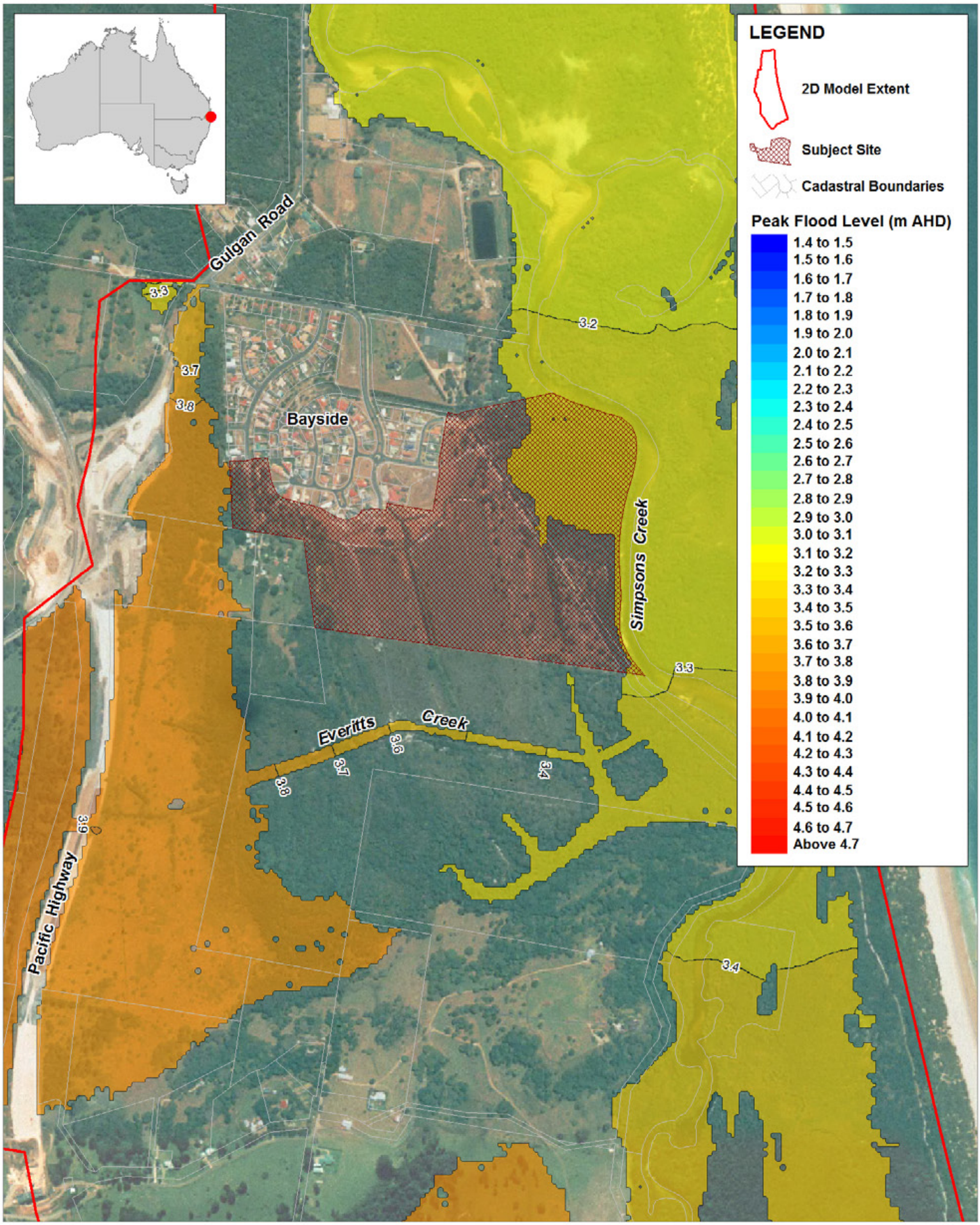

Title:

100 Year ARI Peak Flood Levels - Existing Case DECCW Climate Change

Figure: 7-19

Rev: A

N

0 250 500m

Approx. Scale

BMT WBM

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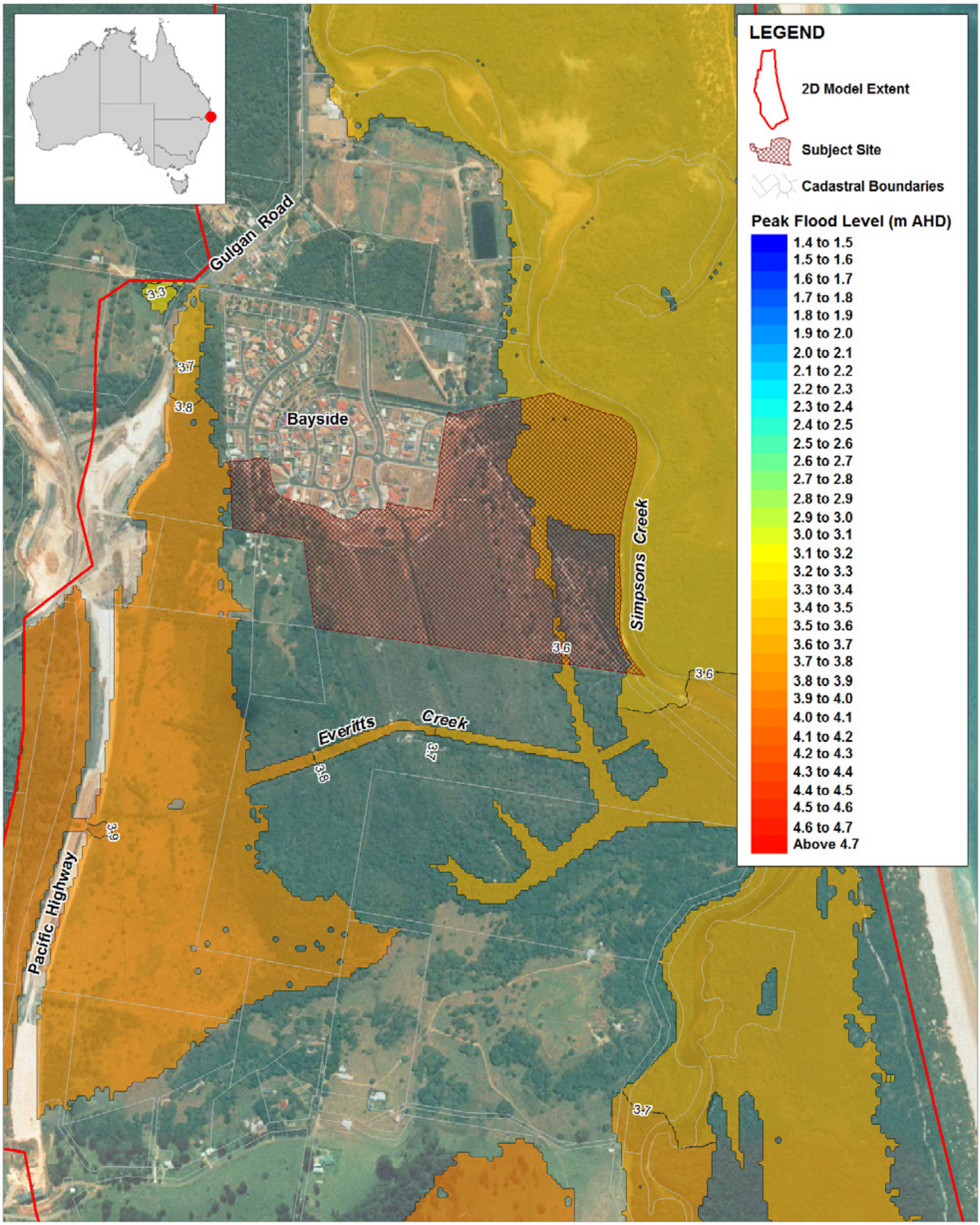
Filepath : I:\B17405_I_Bayside\DRG\Final_Report\FLD_027_090722_100yr_Levels_DECC_ClimateChange_Bayside.WOR



Title:

100 Year ARI Peak Flood Levels - Existing Case BSC Climate Change

Figure: 7-20

Rev: A

N

0 250 500m

Approx. Scale

BMT WBM

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Filepath : I:\B17405_I_Bayside\DRG\Final_Report\FLD_028_090722_100yr_Levels_ByronSC_ClimateChange_Bayside.WOR

8 DEVELOPED CASE ASSESSMENT

8.1 Proposed Site Development

To address the Director General Requirements, outlined in Section1.1, an assessment of the proposed site development has been undertaken utilising the developed hydraulic model. This was completed by updating the existing case hydraulic model with design details representative of the proposed development of the site. The following sections document the developed case assessment model results and the resultant flood impacts of the proposed development on the flood behaviour.

Appendix A identifies the proposed lot layout including regions of cut and fill within the study area. These earthworks are proposed to facilitate the future development of the site for reasons other than managing flood risk (i.e. reclaiming inundated lands for development purposes). As such, the areas of proposed cut and fill are located on elevated, largely flood free land. This is shown in Figure 8-5 to Figure 8-8, with the proposed area of earthworks being located entirely on flood free land during the 100 year ARI flood event.

In compliance with the recently published NSW Coastal Planning Guideline – Adapting to Sea Level Rise (NSW Government, 2010), proposed lot ground levels have been based on projected 2100 100 year ARI event peak flood levels including an additional 500mm freeboard allowance.

8.1.1 Potential Impact and Mitigation Measures

Due to the coverage of the proposed earthworks being located outside the 100 year ARI flood extent, the flood impacts resulting from the proposed site development are negligible. As such no mitigation measures are proposed.

8.2 Flood Behaviour

Modelling of the developed case scenario was undertaken for the 20, 100 year ARI and PMF event.

As mentioned above, the proposed area of earthworks is located on elevated land which is largely flood free. During the 20 and 100 year ARI event flood events the proposed site development is located on land not inundated as a result of the flooding within Simpsons Creek catchment. The peak flood level, depth, velocity and hazard results associated with the developed case scenario are shown in Figure 8-1 to Figure 8-8. These results are largely equivalent to the existing case flood behaviour, though during the PMF event the flood extent is slightly reduced in the east of the site.

The proposed development design results in all defined lots being flood free for all of the assessed flood events, including the PMF event. These results highlight that the flood hazard associated with the proposed development is minimal.

8.2.1 Climate Change Assessment

Assessment of climate change scenarios listed in Table 7-1 have been completed for the proposed developed case scenario. These climate change results are largely equivalent to the existing case climate change scenario assessment results, though with a slightly reduced inundation extent in the east of the site due to the proposed filling of the site. These results are shown in Figure 8-13 and Figure 8-14.

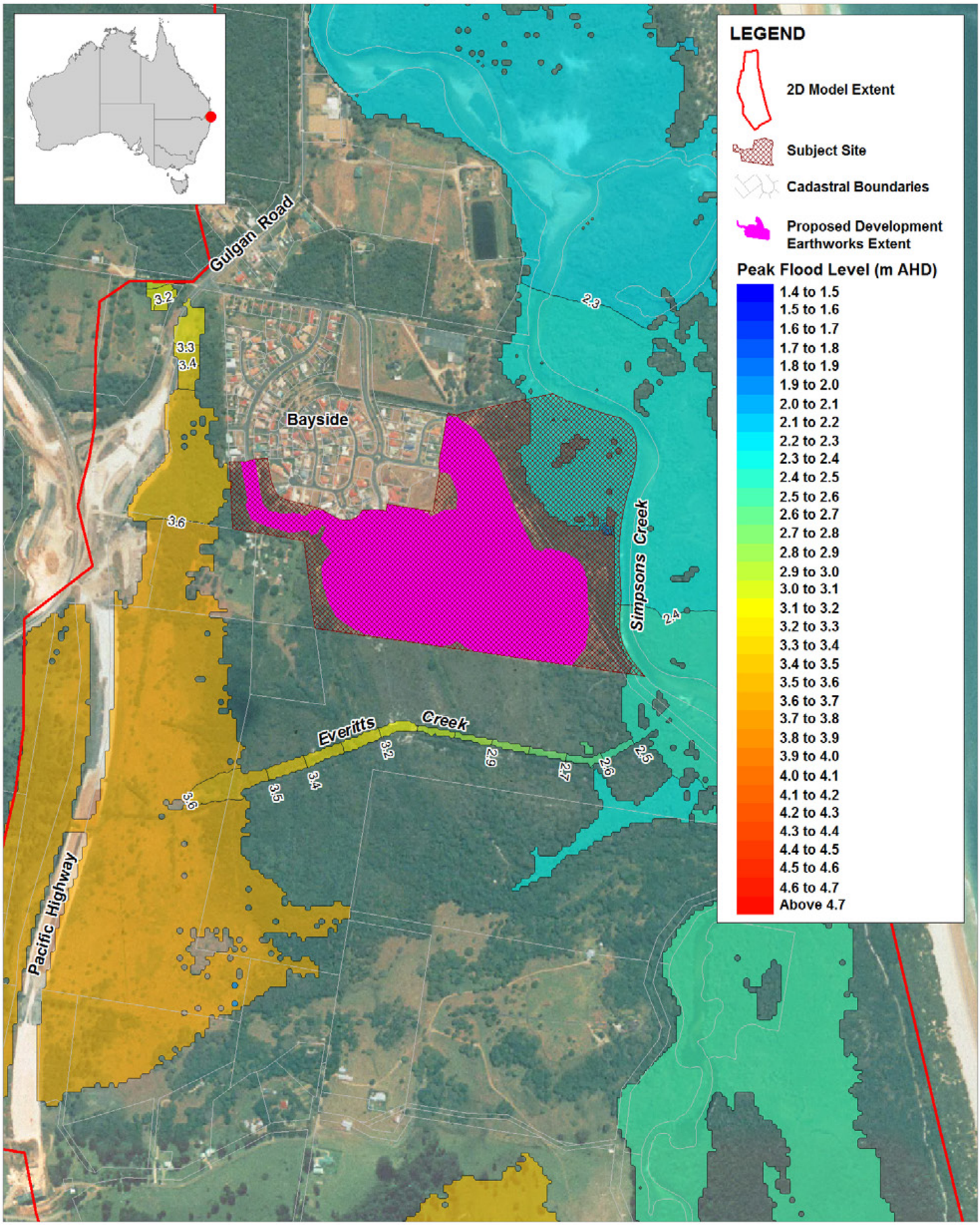
In compliance with the recently published NSW Coastal Planning Guideline – Adapting to Sea Level Rise (NSW Government, 2010), proposed lot ground levels have been defined based on the 100 year ARI event DECC climate change assessment peak flood level results with an additional 500mm freeboard allowance. The proposed lot ground levels across the site range from 4.1mAHD in the northeast to 4.3mAHD in the north west of the site.

8.3 Impact of Proposed Development

Impacts resulting from the proposed development of the site have been calculated by subtracting the modelled peak flood level results for the developed case scenario from the existing case scenario.

The flood impact results for the 20, 100 year ARI and PMF events are summarised in Figure 8-15 to Figure 8-17. These results show that the proposed develop does not adversely affect peak flood levels on adjacent lands; the flood level impacts are within ± 0.01m. These results are attributed to the majority of site development being located outside of the flood extents.

Considering the insignificant impacts, no further impact assessment or mitigation analysis is required.



Title:

20 Year ARI Peak Flood Levels - Developed Case Bayside

Figure: 8-1

Rev: A

N

0 250 500m

Approx. Scale

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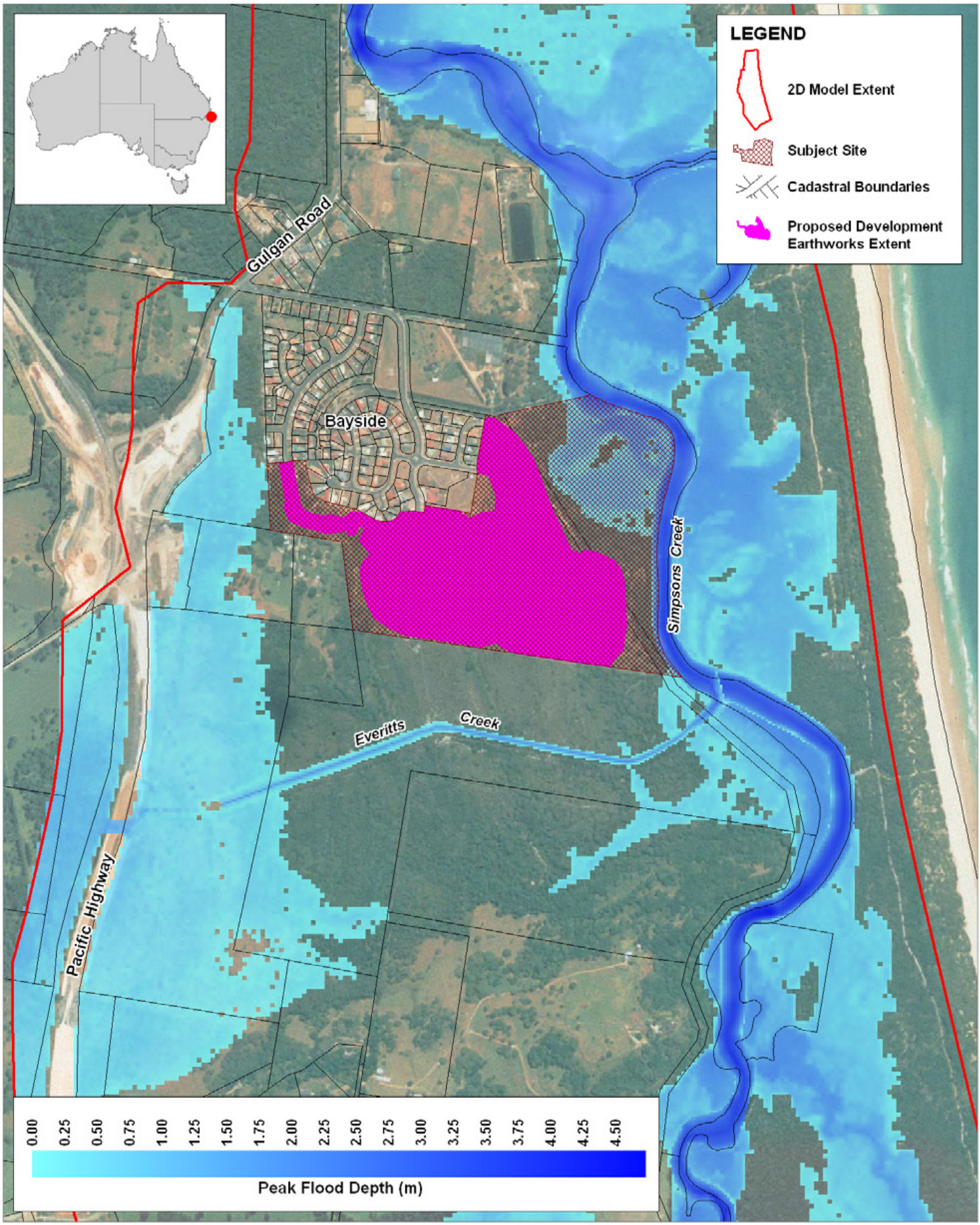
Filepath : I:\B17405_I_Bayside\DRG\Final_Report\FLD_029_101115_20yr_Dev_Levels_Bayside.WOR



Title:

20 Year ARI Peak Flood Depths - Developed Case Bayside

Figure: 8-2

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0 250 500m

Approx. Scale

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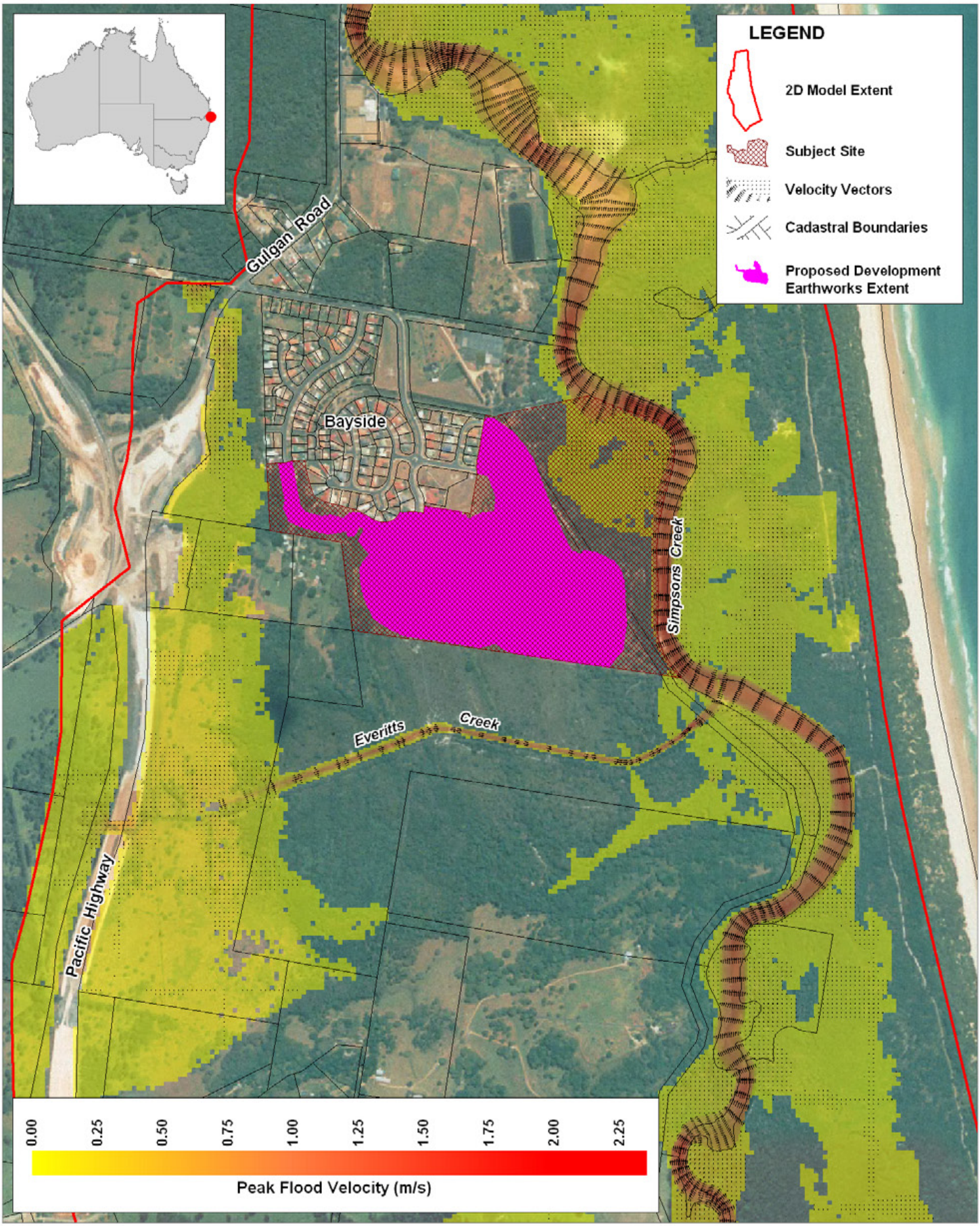

Title:

20 Year ARI Peak Flood Velocities - Developed Case Bayside

Figure: 8-3

Rev: A

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0 250 500m

Approx. Scale

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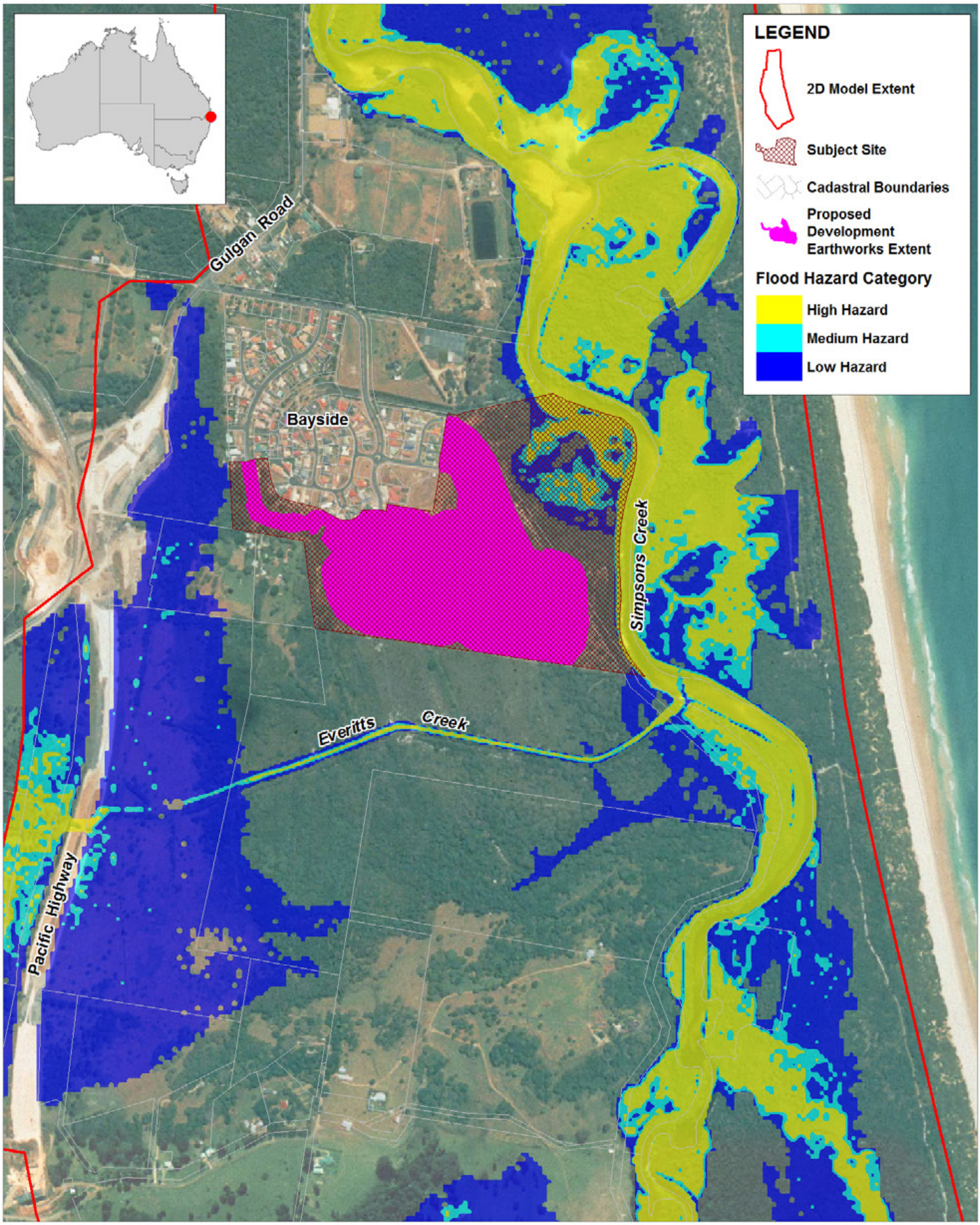
Filepath : I:\B17405_I_Bayside\DRG\Final_Report\FLD_031_101115_20yr_Dev_Velocities_Bayside.WOR



Title:

20 Year ARI Peak Flood Hazard- Developed Case Bayside

Figure: 8-4

Rev: A

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0 250 500m

Approx. Scale

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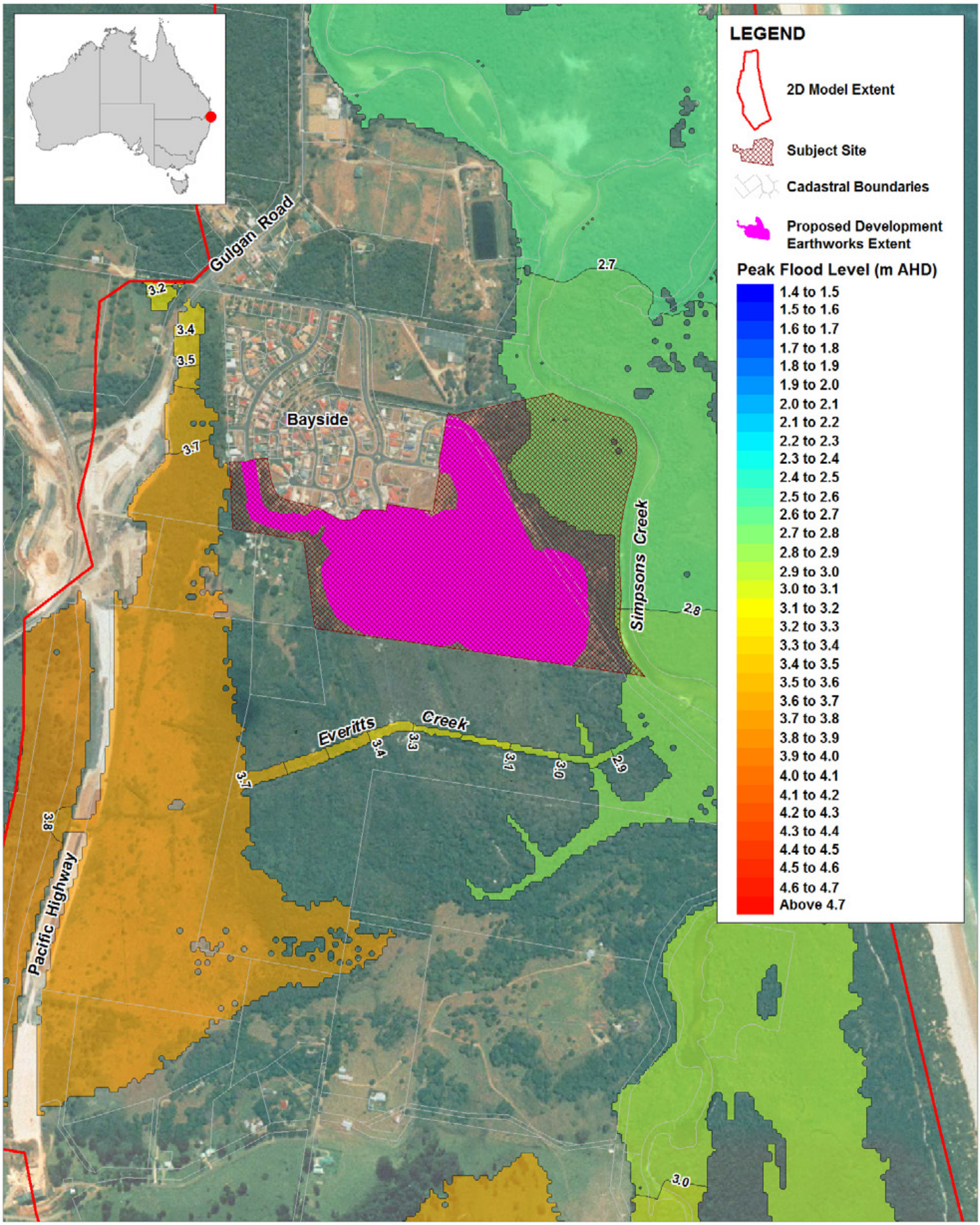

Title:

100 Year ARI Peak Flood Levels - Developed Case Bayside

Figure: 8-5

Rev: A

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0 250 500m

Approx. Scale

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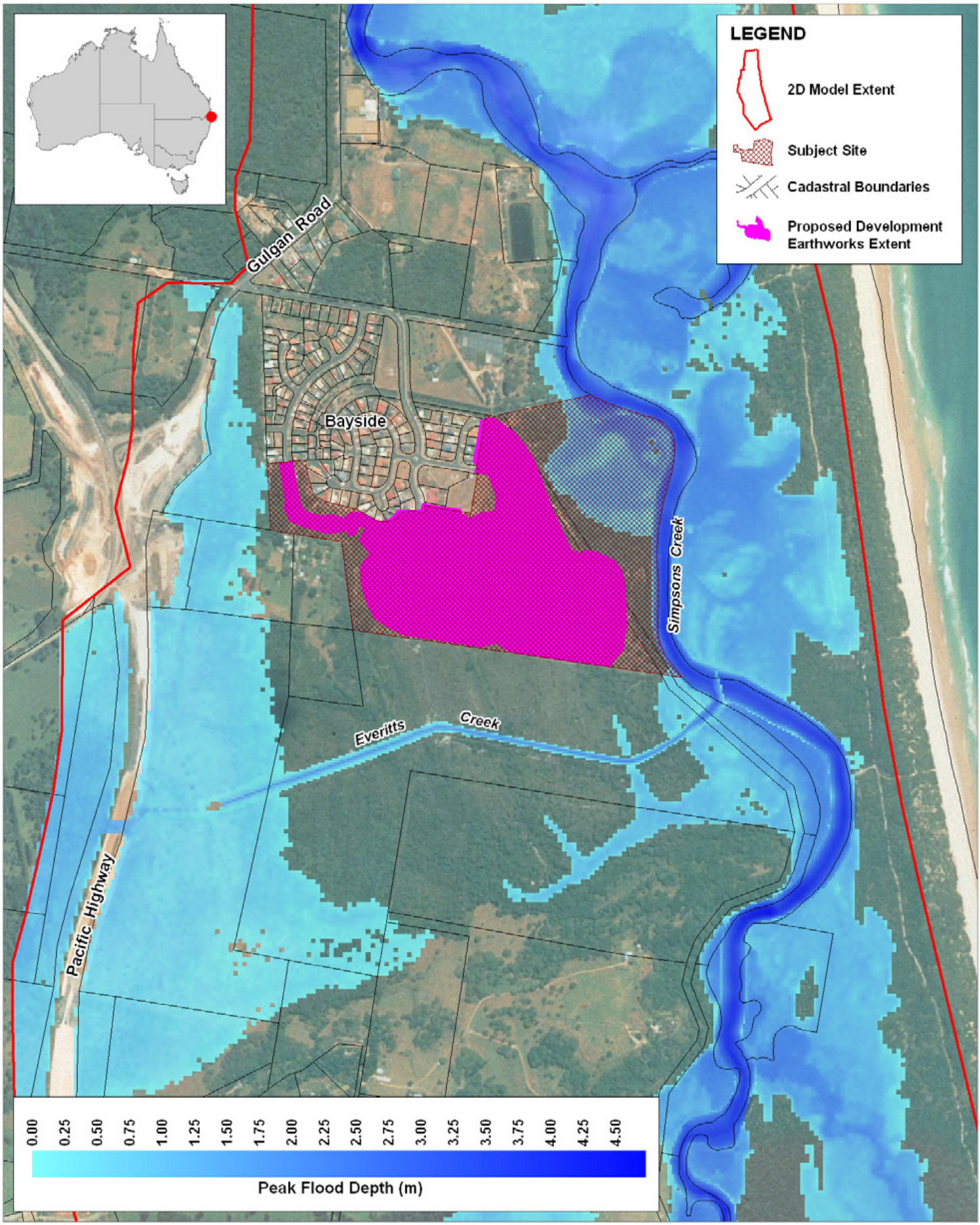
Filepath : I:\B17405_I_Bayside\DRG\Final_Report\FLD_033_101115_100yr_Dev_Levels_Bayside.WOR



Title:

100 Year ARI Peak Flood Depths - Developed Case Bayside

Figure: 8-6

Rev: A

N

0 250 500m

Approx. Scale

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Filepath : I:\B17405_I_Bayside\DRG\Final_Report\FLD_034_101115_100yr_Dev_Depths_Bayside.WOR