

NEPEAN CREATIVE AND PERFORMING ARTS HIGH SCHOOL

CIVIL ENGINEERING FLOOD STATEMENT



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ISSUE AUTHORISATION

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1 Introduction

enstruct have been engaged by School Infrastructure NSW to provide civil engineering consultancy regarding flooding at Nepean Creative and Performing Arts High School. The site is located at 115-119 Great Western Hwy, Emu Plains.

Flood information has been extracted from the Penrith Development Control Plan 2014, the Penrith Stormwater Drainage Policy, and the Flood Level Enquiry Letter (Elias Ishak correspondence dated 24 November 2020).

Flooding risks will be discussed in terms of the sites susceptibility to inundation by:

- Overland Flow Paths
- 1% Annual Exceedance Probability (AEP) storm event flood extents and depths
- Probable Maximum Flood storm event flood extents and depths

Schools Infrastructure NSW (SINSW) is seeking to develop the existing school campus of Nepean Creative and Performing Arts High School with the addition of a multi-purpose, single storey building, and an upgrade of associated surrounding pavement and landscaping features. This will provide a school Hall and Gymnasium to strengthen the curriculum offering at the High School, and enhance the relationships that the school has with community groups and adjacent schools.

1.1 Site Location

Nepean Creative and Performing Arts High School is located at 115-119 Great Western Highway (Figure 1), Emu Plains, within the Penrith City Council Local Government Area. The development site has an area of approximately 0.85ha. Site levels fall gently from south to north towards the train line, from 26m AHD at the southern boundary, to 24.5m AHD along the northern boundary (Figure 2). The site is bounded by a railway track to the north, Old Bathurst Road to the north east, the Great Western Highway on the south east, and residential buildings along Gardenia Avenue on the south western boundary.

1.2 Hall Location

The proposed school hall location on the site, as per the Penrith City Council Nepean River Flood Study and as shown in Figure 3, is free from 1% AEP flooding impacts.



Figure 1: Site Location (Source: Google Maps)



Figure 2: Site Contours (Source: Penrith Council)

2 Flood Risk

Penrith City Council provides a Nepean River Flood Study which indicates that the Nepean Creative and Performing Arts High School is impacted by 1% AEP and PMF storm event flood depths and extents. **Figure 3** and **Figure 4** indicate the susceptibility of the site to flood hazards in the 1% Annual Exceedance Probability (AEP) and Probable Maximum Flood (PMF) storm events respectively, due to its proximity to the Nepean River. The proposed hall location is not located within the 1% AEP flood extents, but is within the PMF flood extents.



Figure 3: Penrith City Council 1% AEP storm event flood depths and extents (Source: Nepean River Flood Study Volume 2 Flood Maps)

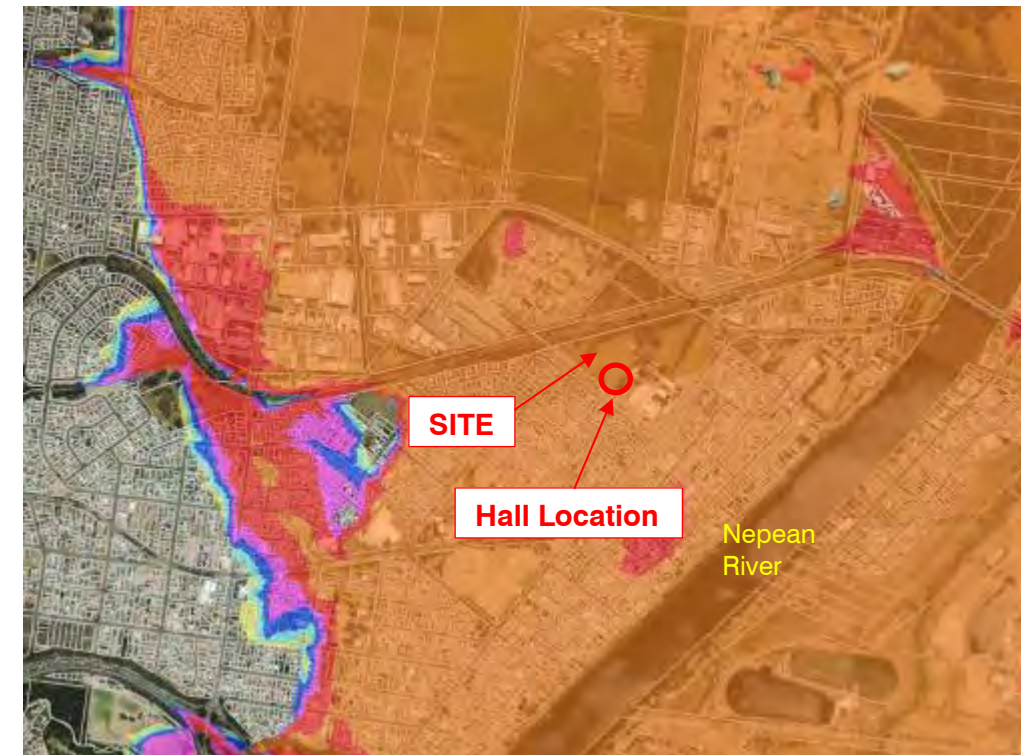


Figure 4: Penrith City Council PMF storm event flood depths and extents (Source: Nepean River Flood Study Volume 2 Flood Maps)

3 Flood Planning Requirements

A minimum freeboard of 500mm over the 1% AEP water surface level shall be provided for habitable floor levels, 100mm freeboard for garages and non-habitable flood levels, and 300mm for crest of driveway ramps, as per the Penrith Stormwater Drainage Policy requirements (Section 3.1.2 Table 4).

Table 4 Minimum Freeboard Requirements

Description	Minimum Freeboard (mm)	
	Overland Flow Flooding: ⁽¹⁾	OSD Systems:
Residential, Industrial or Commercial floor levels	500	300
Garages and non-habitable floor levels	100	100 ⁽²⁾
Crest of driveway ramps, pedestrian entry points and any openings to the basement (e.g. vents)	300	300

Notes:

⁽¹⁾ Properties affected by mainstream flooding must meet the requirements of Penrith City Council's Development Control Plan Section C3.5.

⁽²⁾ This minimum freeboard requirement also applies to the enclosed basement garages adjacent to the pump-out system.

Figure 5: Minimum Freeboard Requirements (Source: Penrith Stormwater Drainage Policy)

A Flood Planning Certificate issued by Elias Ishak (Penrith Council) indicates a Flood Planning Level of RL26.50m AHD (Appendix A) is to be applied to the site.

4 Student Capacity

Advice from Council indicates that the site is located in a Low Flood Island which causes the evacuation routes to be obstructed for storms at and above the 1% AEP. The proposed development does not increase the student population and only facilitates the existing number of students. The high school has an approximate enrolment of 1,175 students as of 2019. A school of this enrolment size is required to provide a gymnasium or hall no less than 620m² in size on the school campus as per Educational Facilities Standards and Guidelines (ESFG). The proposed hall caters for the current student population with the development meeting 'Stream 9' facility requirements (schools up to 1,500 students) and is not seeking to address additional growth.

Penrith City Council will not support additional users on the site due to risk from flooding and limited evacuation routes. As the hall is not increasing classroom space or student numbers, coupled with controls on hall usage after hours, there will be no increase in people on the campus. Therefore, there is no increase in flooding risk or risk to school users.

5 Conclusion

The proposed hall location at the Nepean Creative and Performing Arts High School is not susceptible to flooding impacts in the 1% AEP storm event, but is within the PMF storm event extents. The site is located approximately 500m from the Nepean River and thus is impacted by this waterway.

Penrith City Council requires a freeboard of 500mm above the 1% AEP water surface level for habitable floor levels. However, a Flood Planning Level of RL26.50m AHD is to be adopted for the site as per the Flood Planning Certificate (refer Appendix A).

As the hall does not increase classroom space and after hours use will cap numbers, there is no increase in people on the campus. Therefore, there is no increase in flooding risk.

APPENDIX A

COUNCIL FLOOD LEVEL ENQUIRY