

Our ref: L.A10908.001.01.FIA\_Oakdale\_Estate\_SSDA.docx

8 June 2022

Goodman Property Services (Aust) Pty Ltd  
The Hayesbury  
1-11 Hayes Road  
Rosebery NSW 2018

Attention: Stephanie Partridge

Dear Stephanie,

**RE: FLOOD ASSESSMENT FOR OAKDALE EAST INDUSTRIAL ESTATE MASTERPLAN AND  
STAGE 2 WORKS**

The following letter report documents the flood assessment undertaken to address the Planning Secretary's Environmental Assessment Requirements (SEARs) related to flooding for State Significant Development Application SSD-37486043. This application seeks approval for the Concept Plan and Stage 2 works for the Oakdale East Industrial Estate.

We trust this document meets the project requirements. Should you require any additional information, please contact the undersigned.

Yours Faithfully,

**BMT**

A handwritten signature in black ink, appearing to read "JH", with a long horizontal flourish extending to the right.

**Jacquie Hannan  
Principal Engineer**

# 1 Introduction

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Goodman Property Services (Aust) Pty Ltd (“Goodman”) are seeking approval of State Significant Development Application (SSDA) SSD-37486043 for the Concept Plan and Stage 2 works for the Oakdale East Industrial Estate (“Estate”) at 2 and 10 Old Wallgrove Road, Horsley Park (the “Site”). The Site is bounded by Old Wallgrove Road to the west, Burley Road to the south, WaterNSW bulk supply pipeline to the north and Reedy Creek to the east. It is located within the Fairfield City Local Government Area (LGA) and forms part of the Reedy Creek floodplain.

The SSDA seeks approval for the Concept Plan which includes the proposed Masterplan allowing development of 303,009 m<sup>2</sup> of the Site and the Estate subdivision. It also seeks approval for Stage 2 works, which include earthworks within Precinct 5 to provide a fill platform; structures, hardstand areas, landscaping and drainage associated with Precinct 3 and Precinct 1 expansion; internal access roads; and drainage associated with Stage 2 works.

The SSDA is required to meet the Planning Secretary’s Environmental Assessment Requirements (SEARs) in relation to flooding issued for the Estate on 1 March 2022 and as follows:

***“Flooding and Coastal Hazards – including a flood assessment and modelling to determine the design flood levels and an assessment of any proposed filling and development on flood behaviour for a range of flood events. The assessment must consider relevant Council flood studies and floodplain risk management plans and the NSW Floodplain Development Manual 2005.”***

Accordingly, Goodman engaged BMT Commercial Australia Pty Ltd (“BMT”) to undertake a flood assessment to determine on-site flood conditions and impacts of the proposed Masterplan and Stage 2 works. The following letter report documents the methodology and findings of the flood assessment and addresses the SEARs for SSD-37486043.

Please note that the modelling and resultant impact mapping was prepared in accordance with Fairfield City Council’s ‘Developer Agreement’. This agreement allows BMT to model the impact of the proposed development on flooding based on Council’s existing flood models, however BMT cannot assess the development against flood-related development controls or make a statement regarding the adequacy of the design. This assessment considers mainstream Reedy Creek flood conditions only.



## 2 Previous Flood Modelling of the Site

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The proposed development is located within the Reedy Creek floodplain. Mainstream flooding in the catchment is defined by the '*Fairfield Rural Area Flood Study (Ropes, Reedy & Eastern Creeks)*' (BMT, 2013), referred to hereafter as the "2013 Flood Study".

The TUFLOW model from the "2013 Flood Study" forms Fairfield City Council's currently adopted model for defining mainstream flood conditions within the Reedy Creek floodplain. This 1D/2D TUFLOW model has an adopted 5 m cell size within the 2D domain, with Reedy Creek represented as a 1D channel dynamically linked to the 2D domain. Key hydraulic control structures within the catchment, such as railway culverts and various bridge crossings, are represented as 1D structures. The TUFLOW model utilises a rainfall-on-grid approach whereby the hydraulic model is used to simulate both the rainfall-runoff response within the catchment, as well as the distribution and movement of the runoff (or flow) across the floodplain. The 2013 Flood Study applied filtering to the mapped modelling results in order to only depict defined overland flow paths. Specifically, this included the removal of floodwater depths less than 0.15 m.

In 2019, BMT determined existing flood conditions and impacts associated with Stage 1 works within Precinct 1 of the Estate. This flood assessment was based on an updated version of the 2013 Flood Study TUFLOW model and is documented in the '*224-298 Burley Road, Horsley Park Flood Impact Assessment*' (BMT, 2019) (referred to hereafter as the "2019 Stage 1 FIA").

In 2021, BMT completed further flood impact modelling associated with the Rehabilitation Development Application (DA) that is currently with Fairfield City Council for consideration. The Rehabilitation DA seeks approval for works only within Precinct 1 expansion, Precincts 2, 3 and 4 (i.e. excluding works to Precinct 5), including proposed Site rehabilitation and bulk earthworks to form fill platforms for future structures, hardstand areas and associated infrastructure in these precincts, as well as a proposed On-Site Detention (OSD) basin north-east of Precinct 4. This modelling and its outcomes are documented in '*Flood Impact Modelling for Oakdale East Industrial Development Earthworks*' (BMT, 2021) (hereafter referred to as the "2021 Earthworks FIA"). The 2021 Earthworks FIA was based on modified versions of the TUFLOW model from the 2019 Stage 1 FIA that included detailed survey information across the Site (collected in 2021) and approved Stage 1 works for the existing conditions, as well as bulk earthworks and assumed trunk drainage details within Precinct 1 expansion and Precincts 2 to 4 for proposed conditions.

## 3 Flood Modelling

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### 3.1 Overview

The TUFLOW model from the 2021 Earthworks FIA has been used as the basis for this flood impact modelling assessment for the Masterplan and Stage 2 works, and updated as required to define “Baseline Scenario” (i.e. pre-works) and “Developed Scenario” (i.e. post-works) flood conditions for the 1% and 5% Annual Exceedance Probability (AEP) floods and Probable Maximum Flood (PMF). Specific details of this modelling are outlined in the following sections.

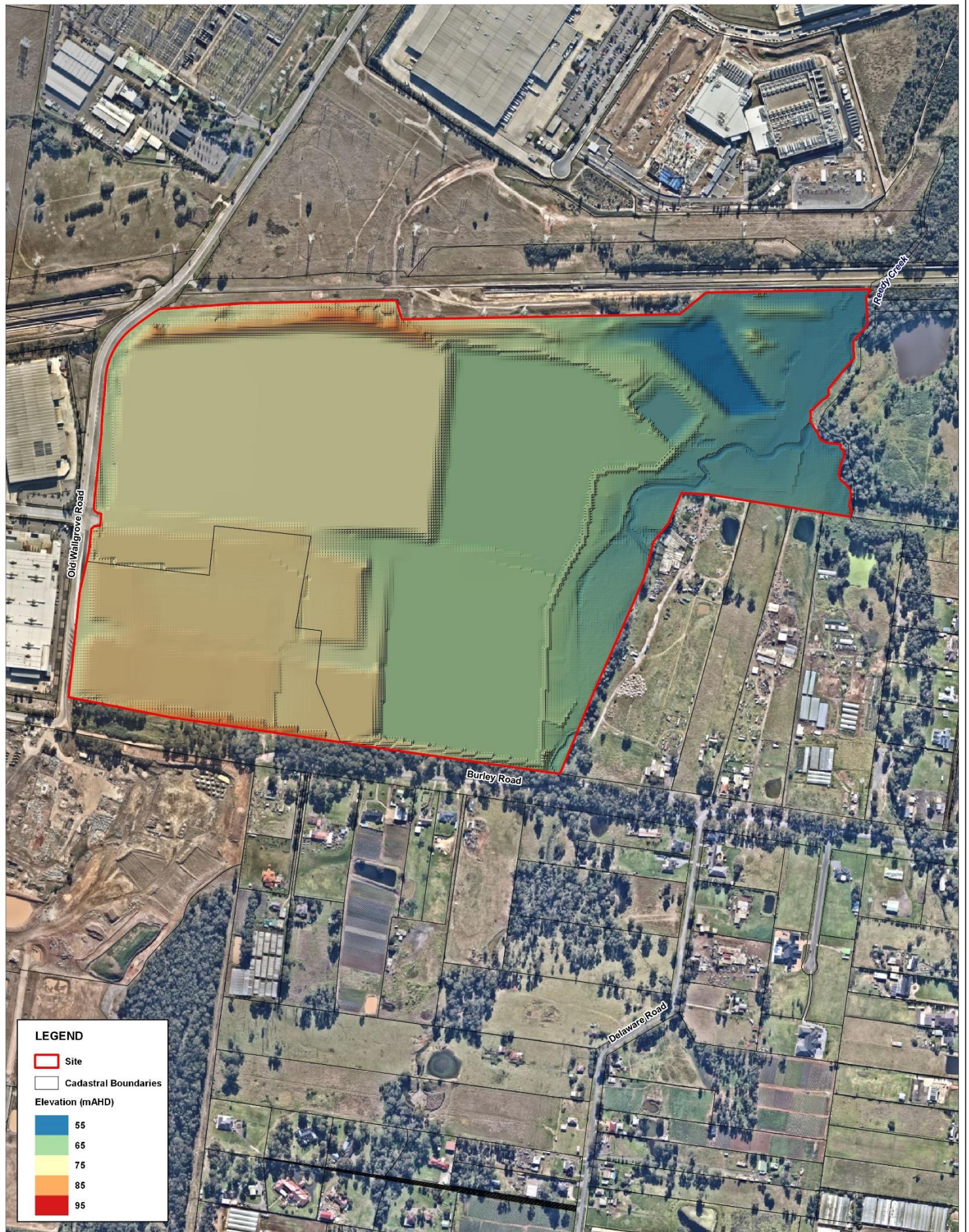
### 3.2 Baseline Scenario Model

Baseline conditions for this assessment incorporate earthworks across Precinct 1 expansion and Precincts 2 to 4 of the development that form fill platforms for future structures, hardstand areas and associated infrastructure. Accordingly, the Developed Scenario TUFLOW model from the 2021 Earthworks FIA has been directly applied (i.e. unmodified) as the Baseline Scenario TUFLOW model which defines baseline flood conditions against which flood impacts associated with the proposed Masterplan and Stage 2 works are herein assessed. It is noted that this model specifically includes:

- Proposed fill platforms based on the terrain file provided by AT&L on 25 June 2021 (reference: ‘Existing and Design Models 21-06-10.zip’).
- Modifications to on-site topography to reflect AT&L’s preliminary stormwater management plan and conceptual drainage design (reference: DRAINS model ‘DRN001-02-20-798-Infrastructure Design 1% AEP.drn’) provided to BMT on 26 July 2021. This concept design proposes to collect stormwater runoff on-site and transport this runoff via a pit and pipe network and/or open swales to OSD basins before controlled discharge off-site, including the proposed OSD basin north-east of Precinct 4 that ultimately discharges to Reedy Creek (referred to in the current Masterplan as “Basin C”). As no detailed stormwater design was available at the time of modelling for the 2021 Earthworks FIA, the design intent was reflected in the TUFLOW at a high level by grading any fill platforms proposed to drain in a north-easterly and/or easterly direction towards Basin C. This enabled surface runoff generated by the TUFLOW rainfall-on-grid model across the portion of the Site proposed to be captured by the basin, to drain towards and into the basin. This modification also prevented surface runoff draining across the eastern Site boundary and directly into Reedy Creek. A 1350 mm diameter pipe outlet from Basin C was included in the TUFLOW model and discharges flow from the basin into Reedy Creek.

The topography within the Baseline Scenario TUFLOW model is shown in Figure 3.1.





Title:  
**Baseline Scenario TUFLOW Model DEM**

Figure:  
**3.1**

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**A**

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



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### 3.3 Developed Scenario Model

On 11 April 2022 and 13 April 2022, AT&L supplied BMT with the following data associated with the proposed Masterplan and Stage 2 works:

- Civil works drawings (reference: 20-798-1000-OAKDALE EAST [P2].pdf and X\_20-798-AP-BX-RD-1000-BASE ROADWORKS.dwg). This included the General Arrangement Plan reproduced in Figure 3.2.
- Design TIN for Precincts 3 and 5, Basins C and D, and internal roadways (reference: SSD 3D Surface.dwg), as shown in Figure 3.3.
- DRAINS model for the proposed drainage design (reference: DRAINS model 'DRN002-09-20-798-Infrastructure Design.drn').

A subsequent email from Mr Anthony McLandsborough of AT&L dated 4 May 2022 also advised that low lying land between Basin C and Precinct 5 and to the west of Access Road will be infilled and that overland flow from this area will have passage eastwards to Reedy Creek via a culvert crossing beneath the roadway (to be incorporated in future design).

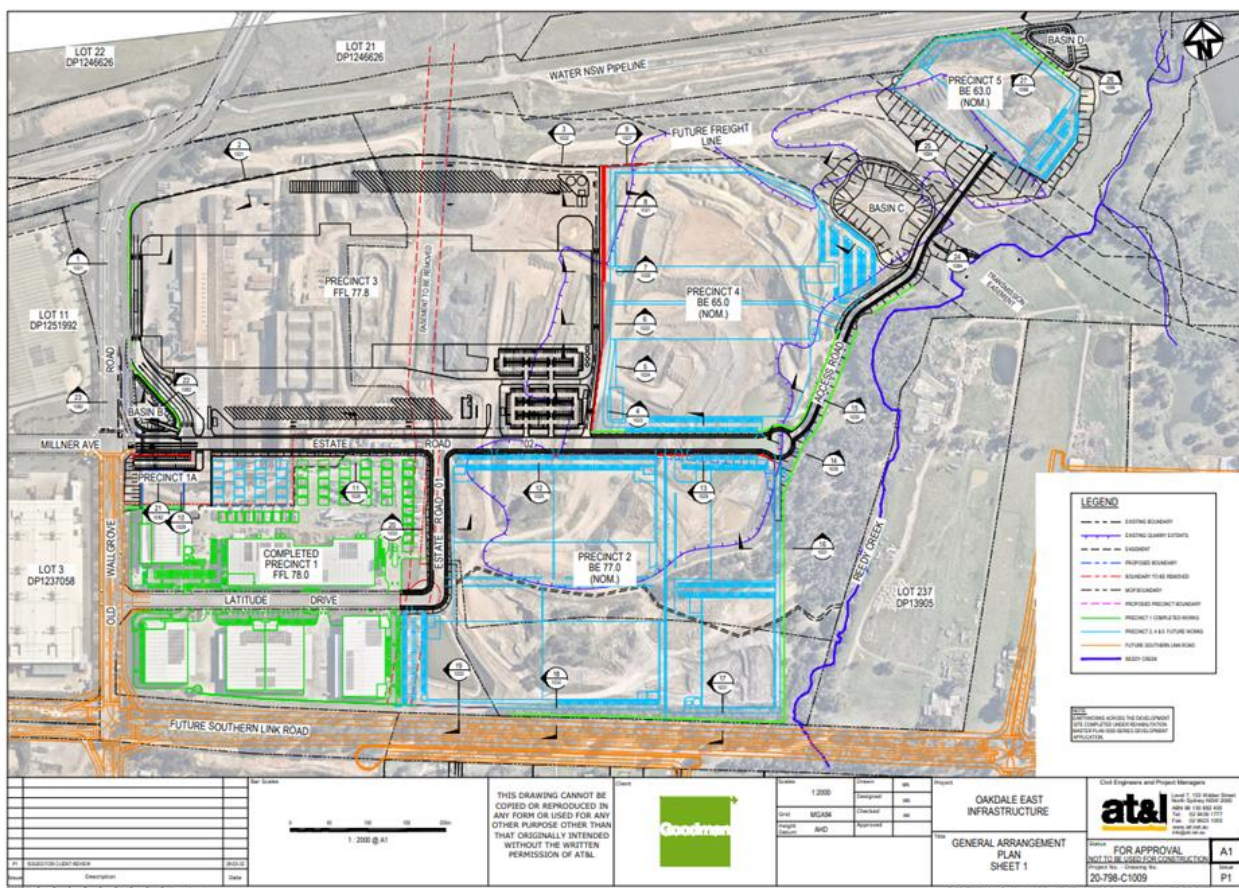


Figure 3.2 Oakdale East Industrial Estate - General Arrangement Plan

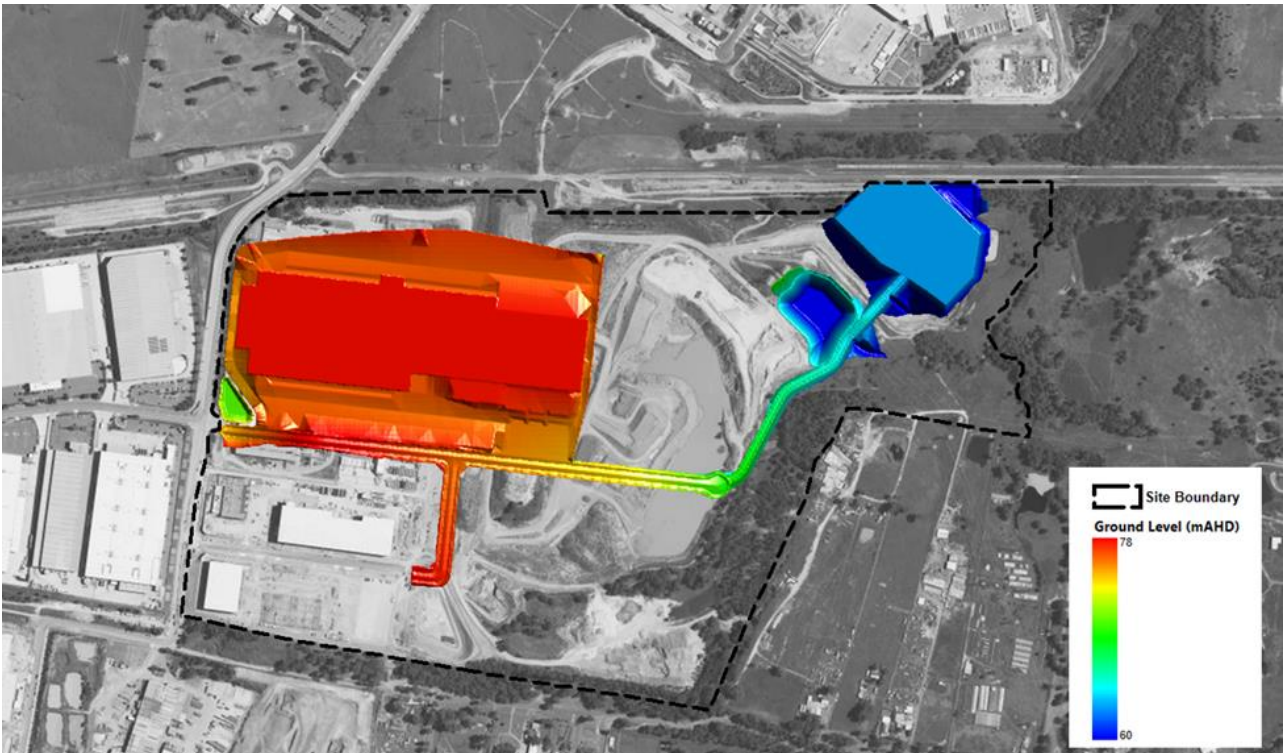


Figure 3.3 AT&L Design TIN (Reference: *SSD 3D Surface.dwg*)

The following specific modifications were made to the Existing Scenario TUFLOW model to form the Developed Scenario TUFLOW model for this assessment:

- Topography within Precinct 3, Precinct 5, Basin C and along internal roadways was updated based on the design TIN “*SSD 3D Surface.dwg*”. Notably, this included:
  - proposed hardstand surface elevation of 77.8 mAHd within Precinct 3;
  - new OSD in the south-western corner of Precinct 3 (Basin B);
  - fill platform and associated OSD basin (Basin D) within Precinct 5;
  - internal roadway elevations;
  - minor modifications to Basin C including changes to the shape and bed invert elevation from 60.2 mAHd to 59.4 mAHd.
- The proposed 1350 mm diameter outlet pipe from Basin C was updated to a 900 mm diameter outlet pipe as shown in “*20-798-1000-OAKDALE EAST\_[P2].pdf*”.
- Adjustment of fill platform elevations within Precinct 2 to reflect design levels shown in “*20-798-1000-OAKDALE EAST\_[P2].pdf*” (i.e. from a minimum fill platform level of 66.5 mAHd to 77.0 mAHd).
- Reshaping of the eastern boundary of Precinct 4 abutting Access Road.
- Manning’s roughness layers within Precinct 3, Precinct 5, Estate Road and Access Road were updated to reflect proposed land uses and associated surface roughness types.

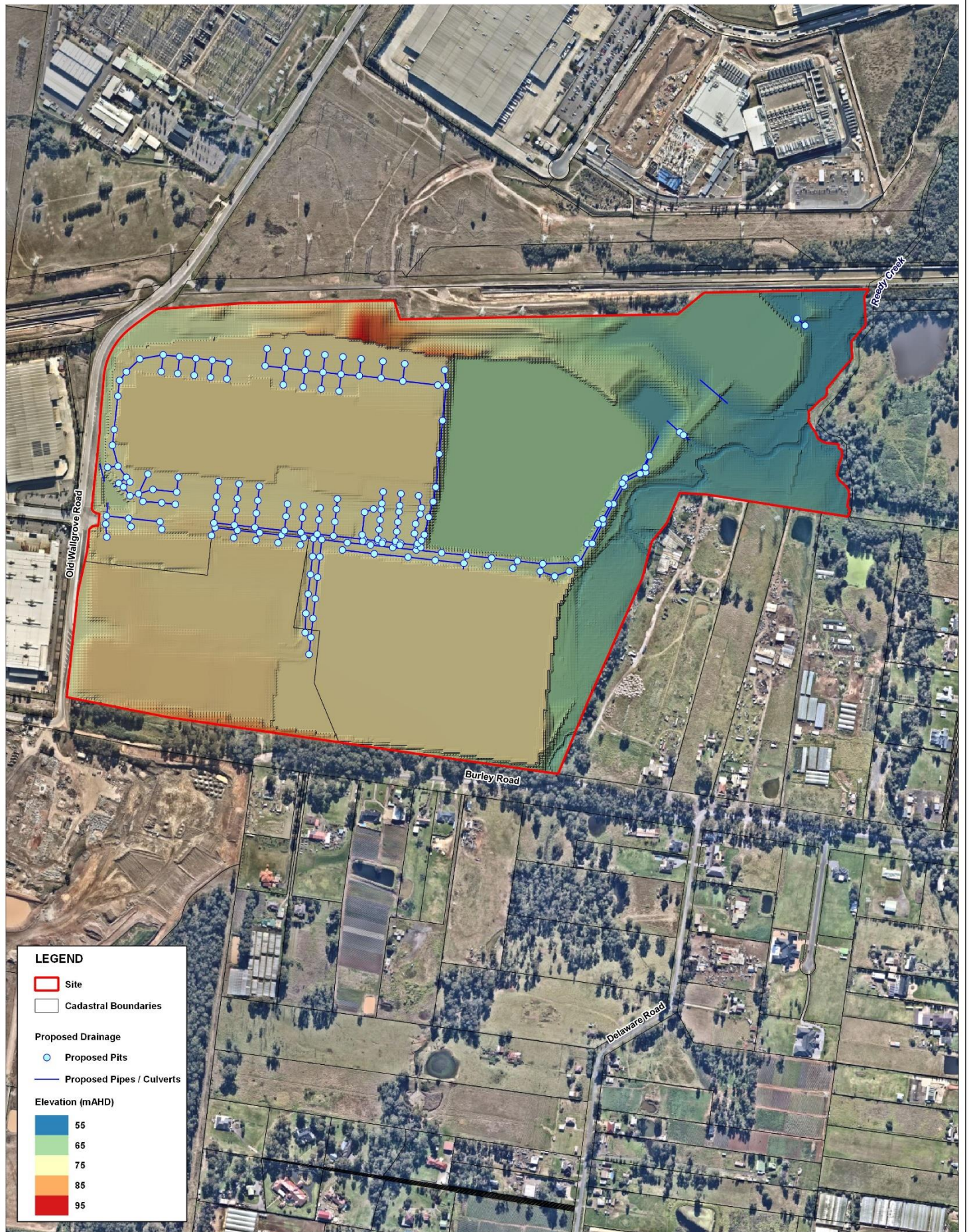
- Proposed stormwater drainage network across Precinct 3 and along the internal roadways was included as a 1D layer dynamically linked to the 2D TUFLOW model domain. Details of this network were extracted from the DRAINS model “*DRN002-09-20-798-Infrastructure Design.drn*”.
- Infilling of low-lying land between Basin C and Precinct 5 and addition of 2 no. x 3 m x 2 m box culverts crossing beneath Access Road to enable an existing flow path to drain eastwards to Reedy Creek (assumed dimensions only at this stage and to be designed by AT&L in future).
- A verification exercise was completed to ensure a smooth transition at the interface between the new design terrain 2D DEM and baseline topography within the model. Minor smoothing and clipping edits were performed as a result of this verification.
- As no detailed stormwater design was available for Precincts 2, 4 and 5 at the time of modelling, high level grading of Precincts 2 and 4 towards Basin C was retained for this modelling assessment and minor modifications were made to Precinct 5 to grade the fill platform towards Basin D. This is consistent with the adopted modelling methodology from the 2021 Earthworks FIA and in line with AT&L’s proposed stormwater management plan for the Site.

The topography and stormwater network within the Developed Scenario TUFLOW model is shown in Figure 3.4.

### 3.4 Model Simulations

Flood conditions for the 1% AEP, 5% AEP and PMF were determined by simulating the Baseline and Developed Scenario TUFLOW models and assessing an ensemble of design storm durations ranging from 2 hours to 18 hours. The results of these simulations were combined into design flood envelopes that were used as the basis for flood and impact mapping.





Title:  
**Developed Scenario TUFLOW Model DEM and Stormwater Network Layout**

Figure:  
**3.4**

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### 3.5 Flood Results and Mapping

A range of flood mapping is provided in “Annex A – Flood and Impact Mapping”, as follows:

- A1 Site Location and Change in Terrain
- A2 Peak Flood Depth – Baseline Scenario - 1% AEP Flood
- A3 Peak Flood Depth – Developed Scenario - 1% AEP Flood
- A4 Peak Flood Velocity – Baseline Scenario - 1% AEP Flood
- A5 Peak Flood Velocity – Developed Scenario - 1% AEP Flood
- A6 Peak Velocity-Depth Product – Baseline Scenario - 1% AEP Flood
- A7 Peak Velocity-Depth Product – Developed Scenario - 1% AEP Flood
- A8 Change in Peak Flood Level - 1% AEP Flood
- A9 Change in Peak Flood Velocities - 1% AEP Flood
- A10 Change in Peak Flood Velocity-Depth Product - 1% AEP Flood
- A11 Peak Flood Depth – Baseline Scenario - 5% AEP Flood
- A12 Peak Flood Depth – Developed Scenario - 5% AEP Flood
- A13 Peak Flood Velocity – Baseline Scenario - 5% AEP Flood
- A14 Peak Flood Velocity – Developed Scenario - 5% AEP Flood
- A15 Peak Velocity-Depth Product – Baseline Scenario - 5% AEP Flood
- A16 Peak Velocity-Depth Product – Developed Scenario - 5% AEP Flood
- A17 Change in Peak Flood Level - 5% AEP Flood
- A18 Change in Peak Flood Velocities - 5% AEP Flood
- A19 Change in Peak Flood Velocity-Depth Product - 5% AEP Flood
- A20 Peak Flood Depth – Baseline Scenario – PMF
- A21 Peak Flood Depth – Developed Scenario - PMF
- A22 Peak Flood Velocity – Baseline Scenario – PMF
- A23 Peak Flood Velocity – Developed Scenario - PMF
- A24 Peak Velocity-Depth Product – Baseline Scenario - PMF
- A25 Peak Velocity-Depth Product – Developed Scenario – PMF

The majority of the Site is predicted to be outside the 1% AEP flood extent for the Baseline Scenario. On-site inundation is generally only located within Precinct 4 and subject to shallow depths of inundation (outside the proposed OSD basin and Precinct 5).

For the Developed Scenario, the majority of the Site is outside the 1% AEP flood extent and reduced extent of inundation is predicted relative to the Baseline Scenario. Small, localised areas of inundation are typified by shallow depths of inundation (outside of the proposed OSD basins) and low velocities (<0.2 m/s).



Peak flood levels were extracted from the results of the modelling at a number of point locations along the eastern boundary of the Site (both within and in the vicinity of the Estate) for the Existing and Developed Scenarios (refer Table 3.1).

**Table 3.1 Peak Flood Levels**

| Location<br>(refer<br>Figure 3.5) | Existing Scenario (m AHD) |        |       | Developed Scenario (m AHD) |        |       |
|-----------------------------------|---------------------------|--------|-------|----------------------------|--------|-------|
|                                   | 5% AEP                    | 1% AEP | PMF   | 5% AEP                     | 1% AEP | PMF   |
| LOC - A                           | 64.52                     | 64.72  | 66.92 | 64.52                      | 64.72  | 66.92 |
| LOC - B                           | 63.92                     | 64.14  | 65.97 | 63.92                      | 64.14  | 65.95 |
| LOC - C                           | 62.49                     | 62.63  | 63.72 | 62.49                      | 62.63  | 63.73 |
| LOC - D                           | 60.62                     | 60.83  | 62.92 | 60.62                      | 60.84  | 62.95 |
| LOC - E                           | 59.43                     | 59.56  | 60.99 | 59.43                      | 59.57  | 61.09 |
| LOC - F                           | 59.05                     | 59.21  | 60.87 | 59.07                      | 59.24  | 60.96 |
| LOC - G                           | 58.20                     | 58.34  | 60.14 | 58.20                      | 58.37  | 60.15 |



**Figure 3.5 Flood Level Extraction Points**

The change in peak flood level, velocity and velocity-depth maps provide a visual representation of the differences between the Baseline and Developed Scenarios. The difference maps were created by subtracting results for the Baseline Scenario from the results for the Developed Scenario and show the location and magnitude of changes in flood level, velocity and VxD associated with the proposed development. Note that filtering of results has been undertaken by removing areas with depths below 150 mm, in line with the 2013 Flood Study. Flood level impacts have been mapped at 0.01 m intervals, as per Fairfield City Council's requirements for Developer Agreement assessments.

Outside of the Site, 1% AEP flood impact mapping shows localised impacts that are generally contained within the Reedy Creek corridor and are predicted to result from a restriction of the flow path of floodwaters along Reedy Creek due to the Precinct 5 fill embankment.

As per Council's Developer Agreement, BMT cannot make a statement about the adequacy of the design.



## 4 Conclusions

On behalf of Goodman, BMT has prepared this flood assessment for SSD-37486043 for the Concept Plan and Stage 2 works for the Oakdale East Industrial Estate. This report addresses the flood-related SEARs requirements for the development, as outlined in Table 4.1.

**Table 4.1**      **Response to SEARs Flooding Requirements**

| Requirement                                                                                                                                        | Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| “...flood assessment and modelling to determine the design flood levels...for a range of flood events”                                             | This report documents the flood assessment completed for the Masterplan and Stage 2 works, including modelling of the Baseline Scenario (i.e. pre-development conditions) (refer Section 3.2) and Developed Scenario (i.e. post-works conditions) (refer Section 3.3) and associated flood behaviour for the 5% AEP flood, 1% AEP flood and PMF. Design flood levels are listed in Table 3.1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| “...an assessment of any proposed filling and development on flood behaviour for a range of flood events.”                                         | As outlined in Section 3.3, detailed modelling of the proposed filling and development conditions (i.e. Developed Scenario) was completed by modifying the terrain representation, hydraulic roughness, proposed building footprints, stormwater network and hydraulic structure details within the Existing Scenario TUFLOW Model to reflect the proposed conditions with the Masterplan and Stage 2 works in place. This updated model constituted the Developed Scenario TUFLOW Model and was used to simulate the 5% AEP flood, 1% AEP flood and PMF. The results of this modelling are discussed in Section 3.5 and flood mapping for proposed conditions is provided in Annex A.<br><br>The predicted impacts of the proposed development on existing flood behaviour were also established, as outlined in Section 3.5 and presented as flood impact mapping in Annex A. |
| “The assessment must consider relevant Council flood studies and floodplain risk management plans and the NSW Floodplain Development Manual 2005.” | This assessment is based on existing studies undertaken through the NSW Floodplain Program and in line with the objectives of the NSW Floodplain Development Manual (FDM) (2005), as outlined in Section 2.<br><br>Flood behaviour was defined based on the mainstream Reedy Creek TUFLOW model originally developed for Fairfield City Council’s adopted ‘Fairfield Rural Area Flood Study (Ropes, Reedy & Eastern Creeks)’ (BMT, 2013). Council’s TUFLOW model was subsequently updated for Stage 1 works and Site Rehabilitation DA as part of the ‘224-298 Burley Road, Horsley Park Flood Impact Assessment’ (BMT, 2019) and ‘Flood Impact Modelling for Oakdale East Industrial Development                                                                                                                                                                               |

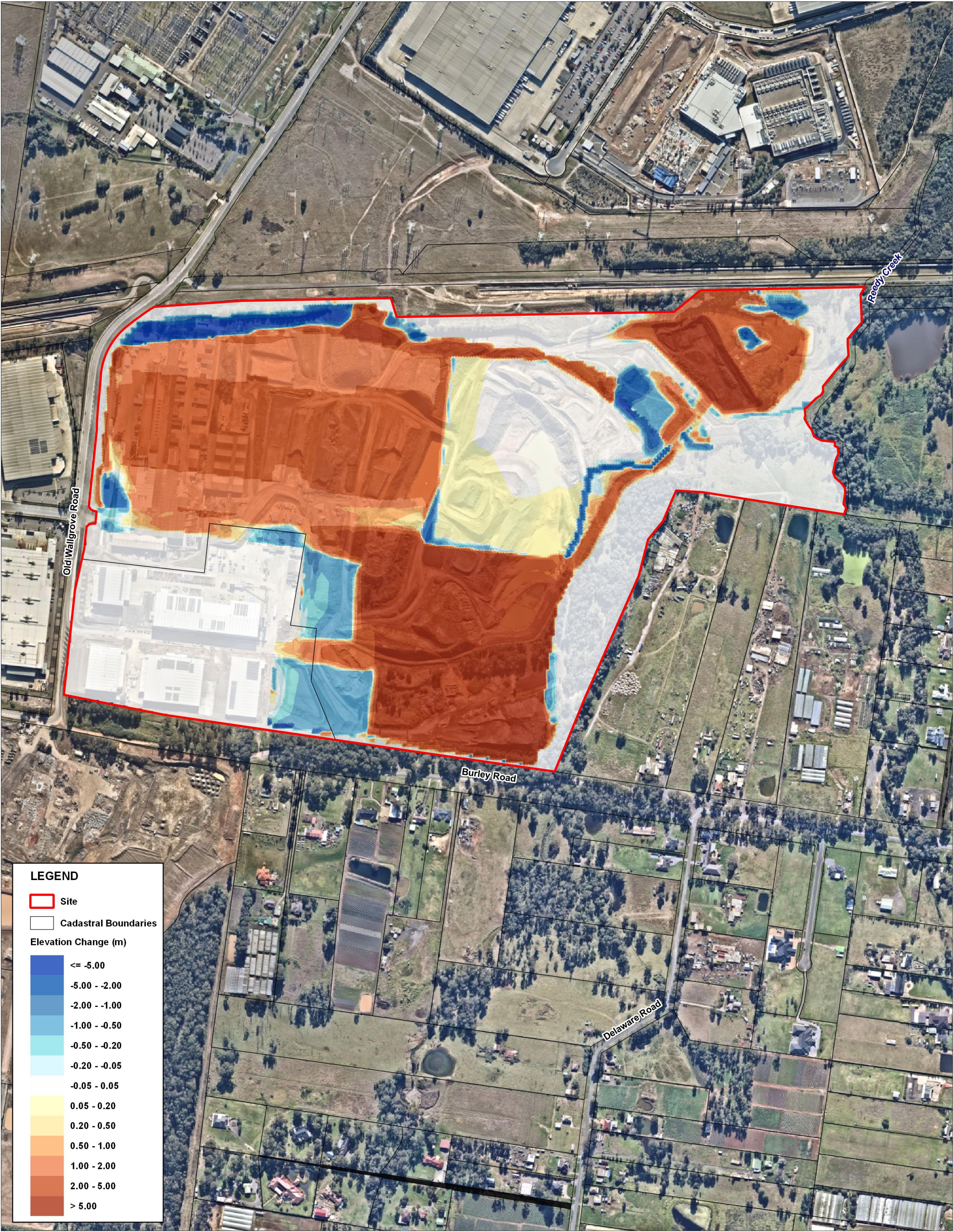
| Requirement | Response                                                                                                                                                                                                                                                                                                                                                         |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <p>Earthworks' (BMT, 2021), and most recently specifically modified for this flood assessment.</p> <p>In line with the requirements for developers outlined in the FDM (2005), an appropriately detailed study has been undertaken to define the flood risk at the Site and determine the impact of the proposed development (as documented in this report).</p> |



**Annex A   Flood and Impact Mapping**

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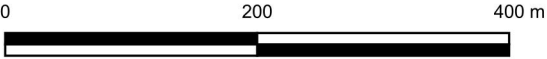


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**Site Location and Change in Terrain**

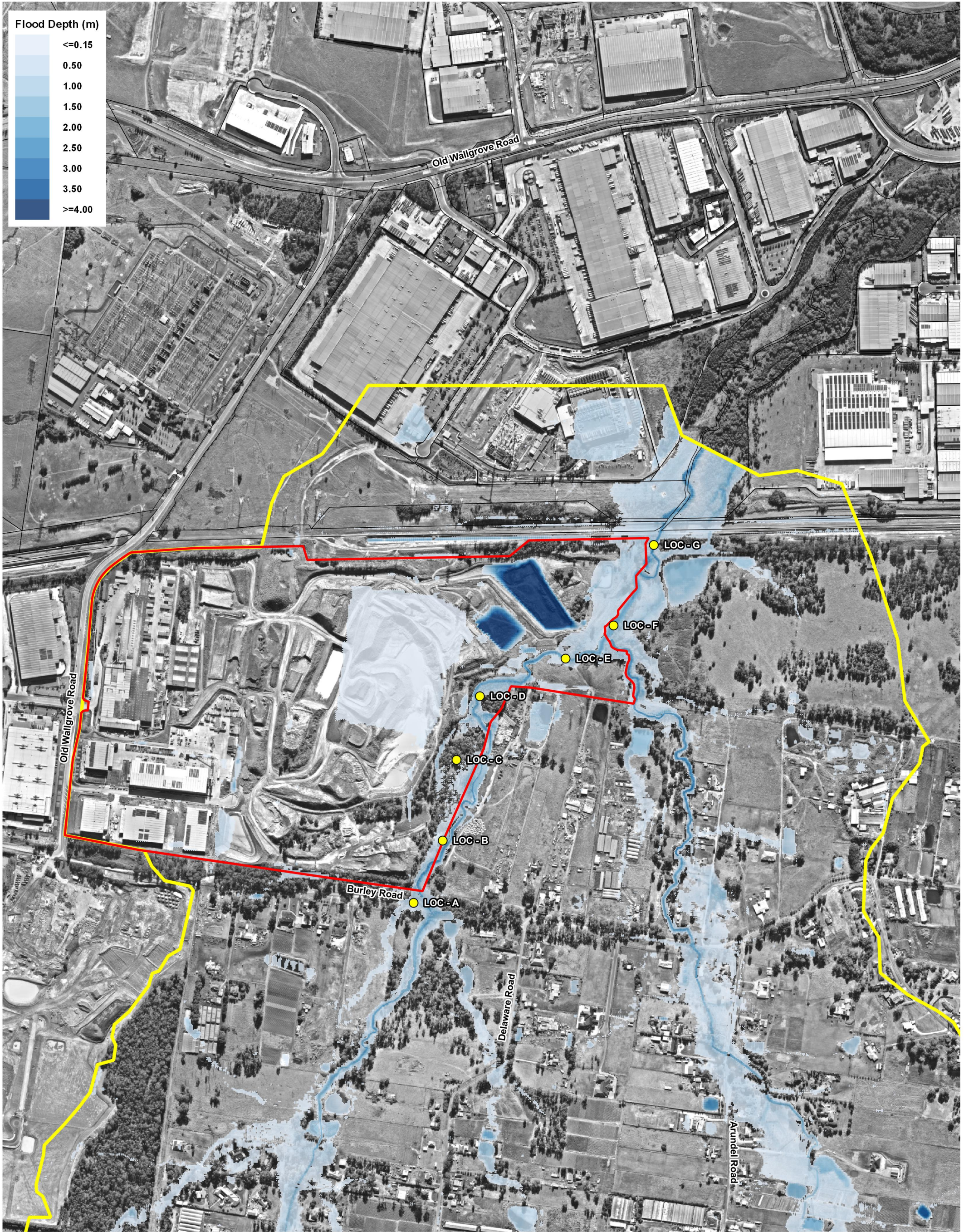
Figure:  
**A-1**

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- LEGEND**
- Locations
  - Site Property
  - Extent of Modelling
  - Cadastral Boundaries

Title:

## Peak Flood Depth - Baseline Scenario - 1% AEP Flood

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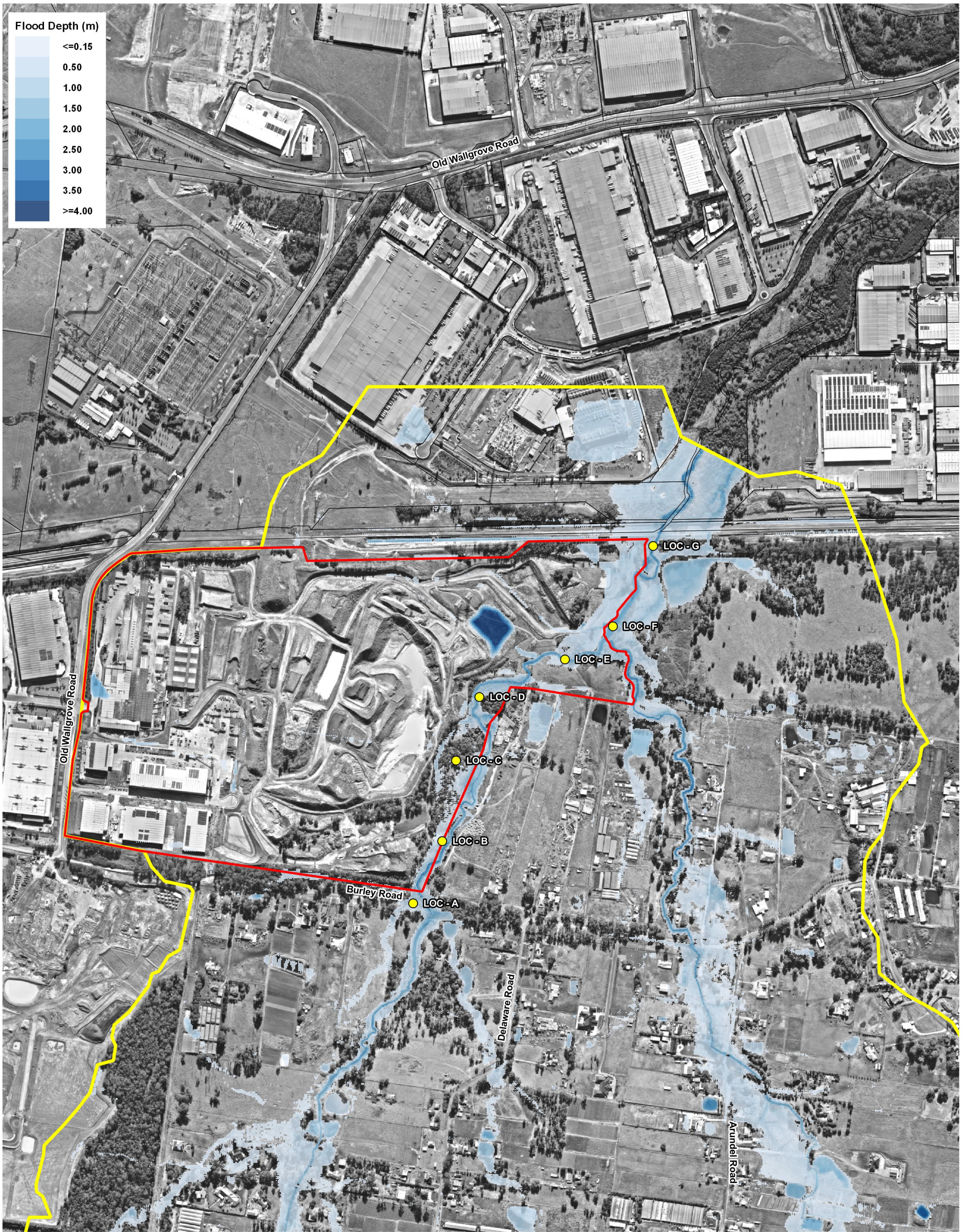


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- LEGEND**
- Locations
  - Site Property
  - Extent of Modelling
  - Cadastral Boundaries

Title:

## Peak Flood Depth - Developed Scenario - 1% AEP Flood

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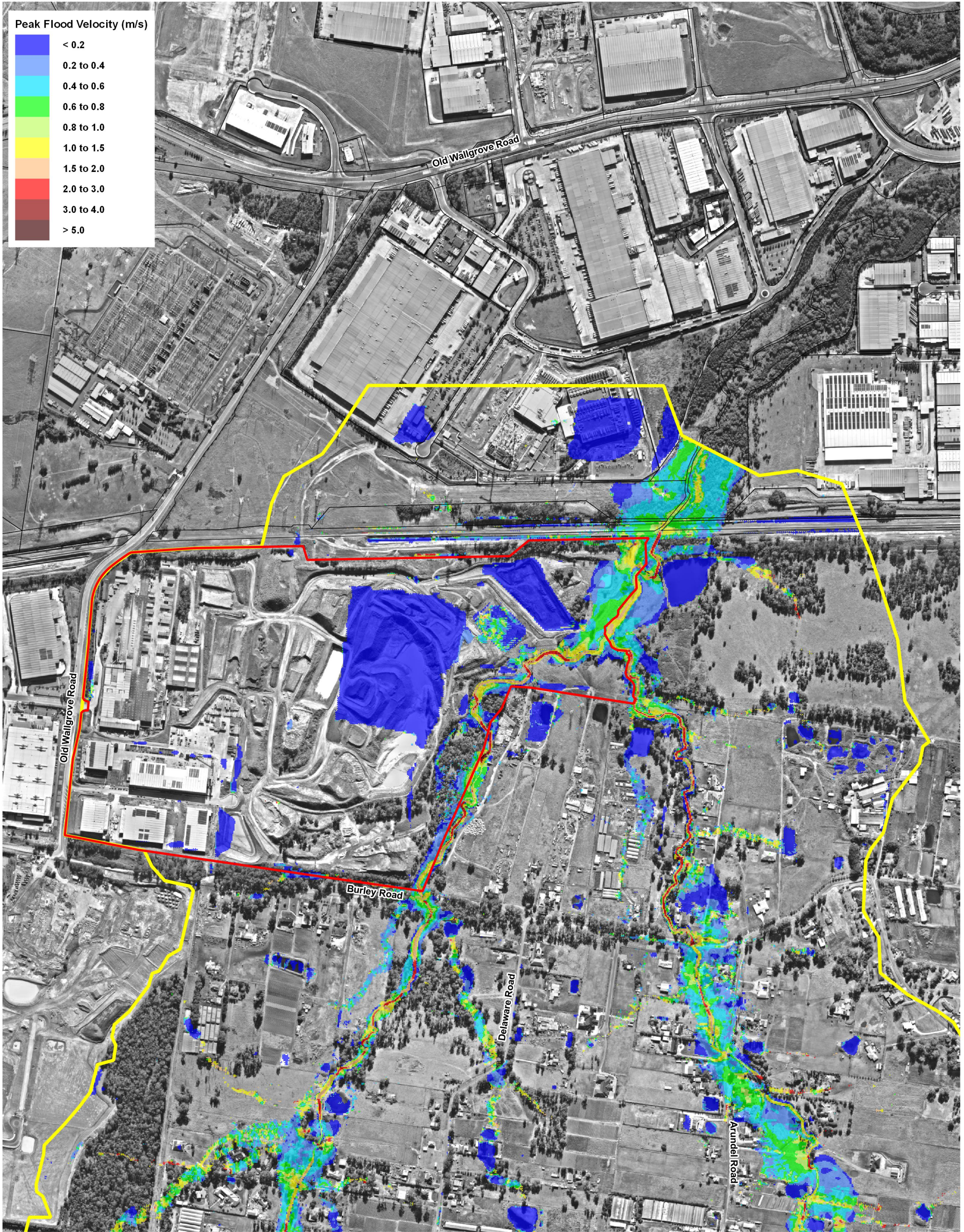


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**LEGEND**

- Site Property
- Extent of Modelling
- Cadastral Boundaries

Title:  
**Peak Flood Velocity - Baseline Scenario - 1% AEP Flood**

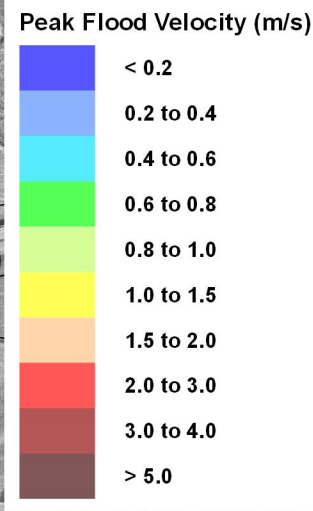
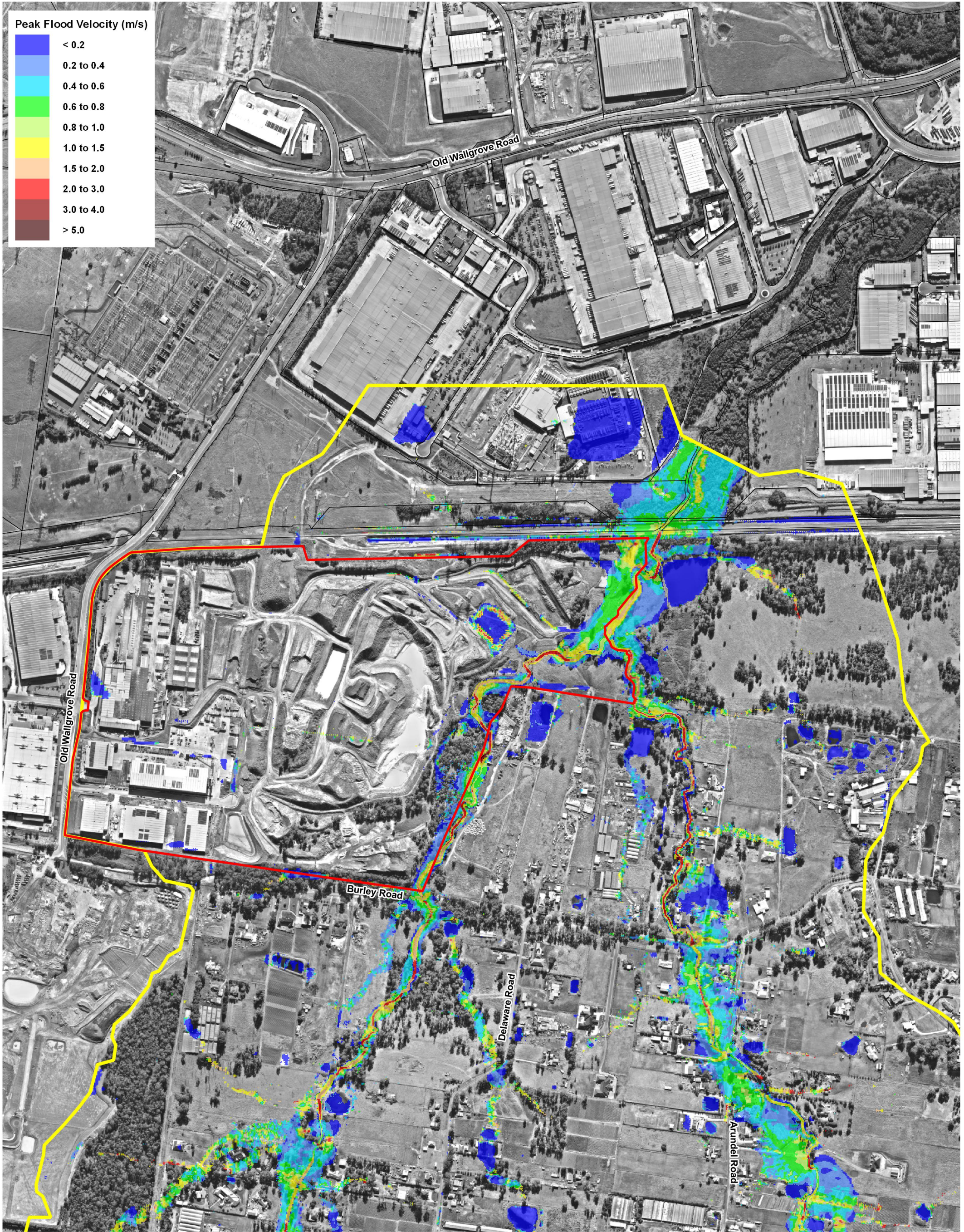
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LEGEND

- Site Property
- Extent of Modelling
- Cadastral Boundaries

Title:  
**Peak Flood Velocity - Developed Scenario - 1% AEP Flood**

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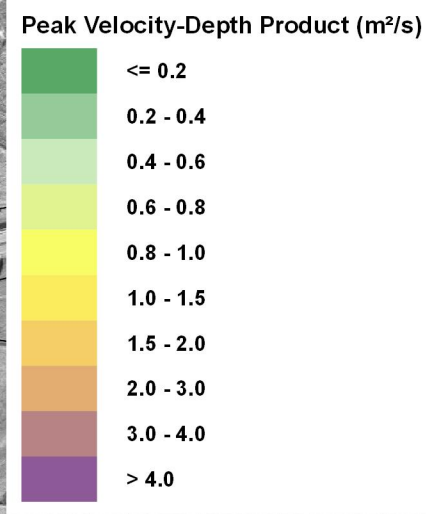
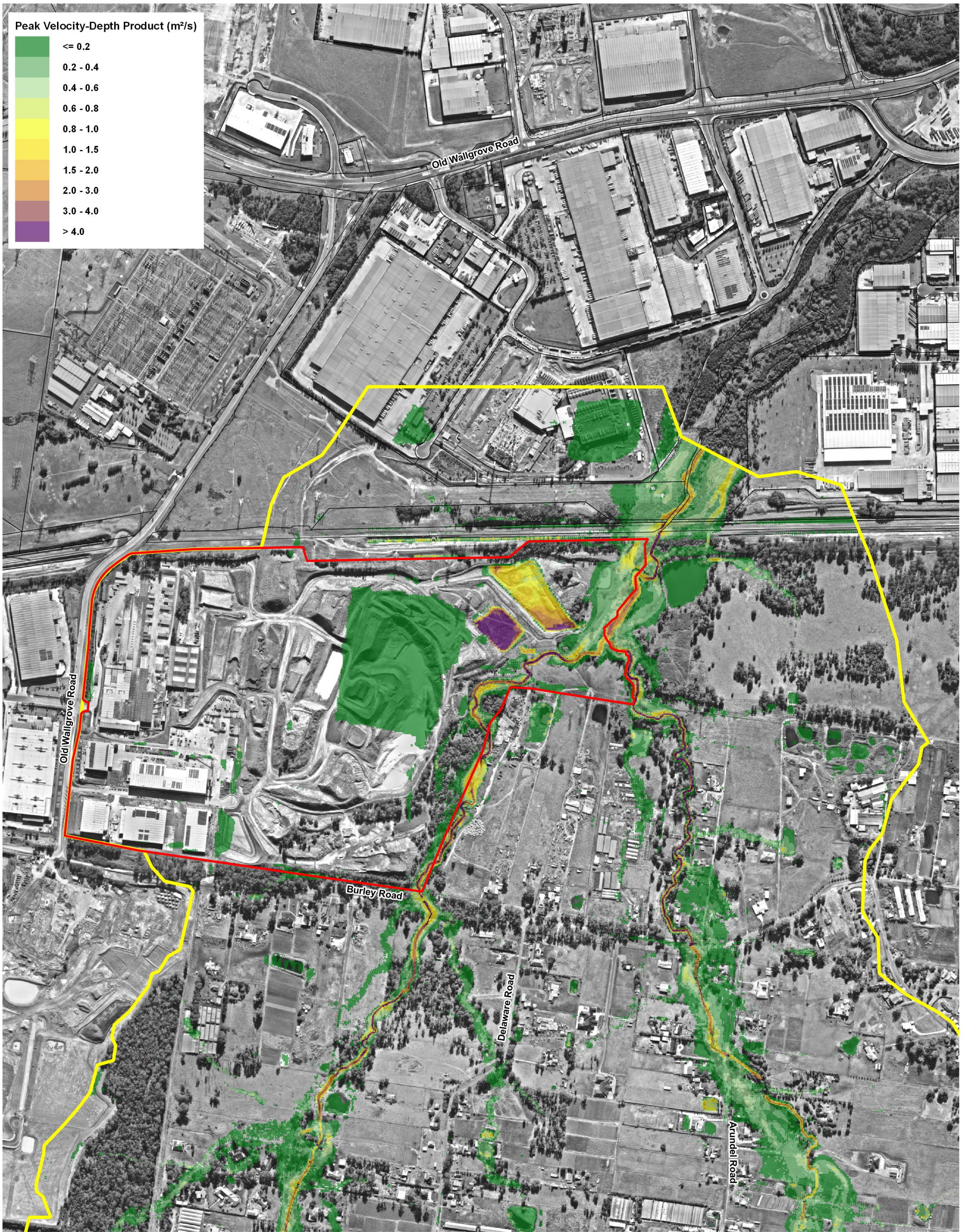


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LEGEND

- Site Property
- Extent of Modelling
- Cadastral Boundaries

Title:

Peak Velocity-Depth Product - Baseline Scenario - 1% AEP Flood

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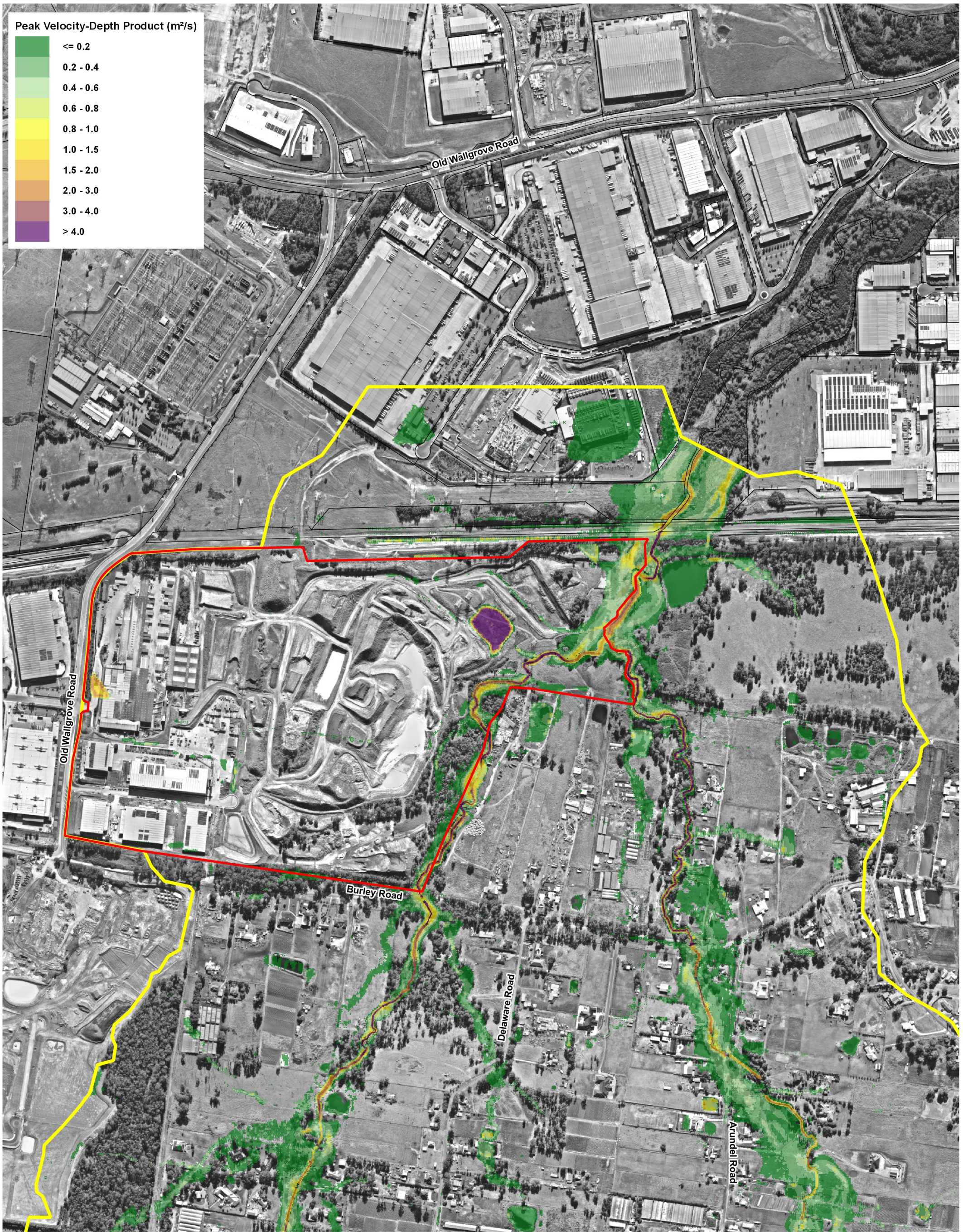
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**LEGEND**

- Site Property
- Extent of Modelling
- Cadastral Boundaries

Title:

**Peak Velocity-Depth Product - Developed Scenario - 1% AEP Flood**

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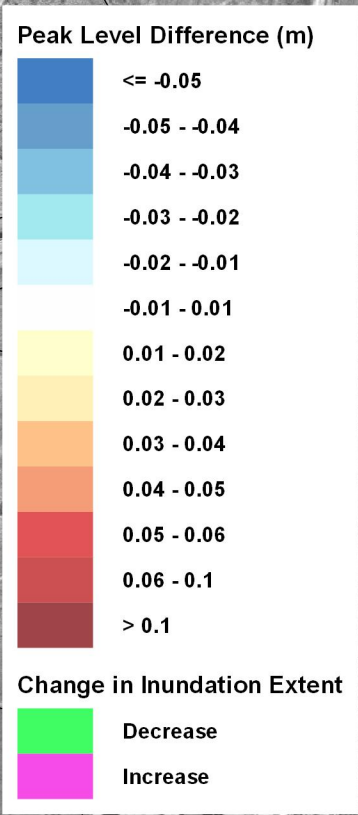
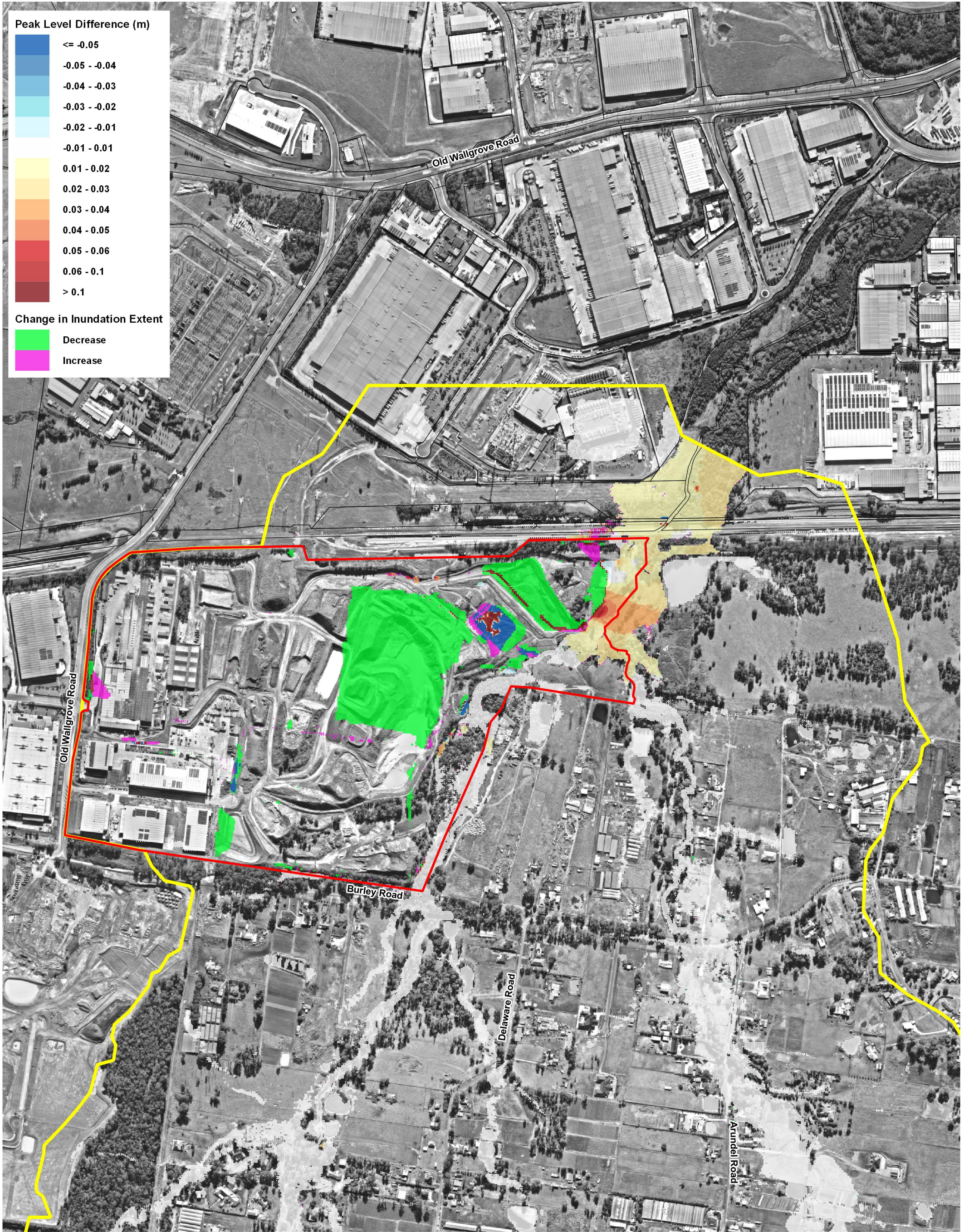
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- LEGEND**
- Site Property
  - Extent of Modelling
  - Cadastral Boundaries

Title:

## Change in Peak Flood Level - 1% AEP Flood

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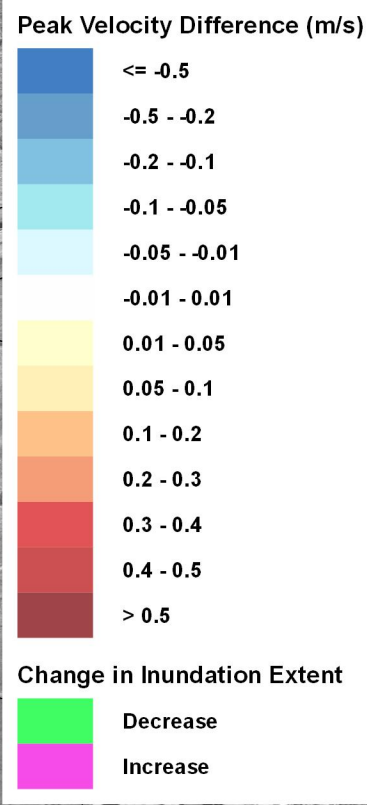
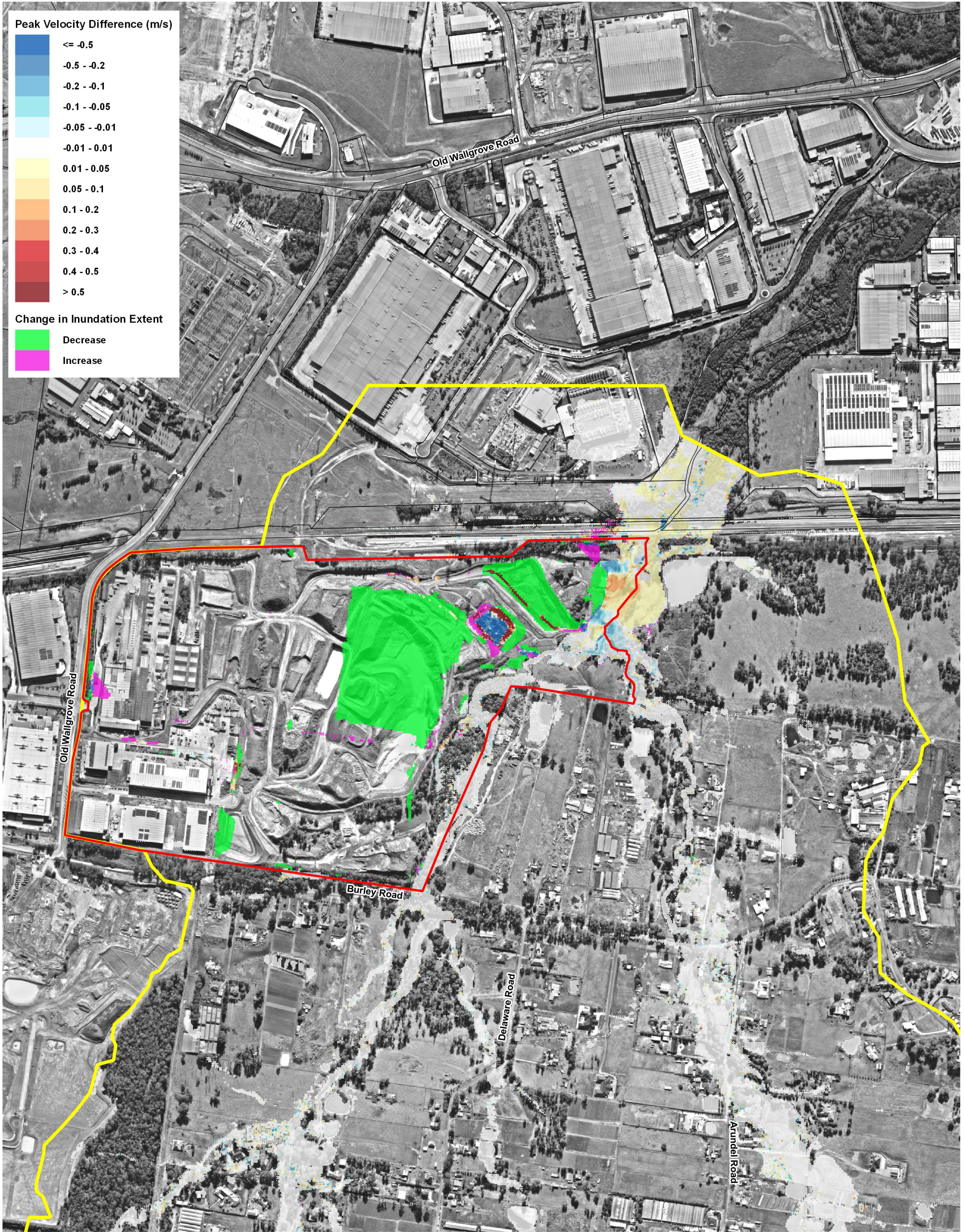


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- LEGEND**
- Site Property
  - Extent of Modelling
  - Cadastral Boundaries

Title:

### Change in Peak Flood Velocities - 1% AEP Flood

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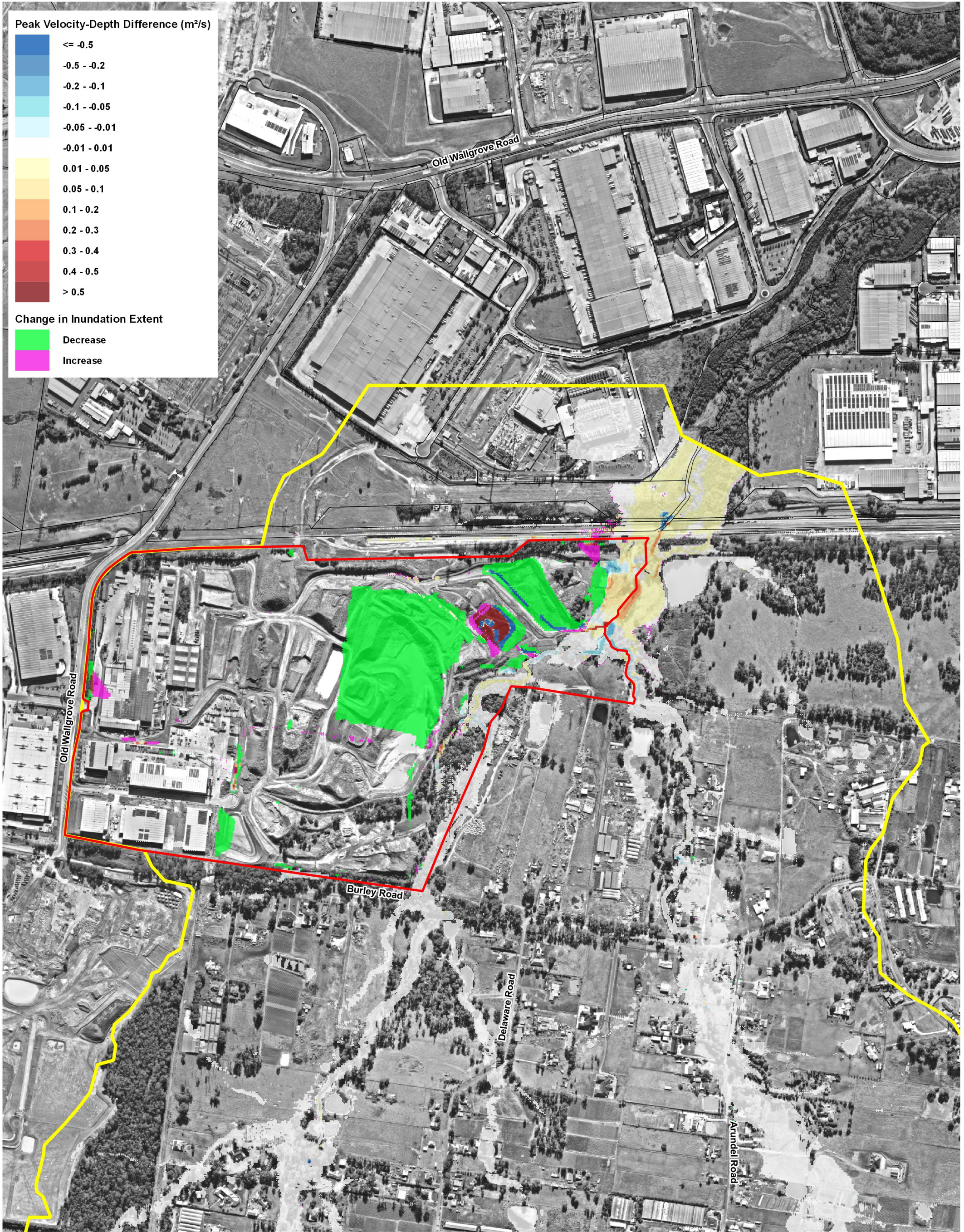


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LEGEND

- Site Property
- Extent of Modelling
- Cadastral Boundaries

Title:  
**Change in Peak Flood Velocity-Depth Product - 1% AEP Flood**

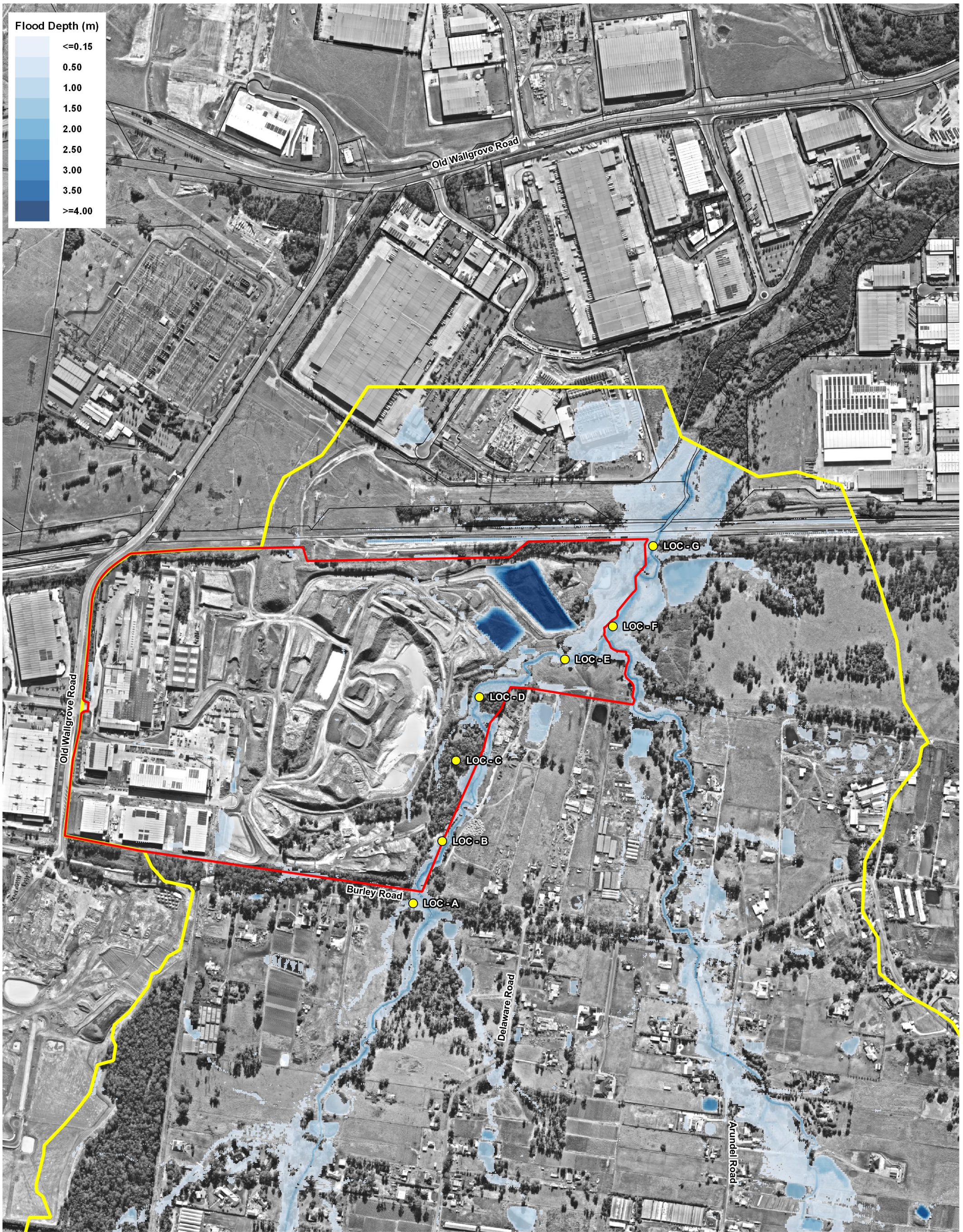
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Drawing: **A10**  
Rev: **A**







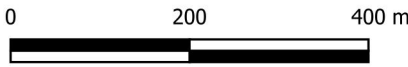
**LEGEND**

- Locations
- Site Property
- Extent of Modelling
- Cadastral Boundaries

Title:

**Peak Flood Depth - Baseline Scenario - 5% AEP Flood**

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



Drawing:

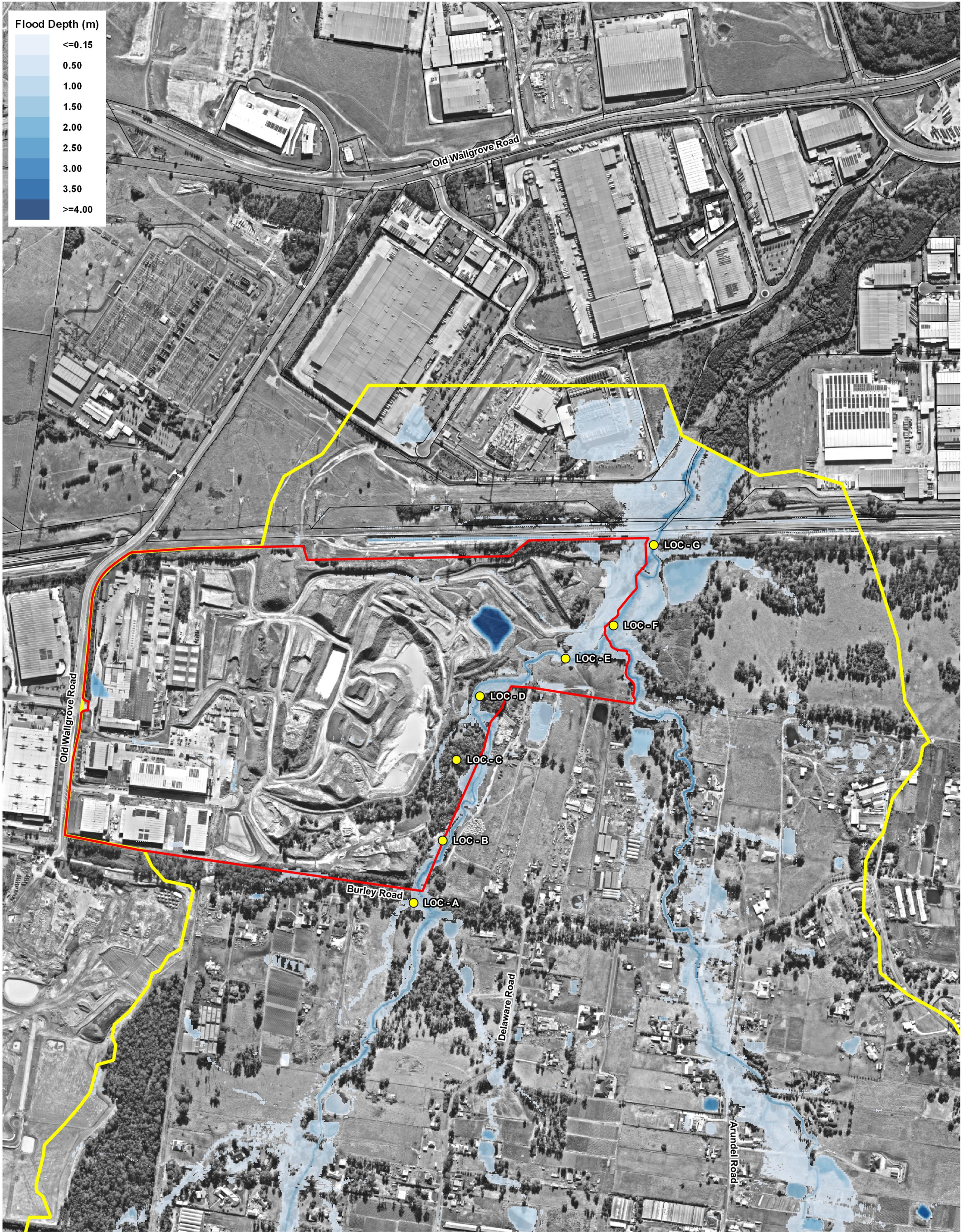
**A11**

Rev:

**A**







- LEGEND**
- Locations
  - Site Property
  - Extent of Modelling
  - Cadastral Boundaries

Title:  
**Peak Flood Depth - Developed Scenario - 5% AEP Flood**

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

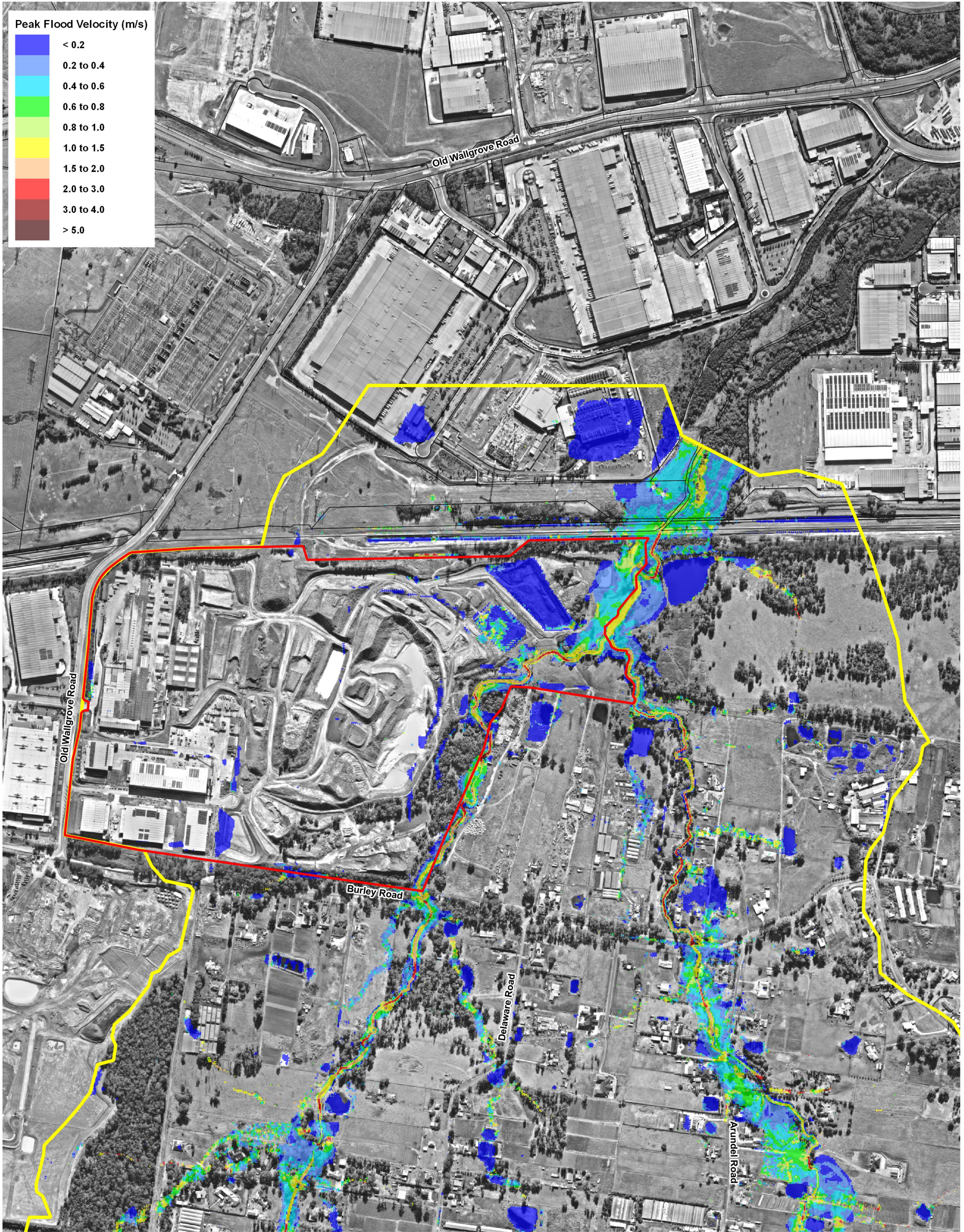


Drawing:  
**A12**

Rev:  
**A**







LEGEND

- Site Property
- Extent of Modelling
- Cadastral Boundaries

Title:  
**Peak Flood Velocity - Baseline Scenario - 5% AEP Flood**

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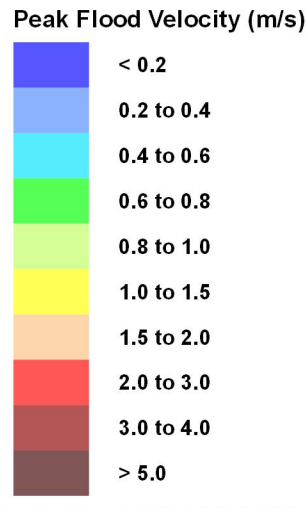
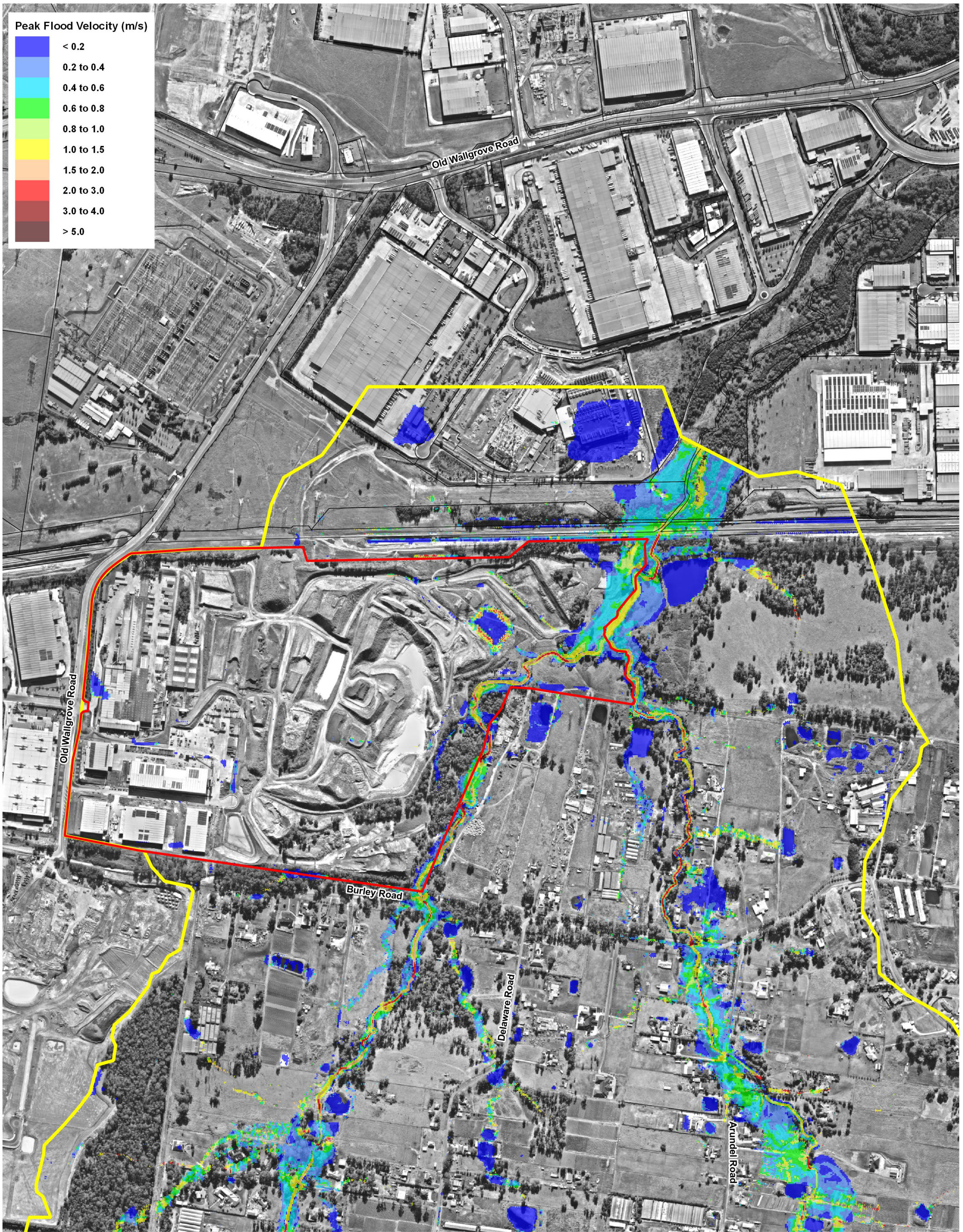


Drawing:  
**A13**

Rev:  
**A**







- LEGEND**
- Site Property
  - Extent of Modelling
  - Cadastral Boundaries

Title:

**Peak Flood Velocity - Developed Scenario - 5% AEP Flood**

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

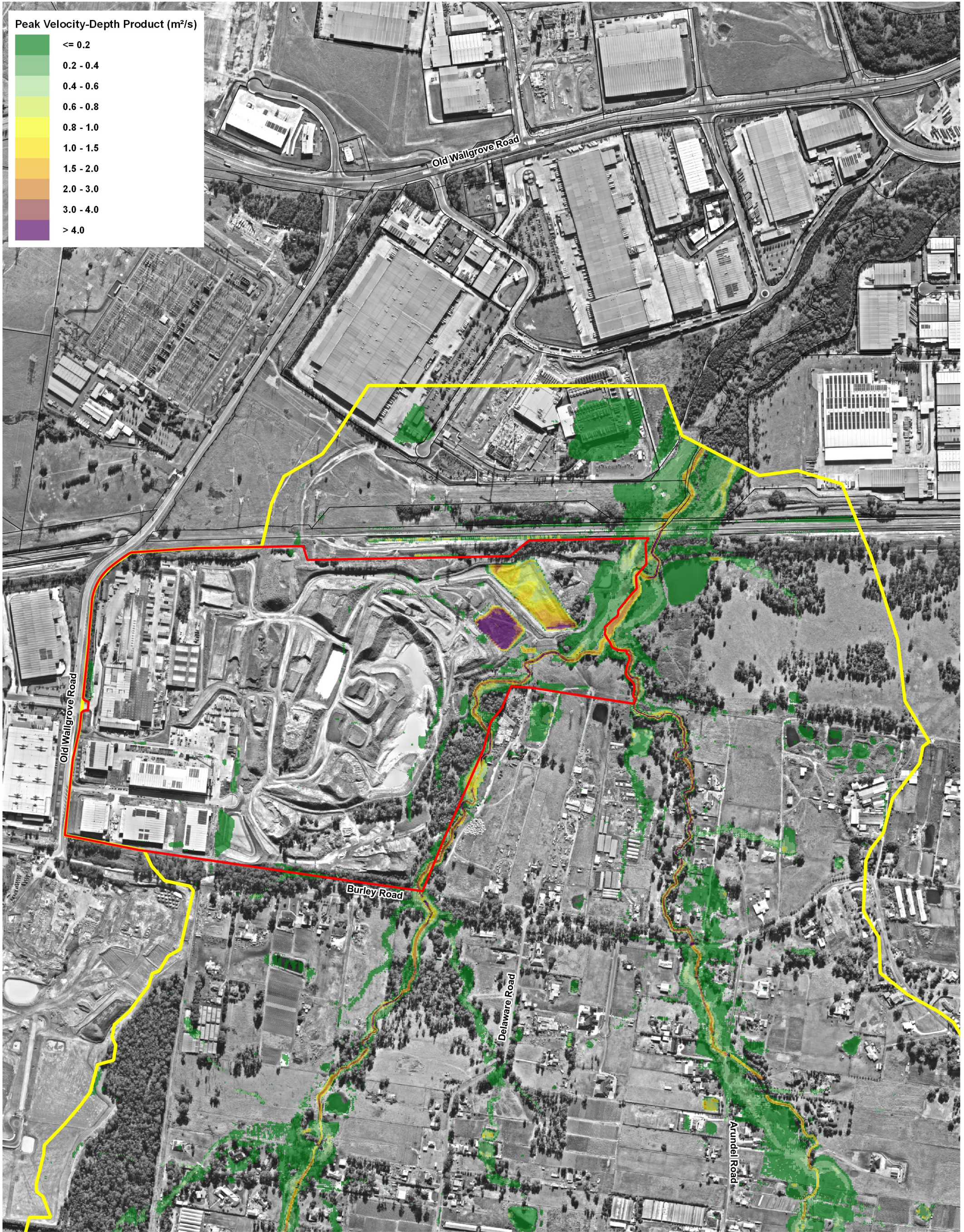


Drawing: **A14**

Rev: **A**







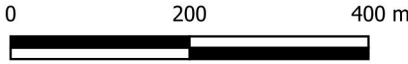
**LEGEND**

- Site Property
- Extent of Modelling
- Cadastral Boundaries

Title:

**Peak Velocity-Depth Product - Baseline Scenario - 5% AEP Flood**

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



Drawing:

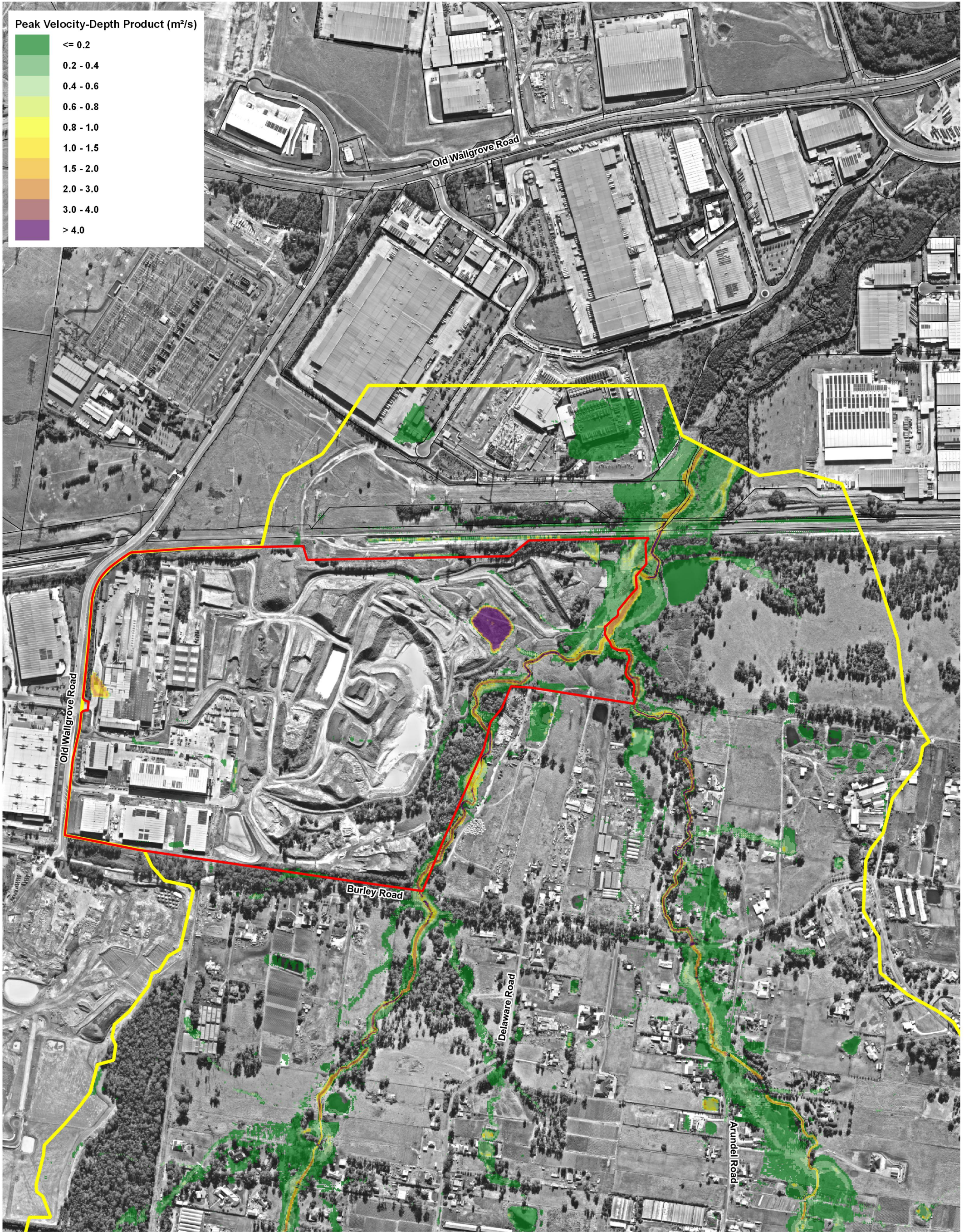
**A15**

Rev:

**A**







**LEGEND**

- Site Property
- Extent of Modelling
- Cadastral Boundaries

Title:  
**Peak Velocity-Depth Product - Developed Scenario - 5% AEP Flood**

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

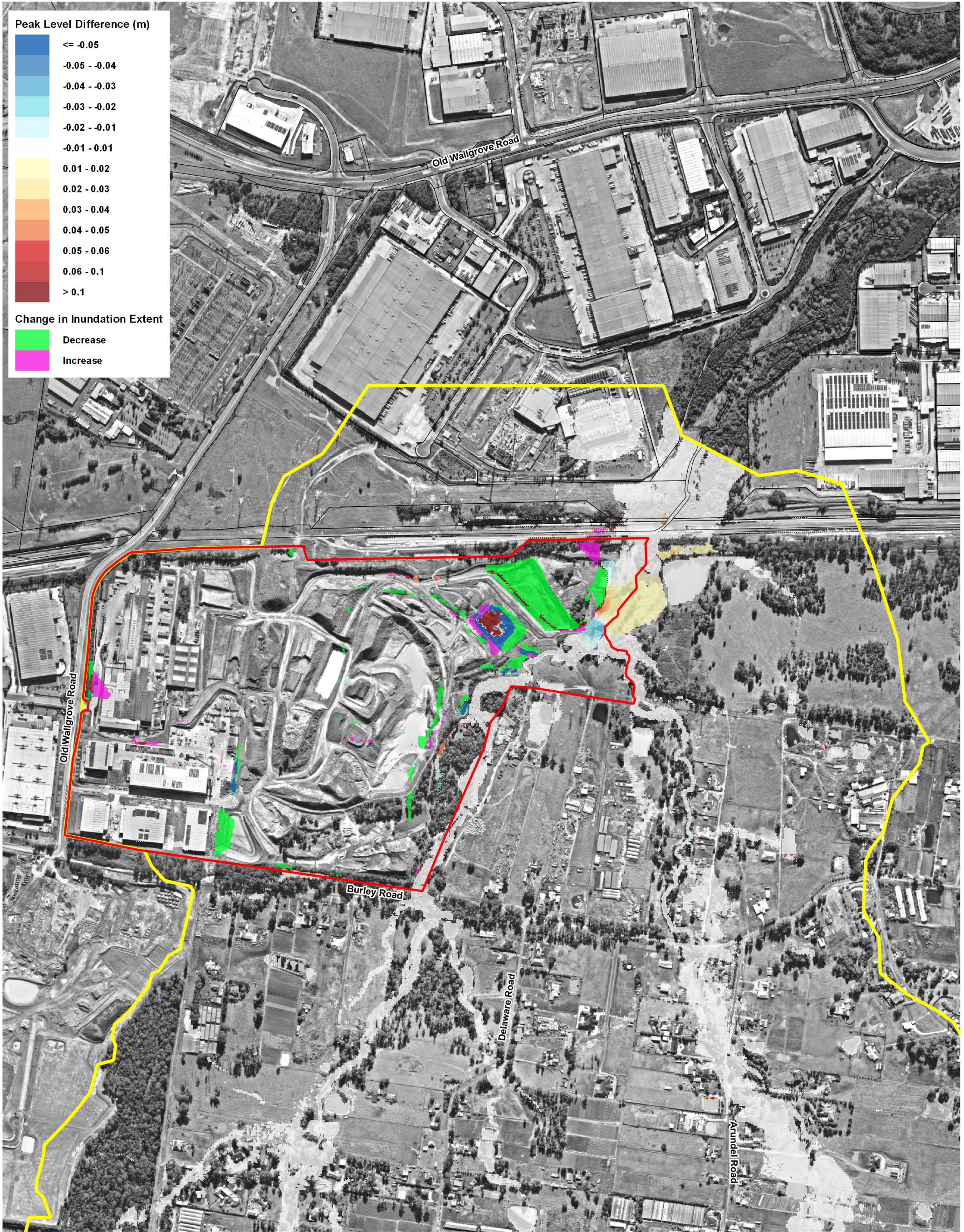


Drawing:  
**A16**

Rev:  
**A**







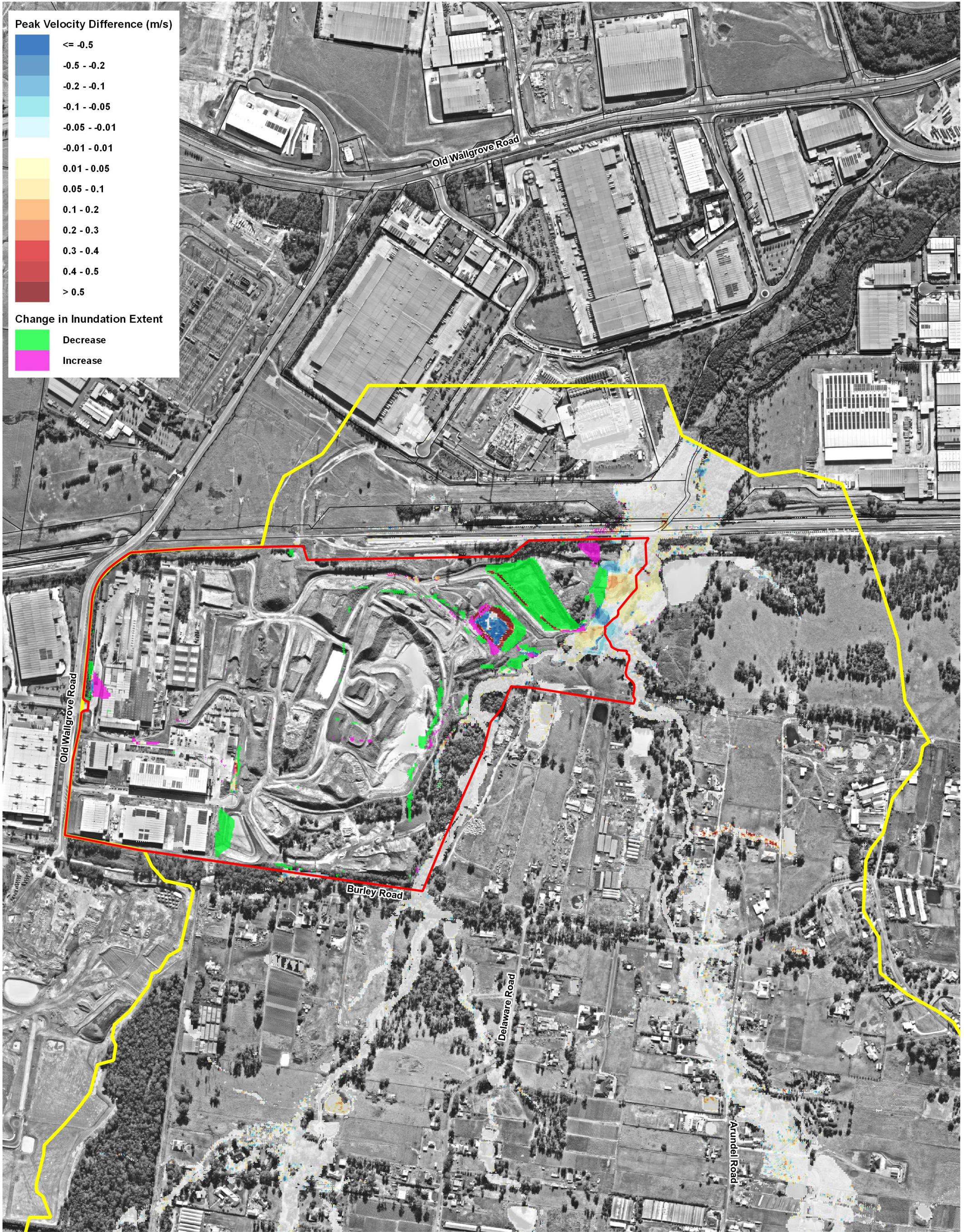
**Change in Peak Flood Level - 5% AEP Flood**

A17

A







**LEGEND**

- Site Property
- Extent of Modelling
- Cadastral Boundaries

**Change in Peak Flood Velocities - 5% AEP Flood**

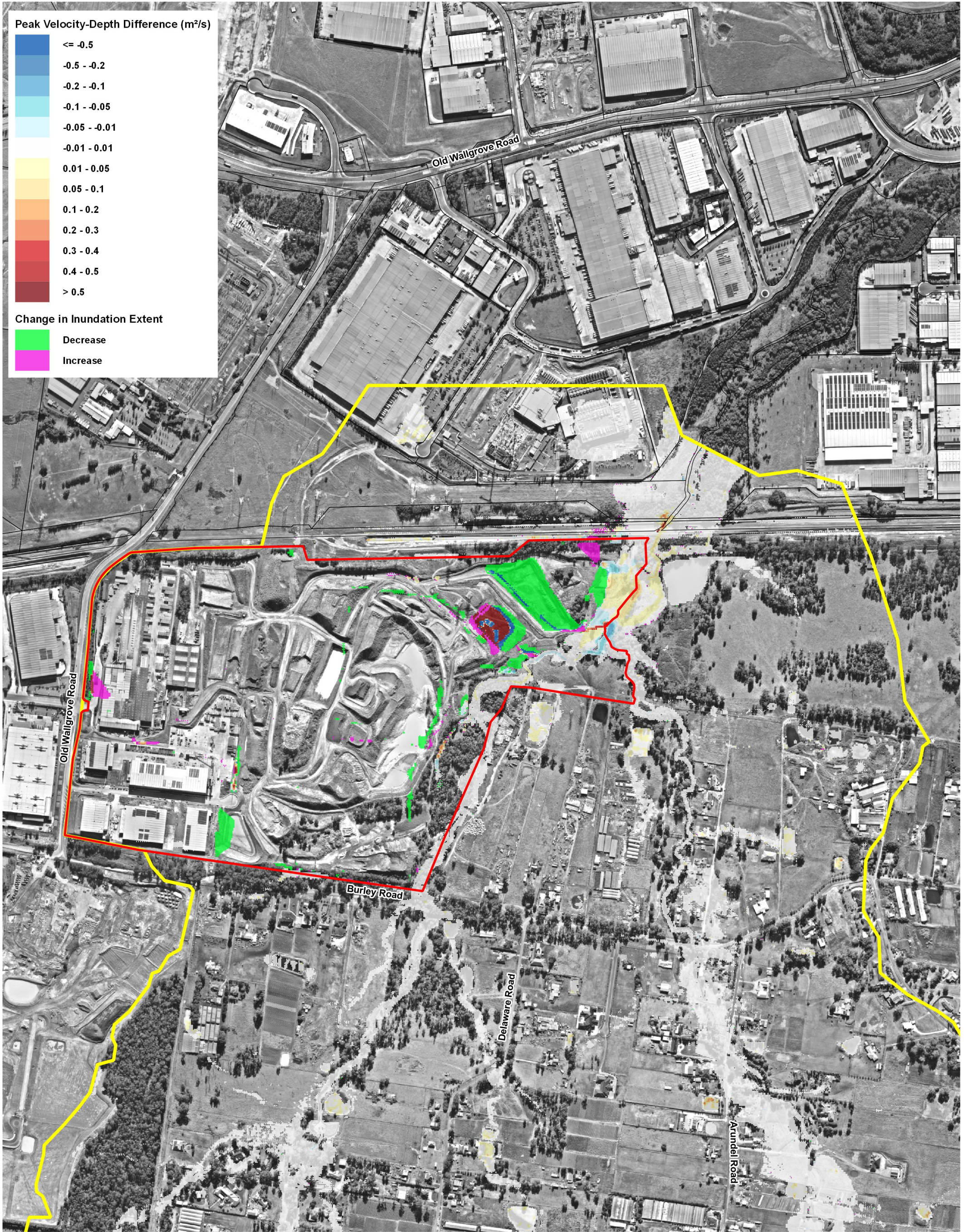
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Drawing: **A18** Rev: **A**







**LEGEND**

- Site Property
- Extent of Modelling
- Cadastral Boundaries

Title:  
**Change in Peak Flood Velocity-Depth Product - 5% AEP Flood**

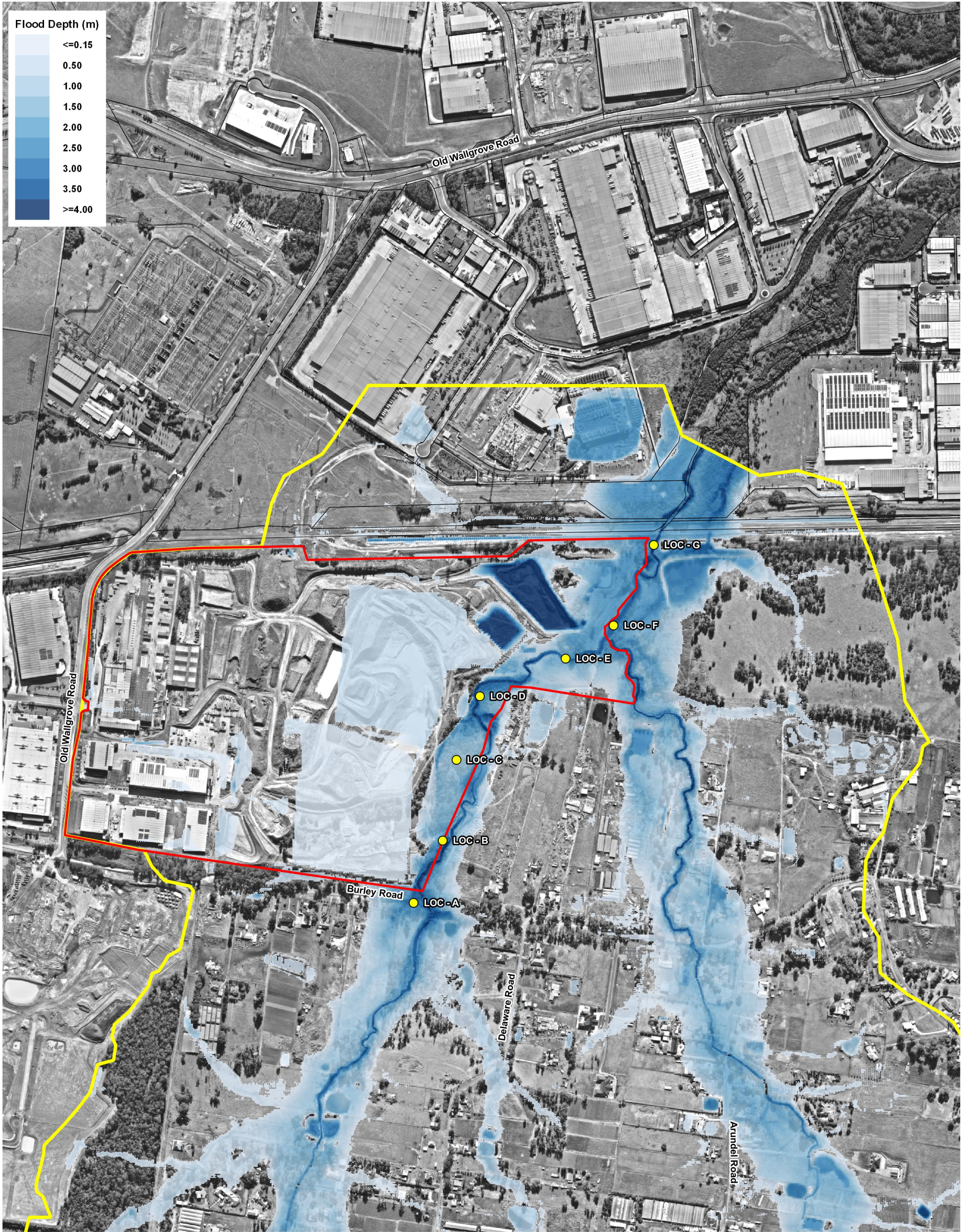
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Drawing: **A19**  
Rev: **A**







LEGEND

- Locations
- Site Property
- Extent of Modelling
- Cadastral Boundaries

Title:  
**Peak Depth - Baseline Scenario - PMF**

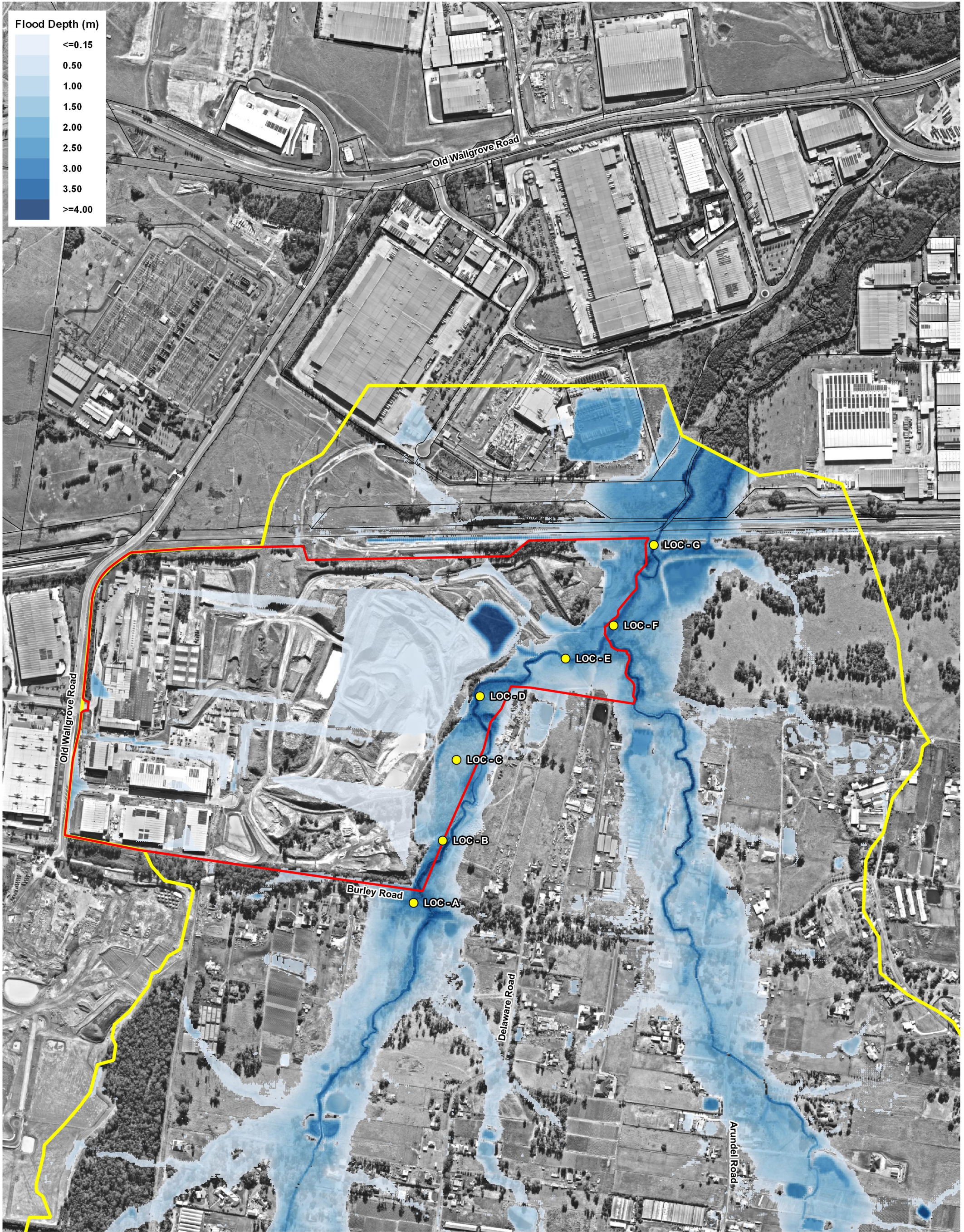
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Drawing: **A20**  
Rev: **A**







- LEGEND**
- Locations
  - Site Property
  - Extent of Modelling
  - Cadastral Boundaries

Title:  
**Peak Depth - Developed Scenario - PMF**

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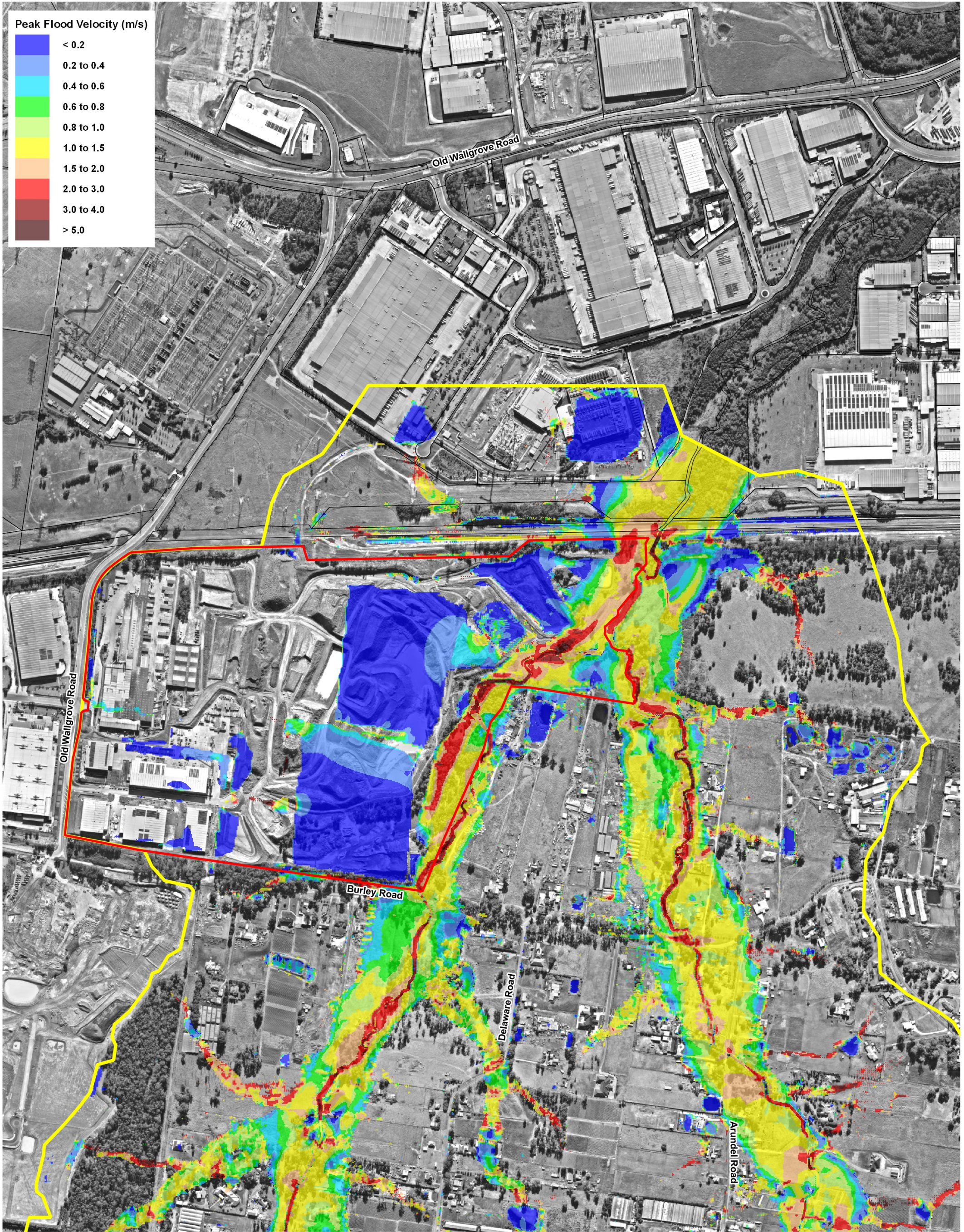


Drawing:  
**A21**

Rev:  
**A**







LEGEND

- Site Property
- Extent of Modelling
- Cadastral Boundaries

Title:  
**Peak Velocity - Baseline Scenario - PMF**

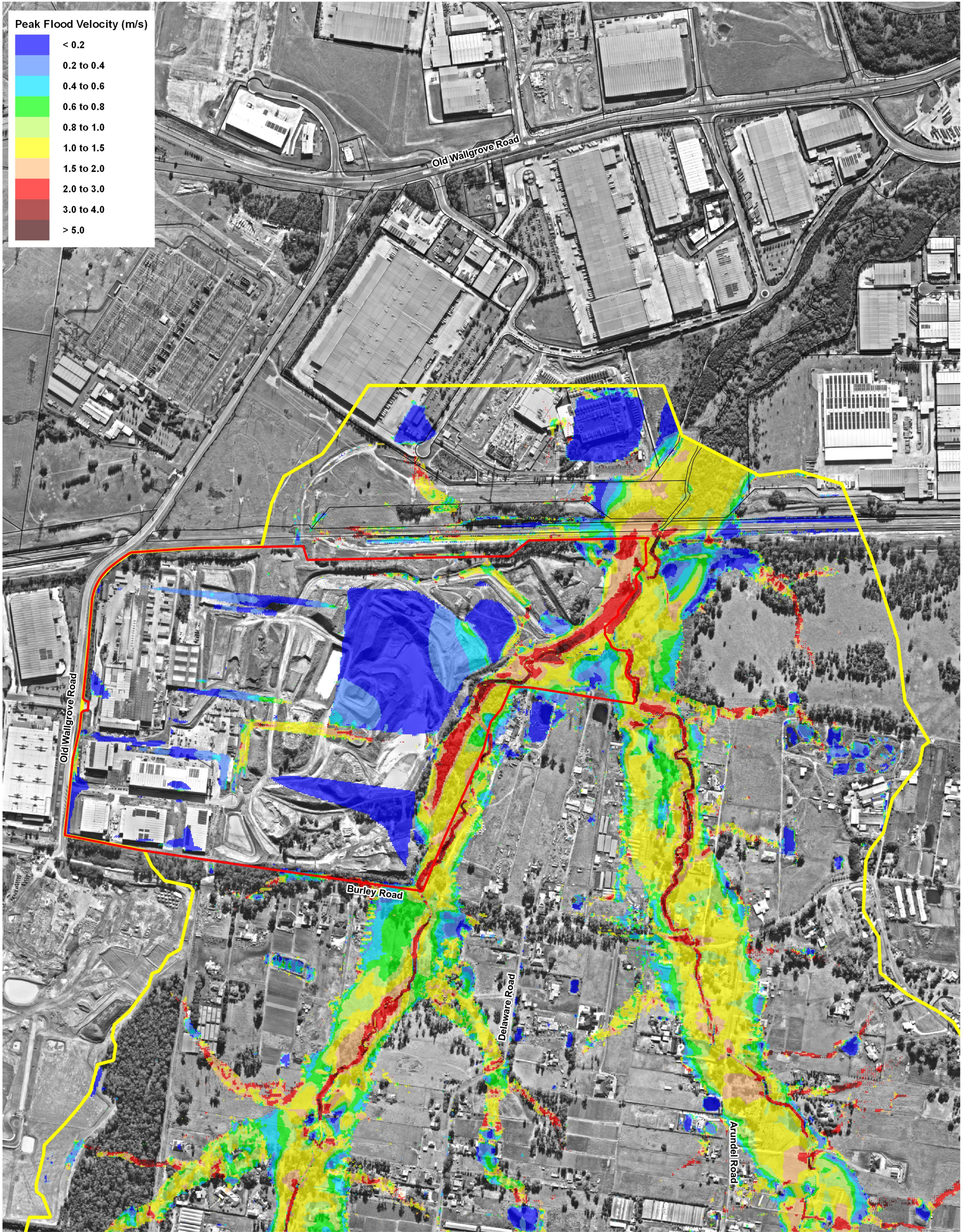
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Drawing: **A22** Rev: **A**







LEGEND

- Site Property
- Extent of Modelling
- Cadastral Boundaries

Title:  
**Peak Velocity - Development Scenario - PMF**

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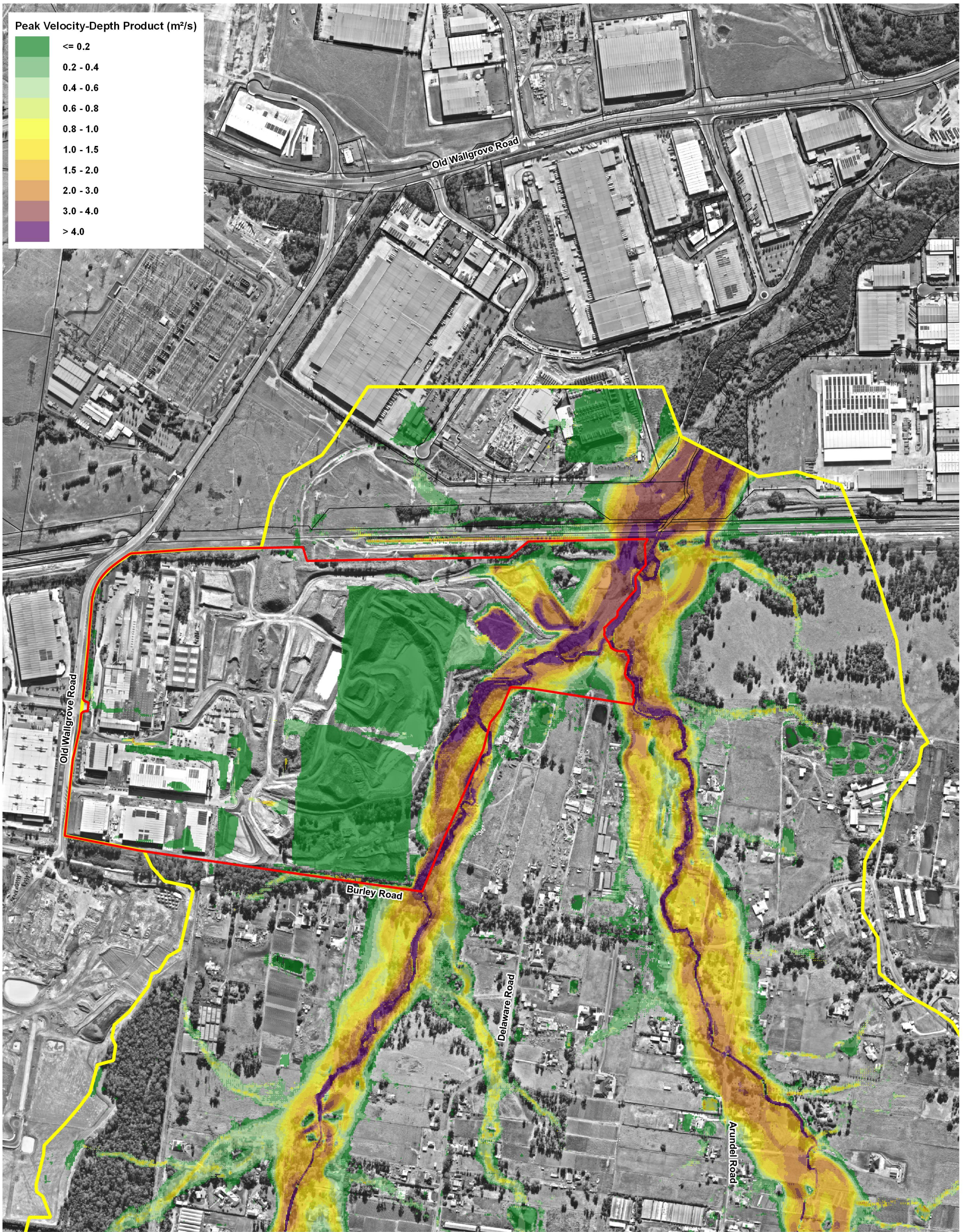


Drawing:  
**A23**

Rev:  
**A**







**LEGEND**

- Site Property
- Extent of Modelling
- Cadastral Boundaries

Title:  
**Peak Velocity-Depth Product - Baseline Scenario - PMF**

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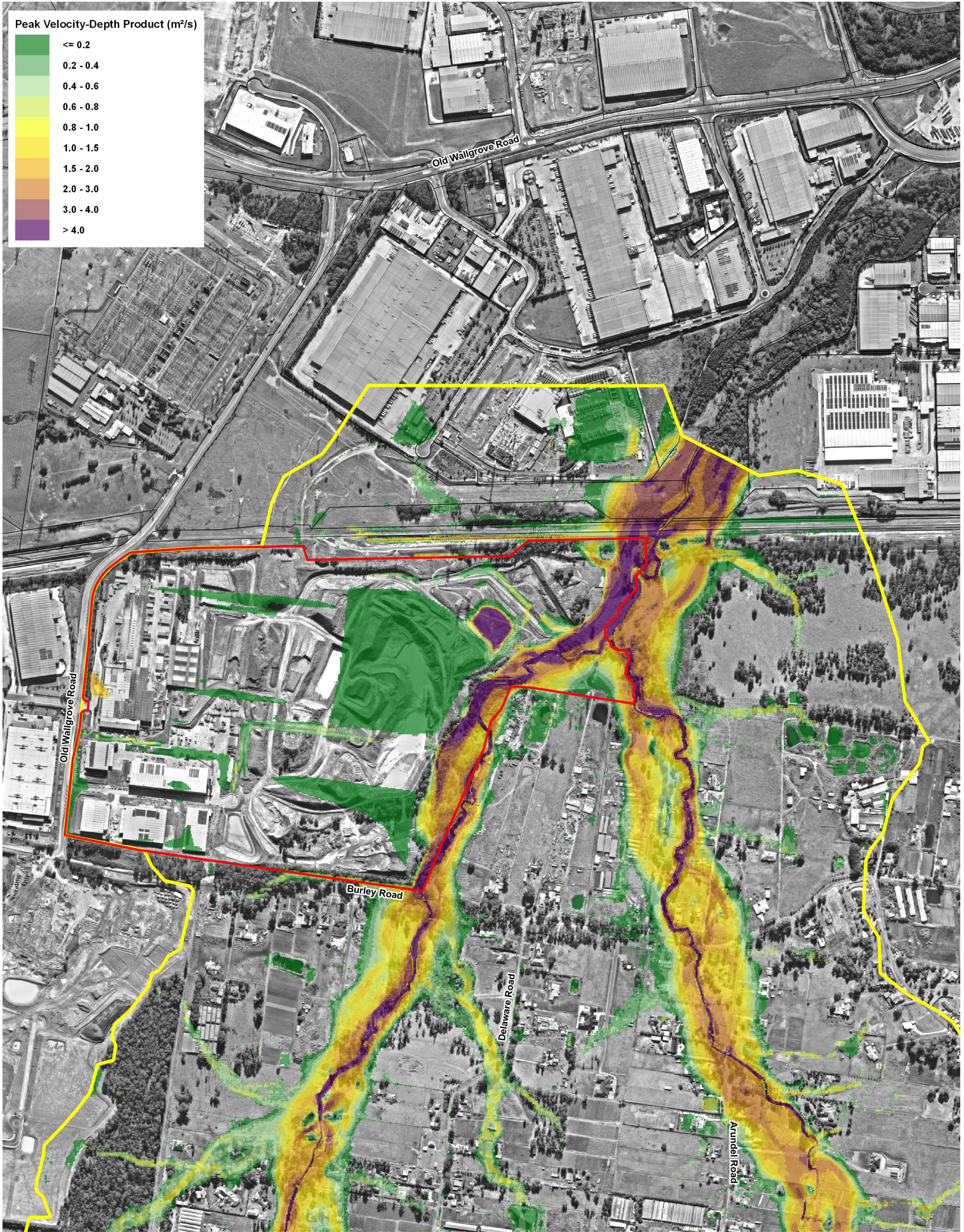


Drawing:  
**A24**

Rev:  
**A**







LEGEND

- Site Property
- Extent of Modelling
- Cadastral Boundaries

Title:  
**Peak Velocity-Depth Product - Developed Scenario - PMF**

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Drawing: **A25** Rev: **A**

