infrastructure report
moonee valley racecourse redevelopment

OCTOBER 2011
JOB NO. 10662

Dalton Consulting Engineers Pty Ltd
ABN 78 429 221 049
255 Whitehorse Road
PO Box 349
Balwyn Victoria 3103
Australia

T 61 3 9888 6866
F 61 3 9888 6880
E info@dceprofile.com
W www.dceprofile.com
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. INTRODUCTION</td>
<td>2</td>
</tr>
<tr>
<td>2. DRAINAGE &amp; STORMWATER</td>
<td>1</td>
</tr>
<tr>
<td>3. SEWER &amp; WATER</td>
<td>6</td>
</tr>
<tr>
<td>4. COMMUNICATIONS</td>
<td>12</td>
</tr>
<tr>
<td>5. ELECTRICAL</td>
<td>14</td>
</tr>
<tr>
<td>6. GAS</td>
<td>16</td>
</tr>
</tbody>
</table>
1. SYNOPSIS

INTRODUCTION

This report has been compiled to provide details of the infrastructure serving requirements for the redevelopment of the Moonee Valley Racecourse, including the possibility of alternative supply methods for these services to the development.

This report is an updated report on the proposed infrastructure elements of not only the racing facilities but also the proposed residential development and commercial mixed use precinct.

The residential population at the completion of the development is anticipated to be approximately 6,000 people. Depending on the on the dwelling mix, this represents 2,500 to 3,000 dwellings. This assessment has adopted the high end of the dwelling yield range to avoid under stating the future infrastructure requirement.

Access and traffic elements including discussions with CityLink and VicRoads have not been included in this infrastructure report.

The Redevelopment of the Moonee Valley Racecourse, including a residential development and commercial mixed use precinct can be serviced through augmentation, rather than drawing on, the existing service assets within the area.

The redevelopment in most cases will improve the level of service currently provided to the facility and surrounding properties and provide community cost benefits.

- Proposed Water augmentation works will deliver water to the site directly from Pascoe Vale Road with the benefit of augmenting the existing immediate network
- Sewer reticulation will be diverted from the existing outfall to a trunk sewer that has spare capacity. This will divert the outfall from the existing Dean Street residential network.
- Stormwater will be harvested from the new development. This will enable the new development to be a demonstration site for re-use. The redeveloped site will be an exporter of recycled stormwater that will provide community benefit in the irrigation of open space areas within the neighbourhood.
- The investigation of cogeneration and/or trigeneration for the site will provide the Moonee Ponds precinct with a demonstration site for sustainable development.
DRAINAGE & STORMWATER
2. DRAINAGE AND STORMWATER

MELBOURNE WATER

Discussions in relation to the redevelopment of the Moonee Valley Racecourse were held with Peter Douglas from Melbourne Water. Melbourne Water has expressed that it has no major concerns with the redevelopment of the Moonee Valley Racecourse.

The following items were raised during these discussions and are relevant to the redevelopment:

DRAINAGE

- Melbourne Water has stated that there are no issues with stormwater drainage as they do not own any assets in the immediate area.

MELBOURNE WATER BRANCH SEWER

- Melbourne Water indicated that there is a major Sewer Branch, the Moonee Ponds Main Deviation (MPMD) Sewer, running parallel to the Tullamarine Freeway. This sewer is located within the road reserve between the Tullamarine Freeway and Moonee Valley Racecourse.

- Melbourne Water has stated that any works to be conducted in the vicinity of this sewer shall be undertaken in a manner that will protect the sewer from vibrations during construction and the additional loading from the track and precinct construction.

- Preliminary review of the sewer location based on the current precinct development layout indicates that effects of the redevelopment on the existing sewer can be accommodated during construction. Further investigation during detailed design will be undertaken to ascertain and meet the requirements of Melbourne Water.

- Melbourne Water will require a formal submission of offer for the development of the Moonee Valley Racecourse.

- Melbourne Water offer no objection to the proposed works.
STORMWATER HARVESTING AND RECYCLING

The Redevelopment of the Moonee Valley Racecourse, including the construction of a 3,000 dwelling residential development and commercial mixed use precinct offers the opportunity to incorporate stormwater harvesting from roof areas and the racecourse proper for reuse within the precinct.

- The redevelopment of the racecourse offers the opportunity to incorporate stormwater harvesting into development, reducing the demand on potable water supply and usage within the site.

- The on-going cost and demand on potable water for uses including race track irrigation, toilet facilities and the upkeep of open space areas would be reduced through the implementation of stormwater harvesting methods.

RESIDENTIAL & MIXED USE PRECINCT

- There is potential for stormwater to be harvested from roof areas within the residential and commercial mixed use precinct.

- Treatment of water on site to a standard suitable for reuse within courtyards, common garden areas, open space and toileting facilities could be accommodated on site.

- Treatment of stormwater would be facilitated on site from direct harvest methods with the possibility of underground storage beneath the race track.

- The harvesting of stormwater from the residential and commercial precinct has the benefit of reducing the use and demand of potable water on site and the costs associated with this service.
RACECOURSE PROPER

• There is potential for stormwater to be harvested from the racecourse proper. The stormwater harvested from the race track could utilise the central dam system for storage prior to treatment and reuse for track irrigation.

• The harvesting of stormwater from the racecourse proper has the benefit of reducing the use and demand of potable water on site and the costs associated with this service.

In effect, the combination of existing stormwater capture measures combined with new track technologies will enable the MVRC to be a net exporter of water. In partnership with CWW, the new track will enable adjoining open space areas to be irrigated.

Alternative water supply opportunities will be investigated during detailed design.
3. SEWER & WATER

CITY WEST WATER

The Redevelopment of the Moonee Valley Racecourse, including the construction of a 3,000 dwelling residential development and commercial mixed use precinct can be serviced via connection to the existing sewer and water assets within the area.

DCE met with John Chambers, Stephan Kreegher, Bruce Collins and John Kirkbride from City West Water on 17 August 2011 to further discussions regarding the future servicing of the Moonee Valley Racecourse Redevelopment Project. The outcomes of the meeting and the possible servicing strategy for the redevelopment are included as follows:
SEWER SUPPLY

The Redevelopment of the Moonee Valley Racecourse including a 3,000 dwelling residential development and commercial mixed use precinct can be serviced via the existing Melbourne Water trunk sewer located in Bent Street. The redevelopment will reduce the pressure on the existing Dean Street sewer by rerouting flows to the Melbourne Water trunk sewer. The redevelopment will increase the level of service to existing customers within the area.

Information regarding the provision of sewer infrastructure to the development is as follows:

- City West Water indicated that the development can be serviced via the existing 975mm diameter Melbourne Water trunk sewer in Bent Street. This sewer has sufficient capacity to cater for the new development whilst maintaining the current level of supply to existing customers.

- City West Water stated that there is an existing 225mm diameter sewer main which currently sewers the racecourse and approximately 25 residential properties further west. This sewer discharges to the existing sewer infrastructure along Dean Street which is currently at capacity.

- As part of the redevelopment the existing 225mm sewer would require removal and a new 300mm sewer constructed. This new sewer would be connected to the existing 975mm Melbourne Water Branch Sewer manhole located at the corner of Bent and Fanny Streets. This new service would reduce the dependency and pressure on the ‘at capacity’ Dean Street sewer system, and adequately cater for the new development and existing residential properties.

- Connection of the new development and existing residential properties to the existing 975 Melbourne Water Branch Sewer along Bent Street will provide adequate service for the new and existing developments and reduce capacity constraints on the current Dean Street sewer.

- Resulting from the available methods of producing recycled water through stormwater harvesting methods on site, the treatment of sewerage for this development will be included in the sustainability matrix under investigation during detailed design.
WATER SUPPLY

The Redevelopment of the Moonee Valley Racecourse including a 3,000 dwelling residential development and commercial mixed use precinct can be serviced via the existing water main located in Pascoe Vale Road. The redevelopment will not affect the current level of supply to existing customers. These augmentation mains may assist existing properties.

Information regarding the provision of water supply to the development is as follows:

- City West Water indicated that the development can be serviced via the existing 375mm diameter water main in Pascoe Vale Road. This water main has sufficient capacity to cater for the new development whilst maintaining the current level of supply to existing customers.

- As part of the redevelopment a two phase connection extending from the existing 375mm main in Pascoe Vale Road will be required to service the development. The grandstand and early phase of development will require the extension of a single water main to the course, with the second connection required during the latter stages of construction of the residential and commercial mixed use precinct.

- City West Water stated that the redevelopment of the Moonee Valley Racecourse may provide the opportunity to incorporate alternative water solutions into the development. These solutions are detailed within the section 2 of the report and would reduce demand on the supply of potable water to the site.

- City West Water stated that they will work with the redevelopment to investigate the possibility of alternative water supply opportunities.
4. COMMUNICATIONS

NBNCo AND TELSTRA

The Redevelopment of the Moonee Valley Racecourse can be serviced through NBNCo’s national broadband rollout in liaison with Telstra for the racecourse and race day facilities

DCE spoke with Julian Nachmias from NBNCo on the 23rd August 2011 to discuss the future servicing of the Moonee Valley Racecourse Redevelopment Project. Below are the outcomes of the conversation:

• NBNCo indicated that they are the responsible authority for supply of the new residential connections for the redevelopment of the Moonee Valley Race Course. NBNCo will provide a telecommunications connection to each new apartment within the development

• NBNCo advised that existing telecommunications servicing the Moonee Valley Racecourse will be made redundant and reconnected to service the new grandstand and race day facilities. These works are to be completed in liaison with Telstra under the standard relocation process

• The proposal does not cause any major impact to existing Telstra assets and is in NBNCo’s future rollout area
servicing report

Moonee Valley Infrastructure Servicing Report – October 2011

ELECTRICAL
5. ELECTRICAL

JEMENA

The Redevelopment of the Moonee Valley Racecourse, including the construction of a 3,000 dwelling residential development and commercial mixed use precinct can be serviced via Jemena’s existing network of electrical assets and augmentation of new assets to the site.

DCE spoke with Leonard Maeder from Jemena to discuss the future servicing of the Moonee Valley Racecourse Redevelopment Project. Below are the outcomes of the conversation and preliminary servicing information provided by Jemena:

- The information provided by Jemena indicates that electrical supply facilities can be provided to the proposed redevelopment location.

- Jemena noted that an upgrade to the existing infrastructure within the area, including the augmentation of electrical assets to the site will be required to service the new development.

- Jemena stated that it is likely that each residential tower will require its own electrical sub-station, however further details of specific supply provisions for the redevelopment will be provided by Jemena upon formal application for conditions.

- The relocation of any existing assets in relation to the redevelopment will be completed under the standard relocation process through Jemena.
6. GAS

SP-AUSNET

The Redevelopment of the Moonee Valley Racecourse, including the construction of a 3,000 dwelling residential development and commercial mixed use precinct can be serviced via SP-Ausnet’s existing gas infrastructure assets within the area.

The responsible authority for the provision of gas facilities to the Moonee Valley Racecourse redevelopment area is SP-Ausnet.

The proposal doesn’t appear to cause any major impact to existing SP-Ausnet assets. Any new supply required for the redevelopment including relocation of existing assets would be provided under the standard application process.

The Redevelopment of the Moonee Valley Racecourse presents the opportunity to produce heat, power and cooling for the development through the installation of an onsite cogeneration or trigeneration system.

Cogeneration, the production of heating and power from a single source, and Trigeneration (the production of cooling in addition to heating and power) could offer a lower cost and lower carbon reduction opportunity for this precinct.

The precinct could potentially utilise this new and emerging technology to not only heat, power and cool the residential and commercial precinct, but have the opportunity to be utilised for the requirements of the racecourse facility including the lighting of night race meetings.

The use of a co-gen or tri-gen system on site could be incorporated into the built form as the development progresses, offering a lower cost and lower carbon opportunity to conventional methods of heating, power and cooling production.

Cogeneration or Trigeneration power for this site remains as an option.