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Precinct Structure Plan (PSP)
No. 1080 Kororoit
Servicing and Utilities Report

Reference: 235650
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Revision: 4
9 September 2014

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MPA METROPOLITAN PLANNING AUTHORITY

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Document prepared by:

Aurecon Australia Pty Ltd
ABN 54 005 139 873
Aurecon Centre
Level 8, 850 Collins Street
Docklands VIC 3008
PO Box 23061
Docklands VIC 8012
Australia

T +61 3 9975 3000
F +61 3 9975 3444
E melbourne@aurecongroup.com
W aurecongroup.com

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Aurecon Australia Pty Ltd
ABN 54 005 139 873
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Level 8, 850 Collins Street
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PO Box 23061
Docklands VIC 8012
Australia
T +61 3 9975 3000
F +61 3 9975 3444
E melbourne@aurecongroup.com
W aurecongroup.com

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1 Executive Summary

The Kororoit precinct comprises 1,181 hectares of land with a projected yield of up to 9,000 lots and population forecast of 25,000 people.

The precinct is located south of Taylors Road, east of the proposed Outer Metropolitan Ring (OMR) road reservation, north of the Western Highway and west of the Caroline Springs development front.

The precinct is located centrally within the Melton growth corridor with direct access to the Western Highway via the existing Hopkins Road interchange. The precinct will benefit from the future Caroline Springs train station at Robinsons Road.

The Western Growth Corridor Plan (GCP) proposes a north-south arterial road link extending north from the existing interchange at Hopkins Road through the precinct.

The land to the east and Melton to the west is generally highly developed and serviced while on north and south sides, the land is largely undeveloped.

Based on the servicing investigations undertaken, there are no major prohibitive constraints to future development within the Kororoit precinct.

Existing servicing infrastructure is, in some cases, limited or at capacity however early planning work is reasonably well advanced and indicates that the precinct can be supplied with all services investigated within the scope of this report.

2 Introduction

2.1 Project Overview

A PSP is a master plan for a whole community and is usually for between 10,000 to 30,000 people. Precinct structure planning is fundamental to making Victoria's growth areas great places to live, both today and for future generations. PSP's lay out roads, shopping centres, schools, parks, housing, employment and the connections to transport.

The development of greenfield sites, along with urban consolidation, is an important part of the State Government's strategy to address strong population growth and the housing and employment demands that flow from this.

One important aspect being investigated as part of the PSP process is the planning and provision of adequate servicing infrastructure for these rapidly developing precincts. New developments place additional load on existing services infrastructure which often necessitates augmentation of the infrastructure to varying degrees.

This report aims to identify the high level opportunities and constraints to development with respect to services infrastructure. The capacities of existing services and the likely future infrastructure requirements have been assessed through consultation with the relevant authorities and provided within this report. Preliminary staging and high level cost information has also been provided where available from service authorities.

The utilities that have been investigated as part of this report are as follows:

- Potable Water
- Sewer
- Recycled Water
- Power
- Gas
- Telecommunications.

The scope of this report does not include investigations regarding stormwater drainage, traffic and transport planning or Integrated Water Cycle Management (IWCM) planning as these investigations will be undertaken separately for the PSP. We have included occasional limited commentary regarding these aspects of the PSP where relevant however.

2.2 Site Overview

The Kororoit precinct comprises 1,181 hectares of land with a projected yield of 9,000 lots and population forecast of 25,000 people.

The precinct is located south of Taylors Road, east of the proposed Outer Metropolitan Ring (OMR) road reservation, north of the Western Highway and west of the Caroline Springs development front.

The precinct is located centrally within the Melton growth corridor with direct access to the Western Highway via the existing Hopkins Road interchange. The precinct will benefit from the future Caroline Springs train station at Robinsons Road.

The Western Growth Corridor Plan (GCP) proposes a north-south arterial road link extending north from the existing interchange at Hopkins Road through the precinct.

The land to the east and Melton to the west is generally highly developed and serviced while on north and south sides, the land is largely undeveloped.

2.3 Statement of Limitations

2.3.1 Service Authority Advice

A significant portion of the information contained within this report has been obtained as a result of master planning and feasibility studies undertaken by others. Due to the high level nature of such processes, a large number of assumptions have been made by the various stakeholders providing input to this report, not all of which have been made known to Aurecon or are contained within this report.

Service authorities have made estimates of the predicted loadings that are likely to be experienced by their respective services infrastructure and sized future assets accordingly. These estimates are often based on population and development estimates, expected changes to standards and policies, assumed future population behaviour and demands, current usage trends and models, and other factors. All of these factors are subject to change which introduces significant uncertainty to the proposals outlined.

Service authorities typically have some capacity to accelerate or defer the development of servicing infrastructure dependant on a variety of factors including the rate of development within a precinct and surrounding precincts. Service authorities should be consulted directly in situations where the indicative details or timing of infrastructure presented within this assessment does not appear aligned to development requirements and staging within the precinct.

The information presented within the report is based on both written and verbal advice received from authorities over the period of time during which this report was prepared and amended and as such should be understood as high level planning advice, with varying degrees of currency and which is to be confirmed in subsequent stages of development with the relevant authorities.

2.3.2 Infrastructure Sizing and Location

The infrastructure indicated within this report is typically the highest tier of infrastructure within the precinct and includes the transmission and distribution supply infrastructure required to service the precinct. Smaller scale reticulation at allotment scale has not been indicated, however all services will obviously require significant assets at these smaller scales.

The locations of existing and proposed services are generally approximate only and are based on supplied sketches, mark-ups or verbal advice and must be confirmed with the relevant authorities in subsequent stages of investigation and design.

2.3.3 Information Not Available

Staging and costing information has been presented at various points within the report; however in many cases this information was not available from the relevant stakeholders. Staging is a dynamic consideration that relies on many factors that are sometimes beyond the scope or certainty of master planning activities.

With respect to costing advice, in the majority of cases as part of essential services legislation, service authorities will be required to bear the cost of trunk infrastructure provisions. Typical development costs will be applicable at an allotment level to be borne by developers.

2.3.4 Engineering Services Reports Evaluation

No consolidated servicing reports were available for this precinct.

3 Method of Assessment

3.1 Key Stakeholders

3.1.1 Metropolitan Planning Authority

The Metropolitan Planning Authority (MPA) is an independent statutory body with a broad facilitative role to help create greater certainty, faster decisions and better coordination for all parties involved in planning and development of Melbourne's growth areas.

3.1.2 Service Authorities

The services authorities are responsible for planning, designing, constructing and maintaining trunk supply and distribution of utilities within the precinct.

The individual service authorities responsible for services planning within this PSP have been identified within the relevant services sub-sections of Section 4 within this report.

3.1.3 Melton City Council

Melton City Council is the responsible authority for implementation of the PSP that this study will inform and is a key stakeholder to be considered in joint planning studies and discussions.

3.2 Information Sources

In producing the content within the report, the following sources of information were utilised to varying degrees:

- A Dial-Before-You-Dig enquiry was undertaken for the precinct to determine the extent of readily available services information and to determine the size and location of existing services.
- A site visit and inspection of the precinct from public roads as well as publicly available aerial and street level photography were utilised as part of a high level desktop review into the precinct.
- Correspondence, meetings and phone conversations with personnel from the various service authorities provided information with regard to future servicing strategies and master planning that are in place for the precinct.
- Accessing the websites of service authorities, industry associations and government departments assisted in providing further information with regard to the capacities of existing assets, plans for future assets, policies, standards and legislation governing development.

3.3 Information Review

Information from the various sources was examined and compared for consistency. Meetings were held with relevant service authorities to discuss the various responses and information provided and to bring further clarity to the information where necessary.

3.4 Reporting and Consultation

The information has subsequently been analysed and collated, with the various services information combined on to a common base plan. The key constraints and opportunities have been documented within this report. It is recommended the information provided in the report be reviewed prior to development stage to ensure the information presented is up to date and accurate.

4 Services Investigation

4.1 Potable Water

4.1.1 Servicing Responsibilities

Provision of water supply services to the Kororoit precinct is currently the responsibility of Western Water (WW) however the service district boundary with City West Water (CWW) is in close proximity to the precinct and as such there is a requirement to coordinate the planning approach to the precinct.

The current servicing boundary between the two authorities is located within Plumpton precinct immediately to the north.

Negotiations are continuing between CWW and WW to finalise their respective accountabilities as part of the Servicing Strategy.

The following advice is based largely on advice provided by CWW.

CWW have confirmed that they have attempted to keep their advice consistent with previous high level joint servicing strategy discussions between CWW, WW and Melbourne Water (MW).

The advice was provided to WW and their response has also been incorporated within the report.

4.1.2 Existing Servicing

There is only limited capacity available in the existing CWW and WW water supply network in the vicinity of PSP1080.

The existing CWW water supply assets include:

- A 300mm diameter main in Beattys Road
- A 300mm diameter main in Hume Drive which will be extended through the Taylors Hill West PSP as that area develops.

WW have a 600mm diameter main located in Melton Highway and also some small potable water mains with some capacity to service additional allotments.

4.1.3 Future Servicing

On-going growth within PSP 1080 can be serviced with planned augmentation to the bulk transfer and local distribution networks.

WW have indicated that small scale initial developments may be supplied from their existing small reticulation mains in conjunction with tanks.

CWW can provide supply to land (approx. 1000 lots) adjacent to existing development south of Taylors Road via the 300mm main located in City Vista Drive and the extension of the 225mm water main along Taylors Road.

The main bulk transfer augmentation works identified through the joint planning sessions between CWW, WW and MW are as follows:

- A large diameter water main along Melton Highway (estimated to be 1150mm diameter with an indicative timing of 2019)
- A pump station to increase capacity of the transfer main from Greenvale Reservoir to a proposed storage located at the Holden Tank site north of Melton Highway (see the plans within Appendix A). The indicative timing of this pump station is 2022. It is noted that the Holden Tank Site is owned by CWW.

As development occurs within the Kororoit PSP area, CWW and/or WW will upsize and augment water supply to the area as required to meet demand, with outlet distribution mains from the Holden Tank site being extended through the precinct.

Internally to the Kororoit precinct, water mains sized in the order of 300-600mm diameter should be adequate to service the new developments, with smaller water mains, servicing smaller areas within the development and individual properties.

CWW's planning and infrastructure sizing has been based on its licence boundary being extended to the OMRR. The timing of water and sewer infrastructure is generally based on information obtained from MPA, historical growth rates, sequential development occurring from existing networks and development where both water and sewer can reasonably be provided.

Should development proceed more quickly than expected, CWW has some capacity to accelerate the planning and delivery of critical infrastructure as needed to service the new areas, subject to the capacity of the existing network, the availability of suitable alignments and the capability of the developer / CWW to construct the assets.

An indicative network layout has been provided by CWW and is shown on the plans within Appendix A, with indicative sizing and locations of future water main assets. These details are subject to confirmation by CWW and WW in later stages of development.

4.2 Sewer

4.2.1 Servicing Responsibilities

Provision of sewerage services to the Kororoit precinct is currently the responsibility of Western Water (WW) however the service district boundary with City West Water (CWW) is in close proximity to the precinct and as such there is a requirement to coordinate the planning approach to the precinct. The current servicing boundary between the two authorities is located within Plumpton precinct immediately to the north.

Negotiations are continuing between CWW and WW to finalise their respective accountabilities as part of the Servicing Strategy.

The following advice is based largely on advice provided by CWW.

CWW have confirmed that they have attempted to keep their advice consistent with previous high level joint servicing strategy discussions between CWW, WW and Melbourne Water (MW).

The advice received from CWW was provided to WW for review and comment and their response has been incorporated within the report.

4.2.2 Existing Servicing

The existing backbone sewer along Kororoit Creek east of Monaghans Lane through Caroline Springs and Burnside was not planned to permanently service any land west of Monaghans Lane.

The Derrimut Interceptor Sewer (DIS) is a major existing sewer located to the south of the precinct. The primary function of the DIS is to relieve expected future hydraulic overloading in the middle section of the existing Kororoit Creek Main Sewer downstream of Burnside due to forecast development within CWW's existing service area. When the DIS was planned in 2005 it was prudently sized to cater for approximately 2000 hectares (equivalent to approximately 20,000 lots) of prospective future urban development west of Caroline Springs.

4.2.3 Future Servicing

The ultimate and permanent servicing strategy for most of the land within PSP 1080 is for a new gravity backbone sewer network to be constructed west of Caroline Springs along Kororoit Creek and tributary water courses.

The planned outlet point for this new backbone sewer network is a permanent pumped outlet located south of Kororoit Creek, within the proposed Kororoit Regional Park, and on the western side of Clarke Road. This permanent outlet will discharge to the DIS at Robinsons Road and Riding Boundary Road, Ravenhall. The pumped outlet will include a 600L/s pump station and an 8 kilometre pumped outlet.

The timing for major elements of backbone sewerage infrastructure will be development driven. CWW estimates that the permanent pumping station and outlet to the DIS would be required approximately 7 years after commencement of development in PSP 1080 and PSP 1078 which equates to an estimated 5000 total occupied lots within both precincts.

To service initial development in Kororoit, WW assets in the Rockbank North PSP may be available as these assets are planned for Water Plan 3, subject to a capacity assessment. Water Plan 3 is a plan required by the Essential Services Commission which covers the 2013-2018 period.

Initial development in the order of 3000 lots could be serviced in the short to medium term based on the available capacity of the existing sewer network within Caroline Springs. Combined development within PSP 1080 and neighbouring Plumpton (PSP 1078) to the north will be limited to approximately 5000 occupied lots by the capacity of the existing networks. It is expected that before 5000 lots are occupied, approximately 6000 lots will have been created.

The 5000 lots are expected to be serviced by extending the main sewer along Kororoit Creek (through Lawport land), and via extension of the existing branch sewers in Taylors Road and within the Aspire Estate & Villawood land south of Beattys Road.

CWW will commence the process for design and construction of the permanent outlet works as soon as development commences within PSP 1080 or PSP 1078 and after the license boundary between CWW and WW has been resolved. The works would be expected to have proceeded to tender stage within 3 years with a further 2 years to construct and commission the works however the construction phase could be brought forward if required.

Once the design for the permanent outlet works has been finalised the construction tender will be timed to best meet development needs and the hydraulic requirements for the wider network. The Upper Kororoit Creek network hydraulic model is currently being updated by CWW and is due to be remodelled and recalibrated again by approximately 2020. The hydraulic model and development rate will ultimately determine the timing for the construction phase of the permanent outlet works.

A servicing layout has been provided within Appendix A, which includes the indicative sizing and tentative locations of sewer mains within the precinct. These details are subject to further coordination and confirmation by CWW and WW in later stages of development.

4.2.4 Further Considerations

Additional considerations and key issues are provided below:

- Finalisation of the CWW and WW servicing accountabilities is required.
- Approximately 90% of CWW's servicing area in Plumpton precinct to the north naturally drains toward the south and WW's servicing area.
- Provision should be made for the alignment of the planned gravity backbone sewer network. An efficient gravity sewer backbone network generally requires access within and along drainage reserves on or about the 1 in 100 year flood level. Land designated for drainage purposes should also consider a shared designation for sewerage purposes.
- The planned permanent pumping station south of Kororoit Creek, within the proposed Kororoit Regional Park, and in the vicinity of Clarke Road, on the western side of Clarke Road, will require a site of approximately 20 metres by 50 metres to accommodate the installation and maintenance requirements of this major pumping station.

  The net amenity impact of the pumping station will be dependent on a range of factors that include but are not limited to;
  - The siting of the installation;
  - The screening of the installation by means of trees and shrubs;
  - The location and route of the access road; and
  - The buffer distance to the nearest residential properties, or areas of active open space.
  - The location and configuration of the incoming gravity pipelines and outgoing pressure main pipelines

  Potential amenity impacts may arise from the following factors;
  - Traffic and noise associated with emergency and routine maintenance activities;
  - Visual impact of above ground components of the pumping station including control cabinet and free standing roof structure, ventilation stack (typically 250/300mm diameter x 10m high circular pole), concrete paved areas, ground level steel covers over the pump wet well, site fencing, landscape planting, hard standing areas for parking and sealed road access; and
  - Potential for occasional odour (in close proximity);

  Potential for noise from normal pump operation may be discounted because the pumps will be located underground inside the reinforced concrete pump wet well and the sewer pump station will be located at a sufficient distance from existing residents to minimise issues of occasional noise due to maintenance.

  Figure 1 and Figure 2 are example photographs of CWW sewer pumping stations.

Figure 1 SPS 720 - Saltwater Coast (100L/s Sewer Pump Station)

Figure 2 SPS 709 - Jamison Way (250L/s Sewer Pump Station)

General siting and access considerations for the pumping station include the following:

- Located in close proximity to the low point of the catchment to enable efficient gravity sewer design
- The pumping station site will require 24 hour access for emergency and routine maintenance activities;
- The site will require an all-weather access road and proximity to future park visitor facilities to enable connection to Parks amenities;
- The site will include a hard standing area around the wet well suitable for an eductor truck and/or a crane truck and several light vehicles;
- Typically a major pumping station would require a stand-alone site in the order of 20m x 50m; and
- The pumping station will require access to a significant 3 phase power supply
- The pump station will avoid areas of Aboriginal heritage significance, existing and future proposed Growling Grass Frog habitat, and areas of high quality native vegetation

4.3 Alternative Water

4.3.1 Servicing Responsibilities

Provision of alternative water supply services to the Kororoit precinct is currently the responsibility of Western Water (WW) however the service district boundary with City West Water (CWW) is in close proximity to the precinct and as such there is a requirement to coordinate the planning approach to the precinct. The current servicing boundary between the two authorities is located within Plumpton precinct immediately to the north.

Negotiations are continuing between CWW and WW to finalise their respective accountabilities as part of the Servicing Strategy.

The following advice is based largely on advice provided by CWW.

CWW have confirmed that they have attempted to keep their advice consistent with previous high level joint servicing strategy discussions between CWW, WW and Melbourne Water (MW).

The advice was provided to WW and their response has also been incorporated within the report.

4.3.2 Existing Servicing

There is no alternative water reticulation in the precinct.

4.3.3 Future Servicing

CWW plans to service the area with alternative water. The source of the alternative water is likely to be a combination of recycled water from a proposed Alternative Water Production Facility located in Ravenhall and local stormwater harvesting.

The recycled water will be pumped to a Recycled Water Tank located at the Holden Tank Site (located north of Melton Highway, refer to the plans within Appendix A for approximate location).

To service initial development in PSP 1080, WW assets in the Rockbank North PSP may be available as these assets are planned for Water Plan 3, subject to a capacity assessment.

A servicing layout has been provided within Appendix A, with the indicative sizing and location of the large diameter recycled water distribution mains and the Holden Tank Site. These details are subject to confirmation by CWW and WW in later stages of development.

4.3.4 Integrated Water Cycle Management

CWW has undertaken significant planning for water, sewer and recycled water for land between CWW's existing service area and the proposed OMR.

To date a detailed Integrated Water Cycle Management Plan (IWCMP) for the precinct incorporating drainage and stormwater harvesting has not been completed.

When complete the IWCMP, where practical, will integrate drainage and Water Sensitive Urban Design (WSUD) with the active and passive use of stormwater throughout the precinct. The IWCMP will incorporate MW's drainage and waterway requirements along with CWW's water, sewer and alternative pipe networks.

The IWCMP will be developed in consultation with WW, MW, MPA, the Office of Living Victoria (OLV) and local Council with input from the relevant developer(s).

The IWCMP will influence the spatial requirements for drainage assets and corridors, parks and open space.

IWCM planning within the precinct will create opportunities for high quality outcomes in terms of liveability and environmentally sustainable development.

With reference to Melbourne's Water Future (a draft strategy paper released by the OLV), IWCM can also be a means of achieving cost effective long-term infrastructure delivery.

4.4 Power

4.4.1 Servicing Responsibilities

Powercor is the supply authority for the precinct.

4.4.2 Existing Servicing

The main Powercor supply asset in the area is the existing 22kV feeder from the Melton Zone Substation. The feeder is known as MLN21. This feeder has very limited spare capacity for additional load uptake and would require major augmentation to allow for any significant additional load uptake.

4.4.3 Future Servicing

As Powercor's existing zone substations begin to approach their maximum capacity in the future, Powercor plans to construct a new zone substation 'Rockbank East' which will be located in proximity to the Kororoit precinct. This substation will support service to Powercor's supply area in the Plumpton, Kororoit and Rockbank precincts. This zone substation will provide 12 new 22kV feeders which will radiate in a northerly manner to support the development in Kororoit precinct and adjacent precincts. As the new zone substation is established, electrical easements will be required to be maintained for the line routes and assets.

The Rockbank East Zone Substation will require an area of approximately 1 hectare (ideally measuring 100m x 100m although other shapes could be feasible). The substation is planned for 2019 based on current load forecasts, however there are many variables to consider in the timing of this asset such as load forecast, load at risk, load growth, budget etc. Land has not been acquired for this asset however Powercor has identified a possible site to MPA as being the area bounded by Hopkins Road, Sheahan Road and Cropley Lane, south of the Western Freeway. Access to, across and along the Western Freeway would also be required as these would provide future 22kV and 66kV feeder routes.

Siting influences include but are not limited to the preference for a corner site in the middle of the ultimate load area and with proximity to proposed 66kV distribution lines to allow cost effective connection with minimal environmental impact and to allow for HV feeders to radiate out in separate routes to achieve acceptable thermal ratings and cost efficiency.

Appendix A indicates the approximate location of zone substations and 66kV and 22kV distribution lines relative to the precinct, however the locations provided are highly indicative and subject to further negotiation and discussion between the relevant stakeholders.

As Kororoit and neighboring PSP areas are fully developed, the proposed Rockbank East zone substation will have insufficient capacity to provide the required supply, hence another zone substation 'Rockbank' will be required.

Powercor has identified a possible site for a new zone substation 'Rockbank', bounded by Leakes Rd to the East, and the Western Freeway to the North, and within the 'Rockbank' PSP. There are future plans to run 66kV powerlines down Leakes Rd towards Melton, and so this site would be ideal as the 66kV powerlines would run beside the 'Rockbank' zone substation.

Further information regarding this substation is likely to be supplied within the Rockbank PSP.

4.4.4 High Voltage Transmission Easement

There is an existing 154m wide high voltage transmission easement located on the east side of the precinct. SP AusNet is the responsible authority for the high voltage transmission lines located within this easement.

The high voltage transmission easement presently has two 500kV transmission lines however these assets form part of Victoria's electricity transmission network infrastructure and are not available for local supply.

This easement is planned to accommodate an additional 500kV transmission line to the east side of the existing lines and an additional 220kV transmission line on the west side within the total easement width of 154m. It is not known when these future lines will be required however the existing easement already accommodates a 32.5m clear width from the eastern boundary of the easement to the future 500kV service and 20m clear width from the western boundary of the easement to the future 220kV service.

The constraints imposed by this easement and the transmission line assets (including existing and future assets) are identified in the following paragraphs.

Generally speaking, services crossing the transmission easement at right angles are not a problem, but if running parallel to the transmission lines they are required to be located outside the easement. This applies particularly to metallic services due to electrical induction issues.

Roads crossing the easement are generally acceptable subject to a vertical clearance of 15 metres from the overhead conductors at road level. For roads running parallel, limited encroachment into the easement may be acceptable subject to detailed applications. The amount of encroachment may vary depending on the actual location and length of road, but 6 metres is acceptable as a general rule of thumb.

If the easement is to be landscaped following a development, the main issues are restricting the height of any trees to species that have a maximum height of 3 metres, and maintaining sufficient vertical clearances (minimum of 15 metres) for mounds etc. proposed as part of the landscaping. Permanent access to transmission towers also needs to be maintained.

Further Considerations

Supply of power across Kororoit Creek will be facilitated for, either by crossing overhead, or through the inclusion of 22kV conduits attached to a bridge crossing.

Easements will be required for both 22kV and 66kV lines throughout the precinct and Powercor would welcome the involvement of MPA in the land acquisition and easement creation processes. Road reserves may be used, which will reduce the requirement for easements.

Jemena is a supply authority for part of Plumpton precinct to the north and it is likely that there will be benefits in arranging a joint planning study between MPA, Jemena and Powercor in the near future.

4.5 Gas

4.5.1 Servicing Responsibility

SP AusNet is the responsible authority for provision of gas distribution and reticulation infrastructure within the precinct.

4.5.2 Existing Servicing

There is currently no reticulated gas supply within the Kororoit precinct, however extensive gas reticulation has been provided to established precincts immediately to the east such as Caroline Springs.

The Plumpton City Gate (also referred to as the Taylors Road City Gate) is located in proximity to the intersection of Taylors Road and Sinclairs Road on the north side of the precinct and is a metered point of supply for SP AusNet from the Victorian gas transmission network. A 200mm diameter supply main connects the city gate to Caroline Springs. Another city gate is located adjacent to the intersection of Melton Highway and the gas transmission easement which supplies gas into Plumpton precinct to the north.

4.5.3 Future Servicing

Limited servicing advice is available regarding reticulation gas supply planning to Kororoit. At the time of writing it is our understanding that no planning has been undertaken for gas reticulation networks throughout the precinct although it is envisaged that adequate supply capacity is available to service the precinct.

The primary point of supply will be from the Plumpton City Gate. It is anticipated that the existing city gates will have adequate capacity to supply the entire precinct.

Upgrades to the city gate infrastructure will be confined to the compounds and will be undertaken by SP AusNet as development proceeds. A 20m buffer is desirable from the outer fence of a city gate compound for safety purposes and noise attenuation.

As development proceeds within the Kororoit precinct, SP AusNet will reticulate gas supply throughout the precinct from the distribution mains. Supply mains sizes are expected to be in the order of 180mm diameter, with reticulation mains in the order of 63mm to 125mm.

In general, existing or proposed thoroughfares will be utilised for any proposed supply mains with reticulated assets traditionally located at a 2.10 metre offset from title boundary within the road reserve. High pressure distribution mains are expected to be located within existing or proposed thoroughfares also.

The southern end of the Kororoit precinct will be additionally serviced by an existing large diameter 180mm high pressure supply main located in Rockbank Middle Road.

Further information on street layouts and housing density is required before SP AusNet can estimate and confirm the requirements for reticulation mains and additional city gate stations.

4.5.4 Gas Transmission Infrastructure

The APA Group is responsible for the gas transmission assets which are located within the precinct.

A key Australian Standard governing the pipeline industry is AS 2885 and the reader is referred to this standard for a more comprehensive understanding of the requirements of pipeline design, construction, testing, operations and maintenance.

The 150mm diameter Deer Park – Sunbury transmission pipeline is a steel pipeline located on a north-south alignment within the gas easement to the east of Sinclairs Road. This pipeline has an operating pressure of 7390kPa and was assessed as having a location class of R1 when last reviewed in 2011.

The 500mm diameter Truganina-Plumpton transmission pipeline is also located within this easement and has an operating pressure of 10,200 kPa and location class of T1 when constructed in 2012. The 500mm diameter pipeline terminates at the Plumpton City Gate adjacent to Taylors Road. APA Group plan to extend this pipeline towards the north within the existing easement through the neighbouring precinct of Plumpton.

It is noted that the location class of these pipelines is subject to periodic review and reassessment. APA Group should be contacted to ascertain the latest location class and measurement length information.

These pipelines are assigned a ‘measurement length’ based on the size, operating pressure and the implications of a full bore pipe rupture and subsequent explosion. Certain development types are prohibited within one measurement length of the pipeline without risk assessment and safety management plans being prepared. The measurement length for the 500mm pipeline is approximately 571m, while the 150mm diameter transmission pipeline has a measurement length of approximately 164m.

South of Taylors Road, both pipelines are present and hence the 571m measurement length and T1 location class of the 500mm pipeline is applicable throughout the Kororoit precinct in conjunction with the 164m measurement length and R1 location class of the 150mm diameter pipeline. To the north of Taylors Road within the neighboring Plumpton precinct, only the 150mm diameter pipeline is present, hence a 164m measurement length is applicable with R1 location class.

It is noted that the current location classes of the pipelines restrict T2 development such as high density residential development within a measurement length of the pipeline. Proposals to locate T2 or S type development within a measurement length of the pipelines would trigger a safety assessment and Safety Management Study as per AS 2885 requirements.

Preliminary calculations and advice from the APA Group indicates that T1 development is likely to be acceptable within the respective measurement lengths of both pipelines, assuming that directional drilling and excavator usage is controlled appropriately however neither pipeline can retrospectively meet the T2/S standard without further controls as per AS 2885.

It is recommended that a workshop be arranged with APA Group to discuss the intended land usage and zonings within the precinct in order to confirm the extent of additional investigations required and to determine the influence of the transmission pipelines with regard to urban planning considerations.

APA Group have advised that no development may occur over the 20m wide pipeline easement and the easement cannot be utilised for a road reserve.

4.6 Telecommunications

4.6.1 Servicing Responsibility

The roll-out of the National Broadband Network (NBN) is a key factor in the determination of servicing responsibilities for telecommunications infrastructure within the Kororoit precinct. The following outline of servicing responsibilities was provided through Telstra:

- NBN Co is responsible as the infrastructure provider of last resort for developments of 100 or more lots or dwellings (over 3 years) that are within the NBN Co long term fibre footprint. NBN may choose to provide fibre in some smaller developments (<100 dwellings).
- Telstra is responsible as the infrastructure provider of last resort for:
    - developments of less than 100 lots or dwellings (for which NBN has not accepted)
    - all developments outside NBN Co's long term fibre footprint

In all types of new developments, Developers are responsible for providing Pit and Pipe infrastructure (including trenching, design and third party certification for development approval) that is fibre ready. Developers are required to meet the costs of Pit and Pipe.

Third party providers may be selected to construct pit and pipe infrastructure that is compliant with NBN legislation and standards.

For developments where Telstra is the infrastructure provider of last resort, Developers will need to allow Telstra access to the developer provided pit & pipe so Telstra can install services.

4.6.2 Existing Servicing

Kororoit precinct has limited to no access to wired broadband services at present and relies on wireless and satellite technologies for higher bandwidth telecommunications as the distances to ADSL2+ enabled exchanges are generally too great.

The nearest telephone exchanges are Sydenham (SHAM), King's Park (KGPK) and Deer Park (DRPK).

No NBN services are available to the Kororoit precinct at present however the fibre roll-out has commenced at street scale in Melton to the west and Caroline Springs to the east, which NBN connections already available in limited areas and construction already commenced or commencing within 1 year for most of these areas.

4.6.3 Future Servicing

The deployment of telecommunications networks within the precinct is seen as relatively straightforward. With reference to the above section on servicing responsibilities, the precinct has a number of larger land owners which are likely to seek servicing through the NBN Co. Small developments can seek servicing advice through Telstra. Developers may also select other third party providers to install fibre-ready infrastructure and to deploy fibre networks.

We have not received formal servicing advice from Telstra however it is likely that additional exchanges may be required adjacent to the precinct due to the limited coverage provided by the nearest exchanges and their spacing compared to typical urban exchange spacing. The land requirements for telephone exchanges and NBN infrastructure are relatively small with fibre generally being located within road reserves.

4.6.4 Further Considerations

At the time of writing, there is still some uncertainty regarding the roll-out of the NBN in terms of policy amendment by Government and the implications of policy shift on completed, commenced and planned roll-out activities.

5 Summary of Development Constraints and Opportunities

5.1 Current Constraints

This section is intended to be a concise summary of the capacity and limitations of existing servicing infrastructure based on the more detailed information which has been supplied in Section 4.

5.1.1 Water

The existing networks have limited capacity to service any additional development. Some small WW reticulation mains in the area have additional capacity.

Some development south of Taylors Road could potentially be supplied via extension of the existing 225mm diameter water mains to the east.

The servicing responsibilities and boundaries between City West Water and Western Water need to be finalised for planning clarity.

5.1.2 Sewer

The Kororoit Creek West Sewer in Caroline Springs has some capacity to service initial development within the precinct. The total development that can be accommodated with current trunk infrastructure capacity in Caroline Springs is approximately 5000 lots, spread between Kororoit precinct and neighbouring Plumpton precinct.

Temporary local pumping may be required in order to utilise the spare capacity within the existing sewer networks.

The servicing responsibilities and boundaries between City West Water and Western Water need to be finalised for planning clarity.

5.1.3 Recycled Water

The precinct does not currently have access to a third pipe (alternative water) system.

5.1.4 Power

Powercor's network has limited capacity to service additional development in the precinct

5.1.5 Gas

There is very limited gas reticulation throughout the precinct. The Plumpton City Gate is located adjacent to the northern boundary of the precinct and will be the main supply point for gas to the precinct.

5.1.6 Telecommunications

Access to wired broadband services in the precinct is very limited and cable distances are significant leading to substantial signal attenuation. The NBN roll-out is occurring with high levels of coverage in developed precincts to the east and west, hence backbone fibre infrastructure is likely to be available to the precinct relatively quickly.

5.2 Future Constraints

This section is intended to be a concise summary of the key infrastructure requirements and considerations associated with long term development within the precinct based on the more detailed information which has been supplied in Section 4.

5.2.1 General

There are significant transmission assets for both power and gas located within the precinct. Refer to Section 4.4 and Section 4.5 for further discussion regarding these assets.

There are some heritage values and constraints within the precinct including Dry Stone Walls which will require further coordination with the relevant authorities at later stages of planning and design.

The Outer Metropolitan Ring Road reservation forms the western boundary of the precinct however this is not expected to overly constrain servicing to the precinct.

High voltage power lines will need to cross the OMR in proximity to the Western Highway, the current alignments for other key servicing infrastructure does not presently conflict with the OMR however.

5.2.2 Water

Significant augmentation works will be required to the bulk storage and transfer infrastructure including an 1150mm diameter pipeline along Melton Highway and a pump station. These works are indicatively planned for 2019 and 2022 respectively.

The precinct will largely be serviced from distribution mains proceeding from the Holden Tank site through the Plumpton precinct to the north

The Holden Tank Site is a key asset for water supply provision to the precinct. This site is owned by City West Water.

5.2.3 Sewer

The DIS has the capacity to service approximately 2000 hectares from the area, which is equivalent to 20,000 lots

In order to fully service development in the precinct, a new backbone sewer will be required along Kororoit Creek, connecting to a proposed permanent pumping station at Kororoit Creek and Monaghans Lane. A rising main will connect the pumping station to the DIS at Robinsons Road and Riding Boundary Road.

Land acquisition for the pumping station will need to be undertaken, with a site of approximately 20 metres by 50 metres being required.

5.2.4 Recycled Water

Recycled water will be supplied to the precinct from a proposed Alternative Water Production Facility located in Ravenhall and local stormwater harvesting. A recycled water storage tank will be installed at the Holden Tank Site with distribution mains up to approximately 900mm in diameter located within the Kororoit precinct

5.2.5 Power

In order to fully service the Kororoit precinct, Powercor has proposed to construct the 'Rockbank East Zone Substation' (after 2019) and the 'Rockbank Zone Substation' (after 2024) and associated sub-transmission lines. Land acquisition will be required for these substations. The exact proposed locations of these zone substations have not been determined.

5.2.6 Gas

The existing Plumpton regulator station (city gate) will be the main point of supply for the precinct and SP AusNet has plans for an additional city gate to the south of the Western Highway.

The southern end of the Kororoit precinct will be additionally serviced by an existing large diameter 180mm high pressure supply main located in Rockbank Middle Road.

Planning has not advanced to the stage where the location and sizing of distribution mains is known.

5.2.7 Telecommunications

Additional exchange(s) may be required to service the precinct. Broadband provision is likely to be NBN based. Infrastructure within the precinct will be developed as fibre-ready subject to potential Governmental policy changes in the telecommunications area.

5.3 Development Opportunities

This section outlines some opportunities and suggestions for planning and development of the precinct.

Road reservation widths should be sized to include both neighbourhood scale servicing infrastructure as well as distribution scale infrastructure in order to minimise the need for separate easements throughout the precinct.

The service authorities have indicated that the planning processes are likely to proceed more smoothly and achieve optimal outcomes if MPA can provide support to service authorities such as:

- Involvement in the on-going resolution of servicing responsibilities and boundaries.
- Participating in joint planning sessions between the relevant authorities.
- Having a degree of involvement in land acquisition processes

Drainage investigations have not yet been undertaken for the precinct however the opportunity exists for coordination of drainage and sewerage planning in order to optimise land requirements, given the gravity based nature of these services.

6 Conclusions and Recommendations

6.1 Precinct Suitability for Development

This section is a general overview of the findings within the report and relates to the suitability of the precinct for development with respect to the servicing infrastructure investigated within the report. Many other factors influencing the development suitability of the precinct are beyond the scope of this report.

Based on the servicing investigations undertaken and in the absence of detailed information regarding the proposed planning zones or nature of development within the precinct, there are no major prohibitive constraints to future development within the Kororoit precinct.

Existing servicing infrastructure is, in some cases, limited or at capacity however early planning work is reasonably well advanced and indicates that the precinct can be supplied with all services investigated within the scope of this report.

Refer to Section 5 for a more detailed summary of the constraints currently being experienced and the key constraints to infrastructure provision into the future.

6.2 Recommendations

The finalisation of servicing responsibilities and boundaries is an important constraint on infrastructure planning and development, particularly with respect to sewer, water and recycled water services.

It is recommended that MPA continue to take responsibility for facilitating and/or contributing to joint planning sessions between the respective authorities in order to facilitate efficient and acceptable planning outcomes. Multiple service authorities stated this as a desirable support function for the MPA to provide.

The servicing advice provided within this report has not explicitly considered the heritage aspects of the precinct including the dry stone walls. It is recommended that MPA provide service authorities with the constraints associated with the dry stone walls so that key infrastructure, especially roads, gravity services and distribution infrastructure can be planned accordingly.

We have identified a number of conflicts between the dry stone walls and proposed service locations, particularly for sewer, however it is noted that the locations of services are indicative only at this stage and the extents of dry stone wall sections to be retained are still to be finalised.

Appendix A

SK-C-200	**Combined Servicing Layout Plan**
SK-C-201	**Site Plan with Property ID Numbers**
SK-C-202	**Indicative Sewer Layout**
SK-C-203	**Indicative Potable Water Layout**
SK-C-204	**Indicative Recycled Water Layout**
SK-C-205	**Indicative Electrical Layout**
SK-C-206	**Indicative Gas Supply Layout**

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Dated: JULY 2013

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- ONLY MAIN RETICULATION NETWORKS HAVE BEEN SHOWN FOR CLARITY.

LEGEND

- PSP BOUNDARY
- EXISTING ELECTRICITY TRANSMISSION LINE EASEMENT
- 'MEASUREMENT LENGTH' OF GAS TRANSMISSION PIPELINE
- WATER
- SEWER
- RECYCLED WATER
- TELECOMMUNICATIONS
- ELECTRICITY
- GAS
- EXISTING WATER
- EXISTING SEWER
- EXISTING RECYCLED WATER
- EXISTING ELECTRICITY
- EXISTING GAS
- EXISTING DRAINAGE

POWERCOR SUPPLY AREA

PSP 1080
KOROROIT

MELWAY REF 355 K9

EXISTING 66kV LINE FROM EXISTING TERMINAL STATION

EXISTING PLUMPTON CITY GATE

GAS TRANSMISSION PIPELINES LOCATED WITHIN EASEMENT

EXISTING 22kV FEEDER MLN21 FROM EXISTING MELTON ZONE SUBSTATION. HAS LIMITED CAPACITY FOR ADDITIONAL LOAD. MAJOR FEEDER AUGMENTATION IS REQUIRED TO TIE INTO THE ZONE SUBSTATION.

PROPOSED 66kV LINE TO EXISTING MELTON ZONE SUBSTATION (AFTER 2019)

PROPOSED 66kV LINE TO PROPOSED ZONE SUBSTATION ROCKBANK (AFTER 2024)

PROPOSED ZONE SUBSTATION ROCKBANK EAST (1ha) (AFTER 2019). ASSUMED LOCATION OF FEEDERS IS APPROXIMATE ONLY (TO BE CONFIRMED BY POWERCOR)

PROPOSED 66kV LINE TO PROPOSED TERMINAL STATION (AFTER 2019)

PROPOSED PERMANENT PUMPING STATION

PROPOSED RISING MAIN TO DERRIMUT INTERCEPTOR SEWER (DIS21)

EX 400 DIC TRANSFER WATER MAIN

Ex.66kV
Ex.22kV
Ex.200
Ex.300
Ex.150
Ex.500
Ex.180

TAYLORS ROAD
PLUMPTON ROAD
VERE COURT
SINCLAIRS ROAD
REED COURT
DEANSIDE DRIVE
GRAY COURT
NEALE ROAD WEST
WESTERN FREEWAY

Ex. ELECTRICITY TRANSMISSION LINE EASEMENT
FUTURE 500kV
FUTURE 220kV

200 0 400 800m
SCALE 1:20000

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A	17.07.13	PRELIMINARY ISSUE	
B	07.03.14	FINAL ISSUE	
C	17.03.14	MPA AMENDMENTS	
D	21.03.14	ZONE SUBSTATION AMENDED	
E	09.09.14	ISSUED FOR INFORMATION	

SCALE	SIZE
1:20000	A3

DRAWN: C. Padua
DESIGNED:
VERIFIED:

SKETCH
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APPROVED
PROJECT DIRECTOR DATE

PROJECT: INFRASTRUCTURE AND SERVICING REPORT

TITLE: PSP 1080 KOROROIT PRECINCT COMBINED SERVICING LAYOUT PLAN

DRAWING No. | PROJECT No. | WBS | TYPE | DISC | NUMBER | REV
235650 - 0200 - SK - C - 200 - E

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Dated: JULY 2013

PSP 1078
PLUMPTON

PSP 1080
KOROROIT

PLUMPTON ROAD
TAYLORS ROAD
VERE COURT
SINCLAIRS ROAD
REED COURT
DEANSIDE DRIVE
GRAY COURT
NEALE ROAD WEST
WESTERN FREEWAY
HOPKINS ROAD

MELWAY REF 355 K9

LEGEND

PSP BOUNDARY

LOT NUMBER 1

200 0 400 800m

SCALE 1:20000

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SCALE	1:20000
SIZE	A3
DRAWN	C. Padua
DESIGNED	
VERIFIED	

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PROJECT DIRECTOR DATE

PROJECT	INFRASTRUCTURE AND SERVICING REPORT
TITLE	PSP 1080 KOROROIT PRECINCT SITE PLAN WITH PROPERTY ID NUMBERS

DRAWING No.	PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
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LEGEND

PSP BOUNDARY

SEWER

EXISTING SEWER Ex.S

PSP 1080
KORORoIT

MELWAY REF 355 K9

PROPOSED PERMANENT PUMPING STATION

PROPOSED RISING MAIN TO DERRIMUT INTERCEPTOR SEWER (DIS21)

TAYLORS ROAD
PLUMPTON ROAD
VERE COURT
SINCLAIRS ROAD
REED COURT
DEANSIDE DRIVE
GRAY COURT
NEALE ROAD WEST
WESTERN FREEWAY

200 0 400 800m
SCALE 1:20000

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SCALE	SIZE
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VERIFIED:

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APPROVED
PROJECT DIRECTOR DATE

PROJECT: INFRASTRUCTURE AND SERVICING REPORT

TITLE: PSP 1080 KORORoIT PRECINCT INDICATIVE SEWER LAYOUT

DRAWING No.	PROJECT No.		WBS		TYPE		DISC		NUMBER		REV
	235650	–	0200	–	SK	–	C	–	202	–	A

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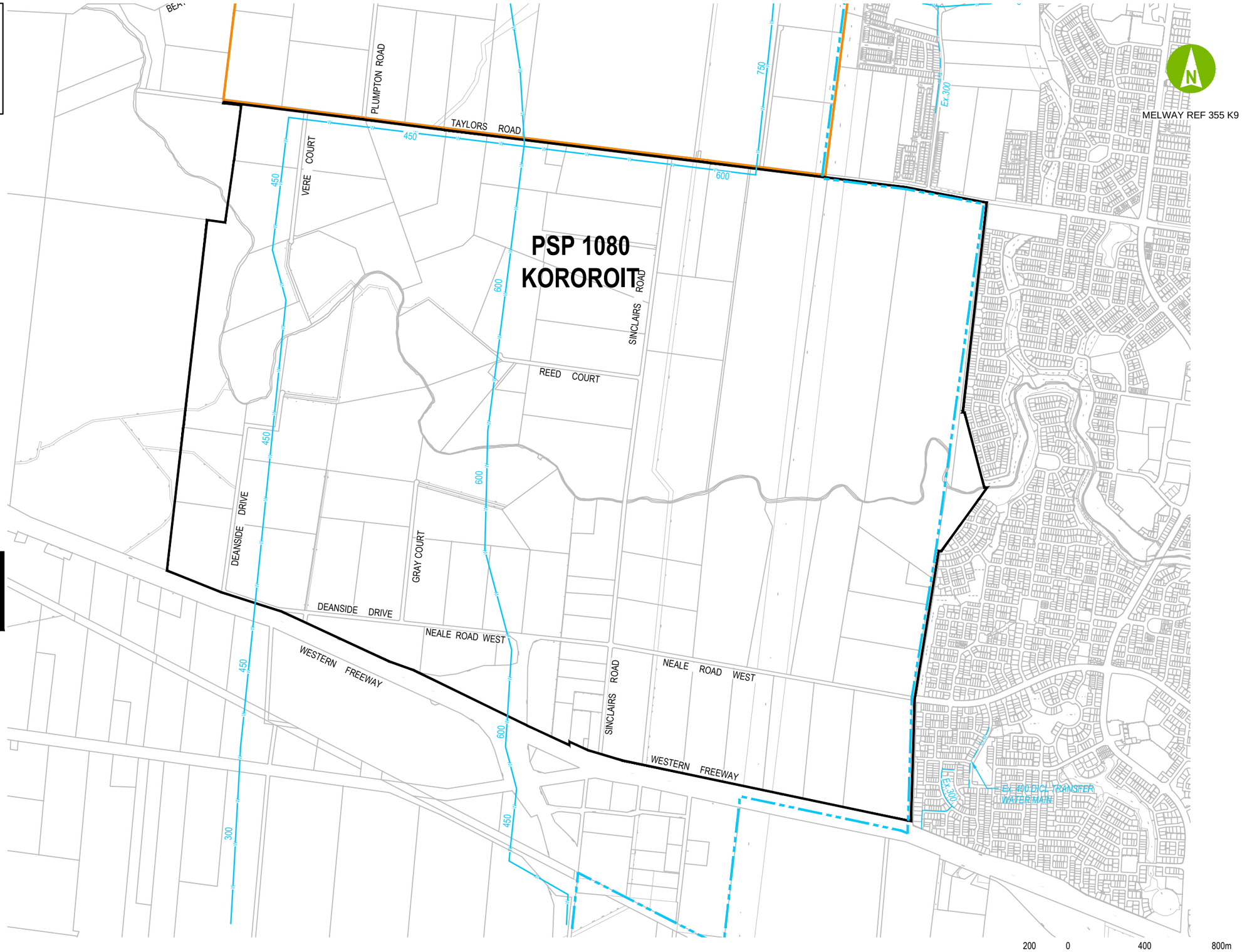
LEGEND

PSP BOUNDARY

WATER — W —

EXISTING WATER — Ex.W —



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DESIGNED:
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PROJECT DIRECTOR DATE

PROJECT: INFRASTRUCTURE AND SERVICING REPORT

TITLE: PSP 1080 KORORIOIT PRECINCT INDICATIVE POTABLE WATER LAYOUT

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	235650	0200	SK	C	203	A

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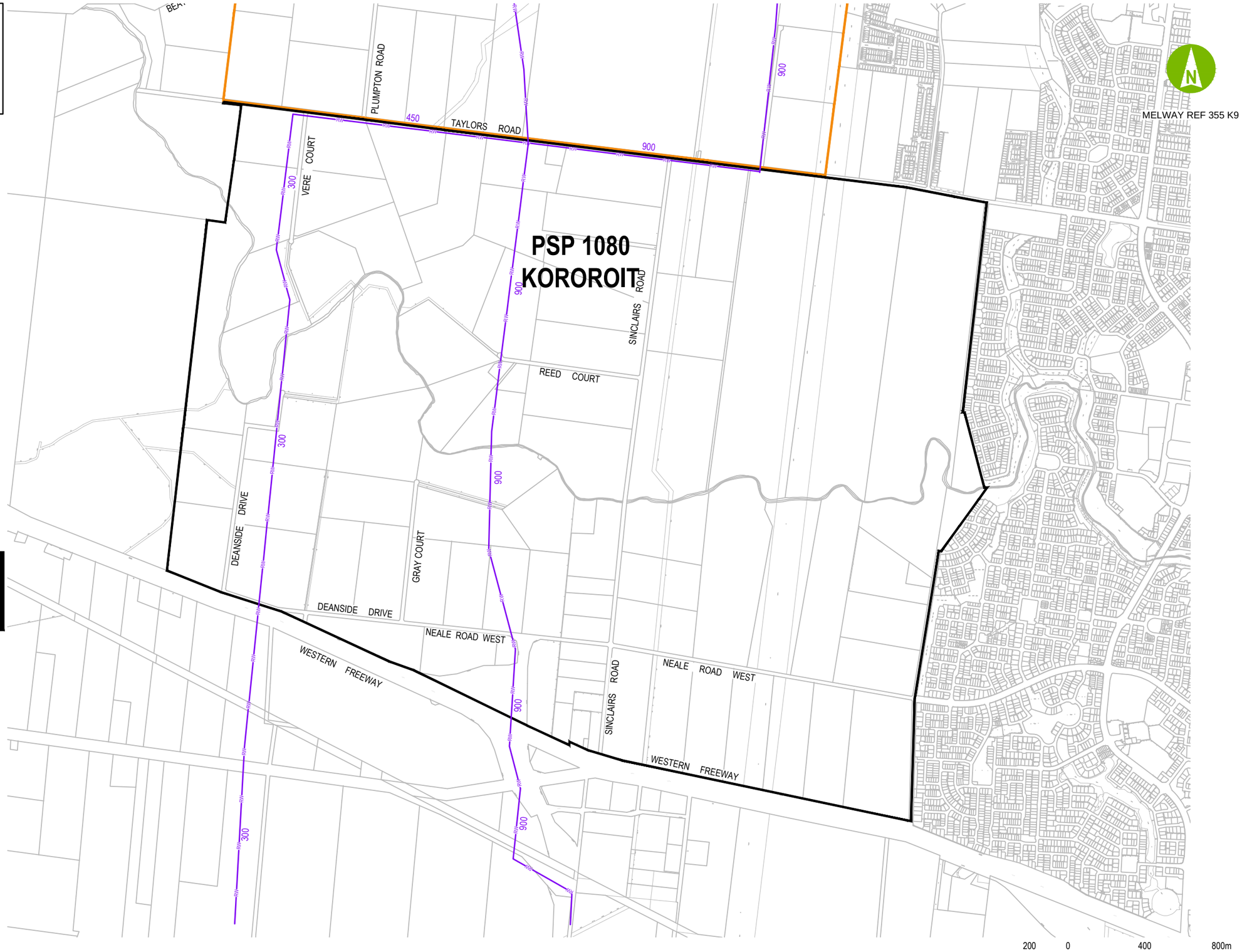
LEGEND

PSP BOUNDARY

RECYCLED WATER (RW)

EXISTING RECYCLED WATER (Ex.RW)



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PROJECT: INFRASTRUCTURE AND SERVICING REPORT

TITLE: PSP 1080 KORORoIT PRECINCT INDICATIVE RECYCLED WATER LAYOUT

DRAWING No.: PROJECT No. 235650 – WBS 0200 – TYPE SK – DISC C – NUMBER 204 – REV A

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LEGEND

PSP BOUNDARY

EXISTING ELECTRICITY TRANSMISSION LINE EASEMENT

ELECTRICITY

EXISTING ELECTRICITY

POWERCOR SUPPLY AREA

PSP 1080
KOROROIT

MELWAY REF 355 K9

EXISTING 66kV LINE FROM EXISTING TERMINAL STATION

EXISTING 22kV FEEDER MLN21 FROM EXISTING MELTON ZONE SUBSTATION. HAS LIMITED CAPACITY FOR ADDITIONAL LOAD. MAJOR FEEDER AUGMENTATION IS REQUIRED TO TIE INTO THE ZONE SUBSTATION.

PROPOSED 66kV LINE TO EXISTING MELTON ZONE SUBSTATION (AFTER 2019)

PROPOSED 66kV LINE TO PROPOSED ZONE SUBSTATION ROCKBANK (AFTER 2024)

PROPOSED ZONE SUBSTATION ROCKBANK EAST (1ha) (AFTER 2019). ASSUMED LOCATION OF FEEDERS IS APPROXIMATE ONLY (TO BE CONFIRMED BY POWERCOR)

PROPOSED 66kV LINE TO PROPOSED TERMINAL STATION (AFTER 2019)

PLUMPTON ROAD
TAYLORS ROAD
VERE COURT
SINCLAIRS ROAD
REED COURT
DEANSIDE DRIVE
GRAY COURT
NEALE ROAD WEST
WESTERN FREEWAY
Ex. ELECTRICITY TRANSMISSION LINE EASEMENT
FUTURE 220kV
FUTURE 500kV
Ex.66kV
Ex.22kV

200 0 400 800m
SCALE 1:20000

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PROJECT	INFRASTRUCTURE AND SERVICING REPORT
TITLE	PSP 1080 KOROROIT PRECINCT INDICATIVE ELECTRICAL LAYOUT

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- ONLY MAIN RETICULATION NETWORKS HAVE BEEN SHOWN FOR CLARITY.
-VERY LIMITED INFORMATION WAS SUPPLIED BY AUTHORITIES WITH RESPECT TO GAS DISTRIBUTION AND RETICULATION WITHIN THE PRECINCT

PSP 1080
KOROROIT

MELWAY REF 355 K9

TAYLORS ROAD
PLUMPTON ROAD
VERE COURT
SINCLAIRS ROAD
REED COURT
DEANSIDE DRIVE
GRAY COURT
NEALE ROAD WEST
WESTERN FREEWAY

EXISTING PLUMPTON CITY GATE

GAS TRANSMISSION PIPELINES LOCATED WITHIN EASEMENT

Ex.200
Ex.150
Ex.500
Ex.180

LEGEND

PSP BOUNDARY

'MEASUREMENT LENGTH' OF GAS TRANSMISSION PIPELINE

EXISTING GAS

200 0 400 800m

SCALE 1:20000

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SCALE	SIZE
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PROJECT DIRECTOR DATE

PROJECT: INFRASTRUCTURE AND SERVICING REPORT

TITLE: PSP 1080 KOROROIT PRECINCT INDICATIVE GAS SUPPLY LAYOUT

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Aurecon Australia Pty Ltd
ABN 54 005 139 873
Aurecon Centre
Level 8, 850 Collins Street
Docklands VIC 3008
PO Box 23061
Docklands VIC 8012
Australia
T +61 3 9975 3000
F +61 3 9975 3444
E melbourne@aurecongroup.com
W aurecongroup.com