

Flood Impact Assessment

for

Proposed Commercial Hotel Development

at

No. 449 Victoria Street, Lot 304 (1), Wetherill Park

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1 Introduction

Northrop Consulting Engineers have prepared a Flood Impact Assessment for the proposed commercial development located at 449 Victoria Street, Lot 304(1), Wetherill Park (the site). The assessment has been coordinated with *Cardno*, who undertook the flood modelling and representation of results as per the requirement of *Fairfield City Council*. Subsequently, this report discusses the results obtained from *Cardno* and the comparison between pre/post flood impacts. The modelling methodology and parameters are at the discretion and responsibility of *Cardno* and we understand are regarded to be acceptable by *Fairfield City Council*.

The site is currently unoccupied with little to no vegetation other than grass cover. A concrete open channel is located adjacent to the south-eastern boundary of the site which conveys the majority of stormwater flows from the Wetherill Park catchment area to the *Prospect Reservoir*. The downstream end of the channel adjacent to the site, crosses under the Victoria Street/Newton Road roundabout through an existing culvert. An existing service station development has recently been built on the adjacent lot to the east.

The proposed development consists of the construction of a new multi-story hotel with associated driveway, forecourt and car parking areas.

The purpose of this correspondence is to present the results of the assessment and their impact on the proposed development and impact on neighbouring properties. This report should be read in conjunction with other concept design plans prepared for the Development Application submission to Council.



Figure 1 - Proposed site and surrounding characteristics

2 Previous Flood Studies

Flood studies have previously been undertaken by *Cardno* and *Fairfield City Council* for the site and the greater catchment of Wetherill Park. The results and their subsequent comments/recommendations are presented in *Fairfield City Council's Chapter 9 – Industrial Development – Amendment No. 7*. The development previously assessed was similar to the currently proposed development, with additional development on Lot 96 Newton Road. Based on the previous assessment it was concluded and deemed acceptable that the planned redevelopment would have minimal impacts on the 1% AEP event on the downstream overland flow path along Victoria Street, with minor local increases around the Victoria Street culvert and Newton Road.

3 Results

3.1 Pre-Developed Results

Flooding is predominantly due to and governed by the existing downstream culvert. The existing culverts flow capacity, when reached, causes a rise in upstream flood levels, where flood waters then overtop the channel and spill onto the private property and the adjacent road network. Minor flooding occurs to the east of the channel and spills over into the existing northern corner of Lot 96 and flood waters also inundate portions of the existing service station development.

The current site experiences minor flooding in the southern portion of the site adjacent to the channel.

A figure showing the existing extent and depth of flooding is shown in *Cardnos Figure D1 (v6)*.

3.2 Development Impact

Portions of the site are proposed to be raised/filled to prevent flood impacts on the proposed development. It shall be noted, in regards to overland flow paths and flood levels, that the 44.0 FFL of the proposed development complies with the site specific development control plan issued by FCC for 449 Victoria street and 96 Newtown road, Wetherill Park. A redistribution of flow in the 1% AEP event results no significant increase to flooding outside the proposed lot. Minor increases (maximum 50mm) occur within the site boundaries, however, there are no increases on the road reserves or on any surrounding properties. Therefore, it is deemed there is no significant impact to neighbouring properties or public roadways, since there is no significant flood impacts as a result of the proposed development according to *Cardnos* flood impact modelling assessment.

It shall be noted that *Cardnos* hydraulic modelling included the recently approved Service Station on Lot 304(2) in both the pre and post development scenarios, which has recently been constructed and hence this assessment appropriately considers potential impacts from incremental development within the area.

The developed depths and flood level differences are shown in *Cardnos Figures D1(v8)* and *D2(v8)*.

Furthermore, the maximum depth of ponding in the proposed rear carpark area is less than 220mm in the aisle and less than 120mm in a parking space. The peak 1% AEP velocity is less than 1m/s. Additionally, a row of structural bollards are proposed along the interface between the carpark and channel to remove the potential for cars to become offsite downstream nuisance debris during major events, whilst also doubling as vehicular barriers to prevent errant vehicles from entering the channel.

4 Conclusion

A flood impact assessment has been undertaken for the proposed commercial development at Lot 304(1), 449 Victoria Street, Wetherill Park. It was found that the proposed development had no significant impacts on flood behaviour in the vicinity of the subject site.

Should you have any queries regarding this correspondence, please feel free to contact the undersigned on (02) 4943 1777.

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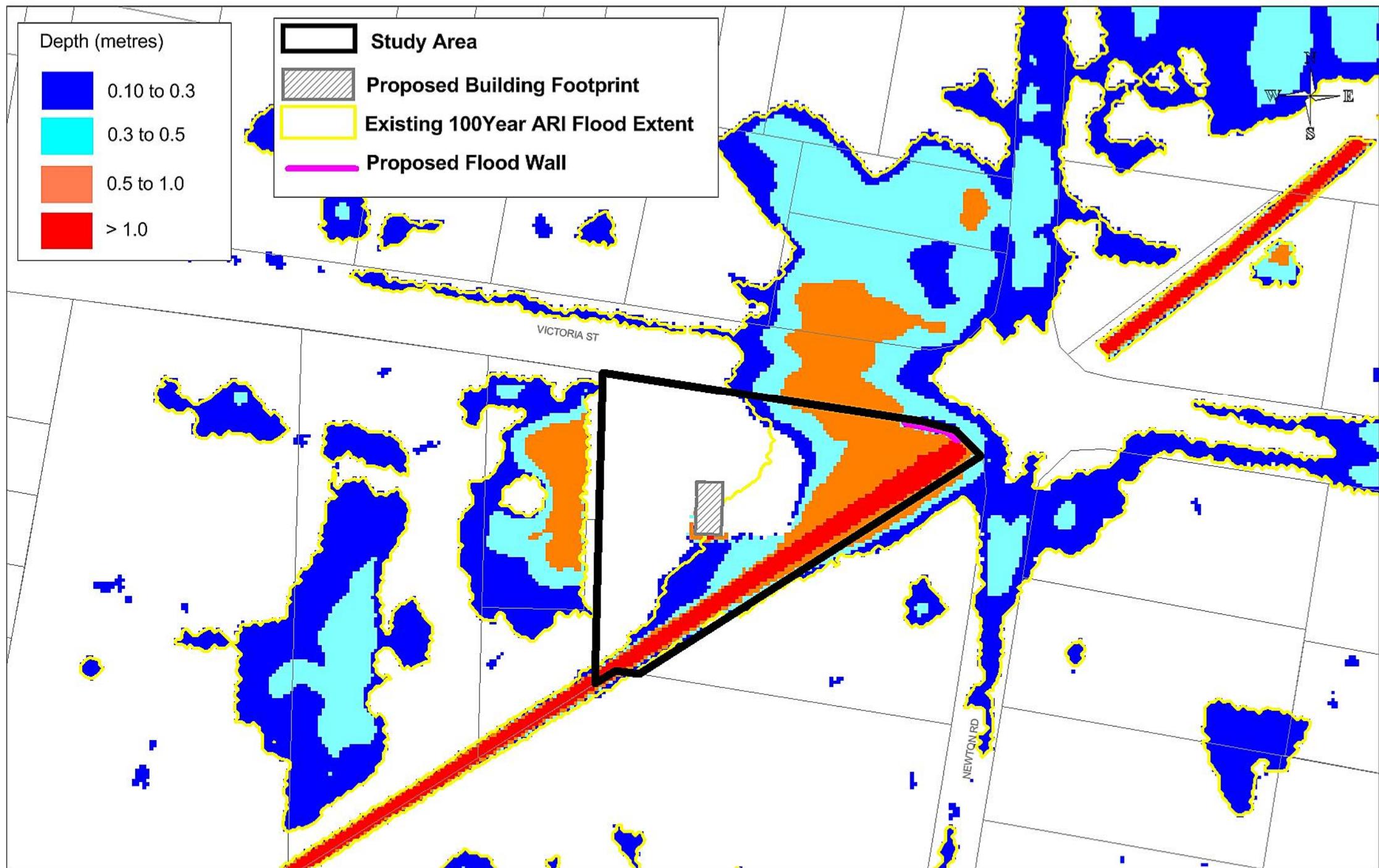
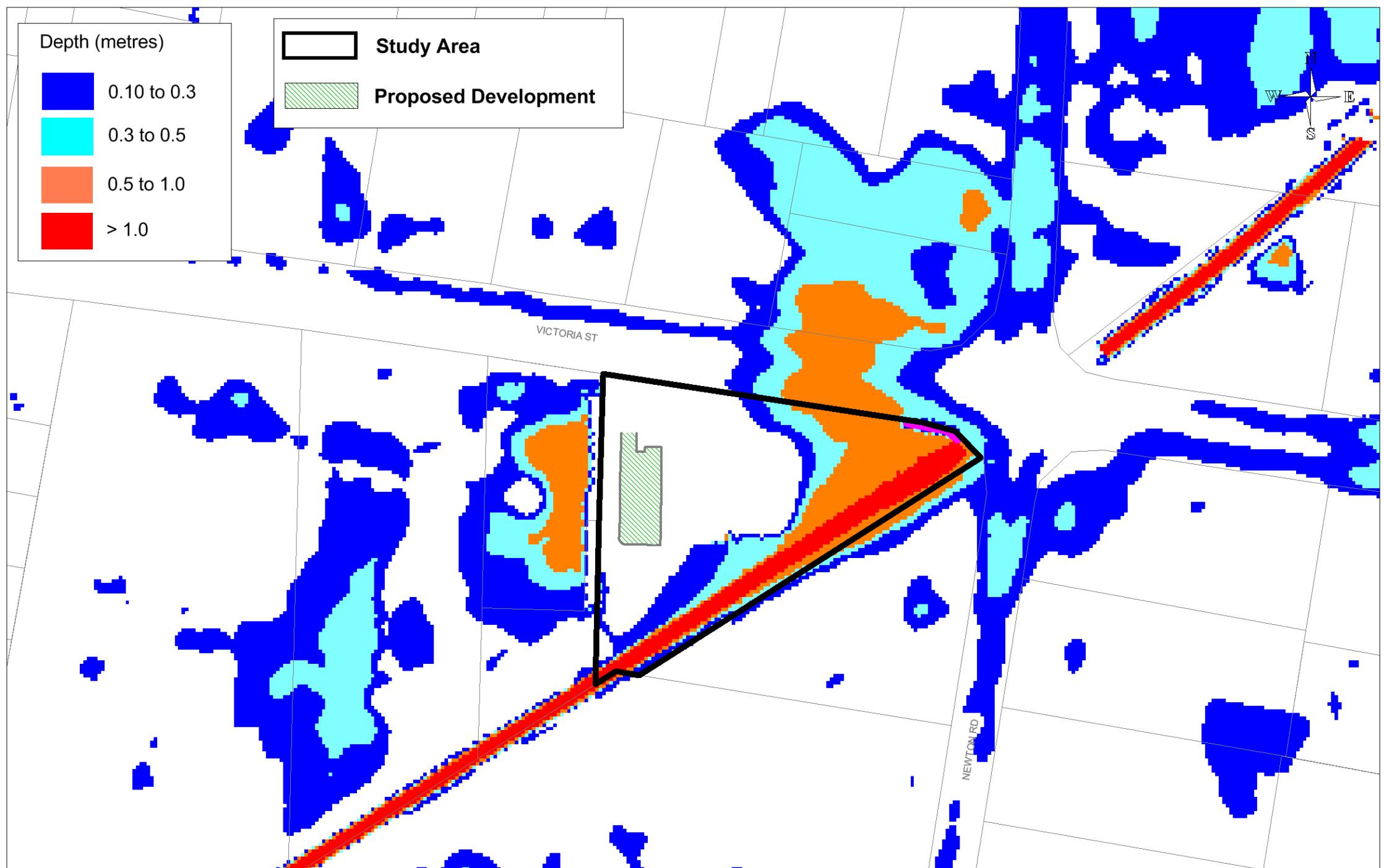


Figure D1 100Year ARI Flood Depths
Design Scenario (v6)





**Figure D2 100Year ARI Flood Level Differences
Proposed Development (v8)
Less Existing Scenario**



**Figure D3 Topography Differences
Proposed Development (v8)
Less Existing Scenario**

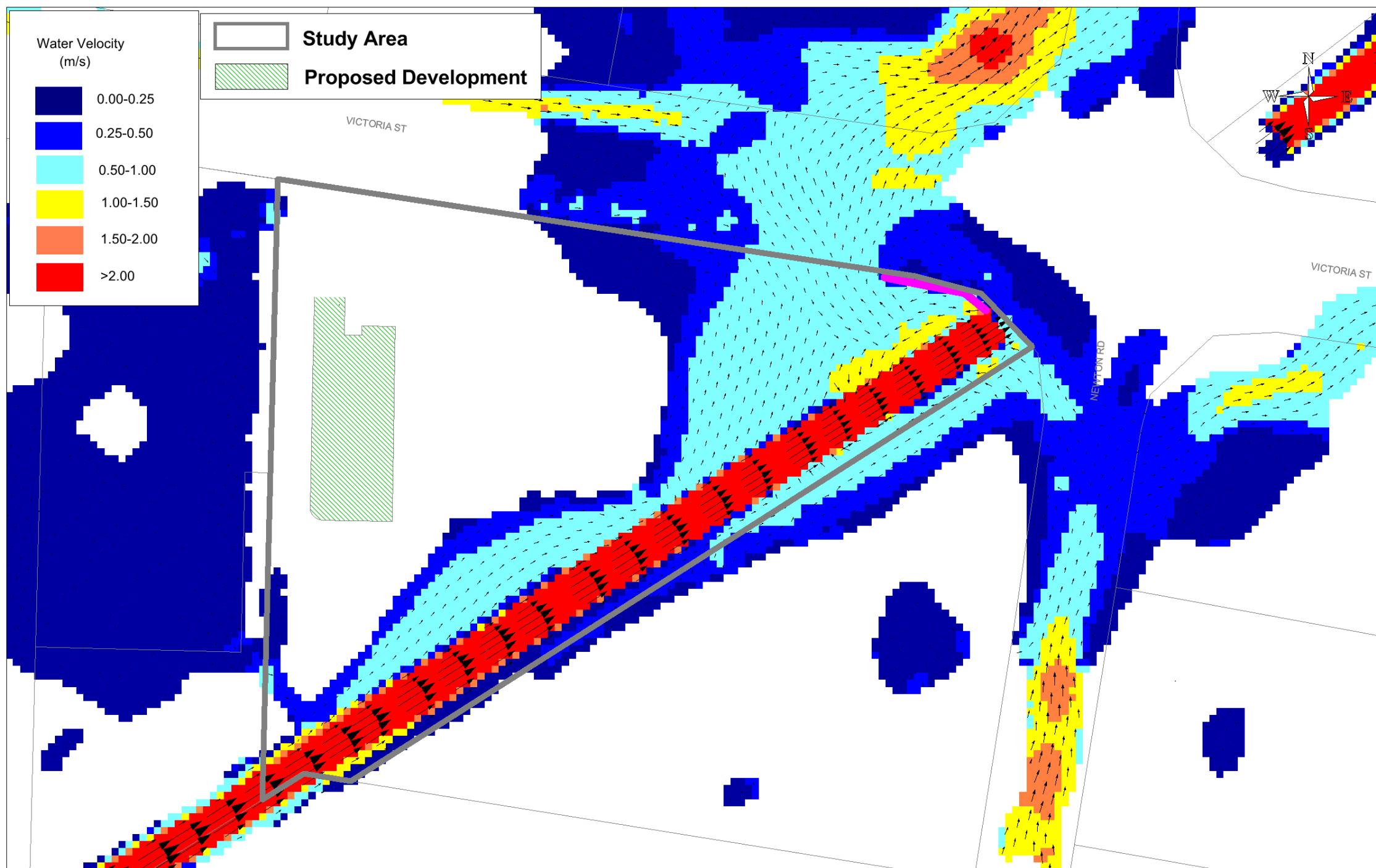


Figure D5 100Year ARI Flood Velocity
Proposed Development (v8)

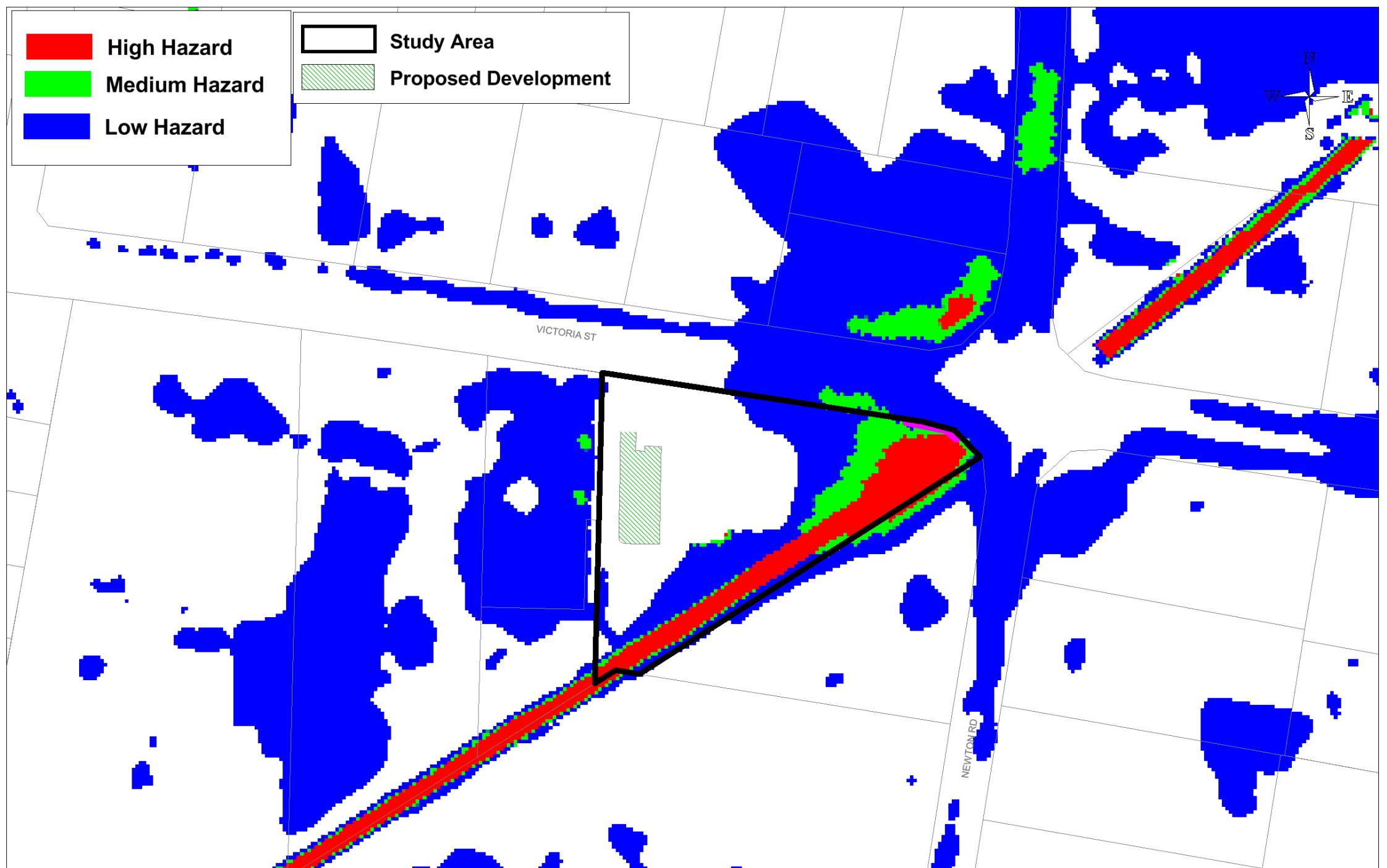
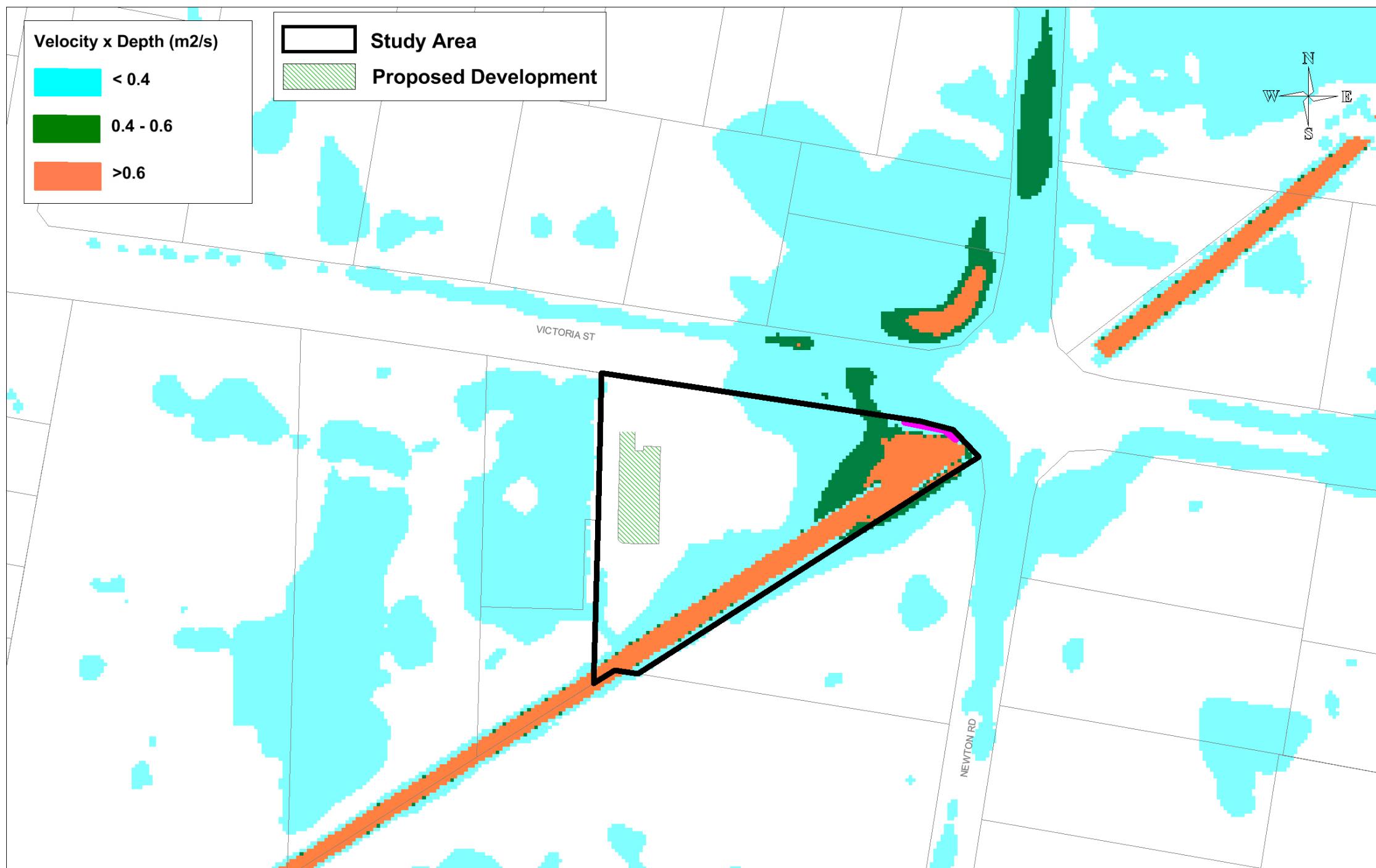
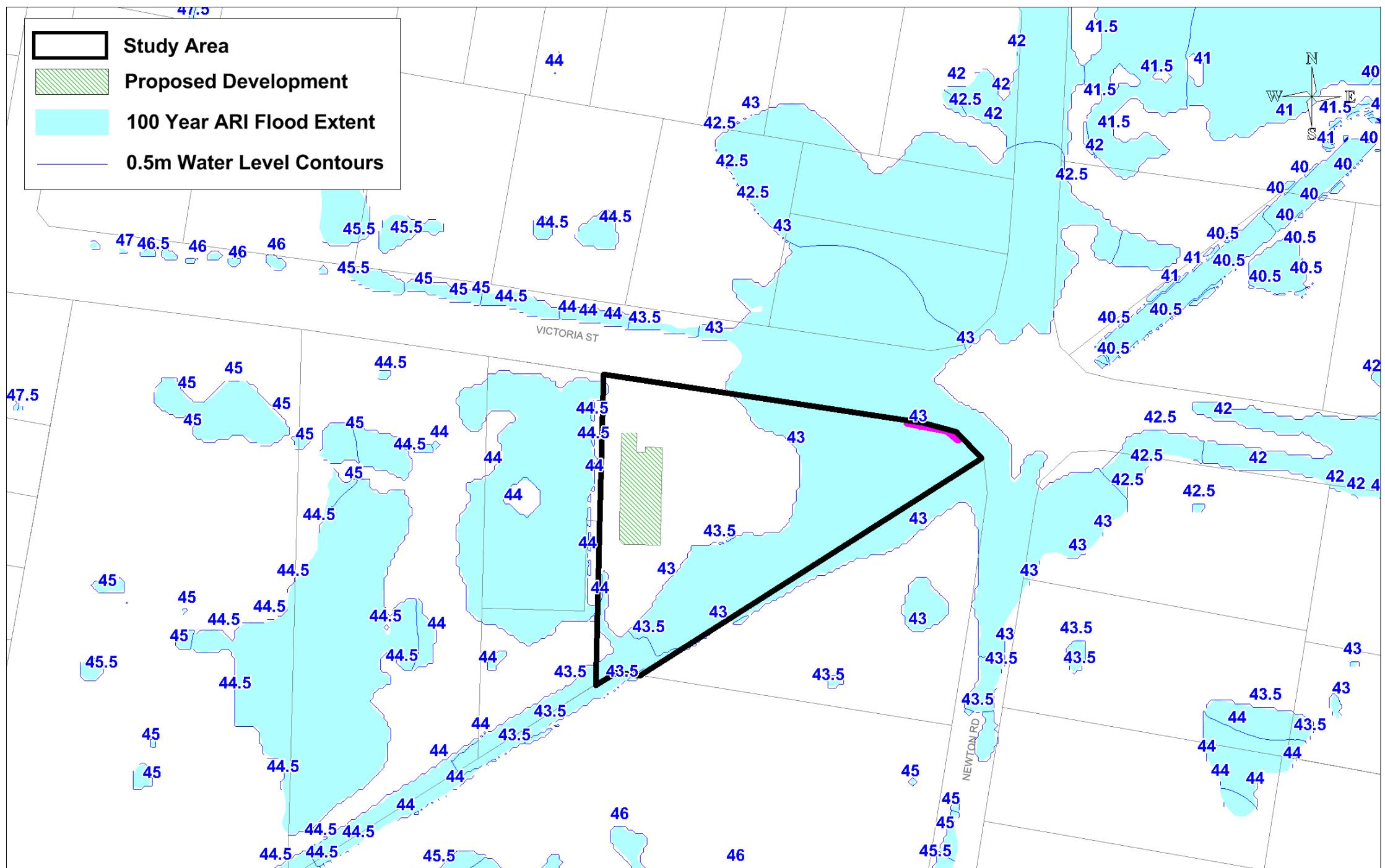


Figure D7 100Year ARI Flood Hazard
Proposed Development (v8)



**Figure D9 100Year ARI - Flood Velocity x Depth
Proposed Development (v8)**



**Figure D11 100Year ARI Flood Levels
Proposed Development (v8)**

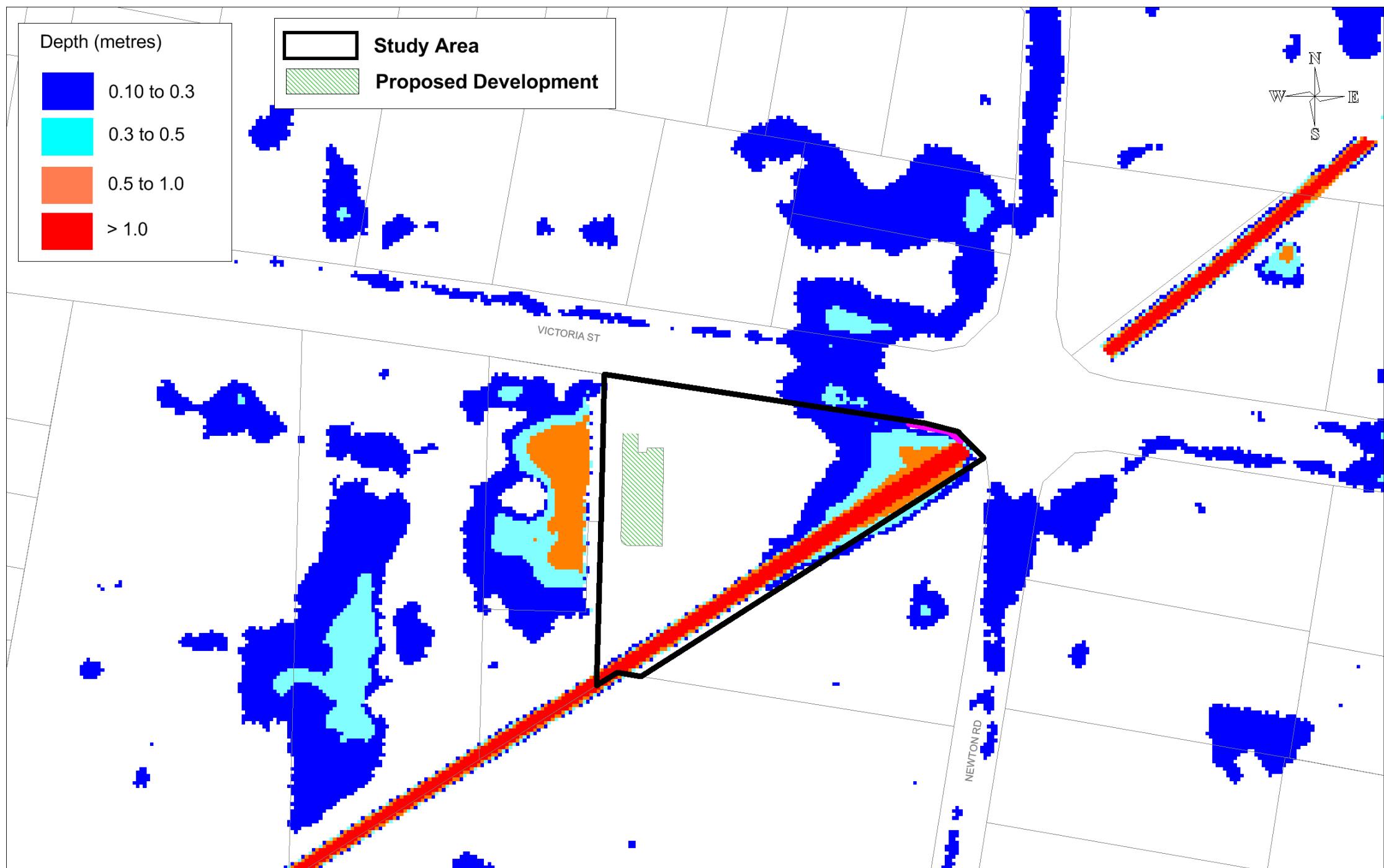


Figure D12 20Year ARI Flood Depths
Proposed Development (v8)

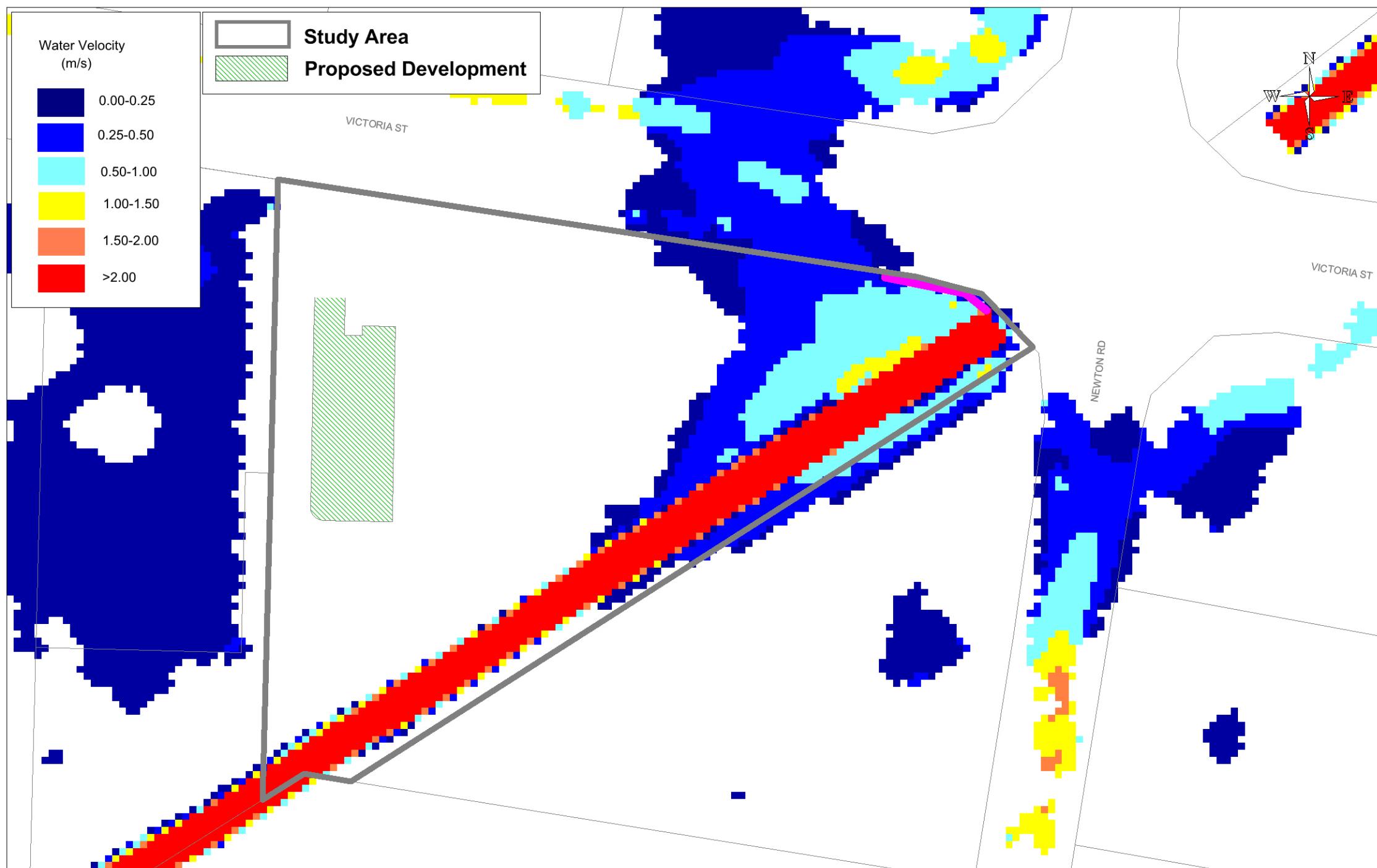


Figure D13 20Year ARI Flood Velocity
Proposed Development (v8)

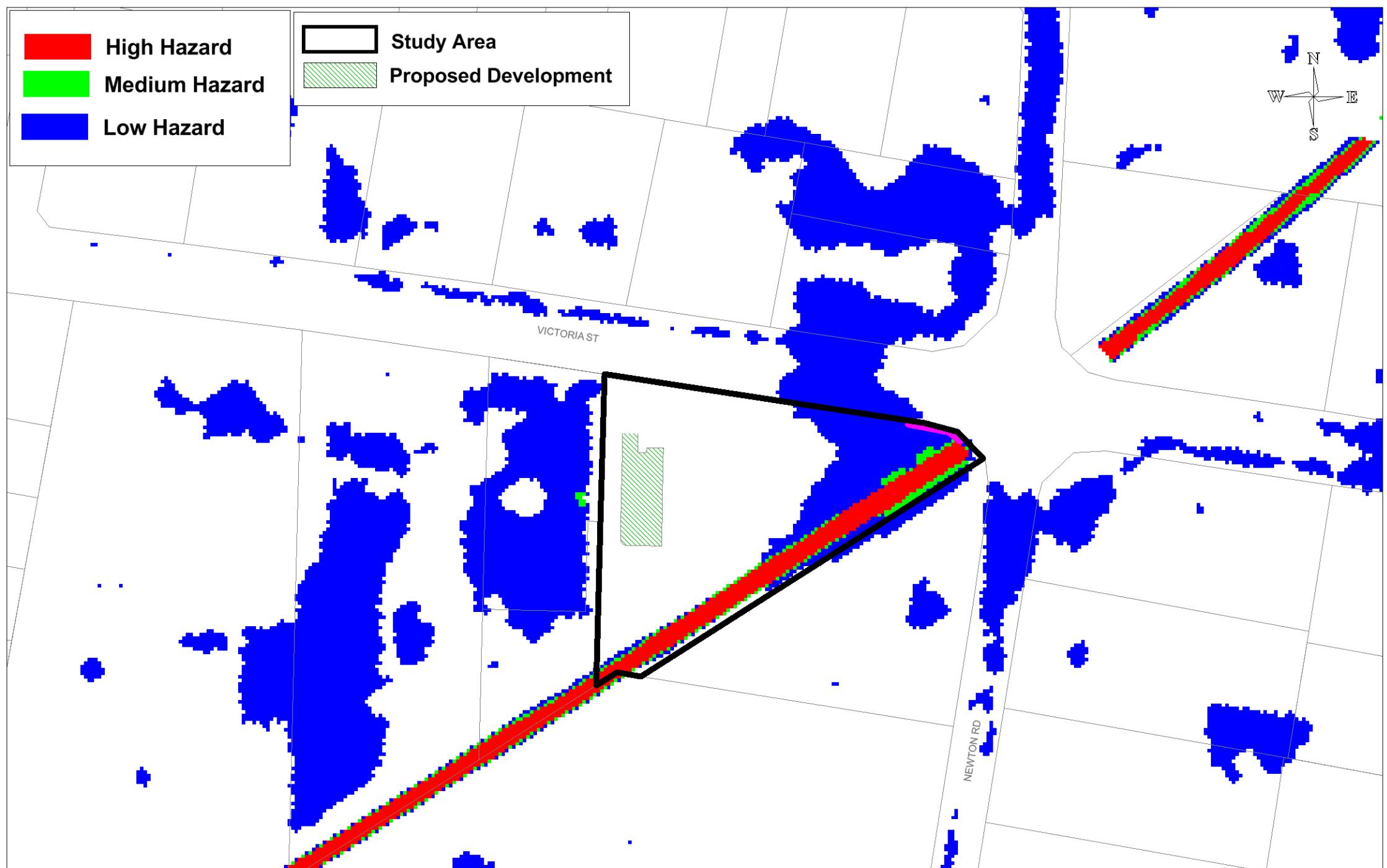
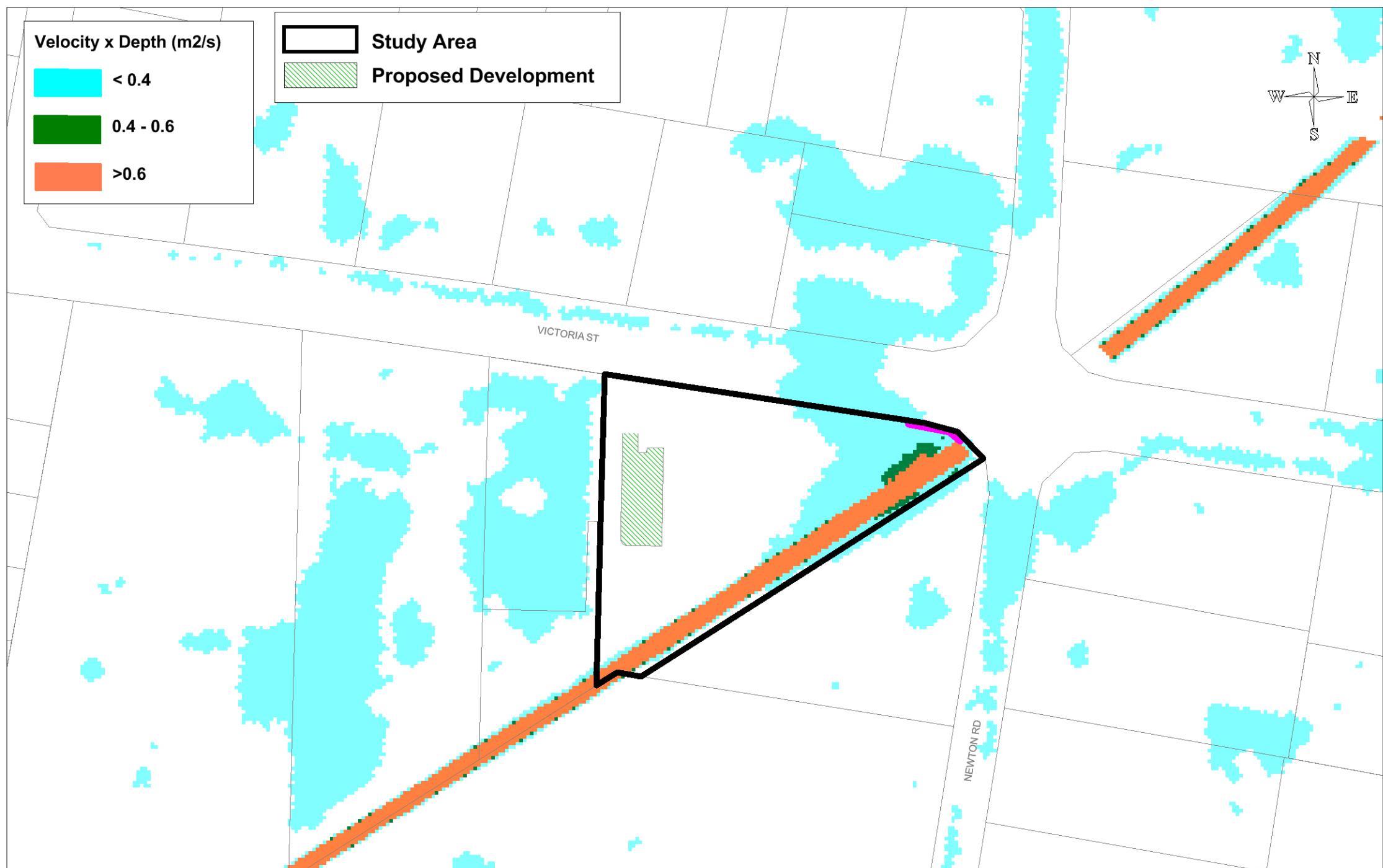
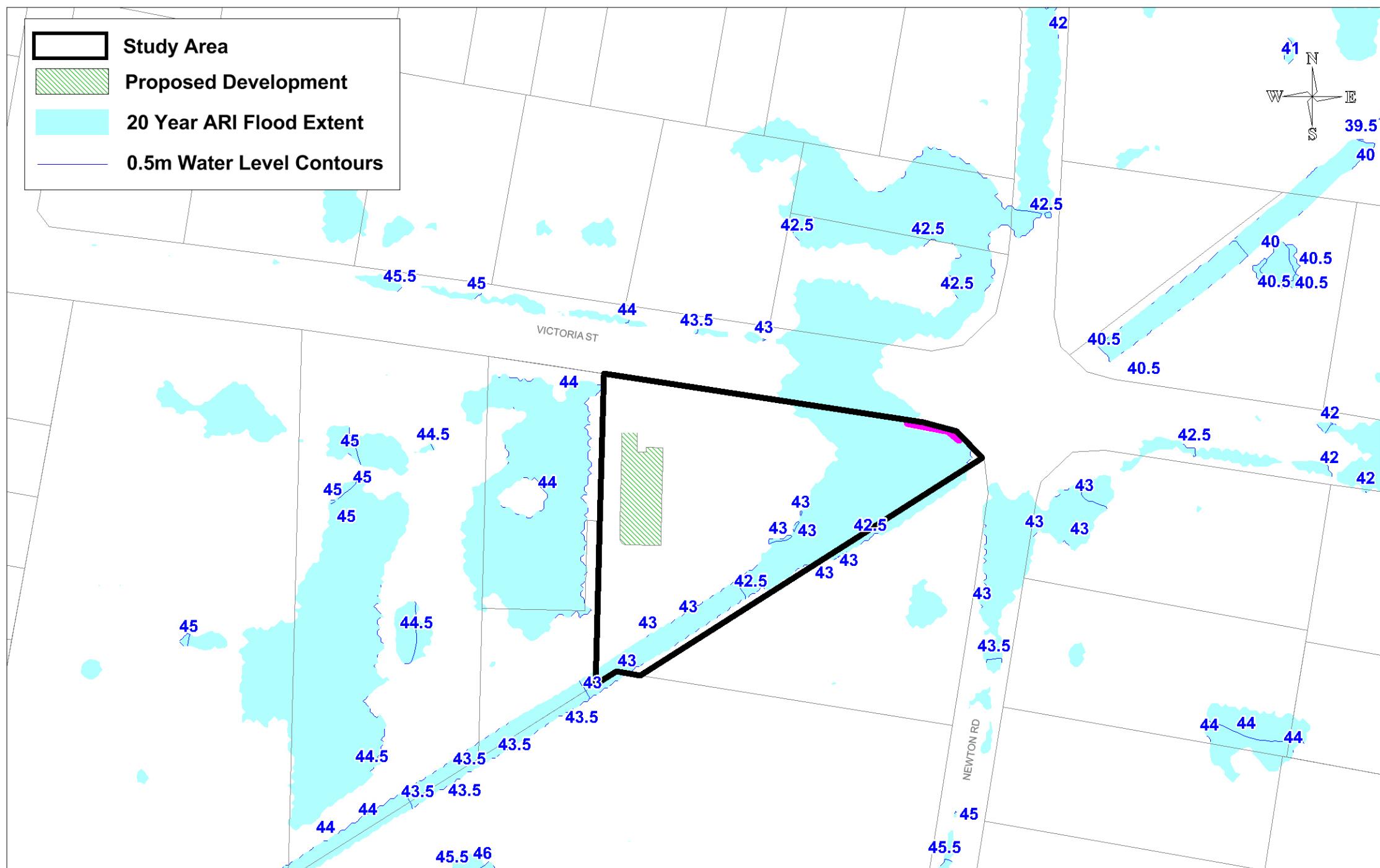
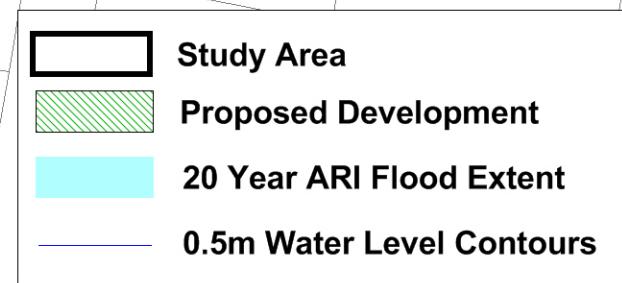


Figure D14 20Year ARI Flood Hazard
Proposed Development (v8)



**Figure D15 20Year ARI - Flood Velocity x Depth
Proposed Development (v8)**



**Figure D16 20 Year ARI Flood Levels
Proposed Development (v8)**