



Civil



TaylorThomsonWhitting

Flood Assessment Old Kings School Parramatta

for Old Kings School

29/03/2016

151463 P

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

This document is copyright and is the property of Taylor Thomson Whitting (NSW) Pty Ltd and must not be used without authorisation. © 2016 Taylor Thomson Whitting



Quality
ISO 9001

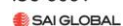


TABLE OF CONTENTS

Section	Page
1.0 INTRODUCTION.....	3
1.1 EXISTING SITE	3
1.2 PROPOSED DEVELOPMENT	4
2.0 REFERENCE DOCUMENTS	4
3.0 FLOODING	5
3.1 FLOOD LEVELS	5
3.2 FLOOD CONTROLS	6
4.0 OVERLAND FLOW	7
5.0 CONCLUSIONS.....	8

1.0 INTRODUCTION

This report has been prepared to support the State Significant Development Application for the Old Kings School in Parramatta.

1.1 Existing Site

Old King's School is bound by O'Connell Street to the west, Victoria Road to the north and Marist Place in the east. The site consists of buildings, car parking areas and grassed open spaces. Whilst it is appreciated that the School covers a larger area the proposed works cover only the extent shown below. All levels within the area outside the extent of works will remain unchanged.



Figure 1 Site Location (source: neamap.com.au)

1.2 Proposed Development

The development proposal involves the refurbishment of the existing buildings within the School grounds and the construction of a 2 storey building to be used as a hall. A proposed site plan is shown as Figure 2.

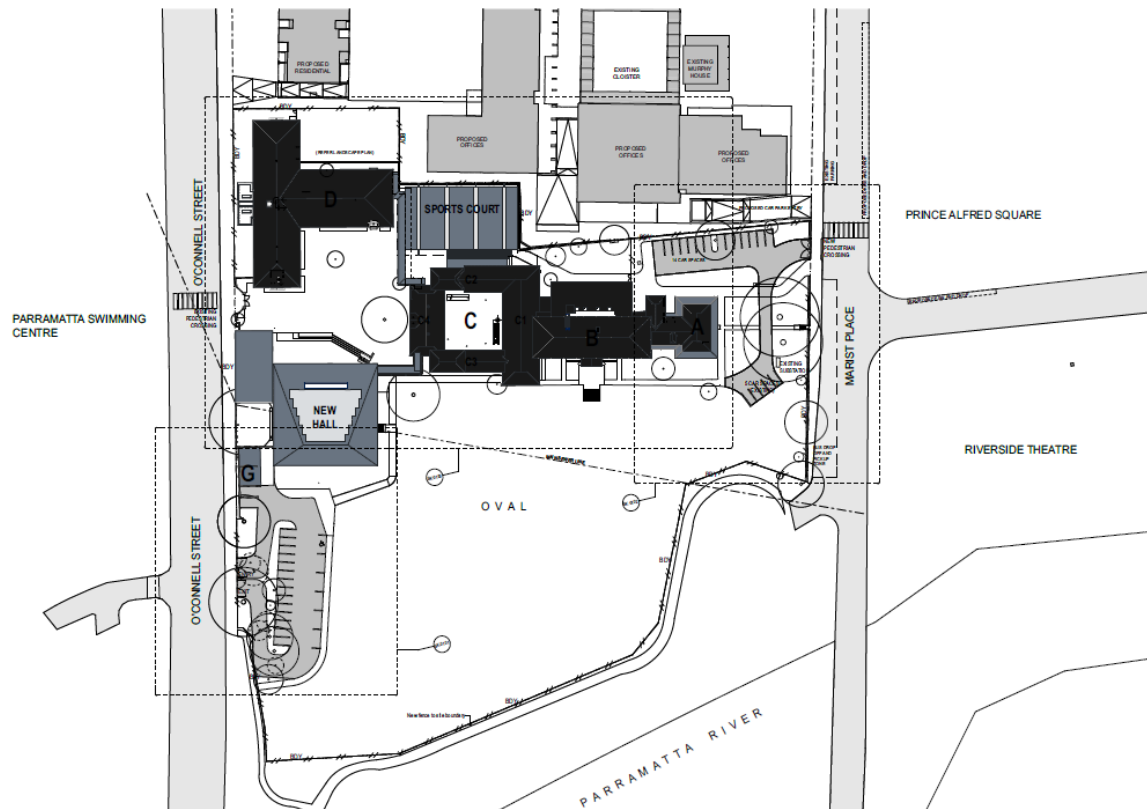


Figure 2 Proposed Works Site Plan

2.0 REFERENCE DOCUMENTS

The following documents have been used as references in this report:

- Architectural Drawings by Tonkin Zulaikha Greer Architects dated 24/11/2015
- Parramatta Development Control Plan (DCP) 2011
- City of Parramatta Local Floodplain Risk Management Policy (26 June 2006).

3.0 FLOODING

3.1 Flood Levels

Site flooding has been reviewed against Council's flood maps. The entire site is within the Probable Maximum Flood (PMF) flood extent. The proposed building areas are above the 100-year flood level. There is a small portion of proposed carpark area that is within the 100 year flood extent. This proposed carpark area is to be utilized for a pick up/drop off area. The approximate flood levels are presented in Table 1.

Table 1 Approximate Flood Levels

Location	100-year ARI flood level (mAHD)	PMF level (mAHD)
O'Connell Street	8.0	13.1

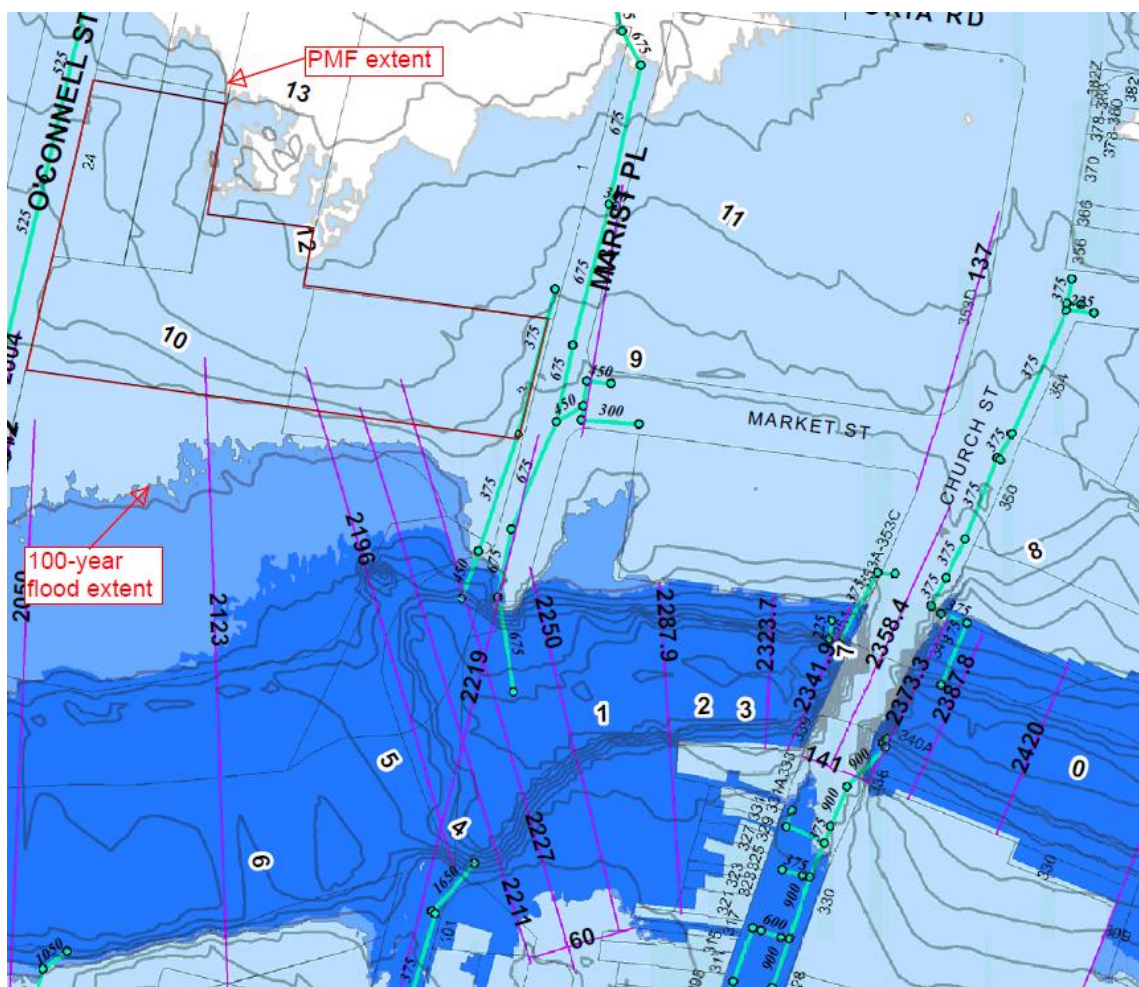


Figure 3 Flood Map

3.2 Flood Controls

Flooding controls are outlined in the City of Parramatta Local Floodplain Risk Management Policy. The site is classified as Commercial and Industrial. The building works are within the Low Flood Risk Precinct. There is a small proposed carpark within the south western corner of the site that is within the 100-year flood extent. The following relevant controls have been extracted from the Floodplain Matrix in the policy:

Control	Response
Floor Level	
Habitable floor levels to be equal to or greater than the 100 year ARI flood level plus freeboard (500mm).	The lowest proposed ground floor level across the site is at 9.67m Australian Height Datum (AHD). This is at least 1.5m above the 100-year Average Recurrence Interval (ARI) flood level.
A restriction is to be placed on the title of the land, pursuant to S.88B of the Conveyancing Act, where the lowest habitable floor area is elevated above finished ground level, confirming that the subfloor space is not to be used in any form.	There is no proposal to raise any buildings above ground level.
Flood Affection	
The impact of the development on flooding elsewhere to be considered having regard to (i) loss of flood storage; (ii) changes in flood levels, flows and velocities caused by alterations to flood flows; and (iii) the cumulative impact of multiple potential developments in the vicinity.	The impact on flooding is mainly limited to the PMF event. The impact of the development on such a flood event is considered to be minimal. There is a small portion of carpark area that is proposed for pick-up/drop-off within the 100-year flood extent. Given the small area and its proximity to the oval and the Parramatta River it is not expected to create any actionable nuisance to surrounding properties.
Car Parking & Driveway Access	
The minimum surface level of open spaces or carports shall be as high as practical, but no lower than 0.1m below the 100 year ARI flood level. In the case of garages, the minimum surface level shall be as high as practical, but no lower than the 100 year ARI flood level.	The proposed drop off and pick up zone car park will be at a minimum Reduced Level (RL) of 7.9m AHD. This is 100mm below the 100-year ARI flood level.
Garages capable of accommodating more than 3 motor vehicles on land zones for urban purposes, or enclosed car parking, must be protected from inundation by floods equal to or greater than the 100 year ARI flood. Ramp levels to be no lower than 0.5m	No garages are proposed.

Control	Response
above the 100 year ARI flood level.	
The level of the driveway providing access between the road and parking spaces shall be no lower than 0.2m below the 100 year ARI flood level.	The lowest level of the existing driveway access is 8.33m AHD. It is not proposed to change any levels at the vehicle crossover area. Therefore the vehicle crossover is 330mm higher than the 100-year ARI Flood Level.
Enclosed car parking and car parking areas accommodating more than 3 vehicles, with a floor below the 100 year ARI flood level, shall have adequate warning systems, signage, exits and evacuation routes.	No enclosed carparks are proposed. Where carparks are below 8m AHD (100-year storm flood level) signage will be installed.
Restraints or vehicle barriers to be provided to prevent floating vehicles leaving a site during a 100 year ARI flood.	No enclosed carparks or car spaces will be more than 0.2m below the 100-year flood level.
Evacuation	
Reliable access for pedestrians and vehicles is required from the site to an area of refuge above the PMF level, either on site (eg. second storey) or off site.	Buildings A, B, C and D have a first floor level that is above the PMF flood level of 13.1m AHD. Therefore pedestrians can retreat to the upper levels of these buildings if required.
Applicant to demonstrate the development is consistent with any relevant flood evacuation strategy or similar plan.	The development is consistent with the Parramatta Local Disaster Plan (DISPLAN)
Adequate flood warning is available to allow safe and orderly evacuation without increased reliance upon SES or other authorised emergency services personnel.	Given the nature of the flooding is caused from flooding of Parramatta River flood water rise is expected to be slower than flash flooding. A warning system shall be put in place to provide adequate time for students to proceed to higher ground if required.

4.0 OVERLAND FLOW

The existing overland flow path for the site will be unaltered. Proposed buildings and hardstand areas will continue to be graded towards the oval area which drains to Parramatta River.

5.0 CONCLUSIONS

Flooding controls outlined in the City of Parramatta Local Floodplain Risk Management Policy are addressed to reduce the impact of flooding on the site. It is recommended that as the detailed design progresses this information be reviewed.

Prepared by:
**TAYLOR THOMSON WHITTING
(NSW) PTY LTD**



**Erin Hogan
Engineer**

Authorised by:
**TAYLOR THOMSON WHITTING
(NSW) PTY LTD**



**Paul Yannoulatos
Technical Director**

P:\2015\1514\151463\Reports\160329 Flood Assessment.doc