

Liverpool Health & Academic Precinct

MSCP Integrated Water Management Plan



MSCP INTEGRATED WATER MANAGEMENT PLAN

Liverpool Hospital Redevelopment

01	21/01/2020	Draft Issue for Review
02	10/03/2020	Issue for review (fixtures updated)
Rev #	Date	Description of Change

APPROVALS

01	V. Gopakumar	Superseded	J. Mousdell	
02	V. Gopakumar	Current	J. Mousdell	
Rev #	Author	Status	Reviewer	Approver

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UTILITY SERVICES

1 GENERAL

Warren Smith & Partners (WS+P) have been engaged by Health Infrastructure to prepare an Integrated Water Management Plan for the proposed Multi Storey Car Park (MSCP) at the Liverpool Health and Academic Precinct, Corner of Elizabeth and Goulburn Streets, Liverpool, 2170 (Figure 1). This report is for the MSCP and the purpose is to identify suitable servicing arrangements are available and discuss any expected upgrade and augmentation requirements.



Figure 1: Aerial view of multistorey carpark.

2 PROPOSED MSCP WORKS

2.1 DEMAND CALCULATIONS

Given that the carpark is made up of 2 toilets and 2 basins, and about 26 hose taps across the levels (including future), the water and sewer demand calculations will be made on the basis of consumption assumptions, in the absence of car park water consumption data from industry.

Note there is no gas required for the MSCP

2.1.1 WATER DEMAND CALCULATIONS

Where possible, potable water usage will be reduced by the use of low flow taps and sanitary fixtures, typically using the following flow rates:

- WC 4.5 L/flush
- Basin 7.7L/m
- Hose Taps 7.7L/m

The water demand calculations will be made up of two parts, one for the WC/basin and one for the hose taps.

WC and Basin – It is estimated that there may be 10 uses of the WC in a day, along with 10 uses of the basin that lasts 15 seconds each. This is summarised in **Table 1**.

Table 1: Average Daily Water Demand – WC and Basin

Fixture	No of Fixtures	Usage Rate (each)	Usage Duration	Usage Frequency per day	Average Demand (L/Day)
Basin	2	7.7L/min	0.25min (15s)	10 uses	38.5L/day
WC	2	4.5L/flush	N/A	10 uses	90L/day
Total					128.5L/day

Hose Taps – It is assumed that of the 26 hose taps in the car park, on average 2 hose taps will each be used daily for a period of 5 min, noting that this is a conservative estimate. Total hose tap consumption based on this assumption is summarised in Table 2

Table 2: Average Daily Water Demand – Hose Taps

Fixture	Usage Rate	Usage Duration	No. of hose taps in use	Average Demand (L/Day)
Hose Tap	18L/min	5 min	2	180L/day

Total				180L/day
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Summation of the demands in the tables above are summarised as follows:

Table 3: Total car park water consumption

Fixture	Average Demand (L/Day)
Basin	38.5L/day
WC	90L/day
Hose Tap	180L/day
Total	308.5L/day

2.1.2 SEWER DEMAND CALCULATIONS

The hose taps will drain into the rainwater outlets and will not be included in the sewer demand calcs. Therefore, the daily sewer demand of the car park is derived from the WC and basin usage, summarised below:

Table 4: Sewer discharge calculation

Fixture	Average Demand (L/Day)
Basin	38.5L/day
WC	90L/day
Total	128.5L/day

2.2 CONNECTIONS

2.2.1 WATER AND SEWER

The potable cold water service is proposed to connect to the existing 225mm private infrastructure which reticulates slightly north of the services tunnel and extend to the pump room within the car park.

Sewer drainage is to be provided to the accessible WC and tundishes in the ground level of the car park; this will extend from the existing SMH external to the Brain Injury Unit.

Refer to Figure 2 below for details on both water and sewer discharge connection points

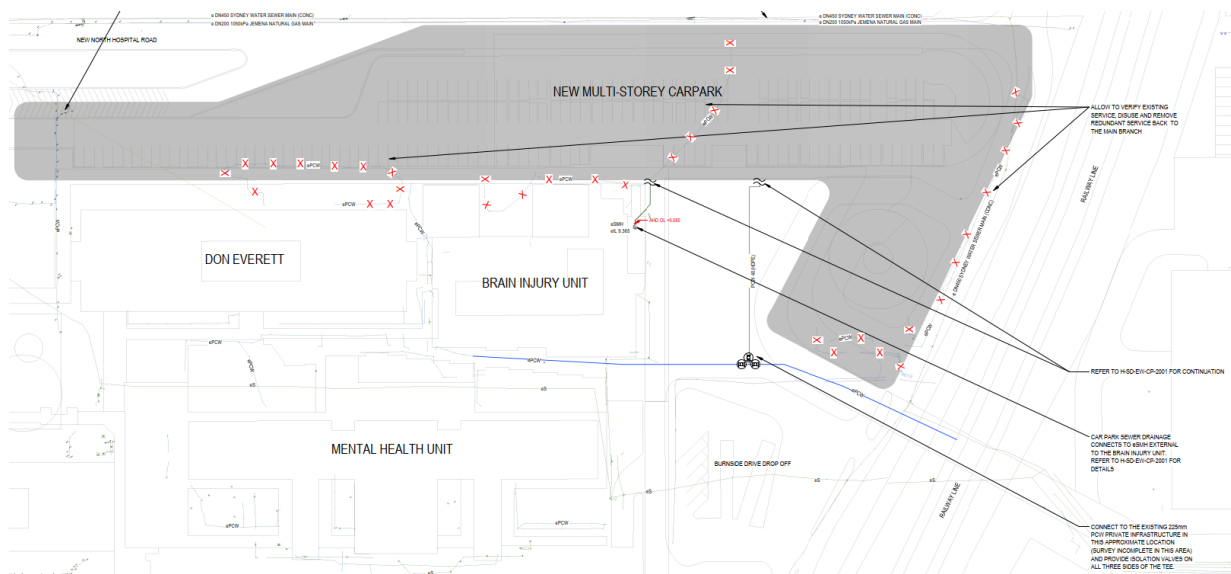


Figure 2: Water and Sewer connections to car park from site infrastructure

The MSCP will look to utilise the existing main connections as shown below.

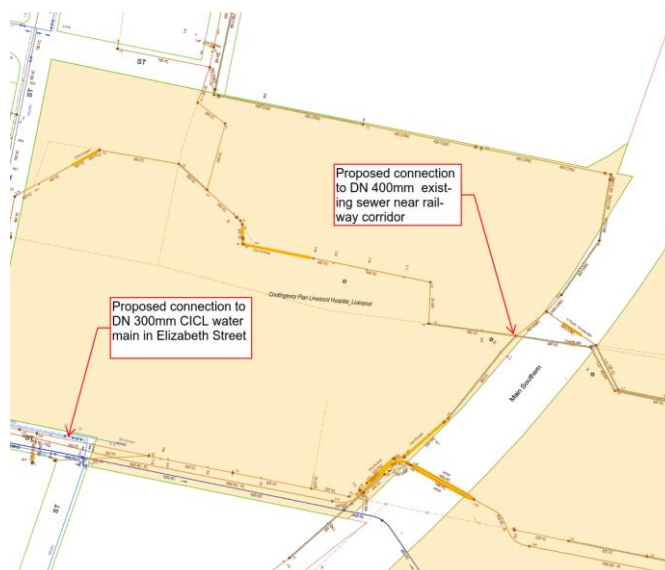


Figure 3: Main Connections

3 WATER USAGE REDUCTION

3.1 LOW FLOW TAPS

Where possible, potable water usage will be reduced by the use of low flow taps and sanitary Fixtures. Low flow taps are to be provided by the architect.

3.2 WATER METERS

The development will be metered with both utility owned water meters at the property boundary, and client owned and read water meters. These water meters will have the capability for connection a BMCS via pulse read-out and therefore be water demand and leak monitored.

3.3 RAINWATER REUSE

An option that is being explored is to extend the Sydney Water Rainwater Reuse main approximately 650m to serve the irrigation requirements on site.

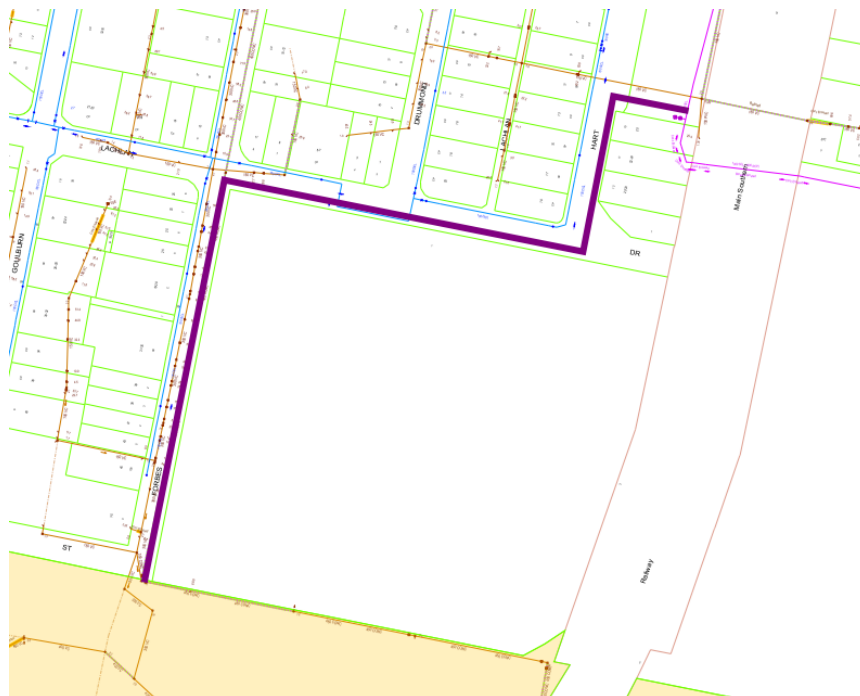


Figure 4: Potential Rainwater Reuse Main Extension

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