TAYLORS STIZZA

Civil Engineering | Project Management

INFRASTRUCTURE AND SERVICING ASSESSMENT
FOR
MCPHERSON PRECINCT STRUCTURE PLAN (PSP 1055)
CLYDE NORTH

July, 2015

Metropolitan Planning Authority

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DOCUMENT CONTROL DATA

8/270 Ferntree Gully Road **Notting Hill VIC 3168** **(03) 9501 2800** **www.taylorsds.com.au**	**Title**	*McPherson PSP (1055) Infrastructure and Servicing Assessment*
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	Synopsis	Infrastructure and Servicing Assessment

Reference: 20206/P
Client: Metropolitan Planning Authority

Revision Table

Rev	Description	Date	Authorised
A	Draft Report	14/04/15	
B	Draft Report	28/05/15	AHM
C	Final Report	07/07/15	AHM

Distribution Table

Date	Revision	Distribution
14/04/2015	A	Metropolitan Planning Authority, Taylors
28/05/2015	B	Metropolitan Planning Authority, Taylors
07/07/2015	C	Metropolitan Planning Authority, Taylors

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Contents

1.0 Introduction

The Metropolitan Planning Authority (MPA) is preparing the McPherson Precinct Structure Plan (PSP 1055).

McPherson PSP 1055 is located in Clyde North, within Melbourne's south-east growth corridor as shown in Figure 1 below.

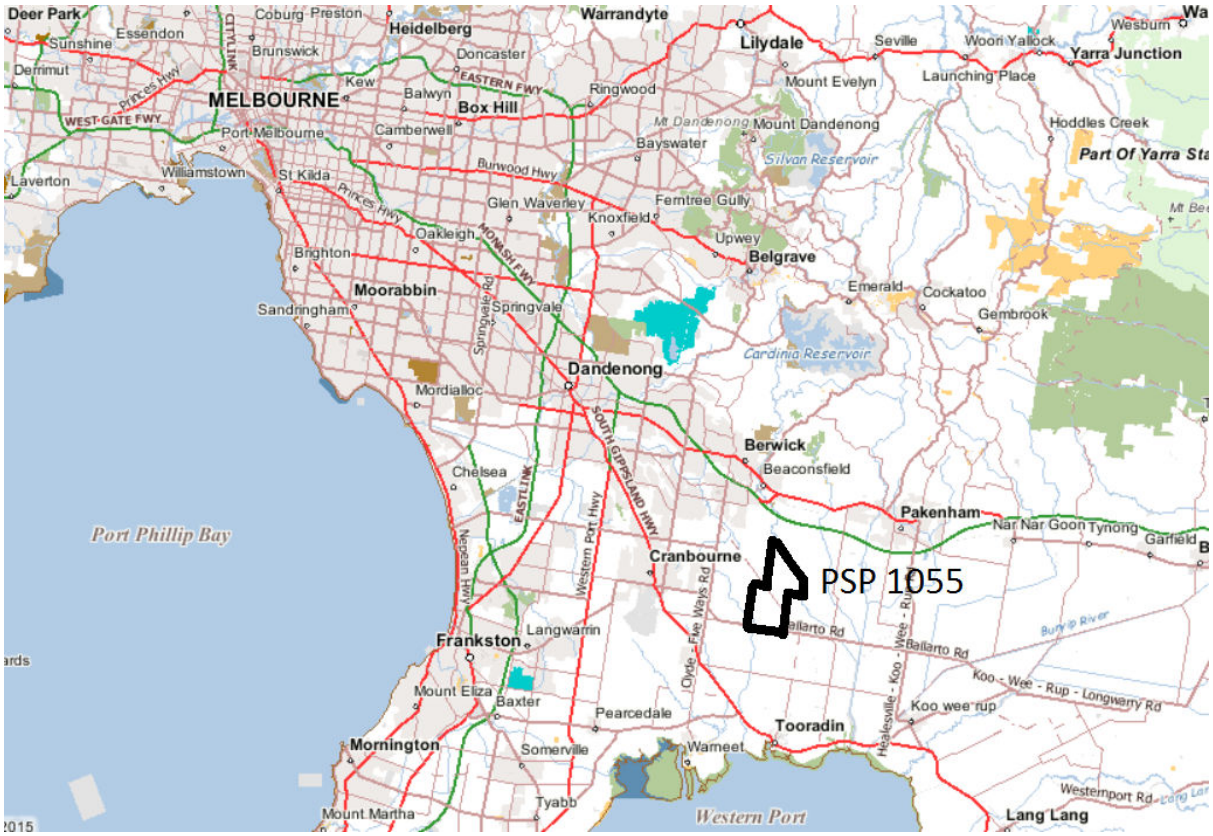

Figure 1 Site Locality Map; Source: DEPI, VicMap 2015

Taylors has been commissioned by the MPA to undertake an investigation into the availability of existing and proposed services infrastructure and to determine their ability to service the proposed McPherson precinct.

Development within the precinct will need to be provided with essential services including water, sewerage, electricity, stormwater drainage, gas and telecommunications.

2.0 Site Description

McPherson PSP 1055 is located in Clyde North within the City of Casey and covers an area of approximately 952 hectares.

McPherson PSP 1055 is generally made up of farming land and is surrounded by the approved Thompsons Road PSP 1053, Clyde Creek PSP 1054 and Clyde North PSP 13 situated to the west of the site. Refer to Figure 2 below.

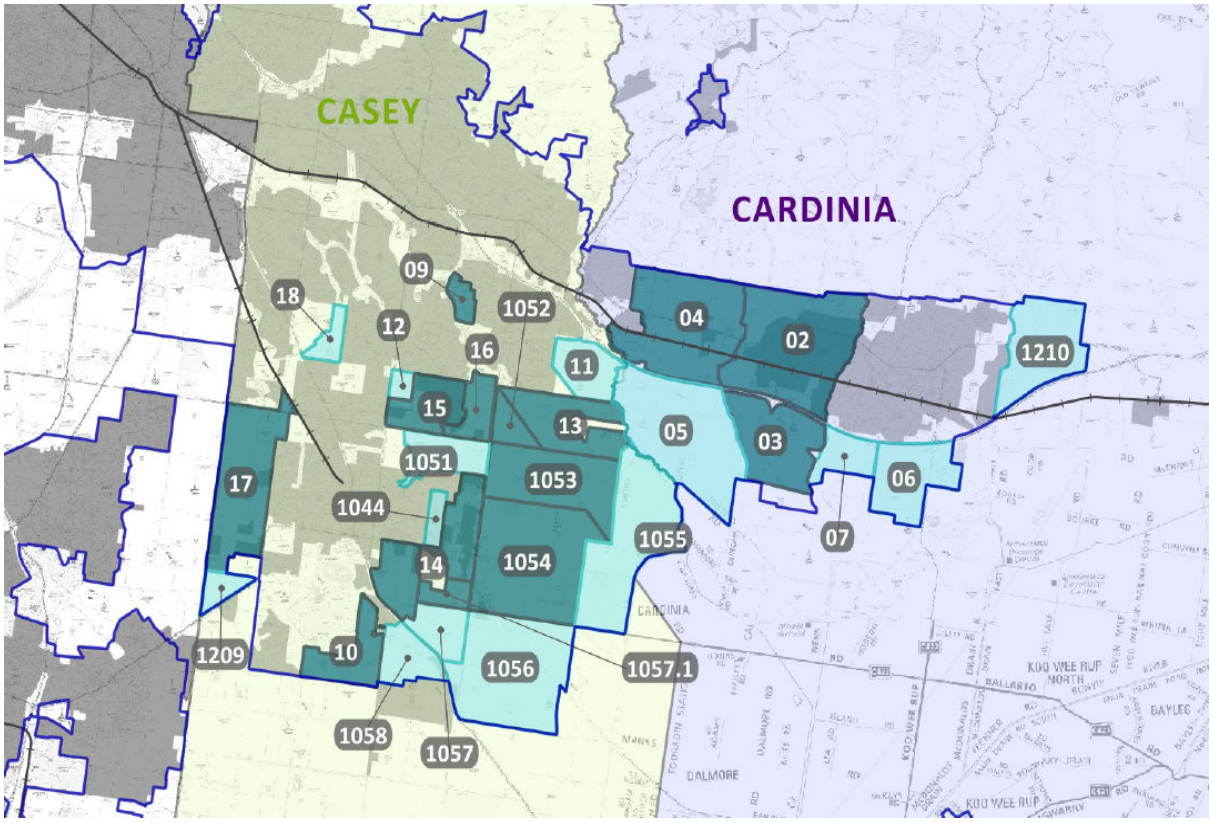

Figure 2 PSP Map; Source: www.mpa.vic.gov.au, November 2014

The precinct is bordered by Ballarto Road to the south, with Bells Road and Smiths Lane to the west. Muddy Gates Lane and McCormacks Road abuts the eastern boundary, with Cardinia Creek abutting to the north and east of the site. An aerial map of McPherson PSP 1055 is shown at Figure 3.

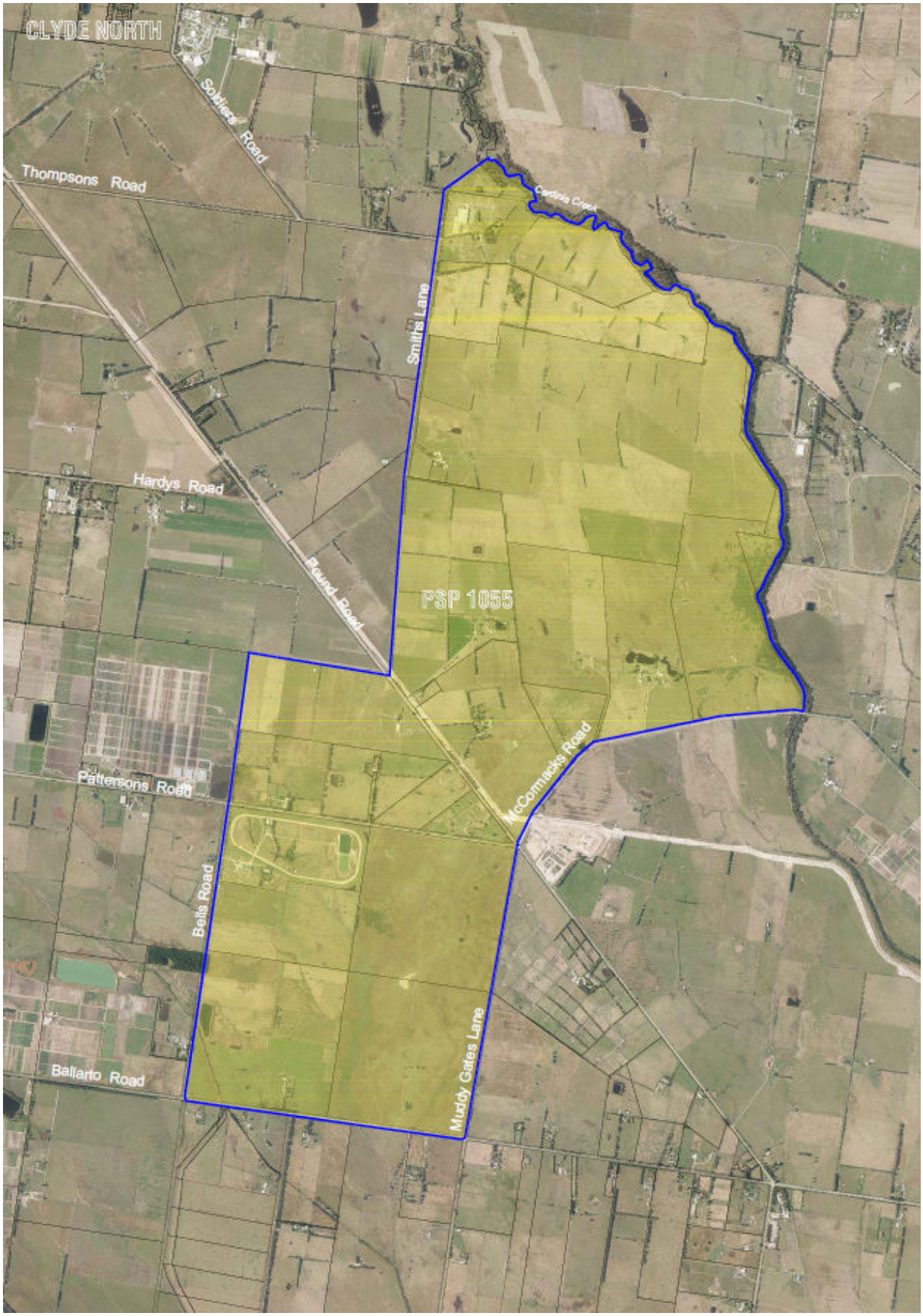

Figure 3 McPherson PSP 1055 - Aerial Map

3.0 Development Proposal

The MPA has advised that McPherson PSP 1055 is being planned predominantly for residential uses. It is expected to create approximately 11,000 residential lots and support an estimated population of around 30,000 people.

A draft Future Urban Structure Plan prepared by the MPA (January 2015) indicates plans for local town centres, areas for community facilities, along with passive and active open spaces. A regional park is proposed adjacent to Cardinia Creek to the east of the site.

A number of potential government and non-government school sites are also planned within the Precinct.

4.0 Investigation

Our investigation into the availability of services to McPherson PSP 1055 is based on high level information. The investigation comprised of obtaining existing and proposed servicing information from the sources listed below. Brief discussions were also held with the relevant service authority contacts to clarify their servicing advice.

- City of Casey;
- South East Water;
- Telstra;
- NBN Co.;
- SP Ausnet;
- APA Group;
- Melbourne Water;
- Land Victoria; and
- Metropolitan Planning Authority.

5.0 Limitations and Assumptions

This investigation has been scoped and undertaken as a high level study to provide preliminary advice on the availability of existing trunk infrastructure and proposed servicing strategies to cater for McPherson PSP 1055. There are limitations on the level of detail that is able to be given due to the nature of this review. Such investigations are reliant on information that is made available from asset owners and service authorities, with an assumption that it provides an accurate representation of existing site conditions and servicing capabilities at the time of making the enquiry.

The service authorities have advised that further consultation will be necessary at the time of functional design and detailed investigation of trunk infrastructure required to service staged development. Proposed servicing strategies for the area may need to be reviewed and amended, as development of other properties in the surrounding area may have an impact on the development potential of land in McPherson PSP 1055.

6.0 Services Infrastructure - Findings

6.1 Stormwater Drainage

Melbourne Water is the responsible authority for main drainage, floodplain and waterway management.

Melbourne Water applies development services schemes across growth areas within their catchment to effectively and efficiently manage stormwater quantity and quality.

Melbourne Water has considered the stormwater drainage requirements of McPherson PSP 1055 area.

The northern portion of the Precinct is currently in Melbourne Water's McCormacks Road DSS. This scheme is currently in interim phase and could be subject to change. The MPA has commissioned a detailed drainage strategy for the precinct which will inform this DSS.

The southern portion of the Precinct from Pound Road and including a portion of land immediately north of Pound Road is currently included in Melbourne Water's Muddy Gates Drain DSS. This scheme is currently in draft form and subject to detailed drainage studies currently being commissioned by the MPA.

A small portion of land in the south west corner of the Precinct falls within the Clyde Creek DSS.

A hydraulic contribution is charged to developers to fund scheme wide infrastructure such as trunk drains and detention basins.

A water quality contribution is also charged to developers for construction of scheme based stormwater treatment facilities such as wetlands or bio-retention basins. This water quality contribution can be offset by onsite treatment of minor stormwater flows by full or partial Best Practice Environmental Management Guidelines (BPEMG) criteria reductions.

MPA's draft Future Urban Structure Plan (23 January 2015) indicates a number of designated water treatment areas within McPherson PSP 1055. These water treatment areas treat stormwater quality and quantity. They are likely to be in the form of retarding basins or wetlands and would be incorporated as a feature within designated land estates. Depending on development staging, it may be necessary for landowners to provide temporary outfall arrangements for their estates to reduce some of the up-front costs and should downstream property access approval not be granted. Temporary drainage arrangements will be subject to approval by Melbourne Water and the City of Casey and the developer would need to fund all costs associated with any works that are deemed temporary.

It is expected Melbourne Water will finalise their development services schemes to cater for McPherson PSP 1055 prior to any development commencing.

6.2 Sewer

South East Water is the responsible authority for sewerage facilities and has drafted an ultimate servicing strategy plan (November 2014) for this area as illustrated in Figure 5 below.

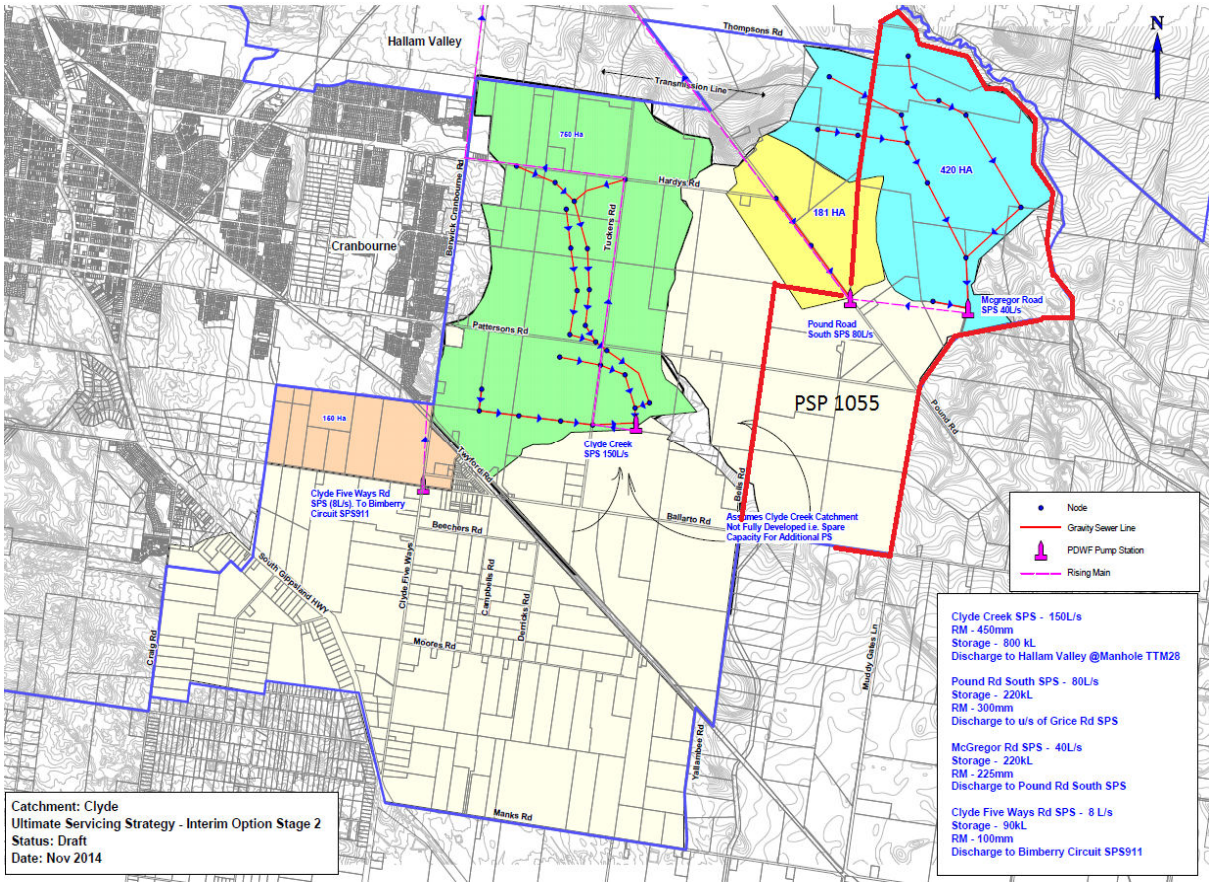

Figure 5 Sewer Servicing Strategy – Interim Option; Source: South East Water email 4th February 2015

South East Water has indicated the sewers shown on the draft servicing strategy plan are indicative only. They will be working closely with developers within McPherson PSP 1055 to determine the preferred location for these key assets.

This draft sewer servicing strategy plan indicates proposals for two separate interim sewer pump stations (SPS) to cater for anticipated initial development within the northern part of McPherson PSP 1055. SPS's, also known as lift stations, are required to lift sewage from a lower to higher level to assist normal gravity-flows, using pressurised rising mains.

The precinct's northern catchment would be serviced by a network of gravity-fed branch sewers discharging southerly into a SPS denoted in Figure 5 as McGregor Road SPS located near the regional park. Flows will in turn discharge westerly via a 225mm diameter rising main to a SPS denoted Pound Road South SPS. This SPS is to be located on or around Pound Road and Smiths Lane. From the Pound Road South SPS, a 300mm diameter rising main will then transfer flows along Pound Road in a north westerly direction to the Grices Road SPS

and then to the Hallam Valley Main Gravity Sewer system, located external to McPherson PSP 1055.

A number of developers within the surrounding PSP area have prepared a joint submission to South East Water, proposing to consolidate the two separate SPS's to a single SPS solution within McPherson PSP 1055. The single SPS would likely be located further south along Pound Road, near McCormacks Road. South East Water has indicated they are considering this single SPS proposal, however, this option has not been confirmed and is pending further analysis by South East Water to determine the implications such as the excessive depths that would be required for the single SPS and connecting branch sewers.

The precinct's southern portion will be ultimately serviced by a SPS located on Ballarto Road (Ballarto Road East PS). This SPS at Ballarto Road forms part of the sewer servicing strategy for the approved Clyde Creek PSP 1054 adjacent to the site. South East Water advises the Ballarto Road East PS will either transfer flows through a series of sewer infrastructure to the Hallam Valley Main Sewer system to the north, or will pump flows into a potential local treatment plant to the south.

The rising mains and SPS infrastructure will be "shared assets" and will be reimbursable to the developer in accordance with the policy at the time of constructing the asset.

Ultimately, South East Water is considering the option of a local treatment plant to service the region. A treatment plant treats raw sewage to produce recycled water. South East Water is continuing to examine the option of a local treatment plant to be located south of the precinct as well as the option of pumping sewage to the Eastern Treatment Plant (ETP) located off Thompsons Road in Carrum. South East Water advises that although the exact size and location for a potential local treatment plant has not been determined, it would be located outside of the McPherson PSP 1055 area and therefore should not impact on the PSP.

Once the local treatment plant is operational, South East Water expects to decommission any interim sewer pump station within McPherson PSP 1055. However, should South East Water prefer to transfer flows to the ETP, they may consider retaining the interim sewer pump station in operation.

6.3 Potable Water

South East Water is the responsible authority for reticulated potable water supply.

South East Water indicates there is currently no appropriately sized potable water infrastructure within or in close proximity to McPherson PSP 1055 suitable for connection to service residential development. Economical servicing to McPherson PSP 1055 will be dependent on the rate of development and water mains extension from the west as part of the adjoining Thompsons Road PSP 1053 and Clyde Creek PSP 1054.

Long term servicing of the McPherson PSP 1055 and the wider Clyde area will be provided by a major transfer pipeline currently proposed along Pattersons Road with a connection into the existing desalination pipeline located at Pound Road. Refer to Figure 6 below. The connection into the existing desalination pipeline and associated new major transfer pipeline along Pattersons Road will be delivered once critical development has occurred within Clyde.

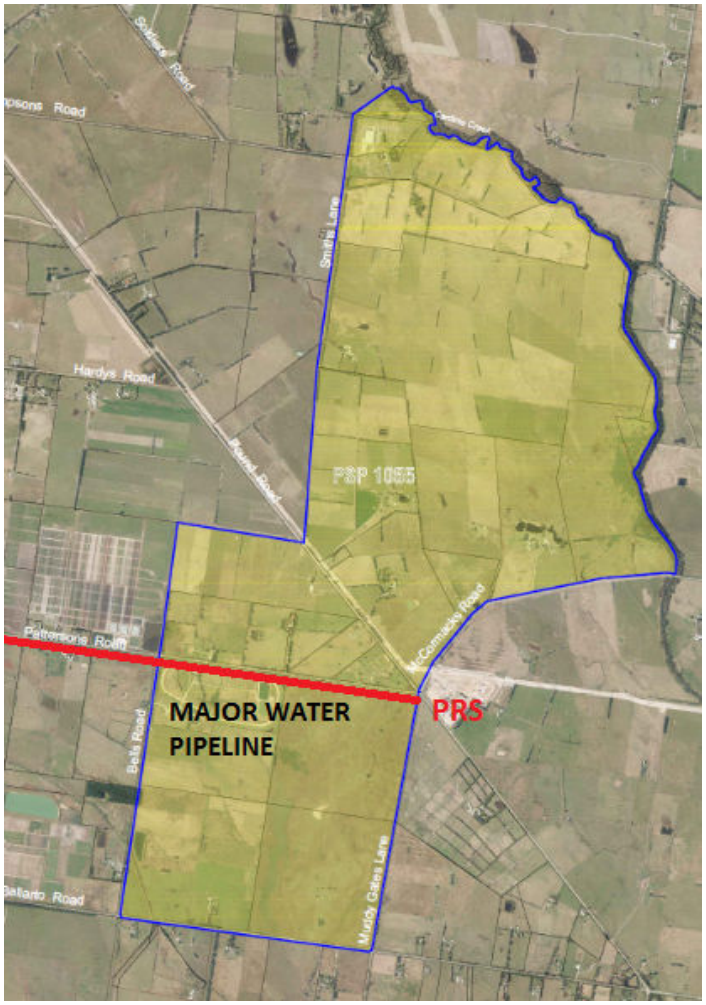

Figure 6 Major Potable Water Supply Strategy

6.4 Class A Recycled Water

South East Water is the responsible authority for Class A recycled water. The recycled water strategy for this area is still under development. There is currently no recycled water infrastructure within or in close proximity to McPherson PSP 1055.

South East Water proposes to position a recycled water tank within McPherson PSP 1055, which will supply recycled water to the larger Clyde Growth Area.

South East Water's preferred sites for the recycled water tank is next to the existing electrical transmission easement located in the northern part of the Precinct.

South East Water propose to use this easement as a pipe track to transfer recycled water from the Eastern Treatment Plant at Carrum and to supply Clyde and the Pakenham Officer area.

The estimated site area for the recycled water tank is approximately 160 metres x 80 metres (1.28Ha). This is expected to fit two 15 megalitre tanks and would accommodate any likely modified tank size once confirmed by South East Water.

Until recycled water becomes available to McPherson PSP 1055, it is envisaged that initial development within the precinct may require the developer to install recycled water pipes throughout the proposed development that would carry recycled water by a cross connection with the potable water supply system.

6.5 Electricity

AusNet Services (formerly SP Ausnet) is the responsible authority for the provision of electricity infrastructure to supply McPherson PSP 1055.

The cost of extending and augmenting electrical infrastructure will generally be borne by developers, in accordance with the supply policy at the time of development. AusNet Services currently contributes $980 per lot towards the low voltage (LV) reticulation costs of residential subdivisions. Developers are eligible to receive this as a rebate from AusNet Services once construction is completed and a final audit pass result has been received. AusNet Services will generally fund the high voltage (HV) works within each residential housing estate based on AusNet Services HV reimbursement schedule and is generally offset against the electrical construction costs.

AusNet Services advises the precinct can be serviced by extension and augmentation of existing electrical infrastructure from the west of the site.

An existing zone substation is located within the adjacent Clyde North PSP 13 and is proposed to supply the whole area with its future electricity capacity needs. The zone substation currently has two transformers and a third transformer is proposed to cater for the ultimate load for McPherson PSP 1055 when demand requires.

The McPherson PSP 1055 area has existing dedicated overhead services, but these only have capacity for existing rural zoning and generally will not suit augmentation to supply proposed housing development.

An existing AusNet Services transmission line easement with transmission towers and 66kV overhead lines traverses the northern part of the precinct. There will be tight restrictions on development within or near this transmission line easement. Certain structures and infrastructure will be permitted within the transmission line easement, such as landscaping, fencing, sewerage, drainage and water mains, lighting poles and water storage dams. However, houses and other buildings are prohibited. AusNet Services will need to be consulted with any future development proposal of those properties encumbered by this electrical transmission easement.

AusNet Services advise that augmentation of the existing 66kV overhead power lines will be required within the transmission easement to create a new overhead feeder from Tuckers Road to the McPherson PSP 1055 area to service the northern portion of the precinct.

There is also an existing 22kV line aligned north-south along Tuckers Road. AusNet Services advise it will be possible to extend 22kV feeders from Tuckers Road in an easterly direction along Pattersons Road and Ballarto Road to service the southern portion of McPherson PSP 1055. Refer to Figure 8.

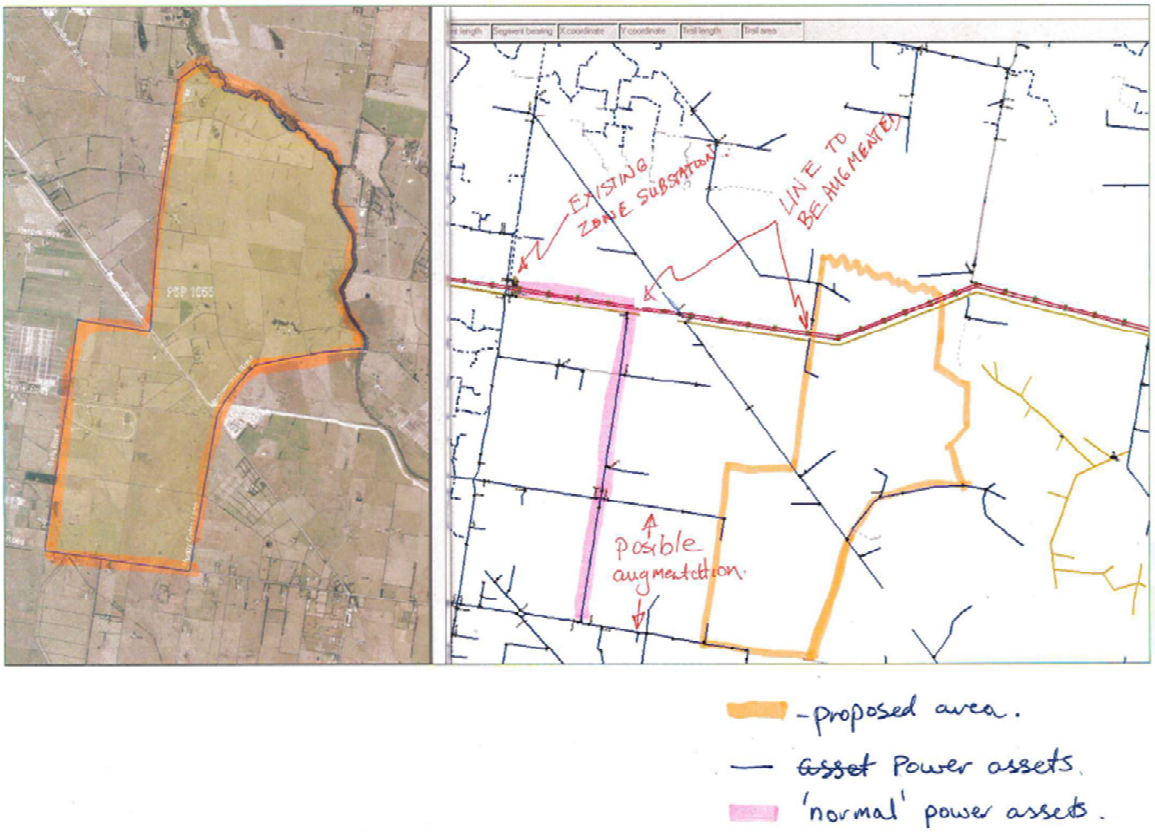

Figure 8 Electrical Servicing Sketch Plan; Source: Harry Iliadis, SP Ausnet email 5th August 2014

In AusNet Service's long term planning, it is expected that a new zone substation will be constructed northeast of McPherson PSP 1055 in Officer South. This is presently forecast in the next 10 to 20 years.

6.6 Telecommunications

At this stage, NBN Co. ('NBN') has advised they will provide telecommunications infrastructure to McPherson PSP 1055. Developers will continue to have the option of choosing between competing infrastructure providers, including NBN, to service their developments.

The Federal Government has outlined a Telecommunications Infrastructure in New Developments ("TIND") Policy to provide telecommunications infrastructure to new developments. The TIND Policy is currently under review and a new version is expected to be released on 1st July 2015. Under this TIND Policy, NBN is responsible for the installation of fibre in new developments in certain circumstances, including all premises in NBN's fibre footprint for new developments of 100 or more premises.

The Government has introduced infrastructure charging to promote fairer and more effective competition in the provision of telecommunications infrastructure in new developments.

As of the 1st March 2015, NBN levied the following deployment charges on developers for infrastructure in new developments and these will likely apply to development in McPherson PSP 1055;

- Single Dwelling Units (SDU) : $600 per premise (including GST).
- Multi Dwelling Units (MDU) : $400 per premise (including GST).
- It is likely that 50 percent of the deployment charge will billed at project acceptance by the developer. A final invoice for the remaining 50 percent will be generated once practical completion of the works has been achieved.

As of the 1st July 2015, the following NBN costs will also take affect;

- A one-time end user connection recovery cost of $300 inclusive of GST will apply to each lot within new developments. It is anticipated the retail service provider (RSP) will pass this cost on to the end-user at the time of connection.
- Where there is no backhaul available, NBN may charge a co-contribution of up to 50 percent of the first $1000 per lot in the PSP and 100 percent of backhaul costs in excess of $1000 per lot. Backhaul is the interconnection from the development site to the closest point of suitable supply in NBN's network.
- Backhaul charges is likely to be invoiced in three instalments. The first invoice will be sent to the developer at precommencement of the works; the second issued at twelve months from commencement and the last invoice at either twenty-four months from commencement or when the project reaches practical completion, whichever is the earliest.

Developers will continue to meet the cost of pit and pipe infrastructure. Ownership of the pit and pipe infrastructure will need to be transferred to NBN prior to NBN installing fibre. The developer will be responsible for a 6 month defects liability period from practical completion for the pit and pipe work.

McPherson PSP 1055 is adjacent to the Cranbourne Fixed Line Servicing area, approximately 10 kilometres away from the exchange, meaning that it is within NBN's fibre footprint and can be serviced. NBN advise they have received a number of developer agreement applications for properties in the neighbouring PSP's and generally within a 5 kilometre radius of McPherson PSP 1055. It is therefore highly likely that the backhaul to connect initial development in McPherson PSP 1055 will be in close proximity to the precinct.

6.7 Gas

APA Group is the responsible authority for the provision of gas infrastructure to McPherson PSP 1055.

APA advises that future connection will require substantial extension of the reticulation network with supply mains. The nearest supply main is a 100mm diameter main in Tuckers Road, which APA advise is not suitable to supply McPherson PSP 1055 as it will most likely be utilised by development in the immediate Thompsons Road PSP 1053 and Clyde Creek PSP 1054.

The nearest supply main that may be suitable for immediate supply to McPherson PSP 1055 is within Clyde Road, Berwick, some 6 kilometres away. It is likely that external mains will be extended along Thompsons Road and Smiths Lane and completed progressively by developers in the approved Thompsons Road PSP 1053 area. Hence, the ability to extend gas reticulation to McPherson PSP 1055 will be dependent upon development of the adjacent PSP's of Thompsons Road PSP 1053 and Clyde Creek PSP 1054.

A new city gate facility will be required to supply the demand to McPherson PSP 1055, however APA indicate it will be located in either the Thompsons Road PSP 1053 or Clyde Road PSP 1054 area. A city gate is a facility that regulates and reduces the pressure of the natural gas from its transmission rate (from 200 to 1,500 pounds per square inch) down to a rate more appropriate to consumer usage. The city gate also adds sour-smelling Mercaptan to the naturally odourless gas to make it easier to quickly sniff out a natural gas leak. The timing for this installation will depend on how this overall area develops. APA has advised that concept designs have not been undertaken to date, so a number of issues such as the set route and calculated measurement length has not been determined.

Upstream augmentation of gas infrastructure will be required for McPherson PSP 1055, including Thompsons Road PSP 1053 or Clyde Road PSP 1054. The type, extent and timing of augmentation will depend upon staged development of all adjoining precincts within this Clyde area.

7.0 Conclusion

McPherson PSP 1055 area can be supplied with all services investigated to cater for planned residential development. Key servicing authorities have already begun initial planning for this area. Economical connection to existing services will be dependent on the progress of development within the adjacent Thompsons Road PSP 1053 or Clyde Road PSP 1054. Key findings, including constraints and opportunities determined for each asset are summarised below.

7.1 Sewer

- There is currently no sewer reticulation infrastructure within or in close proximity to McPherson PSP 1055.
- South East Water's draft sewer servicing strategy indicates PSP 1055 can be initially serviced with gravity sewers, sewer pump stations and rising mains.
- A proposal for a single pump station solution is being considered by South East Water but has not been approved.
- A future local treatment plant is being considered to ultimately service the region.

7.2 Potable Water

- There is currently no suitable potable water reticulation infrastructure within or in close proximity to McPherson PSP 1055.
- The ability to economically provide potable water supply to the precinct will depend on development within the adjacent PSP 1053 and 1054 and extension of mains along Thompsons Road and Smiths Lane by others.
- Long term servicing to PSP 1055 will be provided by a major water transfer pipeline once critical development has occurred within Clyde.

7.3 Class A Recycled Water

- There is currently no recycled water infrastructure within or in close proximity to McPherson PSP 1055.
- South East Water's recycled water strategy is still under development.
- Two 15 mega litre tanks are being considered to be positioned within the northern part of the precinct to supply recycled water to McPherson PSP 1055 and the larger Clyde Growth Area. This requires a land footprint of 80m x 160m (1.28Ha).
- For initial development, recycled water supply could be provided by a cross connection with the potable water supply system until recycled water supply becomes available to the area.

7.4 Electricity

- McPherson PSP 1055 can be serviced with electricity by extension and augmentation of existing overhead infrastructure in Tuckers Road located to the west of the precinct.
- An existing zone substation located in Clyde North PSP 13 will be upgraded with a third transformer to supply the ultimate load requirements for McPherson PSP 1055 when demand requires.
- A new zone substation is planned to be constructed in Officer South within the next 10 to 20 years.

7.5 Telecommunications

- McPherson PSP 1055 can be serviced with telecommunications by extension of proposed infrastructure from pending development in adjoining PSPs 1053 and 1054.
- The precinct is adjacent to the Cranbourne Fixed Line Servicing area and will fall within the fibre servicing footpath.
- NBN will levy development charges on developers effective 1st July 2015.
- The developer is expected to cover the cost of design, trenching and pit and pipe installation.

7.6 Gas

- McPherson PSP 1055 can be serviced with gas supply, although this will require substantial extension of supply mains, some 6 kilometres away within Clyde Road, Berwick.
- The feasibility of providing gas supply to the precinct will be depend on development within the adjacent PSP's 1053 and 1054 and extension of mains along Thompsons Road and Smiths Lane by others.

Key Contacts List

Sewer, Water, Recycled Water

- Heath Miles – Team Leader, Water Growth Planning, South East Water
- Nick Aidonopolous – Team Leader, Sewer Growth Planning, South East Water
- Lou Giannone – Land Development Team Leader, South East Water
- James Westcott – Team Leader, Water Growth Planning, South East Water

Electricity

- Harry Iliadis – Design Engineer, Service Delivery, SP Ausnet

Telecommunications

- Neil Peters – NBN
- Nocolas Marie - NBN

Gas

- Rebecca May – Integrity & Planning Manager, APA Group