Appendix C: Capacity Check (Veolia Water, August 2012)

VEOLIA
WATER

Project:	Capacity Check – Welwyn Road, Hertford
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Requested by:	Developer Services
Date:	10/08/12
File location:	[redacted]
Version:	1

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VEOLIA
WATER

INTRODUCTION

This analysis is for a capacity check of the network with a view to a proposed 300 property development.

OBJECTIVES

The model is used to ensure the development does not have a significant impact on the network. If there is an impact, reinforcements are proposed to mitigate the reduction of service.

RISK ASSESSMENT

The risks associated with new developments are: increased velocities, decreased pressures, higher head losses, existing pumps may be undersized for the increased demand and any known issues can be exacerbated. These risks are reduced by ensuring the model predictions are as accurate as possible and where these risks are realised there is a low cost suitable solution to prevent the current and proposed network from causing poor service.

MODEL LIMITATIONS

(Confidence in model)

Hertford & Ware Phase 2 model was built in Infoworks v11.5. It was calibrated too 09/06/2009. The model accurate to GIS and is accurate to Radcom within 2l/s of flow and 5m of pressure.

The findings of these hydraulic simulations therefore carry a satisfactory level of confidence.

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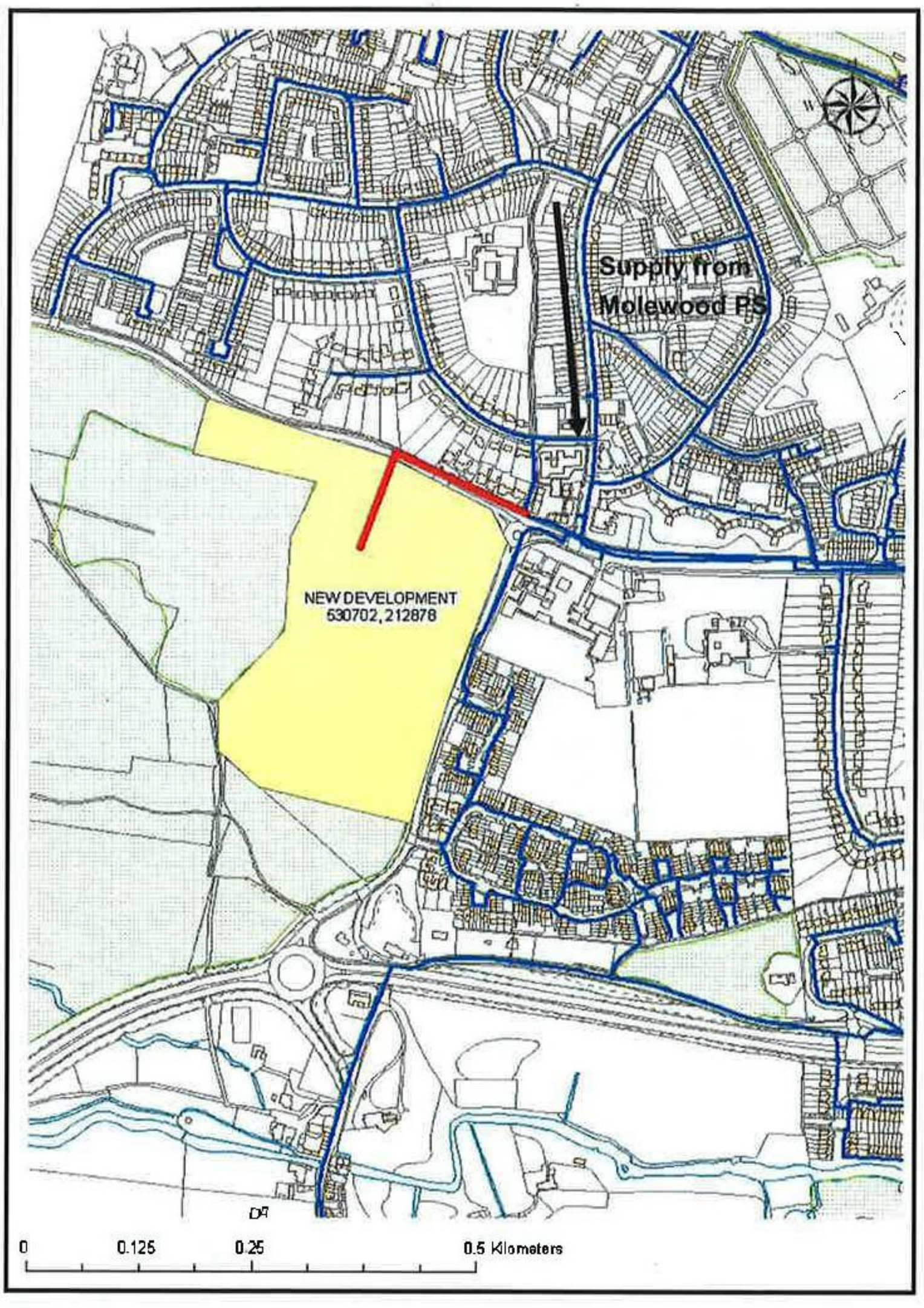
OVERVIEW



The proposed new development is to be situated off Welwyn Road, Hertford. This development is within the Sele Farm DMA and as such is supplied from Molewood PS. This analysis will be simulated with the development connecting to the existing 6" CI/SI main on Welwyn Road. This analysis will look at the capacity of the network following the installation of this main and the demand.

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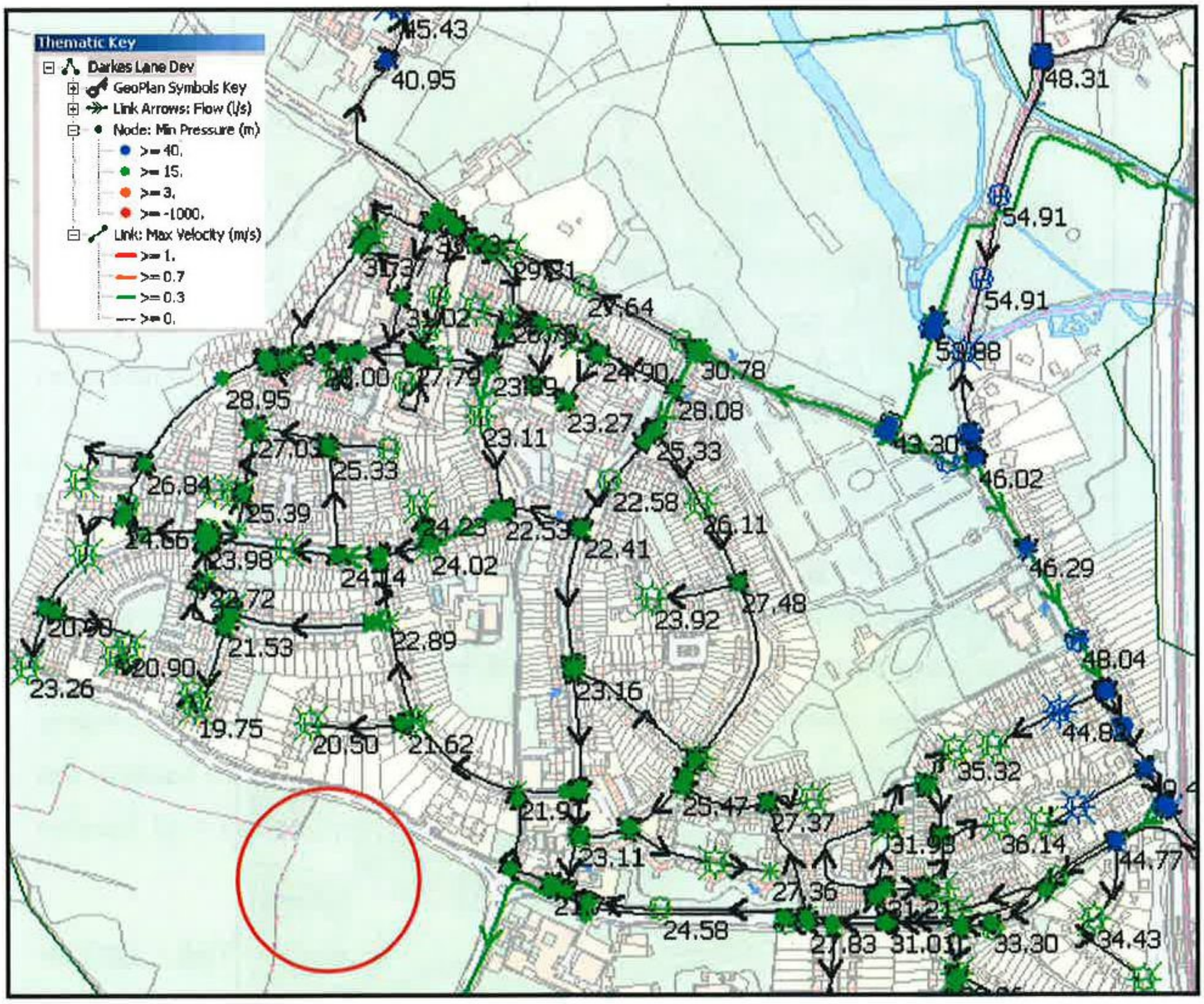
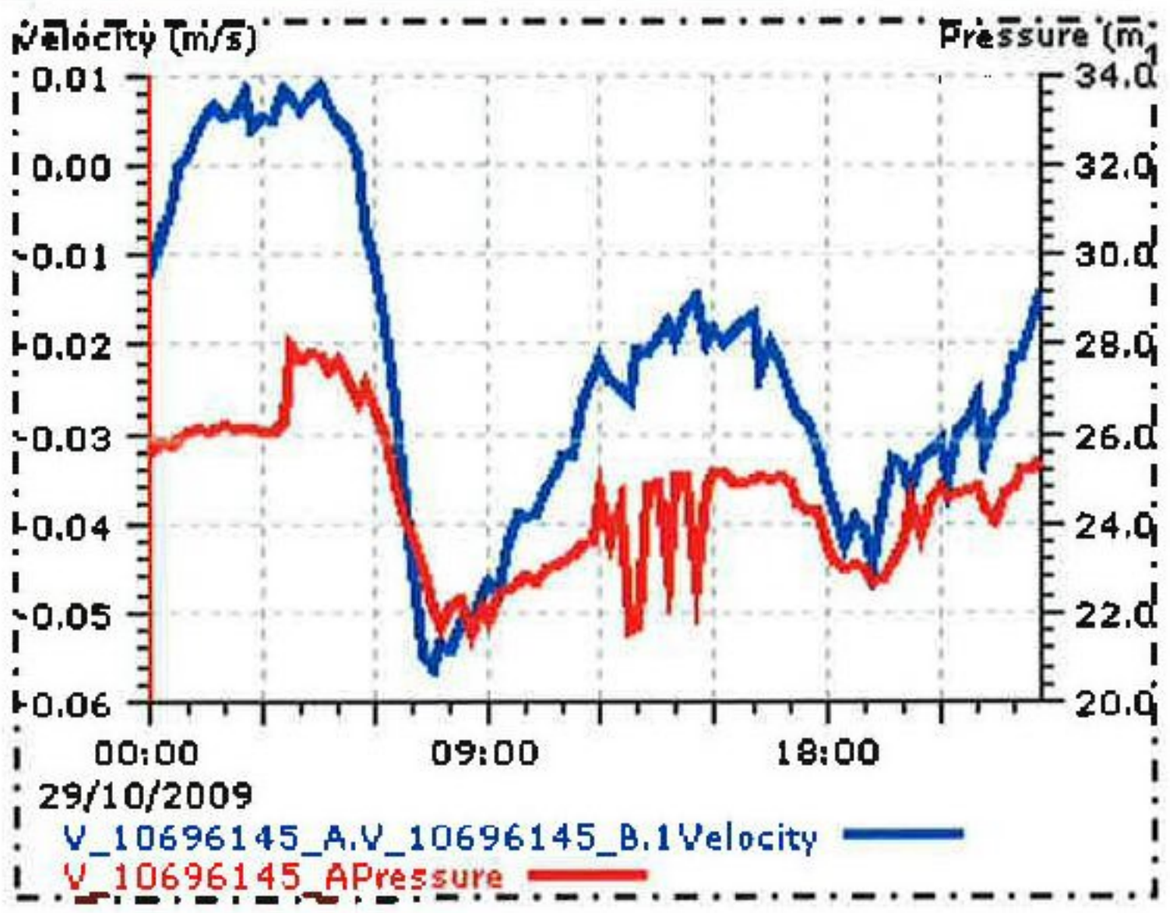
CURRENT PERFORMANCE OF NETWORK



The map above shows the performance of the existing network, at the location of the new development (circled in red). The graph (right) shows the velocity and pressure on the 6" CI existing main located on Welwyn Road.

The maximum velocity remains below 0.055m/s, and the minimum pressure is 22m. The critical point in the DMA is 19.75m during peak demand hours.



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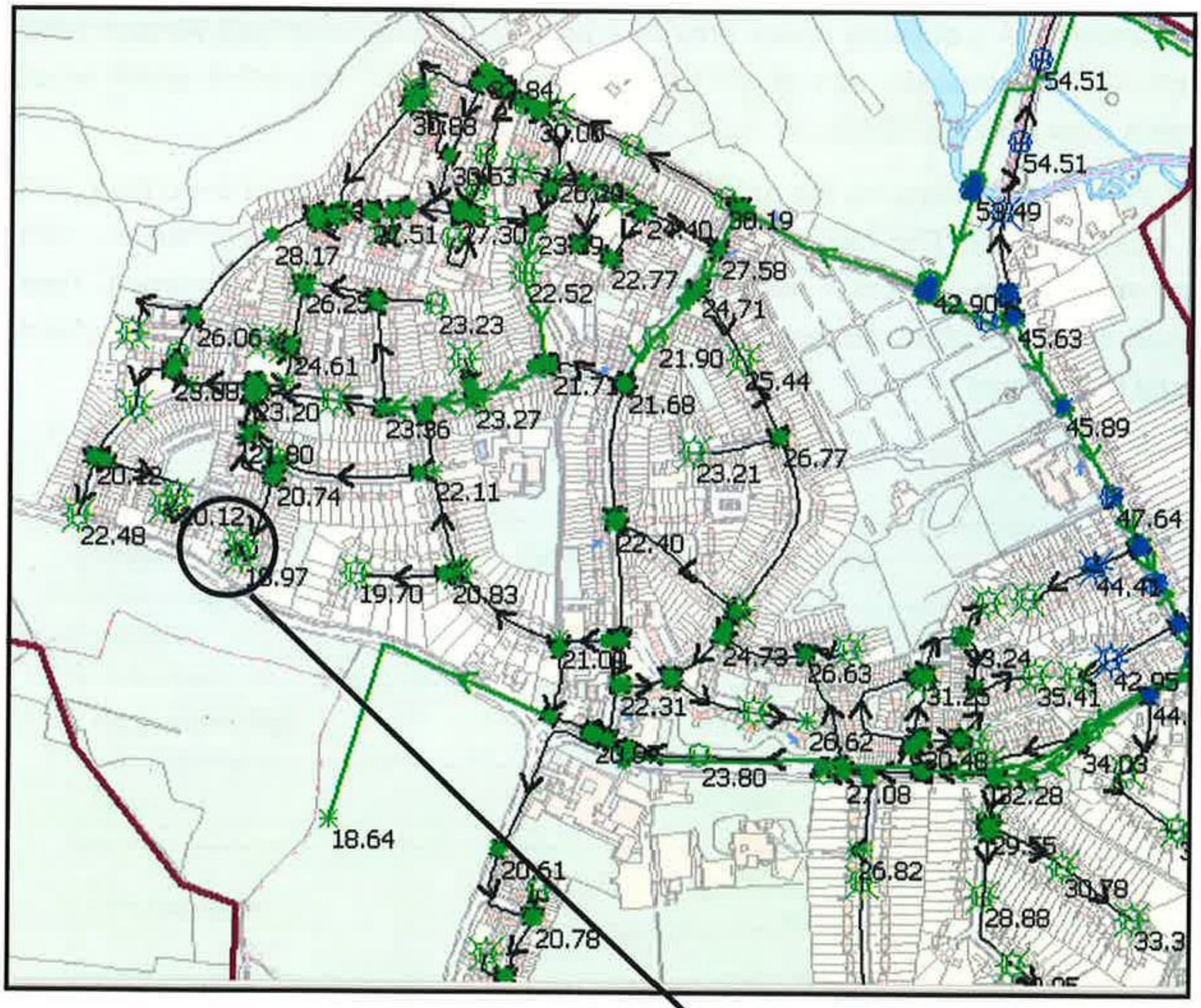
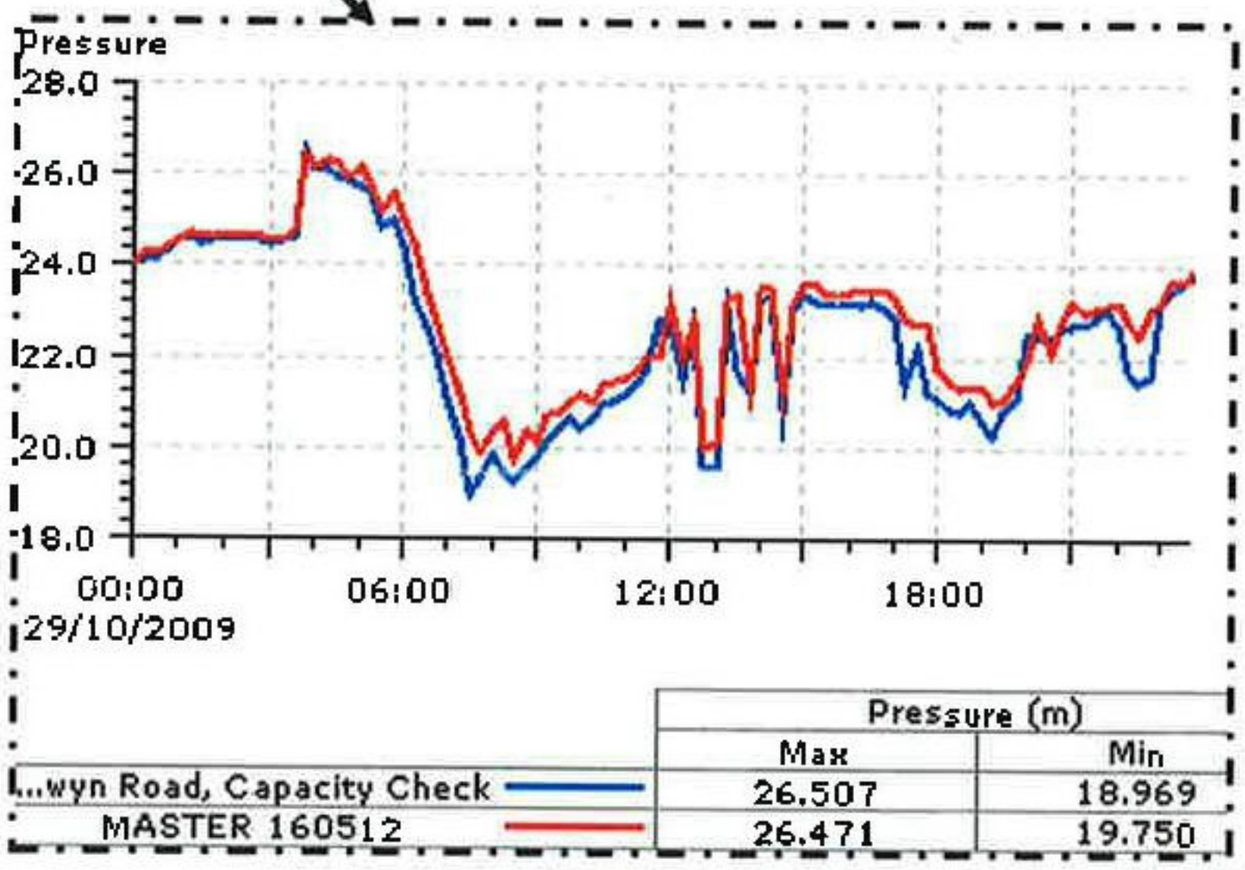
PERFORMANCE OF NETWORK WITH DEVELOPMENT



The above map illustrates the model simulation following increased demand off Welwyn Road.

Following the increase from the proposed development there is a 1m fall in minimum pressure at the critical point in the DMA (graph right). Furthermore the maximum velocities remain below 0.7m/s. No reinforcements are required to the network with a peak demand of 4l/s



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CONCLUSIONS AND RECOMMENDATIONS

This analysis is a capacity check prior to a proposed development off Welwyn road, Hertford. The proposed size of the development is for 300 properties which would have a peak demand of 4l/s.

The increased demand on the network has reduced the pressures at the critical point by less than 1m. The minimum pressure in the network was simulated as 18m. Furthermore, the maximum velocities in the network have remain below 0.7m/s. Based on the required demand for 300 properties, no reinforcements to the network would be required.