Taylor Thomson Whitting (NSW) Pty Ltd Consulting Engineers ACN 113 578 377
48 Chandos Street St Leonards NSW 2065 PO Box 738 Crows Nest NSW 1585
T 61 2 9439 7288 F 61 2 9439 3146 ttwsyd@ttw.com.au www.ttw.com.au

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SCHEME DESIGN REPORT
VALAD TEMPE LANDS PRINCES HIGHWAY
STORMWATER ENGINEERING

STORMWATER DESIGN PARAMETERS

General

Stormwater drainage includes the transfer of rainwater falling onto the site into the existing stormwater channels on the southern part of the site.

The stormwater drainage system is designed to protect the buildings and the environment from stormwater damage.

Stormwater drainage outlets shall be positioned to prevent water ponding outside the building or paved areas.

The stormwater drainage component of the development is to be designed and constructed to comply with:

- The relevant current Australian Standards, BCA and Design Codes.
- The requirements of the relevant Statutory Authorities and Local Regulations including the Marrickville Council DCP requirements and conditions.
- Relevant Natspec technical specifications modified to the requirements of this project.

Site Topography

The site currently slopes from North to South with a slight depression in the centre which is understood to create ponding after rain events. There are embankments on the North-East and North-West edges of the site elevating the current topography and were most likely created as a result of the previous Tempe Land Fill.

Existing Stormwater

A series of 'Earthen Drainage Ditches' run though the site, collecting water and directing flow to a sunken pit in the centre of the site. Stormwater lines only exist on the Western section of the site and serve to drain the existing warehouses. Drainage appears to be inadequate here with ponding after higher rain events. In the proposed development, higher rainfall events will be catered for through overland flow paths.

Proposed Stormwater

All stormwater will be captured in a pit and pipe system designed to the 20 year ARI, and then connected into the existing Council stormwater network via On-Site Detention (refer to section on OSD below). In the event of localised flooding, water will be discharged away from the building and directed downstream. Moreover, overland flow paths have been provided to restrict ponding and to direct excess flows via the roadways and away from the site (refer to the attached DRAINS Model for overland flow path locations):

- The eastern car park overflow is directed towards the access road and down Bellevue Street.
- The eastern entrance to the site off the Princes Highway, and landscaped areas will overflow through to the eastern car park.

- Overflow from the entrance ramp to the basement will be directed into the basement and captured by pits connecting to the southern drainage line. The catchment area of the ramp leading to the basement was minimised to prevent excessive flooding through the car park.
- The western landscaped areas upon entrance to the site off the Princes Highway is directed south, past the loading dock and through the access road to be released at smith street.
- The western loading dock overflow is directed south, past the loading dock and through the access road to be released at smith street.

Furthermore, through conversation with Council it is understood the Site is not located in a floodplain.

On Site Detention

Marrickville Council requires that the post development flow must be limited to equal or less than the existing flow from the 5 year to the 100 year ARI.

OSD was modelled in DRAINS to ensure the proposed development met the criteria. The existing catchment has been split into 3 sub catchments for the purposes of modelling; these are the catchment draining to the South of the Site, the sandstone capping draining to the South of the Site and the bypass catchment draining to the South-East of the site. Similarly, the proposed catchment was split into the catchment draining to the OSD (91,619m^2, refer attached sketch) and the bypass catchment draining to the South-East of the Site (8,261m^2, refer attached sketch). The 5yr and 100yr DRAINS results are presented in Table 1 below.

	5 yr ARI Flow	**100 yr ARI Flow**
Existing Catchment	1.66	2.79
Existing Sandstone Catchment	0.83	1.82
Existing South-East Catchment	0.16	0.27
Total Flow (m^3/s)	2.65	4.88

	5 yr ARI Flow	**100 yr ARI Flow**
Proposed Catchment with OSD	2.26	3.05
Proposed South-East Catchment	0.39	0.709+0.088 = 0.797
Total Flow (m^3/s)	2.65	3.85

Table 1: Existing and Proposed Peak Flows for 5 & 100 year ARI Storm Event

An OSD of volume 400m^3 is required to meet the criteria. As shown above, both the 5 and 100 year ARI flows have been limited to existing conditions. Refer to attached disk for DRAINS Diagrammatic and Detailed Results.

Flooding

The proposed development does not have any adverse hydraulic affect on the current state of adjacent and downstream properties during the 100 year storm event.

The 100 year storm flood extents (overland flows) are directed and limited to the roadways west of the development on Smith Street and east of the development on Bellevue Street.

Should you require further information please contact me on (02) 9439-7288.

TAYLOR THOMSON WHITTING Pty Ltd
Regards,

Anthony Lahoud
Senior Civil Engineer

Overall Catchment Plan (NTS)

LEGEND:

AREA DRAING TO OSD
91619m²

AREA BYPASSING OSD TANK
8261m²

TOTAL SITE AREA = 99880m²