main known as the Bellarine Transfer Main (BTM) currently extends along Marshalltown Road/Tannery Road. This main is not available for supply directly but will feed the backup PRV. Development in the vicinity of this main may be subject to restrictions intended to protect the integrity of this main.

The main was duplicated along Tannery Road in 2001. A section of DN1085mm was laid around the train station in 2010. Ultimately, Barwon Water will connect this section as shown in figure 5 below. There is an existing reserve with sufficient space to do this work.

The works are currently scheduled for 2023/24 financial year, which is outside the current price submission period.

The DN225 in Reserve Road intended for ultimate supply has been constructed and is available for supply.

Other mains in the precinct are older rural mains typically sized DN100 or DN150. It is intended that these are progressively abandoned as development progresses though there may be some capacity for interim servicing. This includes:

- the 150mm AC main in Barwon Heads Road, which should be abandoned and replaced clear of the duplication zone, potentially in a service road. This could occur during the works to avoid double up. Any existing connections would need to be re-instated.
- 100mm PVC Main in Horseshoe Bend Road. Replaced with DN225mm over time.
- 100mm PVC in Reserve Road west. Constructed in 1998. Likely to be OK to retain.

Interim Servicing

Interim servicing in this precinct is straight forward as most of the roads have some form of water supply. The existing rural mains may provide enough capacity for initial stages of development (approximately 100 lots or so). It is expected that the mains required for ultimate

supply will be constructed for subsequent stages of development.

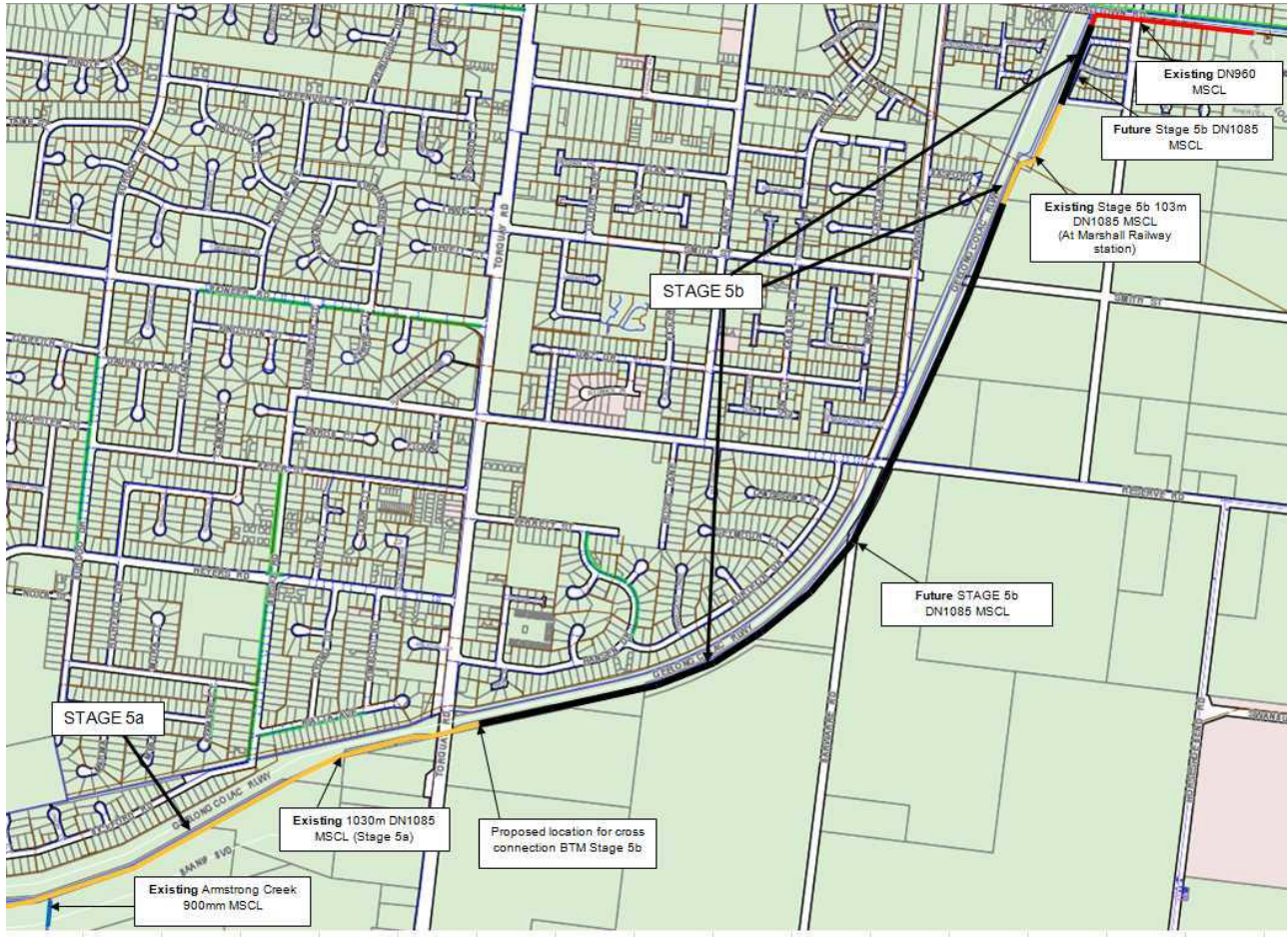


Figure 5: Bellarine Transfer Main Stage 5b - Upgrade

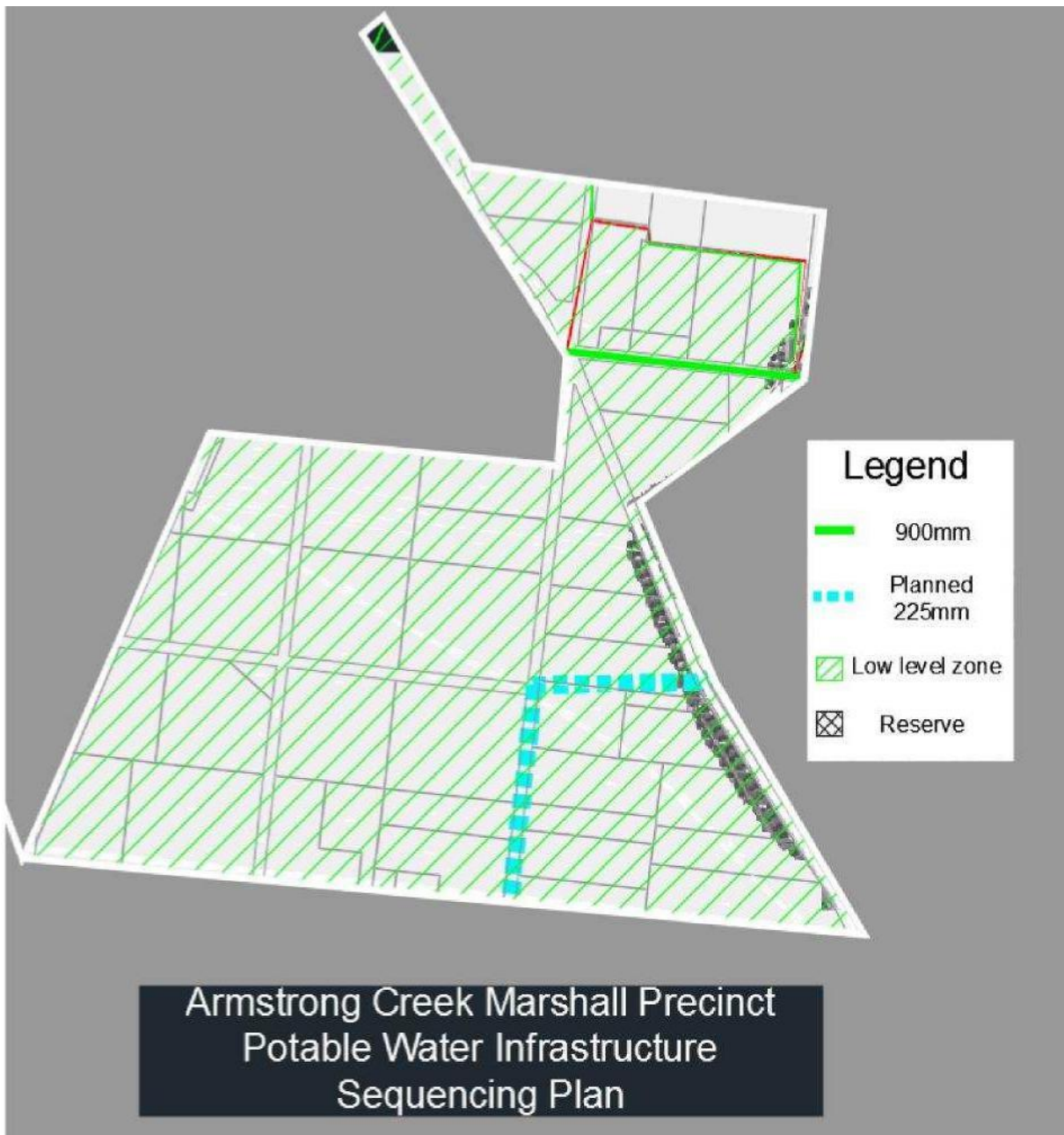


Figure 6: Water Supply – Shared Asset Layout



Recycled Water Servicing

Ultimate Servicing

This area will ultimately be serviced from the low level recycled water system fed from the PRV located on Horseshoe Bend Road. A backup PRV will be located on Boundary Road. Both of these PRVs are located outside of the precinct.

Areas of this development that have already been developed (generally north of Marshalltown Road) are not intended to be provided with recycled water infrastructure.

Shared mains in this precinct include:

- DN225 will extend north along Horseshoe Bend Road then eastward as shown in figure 7 (approximate alignment).
- DN225 already constructed in Reserve Road.

Existing Infrastructure

The DN225 in Reserve Road has already been completed. There is no other shared recycled water infrastructure within this precinct.

Interim Servicing

Since there are no existing recycled water mains within this precinct there is no interim servicing option that can be offered without extending recycled water mains north from Reserve Road. There is no opportunity for cross connection with the potable water network, all cross connections are being removed and policy is for no new cross connections.

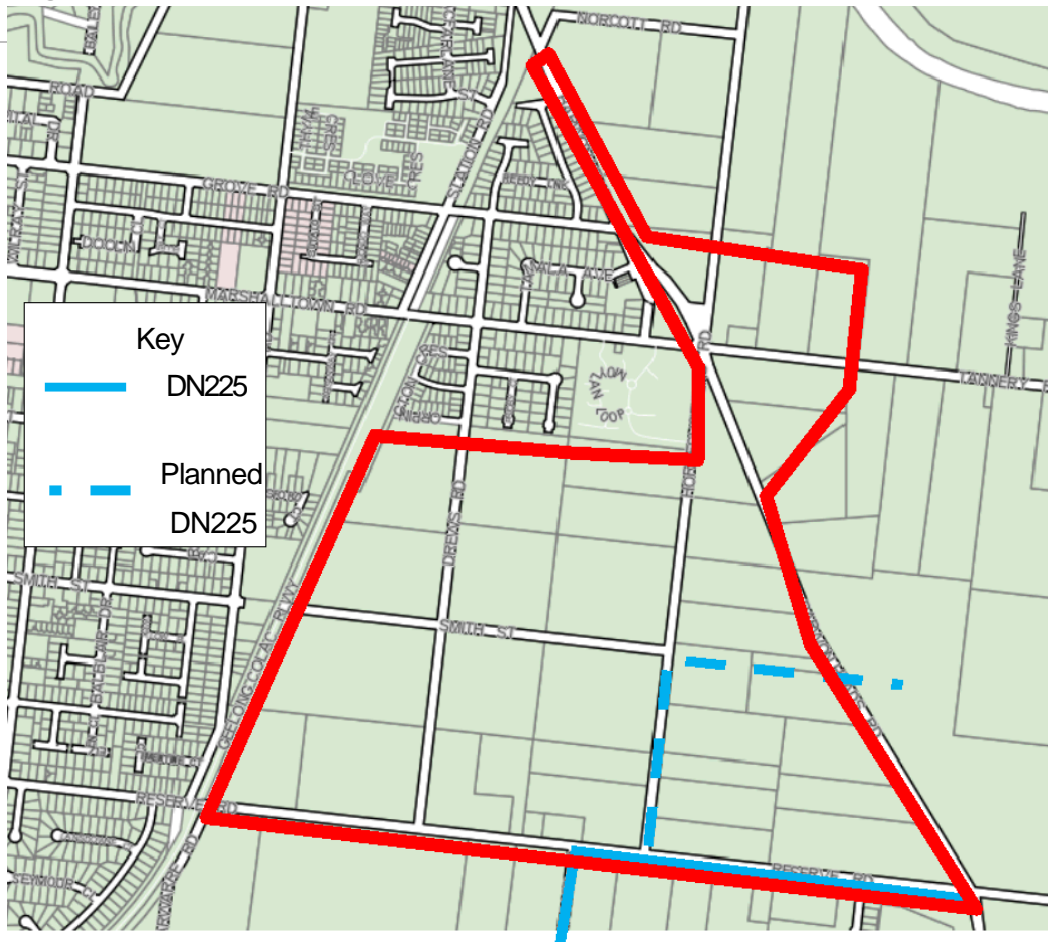


Figure 7: Recycled Water Supply – Shared Asset Layout

Should you have any questions, please give me a call on [REDACTED]

Kind Regards,

[REDACTED]
Network Planning Co-ordinator

Powercor

From: [REDACTED]
Sent: Monday, 27 August 2018 3:09 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: 18158-01 Marshall Precinct - Electrical Easements

Hi [REDACTED]

There is an option to put 66kV underground, However I understand it to be an expensive project.

Please feel free to give me a call if you would like any further information.

Regards,

[REDACTED]
Project Delivery Lead - Rural Projects Geelong
Program Design and Delivery

Powercor Network Services | CitiPower Pty & Powercor Australia Ltd
72 Roseneath Street, North Geelong, VIC 3216
PO Box 185, Geelong, VIC 3220

[REDACTED]



From: [REDACTED]
Sent: Monday, 27 August 2018 12:20
To: [REDACTED]
Cc: [REDACTED]
Subject: FW: 18158-01 Marshall Precinct - Electrical Easements

[REDACTED]

One further question raised by Council - can the 66kV be replaced with an underground asset or are there safety issues? Is the cost prohibitive?

Many thanks,

[REDACTED] | Project Manager
TGM Group Pty Ltd



From: [REDACTED]
Sent: Wednesday, 8 August 2018 2:11 PM
To: [REDACTED]
Subject: RE: 18158-01 Powercor application MARSHALL PRECINCT STRUCTURE CR:306769643

Hi [REDACTED]

See below comments.

Please feel free to give me a call if you would like any further information.

Regards,

[REDACTED]
Project Delivery Lead - Rural Projects Geelong
Program Design and Delivery
Powercor Network Services | CitiPower Pty & Powercor Australia Ltd
72 Roseneath Street, North Geelong, VIC 3216
PO Box 185, Geelong, VIC 3220



From: [REDACTED]
Sent: Thursday, 26 July 2018 10:25
To: URD; [REDACTED]
Subject: RE: 18158-01 Powercor application MARSHALL PRECINCT STRUCTURE CR:306769643

[REDACTED],
Many thanks for the map and comments.

You make reference to the Drews Road (off Reserve Road) steel conductor & the Barwon Heads single phase conductor both requiring upgrading prior to connecting into.

Would this generally be a developer funded project? Most of the proposed development can be serviced via Reserve Road and Horseshoe Bend Road, so this may influence the staging of the development given the long lead times to get electrical infrastructure works completed.

Yes the developer would be up for a portion of the costs, the costs are unknown at this early stage.

VicRoads are proposing to widening Barwon Heads Road. Have VicRoads had any discussions with PCA on this project especially the implications of existing power assets?

Yes VIC Roads have had discussion only with Powercor

The proposed Geelong Ring Road Extension (Bellarine Link) would affect PCA assets along Reserve Road. Have VicRoads has discussions with PCA regarding this project?

Yes VIC Roads have had discussion only with Powercor

Regards,

██████████ ██████████
██████████ Pty Ltd



██████████ ██████████
██
██

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From: ██████████ > On Behalf Of URD
Sent: Wednesday, 4 July 2018 4:41 PM
To: ██████████
Subject: RE: 18158-01 Powercor application MARSHALL PRECINCT STRUCTURE CR:306769643

Hi ██████████,

The information that I can provide for this precinct:

- Overhead 66kV line (GTS – GLE No. 2) passes through this precinct (shown as red line on GIS plan below). Access will need to be maintained to these poles.
- GLE13 22kV feeder is shown purple on the GIS plan below.
- Overhead 22kV line in Marshalltown Road is GLE13 feeder backbone conductor and suitable for connecting to.
- Overhead 22kV line in Tannery Road is GLE13 feeder backbone conductor and suitable for connecting to.
- Overhead 22kV line in Horseshoe Bend Road is GLE13 feeder backbone conductor and suitable for connecting to.
- Overhead 22kV line in Reserve Road is GLE13 feeder backbone conductor and suitable for connecting to.
- Overhead 22kV line in Drews Road off Marshalltown Road is GLE13 feeder backbone conductor and suitable for connecting to.
- Overhead 22kV line in Drews Road off Reserve Road is steel conductor and would need upgrading to connect to.
- Overhead 22kV line in Barwon Heads Road is single phase high voltage conductor and would need upgrading to connect to.
- Existing overhead lines within this precinct could be replaced with new underground assets.

- Connecting to the 22kV underground for new housing estates on the south side of Reserve Road may provide opportunities to retire some of the overhead line in Reserve Road.

I Have resent the invoice for you and you should receive it shortly

Regards,

Project Delivery Lead
Program Design and Delivery

Powercor Network Services | CitiPower Pty & Powercor Australia Ltd
72 Roseneath Street, North Geelong, VIC 3216
PO Box 185, Geelong, VIC 3220



From: [REDACTED]
Sent: Tuesday, 24 July 2018 14:57
To: [REDACTED]
Subject: FW: 18158-01 Powercor application MARSHALL PRECINCT STRUCTURE CR:306769643

Hi [REDACTED]

Have you had a chance to review this project? We haven't received an invoice yet as per the request form submitted 28th June.

We unfortunately have a very tight timeframe to provide a report to the City of Greater Geelong on whether servicing of the proposed precinct is possible and any comments on preferred staging, limitations on electrical supply etc.

I would appreciate your input.

Regards,

[REDACTED] | Project Manager
TGM Group Pty Ltd



t: (03) 5202 4600 f: (03) 5202 4691

a: [REDACTED]
[REDACTED] [REDACTED]

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From: [REDACTED]
Sent: Wednesday, 4 July 2018 4:07 PM
To: [REDACTED]
Subject: 18158-01 Powercor application MARSHALL PRECINCT STRUCTURE CR:306769643

[REDACTED]

We don't have a lot layout at this stage but attached is a map of expected uses of the different areas (refer colours).

White areas are subject to flooding or set aside for road reserves.
Green is public open space.

44 ha of higher density residential/commercial

23 ha of medium to low density residential
6 ha of mixed use commercial and light industrial

I hope that helps.

Regards,

[REDACTED]
TGM Group Pty Ltd



[REDACTED]
[REDACTED]
[REDACTED] w: www.tmggroup.com

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From: [REDACTED]
Sent: Wednesday, 4 July 2018 3:50 PM
To: [REDACTED]
Subject: Powercor application MARSHALL PRECINCT STRUCTURE CR:306769643

Hi [REDACTED],

Had a question from out network planning team.

They were just wanting to know if you had a lot layout at this stage?
We can still continue without it, it will just not be as detailed as it could be.

Thanks,

[REDACTED]
Project Delivery Lead
Program Design and Delivery
Powercor Network Services | CitiPower Pty & Powercor Australia Ltd
72 Roseneath Street, North Geelong, VIC 3216
PO Box 185, Geelong, VIC 3220



From: [REDACTED]
Sent: Friday, 22 June 2018 1:04 PM
To: [REDACTED]

Cc: [REDACTED]
Subject: 18158-01 CitiPower & Powercor Projects application CA-021657

[REDACTED]
Thank you for taking my call today.

I have lodged the job on the MySupply website under the category Estate Development and attached all council's correspondence to date. The CA number is below.

TGM have been engaged by the City of Greater Geelong to prepare a high level servicing plan for the Marshall Precinct.

I would appreciate you allocating the job to one of your team.

I can be contacted on the details below.

Regards,

[REDACTED] [REDACTED] Manager
TGM Group Pty Ltd



[REDACTED]
[REDACTED]
[REDACTED]

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From: Customer Requests Rural <crr@powercor.com.au>
Sent: Friday, 22 June 2018 12:58 PM
To: [REDACTED] >
Subject: CitiPower & Powercor Projects application CA-021657

Dear [REDACTED]

14.1 RE: Estate Development at 92 HORSESHOE BEND ROAD, MARSHALL

Thank you for lodging an online application with CitiPower and Powercor.
Your application CA-021657 has been received and has been assessed as an application for a negotiated connection service.



14.1.1 What happens next?

Your application will be allocated to one of our Customer Requests Officers to process. Once we have processed your application, we will issue you with a negotiated connection offer which will outline the scope of works, any charges payable as well as the terms and conditions under which we will carry out those works. If required, we may contact you to seek further information or clarification.

If you have any further questions, you can contact us via the "Ask an Expert" button at <https://customer.portal.powercor.com.au/mysupply> or call our Customer Requests team during business hours on 1800 771 434.

For all future applications please apply via mySupply at <https://customer.portal.powercor.com.au/mysupply>

Regards,

Customer Requests
CitiPower and Powercor Australia
www.powercor.com.au

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AusNet Services - Gas

Hi [REDACTED]

This is to confirm that our existing gas network has sufficient capacity to supply above development. I've indicated in the attached plan a supply option for your development.

[REDACTED]
Project Manager/ Estimator



AusNet Services

[REDACTED]
[REDACTED]
[REDACTED] [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] [com.au](#)

From: [REDACTED]
Sent: Thursday, 19 July 2018 2:04 PM
To: [REDACTED]
Subject: FW: 18158-01 Marshall Precinct Servicing Plan - Gas Services
Hi [REDACTED]

Are you able to help with this one?

Coral from our office put through a request 28th June.

I then sent the e-mail below to [REDACTED] at AusNet on the 4th July but have had no response.

I tried calling you a few weeks ago but you were on sick leave. Hope things are all ok now.

Regards,

[REDACTED]
[REDACTED]
TGM Group Pty Ltd



[REDACTED]
[REDACTED]
[REDACTED]

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From: [REDACTED]
Sent: Wednesday, 4 July 2018 10:01 AM
[REDACTED]
[REDACTED]
Subject: 18158-01 Marshall Precinct Servicing Plan - Gas Services

[REDACTED]

TGM Group have been engaged by the City of Greater Geelong to prepare a servicing plan for the Marshall Precinct of Armstrong Creek.

The City of Greater Geelong are proposing 1300-1500 residential lots and possibly some light industrial on the east side of Barwon Heads Road. I have attached a map of the precinct.

I am reviewing some correspondence between you and [REDACTED] (CoGG) from the start of this year, which stated that AusNet Services believed there was enough capacity and reticulation around the area to support the proposed development.

I would appreciate your confirmation that this is still the case, and advice on any barriers/limitations that you may foresee given the rapid growth of the Greater Geelong Region.

Are you also able to provide information on the current gas assets in the area, preferably as a dwg file?

Please contact me with any queries.

Regards,

[Redacted] | Project Manager
TGM Group Pty Ltd



[Redacted]
[Redacted]
[Redacted]

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AusNet Services – High Voltage Transmission Lines

From: [REDACTED]
Sent: Thursday, 5 July 2018 2:13 PM
To: [REDACTED]
Subject: RE: 18158-01 Marshall Precinct Servicing Plan - Transmissions Lines

[REDACTED],

Great to speak with you by phone yesterday.

Your summary of the status of the electricity transmission towers and lines in the vicinity of the Marshall Precinct is correct.

The transmission line is currently de-energised.

While there are no immediate plans to re-energise the lines there is a requirement to retain the infrastructure and the associated easements as they do form part of the longer term strategic transmission network design. As such we will not be surrendering the easement rights nor do we have plans or intention to remove the existing infrastructure.

Ausnet Services is not the freehold owner of the land so is not able to provide approval for the use of the land for other purposes.

Any proposed use of the land will require compliance with the restrictions of the easement, electricity safety regulations and maintain clearances as if the lines were energised.

In principal we would not object to co-usage of the easement area but any proposed use would be required to be referred to AusNet Services Land Management Group for assessment on a case by case basis.

Regards,

[REDACTED]
Property Manager



AusNet Services

Level 31, 2 Southbank Boulevard
Southbank Victoria 3006 Australia
Locked Bag No 14051 MCMC, Melbourne, Vic, 8001

[REDACTED]
[REDACTED]
[REDACTED]
www.ausnetservices.com.au

From: [REDACTED]
Sent: Wednesday, 4 July 2018 9:38 AM
To: [REDACTED]
Subject: 18158-01 Marshall Precinct Servicing Plan - Transmissions Lines

[REDACTED],

Many thanks for taking my call today.

As discussed TGM Group have been engaged by the City of Greater Geelong to prepare a servicing plan for the Marshall Precinct of Armstrong Creek.

I have reviewed correspondence between yourself and Glen Musto from earlier this year.

Thank you for confirming that AusNet Services' position now is to retain the existing transmission lines running through the precinct even though at this point in time they are not live due to the decommissioning of Alcoa, Point Henry. This is due to the huge cost in constructing these assets, and the fact that they may be used in future.

AusNet Services are still open to the potential for co-usage of the easement area for an infrastructure corridor such as drainage, sewer, water, public open space, or carparking provided that electrical safety is maintained.

I would appreciate any further information that you can provide, or any correspondence from key people within your organisation.

Regards,

[REDACTED]
[REDACTED]
TGM Group Pty Ltd



[REDACTED]
[REDACTED]
[REDACTED]

w: www.tgmgroup.com



Transmission – Easement Use

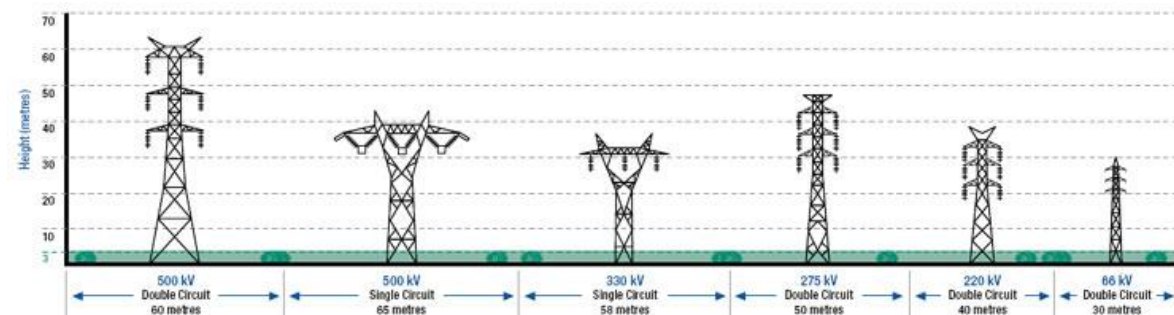
AusNet Service manages the entire Victorian electricity transmission network, which includes power station switchyards, transmission towers and powerlines, and terminal stations.

Across our network, 12,800 transmission towers run in corridors across more than 17,500 hectares of land. We refer to these corridors of land as ‘transmission line easements’ or ‘easements’ for short.

In general, we don’t own this land, so instead we compensate landowners for the rights to access our transmission network, and we restrict planting and building on easements.

Average specifications

Please refer to the image below for an overview of our transmission towers, including the average height and width for each.



Please note our easement widths allow for movement of electricity transmission conductors, which can be affected by factors such as wind, temperature and electrical load.

For specific details relating to transmission towers and powerlines on your property, check your Certificate of Title as easement measurements can vary.

Additional information can also be found in our [Guide to Living with Transmission Line Easements](#).

Planting on easements

To help us maintain clearance zones around an easement, please ensure that any planting on your property complies with the following requirements:

- vegetation must not grow to more than 3 metres
- vegetation should be scattered or clumped so that it covers no more than 10 percent of the easement area.

Clearance zones are established by Energy Safe Victoria and are outlined in the Code of Practice for Electric Line Clearance (Vegetation).

By complying with the above requirements, you will also help to reduce the need for us to access your land to remove inappropriate vegetation.

Building on easements

If you wish to build on or around an easement, please note that AusNet Services and Energy Safe Victoria have strict requirements, which are outlined below.

Permitted structures

Landscaping and paving – provided there’s sufficient clearance from conductors and towers, if you’re planning to alter the natural surface level.

Fences (subject to approval) – provided they are no more than 3 metres in height, and suitably earthed and sectionalised (if they are metal or contain metallic materials).

Sewerage, drainage or water pipes – provided they are constructed of earthenware or plastic materials.

Tennis courts (on 330 or 500 kV easements) – subject to certain specific requirements.

Tennis courts (on 220 kV easements) – provided that metal net posts are used and the minimum distance from the surrounding fence to the nearest tower steelwork is 20 metres; an elevated umpire's chair is also permitted, provided it's of all metal construction and has a metal screen above the seating position.

Lighting poles – provided there's sufficient clearance from conductors and towers; the power supply must be underground and you must be able to lower the poles the ground for maintenance.

Playground equipment – provided it's no more than 1 metre in height.

Water storage dams – provided there's sufficient clearance from conductors and towers, and the effect on the water table has been considered.

Prohibited structures

- **Houses and other buildings** – including eaves, awnings, canopies, shelters or similar*.
- **Scaffolding** – of any description.
- **Swimming pools** – both above- and below-ground, including any filtration equipment.

* *For 220 kV easements only* – domestic garages, carports and garden sheds may be permitted a limited distance onto the easement, but only if: there's sufficient clearance from towers; the structure is no more than 3 metres in height; construction is largely of non-flammable materials; and the structure isn't attached to a dwelling.

Working on easements

For public safety reasons – and to ensure a reliable electricity supply – we limit the types of activities you can undertake on your transmission line easement.

Permitted work

Farming – agricultural and grazing.

Operating market gardens, orchards and horticultural nurseries – excluding buildings.

Parking of sedan and utility vehicles – barriers of an approved design may be required to protect towers from damage by vehicles.

Operating car, boat and trailer sale yards – for 220 kV easements only.

Operating ground level sports facilities – such as football or cricket ovals, golf courses, basketball or netball courts (subject to special requirements for the design of fences, goals and lighting).

Prohibited work

Storing materials – including waste bins and stock-piled excavation materials.

Storing or handling flammable liquid or gas from bulk vehicles (on 500 kV easements only) – not permitted within 60 metres of the centre line of the transmission line,

Using vehicles and equipment exceeding 3 metres in height – a higher operating limit is subject to sufficient clearance from conductors.

Parking of large trucks and caravans – including for loading, unloading or adjusting loads.

Operating spray irrigators – of the large water gun type.

Detonating explosives – please contact us before storing or detonating explosives in the vicinity of your easement.

NBN



Confidential

25 July 2018

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

AYCA-5KHX4C: 92 Horseshoe Bend Road, Marshall: Results of your Feasibility Assessment

Thank you for considering **nbn** for the delivery of network infrastructure to your development.

We have carefully reviewed your development and undertaken a feasibility assessment to estimate the anticipated costs you may be required to pay when connecting to the **nbn™** network.

The purpose of this estimate is to provide you with early planning information and indicative costs to consider before applying for **nbn™** network infrastructure via the [online application form](#).

Based on the information you have provided on the location and size of your development we have calculated the below estimate:

DEPLOYMENT CONTRIBUTIONS

SDU \$600 @ 1,300 lots/premises = \$780,000

BACKHAUL ESTIMATE

Distance of backhaul required: 01.4 km

Distance of new build required: 0.0 km

Estimated Backhaul Cost = \$9,100 / \$7.00 per premise/lot (inclusive of GST)

TOTAL ANTICIPATED COSTS: \$789,100 inclusive of GST

Explanation of Costs

*Backhaul charges apply to the distance of infrastructure required to connect the development to the **nbn™** access infrastructure. For new developments where there is no existing **nbn™** access infrastructure (i.e. Fibre Access Node) charges will apply for this installation.*

It is important to note that this is an estimate only.

The estimate has been calculated on current infrastructure costs, the distance of your development from the existing **nbn™** network and is based on the premise count and the location of the first stage that will require service.

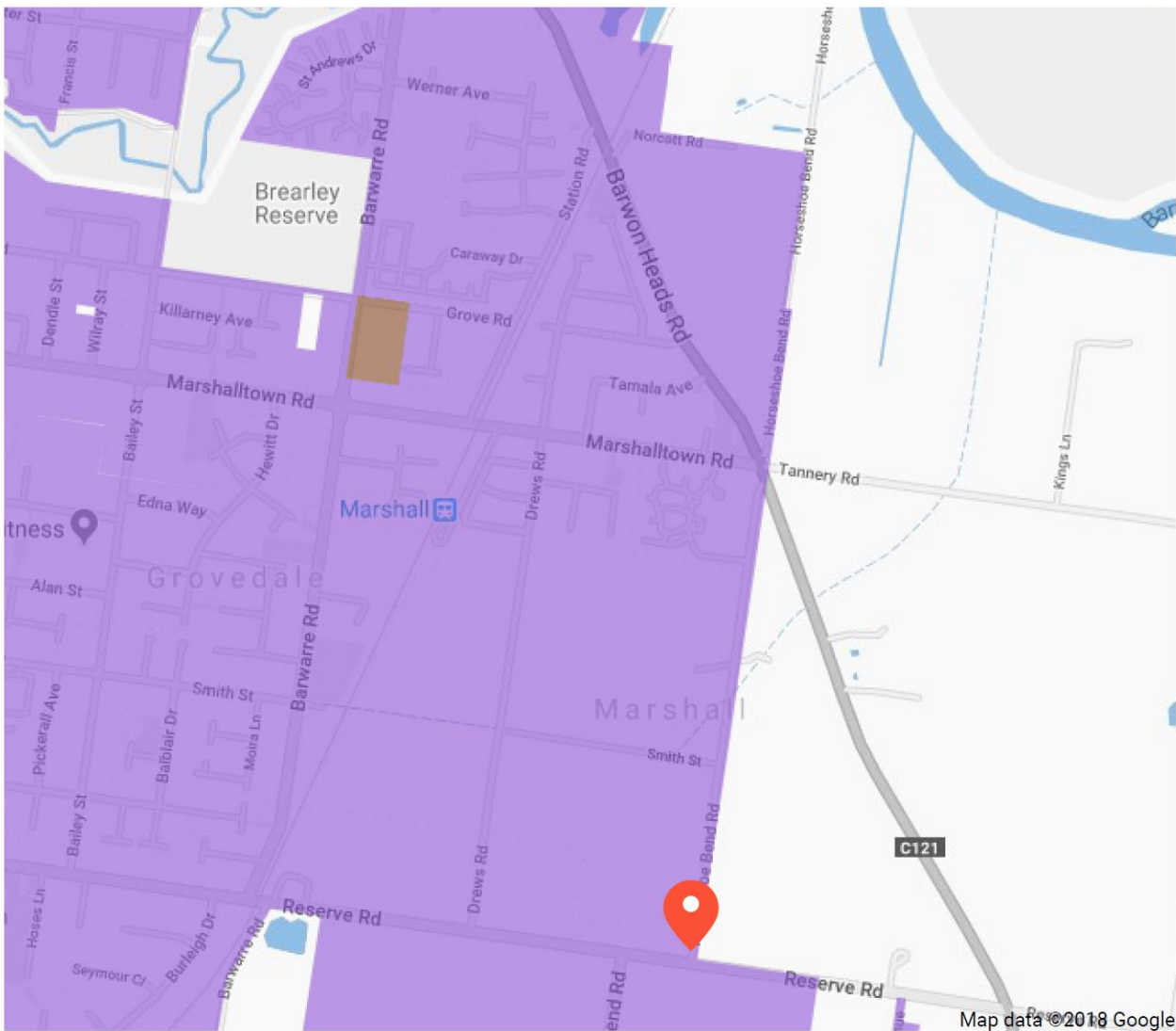
Actual amounts charged by **nbn** may change between now and the point when you ultimately enter into a contract for **nbn** to connect your development. For example, costs may reduce over time as additional network is rolled out. Conversely, costs may increase if the details, premise count or staging of your development changes. In any case, a new estimate will be provided prior to work commencing.

Once you have reviewed the above estimate please contact me to discuss the next steps.

I look forward to working with you to deliver quality broadband services to your development. Yours sincerely



**Account Manager | Enterprise & Government VIC/TAS
nbn Build Partnerships | Deployment Planning & Support**



 Reserve Road, Marshall VIC

Drag the pin for information specific to an address, or enter the full address.