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Hexham Train Support Facility Flood Impact Assessment

Final Report
R.N2335.002.01
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Hexham Train Support Facility
Flood Impact Assessment
Final Report

Prepared For:	QR National
Prepared By:	BMT WBM Pty Ltd (Member of the BMT group of companies)

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Client Reference	

Title :	Hexham Train Support Facility Flood Impact Assessment
Author :	Daniel Williams
Synopsis :	Report for the Hexham Train Support Facility detailing the existing flood conditions of the proposed development and the assessment of potential cumulative flood impacts with other planned developments in the vicinity of the site. Flood mitigation is also considered to reduce the magnitude of flood impacts.

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1 INTRODUCTION

1.1 Purpose of this Report

This report has been commissioned by ADW Johnson on behalf of QR National for the purposes of identifying potential impacts of the proposed Hexham Train Support Facility, in conjunction with other planned developments in the vicinity of the site. The current report builds on a previous Flood Impact Assessment for the proposed development (WorleyParsons, 2011). The flood impact assessment of this report considers the cumulative impacts of the QR National Train Support Facility, ARTC Hexham Relief Roads and the access road alignment from the Tarro interchange (referred to as the 'proposed works'). The cumulative impacts of the proposed works and the RMS Pacific Highway upgrade from the F3 to Heatherbrae are also assessed.

The assessment includes a detailed flood impact investigation using an existing TUFLOW flood model to define existing flood conditions and quantify flooding impacts related to the proposed developments. The existing flood model was initially developed for the Williams River Flood Study, completed by BMT WBM in 2009 on behalf of Port Stephens Council (Council) and was further developed as part of the Williamtown / Salt Ash Flood Study Review (BMT WBM, 2011). Council has kindly given permission to use the existing model in the current flood impact assessment.

The flood impact assessment presented in this document details the nature of the proposed development and the analysis undertaken to quantify potential flood impact.

1.2 Site Location

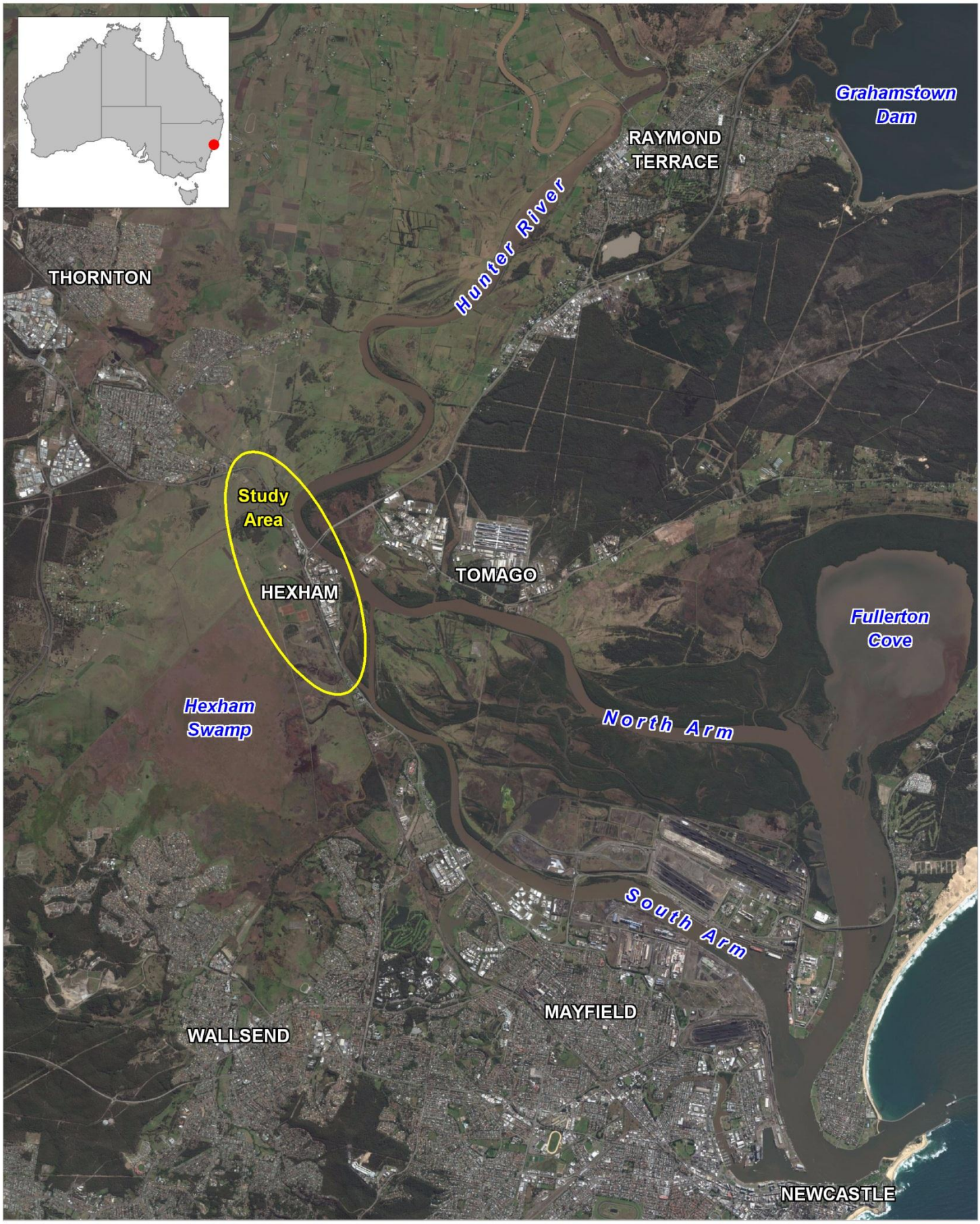
The proposed site of the Train Support Facility is located within the Lower Hunter Valley, near Hexham and is presented in Figure 1-1.

1.3 Computer Modelling Tool

A detailed two dimensional computer model of the Lower Hunter floodplain was developed by BMT WBM as part of the Williams River Flood Study (BMT WBM, 2009), on behalf of Port Stephens Council and Dungog Shire Council. The model used a regular 40 by 40 m grid, covering an area of some 120 square kilometres.

There is considerable interaction between flooding in the lower parts of the Williams River and the Hunter River, requiring a model linking the two floodplains. The Hunter River model was developed as part of a project for the Roads and Traffic Authority (RTA) investigating a new Pacific Highway crossing of the Hunter River.

The hydraulic model was calibrated to the February 1990, March 1978 and May 2001 flood events. In terms of the Lower Hunter reach relevant to the subject proposed development site, the February 1990 flood event was the principal event used to calibrate the lower section of the Williams River model and the lower Hunter River model, being the largest Hunter River flows (coincident with a Williams River flood).



Title:

Study Locality

Figure: 1-1

Rev: A

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

N

0 2 4km

Approx. Scale

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Filepath : K:\N2197_Hexham_Rail_Development\MapInfo\Workspaces\DRG_001_120227_Locality.WOR

The hydraulic model was further developed for the Williamtown / Salt Ash Flood Study Review (BMT WBM, 2011) which extended the modelled floodplain from Fullerton Cove through to Port Stephens. The interaction of the Hunter River with the Williamtown / Salt Ash floodplain is important for assessing large magnitude flood events in the Lower Hunter, particularly when considering potential climate change impacts. The combined design flood flows from the Hunter River and Williams River match the flood frequency analysis at Raymond Terrace from the Lower Hunter River Flood Study (PWD, 1994)

The same computer model that was developed for these studies has been used for the investigations described in this report.