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**MARSDEN PARK INDUSTRIAL PRECINCT
INFRASTRUCTURE DELIVERY REPORT**

22 JUNE 2009

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1. INTRODUCTION

This services report has been prepared as part of the Precinct Planning for the Marsden Park Industrial Precinct. The report summarises the servicing strategy for the primary services required to service the Marsden Park Industrial Precinct. Furthermore, the possible servicing arrangements for each of the primary utilities is addressed which shows how the Precinct can be best serviced to ensure the Precinct is developed in accordance with the requirements of the Indicative Layout Plan (ILP) and the Department of Planning.

The servicing strategy and planning has been completed in consultation with key utilities agencies, Blacktown Council and the Department of Planning. The Department of Planning has required that the following items of infrastructure are to be provided to the Precinct:

- Sewer;
- Water;
- Recycled Water;
- Electricity; and
- Telecommunications.

In addition to the above, we have also included review of the supply of natural gas to the Precinct.

Key Stakeholders and Agencies for the Precinct are:

- | | |
|----------------------|--------------------------|
| • Water | Sydney Water Corporation |
| • Sewer | Sydney Water Corporation |
| • Recycled Water | Sydney Water Corporation |
| • Electricity; | Integral Energy |
| • Telecommunications | Telstra |
| • Natural Gas | Alinta |

2. SITE DESCRIPTION

The Marsden Park Industrial Precinct is located within the North West Growth Centre in the Blacktown Local Government Area. The Precinct is located off Richmond Road approximately 1km north of the M7 Richmond Rd exits and is bounded by Bells Creek to the east, South Street to the north and west and Castlereagh Freeway corridor to the south.

The Precinct is surrounded by the existing suburbs of Hassell Grove and Bidwell to the south, the Colebee residential Precinct to the east and Marsden Park residential precinct to the north. The existing Precinct currently includes a waste disposal facility, caravan park, Mosque, agricultural and farming properties and mixed business along Richmond Road.

The total area of the precinct is approximately 550.3 hectares of land as shown in Table 1.

Land Use Zone	Area (Hectares)
R2	15.1
R3	29.8
B7	67.4
B5	36.5
IN2	205.0
Drainage	51.9
Conservation, Riparian & Open Space	93.1
Road Reserves	51.5
Total	550.3

Table 1: Area Schedule

3. INFRASTRUCTURE ASSESSMENT

3.1. *Overview & Servicing Arrangements*

The Marsden Park Industrial Precinct presently has very limited infrastructure servicing capacity. This is due to its proximity to major infrastructure services and the historically low demand for service given its rural land use. The infrastructure services assessment has been prepared for the following services:

- Water;
- Sewer;
- Recycled Water;
- Electricity;
- Telecommunications; and
- Natural Gas.

3.2. *Water*

3.2.1. *Existing Infrastructure, Operations and Capacity*

With the exception of a short length of 100mm water main in South Street and Richmond Road there is no potable water infrastructure available to service the Precinct. Capacity to service the Precinct with bulk water has recently been provided for with the recent upgrade of storage capacity at Minchinbury Reservoir.

3.2.2. *Servicing Strategy*

The Sydney Water Corporation (SWC) Ultimate Servicing Strategy for water supply to the Marsden Park area involves servicing from the Minchinbury system via the existing Mt Druitt reservoirs shown in Figure 1. It is proposed ultimately to service the Precinct via a 3.8km long 600mm diameter outlet main from Mt Druitt. This main will deliver bulk water to future surface and elevated storages to be located at Marsden Park.

Water supply to the first stages of development will see the extension of water supply mains to the precinct. These supply mains will be laid within the precinct road network providing access for development to improved water supply. It may be necessary to locally boost supply rates and pressures by providing booster pump stations, prior to the construction of reservoirs. The need for booster pump stations in the early stages of development will be assessed as the nature and location of development is known.

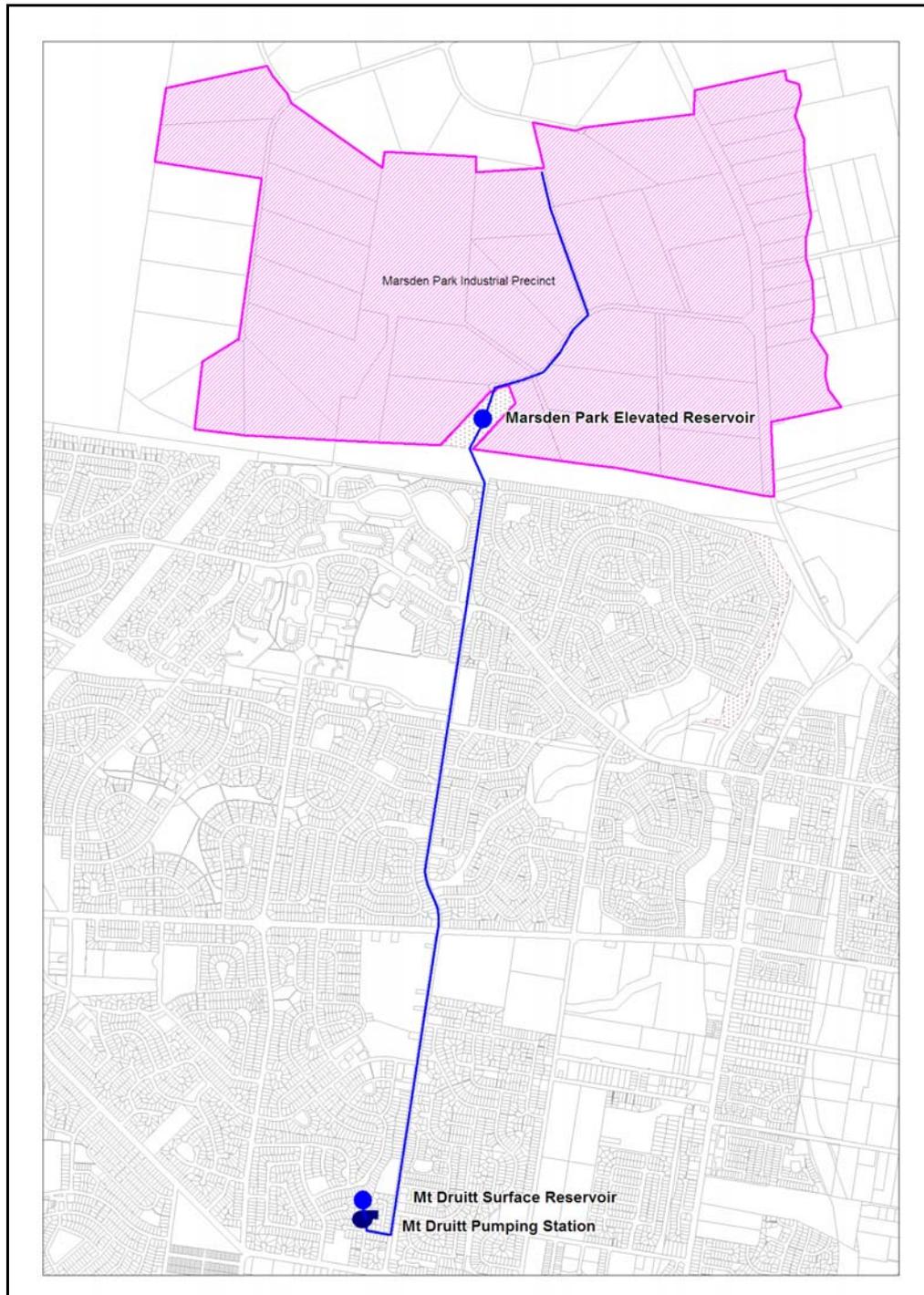


Figure 1: Proposed Water Servicing Strategy (Source: Sydney Water Corporation)

3.3. Sewer Supply

3.3.1. Existing Infrastructure, Operations and Capacity

The site has three separate catchment areas which all drain to the north. There is currently no suitable existing sewerage infrastructure near the site.

3.3.2. Servicing Strategy

The SWC Ultimate Servicing Strategy is for the Precinct to be serviced by gravity sewers to Riverstone STP as shown in Figure 2. This requires the construction of four carrier mains together with two Sewage Pumping Stations (SPS's). Final location and delivery of these trunk mains will require extensive negotiation with Marsden Park (Residential) Precinct landowners. The total length of carriers required is approximately 18km and the length of rising main required is 3.2km. There are significant cost and operational limitations with this option as an initial sewerage service solution.

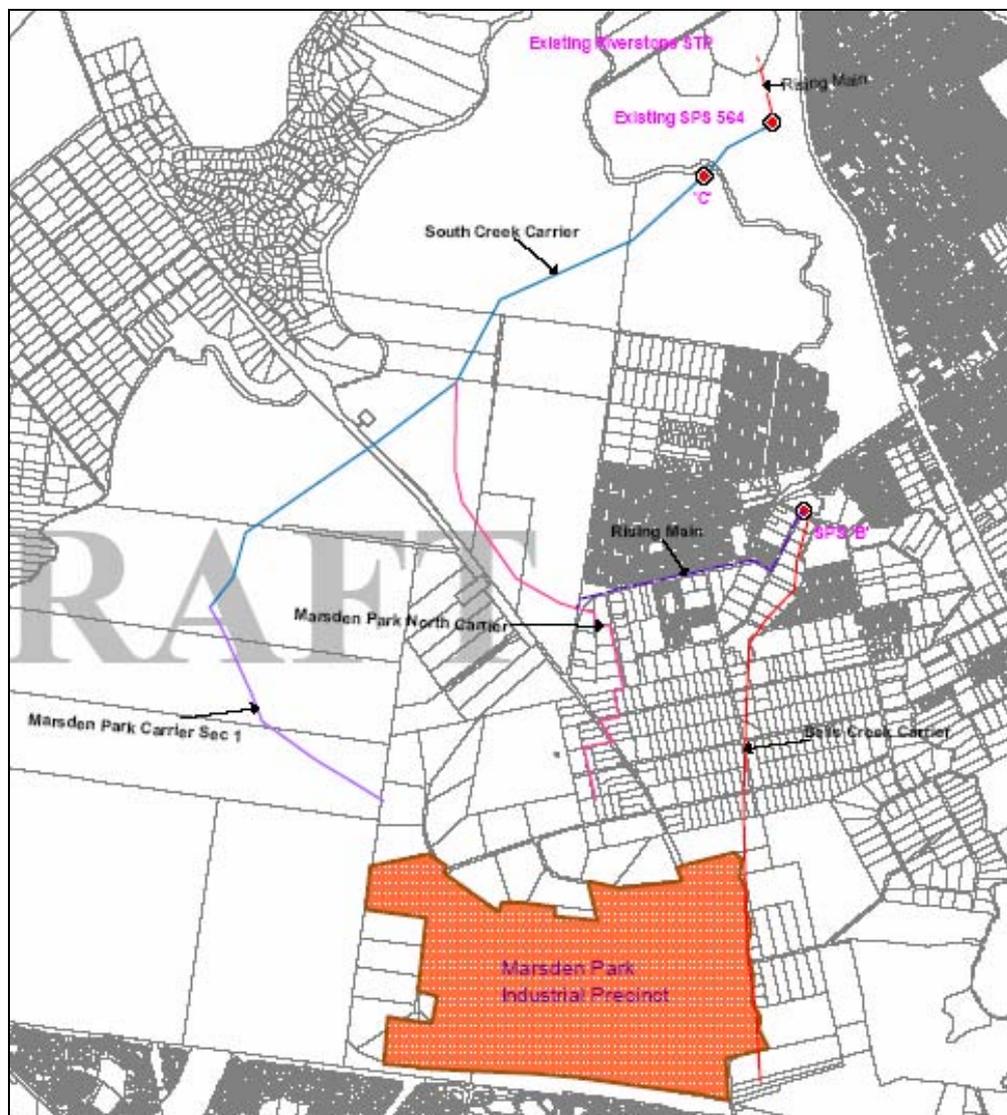


Figure 2: Proposed ultimate Sewer servicing strategy plan (Source: Sydney Water Corporation)

Given the constraints associated with the ultimate servicing strategy, an interim strategy will be adopted which can be integrated into the final. A preferred option has been identified which would see flows from the Precinct transferred to St Marys STP. This will involve construction of two SPS's within the Precinct to pump to St Marys STP via a rising main. Flows from the precinct would be discharged to an existing pump station located within the treatment plant and upstream of the inlet works. At 9.8 kilometres long, the rising main will be approximately half the length of the Riverstone gravity mains proposed. Operation and maintenance requirements in the interim are considered comparable to the ultimate servicing strategy. Capital costs and easement negotiation delays will be significantly reduced, resulting in a more reasonable and efficient provision of sewer services to the precinct. Other options still under consideration include transfer of flows via pump stations and rising mains to the Riverstone Carrier or on site treatment of sewerage.

Once development proceeds in the downstream catchments and gravity sewer systems are extended upstream towards the development the interim pump stations or treatment facilities would be decommissioned and flows would be transferred to the Riverstone sewer system.

3.4. Recycled Water

3.4.1. Existing Infrastructure, Operations and Capacity

There is no existing infrastructure for recycled water.

3.4.2. Servicing Strategy

The SWC Ultimate Servicing Strategy for the Precinct is for recycled water to be serviced by a new trunk main to be constructed from the corner of Railway Terrace and Schofields Road. This will involve the construction of a 6.5km trunk main varying in size from 600-900mm and new 30ML surface and 4ML elevated reservoirs to be located within the Marsden Park Industrial Precinct. A new recycled water pumping station will also be built within the Precinct.

Due to the uncertainty surrounding the planning and priority for providing this recycled water infrastructure, it is proposed that in the interim irrigation needs would be met by stormwater harvesting for the Precinct. Recycled Water distribution mains would be provided within the development to facilitate the easy connection to the recycled water system once it is in place.

A dual pipe reticulation system will be implemented across the residential and commercial areas of the Precinct to cater for the Recycled Water supply to the site, with the industrial area to be supplied where demand warrants. This system would serve for the distribution of Recycled Water in line with Sydney Water servicing strategy objectives. Recycled Water distribution mains provided as development proceeds will be sized to meet the capacity requirements of the future downstream users.

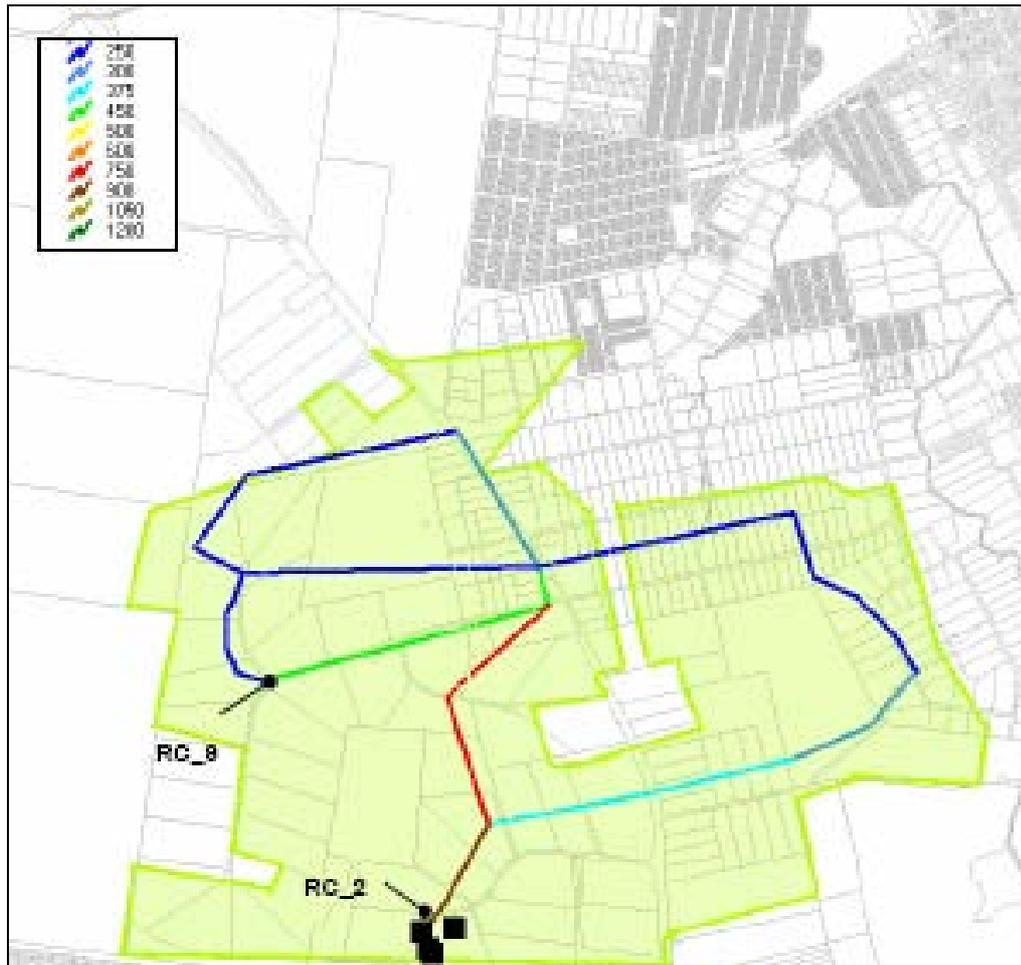


Figure 3: Recycled Water Servicing Strategy Map (source: Sydney Water)

3.5. Electricity

3.5.1. Existing Infrastructure, Operations and Capacity

The existing area is serviced by Integral Energy's high voltage 11kV distribution from Rooty Hill and Riverstone Zone Substations. Both Rooty Hill and Riverstone Zone Substations are currently operating at or above design capacity. There is no capacity available in the existing infrastructure to supply the Precinct.

An existing 330kV transmission line traverses land to the north of the site. This transmission line is owned and operated by Transgrid and cannot be utilised to supply this development.

3.5.2. Servicing Strategy

Integral Energy has a supply strategy for the extended area which includes the installation of a new 132kV / 11kV Zone Substation at Marsden Park. This new Zone Substation will be sourced from Integral Energy under the standard conditions for new release areas and will require the dedication of a one-hectare parcel of land within the precinct to Integral Energy. The proposed location of the zone substation is shown in red in Figure 4.

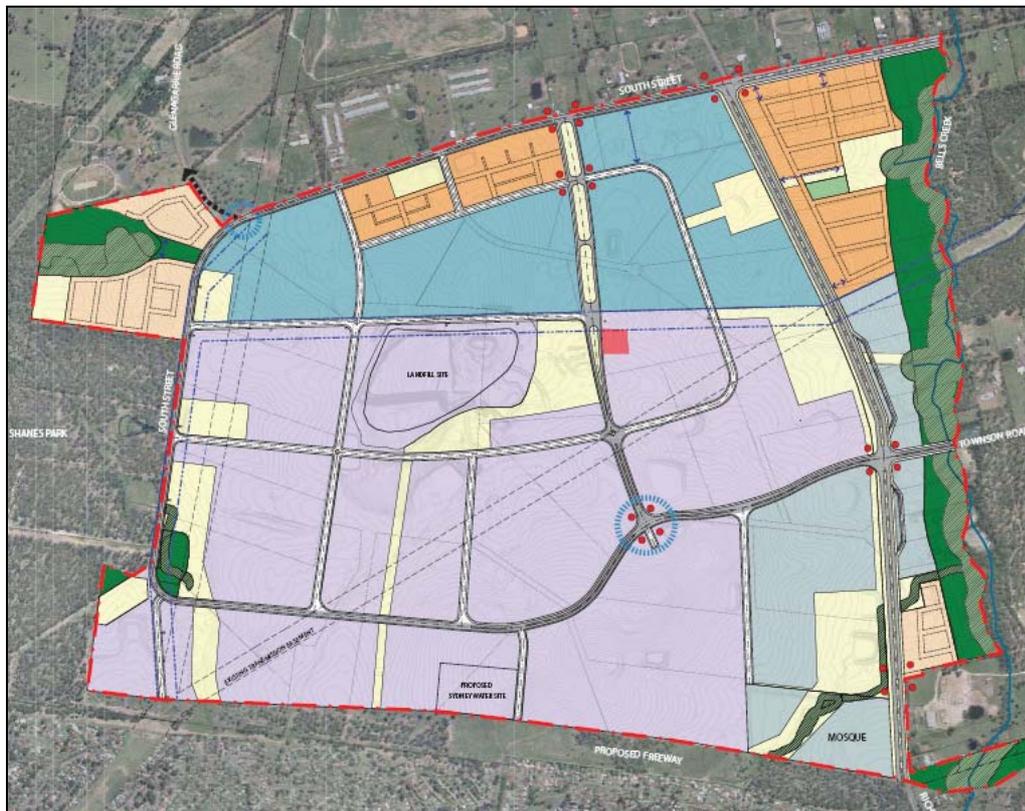


Figure 4: Proposed Zone Substation Location

The capacity of the system including the Zone Substation and feeder cables will be designed to supply the entire Precinct and surrounding area. The new Marsden Park Zone Substation will be linked into Integral Energy's North West Sector 132kV supply system via an extension from the proposed Schofields zone substation to create a ringed network supply.

3.5.3. *330kv Transmission Line relocation*

There are two 330kV single circuit steel tower transmission line feeders owned by TransGrid that traverse the Precinct as shown in Figure 5. One is known as feeder 20 Sydney West to Sydney North, and the other is known as feeder 13 Sydney West to Sydney North. The ILP proposes to relocate the existing transmission lines and associated easements including shifting the east-west feeder 20 towards the north to align the feeder with the proposed road and lot pattern.

The purpose of the proposed relocation of the easements is to facilitate an efficient and effective ILP layout to maximise the developable area of the Precinct. The proposed relocation will provide for lots that allow for the maximum developable area and building footprint.

3.6. **Telecommunications**

Telecommunications supply to the Precinct would be provided by Telstra and distributed within the Precinct using Telstra's standard shared trench arrangement.

3.7. **Natural Gas**

A high-pressure steel natural gas main is currently located in Richmond Road. Gas infrastructure could be provided to service the Precinct by extension of this main by Alinta. Alinta would provide gas infrastructure under their standard conditions and agreements dependent on demand within the Precinct and negotiations of supply agreements with the end users.

4. INDICATIVE LAYOUT PLAN STATEMENT

The ILP has been prepared in consultation with the infrastructure agencies. The ILP is consistent with the servicing strategy presented in this report and there are no amendments required to this report to address the ILP.

5. STAGING

The staging of the Precinct will commence around the Townson Road intersection and then be delivered from east to west, as generally defined by the three sewer catchments.

The staging is shown below as follows:

- Stage 1 Green
- Stage 2 Yellow
- Stage 3 Red
- Stage 4 Blue

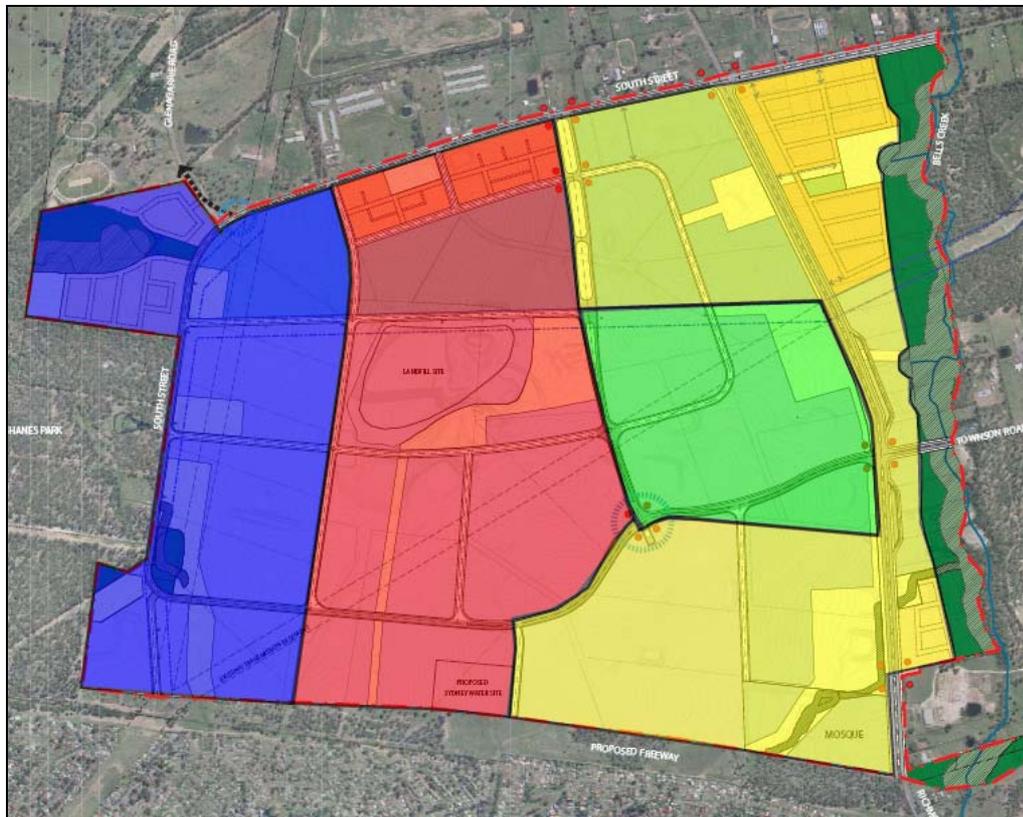


Figure 5: Indicative Staging Plan

6. CONCLUSION

An infrastructure servicing report has been prepared as part of the Precinct Planning for the Marsden Park Industrial Precinct. The report summarises the servicing strategy for the primary services required to service the Precinct and has been completed in consultation with key utilities agencies, Blacktown Council and the Department of Planning.

The Marsden Park Industrial Precinct presently has very limited infrastructure servicing capacity due to the existing rural land use. The infrastructure services assessment includes the following services:

- Water;
- Sewer;
- Recycled Water;
- Electricity;
- Telecommunications; and
- Natural Gas.

Ultimately water will be supplied to the Precinct from the Mt Druitt Reservoir via a new 6.8km long 600mm diameter trunk main and a new 4ML elevated reservoir to be located within the Precinct.

The final sewer servicing strategy involves the construction of a gravity sewer system to Riverstone STP including four new mains and two new pump stations.

Recycled water will ultimately be supplied from a new trunk main from the corner of Railway Terrace and Schofield's Road and new elevated and surface reservoirs, and a pumping station to be located within the Precinct.

Integral Energy's supply strategy for the extended area includes the installation of a new 132kV / 11kV Zone Substation at Marsden Park. This new Zone Substation will be located within the Precinct and sourced from Integral Energy under the standard conditions for new release areas and will require the dedication of a one-hectare parcel of land to Integral Energy.

Telecommunications will be extended to the Precinct under Telstra's standard shared trench arrangement. Some minor upgrading of local exchanges may be required.

Natural gas can be supplied to the Precinct by Alinta from the extension of an existing gas main located in Richmond Road.