

## Abstract

## THE STUDY AREA

Haslams Creek drains a catchment area of about 17km<sup>2</sup> in the Auburn Council Local Government Area. Figure 1 defines the catchment and the major drainage branches while all the modelled drainage branches are shown in greater detail in Figure 8.

Land use within the catchment is mostly residential with pockets of industrial and commercial land use while the south-eastern portion of the catchment also includes a portion of the Rockwood Cemetery.

The main creek is a concrete lined channel upstream of Parramatta Road but has an unlined invert and lined banks between Parramatta Road and the M4 Motorway. The creek channel downstream of the M4 Motorway has recently been reconstructed as part of the Olympic Village development. This flood study is only concerned with the portion of the catchment upstream of the M4 Motorway.

The trunk drainage system for the catchment includes various stormwater channels and pipe networks which discharge into Haslams Creek. The various tributary stormwater channels are all lined. There are numerous structures along the length of the channels, mainly road and rail crossings, but there are also some instances of residential and industrial developments spanning the channels.

The extent of trunk drainage system analysis was defined in the Study brief (see Appendix A) and is also summarised in Table 1. Some parts of the trunk drainage system, including Haslams Creek, are under the control of Sydney Water while other parts of the system are under the control of Auburn Council, as also summarised in Table 1.

Overbank flooding of the open channel systems and surcharging of the pipe drainage systems have occurred during large rainfall events, such as those occurring in November 1961, August 1986 and January 1996. Areas of the catchment which have experienced problems in the past include:

- Vivian Crescent, which is drained by a small capacity pipe, and also experiences overland flow from the Railway Culverts Sub-Branch and from Campbell St;
- Bachell Street, Delhi Street and between Simla Street and Parramatta Road on the Arthur Street Branch;
- between James Street and East Street on the Joseph Street Branch;
- Frederick Street and Sweet Street (upstream of the Motor Registry) on the Church Street Branch;
- between Dartbrook Road and Holliday Lane on the St Hilliers Road Branch; and
- between Harrow Road and Dudley Street on the Auburn Heights Branch.

## REASONS FOR STUDY

While there has been occasions of overflow of the trunk drainage systems and associated inundation of adjoining lands the extent of such inundation may be substantially greater during large storm events. Therefore Council required a study to define such flood behaviour to use as a basis for floodplain management.

Various studies to derive design flood levels and discharges for certain parts of the catchment have been undertaken but there were some inconsistencies in the results of these studies. Council therefore commissioned a review of those studies. The resulting 1996 Bewsher Consulting Review of Haslams Creek Flood Studies report (Reference 1) reviewed all of the previous flood studies for Haslams Creek and found that:

- a large number of flood investigations had been completed within the study area. Those studies utilised various hydrologic and hydraulic models, various ground survey data, various modelling assumptions (e.g. extent of flood storage), various assumptions concerning modelling of hydraulic structures, various techniques for model calibration and verification, various assumptions concerning development conditions within the catchment, etc. The geographical coverage of each study was also different in most cases;
- given the nature of the Haslams Creek catchment, the models adopted for a flood study or floodplain management study needed to be able to simulate: (1) channel storage and floodplain storage adjacent to the existing channel system, especially upstream of the numerous railway and road crossings; (2) affluxes at road and

railway structures; (3) a mixture of subcritical and supercritical flow, including hydraulic jumps; (4) secondary overland flowpaths; (5) pipe system capacities, pit losses and flow in pipes with submerged outlets;

- none of the previous studies had adequately modelled all of these aspects. Most of the previous studies had a limited geographical coverage. Also a number of small changes have occurred in the catchment and the channel systems since the studies were completed.

Consequently, the study recommended that a new flood study be undertaken for the branches upstream of the M4 Motorway.

The report included recommendations regarding hydrologic and hydraulic modelling. That is, a combination of RAFTS and ILSAX models were deemed suitable for the hydrologic modelling of the open channels and piped systems respectively and a combination of MIKE-11 and/or HEC-RAS models were considered suitable for the hydraulic modelling of the open channels with hydraulic gradeline analyses of each pipe drainage system.

The methodology adopted for this report is consistent with those recommendations and is detailed in Section 4. In accordance with Council's study brief (reference Appendix A) this report provides estimates of:

- design discharges for both the open channel and piped drainage systems for 5, 20 and 100 year average recurrence interval (ARI) and probable maximum flood (PMF) events;
- design flood levels, energy levels and velocities along the open channel system for the 5, 20 and 100 year ARI and PMF events;
- hydraulic and hazard categories for areas subject to overbank flooding; and
- the capacity of the trunk pipe drainage system, the overland flow discharge and the approximate depth of overland flow.

## Resource locator

[Haslams Creek - Flood Study](#)

Name: Haslams Creek - Flood Study

Protocol: WWW:DOWNLOAD-1.0-http--download

Function: download

## Unique resource identifier

Code 8f3e2a09-8d70-49c6-9034-d98a41ecf0fe

## Presentation form

Edition 27/06/2017

## Dataset language

English

## Metadata standard

Name ISO 19115

Edition 2016

Dataset URI <https://datasets.seed.nsw.gov.au/dataset/8f3e2a09-8d70-49c6-9034-d98a41ecf0fe>

Purpose Land and Resource Management

Status On going

## Spatial representation

Type vector

## Spatial reference system

Code  
identifying the  
spatial  
reference  
system 4283

## Topic category

## Keyword set

keyword value

## Originating controlled vocabulary

Title ANZLIC Search Words  
Reference date 2008-05-16

## Geographic location

West bounding longitude 151.011626  
East bounding longitude 151.08029  
North bounding latitude -33.872  
South bounding latitude -33.830639  
NSW Place Name Auburn

## Vertical extent information

Minimum value -100  
Maximum value 2228

## Coordinate reference system

Authority code urn:ogc:def:cs:EPSG::  
Code identifying the coordinate reference system 5711

## Temporal extent

Begin position  
End position N/A

## Dataset reference date

## Resource maintenance

Maintenance and update frequency As needed

## Contact info

Contact position Data Broker  
Organisation name Cumberland Council  
Full postal address council@cumberland.nsw.gov.au  
Email address [council@cumberland.nsw.gov.au](mailto:council@cumberland.nsw.gov.au)  
Responsible party role pointOfContact

Limitations on public access

## Responsible party

Contact position	Data Broker
Organisation name	Cumberland Council
Full postal address	council@cumberland.nsw.gov.au
Email address	<a href="mailto:council@cumberland.nsw.gov.au">council@cumberland.nsw.gov.au</a>
Responsible party role	pointOfContact

## Metadata point of contact

Contact position	Data Broker
Organisation name	Cumberland Council
Full postal address	council@cumberland.nsw.gov.au
Email address	<a href="mailto:council@cumberland.nsw.gov.au">council@cumberland.nsw.gov.au</a>
Responsible party role	pointOfContact

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Metadata language	
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