MIDCOAST council

APPENDIX 7

January 2026

Wingham Urban Release Area 1



ADDENDUM LETTER – AMENDED FLOOD IMPACT AND RISK ASSESSMENT

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Our Ref: DJW: L.T2394.005.docx

3 February 2026
Tim Colless
MPT Farms
95 Bight Road
Wingham NSW 2429

Via email: Tim.Colless@hampstead.com.au

Dear Tim

RE: FLOOD IMPACT AND RISK ASSESSMENT FOR LOT 92 WINGHAM ROAD, WINGHAM, NSW

Torrent Consulting undertook a Flood Impact and Risk Assessment (FIRA) to inform the approval process for the proposed rural to residential rezoning at Lot 92 Wingham Road, Wingham NSW (refer R.T2394.001.05, dated 14 August 2025). Following completion of the FIRA, the proposed extent of residential rezoning has been reduced. The flood impacts and flood risk exposure associated with the reduction of rezoning extent will be less than those presented and assessed in the FIRA. However, for improved clarity of assessment, NSW DPHI has requested some additional flood mapping information to reflect the change in rezoning extent. This additional information is presented herein.

The current rezoning extent and future subdivision layout has been overlaid on the flood hazard mapping produced in the FIRA for the PMF event. The modelled post-development flood hazard classification for the Cedar Party Creek PMF event is shown in Figure 1, with the Extreme Flood event for the Manning River shown in Figure 2. Most of the future residential allotments will not be impacted by Cedar Party Creek flooding, with a maximum of an H2 flood hazard exposure at the PMF event and localised H3 within the perimeter road. The bulk earthworks design can be further refined through future design iterations (e.g. in support of a subsequent DA) to remove this localised Cedar Party Creek PMF H3 hazard exposure, if required.

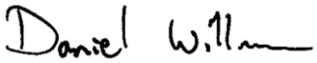
Whilst the residential land and associated access will not be inundated by Manning River flood events of around a 1-in-20,000 AEP or more frequent, an Extreme Flood event does present a high level of flood hazard exposure, as shown in Figure 2. However, the risk exposure is low due to both the rarity of occurrence and the ability to safely evacuate in advance of a flood event, as detailed in the FIRA. A flood event in the order of a 1-in-20,000 AEP is required to isolate the Site from Taree, with over 24 hours warning time available to enact a safe evacuation.

For the mapping of the Flood Planning Area (FPA) the 0.5% (1-in-200) AEP condition plus a 0.5 m freeboard has been adopted, to account for potential future climate change. The resultant Flood Planning Level (FPL) has been mapped using the LiDAR survey data to produce the FPA extent shown in Figure 3. The earthworks associated with the proposed future subdivision will raise all the residential area some 3.4 m above the FPL. The resultant reduction in FPA extent has also been indicated in Figure 3.

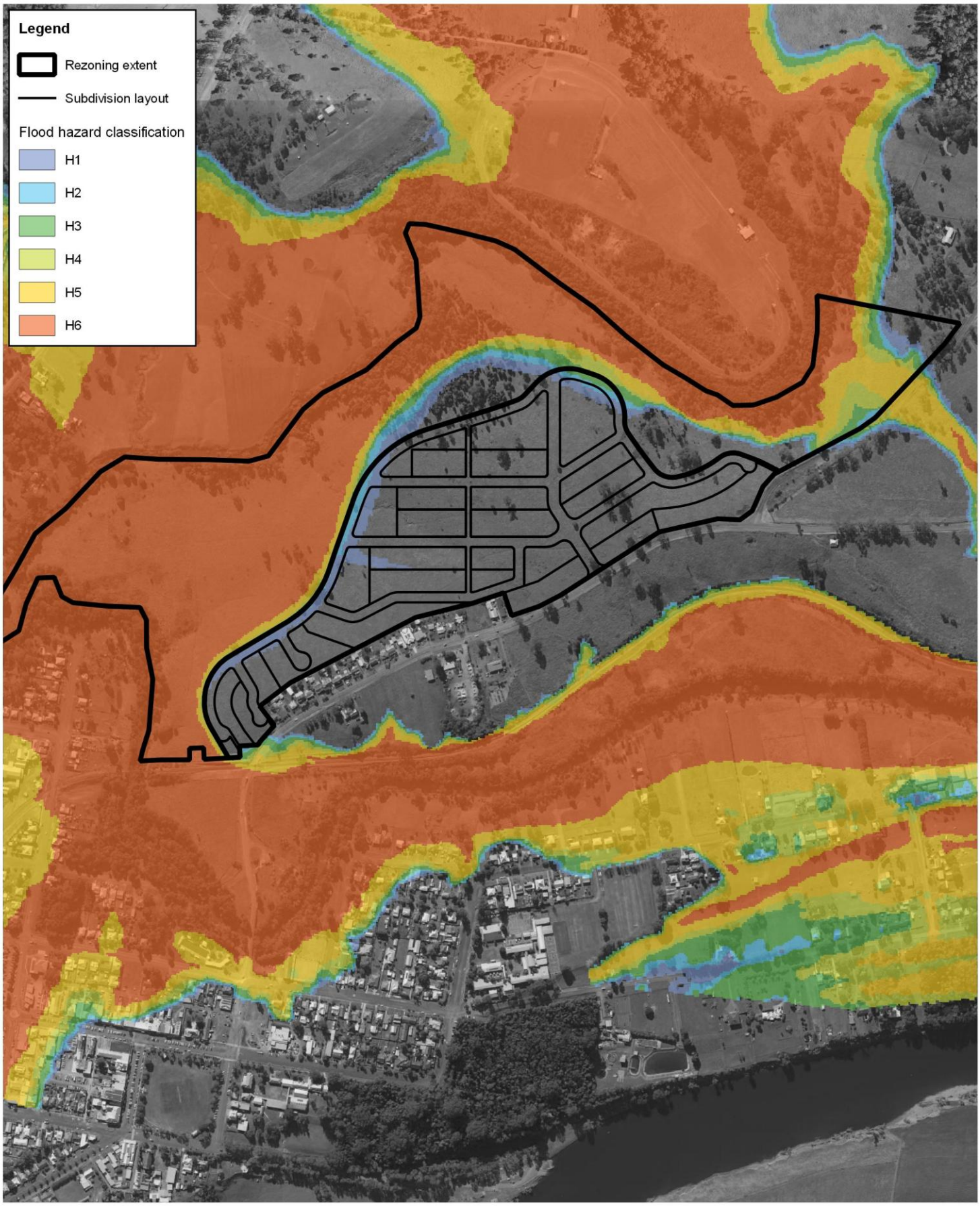
We trust that this report satisfies your requirements. For further information or clarification please contact the undersigned.

Yours faithfully

Torrent Consulting



Dan Williams
Director



Title:

Cedar Party Creek PMF Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: 1

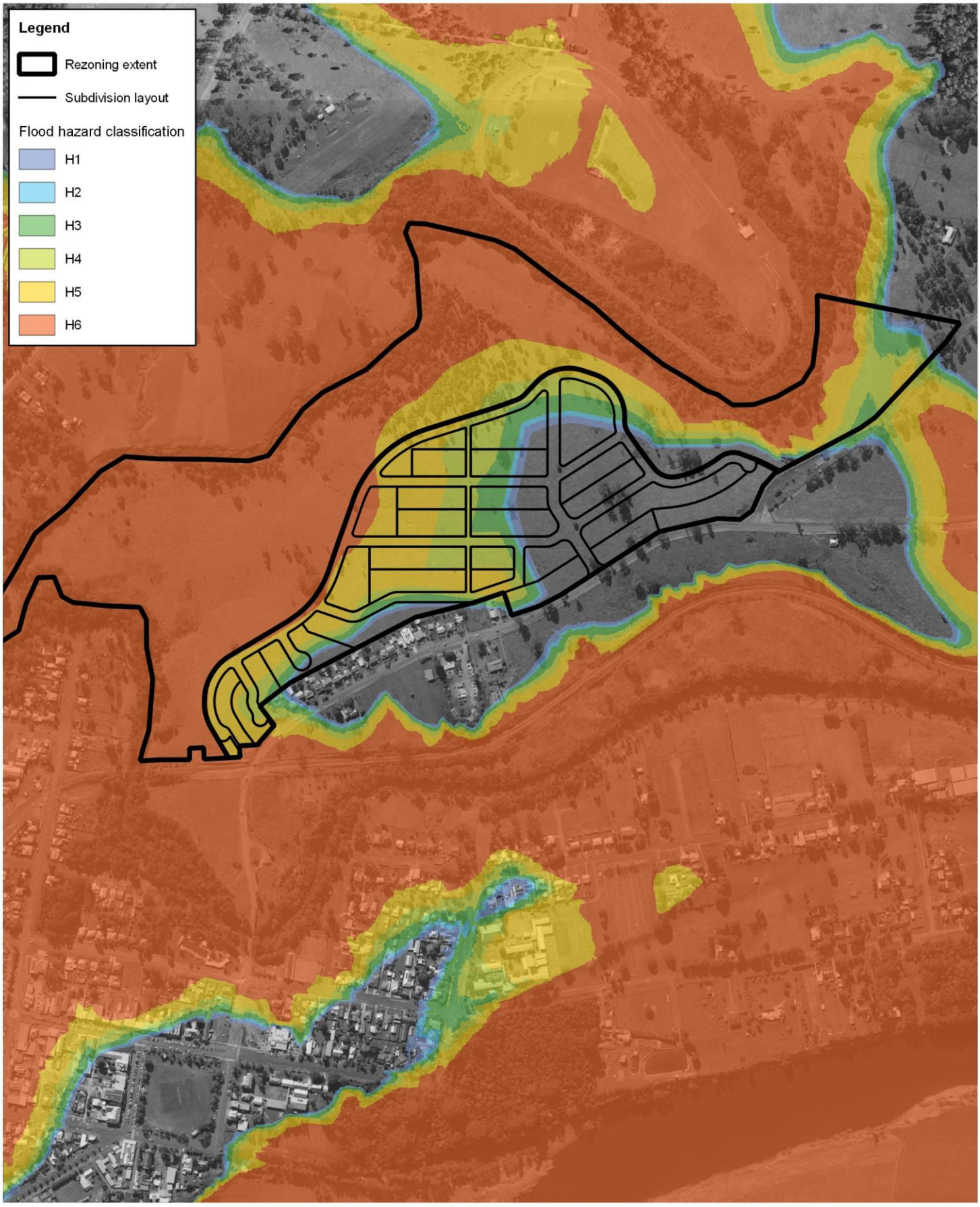
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Title:

Manning River Extreme Flood
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: 2

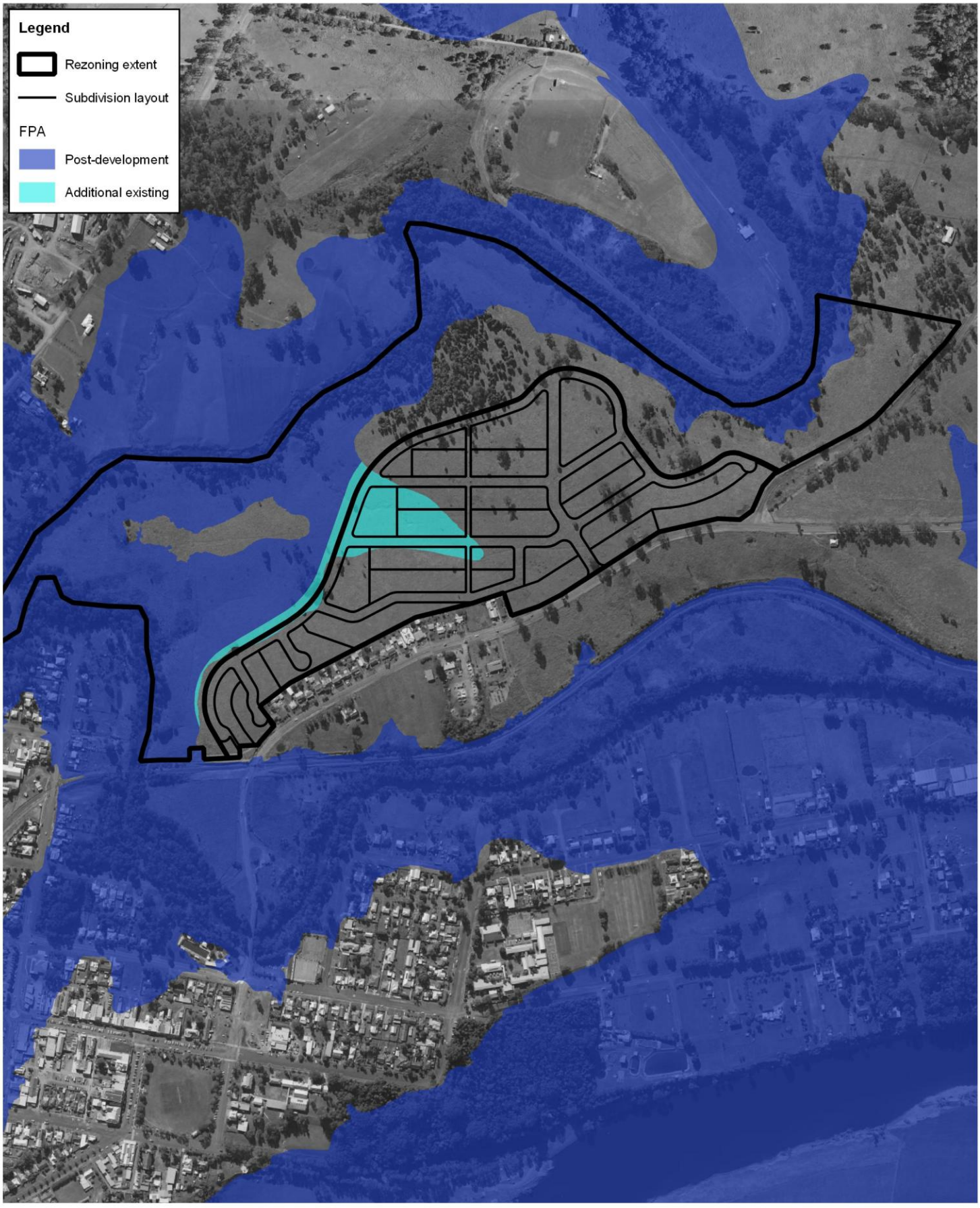
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Title:

Flood Planning Area
Existing and Post-development Conditions

0 200 400 m

approx. scale

Figure: 3

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AMENDED FLOOD IMPACT AND RISK ASSESSMENT

Torrent CONSULTING

Lot 92 Wingham Road, Wingham

Flood Impact and Risk Assessment

R.T2394.001.05



August 2025

Final

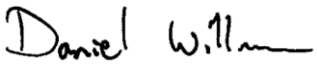
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Document:	R.T2394.001.05.docx
Title:	Lot 92 Wingham Road, Wingham Flood Impact and Risk Assessment
Project Manager:	Daniel Williams
Author:	Daniel Williams
Client:	MPT Farms Pty Ltd
Client Contact:	Tim Colless

Prepared: Verified:





Synopsis

Flood Impact and Risk Assessment for proposed rezoning for residential development of Lot 92 Wingham Road, Wingham, NSW.

Revision History

Revision	Description	Date
01	Preliminary Draft	14/05/2024
02	Draft	21/05/2024
03	Final	11/06/2024
04	Response to Return of PP	17/06/2025
05	Final	14/08/2025

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Executive Summary

The site at Lot 92 Wingham Road, Wingham has been identified as a future growth area for housing provision in the NSW Government Hunter Regional Plan 2041. This Flood Impact and Risk Assessment supports a Planning Proposal seeking to amend the Greater Taree Local Environmental Plan 2010 (GTLEP 2010) including rezoning to residential use.

This flood risk assessment aims to review the existing design flooding constraints at the Site, investigate Site development potential and associated flood impacts, and identify potential flood mitigation options, if required.

Relevant development guidance has been reviewed, including Ministerial Direction 4.1. This requires the consideration of the flood risk profile and appropriate management for flood events exceeding the Flood Planning Level.

Local Cedar Party Creek TUFLOW models have been developed to support this assessment, with regional Manning River flood levels being sourced from the Review and Update of the Manning River Flood Study (BMT WBM, 2016).

The proposed rezoning boundary and indicative concept final landform plan was developed with consideration of the existing flood risk as defined by the modelling, current flood planning controls and floodplain risk management objectives. The flood assessment investigated the existing and post-development flood conditions for a range of design flood event magnitudes including the 5% AEP, 2% AEP, 1% AEP, 0.5% AEP, 0.2% AEP, 0.05% AEP, 0.02% AEP, 0.01% AEP and PMF / Extreme Event.

The concept final landform plan considers bulk earthworks across the Site to facilitate development, including some nominal fill area within existing flood inundation extents. The developed flood model was utilised to assess the potential impact of any proposed works on existing flood conditions. The impact assessment indicated the proposed development has no material impact on existing flood conditions across the range of flood events considered.

The proposed final landform to accommodate residential development within the Site has a minimum finished top surface level of 17.8 m AHD and as such provides a very low risk to both property and life for future development within the Site. The management of risk to property from flooding for future development will be to a much higher standard than typically required and there is no significant risk to life from flooding in relation to Cedar Party Creek flood events.

The existing Bureau of Meteorology flood warning system on the Manning River is expected to provide significant lead warning time (over a day) for major flood events which may impact the Site. This warning time, in association with the coordinated regional flood response by the NSW State Emergency Service and other combat agencies, provides for very low residual flood risk for the proposed development.

The proposed zoning boundary providing residential development within the area identified within Mid-Coast Council's flood planning area, represents an inconsistency with the provisions of Ministerial Direction 4.1 3 (d). However, The Flood Impact and Risk Assessment has demonstrated the compatibility of the proposed development with the identified flood risk in accordance with the provisions of the Flood Risk Management Manual.

Certain areas within the Site proposed for residential rezoning that are flood prone are capable of being filled and result in low hazard PMF flood conditions without adversely impacting the surrounding land or resulting in concerns for future residents from an occupation or emergency evacuation standpoint.

Often zoning boundaries dictated by a Flood Planning Level and natural ground contours lends itself to outcomes that can result in an inefficient use of land and poor urban design outcomes. However, this FIRA demonstrates that with minimal filling of the Flood Planning Area and the associated loss of flood storage capacity there will be no worsening effect on the surrounding land, allowing for the promotion and co-ordination of the orderly and economic use and development of the subject land.

While this report has been produced as part of a Planning Proposal to demonstrate that the site can support residential development, further consideration of the flooding and earthworks will be required under Part 4 of the *Environmental Planning and Assessment Act 1979*. This will capture and assess any local details not available at this stage and/or future design iterations.

Accordingly, the Planning Proposal is supportable for rezoning from a flood risk management assessment perspective.

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1 Introduction

1.1 Project Overview

Torrent Consulting was engaged to undertake a Flood Impact and Risk Assessment (FIRA) to assist in the planning and approvals process for proposed residential development of Lot 92 Wingham Road, Wingham, NSW (the Site). The Site is located within the Mid-Coast Local Government Area (LGA), approximately eight kilometres north-west of Taree (refer to Figure 1-1).

The Site is bordered by Wingham Road to the south and Cedar Party Creek on all other sides. Cedar Party Creek is a tributary watercourse of the Manning River. At the confluence, Cedar Party Creek has a catchment area of around 140 km^2, with the Manning River catchment area being around 7400 km^2 (including Cedar Party Creek).

The potential for flood events to impact the Site can arise from either local catchment flooding from Cedar Party Creek, backwater flooding from the Manning River, or a combination of these two mechanisms.

The Site has been identified as a future growth area for housing provision in the NSW Government Hunter Regional Plan 2041.

1.2 Scope of Assessment

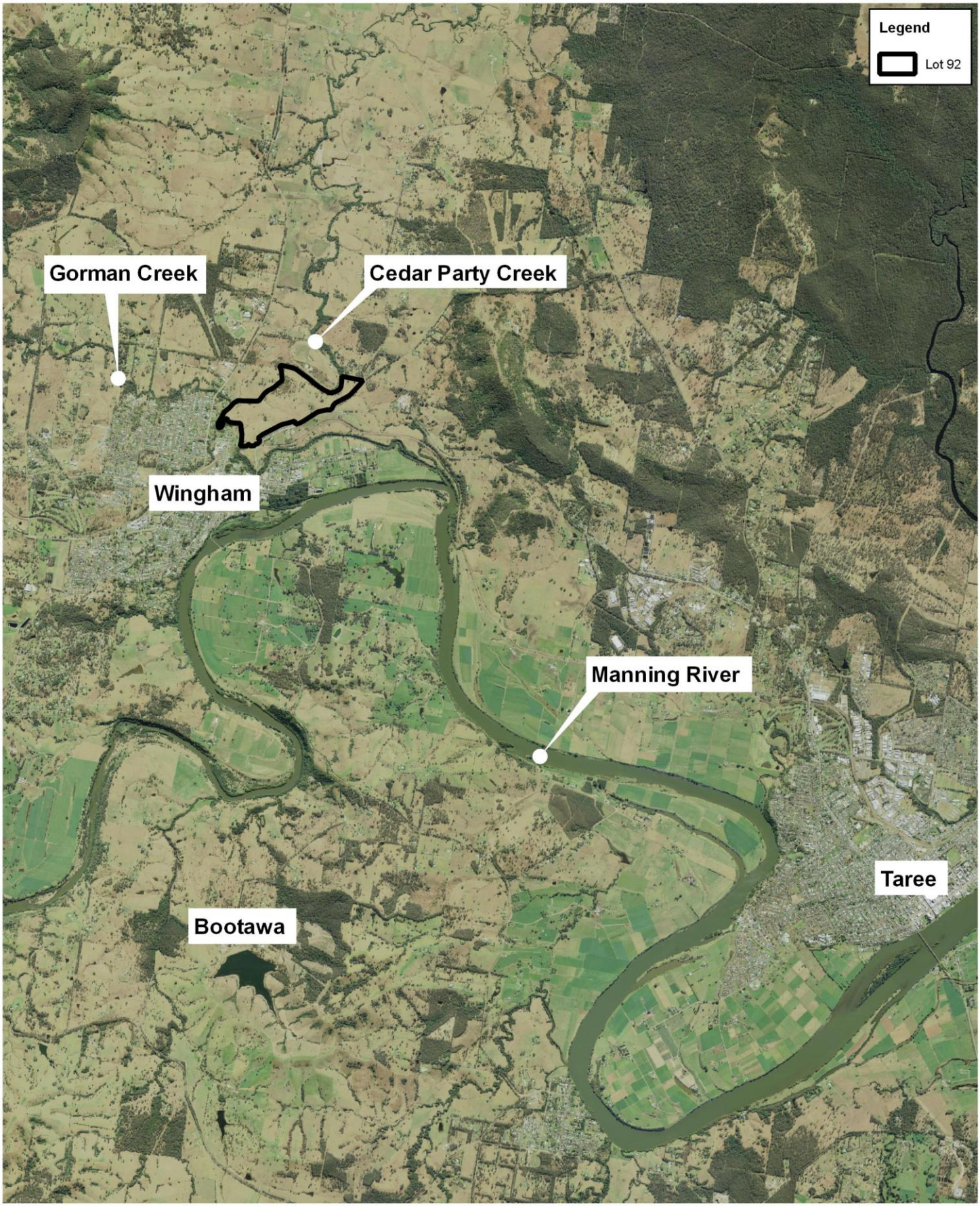
This FIRA aims to review the existing design flooding constraints at the Site, investigate Site development potential and associated flood impacts, and identify potential flood mitigation options, if required. The Site location in the context of the Manning River floodplain topography is shown in Figure 1-2.

The key components of the assessment summarised in the following document include :

- Review of existing flood risk information including previous studies and available flood mapping.
- Review of relevant flood related planning controls and development guidelines.
- Establishment of numerical flood model to define existing flood risk for the Site and development constraints.
- Flood impact assessment of proposed development using hydraulic model and identify requirement for flood mitigation.
- Review flood warning and emergency response opportunity.
- Assessment of compatibility of proposed development with established flood risk.

1.3 Response to Return of Planning Proposal

As detailed in a letter from NSW DPHI dated 6 May 2025, the Planning Proposal PP-2024-2365 submitted on 31 March 2025 was returned to Mid-Coast Council, citing a requirement for additional information, including in relation to Flood Risk Management.



Title:

Study Locality

0 1 2 km

approx. scale

Figure: 1-1

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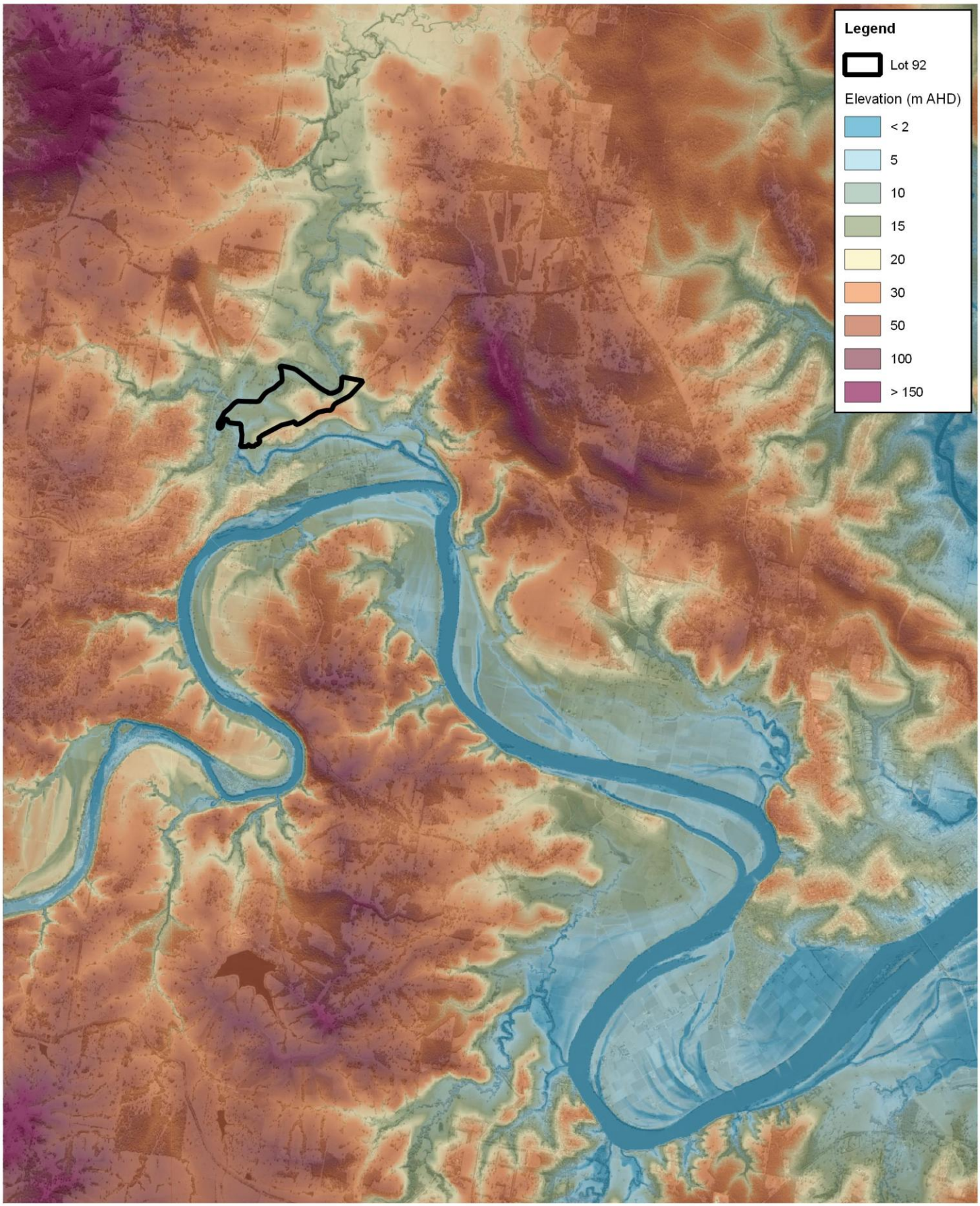
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Title:

Regional Floodplain Topogrpahy

0 1 2 km

approx. scale

Figure: **1-2**

Revision: **A**

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The issues relating to flooding in the letter from DPHI are reproduced below:

- Provide pre-development flood hazard mapping for events on the Manning River to allow an adequate risk assessment of the land relative to the current conditions.
- Identify pre-development figures shown in the current FIRA as relevant to Cedar Party Creek Events only.
- Address how the proposal meets the requirements of Local Planning Direction 4.1 Flooding.
- Address the suitability of the R1 zoned land for future residential housing, focusing on flood emergency response considerations (particularly evacuation) for future landowners.
- Address the suitability of the C4 zoned land for future residential housing.
- Provide further consideration and information about the impact of the proposed fill.

The flood mapping provided in Section 4 and Appendix A has been updated and expanded to satisfy the first two requirements above. Direction 4.1 Flooding has been satisfied through the undertaking of this flood impact and risk assessment, which has determined that with the provision of fill material, the proposed rezoning is compatible with the flood risk of the land. Both risk to life and property from flooding are very low and are readily managed, with the proposed fill having a negligible impact on existing flood conditions elsewhere.

The suitability of both the R1 and C4 zoned land for future residential housing has been assessed in Section 7.1 and 7.2, respectively, and is deemed to be suitable in both cases. Additional commentary regarding the impact of the proposed fill to existing flood conditions is provided in Section 5.3 in response to the final of the above requirements.

The DPHI letter also recommended that NSW SES be given opportunity for review of the proposal. A letter of review was received from NSW SES, dated 5 June 2025. The comments raised in the letter and written responses to them are provided in Appendix D.

Further to the response, a meeting was held with DPHI to confirm additional information required for assessment. These additional information requirements were confirmed in email correspondence dated 3 July 2025 and include assessment of design flood event rarities between the 0.2% AEP and PMF plus local catchment flood impacts to the proposed evacuation route. Information regarding the additional design flood events has been added to the relevant sections of this report, with expanded discussion regarding the proposed evacuation provided in Section 6.3

2 Flood Planning Requirements

A summary of relevant planning provisions with respect to flood risk management is provided hereunder.

2.1 Greater Taree Local Environmental Plan (2010)

The Greater Taree Local Environment Plan (LEP) 2010 provides a framework for development of land and land use in the Manning Region of the Mid-Coast LGA. Clause 5.21 relates to flood planning which states the following objectives:

> *a) to minimise the flood risk to life and property associated with the use of land;*
>
> *b) to allow development on land that is compatible with the flood function and behaviour on the land, taking into account projected changes as a result of climate change;*
>
> *c) to avoid adverse or cumulative impacts on flood behaviour and the environment.*
>
> *d) to enable the safe occupation and efficient evacuation of people in the event of a flood.*

In supporting these objectives, the LEP includes provision that development consent must not be granted unless the consent authority is satisfied that the development:

> *(a) is compatible with the flood function and behaviour on the land, and*
>
> *(b) will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, and*
>
> *(c) will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood, and*
>
> *(d) incorporates appropriate measures to manage risk to life in the event of a flood, and*
>
> *(e) will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.*

The Flood Planning Area (FPA) is defined as the area of land below the Flood Planning Level (FPL) and subject to flood related development controls. The FPA is available on Council's online mapping platform and has been faithfully reproduced in Figure 2-1.

NSW Planning has prepared a *Special Flood Considerations Clause* as an optional clause to include in LEPs to better protect and manage new development in areas that could be at risk during floods. The special flood considerations clause would apply to:

- sensitive and hazardous development, such as caravan parks, hospitals, and seniors housing, between the flood planning area and the probable maximum flood level
- development that is not sensitive or hazardous on land that the consent authority considers that, in a flood, may pose a particular risk to life and where people may need to evacuate, or where there are other safety concerns.



Title:

Flood Planning Area

0 200 400 m

approx. scale

Figure: **2-1**

Revision: **A**

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The Special Flood Considerations clause has not been adopted in the LEP. Notwithstanding the status of the LEP in this regard, the flood risk assessment for the planning proposal has considered potential flood risk to future occupation of the floodplain for all events up to and including the Probable Maximum Flood (PMF) or Extreme Flood event magnitude.

2.1.1 Ministerial Direction 4.1(Flooding)

Ministerial Direction 4.1 (the Direction) provides Direction on how to consider flooding implications when considering planning proposals on land identified within a flood planning area or below the probable maximum flood (extreme event).

The objectives of this Direction are as follows:

a) ensure that development of flood prone land is consistent with the NSW Government's Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005, and

b) ensure that the provisions of an LEP that apply to flood prone land are commensurate with flood behaviour and includes consideration of the potential flood impacts both on and off the subject land.

Specific provisions within the Direction relevant to this Planning Proposal include:

(2) A planning proposal must not rezone land within the flood planning area from Recreation, Rural, Special Purpose or Conservation Zones to a Residential, Employment, Mixed Use, W4 Working Waterfront or Special Purpose Zones.

(3) (d) A planning proposal must not contain provisions that apply to the flood planning area which permit a significant increase in the development and/or dwelling density of that land.

The proposed zoning boundary provides for residential development within the area identified within Mid-Coast Council's flood planning area, which is inconsistent with the above provisions.

A planning proposal may be inconsistent with this direction only if the planning proposal authority can satisfy the Planning Secretary (or their nominee) that:

(a) the planning proposal is in accordance with a floodplain risk management study or plan adopted by the relevant council in accordance with the principles and guidelines of the Floodplain Development Manual 2005, or

(b) where there is no Council adopted floodplain risk management study or plan, the planning proposal is consistent with the flood study adopted by the Council prepared in accordance with the principles of the Floodplain Development Manual 2005 or

(c) the planning proposal is supported by a flood and risk impact assessment accepted by the relevant planning authority and is prepared in accordance with the principles of the Floodplain Development Manual 2005 and consistent with the relevant planning authorities' requirements, or

(d) the provisions of the planning proposal that are inconsistent are of minor significance as determined by the relevant planning authority.

Often zoning boundaries dictated by a Flood Planning Level and natural ground contours lends itself to outcomes that can result in an inefficient use of land and poor urban design outcomes.

However, using hydraulic modelling, this FIRA demonstrates that with a relatively minor volume of filling within the Flood Planning Area, and the associated loss of flood storage capacity, there will be no worsening effect on the surrounding land, allowing for the promotion and co-ordination of the orderly and economic use and development of the subject land.

While this report has been produced as part of a Planning Proposal to demonstrate that the site can support residential development, further consideration of the flooding and earthworks will be required under Part 4 of the *Environmental Planning and Assessment Act 1979*. This will capture and assess any local details not available at this stage and/or future design iterations.

Therefore, this FIRA is prepared to demonstrate the compatibility of the Planning Proposal with these flood risk provisions, in accordance with the NSW Department of Planning and Environment's Flood Risk Management Manual 2023, which replaced the Floodplain Development Manual 2005, referenced in the Direction.

2.2 Greater Taree Development Control Plan (2010)

The Greater Taree Development Control Plan (DCP 2010) supplements the LEP 2010 by outlining controls that apply to various types of development across the LGA. Specifically, the DCP outlines development principles, objectives and standards that are intended to assist in the preparation of development applications by development proponents, and in the assessment of development applications by Council. Part E of the DCP 2010 specifically relates to flooding requirements and was adopted in 2017.

2.2.1 Objectives

The objectives of DCP Part E are to:

- Alert the community to the extent and degree of hazard of flood prone land for all potential floods, including floods greater than the 100 year average recurrence interval (ARI) flood and to ensure essential services and land uses are planned in recognition of all potential floods;
- Advise the community of the approach that Council will take in considering applications for building, development, subdivision and other planning proposals on land affected by flooding in the former Greater Taree Local Government Area;
- Ensure that acceptable standards of safety to life and property are applied when Council considers proposals for development on flood prone land;
- Ensure that development that is approved in flood prone areas is structurally capable of withstanding the effects of flowing floodwaters including debris and buoyancy forces;
- Ensure that development is not permitted in flood prone areas where that development would result in unnecessary risk to life of occupants or rescuers or in unwarranted public costs;
- Ensure that development on flood prone land does not adversely affect flood behaviour;
- Ensure, whenever possible, that buildings and services required for evacuation and emergency needs are sited above the PMF level;
- Apply a merit-based approach to all decisions relating to flood affected development that take account of social, economic and ecological as well as flooding issues.

2.2.2 Development Controls

The applicable set of development controls for floodplain risk management within Part E of the DCP are determined based on one of eight land use categories. The appropriate land use category for this planning proposal is Subdivision, as the rezoning of the land will enable future subdivision and the creation of new allotments with potential for further development.

The DCP Part E development controls applicable to subdivision are:

- No subdivision is to occur on land wholly inundated by flooding up to FPL2 event, unless it is demonstrated that the risk of flooding can be effectively and appropriately mitigated without impacting the adjacent floodplain.
- Subdivision proposed in residential zones where partly inundated by flooding up to FPL2 may be considered where it can be demonstrated that all resultant lots are able to provide adequate flood free land suitable for future development and effluent disposal (if applicable). Mounds are not considered suitable for this type of subdivision.

Engineer's report required to certify that the development will not increase flood effects elsewhere, having regard to:

- Loss of flood storage.
- Changes in flood levels, flows and velocities caused by alterations to the flood conveyance.
- The cumulative impact of multiple potential developments in the floodplain.

2.3 NSW SES Local Flood Plan

The Greater Taree City Local Flood Plan (NSW State Emergency Service, 2013) sets out the multi-agency arrangements for the emergency management of flooding in the former Greater Taree City LGA. The Local Flood Plan covers the entire former Greater Taree City LGA and encompasses preparedness measures, direction of response operations, and co-ordination of recovery efforts after flooding has subsided.

The former Greater Taree City LGA has been divided into 13 operational sectors for the purposes of managing flood response operations and evacuations during severe floods. The Planning Proposal area does not currently lie within any existing Sector. However, of the two Sectors controlled by the Wingham Unit, it is most consistent with the Wingham Central Sector, as it is a High Flood Island rather than a Low Flood Island.

For Manning River flood events a flood emergency response is initiated with relevant flood warnings issued by the Bureau of Meteorology (BoM). Flood classifications in the form of locally defined flood levels are used in flood warnings to give an indication of the severity of flooding (minor, moderate or major) expected. These levels are used by the SES and BoM in flood bulletins and flood warnings. The flood classification levels are described by:

- **Minor flooding:** flooding which causes inconvenience such as closing of minor roads and the submergence of low-level bridges. The lower limit of this class of flooding, on the reference gauge, is the initial flood level at which landholders and/or townspeople begin to be affected in a significant manner that necessitates the issuing of a public flood warning by the BoM.

- **Moderate flooding:** flooding which inundates low-lying areas, requiring removal of stock and/or evacuation of some houses. Main traffic routes may be flooded.
- **Major flooding:** flooding which causes inundation of extensive rural areas, with properties, villages and towns isolated and/or appreciable urban areas flooded.

A number of flood gauges are utilised for flood warning and emergency response triggers on the Manning River including Wingham. The flood level classifications according to the gauge height values are shown in Table 2-1. For reference, the corresponding 1% AEP flood level at Wingham is around 14.4 m AHD.

Table 2-1 Flood Classification Levels for Wingham

Flood Classifications (gauge reading m AHD)		
Minor	Moderate	Major
4.9	8.9	11.9

There are currently no formal flood warning gauges with adopted flood classifications for Cedar Party Creek. The rectification of this was a recommendation of the Wingham Floodplain Risk Management Study and Plan (Worley Parsons, 2011).

3 TUFLOW Model Development

A TUFLOW model of the Manning River was developed by BMT WBM for the Review and Update of the Manning River Flood Study (2016) and extended upstream to the stream gauge at Killawarra. Results from that model have been used to inform this assessment in relation to flood events on the Manning River.

For Cedar Party Creek flood events, hydrological and hydraulic modelling was undertaken to derive appropriate design flood conditions. The setup and configuration of the TUFLOW models is outlined below.

3.1 Hydrological Modelling

The flood hydrology that was developed by Worley Parsons for use in the Wingham Flood Study Review and Upgrade (2011) utilised a WBNM model that was un-calibrated, although it was validated against a previous RORB model for simulation of the 1978 flood event. However, the RORB model was also un-calibrated for Cedar Party Creek and produced poor calibration results when using available data in the neighbouring Dingo Creek catchment.

Given the age and uncertainty associated with the existing design flood hydrology for Cedar Party Creek and the subsequent release of the ARR 2019 guidelines, an updated hydrological assessment was undertaken.

The hydrological modelling undertaken for this assessment developed TUFLOW models for the Cedar Party Creek catchment, simulating the rainfall-runoff process using a direct rainfall (rain-on-grid) methodology. This utilised an approach developed through research undertaken by Torrent Consulting, which was presented in a paper titled "Improving the Rigour of Catchment-wide Hydrodynamic Modelling of the Rainfall-runoff Process" at the Engineers Australia 2023 Hydrology and Water Resources Symposium.

The hydrological model utilised the 2012 LPI LiDAR data to represent the catchment topography. The Digital Elevation Model (DEM) was pre-processed using GIS-based terrain analysis techniques to remove sinks within the grid and create a hydrologically corrected DEM. This prevents the initial loss of catchment rainfall to artificial trapped storages. A 120 m model grid cell resolution was adopted, with sub-grid sampling from a 30 m resolution DEM.

Land use coverage in the catchment was separated into cleared and vegetated areas using aerial imagery. The Log law hydraulic roughness representation was adopted, with a roughness depth of 0.2 m and 'n' values of 0.06 and 0.12 applied to the cleared and vegetated areas, respectively.

Rainfall losses were modelled using the Green-Ampt infiltration method, with a three-layer soil model comprising a 0.1 m deep topsoil, 0.2 m transition zone and a variable depth subsoil layer. The depth of the subsoil layer was derived from the September 2019 CSIRO gridded soil depth mapping dataset. Soil types for each layer were derived from the September 2022 NSW DPE gridded soil properties mapping dataset, with classification based on the clay, silt, and sand content. The available water holding capacity for each soil type was based on the MEDLI guidelines. The standard Green-Ampt parameters for suction and hydraulic conductivity were adopted.

The downstream boundary of the model was configured as a stage-discharge relationship, automatically generated within the model, adopting a hydraulic gradient of 1%.

3.2 Hydraulic Modelling

A TUFLOW hydraulic model was developed for use in this assessment, through modification of a model previously developed by Torrent Consulting for use in the Cedar Party Creek Bridge Replacement Detail Design Flood Assessment, the extent of which is shown in Figure 3-1.

The TUFLOW utilised the 2012 LPI LiDAR survey for the representation of the floodplain topography. A bathymetric DEM was developed by BMT WBM for the Manning River model, which includes a representation of the downstream 2.4 km length of Cedar Party Creek. This data was incorporated into the model. Survey data was used to enforce a representative channel geometry for Cedar Party Creek upstream of the available bathymetry, using the Z Shape functionality. The channel geometry upstream of the survey extent was estimated through comparison of the LiDAR survey and hydrographic survey data. A 6 m horizontal grid cell resolution was adopted with a sub-grid sampling routine sourcing elevations from the input DEMs at a 2 m interval.

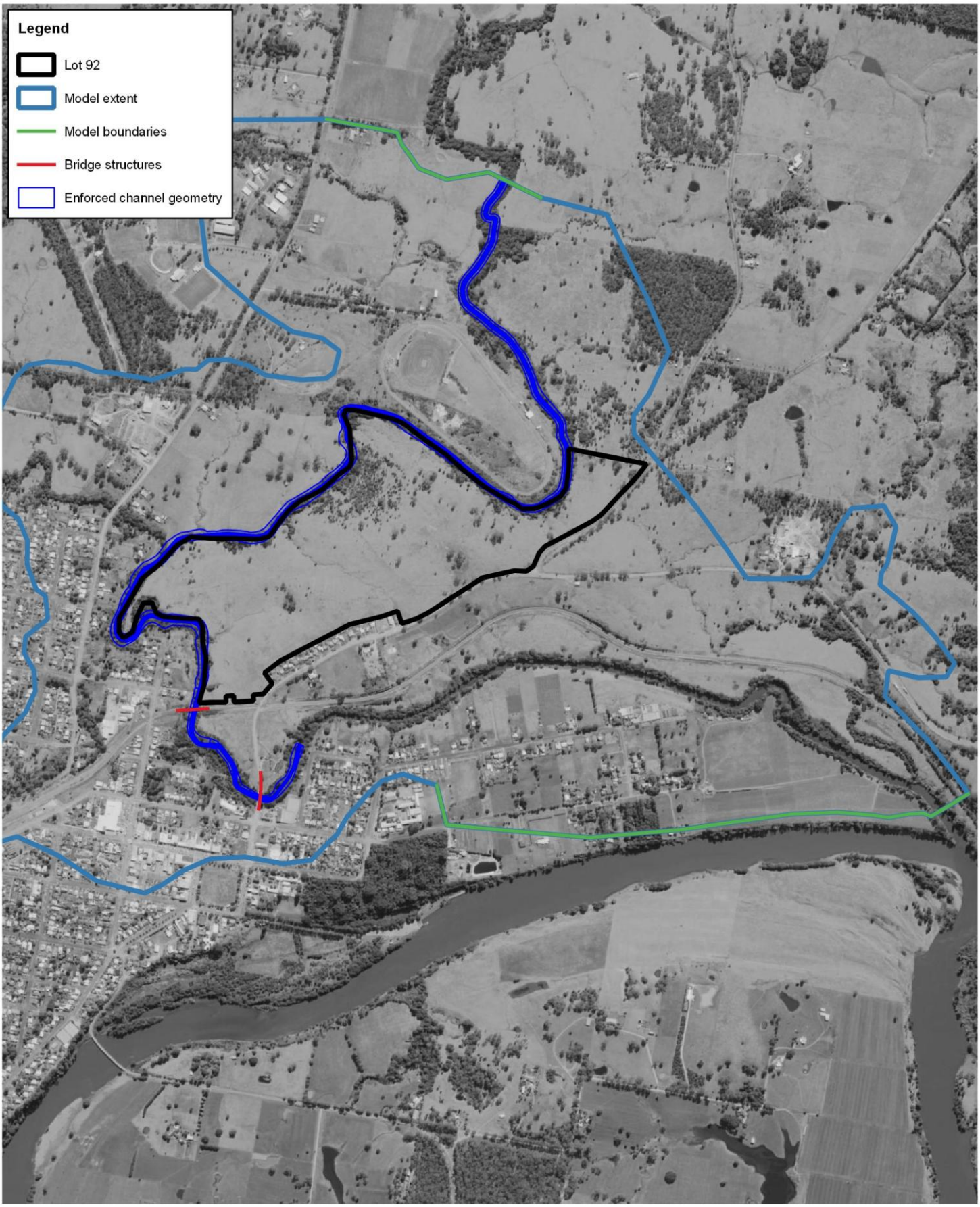
A materials layer was developed to represent appropriate hydraulic roughness (Manning's 'n') characteristics of the various surfaces, as shown in Table 3-1. The values for the creek channel, channel banks and overbank floodplain were validated through development and simulation of a TUFLOW hydraulic model for the reach of Dingo Creek (a neighbouring catchment of Cedar Party Creek), calibrating the Manning's 'n' values required to match the observed rating curve at the Munyaree gauge site.

The Layered FC shape functionality of TUFLOW was used to represent the blockages and associated hydraulic losses presented by the bridge structures crossing Cedar Party Creek.

The model boundaries include inflows from the hydrologic model at the upstream end and a fixed water level condition was applied at the downstream end of the model.

Table 3-1 Hydraulic Model Surface Roughness Parameter

Land Use	Manning's 'n'
Overbank floodplain	0.06
Creek channel	0.04
Channel banks	0.05
Vegetated floodplain	0.12
Roadways	0.02
Urban lots	0.15



Title:

TUFLOW Model Configuration

0 400 800 m

approx. scale

Figure: 3-1

Revision: A

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4 Design Flood Conditions

4.1 Hydrological Model

The TUFLOW model was used to simulate the catchment rainfall-runoff process, utilising the ensemble storm method outlined in the ARR 2019 guidelines. For the simulation of the PMF (Probable Maximum Flood) condition the Generalised Short Duration Method (GSDM) published by the BoM was adopted. The simulated peak design flood flow estimates and corresponding critical storm durations are presented in Table 4-1. Design rainfall is not available for the 0.02% AEP and 0.01% AEP events and so approximate peak flow rates have been estimated through interpolation between the 0.05% AEP and PMF events.

Table 4-1 Design Flood Event Peak Flow Estimation for Cedar Party Creek

Design Event	Mean Ensemble Peak Flow (m^3/s)	Critical Duration (hrs)
20% AEP	285	18
10% AEP	375	12
5% AEP	470	12
2% AEP	620	12
1% AEP	735	9
0.5% AEP	830	9
0.2% AEP	980	9
0.05% AEP	1200	9
0.02% AEP	*1450*	*9*
0.01% AEP	*1650*	*9*
PMF	4960	4

4.2 Hydraulic Model

Cedar Party Creek design flood conditions were modelled for the 20% AEP, 10% AEP, 5% AEP, 2%AEP, 1% AEP, 0.5% AEP, 0.2% AEP and PMF events.

The downstream boundary of the model at the Manning River confluence was set as a continuous fixed level, which was varied for each design event. An appropriate level was identified through extrapolation of the modelled hydraulic gradient on Cedar Party Creek through to the confluence. This provides a condition without free discharge from the end of the model or a significant backwater influence from the Manning River.

For Manning River flood conditions, backwater inundation levels at the confluence were adopted from the Review and Update of the Manning River Flood Study. Due to the size of the Manning River catchment and associated difficulty in hydrological simulation, an equivalent Extreme Event was used to represent the PMF conditions, as is typical where use of PMP (Probable Maximum Precipitation) and associated hydrological modelling is not practical (refer Floodplain Risk

Management Guide: Incorporating 2016 Australian Rainfall and Runoff in studies, NSW DPE 2019). For all the Council studies assessing Manning River flood conditions, an Extreme Event condition of three-times the flow of the 1% AEP event has been adopted in lieu of the PMF.

The modelled peak flood levels for Cedar Party Creek at the upstream and downstream ends of the Site and the backwater flood levels from the Manning River are presented in Table 4-2. Estimates of the Manning River peak flood levels have been derived through interpolation for events between the 0.2% AEP and Extreme Flood.

Table 4-2 Design Flood Levels at the Site (m AHD)

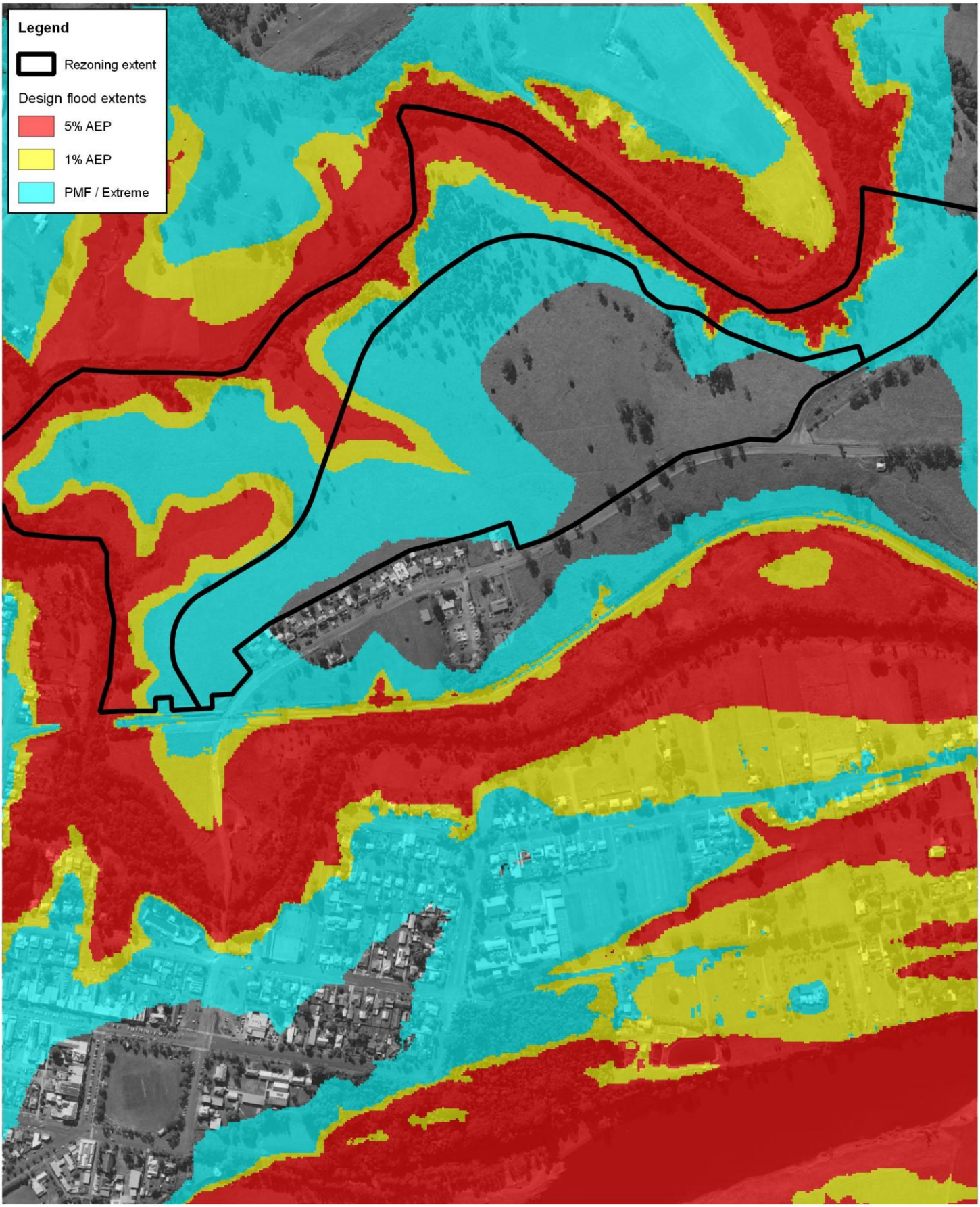
Design Event	Cedar Party Ck U/S	Cedar Party Ck D/S	Manning River
20% AEP	11.2	6.1	8.6
10% AEP	12.4	7.3	10.3
5% AEP	13.1	8.2	11.4
2% AEP	13.8	9.2	12.6
1% AEP	14.2	9.8	13.2
0.5% AEP	14.5	10.3	13.9
0.2% AEP	15.0	11.0	14.8
0.05% AEP	15.6	11.9	*16.0*
0.02% AEP	15.0	11.0	*16.8*
0.01% AEP	15.6	11.9	*17.4*
PMF / Extreme	20.0	17.8	20.5

The peak extents of either Cedar Party Creek or Manning River flood events for the 5% AEP, 1% AEP and PMF / Extreme conditions are shown in Figure 4-1.

4.3 Peak Flood Conditions

The modelled Cedar Party Creek peak flood depth and level mapping for the 5% AEP, 1% AEP and PMF events is presented in this section for existing (pre-development) in Figure 4-3, Figure 4-4 and Figure 4-5, respectively. The flood hazard mapping for these events is also provided, in Figure 4-6, Figure 4-7 and Figure 4-8. The extent of the equivalent rarity Manning River flood event is also included within the mapping. The flood hazard mapping for Manning River flood events is provided in Figure 4-9, Figure 4-10 and Figure 4-11 for the 5% AEP, 1% AEP and Extreme Flood events, respectively. Mapping for additional design events is included in Appendix A.

The flood hazards have been determined in accordance with Guideline 7-3 of the Australian Disaster Resilience Handbook 7 Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia (AIDR, 2017). This produces a six-tier hazard classification, based on modelled flood depths, velocities, and velocity-depth product, and was formally adopted by DCCEEW in FRM Guideline FB03 in 2023. The hazard classes relate directly to the potential risk posed to people, vehicles, and buildings, as presented in Figure 4-2.



Title:

Design Flood Extents
Combined Manning River and Cedar Party Creek

0 200 400 m

approx. scale

Figure: **4-1**

Revision: **B**

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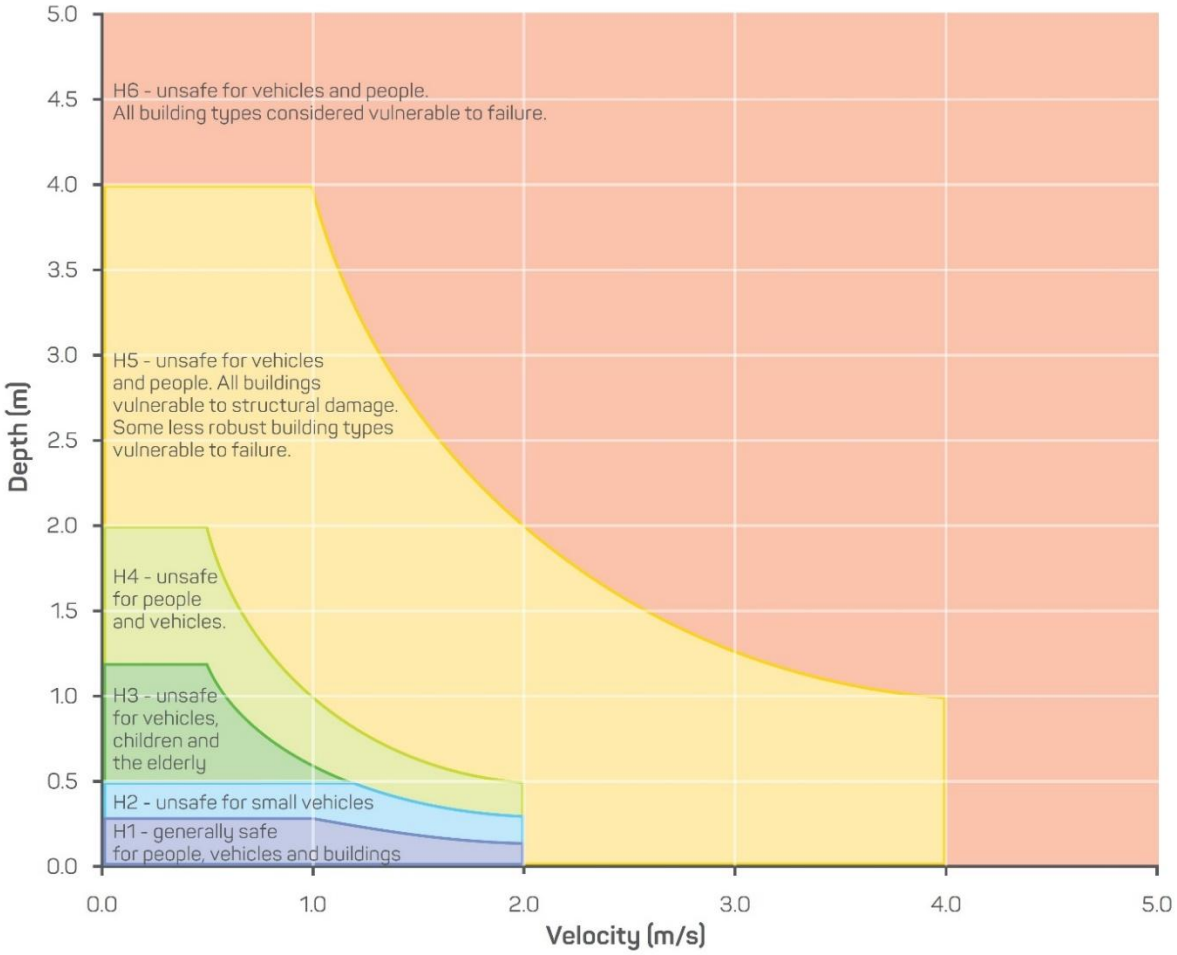
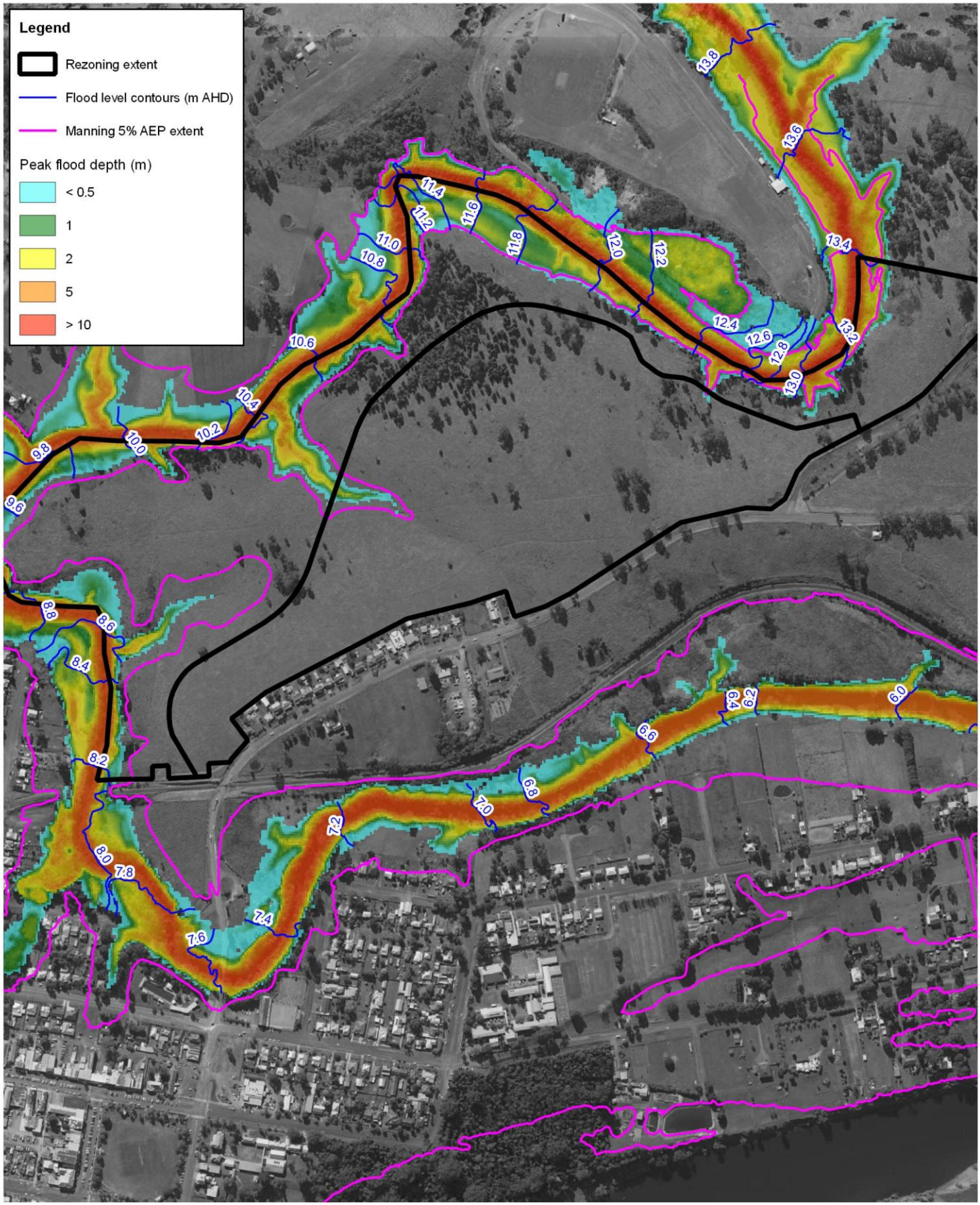


Figure 4-2 General Flood Hazard Vulnerability Curves (AIDR, 2017)



Title:

Cedar Party Creek 5% AEP Event Existing Flood Conditions

0 200 400 m

approx. scale

Figure: **4-3**

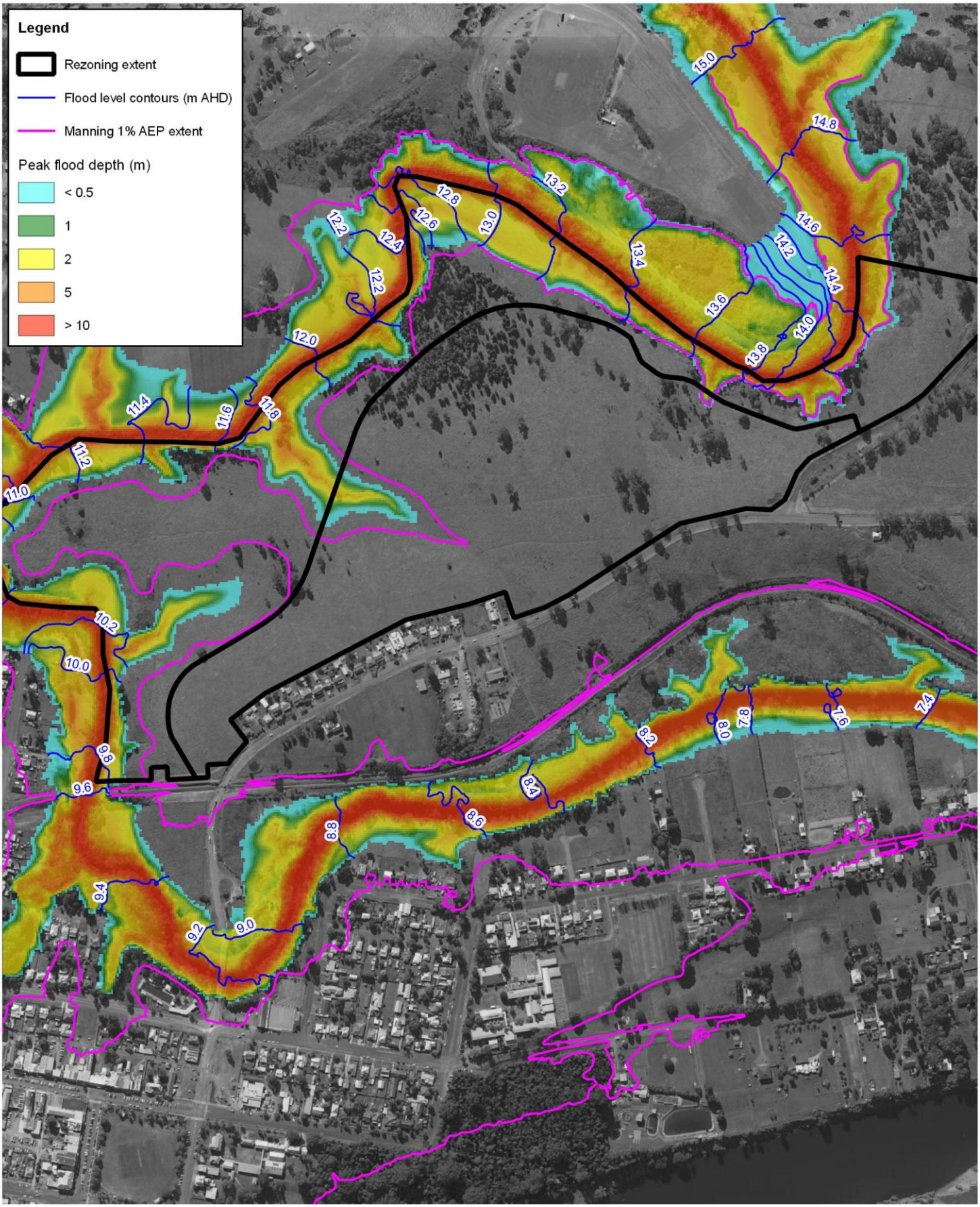
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Title:

Cedar Party Creek 1% AEP Event Existing Flood Conditions

0 200 400 m

approx. scale

Figure: **4-4**

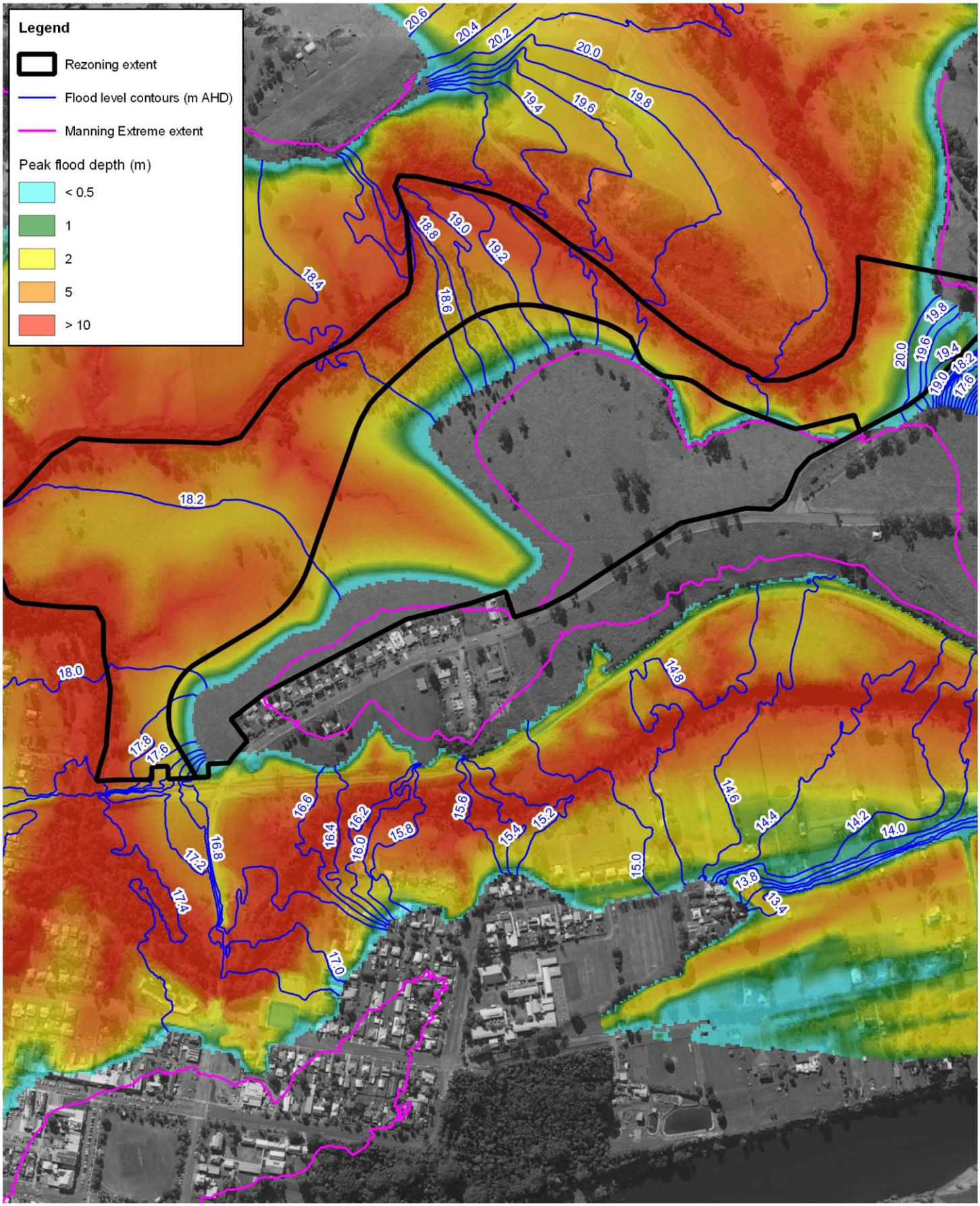
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Title:

Cedar Party Creek PMF Event Existing Flood Conditions

0 200 400 m

approx. scale

Figure: **4-5**

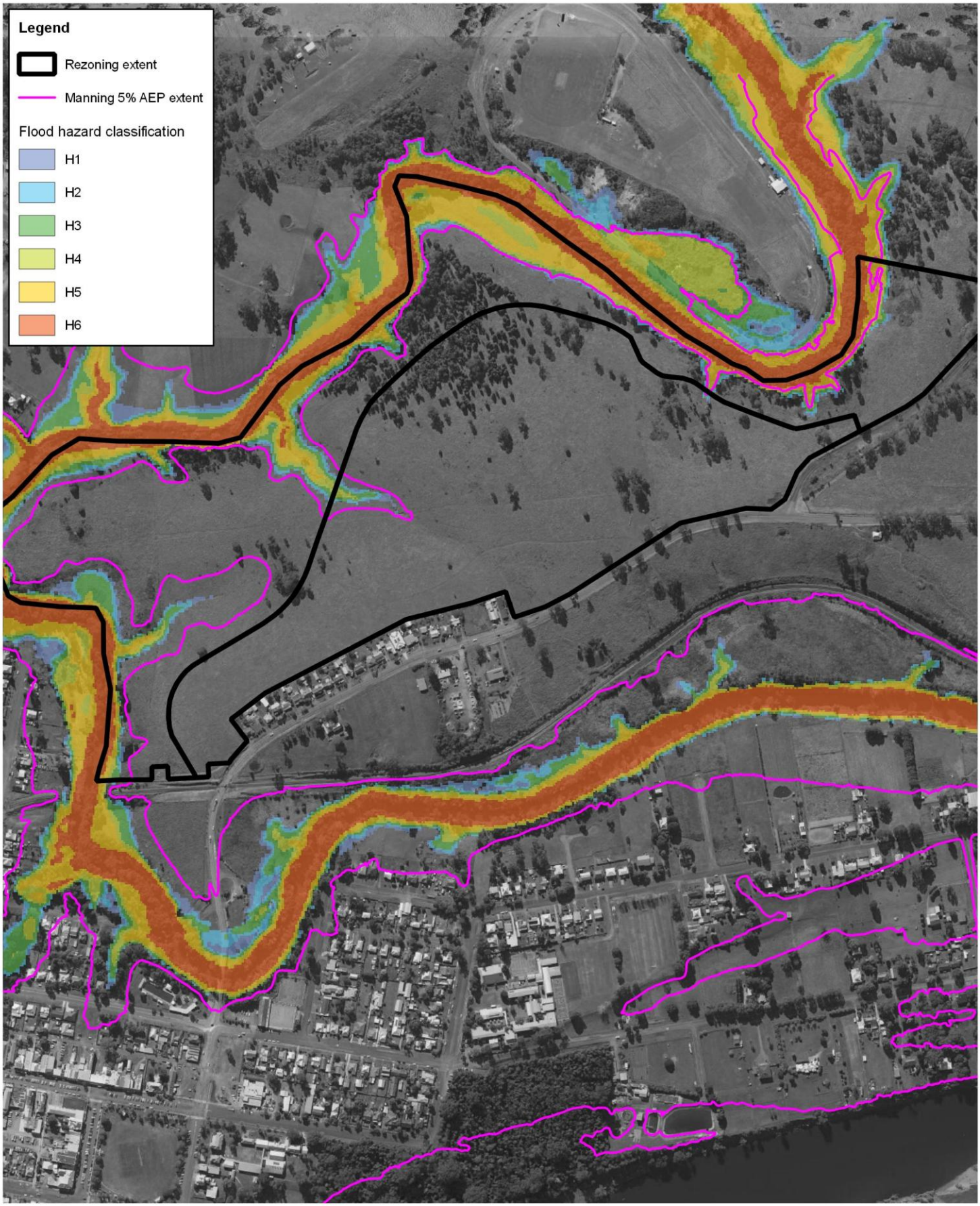
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Title:

Cedar Party Creek 5% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **4-6**

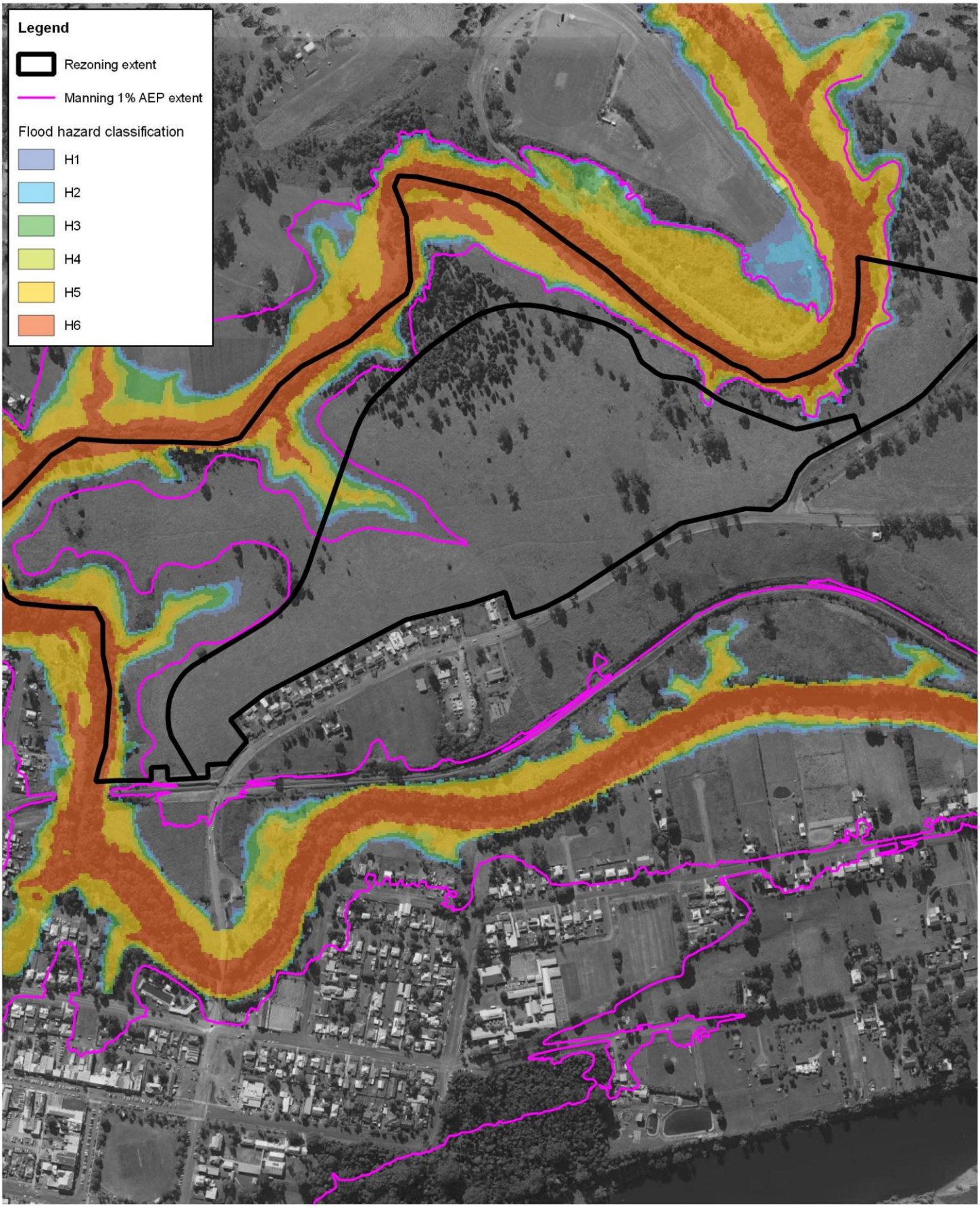
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Title:

Cedar Party Creek 1% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: 4-7

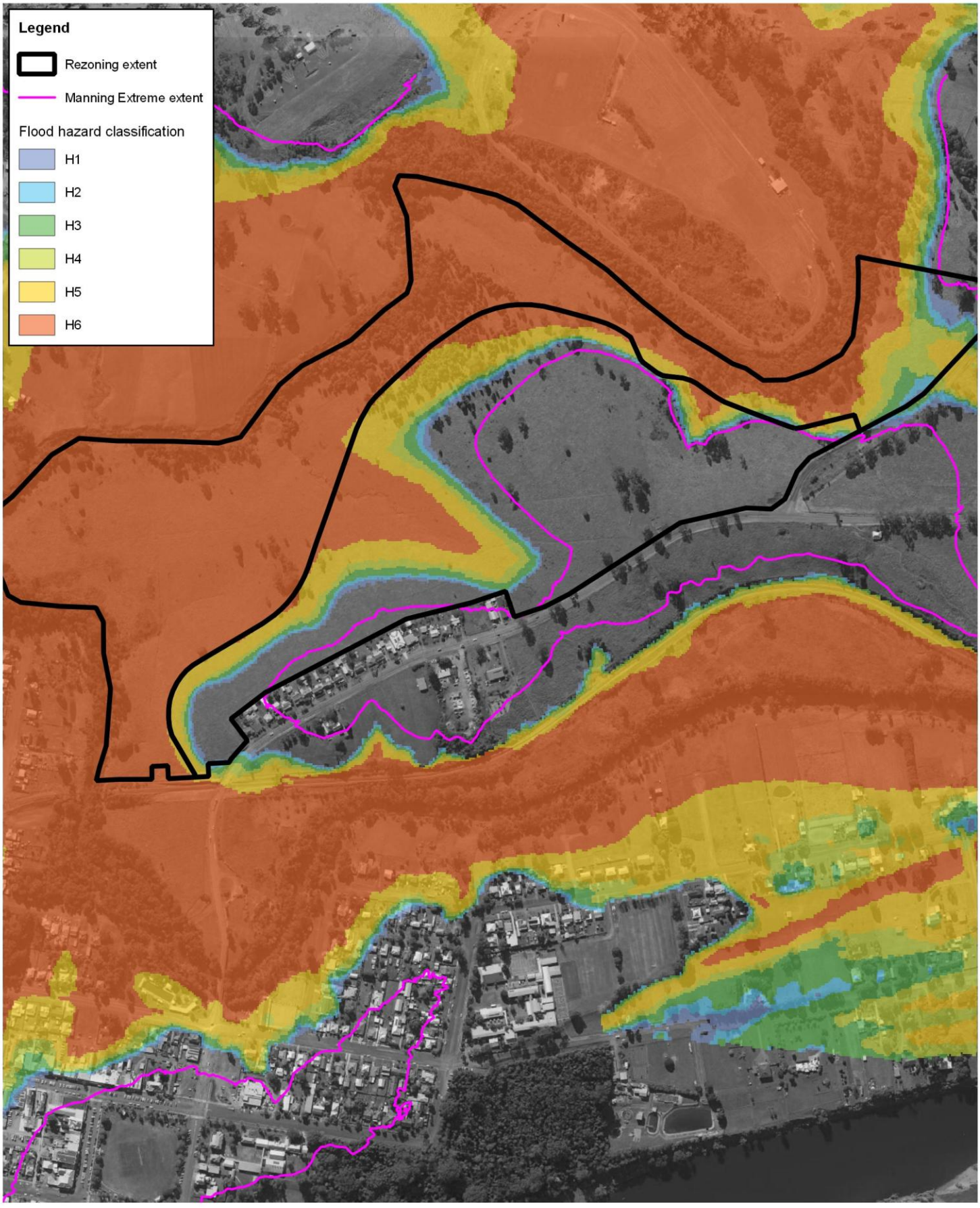
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Title:

Cedar Party Creek PMF Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **4-8**

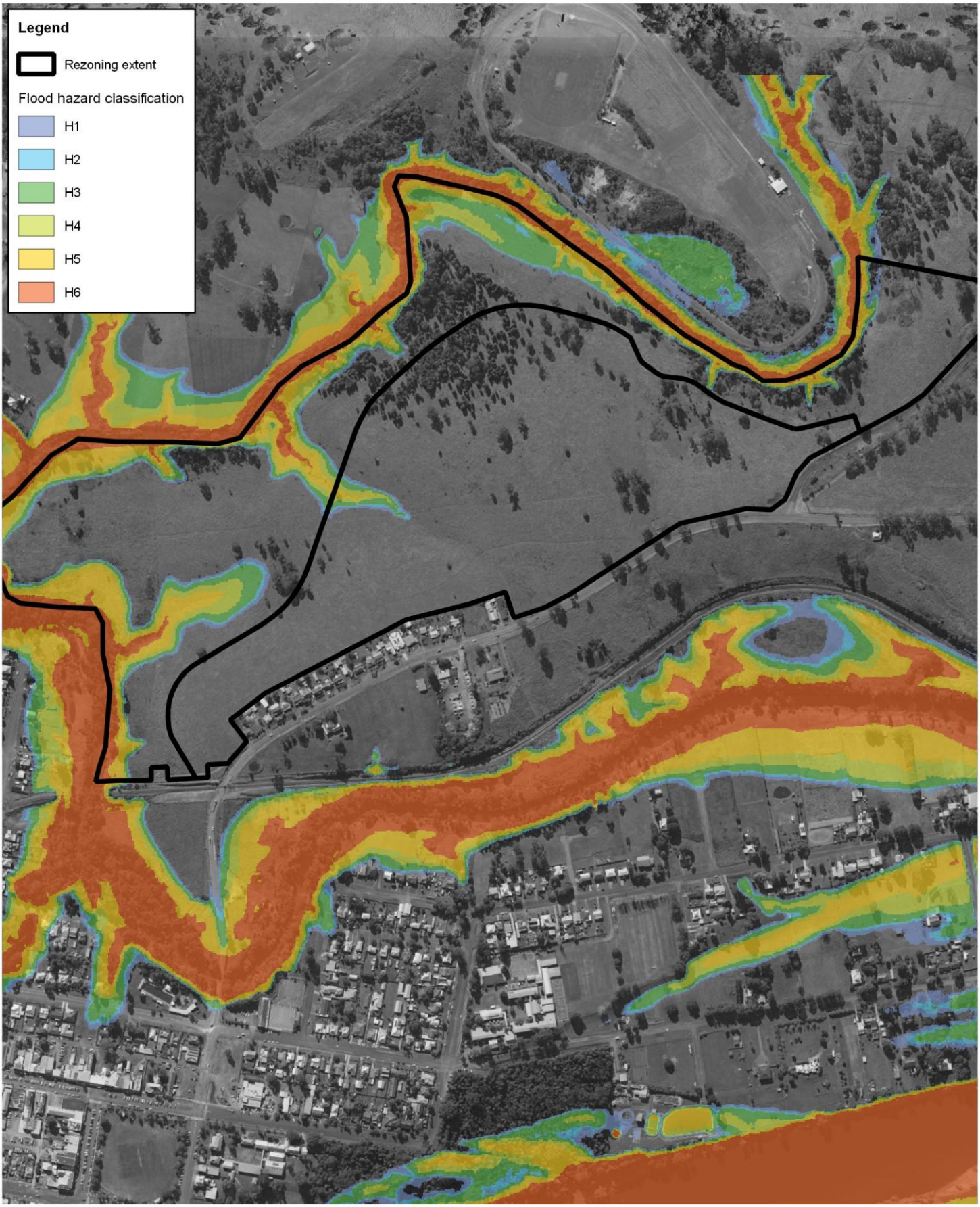
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Title:

Manning River 5% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **4-9**

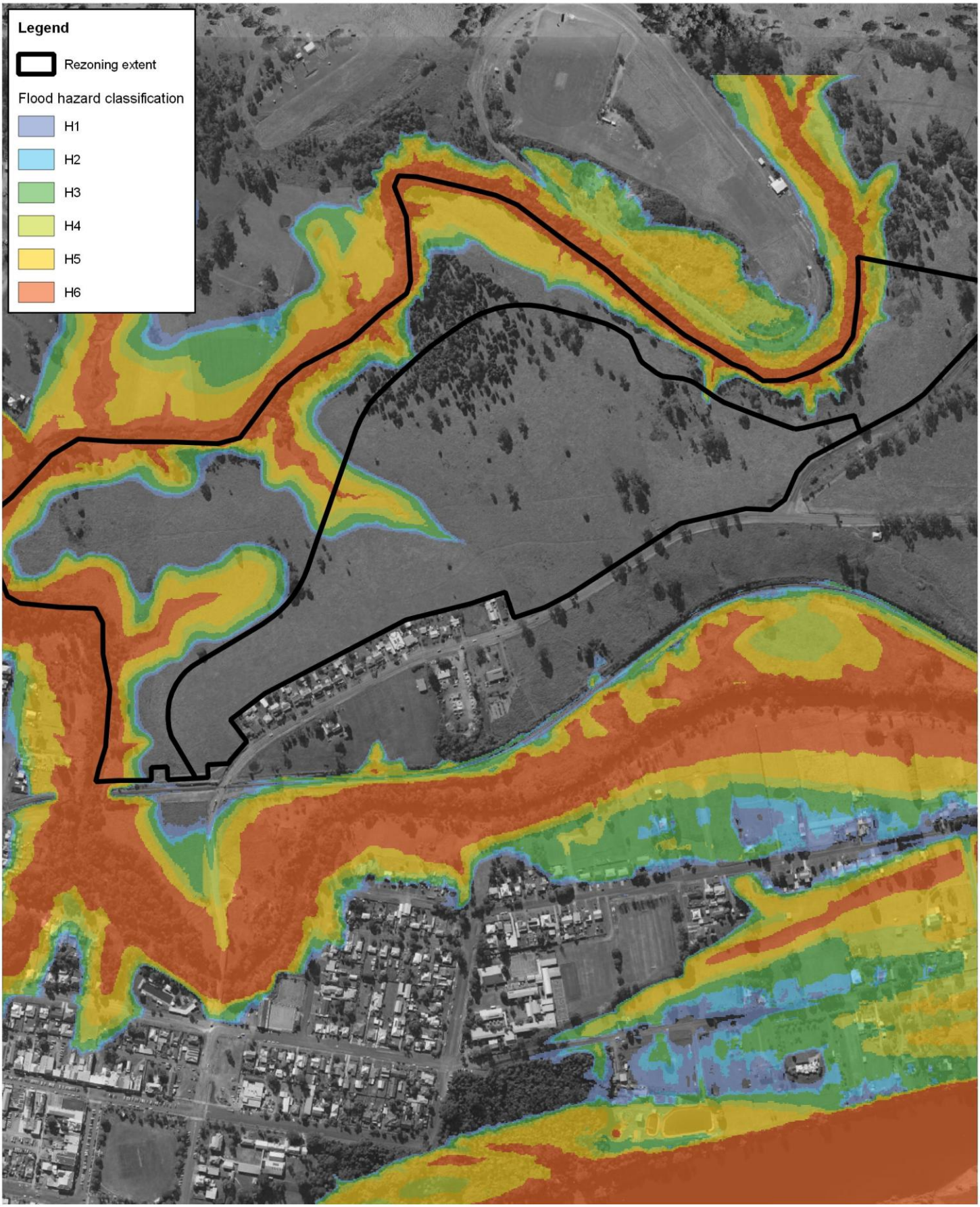
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Title:

Manning River 1% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **4-10**

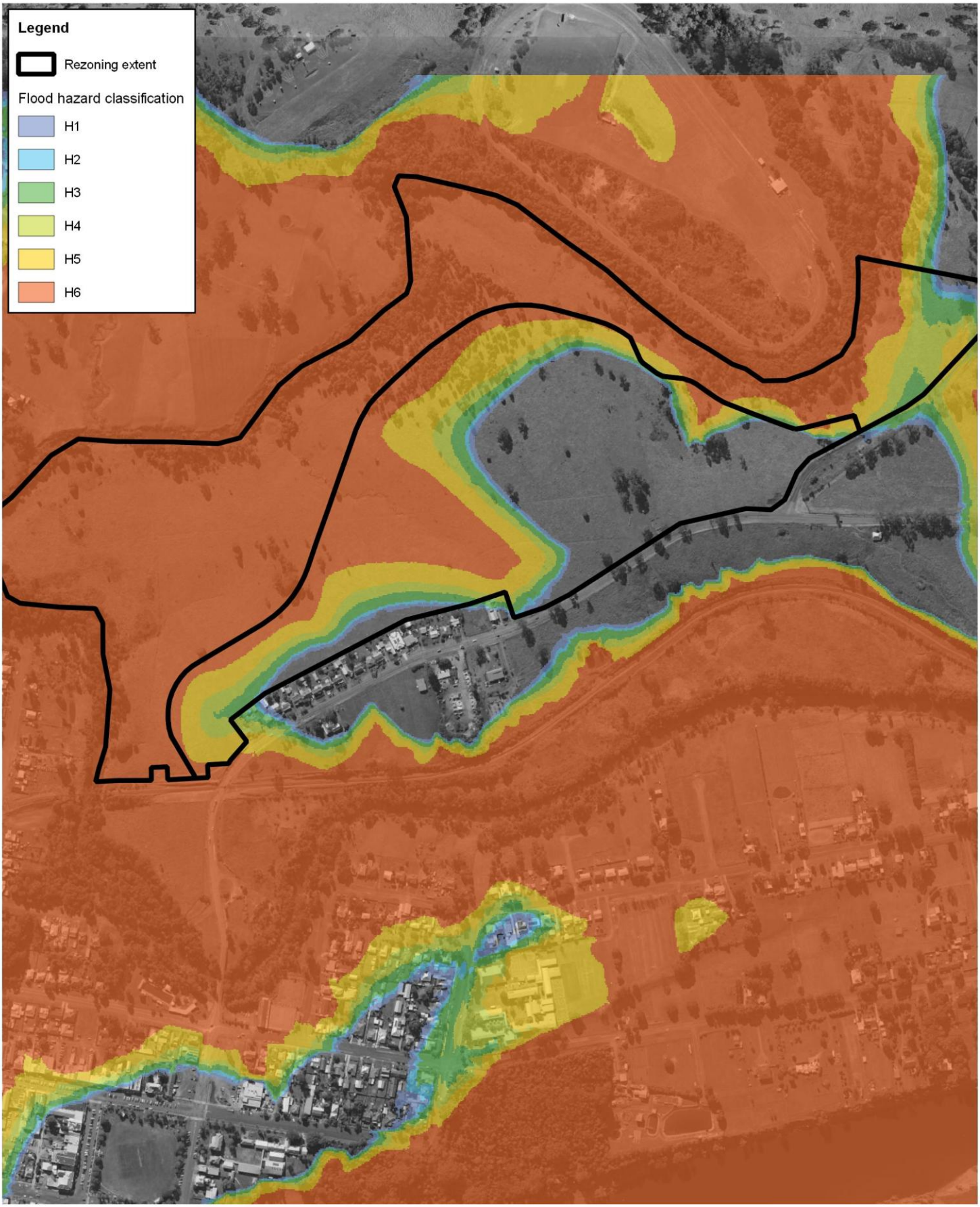
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Title:

Manning River Extreme Flood Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **4-11**

Revision: **A**

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5 Proposed Development

5.1 Design Layout and Model Representation

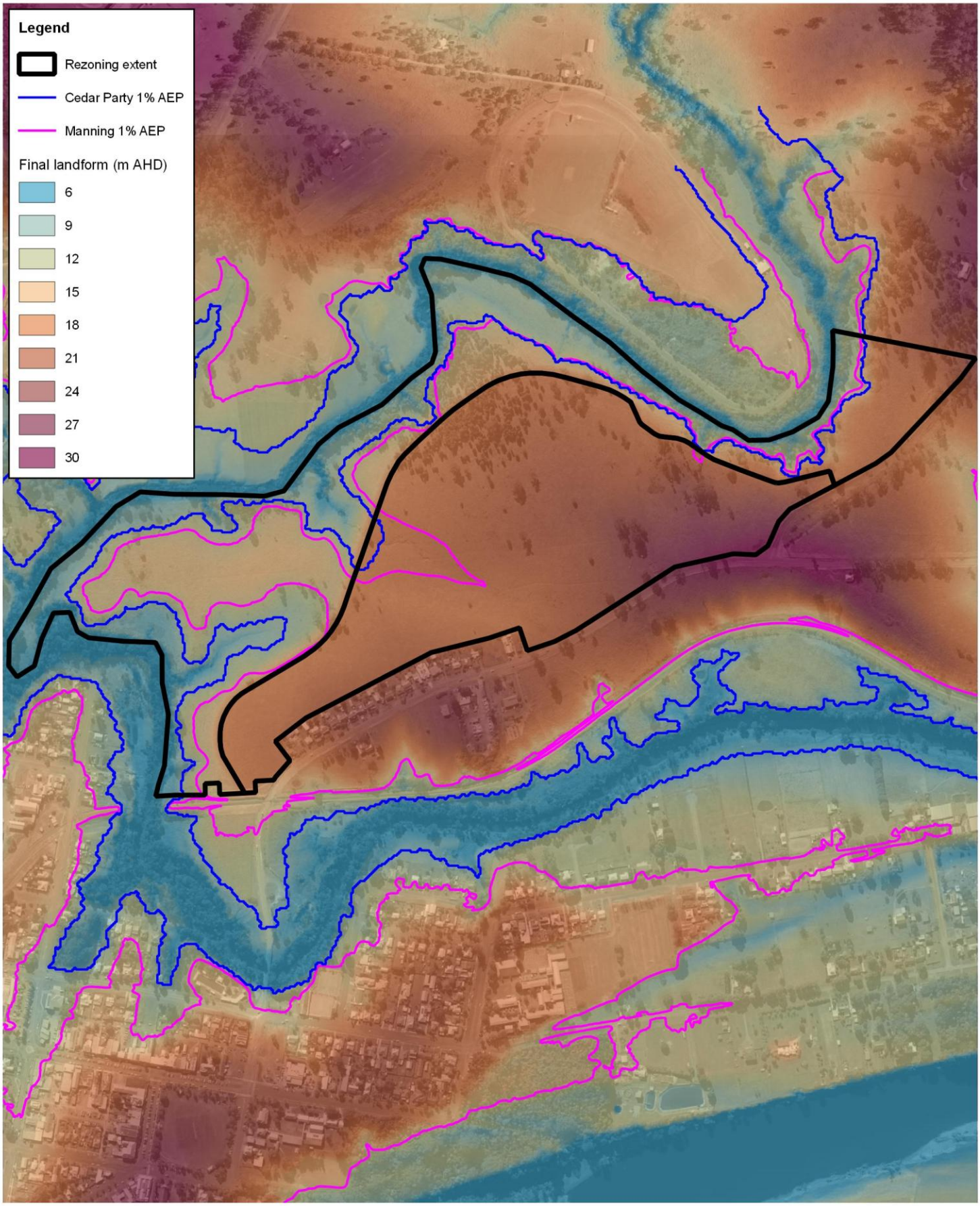
The proposed rezoning extent has undergone a preliminary assessment by DRB Consulting Engineers to establish post-development finished surface levels through a regrading of the Site achieving an overall balance of cut and fill material. This design was provided to Torrent Consulting in “2024 05 16 - 233307 - DESIGN 3D - TRIANGLES.dwg”.

The strategy behind the bulk earthworks assessment (besides achieving a cut-fill balance) was to exclude filling within the 1% AEP floodplain extent. Exceptions to this are a few minor local encroachments and filling of the gully associated with the 1st order watercourse that bisects the Site, to facilitate a more practical shape for future subdivision.

The proposed final landform rises from the existing ground surface at a 1-in-3.5 batter slope to a minimum surface level of 17.8 m AHD. A minimum surface gradient of around 1% has then been adopted for site drainage. The preliminary final landform is shown in Figure 5-1 together with the existing case 1% AEP flood extents for Cedar Party Creek and the Manning River for context.

5.2 Post-Development Flooding Conditions

The model developed to establish existing flood conditions has been modified to represent post-development floodplain conditions as described above. The resultant flood hazard conditions for the 5% AEP, 1% AEP and PMF / Extreme events are presented in this section, separately for both Cedar Party Creek and Manning River flood events. Mapping for additional design events is included in Appendix B.



Title:

Preliminary Final Landform

0 200 400 m

approx. scale

Figure: **5-1**

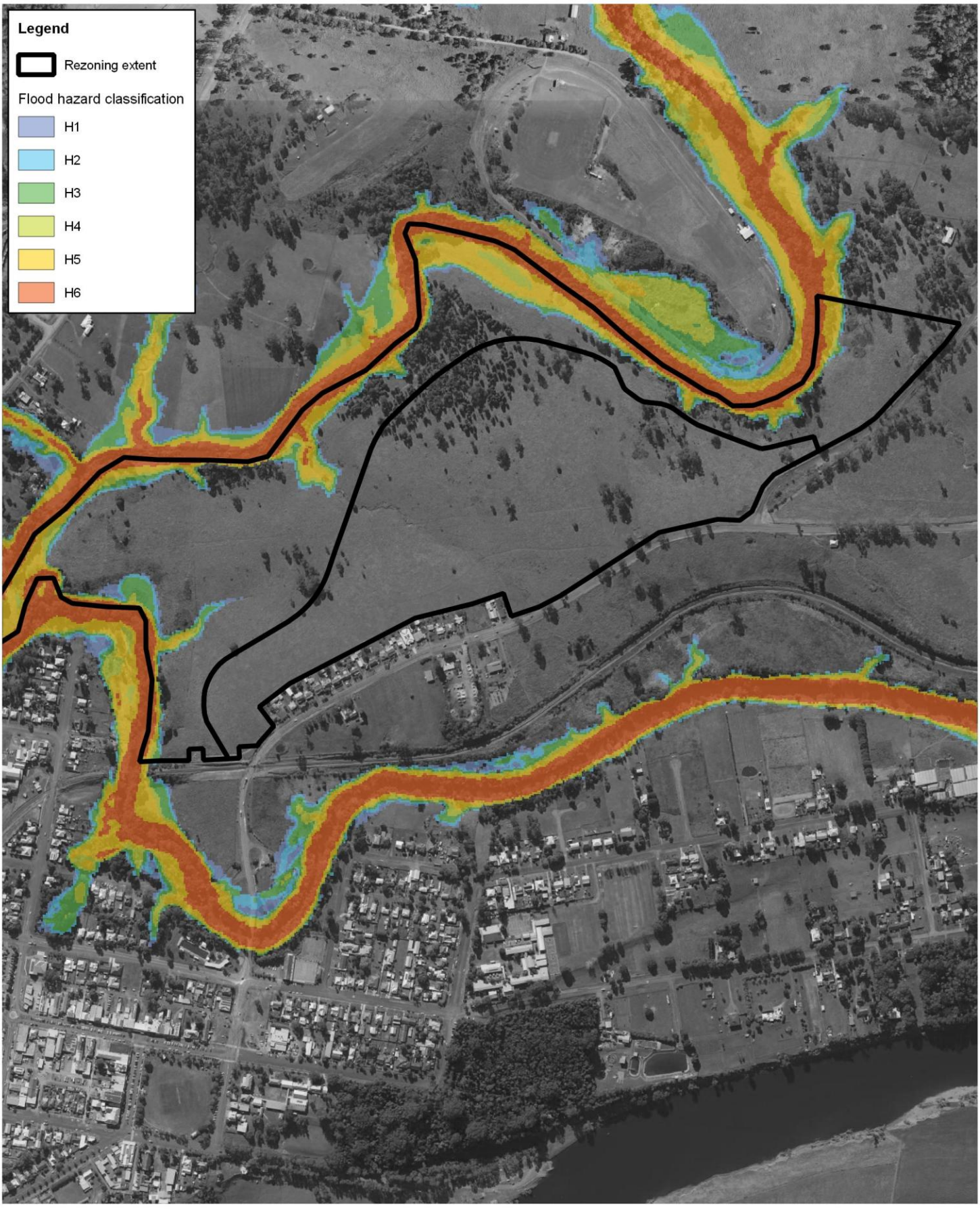
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Title:

Cedar Party Creek 5% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **5-2**

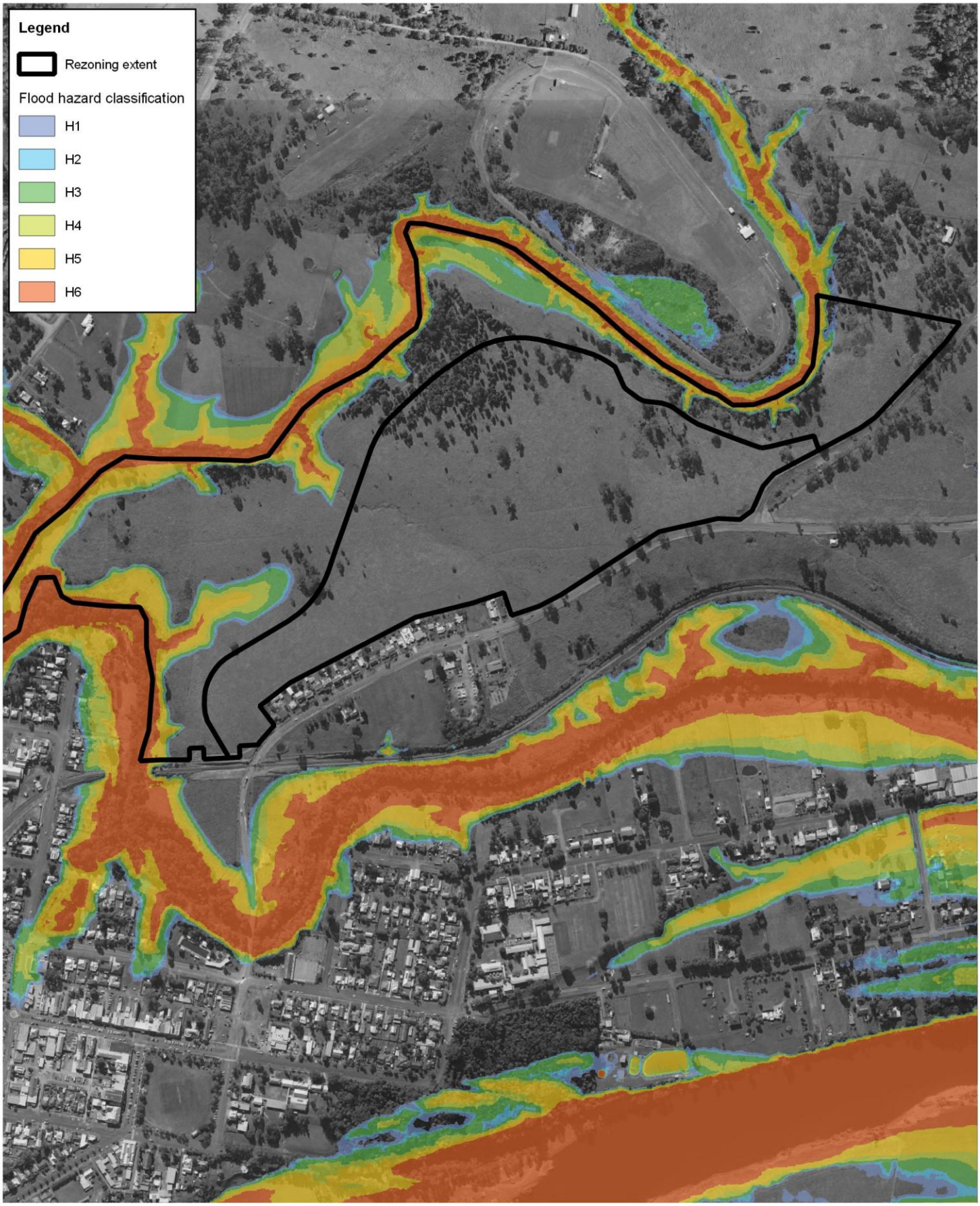
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Title:

Manning River 5% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: 5-3

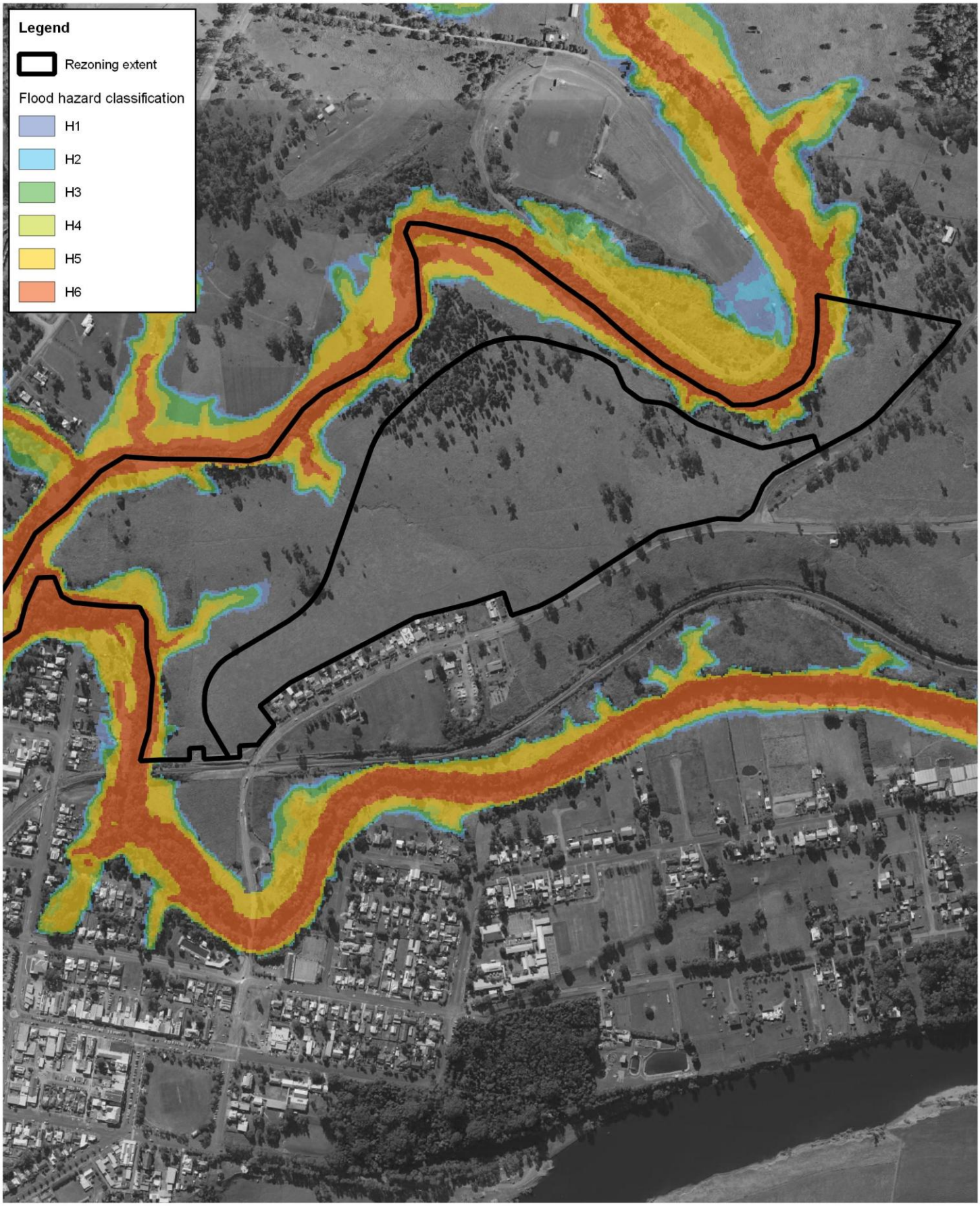
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Filepath: Z:\Projects\T2394_Wingham_Rd\GIS\T2394_014_240416_MR_20y_haz_dev.qgz



Title:

Cedar Party Creek 1% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **5-4**

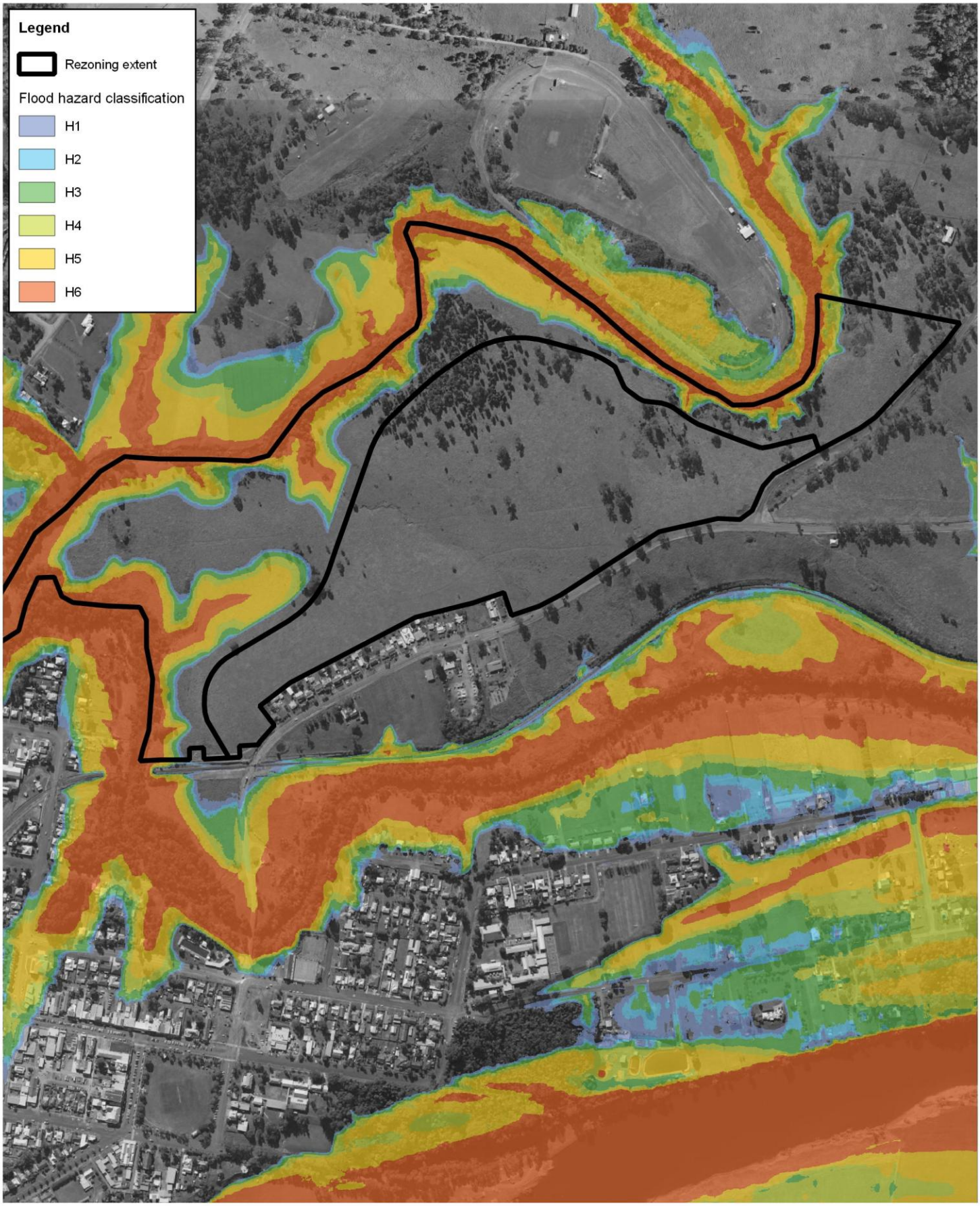
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Title:

Manning River 1% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: 5-5

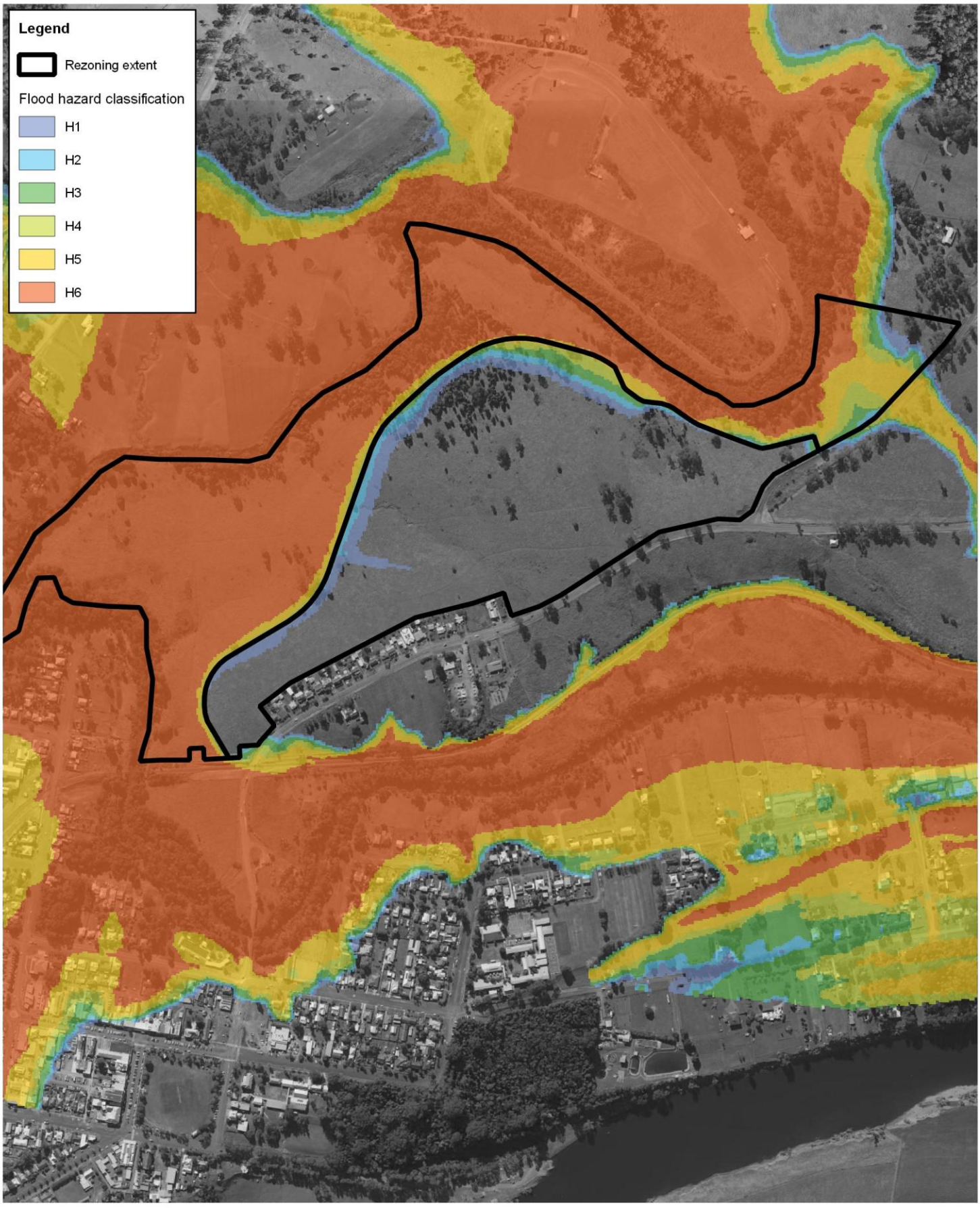
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Title:

Cedar Party Creek PMF Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **5-6**

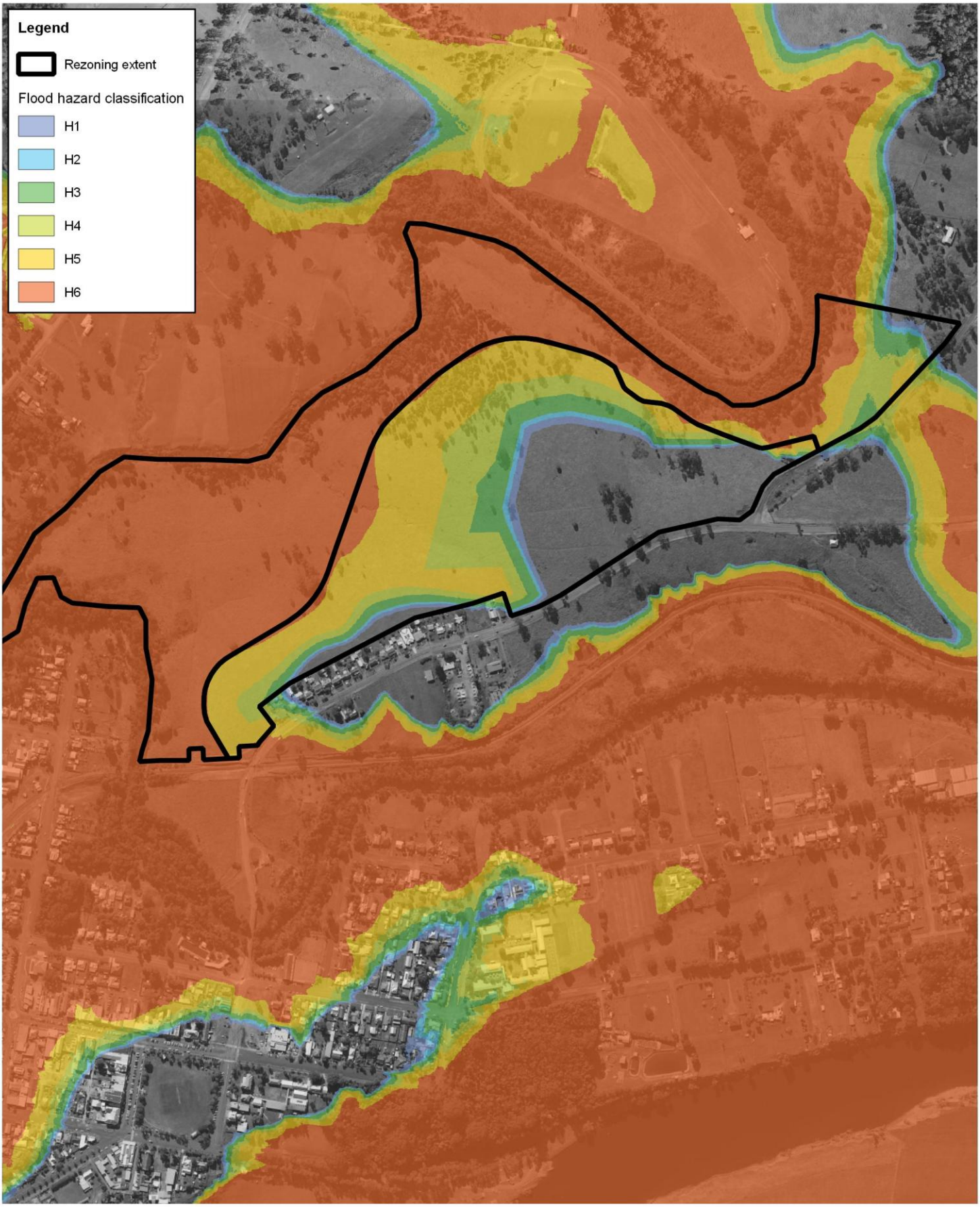
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Title:

Manning River Extreme Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **5-7**

Revision: **A**

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5.3 Impact Assessment

The relative impact of the proposed development has been considered in terms of potential changes to existing flood behaviour. This assessment has focussed on impacts to local catchment flood events on Cedar Party Creek, as impacts to Manning River flood conditions will be less than those of Cedar Party Creek. This is because backwater inundation, which is largely non-convective, typically demonstrates no impact when filled, unless the loss of total flood storage volume is a substantial portion of the overall available floodplain storage. The potential fill required for the proposed development is negligible in relation to the overall storage available throughout the Manning River floodplain. Therefore, impacts to existing Manning River flood conditions will be negligible for the full range of design flood events and have not been modelled or mapped as part of this assessment. The model is not configured to assess Manning River flood impacts, as modelling os not required to confirm zero impact.

The impact of the proposed development on existing design flood conditions can be best understood in a spatial context through comparison of the change in modelled peak flood levels and velocities. Simulated changes in peak flood level for the 1% AEP, 0.2% AEP and PMF events are presented in Figure 5-8, Figure 5-9, and Figure 5-10, respectively. Simulated changes in peak flood velocity for the 1% AEP, 0.2% AEP and PMF events are presented in Figure 5-11, Figure 5-12, and Figure 5-13, respectively. Flood impact mapping for additional design events is provided in Appendix C.

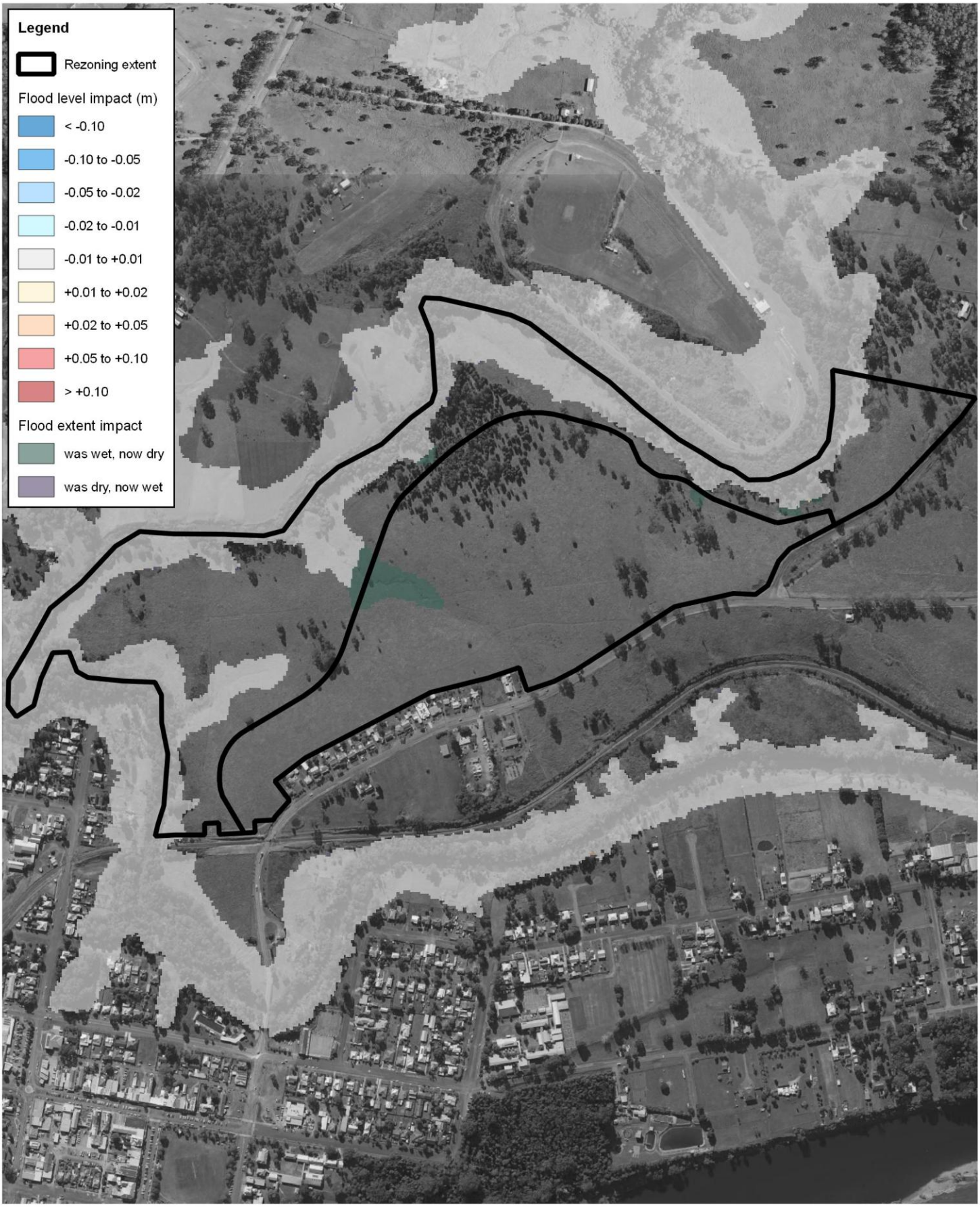
The model results of the relative flood impact assessment presented in the mapping series confirm that there is a negligible change in the modelled peak flood level conditions for all events up to and including the 0.01% (1-in-10,000) AEP. Tangible ff-site impacts are only modelled at the PMF event, for which the estimated probability of flood-producing rainfall is in the order of a 1-in-10,000,000 AEP for catchments up to around 100 km^2. With the Cedar Party Creek catchment being around 140 km^2 the expected probability of the probable maximum precipitation is somewhere between a 1-in-9,000,000 AEP and 1-in-10,000,000 AEP.

There are around ten properties potentially impacted by the PMF model results, located on Comboyne Road and Racecourse Road. The modelled increase in peak flood level is only around 150 mm at the PMF, which is insufficient to produce a significant change to the overall flood hazard profile. Together with the extreme rarity of such an event (and hence rarity of potential impact), this does not represent an adverse impact that would require further mitigation. The affected properties would require evacuation in the event of a PMF, and the proposed development does not impact the evacuation of these properties.

Given the depth of flooding within the proposed fill footprint along the minor watercourse alignment, it is classified as flood storage. However, flood function is rarely tested when defined by a Flood Study to assess the implications of potential future fill within it. The area to be filled is low-convective backwater in a Manning River flood event and would have a negligible velocity component (e.g. < 0.2 m/s). It represents a minimal volumetric loss of floodplain storage that will have zero impact on existing Manning River flood conditions and so should be considered as an area of flood fringe in that context.

There is limited opportunity for large scale development of the Cedar Party Creek or Manning River floodplains that would require a comprehensive assessment of potential cumulative development impacts. The proposed fill has negligible impacts for all modelled events (except the PMF) and as

such, will not contribute significanly to cumulative impacts if other similar development was to occur within the Cedar Party Creek floodplain. The fill volume is also insiginficant relative to the storage volume available throughout the broader Manning River floodplain.



Title:

Cedar Party Creek 1% AEP Event Peak Flood Level Impact

0 200 400 m

approx. scale

Figure: **5-8**

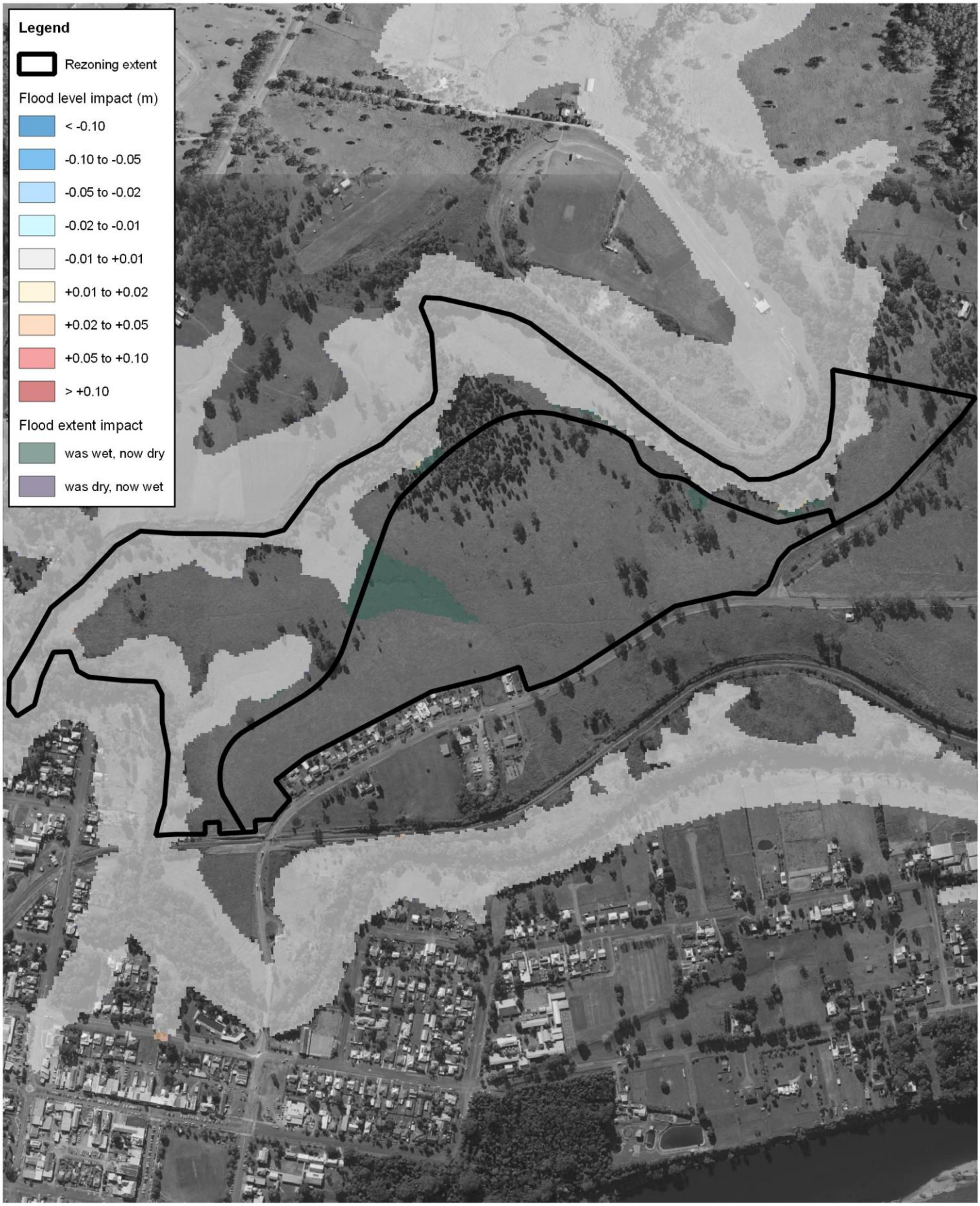
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Title:

Cedar Party Creek 0.2% AEP Event Peak Flood Level Impact

0 200 400 m

approx. scale

Figure: **5-9**

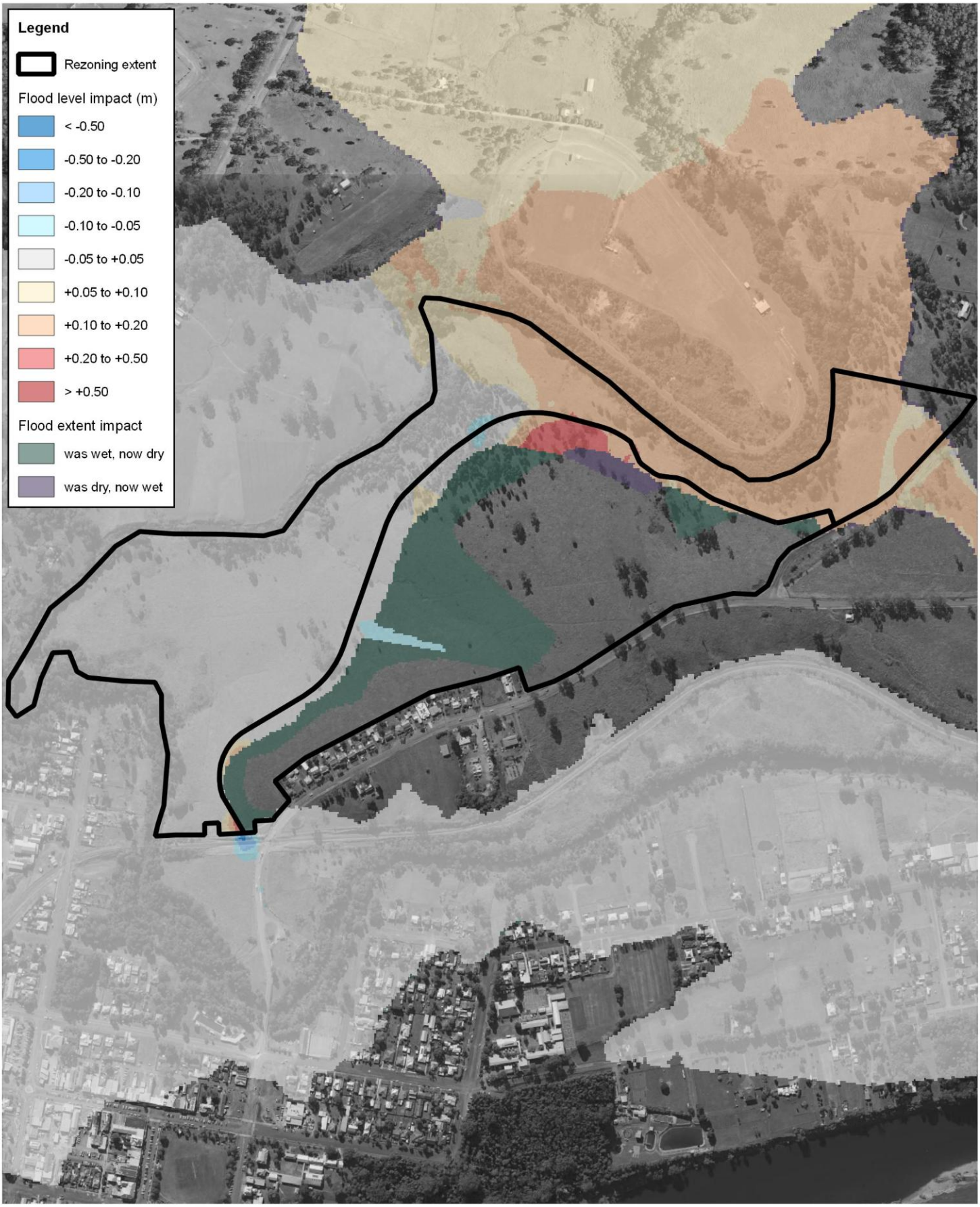
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Title:

Cedar Party Creek PMF Event Peak Flood Level Impact

0 200 400 m

approx. scale

Figure: **5-10**

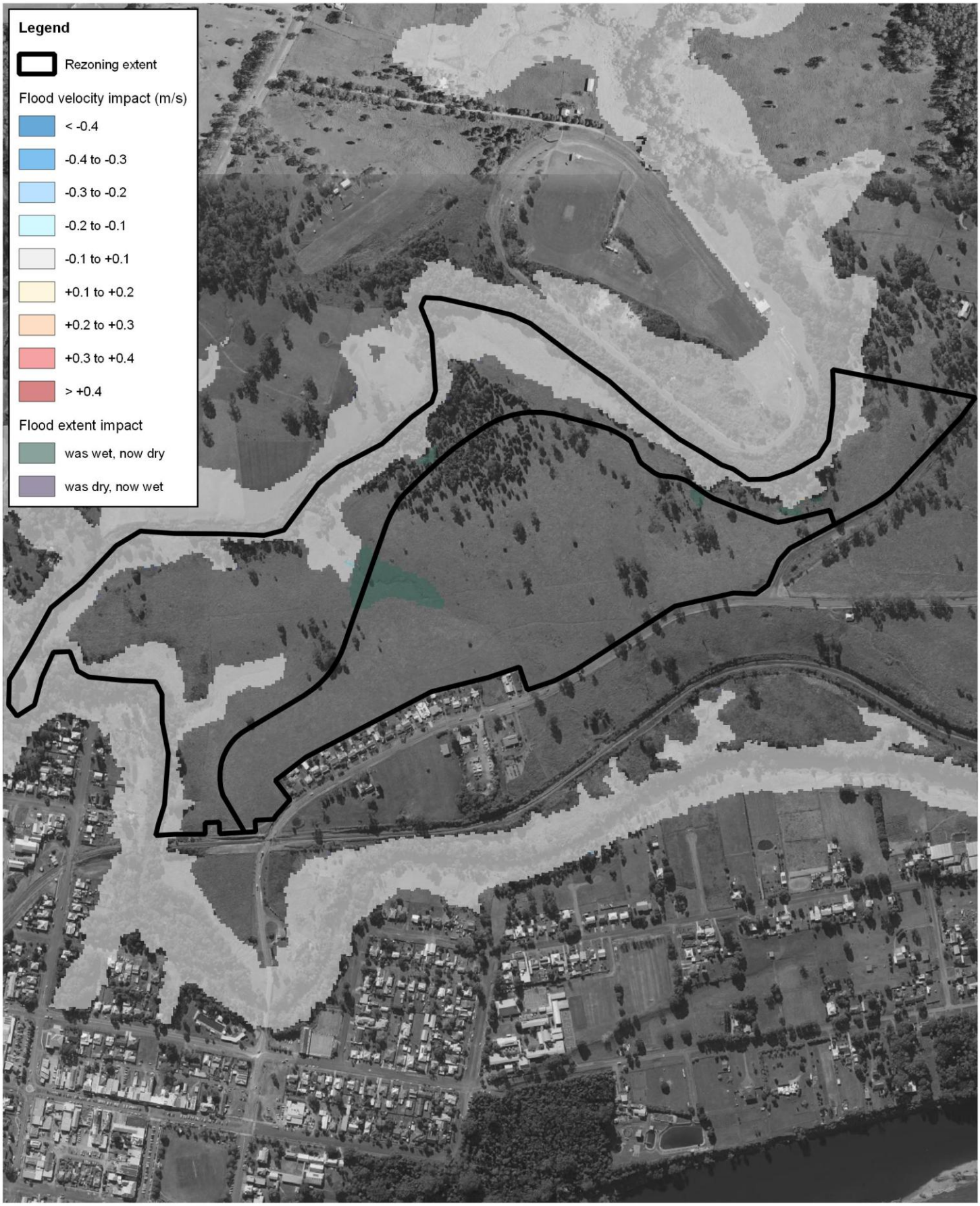
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Title:

Cedar Party Creek 1% AEP Event Peak Flood Velocity Impact

0 200 400 m

approx. scale

Figure: **5-11**

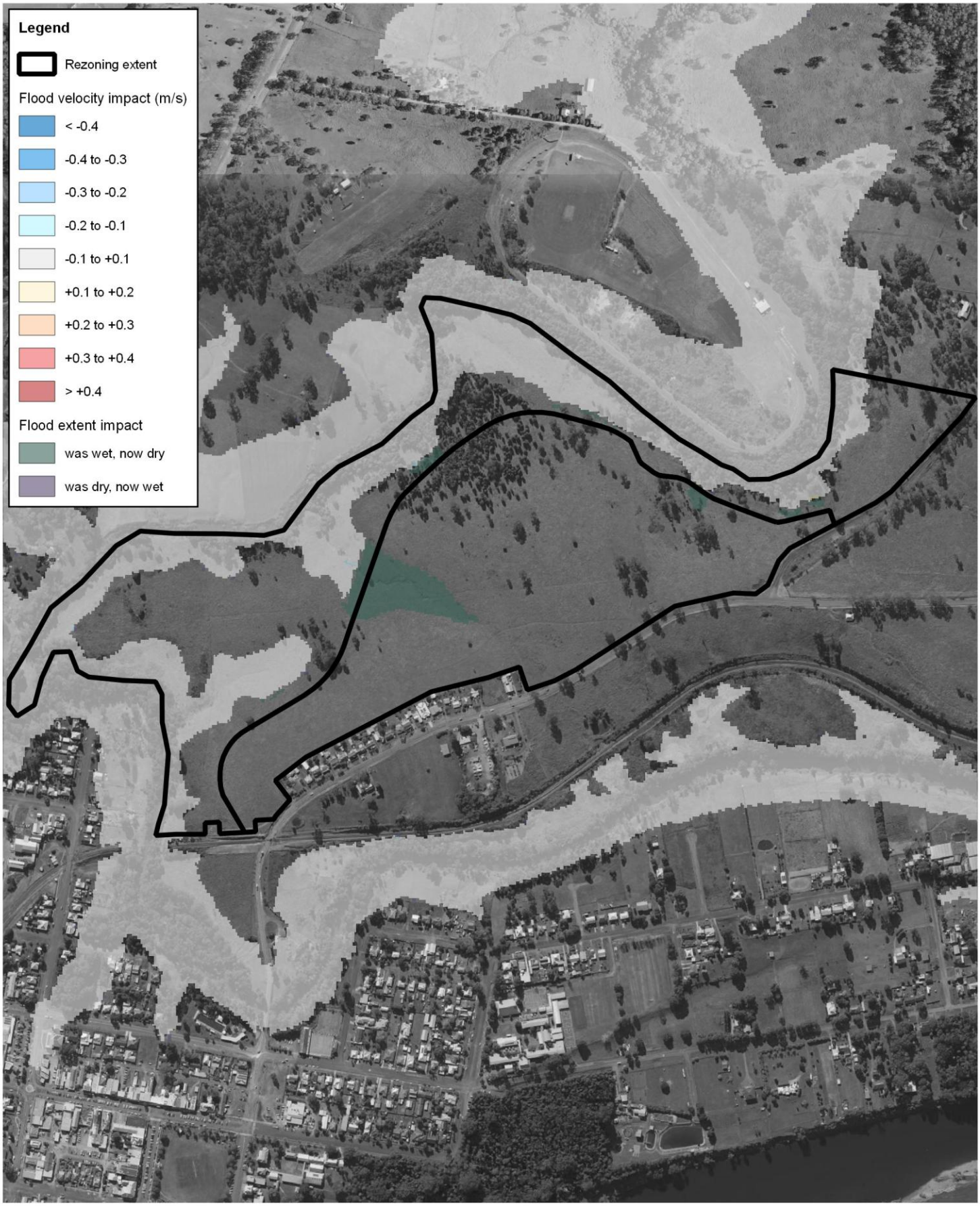
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Title:

Cedar Party Creek 0.2% AEP Event Peak Flood Velocity Impact

0 200 400 m

approx. scale

Figure: **5-12**

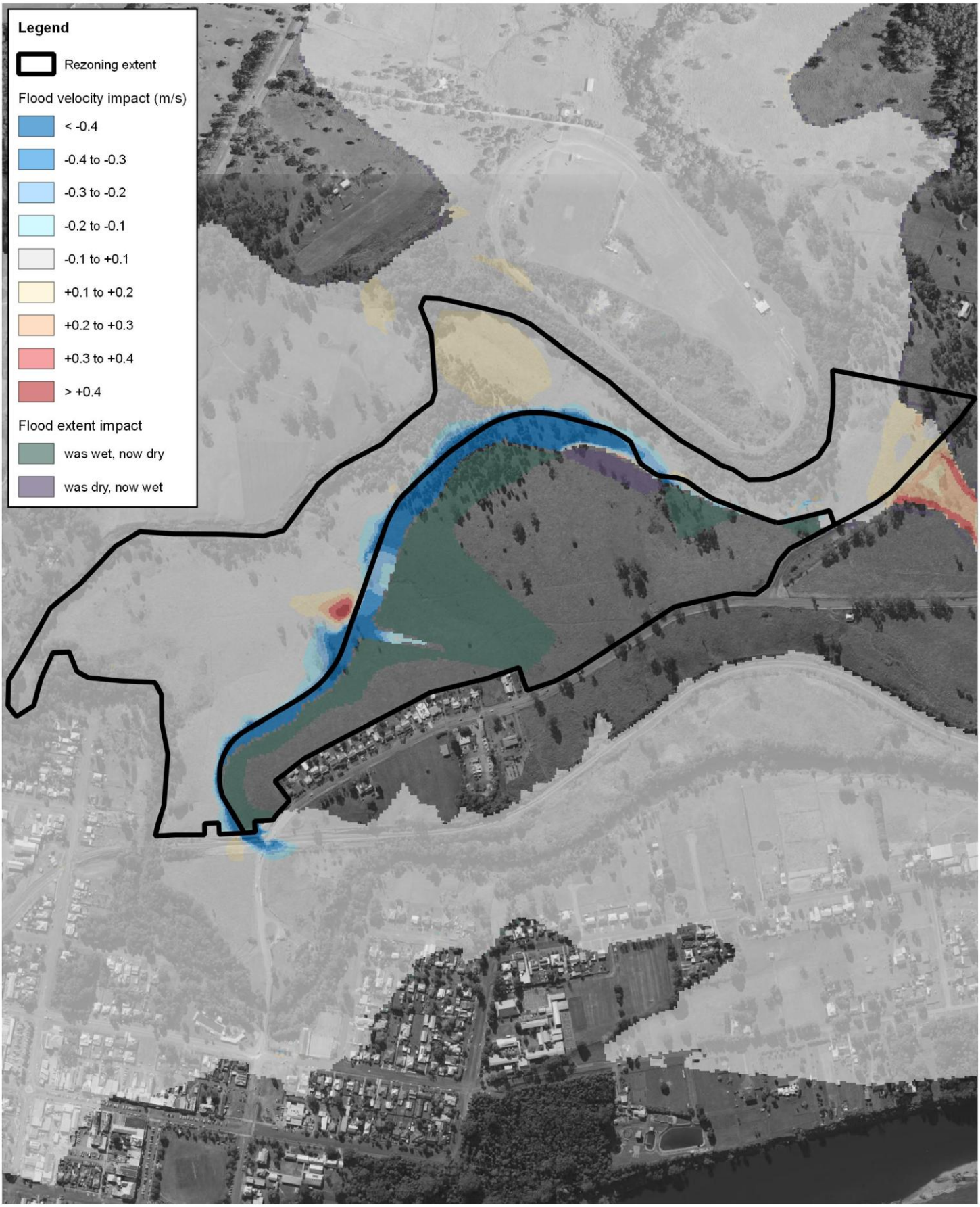
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Title:

Cedar Party Creek PMF Event Peak Flood Velocity Impact

0 200 400 m

approx. scale

Figure: **5-13**

Revision: **A**

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6 Flood Emergency Management

6.1 Manning River Flood Events

6.1.1 Flood Warning

The Manning River is serviced by several water level gauges which are used for flood forecasting and warning services provided by the BoM.

The BoM service level specification (BoM, 2013) for the Wingham gauge notes a target warning lead time of 12 hours for gauge levels exceeding 5.0 m AHD (minor flooding threshold) and 24 hours for levels exceeding 12.0 m AHD (major flooding threshold, BoM, 2013). The target warning lead time is the minimum lead time that will be provided before the height, or the flood class level given is exceeded. The level of 5.0 m AHD at Wingham corresponds to an approximate 50% AEP flood event magnitude and the level of 12.0 m AHD corresponds to between a 10% and 5% AEP event.

6.1.2 Evacuation and Flood Access

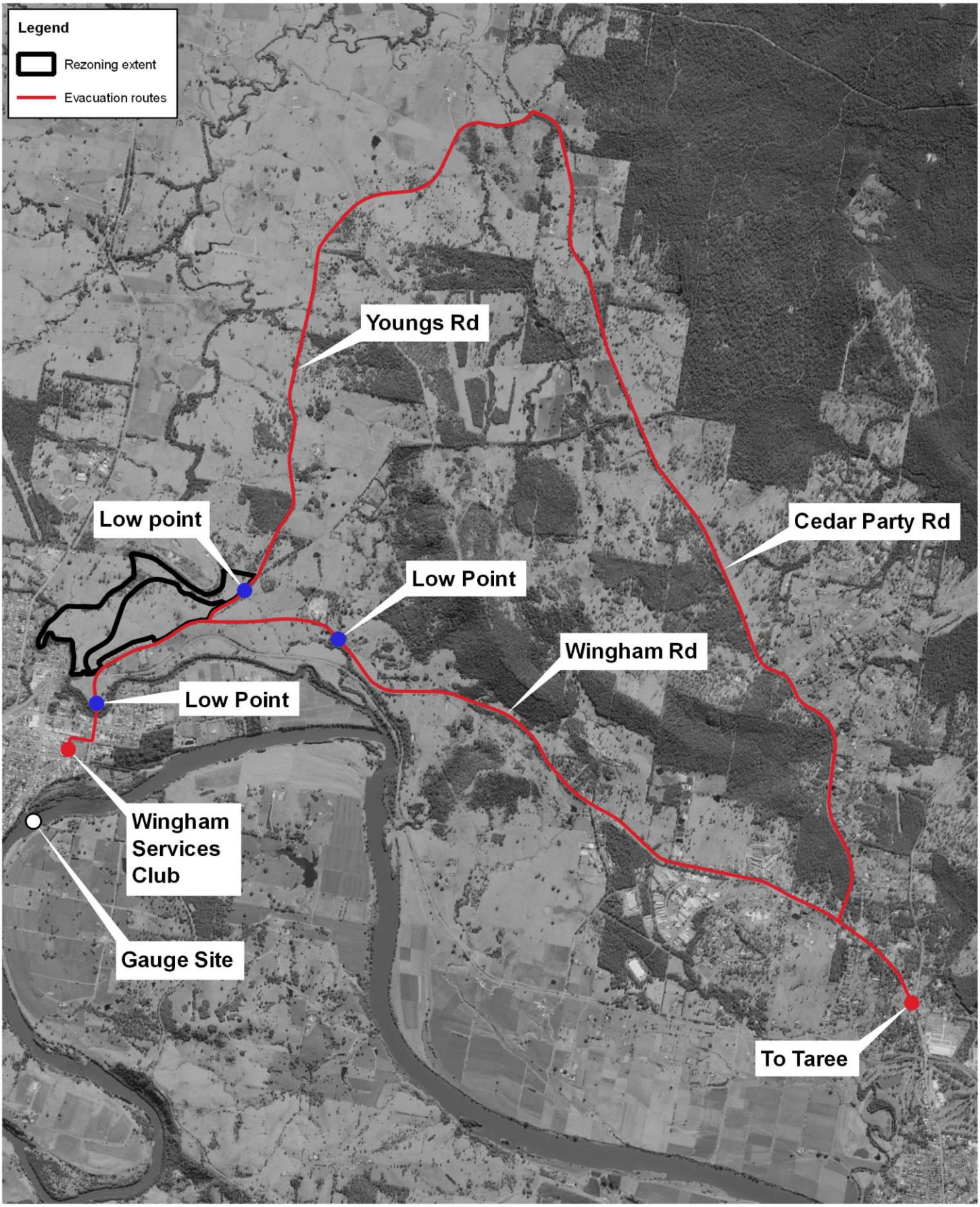
The Planning Proposal pre-lodgement minutes from the meeting of 28 September 2023 raise significant concerns regarding potential flood evacuation from the Site. In particular, the Wingham Road access to both Wingham and Taree are cut relatively early when compared to the timing of the flood peak for rare events such as the 1% AEP. However, the imminent upgrade works for the Cedar Party Creek Bridge crossing and approach road embankments will provide a much greater level of flood immunity and reliability for evacuation to Wingham, if required.

There are a few potential flood evacuation or flood egress routes available from the Site, which are shown in Figure 6-1. The nearest Flood Evacuation Centre listed in the Greater Taree City Flood Emergency Sub Plan (SES, 2013) is located at the Wingham Services Club. There are an additional two centres located within Taree.

The Wingham Services Club is around 1.5 km away from the entrance to the Site, accessed via Wingham Road. There is a low point that must be crossed on this route at the bridge crossing of Cedar Party Creek. Currently, this route will become inundated by flood waters at around a level of 10.3 m AHD. This represents around a 10% AEP event on the Manning River (around 11.5 m AHD at the gauge site) and a 0.2% AEP event on Cedar Party Creek.

However, works are currently being undertaken to construct a replacement bridge structure and approach roads at this location. This will see the low point along the road increased to around 13.5 m AHD. This represents between a 1% AEP and 0.5% AEP event on the Manning River (around 14.7 m AHD at the gauge site) and an event rarer than a 0.05% AEP on Cedar Party Creek.

The most direct route to Taree from the Site is east along Wingham Road, with the city limit reached within around 7 km. However, the road is prone to flooding from the Manning River at around 1.3 km from exiting the Site, being as low as 10.0 m AHD, which is just under the 10% AEP flood level (around 11.2 m AHD at the gauge site).



Title:

Flood Evacuation / Egress Routes

0 1 2 km

approx. scale

Figure: 6-1

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There is an alternative high level access route to Taree, via Youngs Road and Cedar Party Road, reaching the city around 14 km after exiting the Site. This route is not affected by flooding from either the Manning River or Cedar Party Creek at the 0.01% AEP event, with the low point between the two watercourses only overtopping during an Extreme Flood or PMF event.

As is the case with any potential flood evacuation route, there is the possibility of local catchment flooding impacting the trafficability of the roads. This is not a factor for the evacuation route to Wingham, as the route is short and traverses a ridgeline for its entire length, apart from the crossing of the Cedar Party Creek floodplain.

The Youngs Road evacuation route to Taree is susceptible to potential impacts of local catchment flooding. Although local catchment flood events can cut potential evacuation routes prior to the mainstream fluvial flood event, the duration of flooding in local catchments is also inherently shorter and may provide opportunities for evacuation between the local catchment and mainstream flood peaks. The likelihood of local catchment flood events coincident with a Manning River flood event requiring evacuation of the Site is also very low given the difference in intense rainfall duration required to produce critical flood conditions in each. This is addressed in further detail within Section 6.3.

The proposed development is not reliant on the Youngs Road route for effective management of the risk to life from flooding. Therefore, any inherent risks of potential local road closure do not compromise the overall risk profile or risk management strategy. As evident in the flood mapping in Appendix B, the proposed development will remain flood free for all events up to and including the 0.01% AEP (1-in-10,000-year) event and so the requirement for flood evacuation is extremely rare.

6.1.3 Flood Risk Assessment

The proposed final landform to accommodate residential development within the Site has a minimum finished top surface level of 17.8 m AHD, which represents around a 0.005% AEP (1-in-20,000-year) flood level on the Manning River. Therefore, the risk to life exposure from flooding for future residential subdivision is minimal.

With the upgrade of the Wingham Road crossing of Cedar Party Creek being completed before future development of the Site, isolation of the Site from Wingham will only occur during flood events rarer than a 1% AEP. Isolation of the Site from Taree will not occur until a flood event of around a 0.005% AEP (1-in-20,000-year) or rarer (although closure of Wingham Road will occur at around a 10% AEP event or rarer).

For flood events exceeding a 1% AEP on the Manning River, resulting in isolation of the Site from Wingham, there would be over a 24-hour warning available prior to the closure of Wingham Road. There would be at least a 36-hour warning available prior to the closure of Youngs Road and subsequent isolation from Taree. Isolation of the Site from Wingham is expected to last between around 12-36 hours depending on the rarity and duration of flood event, with isolation from Taree expected to be under 24 hours.

In an Extreme Flood Event (~1-in-350,000-year) on the Manning River around half of the Site would be exposed to high hazard flood conditions and the Site and adjacent high ground would become isolated for a period of up to 24 hours. Therefore, evacuation from the Site to alternative accommodation or a Flood Evacuation Centre would be required. Given the substantial warning time available (over 24-36 hours), this does not present a significant risk.

6.2 Cedar Party Creek Flood Events

6.2.1 Flood Warning

For flood events emanating from the Cedar Party Creek there will likely be limited warning time available. In a worst-case scenario of a PMF event, inundation of the future subdivision could occur within around three hours following the start of the flood-producing rainfall. It is therefore important that future residents can respond to the conditions that unfold around them and seek safety, if required.

6.2.2 Evacuation and Flood Access

The potential flood evacuation / egress routes for Cedar Party Creek events are consistent with those discussed in Section 6.1.2 and shown in Figure 6-1. However, the potential inundation and closure of the three routes have different probabilities to those of Manning River flood events.

Wingham Road in a westerly direction to Wingham would not overtop until around a 0.005% AEP (1-in-20,000-year) Cedar Party Creek event, with an even rarer event required to close Wingham Road in an easterly direction to Taree. Coincident flooding of the Cedar Party Creek and Manning River watercourses may reduce this level of flood immunity. However, there is only a low probability of coincidence given the significant difference in catchment area and critical duration of the two systems.

The alternative high level access route to Taree via Youngs Road and Cedar Party Road will only be overtopped by flood waters in an extreme scenario such as a PMF event, with an estimated frequency of occurrence being around a 1-in-600,000-year probability.

6.2.3 Flood Risk Assessment

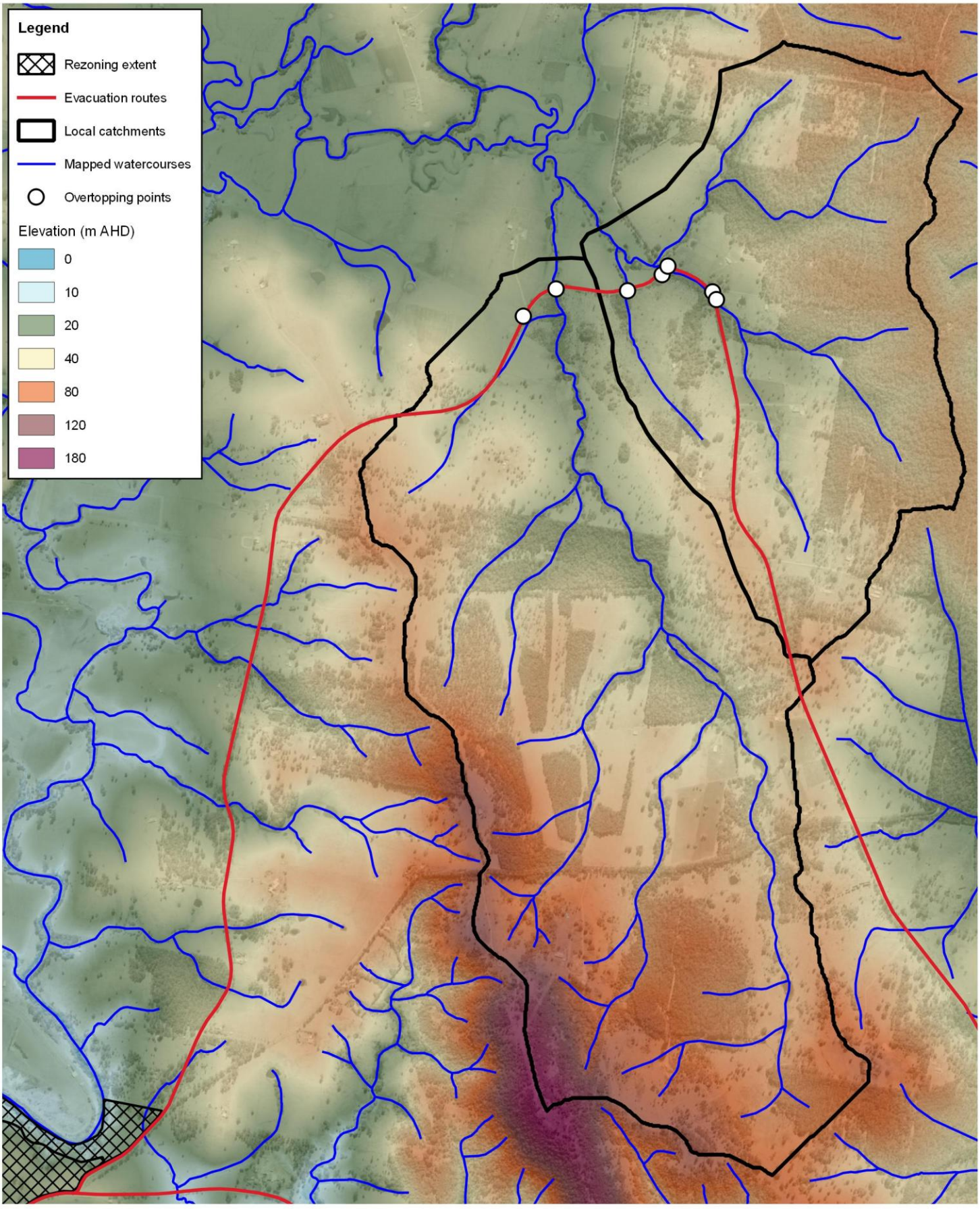
The proposed final landform to accommodate residential development within the Site has a minimum finished top surface level of 17.8 m AHD, which represents in the order of a 1-in-1,000,000-year flood level on Cedar Party Creek. Therefore, the risk to life exposure from flooding for future residential subdivision is minimal.

Furthermore, the flood hazard exposure to future residential allotments at the PMF is only low (H1 or H2), as shown in Figure 5-6. This means that residents will be safe from flood waters within their homes, which is a desirable outcome, as peak flood conditions can occur during the period of probable maximum precipitation. These extreme weather conditions would present a much greater risk to life were residents to leave the shelter of their homes.

Isolation of the Site is less of a potential risk for Cedar Party Creek flood events than it is for the Manning River. While access to Wingham could be cut for a period of up to 12 hours for a Cedar Party Creek PMF event, access to Taree would only be cut for a few hours.

6.3 Local Catchment Flooding

Concern was raised by DPHI and NSW SES as to the potential for the proposed evacuation route to Taree to be cut by flood waters, as occurred during the recent flood event of May 2025. This is a function of local catchment flooding, with the largest catchments along the route being located near the intersection of Youngs Road and Cedar Party Road, as shown in Figure 6-2. These local catchments cover some 7.5 km^2 and are serviced by several culvert structures.



Title:

Young Road Local Catchment Crossings

0 0.6 1.2 km

approx. scale

Figure: **6-2**

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A TUFLOW model was developed covering the local catchment extent and was used to simulate the 1% AEP catchment flood hydrology and hydraulics local to Youngs and Cedar Party Roads, consistent with the methods described for Cedar Party Creek in Sections 3 and 4. Mid-Coast Council provided details of the culvert structures, which were included in the model.

The design flood ensemble suite was simulated for all rainfall durations and temporal patterns between the 1-hour and 24-hour storm durations, i.e. a total of 100 simulations. Rather than identifying the critical duration and temporal pattern for each culvert crossing location, the full suite of 100 simulations was assessed to identify periods of road overtopping for durations longer than the critical condition. Potential road overtopping was assessed at seven locations, as identified in Figure 6-2.

The modelled periods of overtopping within the results of the 100 simulations range between zero and around four hours, with 0.5-1.5 hours being more typical. Actual periods of overtopping during a real-world event could be a little longer, depending on the temporal distribution of rainfall and potential structure blockage. However, the analysis confirms that local catchment flood events impacting the proposed evacuation route to Taree can be reasonably expected to not exceed a period of around a few hours.

The rarity of a Manning River event required to initiate an evacuation of the Site is in the order of a 1-in-20,000 AEP, i.e. some 40 times as rare as the recent May 2025 event. This would involve an exceptionally intense East Coast Low, ex-Tropical Cyclone or other comparable weather system, which would be closely tracked and forecast around a week prior to the event. This provides preparation and mobilisation opportunities for the emergency services prior to committing to a decision for evacuation being made, which is expected to follow within BoM's 24-hour warning period for the Major Flood level being exceeded at the Wingham gauge.

It is unlikely that local catchment flooding will impact the proposed evacuation route to Taree during the 24-hour Major Flood warning period or the expected 12-hour period following that, prior to isolation of the Site. Even in the case of coincident local catchment flooding with this 36-hour evacuation period, compromise of the evacuation route form local catchment flooding should at worst reduce the available window to the order of 30 hours. This presents a low risk to the effective evacuation of the Site during an extreme flood event.

6.4 Flood Emergency Response

Given the height of the natural topography and the proposed final landform to accommodate residential development within the Site, the risk to life exposure to residents from flooding is minimal. Nevertheless, in an extremely rare flood event there is still some level of risk exposure that requires consideration.

For Cedar Party Creek flood events, future dwellings at the Site will effectively provide a safe refuge for the inhabitants. Together with both a very low likelihood (~1-in-20,000 AEP) and a short period of potential isolation (a few hours), no evacuation is required to manage the risk to life presented by Cedar Party Creek flood events. In fact, limited warning time and dangerous weather conditions would make any attempt for evacuation both risky and impractical.

For Manning River flood events the Site is partially exposed to high hazard flood conditions and could become isolated for over a day (albeit in extremely rare circumstances). For very rare flood events threatening isolation of the Site (around a 0.5% AEP for isolation from Wingham and 1-in-

20,000-year for isolation from Taree), an Evacuation Order may be issued by the SES to mitigate the potential impacts of flooding on the community. There is ample warning time available (over 24 hours) from the BoM flood forecasting capabilities to facilitate evacuation if required. Potential impacts to the evacuation route from local catchment flooding do not significantly compromise the ability to evacuate.

7 Flood Risk Assessment

The Flood Risk Management Manual contains high level principles and objectives for flood risk management, rather than prescriptive controls. Fundamentally, these objectives are for development to consider and effectively manage the risk to property and risk to life from flooding and to not adversely impact existing flood conditions. The proposed rezoning facilitates future development in line with these objectives, as demonstrated within this assessment.

In supporting these objectives, the LEP includes provision that development consent must not be granted unless the consent authority is satisfied that the development:

> *(a) is compatible with the flood function and behaviour on the land, and*
>
> *(b) will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, and*
>
> *(c) will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood, and*
>
> *(d) incorporates appropriate measures to manage risk to life in the event of a flood, and*
>
> *(e) will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses*

The proposed rezoning and potential future subdivision are compatible with the flood function and behaviour of the land, having both a low risk to property and risk to life from flooding and not adversely impacting existing flood conditions. It does not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, as demonstrated by the negligible off-site flood impacts presented in Section 5.3.

The proposed rezoning and potential future subdivision provide safe occupation for Cedar Party Creek flood events and will only require evacuation for Manning River flood events in very rare circumstances. Given the long period of warning time available and the relatively low population density, it will not exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood.

The proposed rezoning and potential future subdivision are predominantly flood-free (and at worst, low hazard) conditions at the Cedar Party Creek PMF event. The level of risk to life exposure from Manning River flood events is low and there is ample warning time for effective evacuation. These are appropriate measures to manage the risk to life in the event of a flood.

Because the proposed rezoning and potential future subdivision has a negligible impact on the existing flood level and velocity conditions, it also inherently will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of riverbanks or watercourses.

The rezoning of land from a rural to residential use within the Flood Planning Area is inconsistent with Ministerial Direction 4.1. However, this is permitted provided it is demonstrated that flood risk exposure and off-site flood impacts are assessed and are acceptable. The proposed fill provides a low level of flood risk exposure and appropriately manages the risk to property from flooding and

the risk to life from flooding for Cedar Party Creek flood events. For Manning River flood events the risk to life from flooding is managed through flood evacuation. The modelling of impacts associated with the proposed filling has not identified any unacceptable adverse off-site impacts.

The DCP Part E development controls applicable to future subdivision are:

- No subdivision is to occur on land wholly inundated by flooding up to FPL2 event, unless it is demonstrated that the risk of flooding can be effectively and appropriately mitigated without impacting the adjacent floodplain.
- Subdivision proposed in residential zones where partly inundated by flooding up to FPL2 may be considered where it can be demonstrated that all resultant lots are able to provide adequate flood free land suitable for future development and effluent disposal (if applicable). Mounds are not considered suitable for this type of subdivision.

The FPL2 represents the 1% AEP flood condition, including future climate change impacts at the 2100 planning horizon. As the proposed final landform to accommodate residential development within the Site has a minimum finished top surface level of 17.8 m AHD, all future residential subdivision will be at least around 3 m higher than the FPL2 level, readily satisfying the requirement of the DCP. Therefore, the risk to property from flooding at the Site is managed to a much greater degree than the typical standard.

Section 6 demonstrates that the risk to life from flooding at the Site is minimal. No emergency response is required to manage the risk to life from flooding for Cedar Party Creek events. For Manning River flood events, the Site can be readily evacuated, with residents relocated to temporary accommodation in the very rare scenario that a risk of property inundation and/or isolation is expected. There is ample warning time available (over 24 hours) from the BoM flood forecasting capabilities to facilitate evacuation if required. Therefore, the risk to life from flooding at the Site is readily managed to a more than acceptable standard.

Section 5 demonstrates that regrading of the Site to the proposed final landform, including localised filling within the floodplain, does not adversely impact the existing flood conditions and has no material off-site impacts. Given the negligible impact associated with the proposed fill and the low likelihood of extensive development elsewhere within the Cedar Party Creek floodplain, the potential impacts of cumulative development do not warrant further investigation.

The flood risk exposure of the proposed rezoning for future development of the Site and existing properties has been assessed and found to be consistent with the relevant planning requirements. While this report has been produced as part of a Planning Proposal to demonstrate that the site can support residential development, further consideration of the flooding and earthworks will be required for subsequent development stages under Part 4 of the *Environmental Planning and Assessment Act 1979*. This will capture and assess any local details not available at this stage and/or future design iterations.

7.1 Suitability of R1 Zoned Land for Residential Development

With the proposed fill, all future residential subdivision within the land to be zoned R1 will be significantly elevated above the FPL, which far exceeds the requirements for the management of risk to property from flooding.

With regards to the management of risk to life from flooding, the future residential subdivision is almost entirely flood-free from Cedar Party Creek flooding even at the PMF event. Some of the future allotments adjacent to the perimeter road will have some low to medium (H1-H3) flood hazard at the PMF event, which will enable safe refuge within the dwellings. The likelihood of inundation is extremely low, and the duration of inundation would only last a few hours.

With regards to the management of risk to life from flooding for the Manning River, some of the future residential subdivision will be subject to high hazard (H5) flood inundation in the Extreme Flood event, which has an expected probability in the order of a 1-in-100,000 AEP. Inundation of the future residential subdivision is expected to occur at just below a 1-in-20,000 AEP, with the high-level evacuation route to Taree not cut until just above a 1-in-20,000 AEP.

Evidently the requirement for an evacuation of the Site is very low. Further, in such an event there would be at least a 24-hour warning available. However, with such a rare event required for evacuation, a few days warning is likely, as large weather systems required to generate major flooding of the Manning River (such as East Coast Lows) are forecast and tracked in advance of the onset of flood-producing rainfall.

With the risk to life and risk to property from flooding being very low, with effective management options available and with the proposed fill for future subdivision having negligible off-site impacts to existing flood conditions, the proposal is consistent with Ministerial Direction 4.1 Flooding.

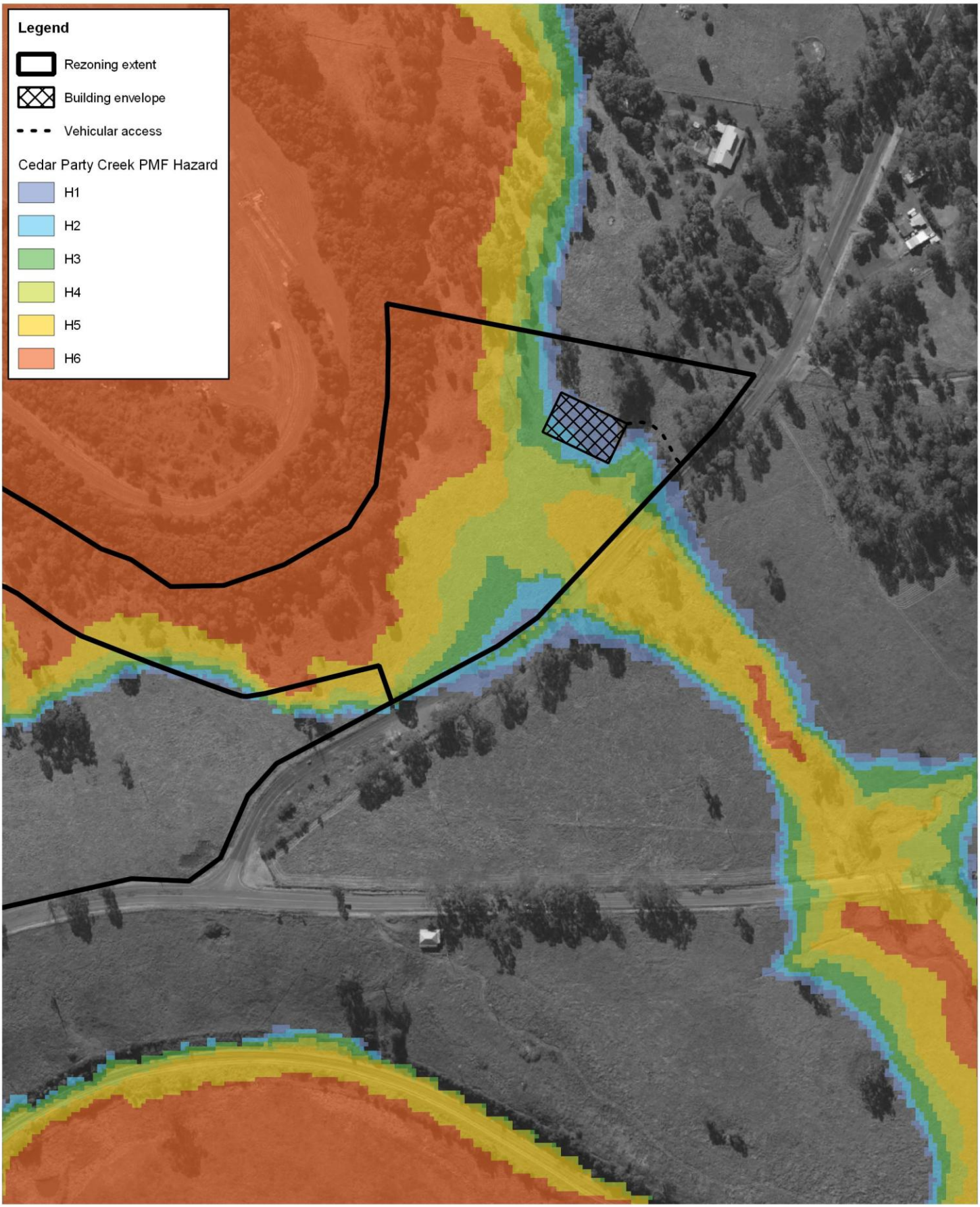
7.2 Suitability of C4 Zoned Land for Residential Development

Outside of the land proposed for R1 rezoning, the residual area of the Site will form a single allotment, with land located within 50 m of Cedar Party Creek being zoned C2 and the area between that and the R1 zoning being zoned C4.

Currently the C4 zoning is proposed to contain a single building envelope for a future residential dwelling. This is to be located within the north-eastern corner of the Site. Review of the building envelope location confirms that (as for the R1 zoned land) it is elevated significantly above the FPL. There is also opportunity for the future dwelling to be provided with a rising road access to Wingham Road.

The level of risk to life and risk to property from flooding exposure and the emergency management measures for the proposed building envelope in the C4 land are consistent with those for the R1 zoned land and are therefore also suitable for future residential development. The building envelope and access road can be located such that the Cedar Party Creek flood hazard exposure and evacuation via Youngs Road can be provided to minimise the risk exposure, as shown in Figure 7-1.

There may be other locations within the proposed C4 zoning that can be considered for potential dwellings. However, the C4 zoned land will offer limited development potential and will need to provide consistency with the flood risk management strategy outlined in this report.



Title:

Indicative Building Envelope and Access Location for Future C4 Dwelling

0 90 180 m

approx. scale

Figure: 7-1

Revision: A

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8 Conclusions

This Flood Impact and Risk Assessment is prepared to support the proposed rezoning of Lot 92 Wingham Road, Wingham. The assessment is underpinned by detailed modelling of design flood conditions in the Manning River and Cedar Party Creek floodplain for a range of design flood magnitudes.

A TUFLOW software hydrodynamic model of Cedar Party Creek was developed to represent existing design flood conditions at the Site and to assess potential impacts associated with the proposed development.

The proposed rezoning boundary and indicative concept final landform plan was developed with consideration of the existing flood risk as defined by the modelling, current flood planning controls and floodplain risk management objectives. The flood assessment investigated the existing and post-development flood conditions for a range of design flood event magnitudes including the 5% AEP, 2% AEP, 1% AEP, 0.5% AEP, 0.2% AEP, 0.05% AEP, 0.02% AEP, 0.01% AEP and PMF / Extreme Event.

The concept final landform plan considers bulk earthworks across the Site to facilitate development, including some nominal fill area within existing flood inundation extents. The developed flood model was utilised to assess the potential impact of any proposed works on existing flood conditions. The impact assessment indicated the proposed development has no material impact on existing flood conditions across the range of flood events considered.

The proposed final landform to accommodate residential development within the Site has a minimum finished top surface level of 17.8 m AHD and as such provides a very low risk to both property and life for future development within the Site. The management of risk to property from flooding for future development will be to a much higher standard than typically required and there is no significant risk to life from flooding in relation to Cedar Party Creek flood events.

The existing Bureau of Meteorology flood warning system on the Manning River is expected to provide significant lead warning time (over a day) for major flood events which may impact the Site. This warning time, in association with the coordinated regional flood response by the NSW State Emergency Service and other combat agencies, provides for very low residual flood risk for the proposed development.

The proposed zoning boundary providing residential development within the area identified within Mid-Coast Council's flood planning area, represents an inconsistency with the provisions of Ministerial Direction 4.1 3 (d). However, The Flood Impact and Risk Assessment has demonstrated the compatibility of the proposed development with the identified flood risk in accordance with the provisions of the Flood Risk Management Manual.

Certain areas within the Site proposed for residential rezoning that are flood prone are capable of being filled and result in low hazard PMF flood conditions without adversely impacting the surrounding land or resulting in concerns for future residents from an occupation or emergency evacuation standpoint.

Often zoning boundaries dictated by a Flood Planning Level and natural ground contours lends itself to outcomes that can result in an inefficient use of land and poor urban design outcomes. However, this FIRA demonstrates that with minimal filling of the Flood Planning Area and the

associated loss of flood storage capacity there will be no worsening effect on the surrounding land, allowing for the promotion and co-ordination of the orderly and economic use and development of the subject land.

While this report has been produced as part of a Planning Proposal to demonstrate that the site can support residential development, further consideration of the flooding and earthworks will be required under Part 4 of the *Environmental Planning and Assessment Act 1979*. This will capture and assess any local details not available at this stage and/or future design iterations.

Accordingly, the Planning Proposal is supportable for rezoning from a flood risk management assessment perspective.

9 References

AIDR (2017) *Guideline 7-3, Australian Disaster Resilience Handbook 7 Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia.*

BMT WBM (2017) *Review and Update of the Manning River Flood Study.* Mid-Coast Council.

Bureau of Meteorology (2013) *Service Level Specification for Flood Forecasting and Warning Services for New South Wales and the Australian Capital Territory – Version 3.13.*

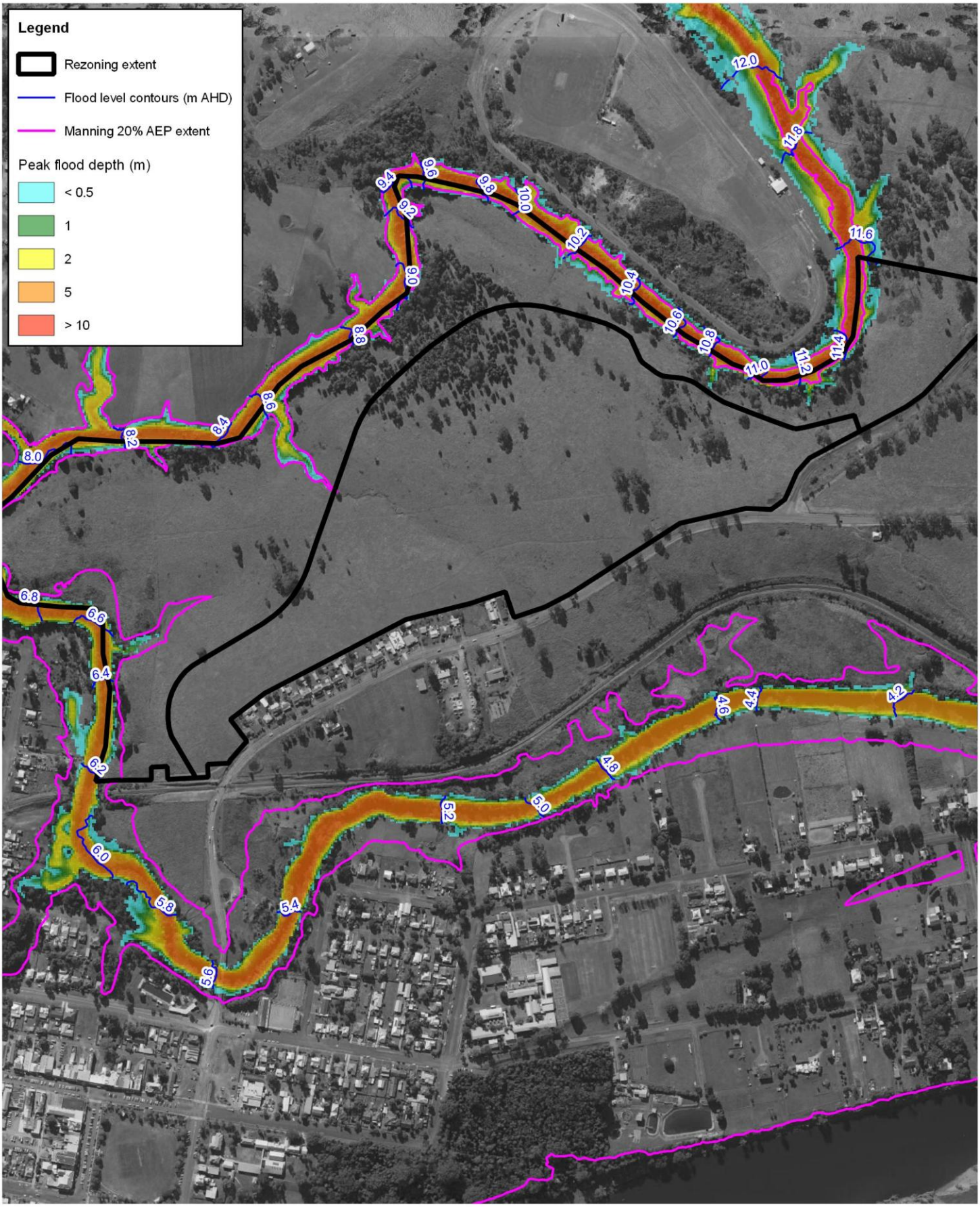
Greater Taree City Council (2010) *Greater Taree Local Environment Plan 2010.*

Greater Taree City Council (2010) *Greater Taree Development Control Plan 2010.*

NSW Department of Planning and Environment (2023) *Flood Risk Management Manual*

NSW State Emergency Service (2013) *Greater Taree City Local Flood Plan.*

Appendix A Existing Conditions Flood Mapping



Title:

Cedar Party Creek 20% AEP Event Existing Flood Conditions

0 200 400 m

approx. scale

Figure: **A-1**

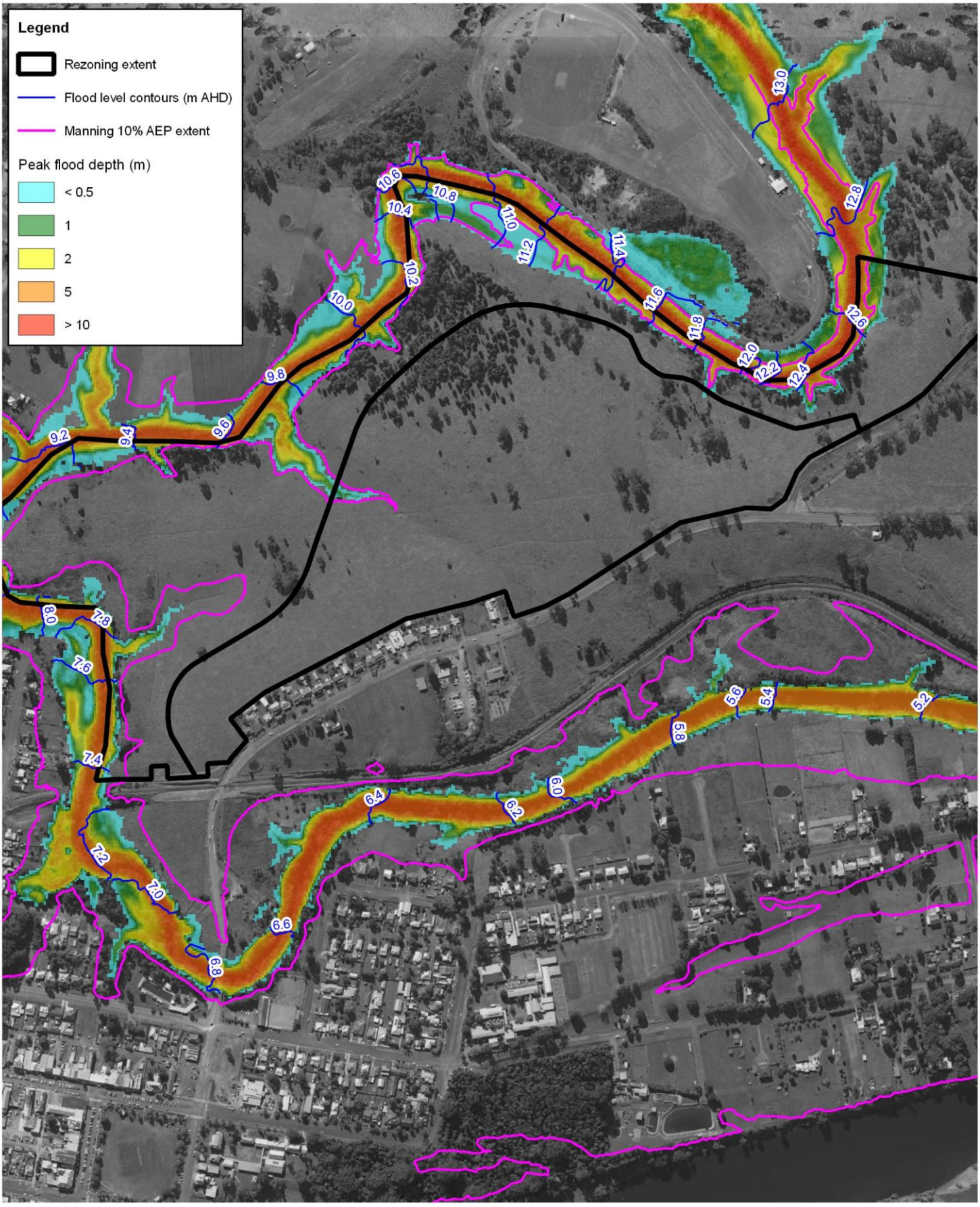
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Title:

Cedar Party Creek 10% AEP Event Existing Flood Conditions

0 200 400 m

approx. scale

Figure: **A-2**

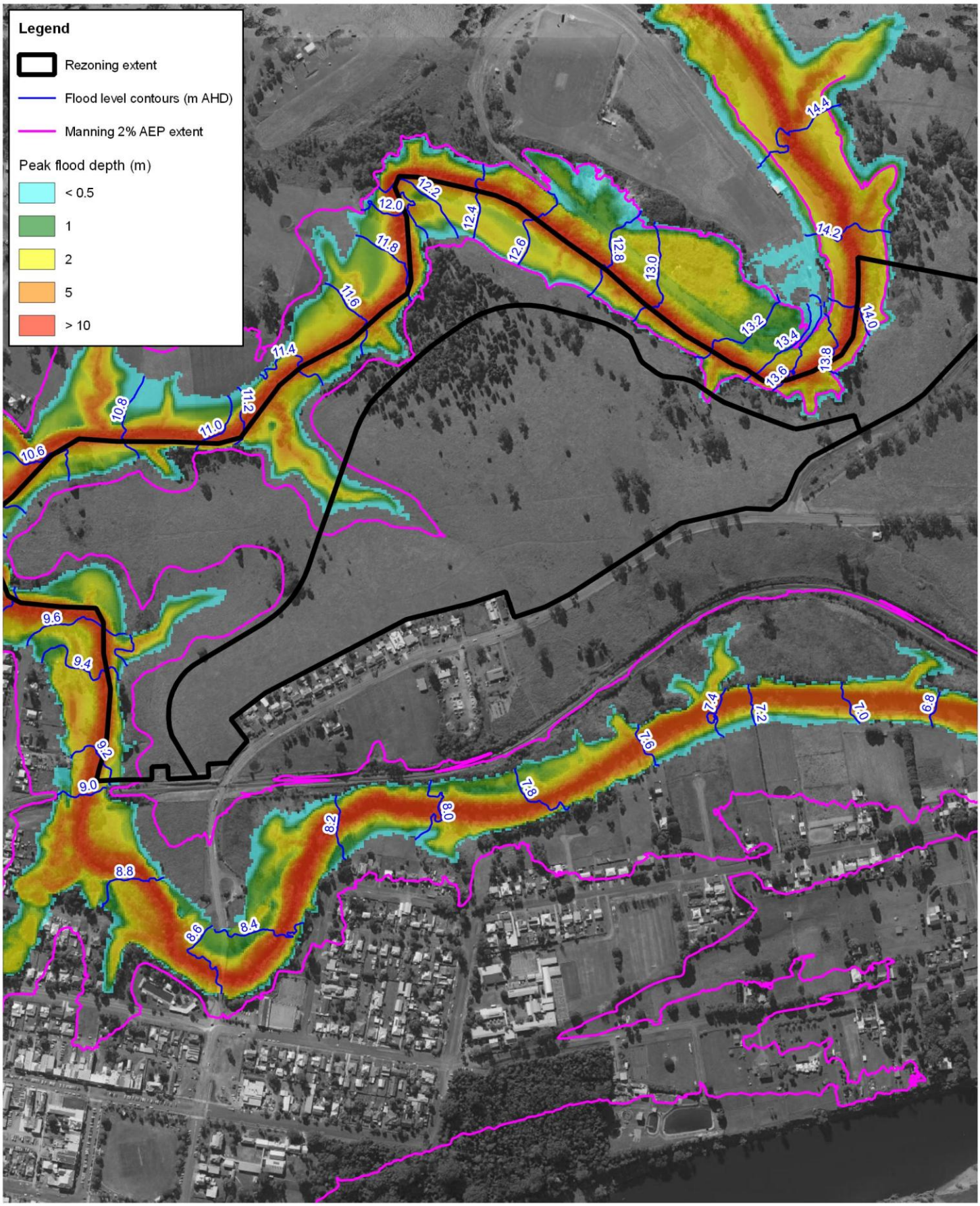
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Title:

Cedar Party Creek 2% AEP Event Existing Flood Conditions

0 200 400 m

approx. scale

Figure: **A-3**

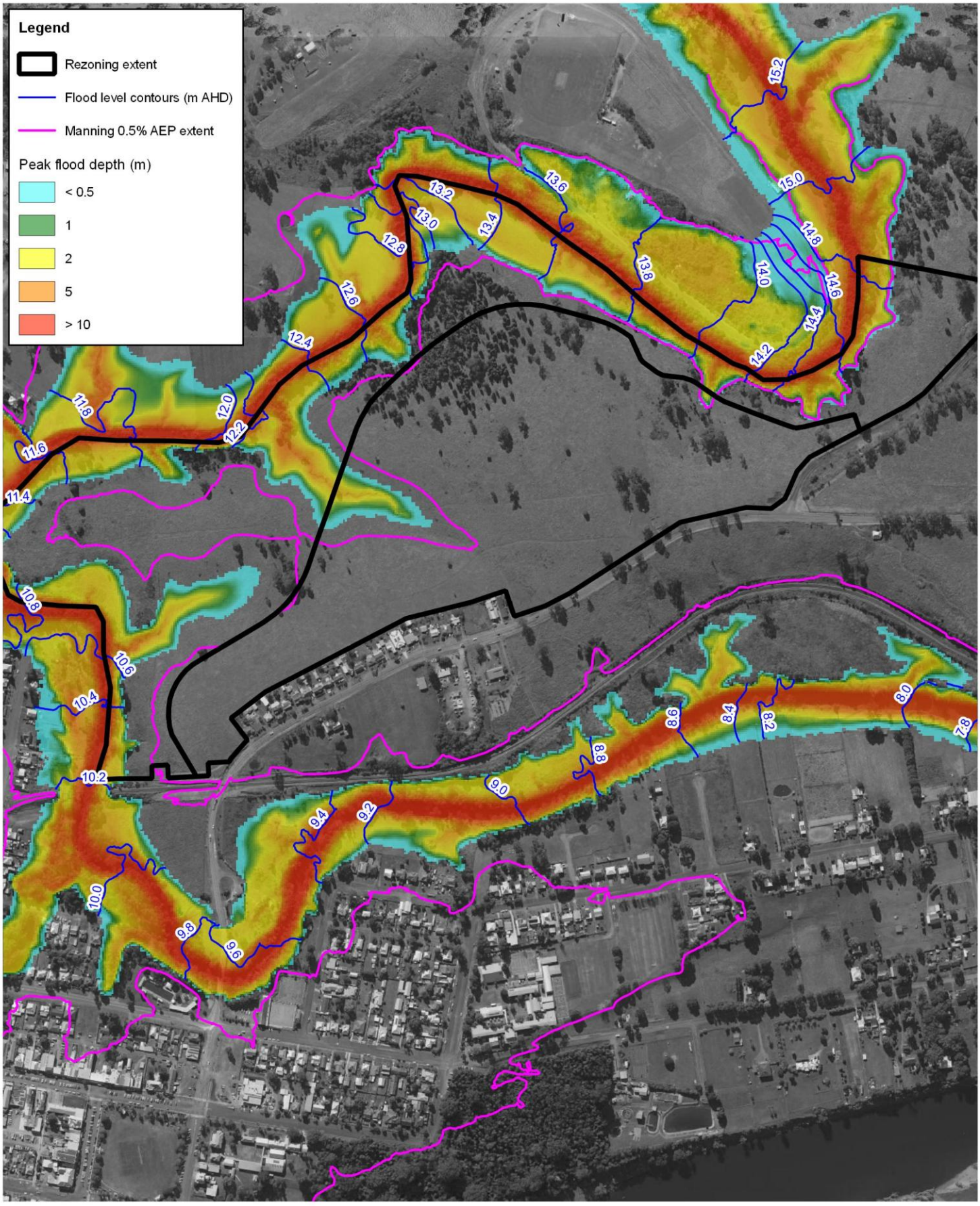
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Title:

Cedar Party Creek 0.5% AEP Event Existing Flood Conditions

0 200 400 m

approx. scale

Figure: **A-4**

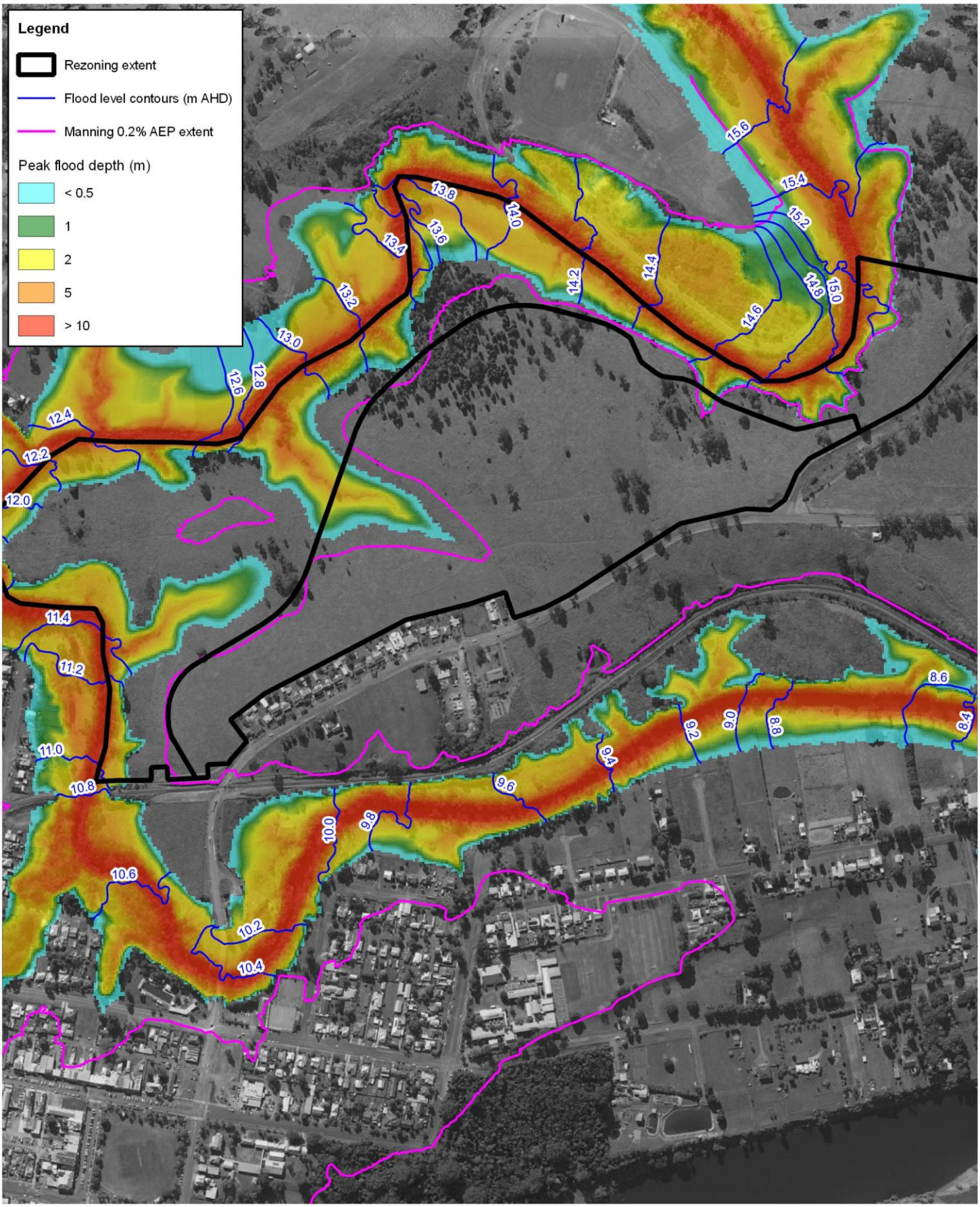
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Title:

Cedar Party Creek 0.2% AEP Event Existing Flood Conditions

0 200 400 m

approx. scale

Figure: **A-5**

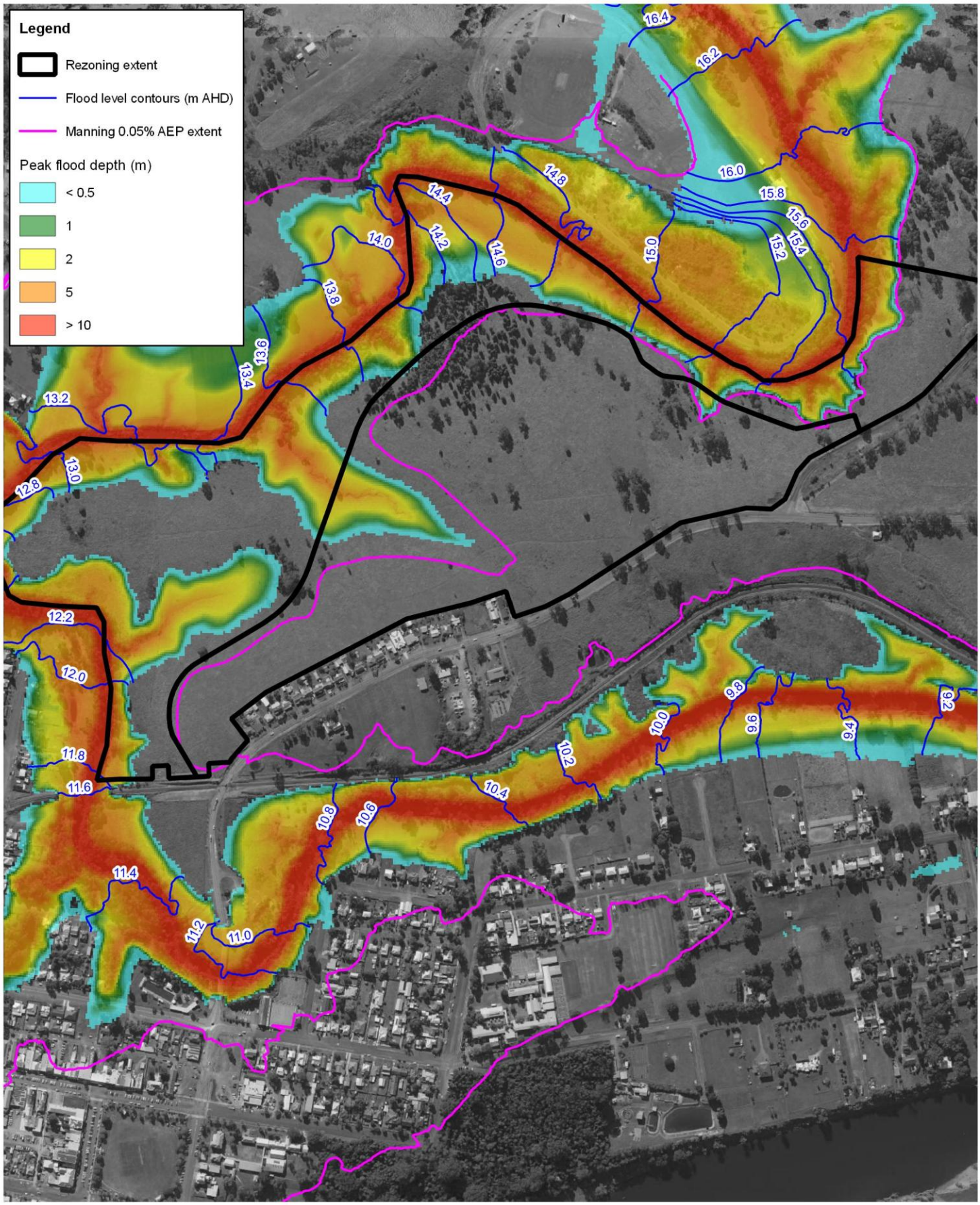
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Title:

Cedar Party Creek 0.05% AEP Event Existing Flood Conditions

0 200 400 m

approx. scale

Figure: **A-6**

Revision: **B**

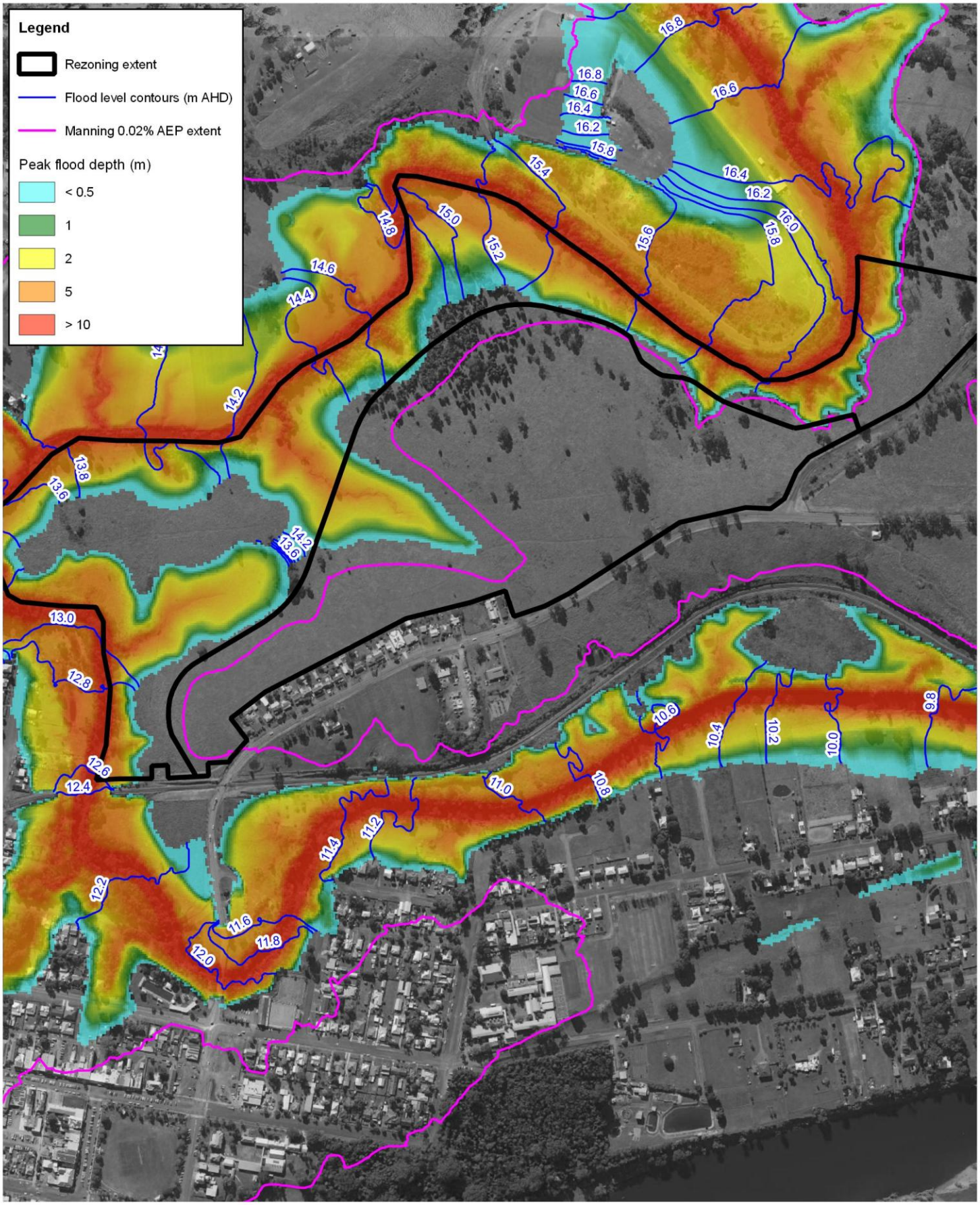
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Title:

Cedar Party Creek 0.02% AEP Event Existing Flood Conditions

0 200 400 m

approx. scale

Figure: **A-7**

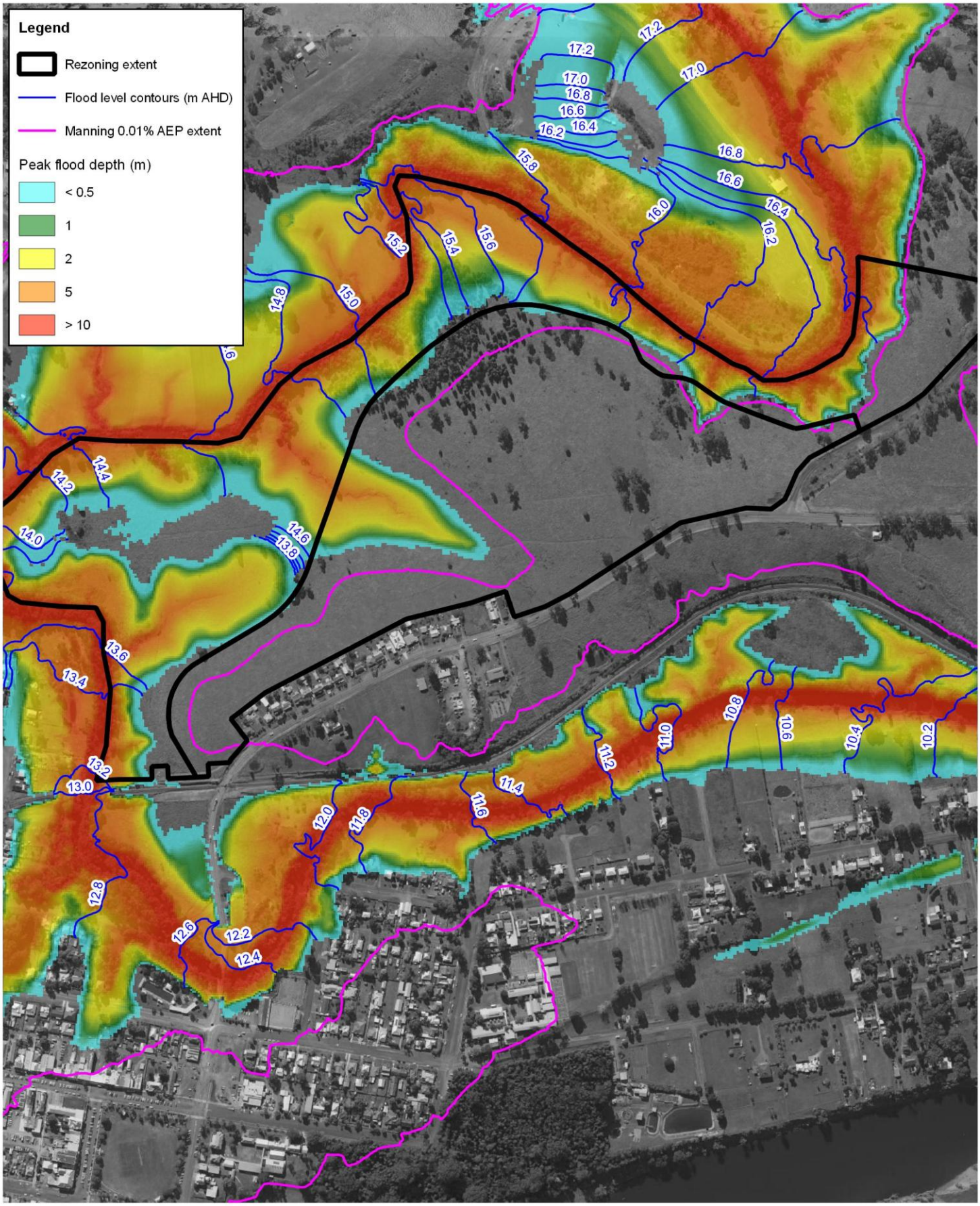
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Title:

Cedar Party Creek 0.01% AEP Event Existing Flood Conditions

0 200 400 m

approx. scale

Figure: **A-8**

Revision: **A**

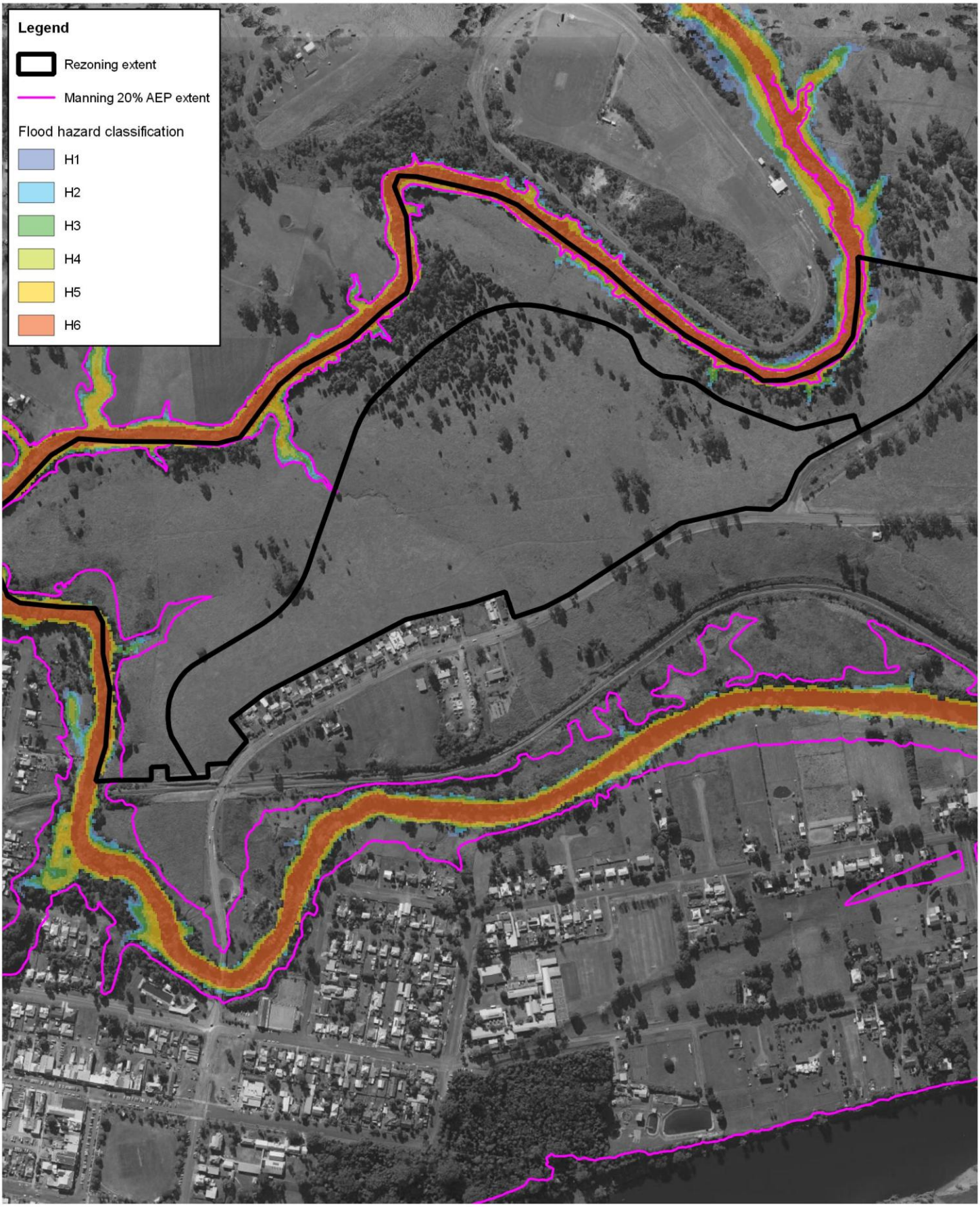
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Title:

Cedar Party Creek 20% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-9**

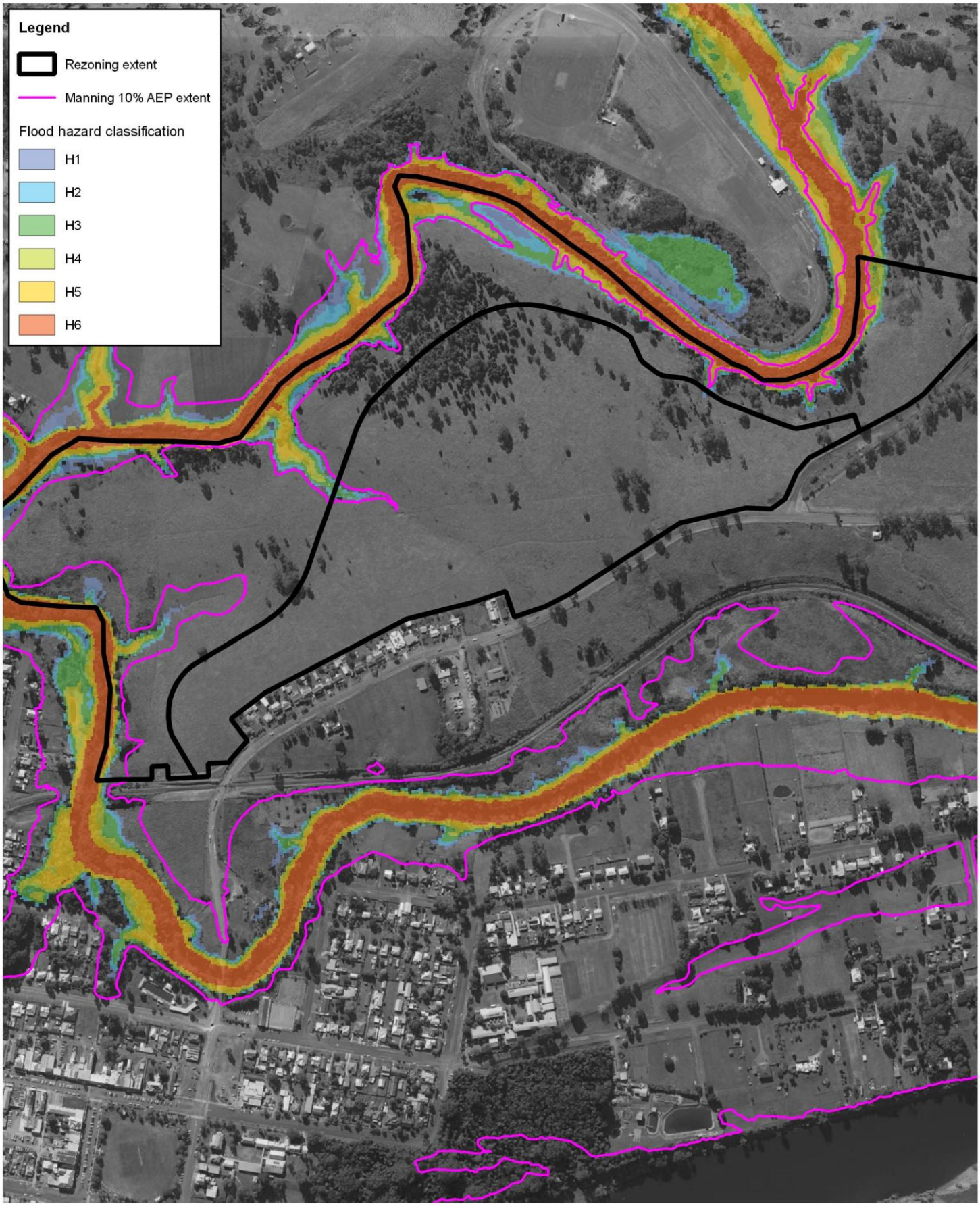
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Title:

Cedar Party Creek 10% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-10**

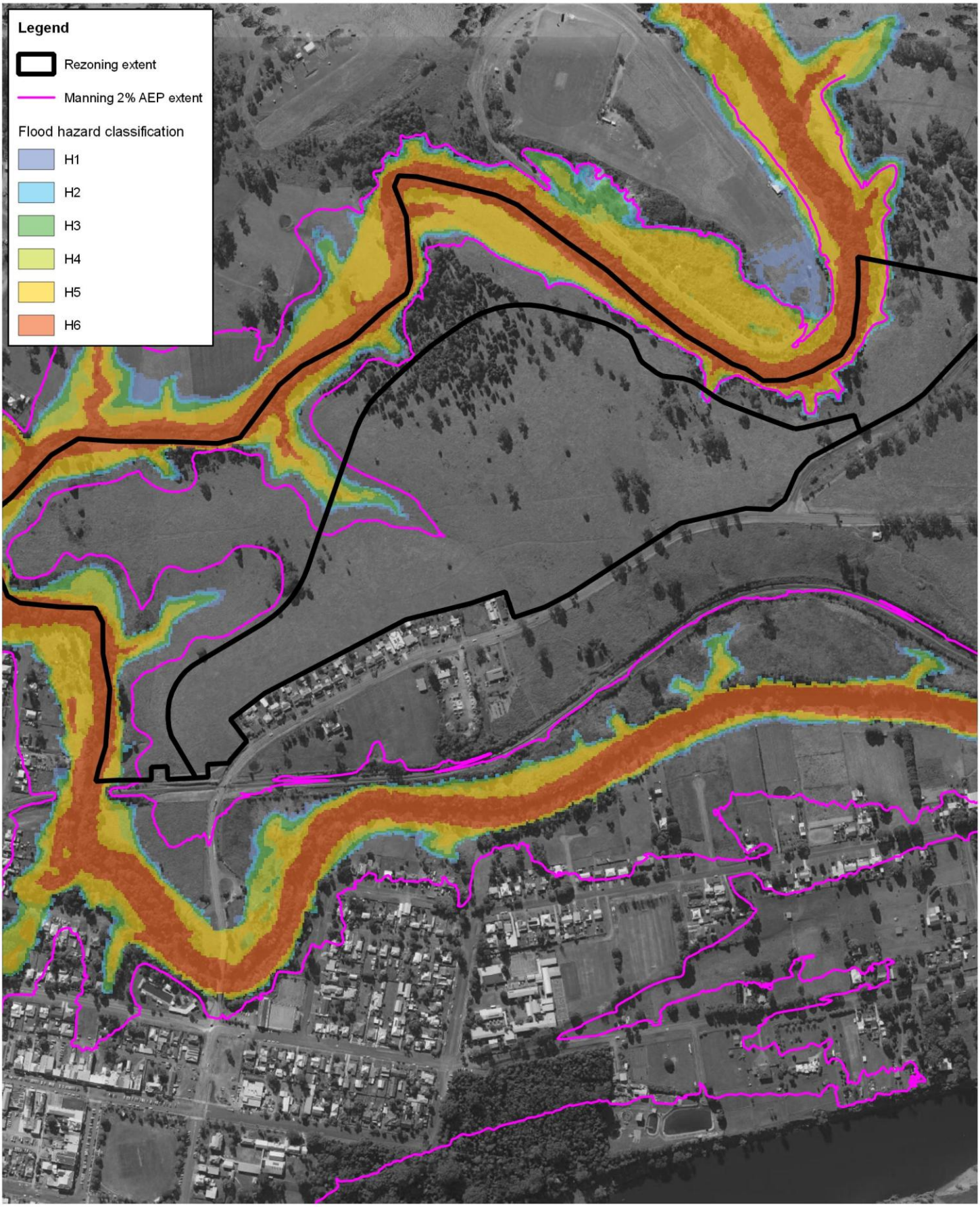
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Title:

Cedar Party Creek 2% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-11**

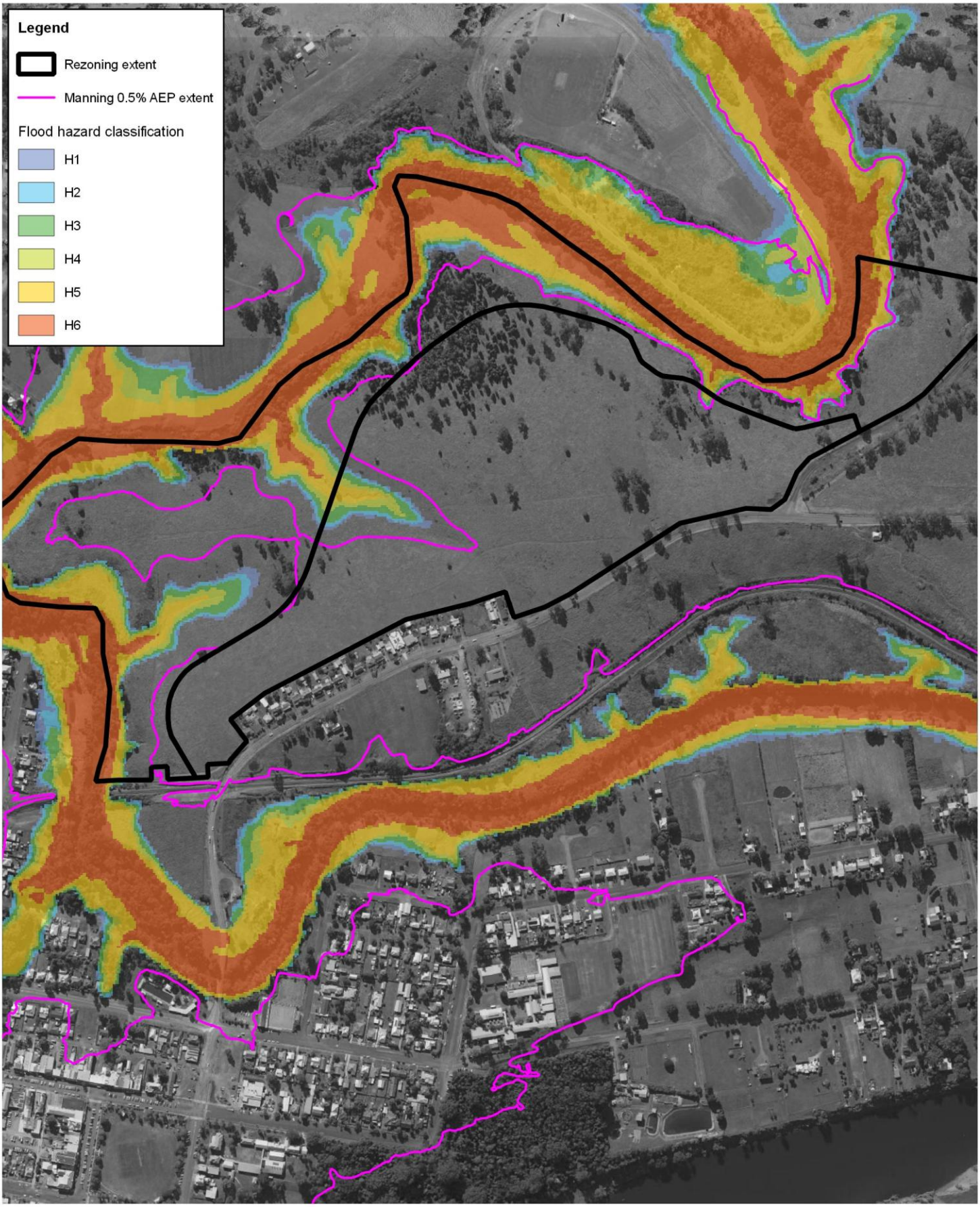
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Title:

Cedar Party Creek 0.5% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-12**

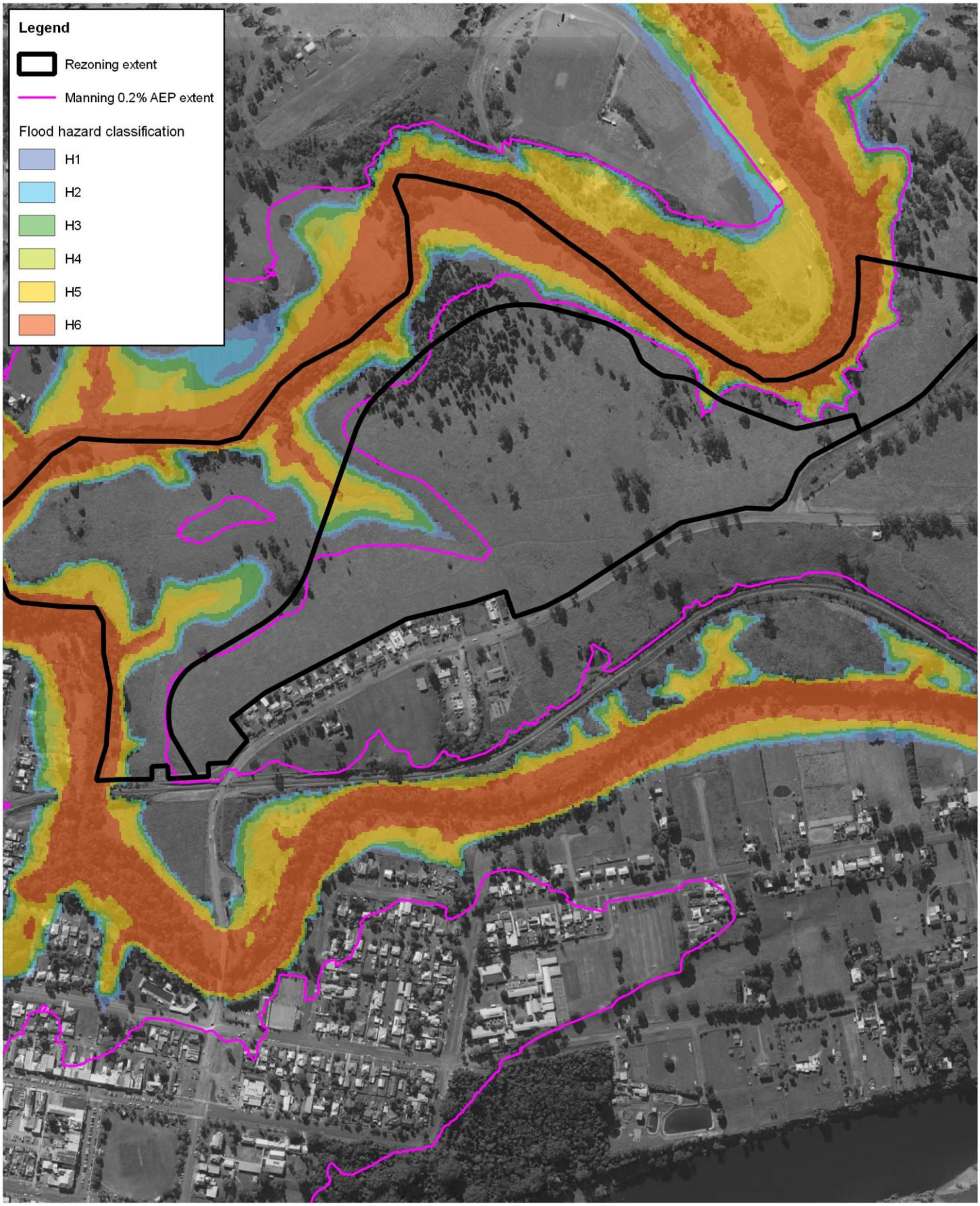
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Title:

Cedar Party Creek 0.2% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-13**

Revision: **B**

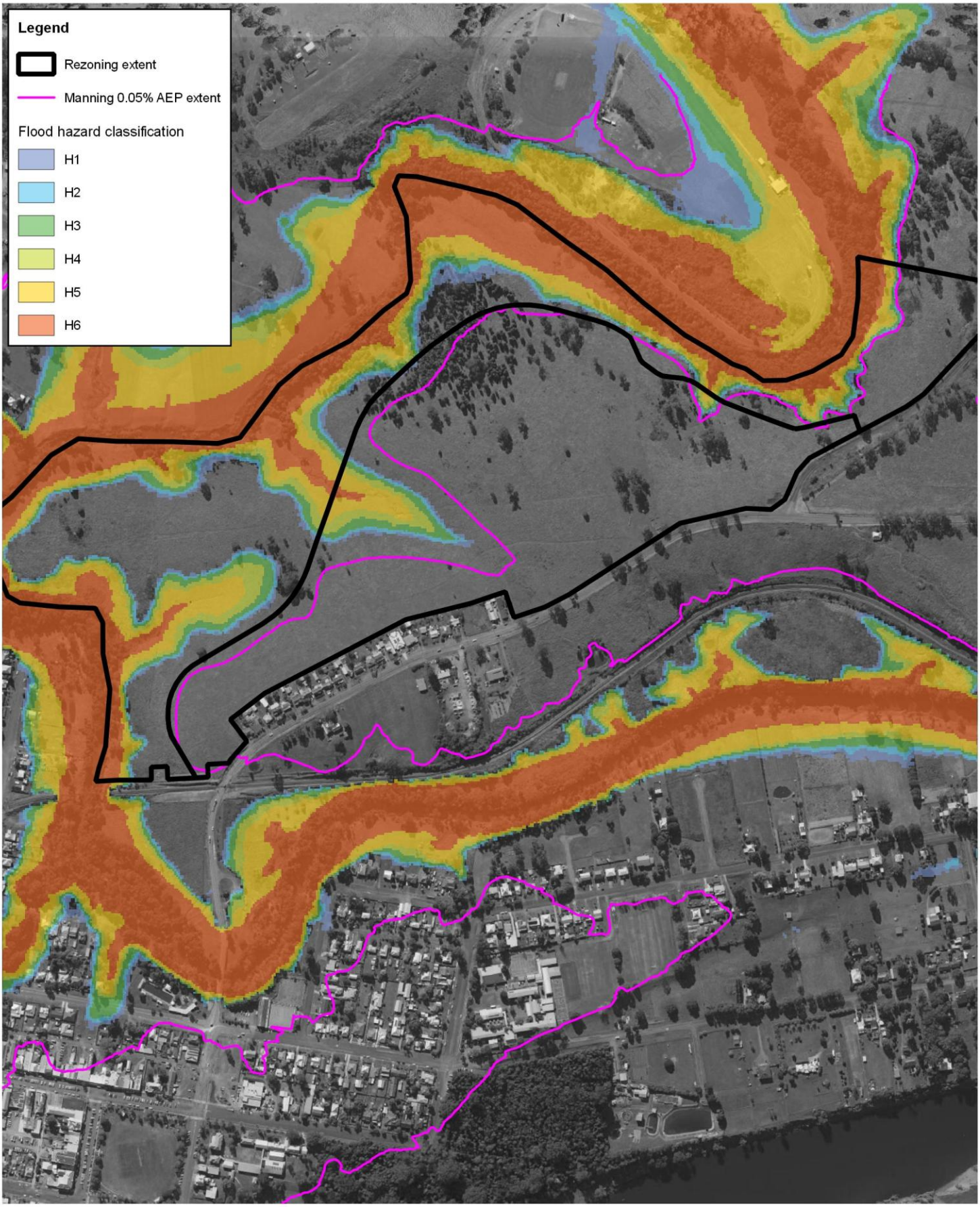
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Title:

Cedar Party Creek 0.05% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-14**

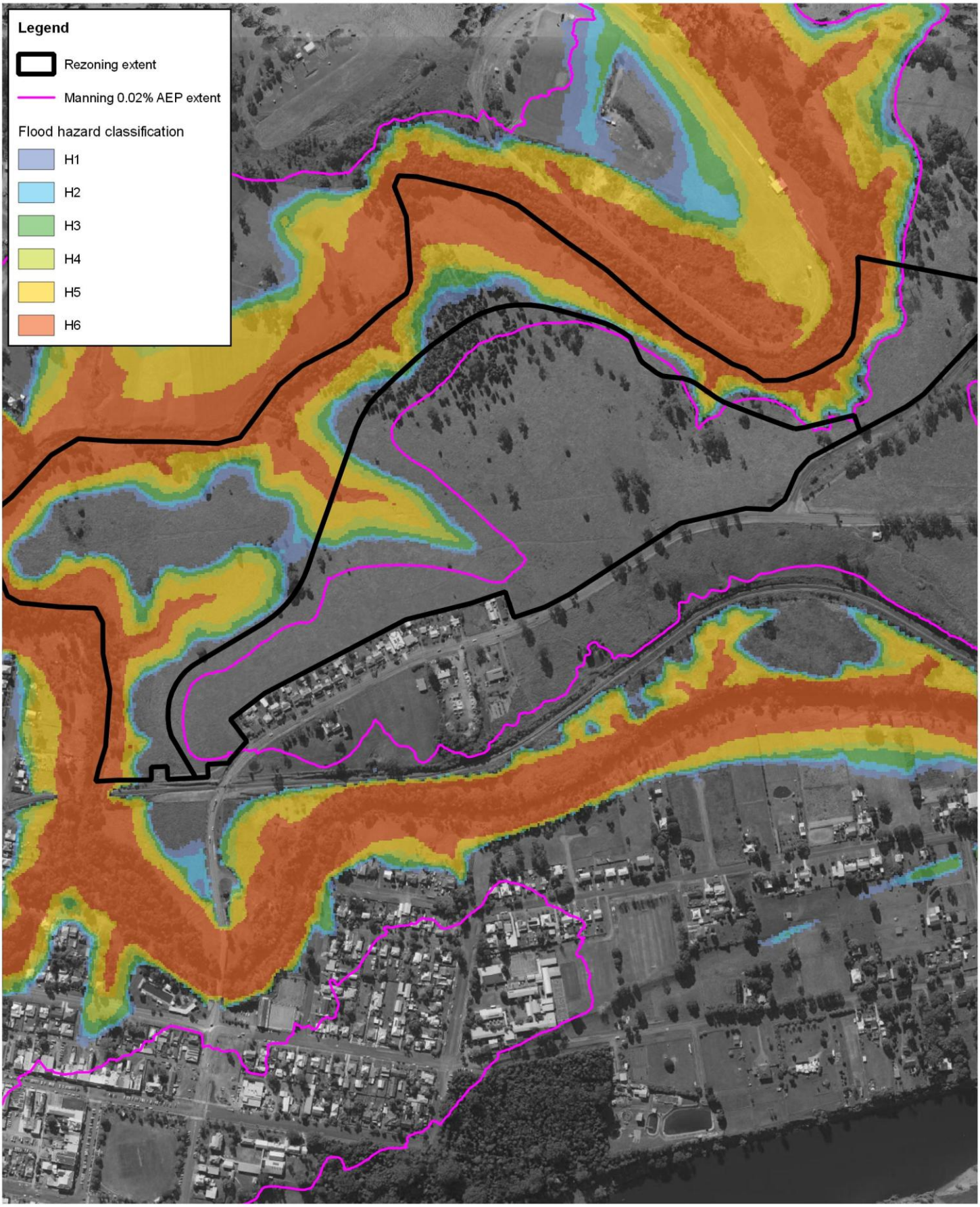
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Title:

Cedar Party Creek 0.02% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-15**

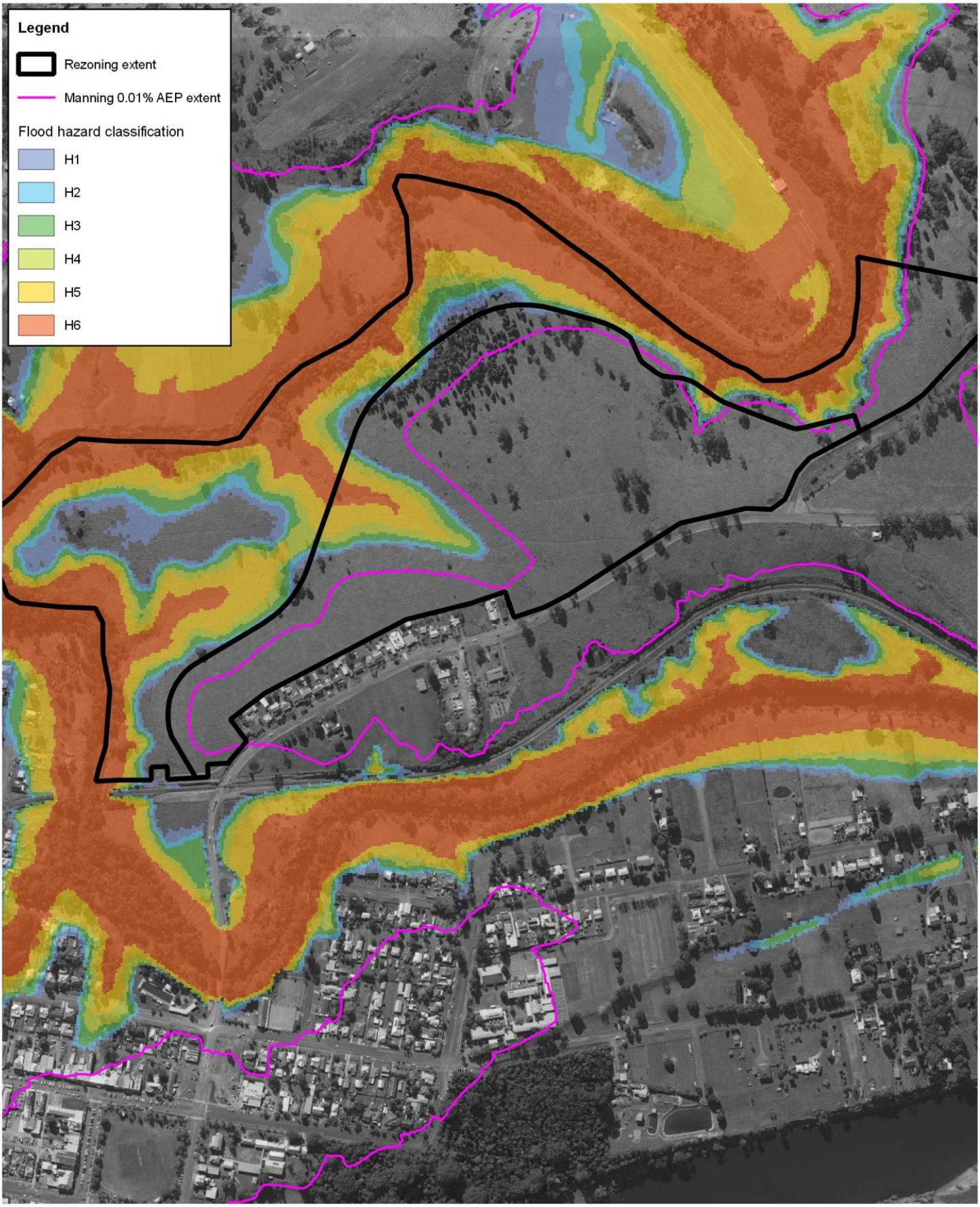
Revision: **A**

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Filepath: Z:\Projects\T2394_Wingham_Rd\GIS\T2394_074_240416_5000y_hazard.qgz



Title:

Cedar Party Creek 0.01% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-16**

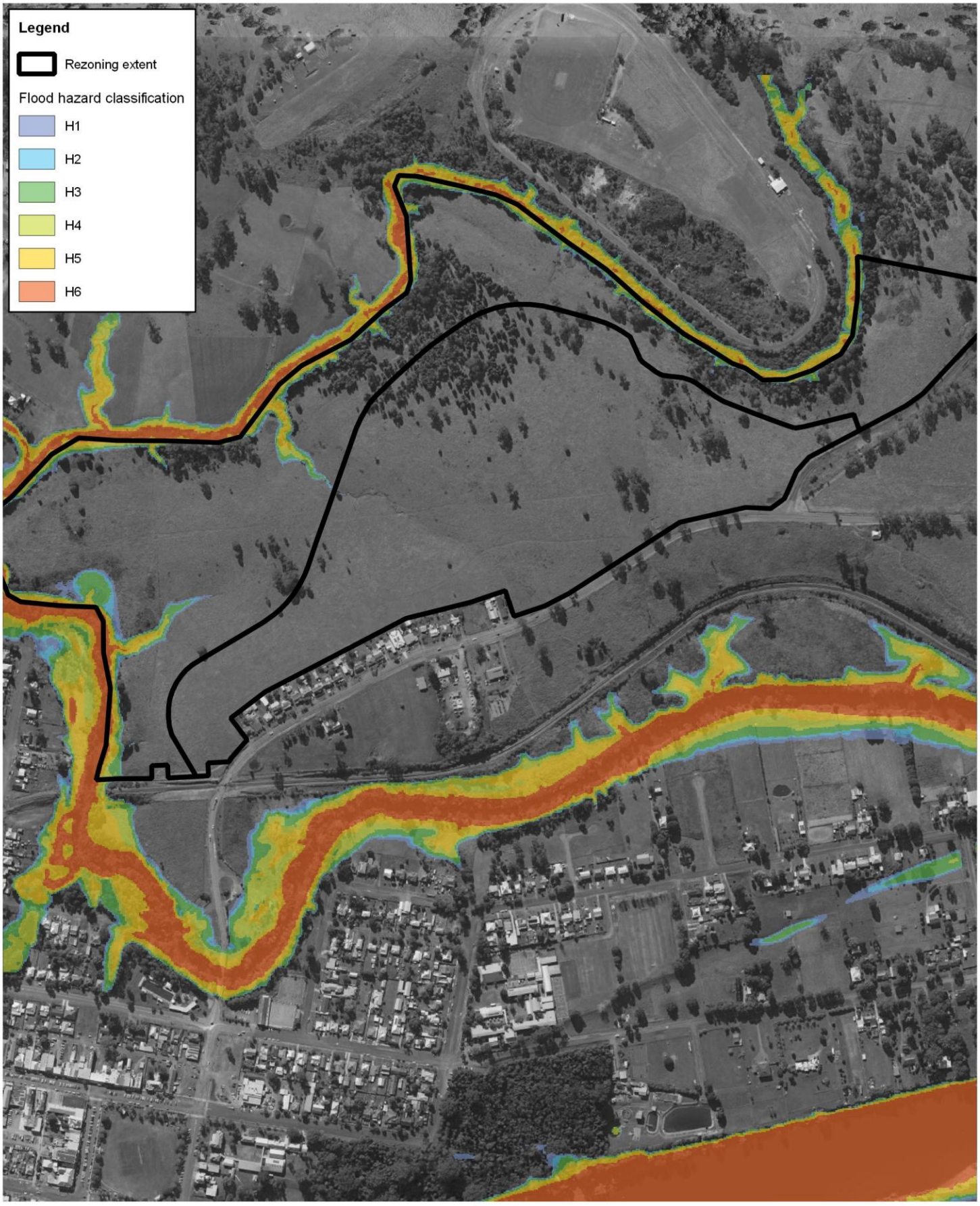
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Title:

Manning River 20% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-17**

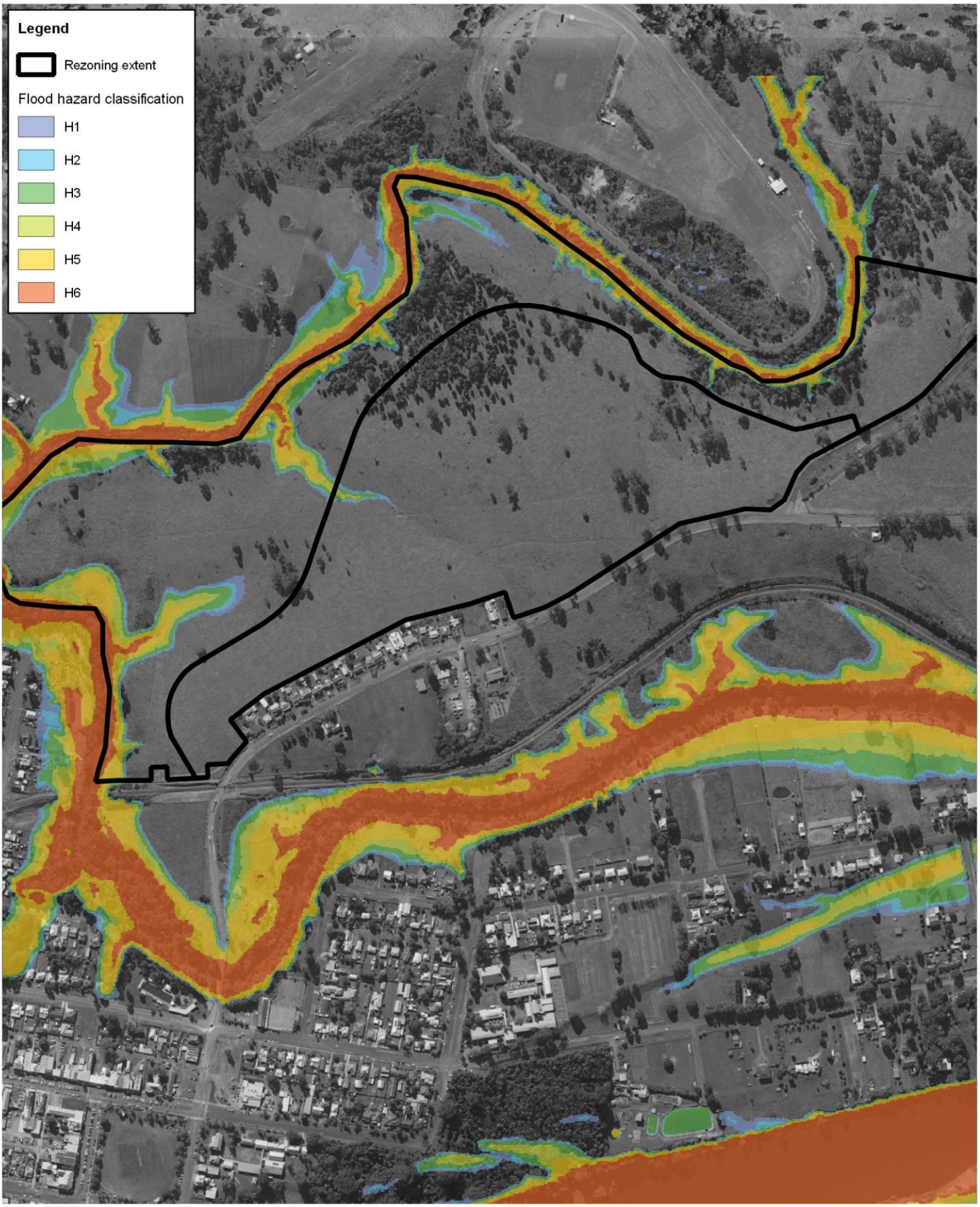
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Title:

Manning River 10% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-18**

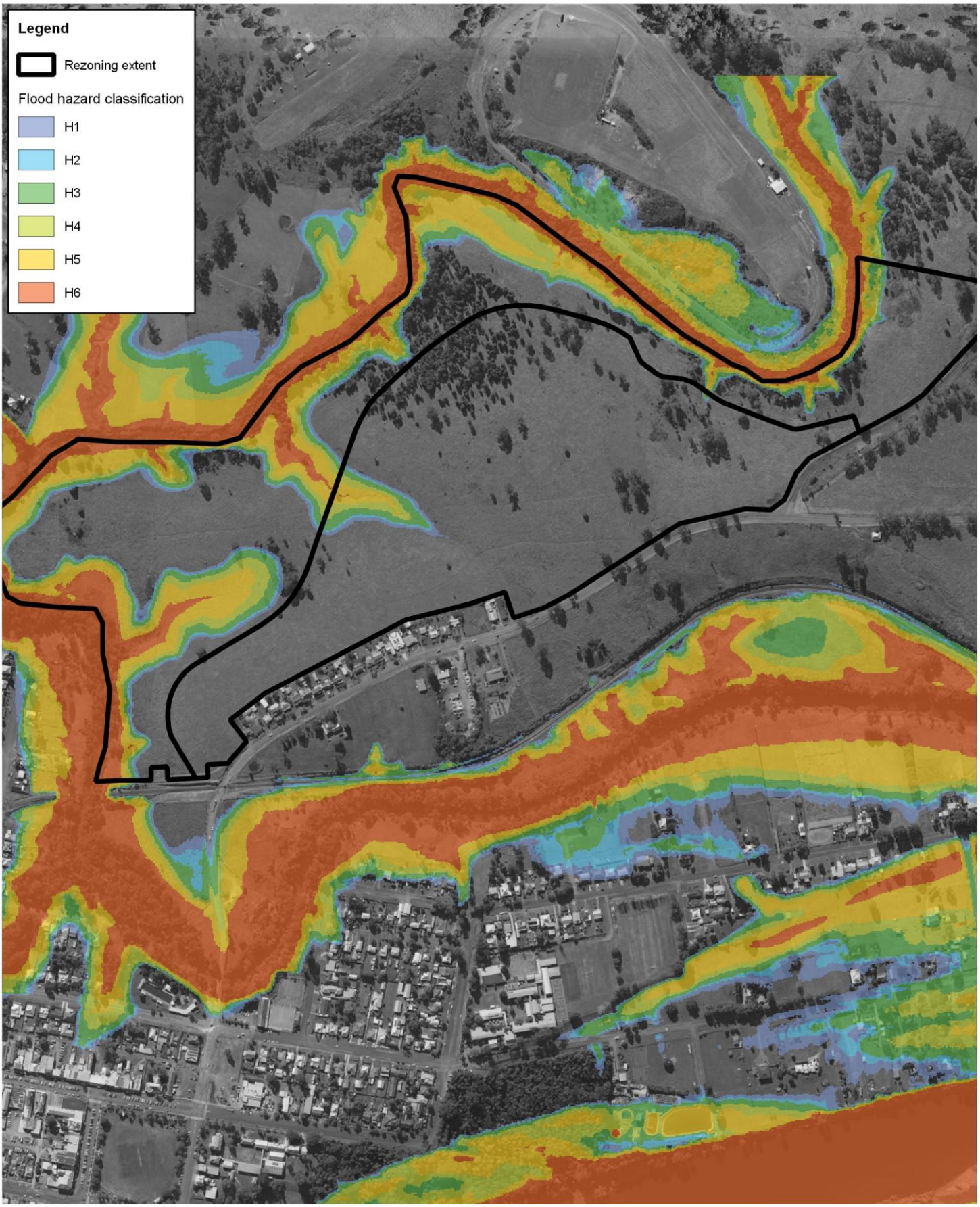
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Filepath: Z:\Projects\T2394_Wingham_Rd\GIS\T2394_066_250616_10y_hazard_mr.qgz



Title:

Manning River 2% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-19**

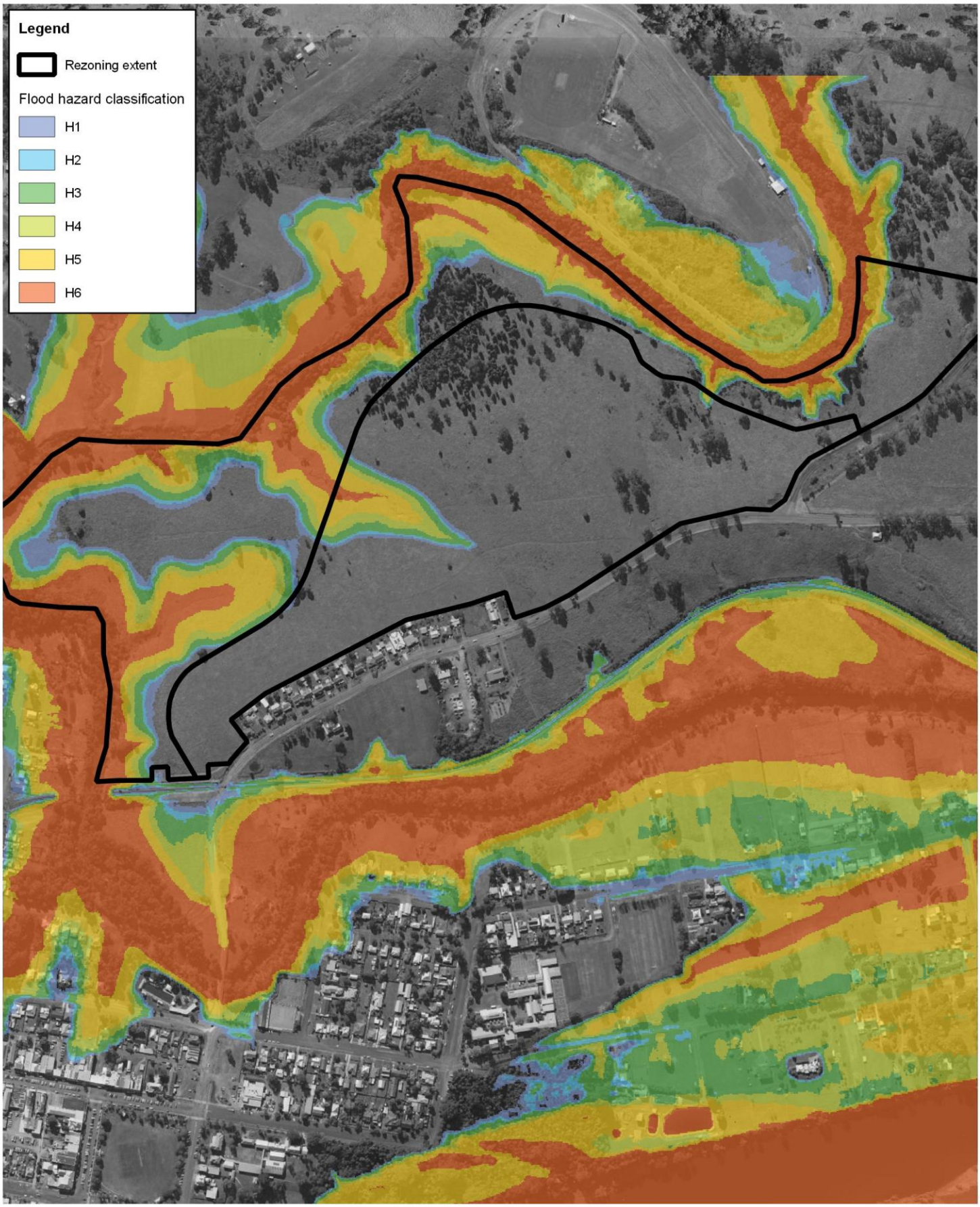
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Title:

Manning River 0.5% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-20**

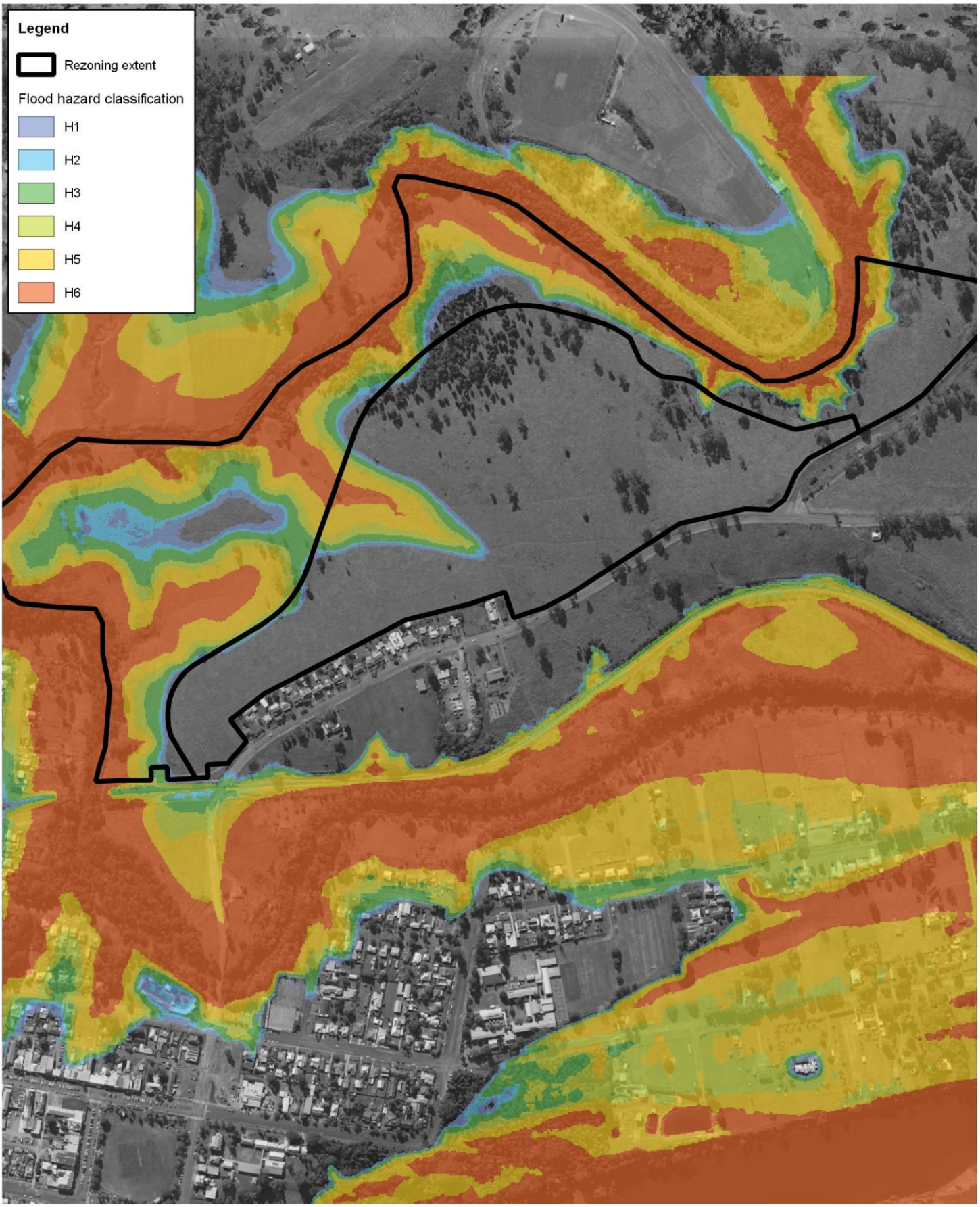
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Title:

Manning River 0.2% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-21**

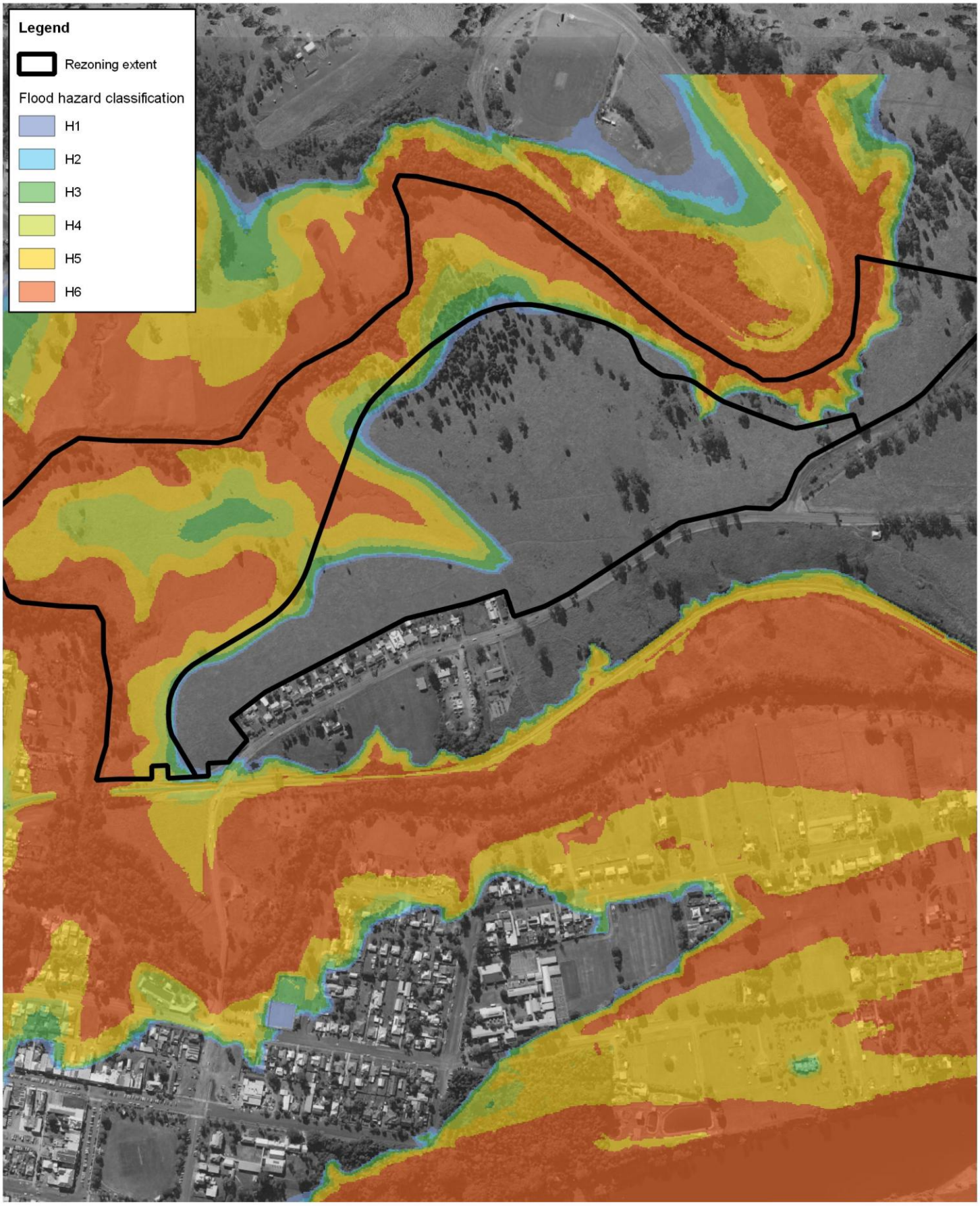
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Title:

Manning River 0.05% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-22**

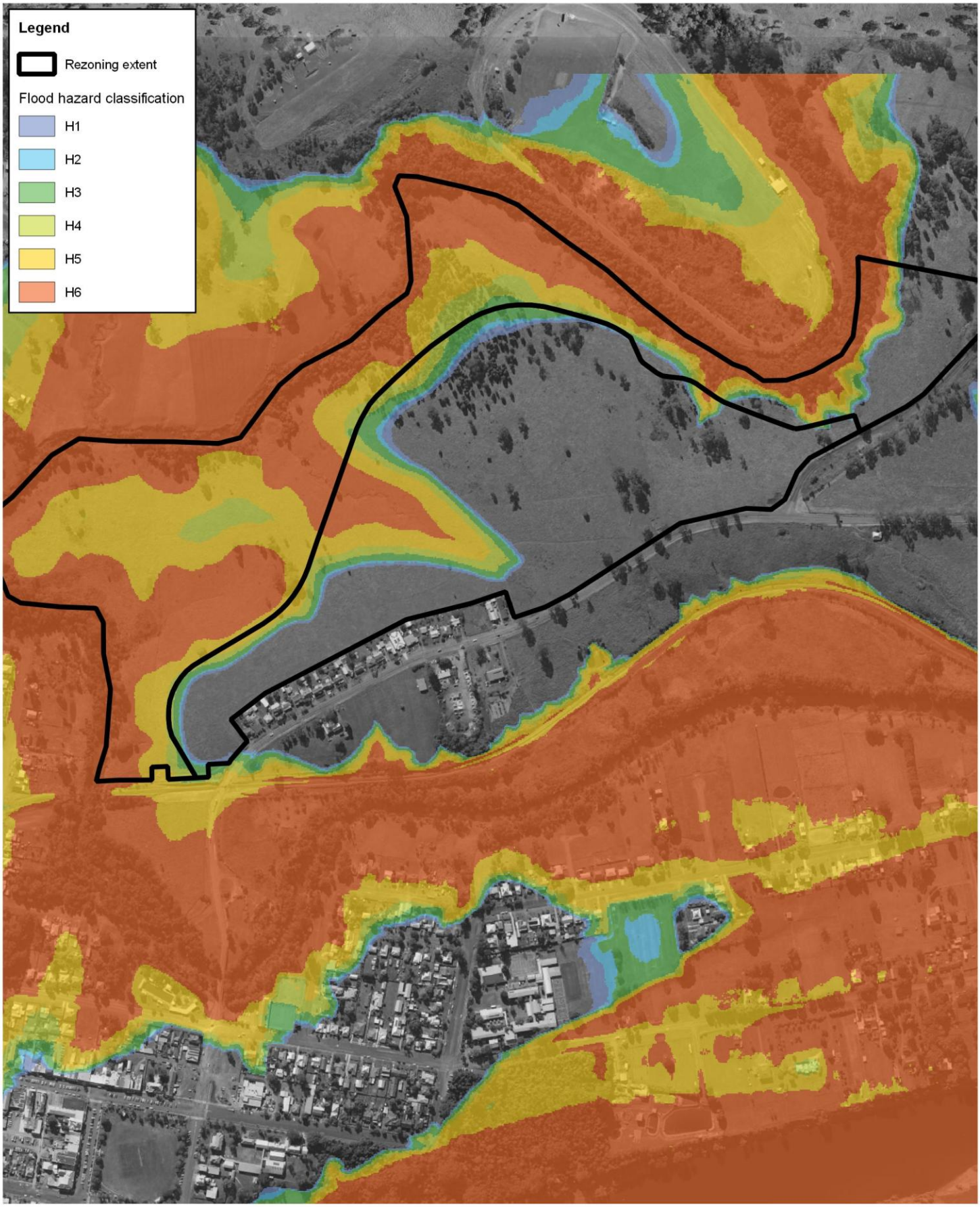
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Title:

Manning River 0.02% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-23**

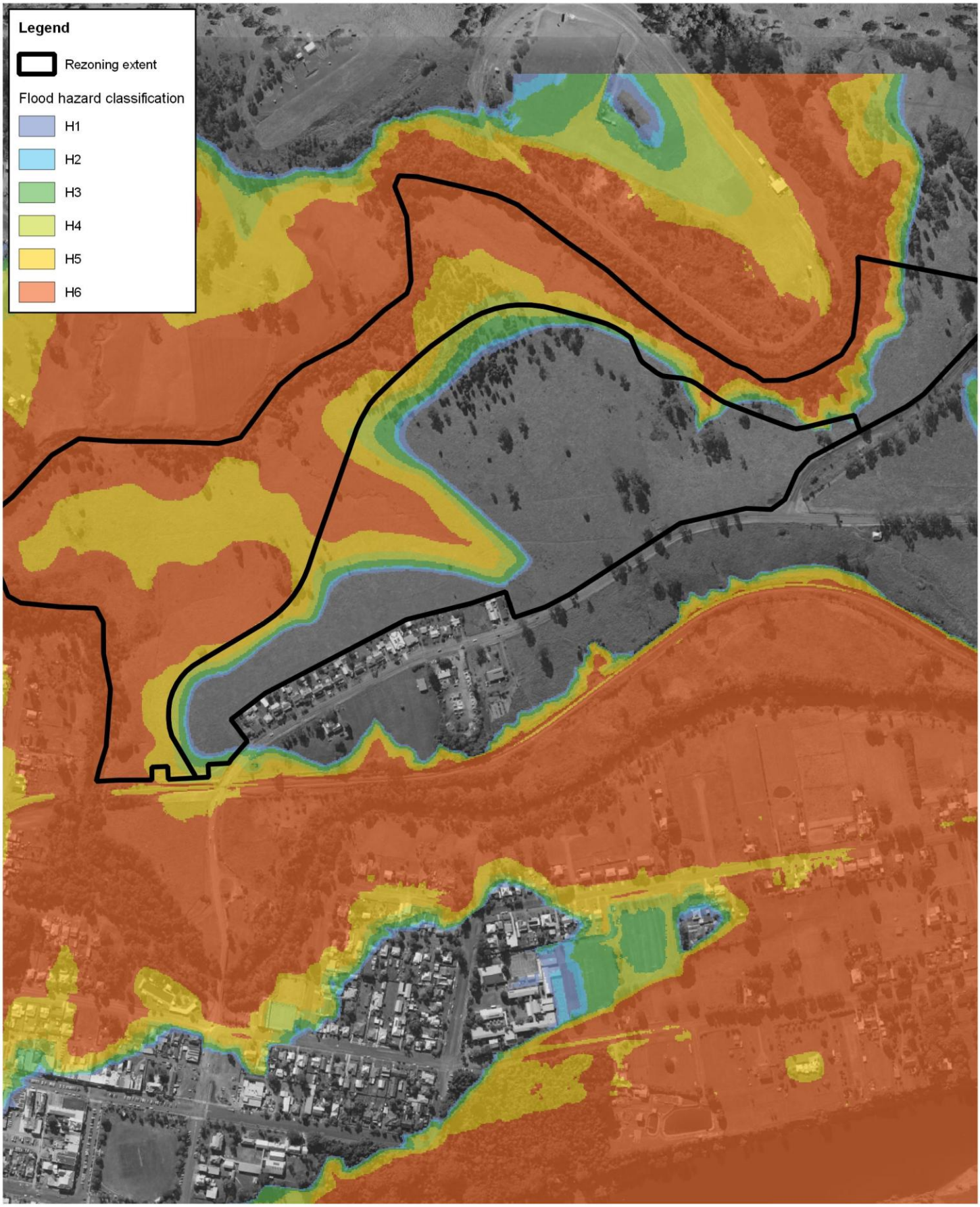
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Title:

Manning River 0.01% AEP Event Existing Flood Hazard

0 200 400 m

approx. scale

Figure: **A-24**

Revision: **A**

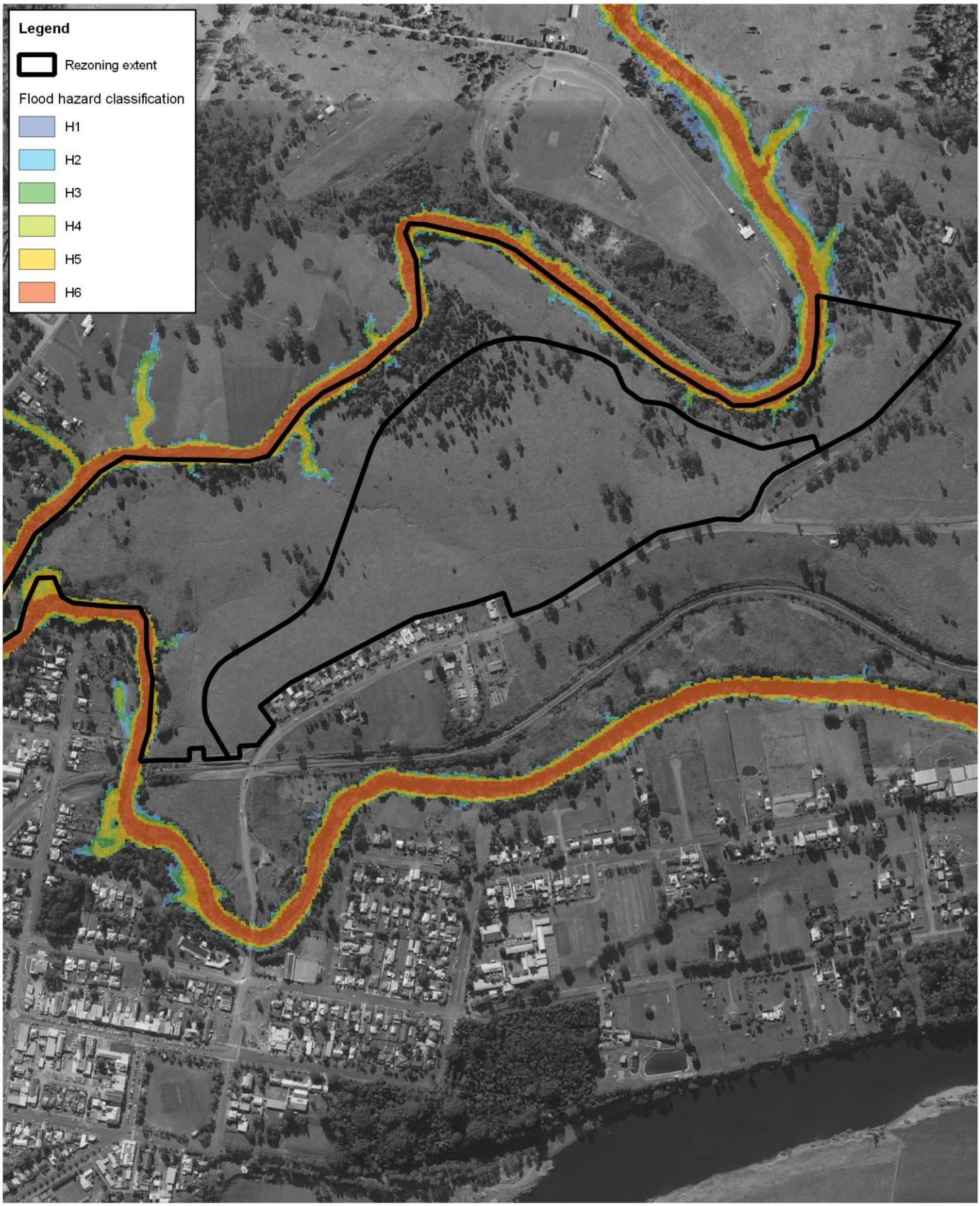
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Appendix B Post-Development Flood Mapping



Title:

Cedar Party Creek 20% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-1**

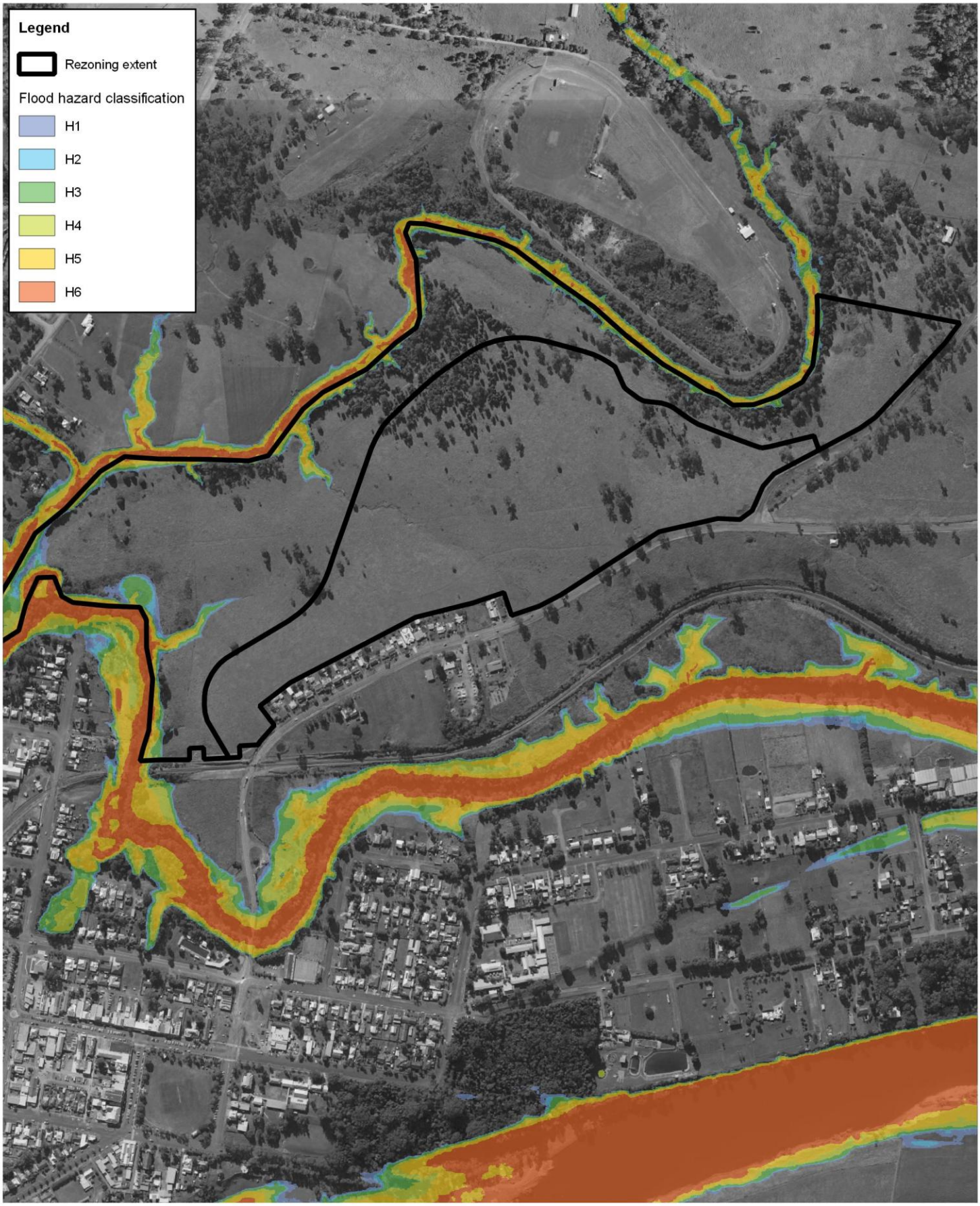
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Title:

Manning River 20% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-2**

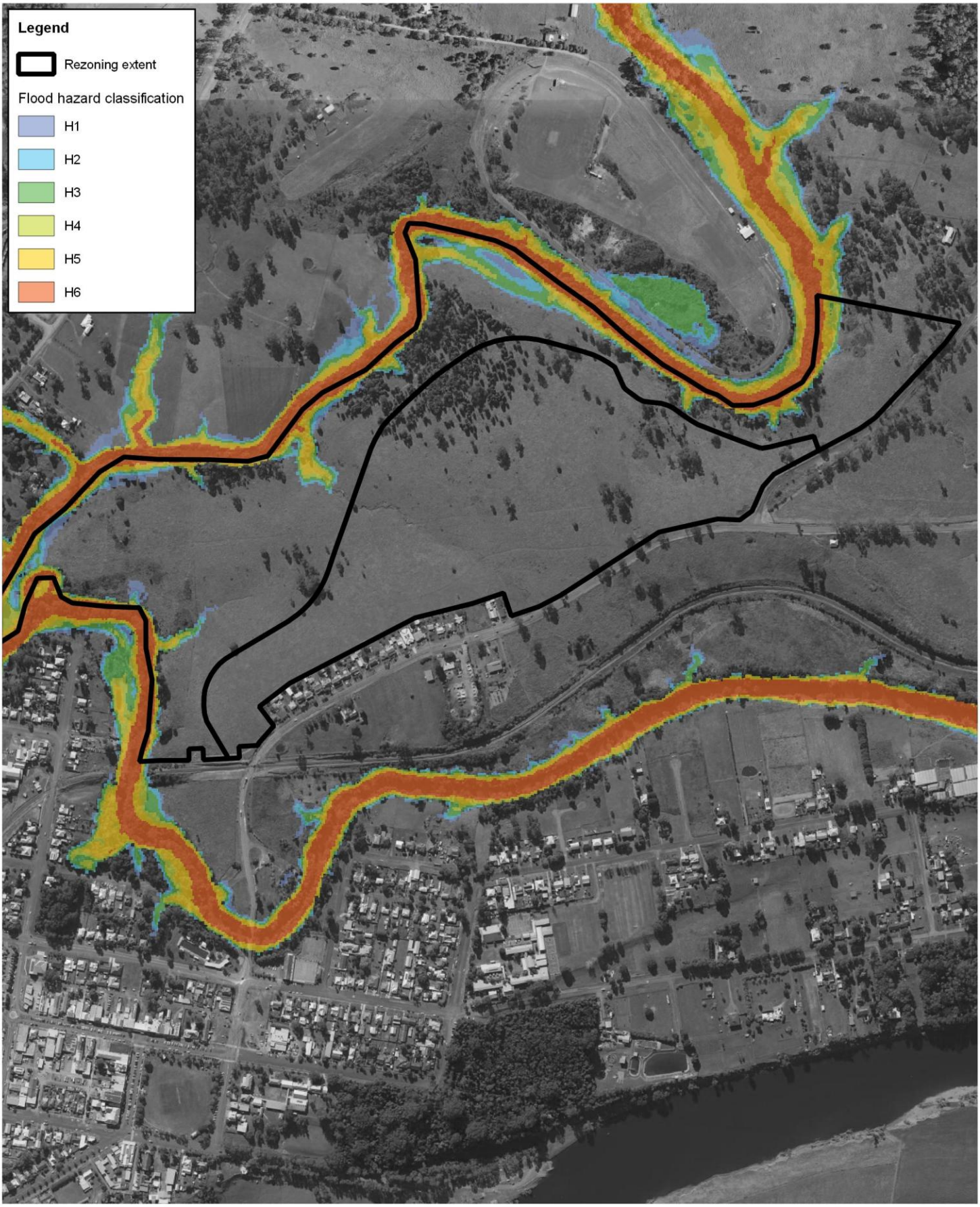
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Title:

Cedar Party Creek 10% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-3**

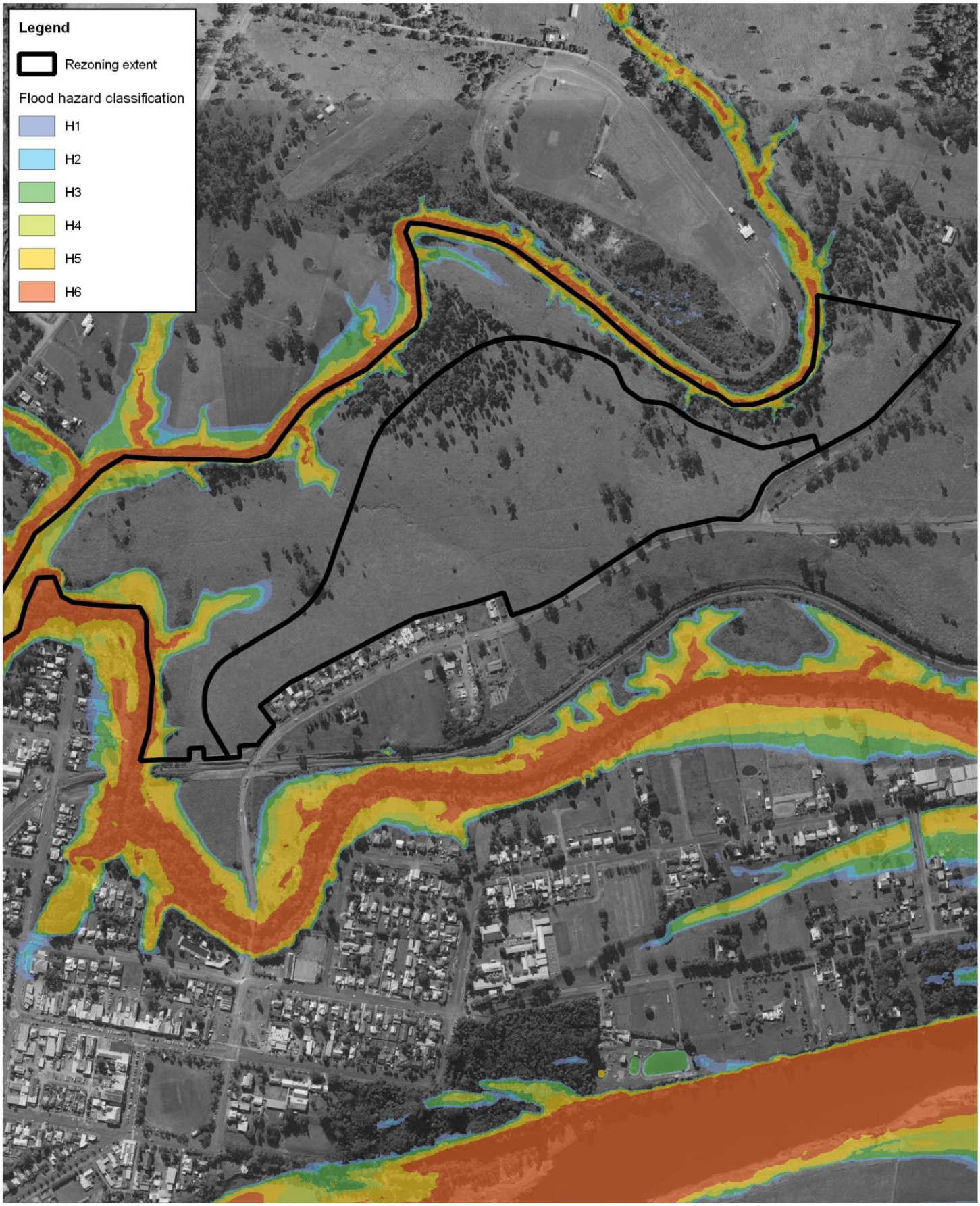
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Title:

Manning River 10% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-4**

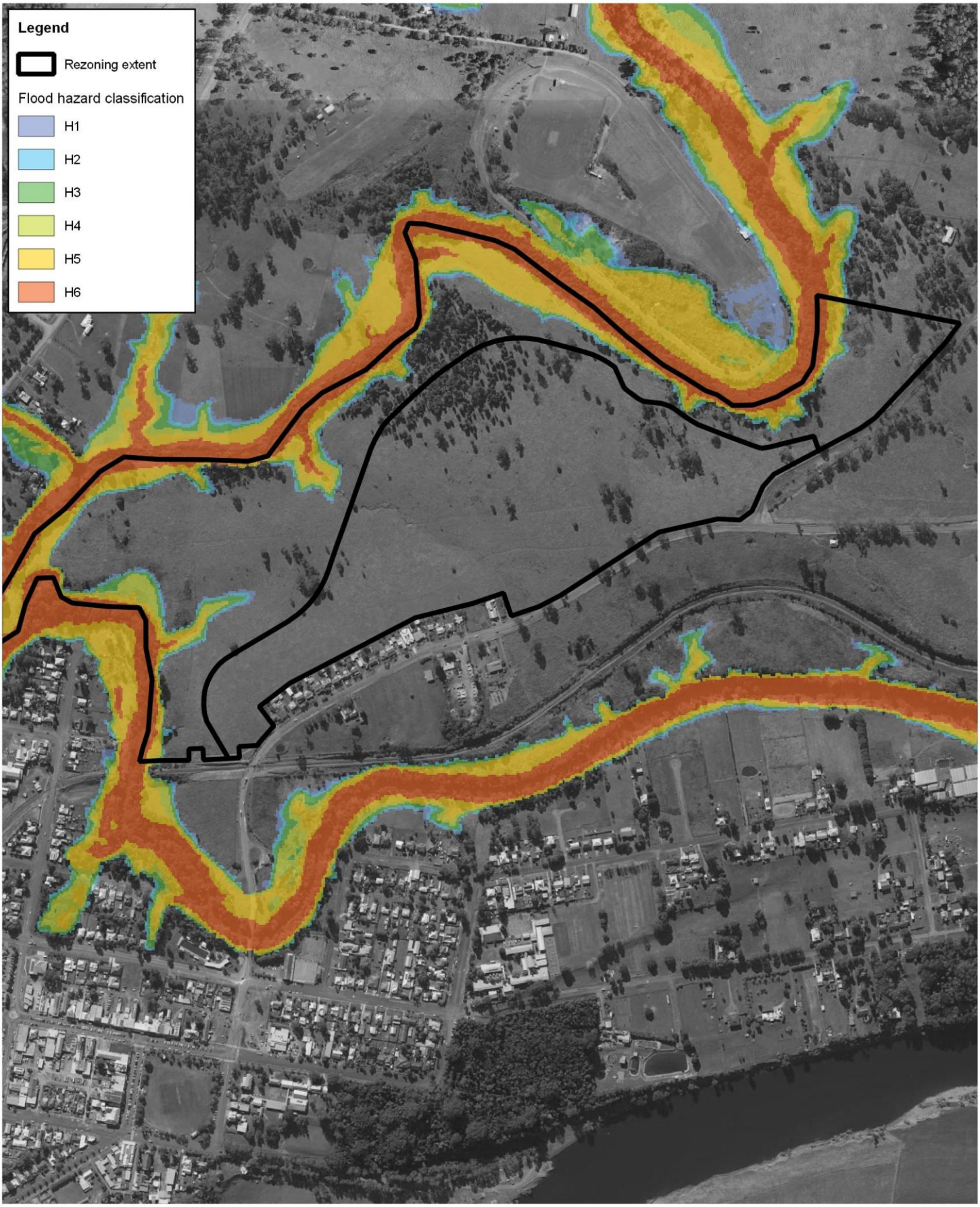
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Title:

Cedar Party Creek 2% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-5**

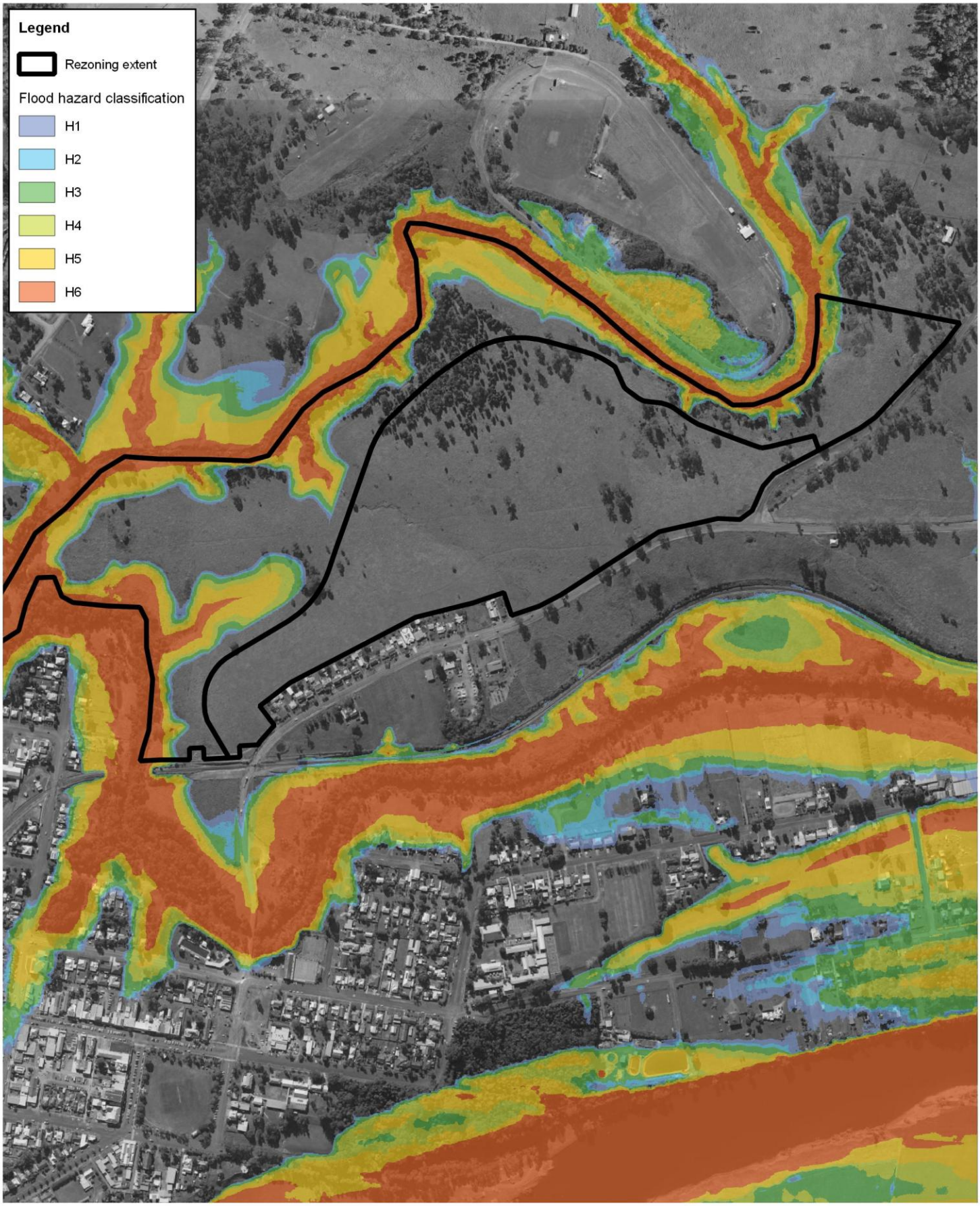
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Title:

Manning River 2% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-6**

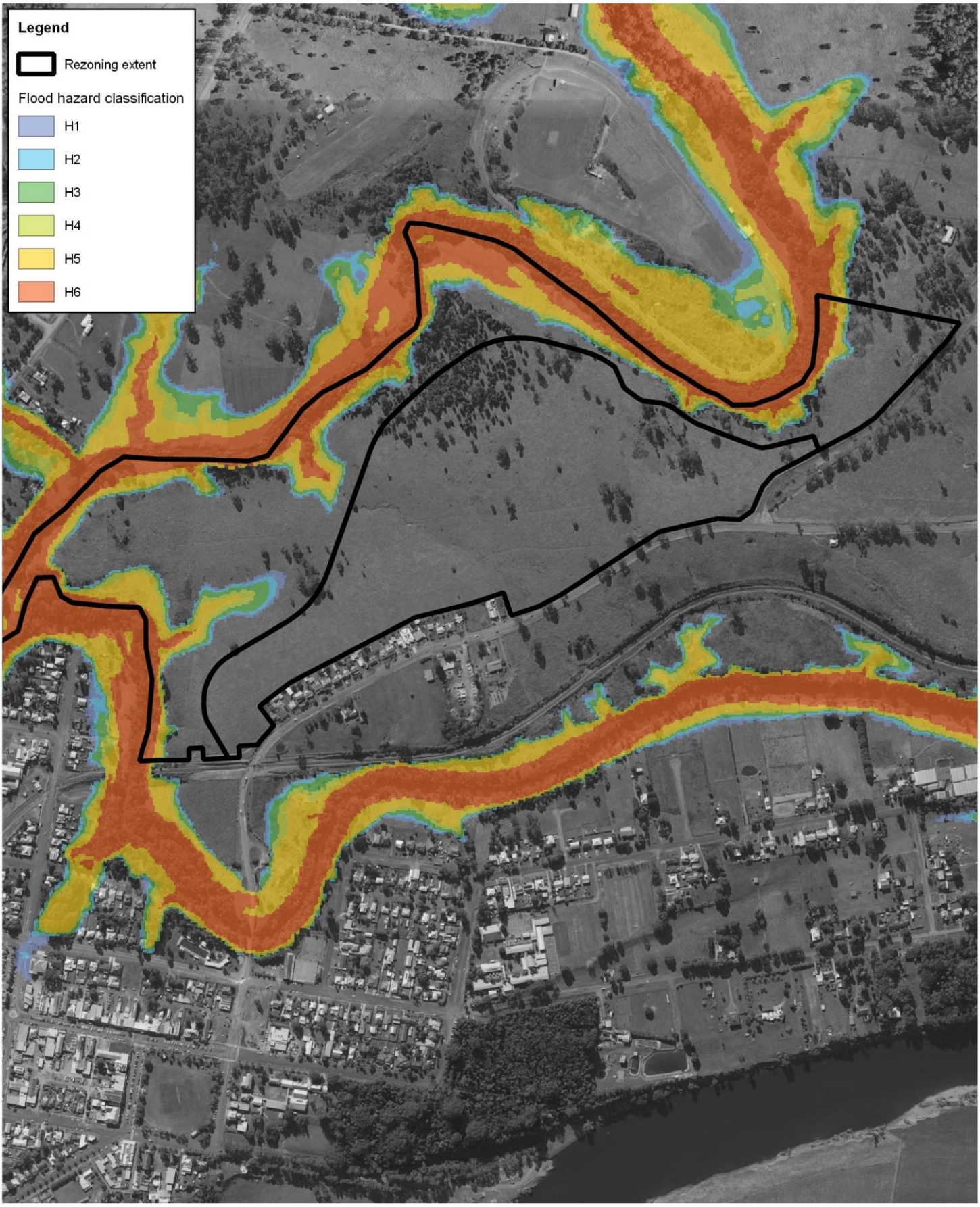
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Title:

Cedar Party Creek 0.5% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-7**

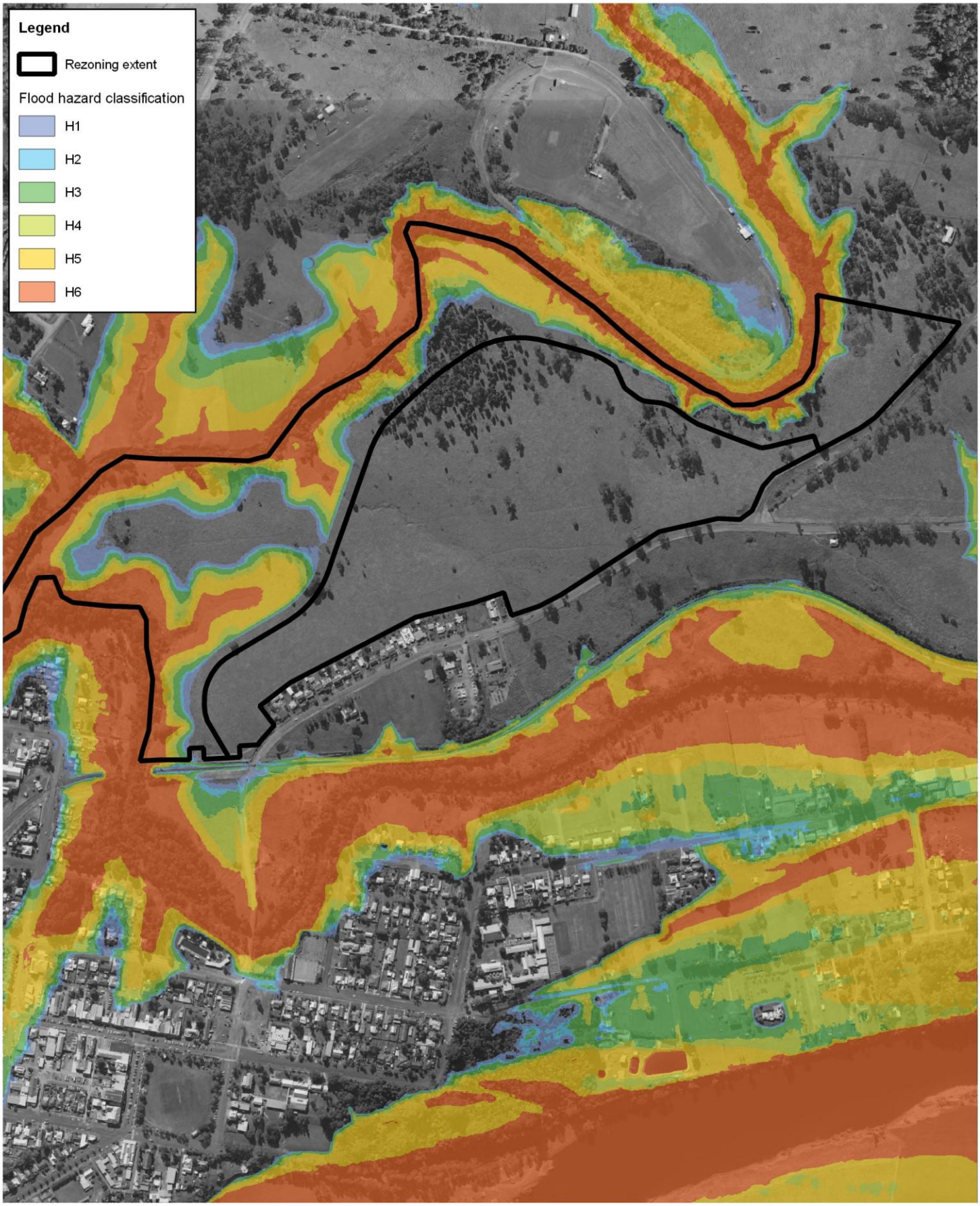
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Title:

Manning River 0.5% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-8**

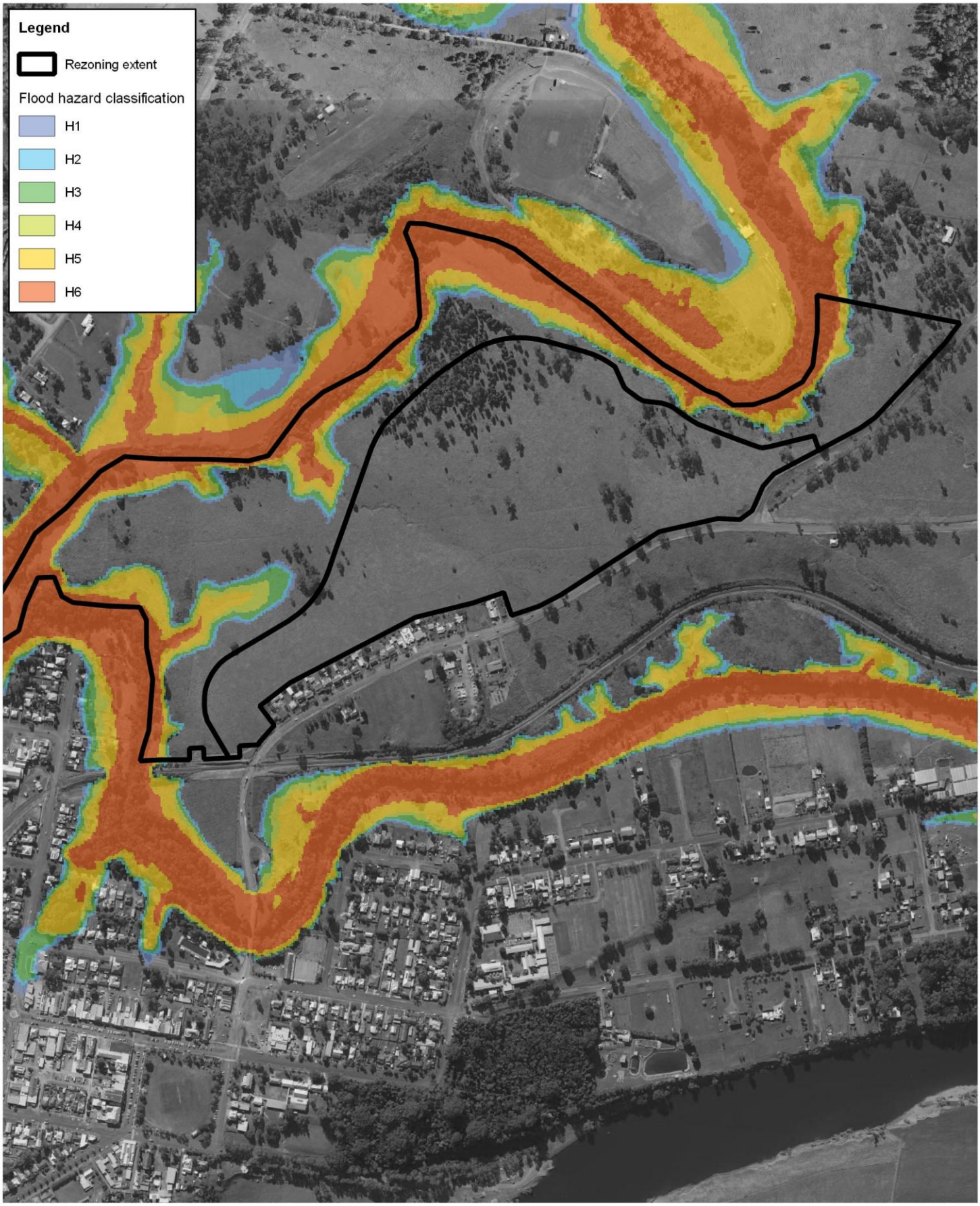
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Filepath: Z:\Projects\T2394_Wingham_Rd\GIS\T2394_045_240416_MR_200y_haz_dev.qgz



Title:

Cedar Party Creek 0.2% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-9**

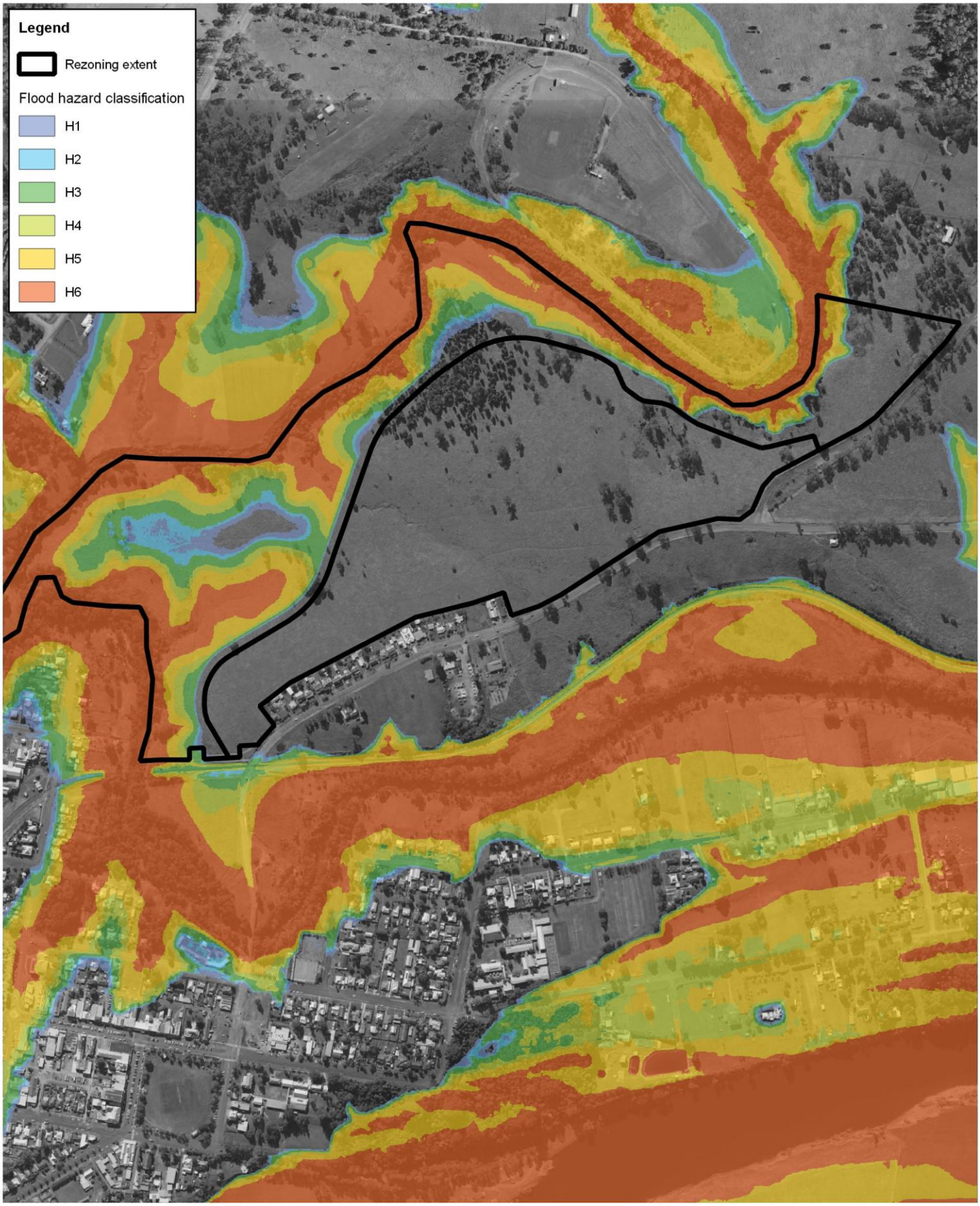
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Title:

Manning River 0.2% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-10**

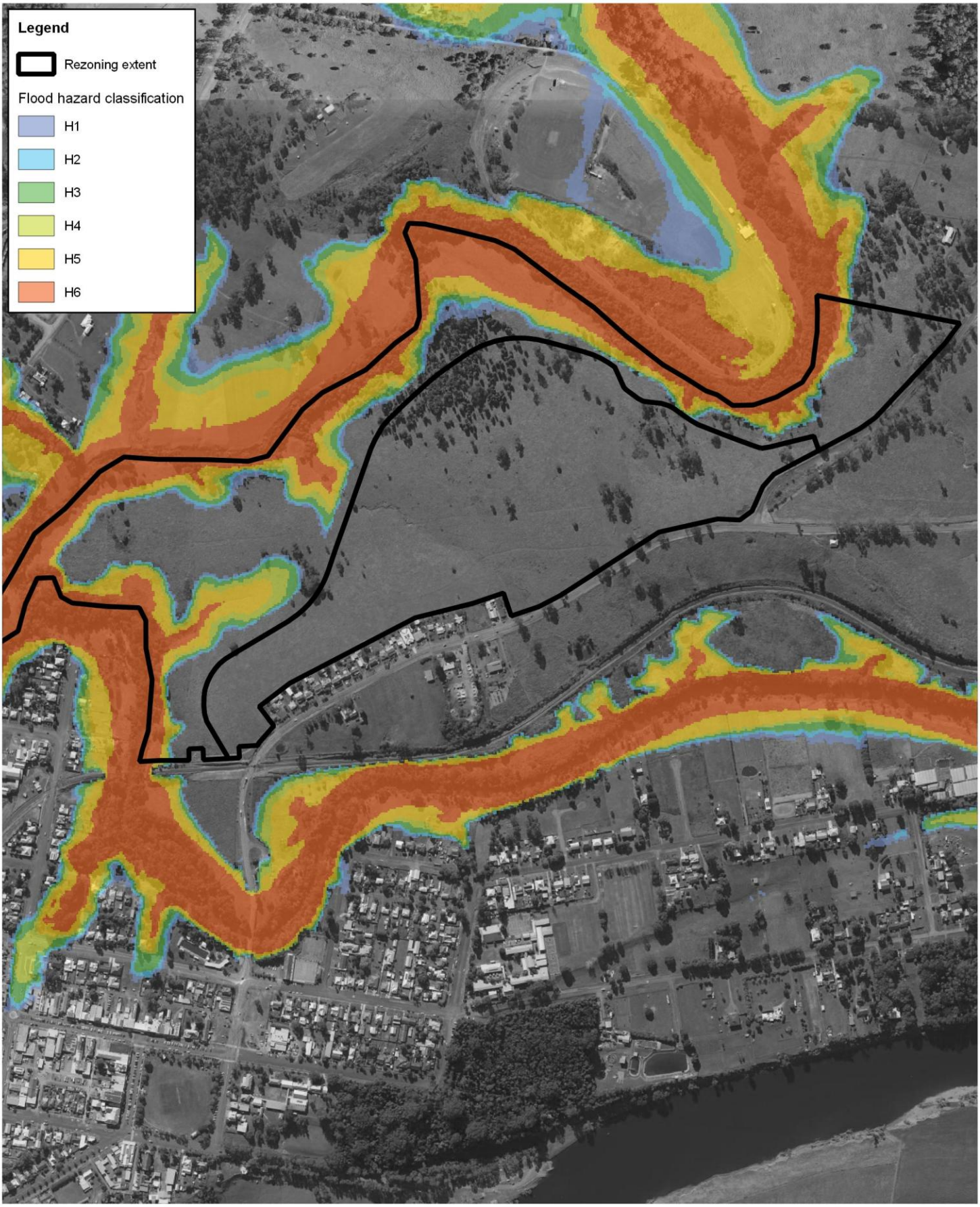
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Title:

Cedar Party Creek 0.05% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-11**

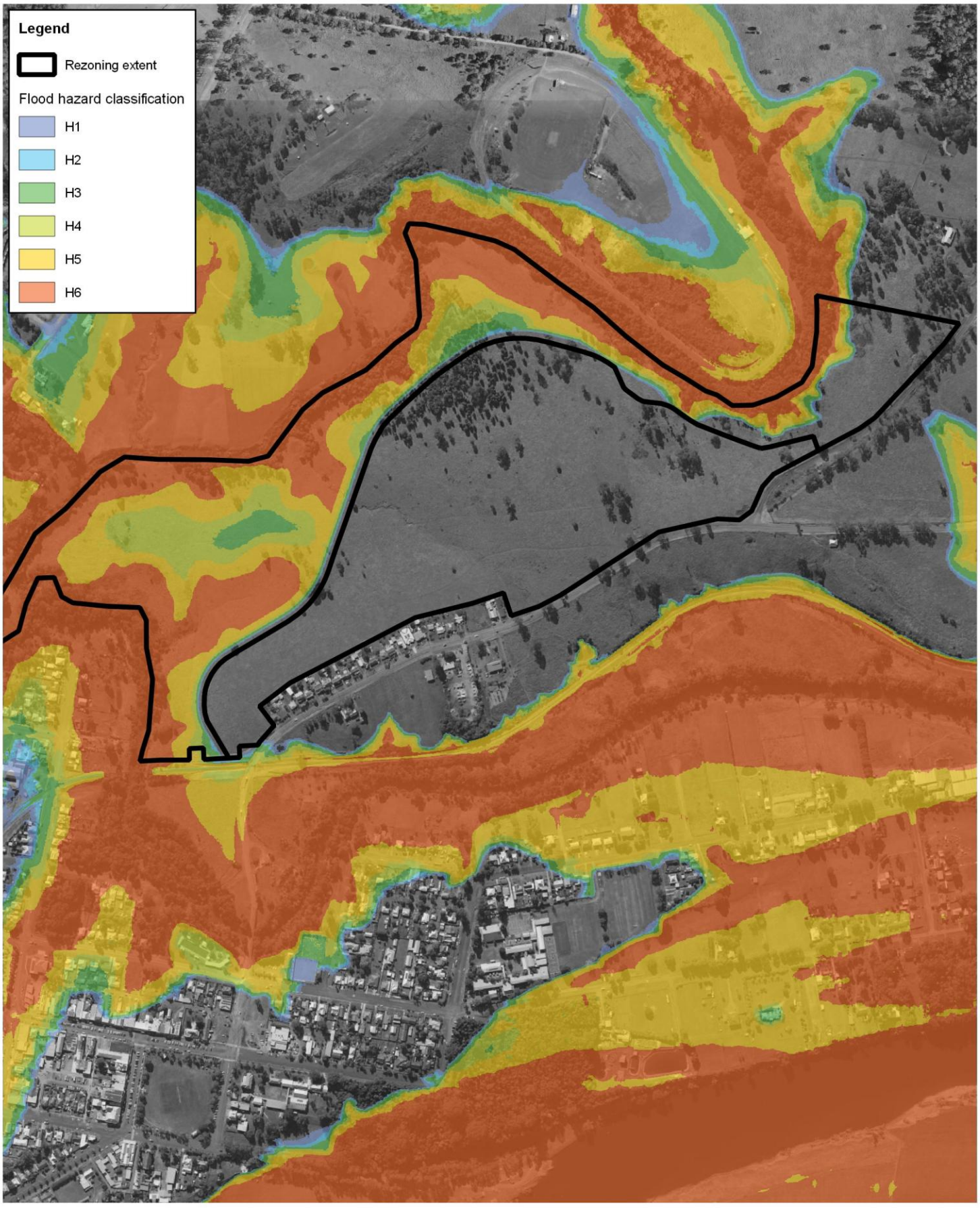
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Title:

Manning River 0.05% AEP Event Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-12**

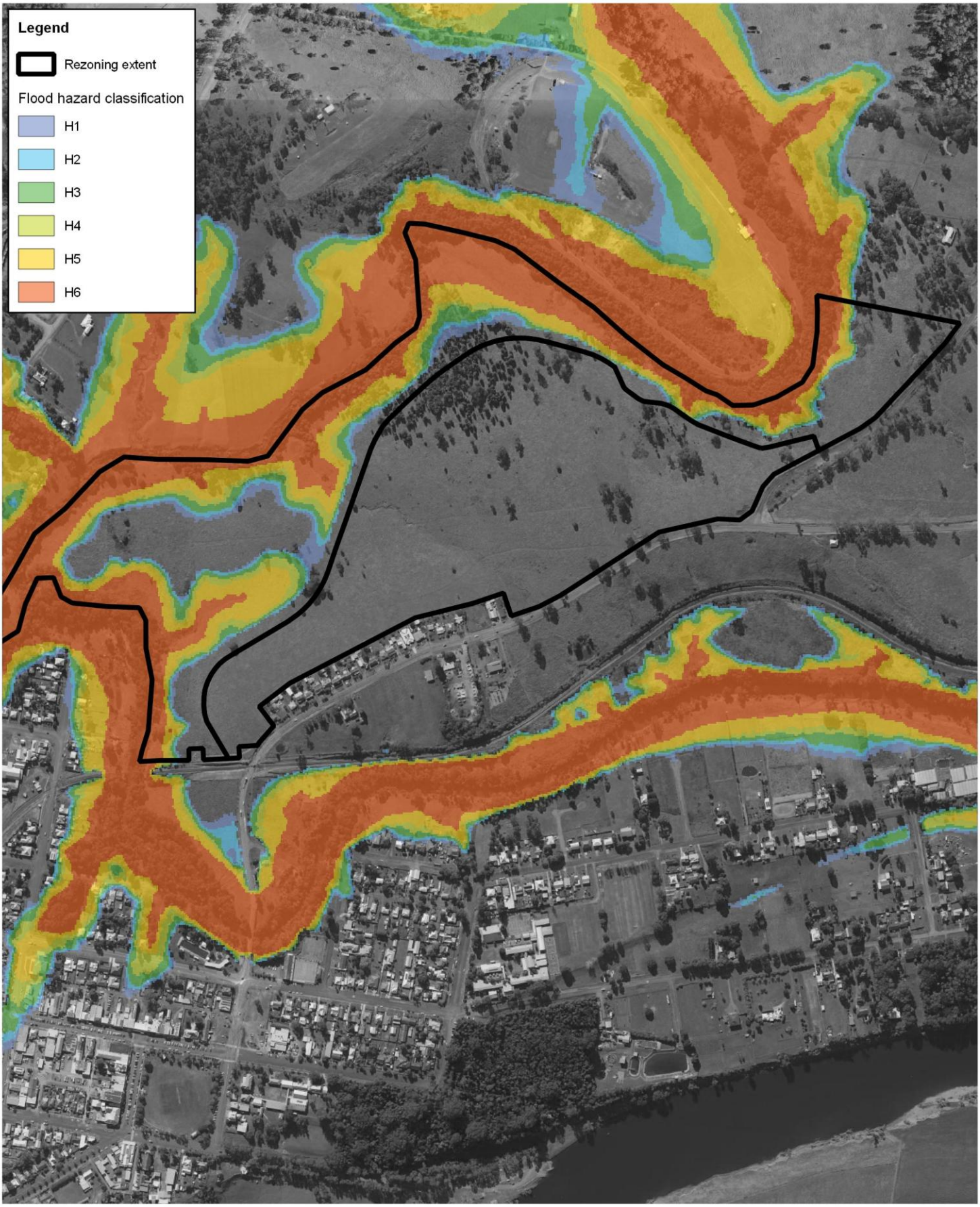
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Filepath: Z:\Projects\T2394_Wingham_Rd\GIS\T2394_049_240416_MR_2000y_haz_dev.qgz



Title:

Cedar Party Creek 0.02% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-13**

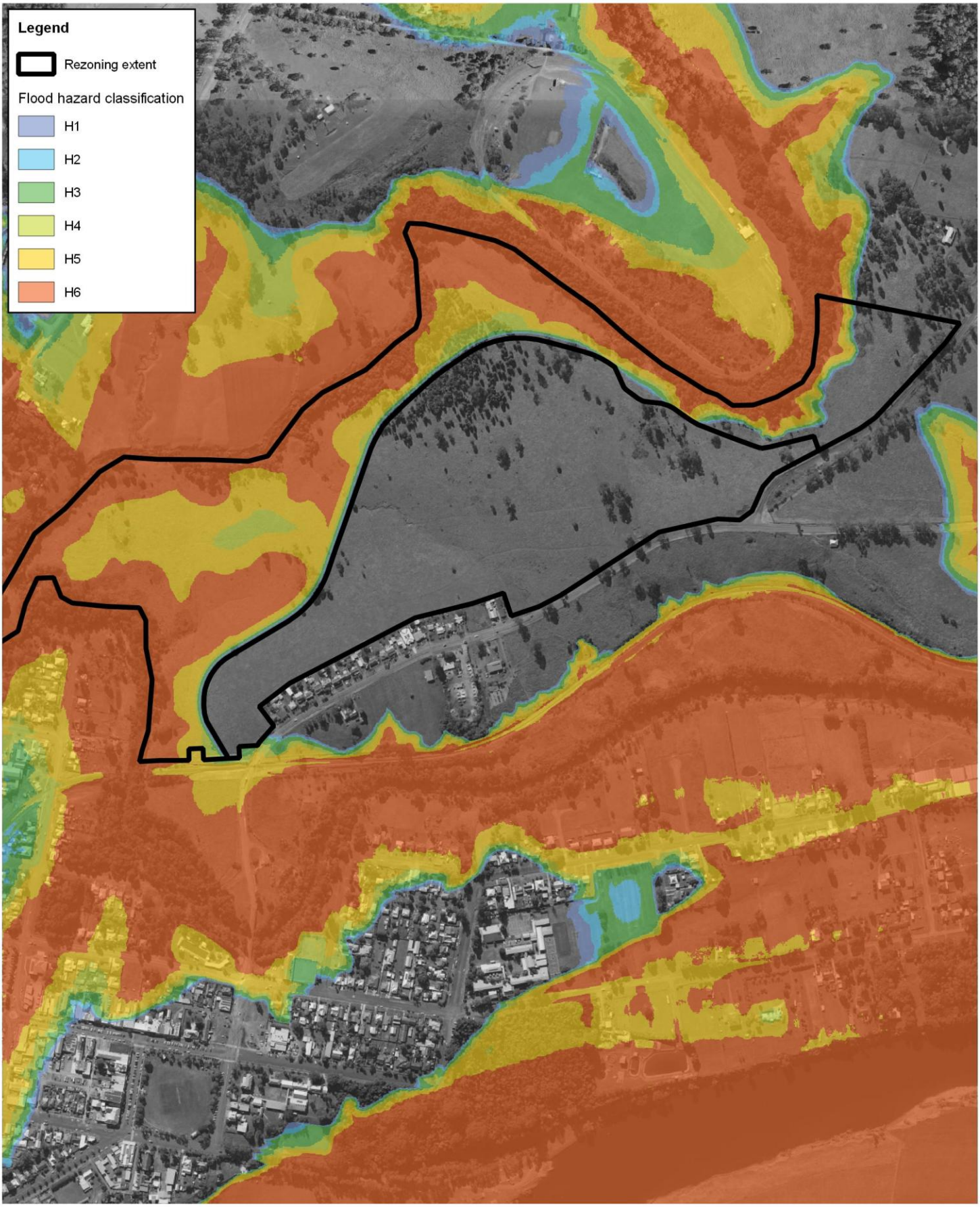
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Title:

Manning River 0.02% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-14**

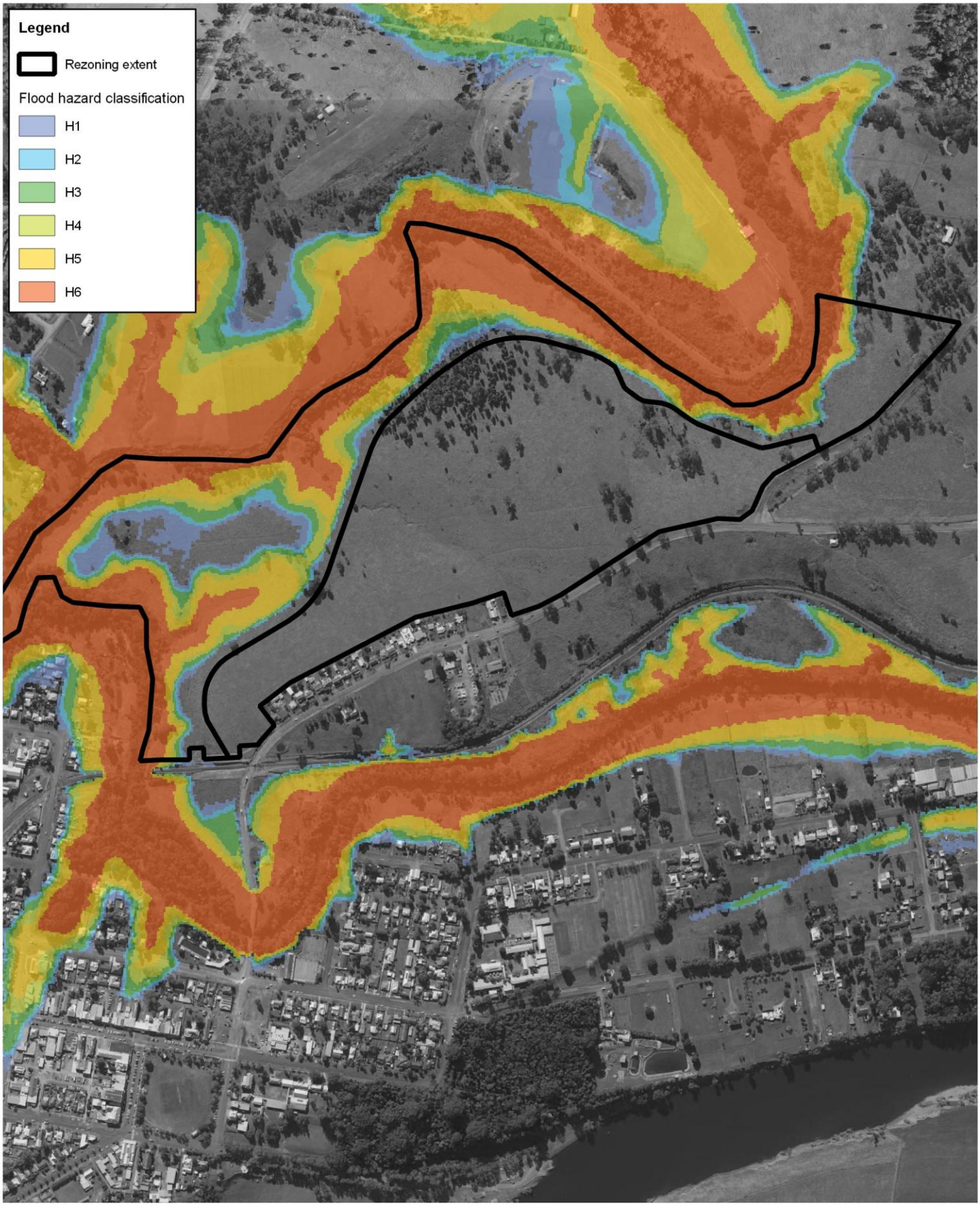
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Title:

Cedar Party Creek 0.01% AEP Event
Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-15**

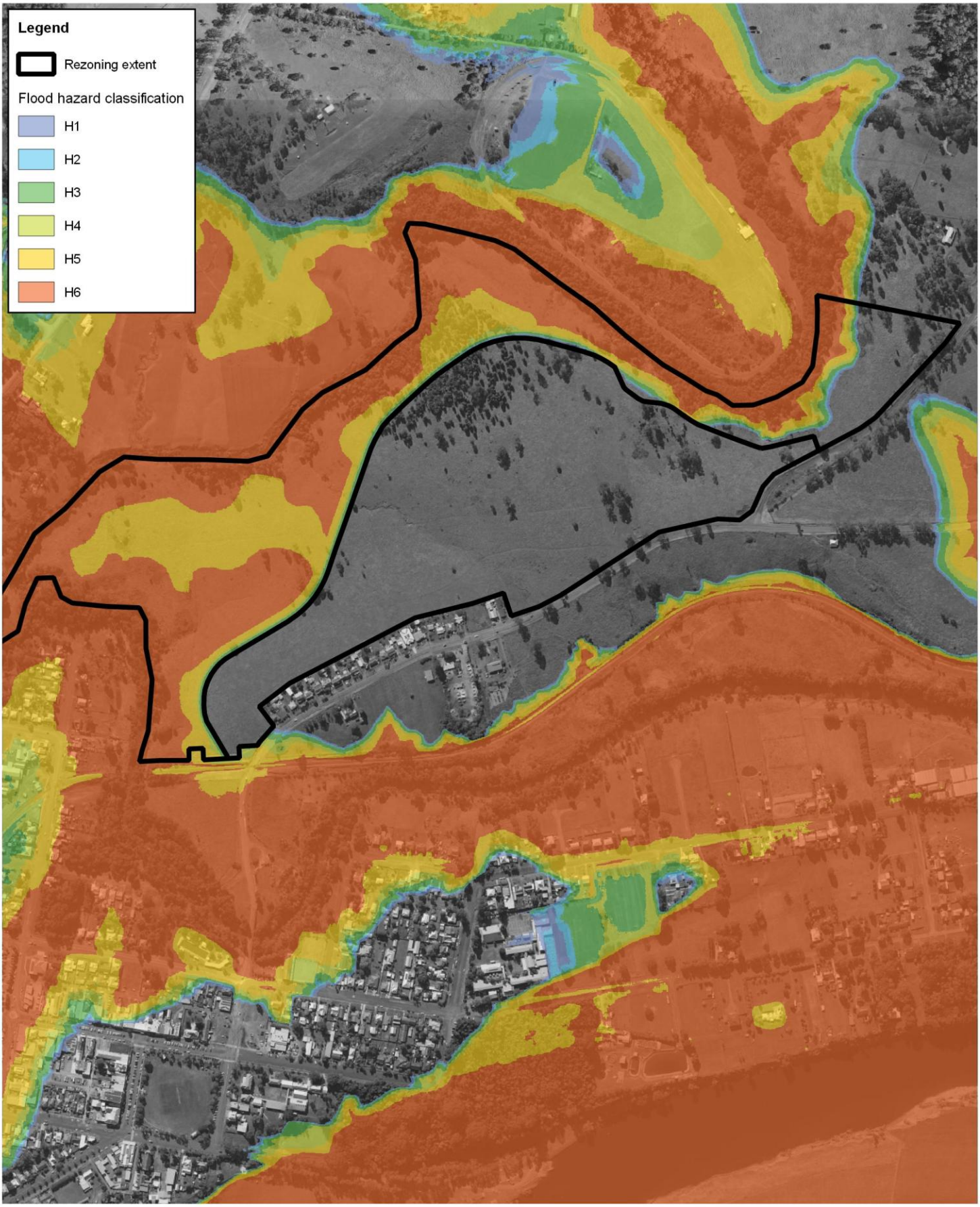
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Title:

Manning River 0.01% AEP Event Post-development Flood Hazard

0 200 400 m

approx. scale

Figure: **B-16**

Revision: **A**

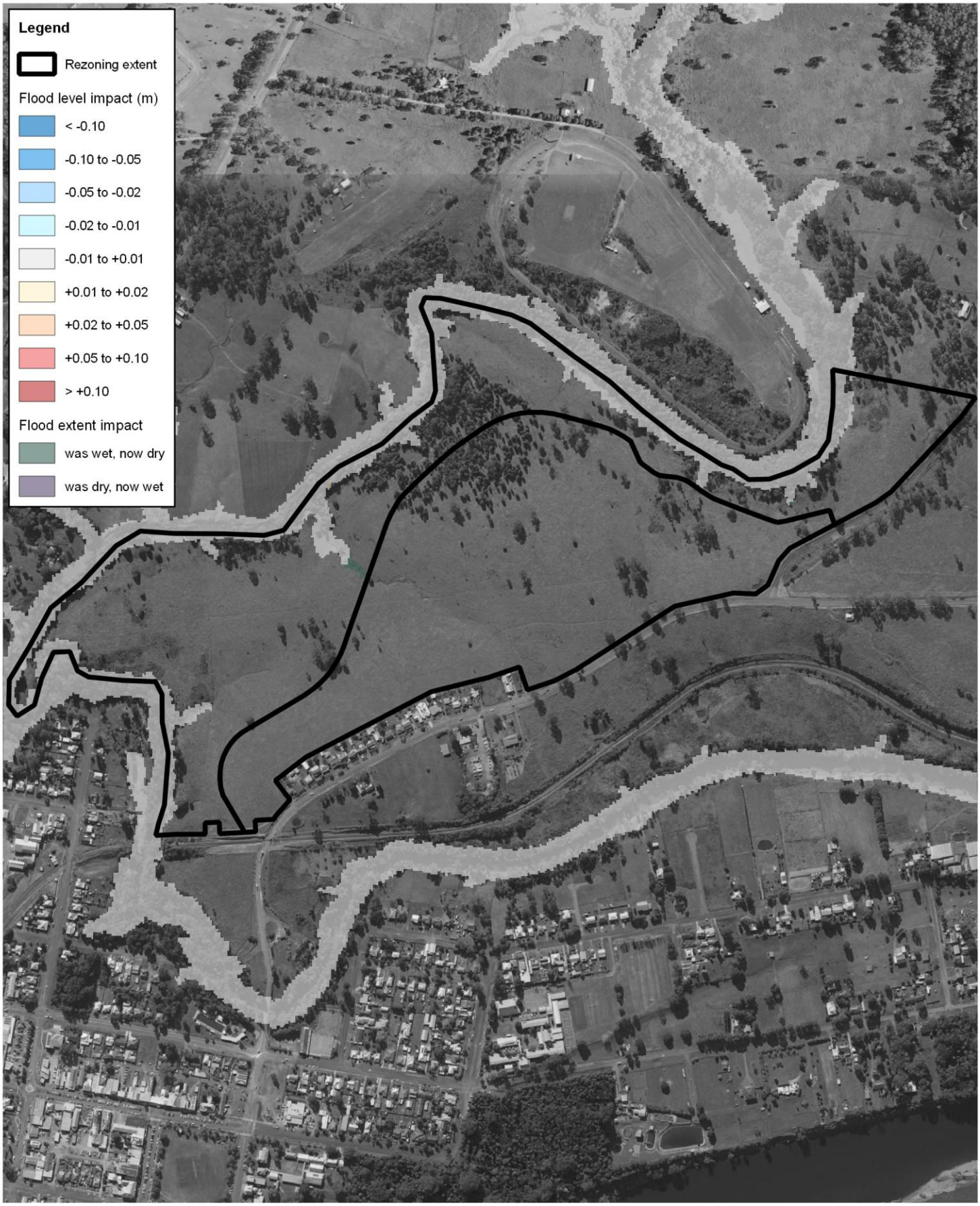
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Appendix C Flood Impact Mapping



Title:

Cedar Party Creek 20% AEP Event Peak Flood Level Impact

0 200 400 m

approx. scale

Figure: **C-1**

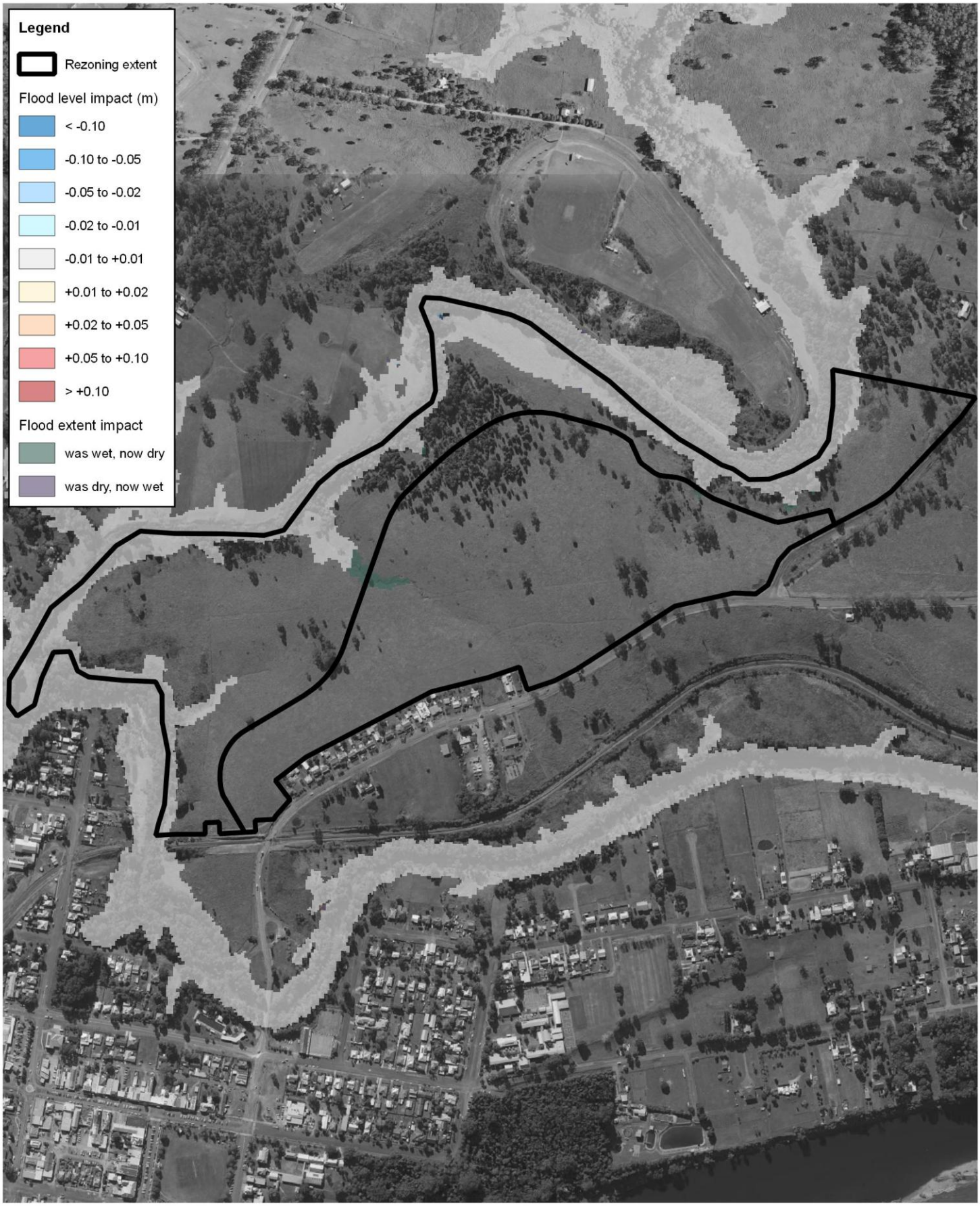
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Title:

Cedar Party Creek 10% AEP Event Peak Flood Level Impact

0 200 400 m

approx. scale

Figure: **C-2**

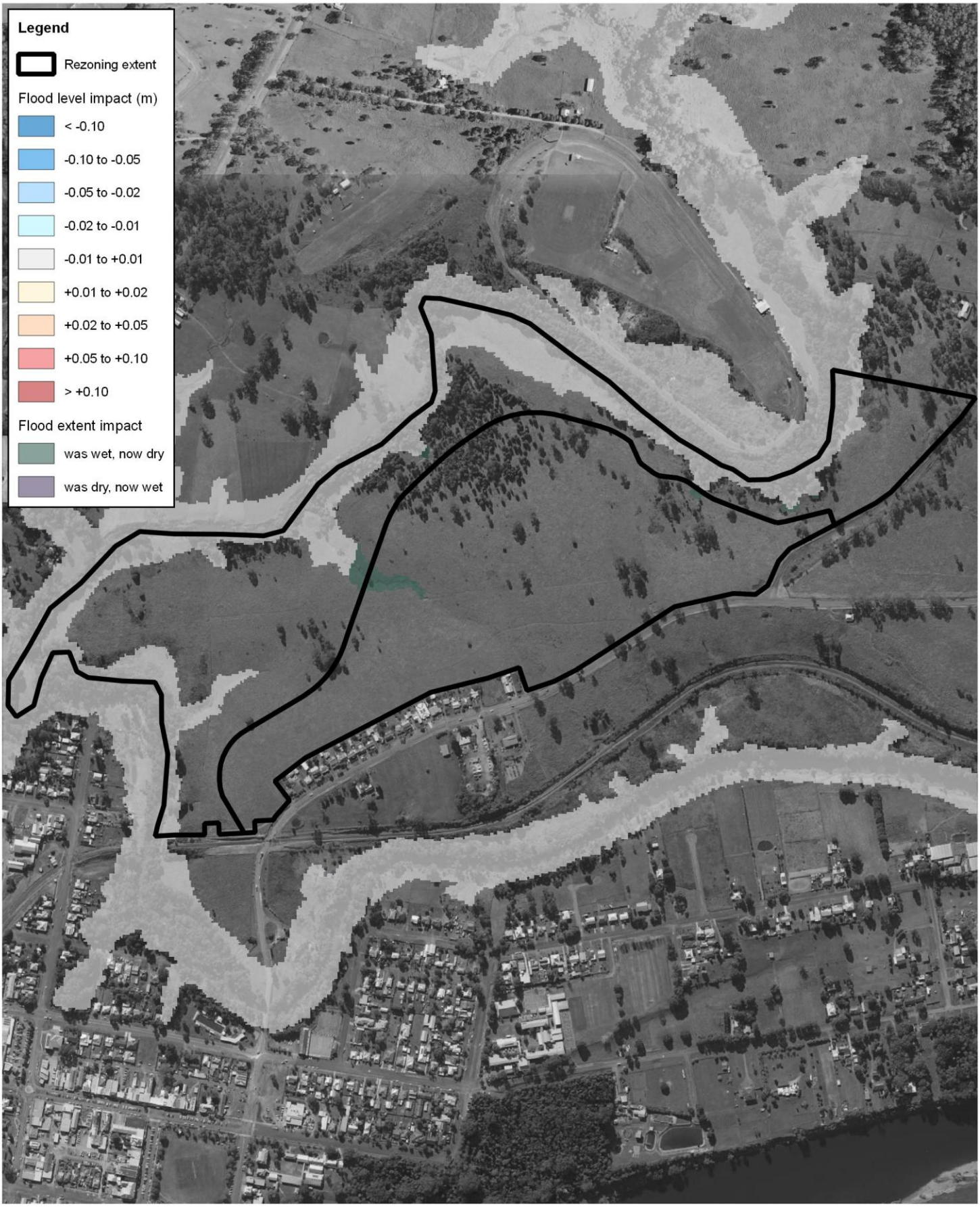
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Title:

Cedar Party Creek 5% AEP Event Peak Flood Level Impact

0 200 400 m

approx. scale

Figure: **C-3**

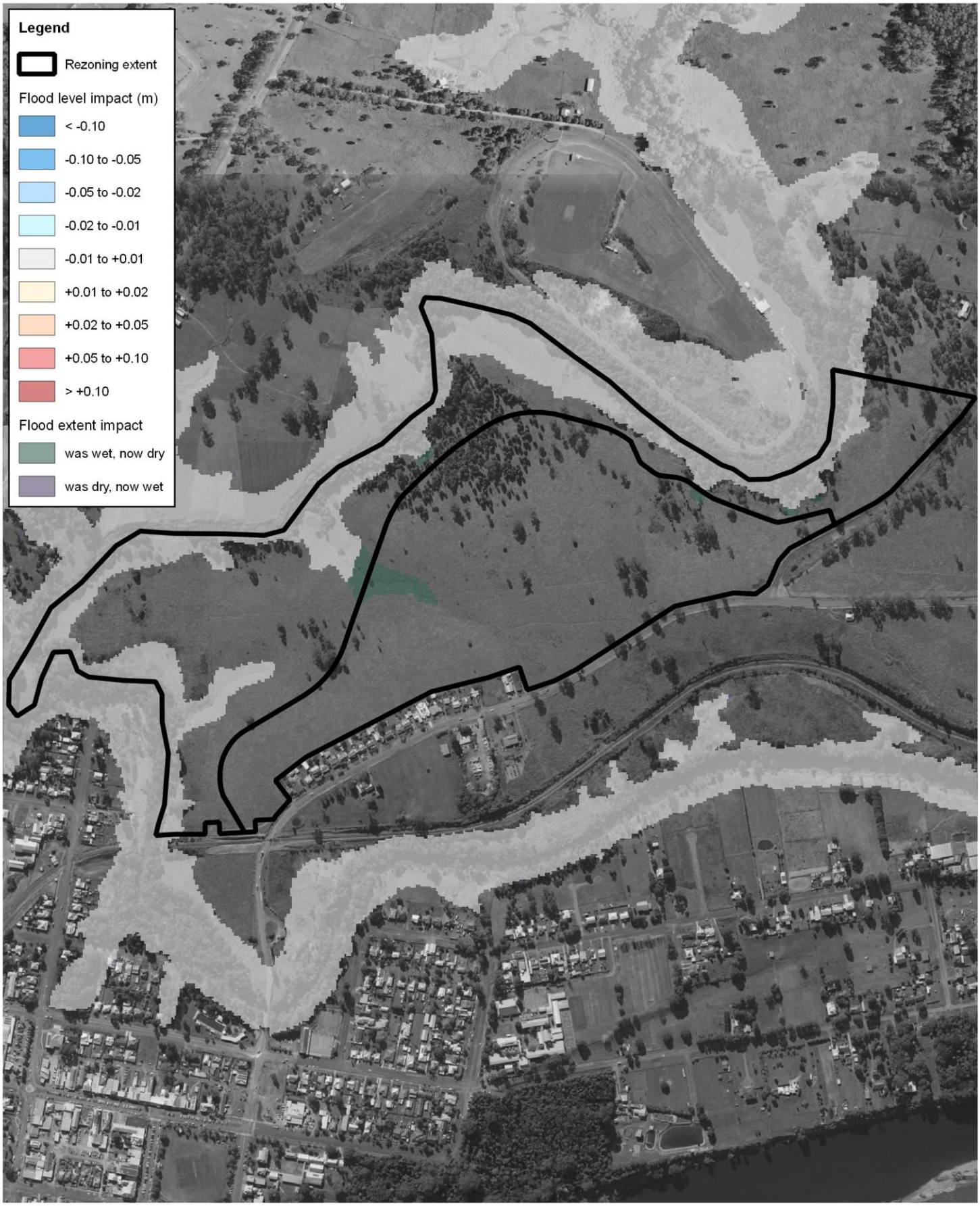
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Title:

Cedar Party Creek 2% AEP Event Peak Flood Level Impact

0 200 400 m

approx. scale

Figure: **C-4**

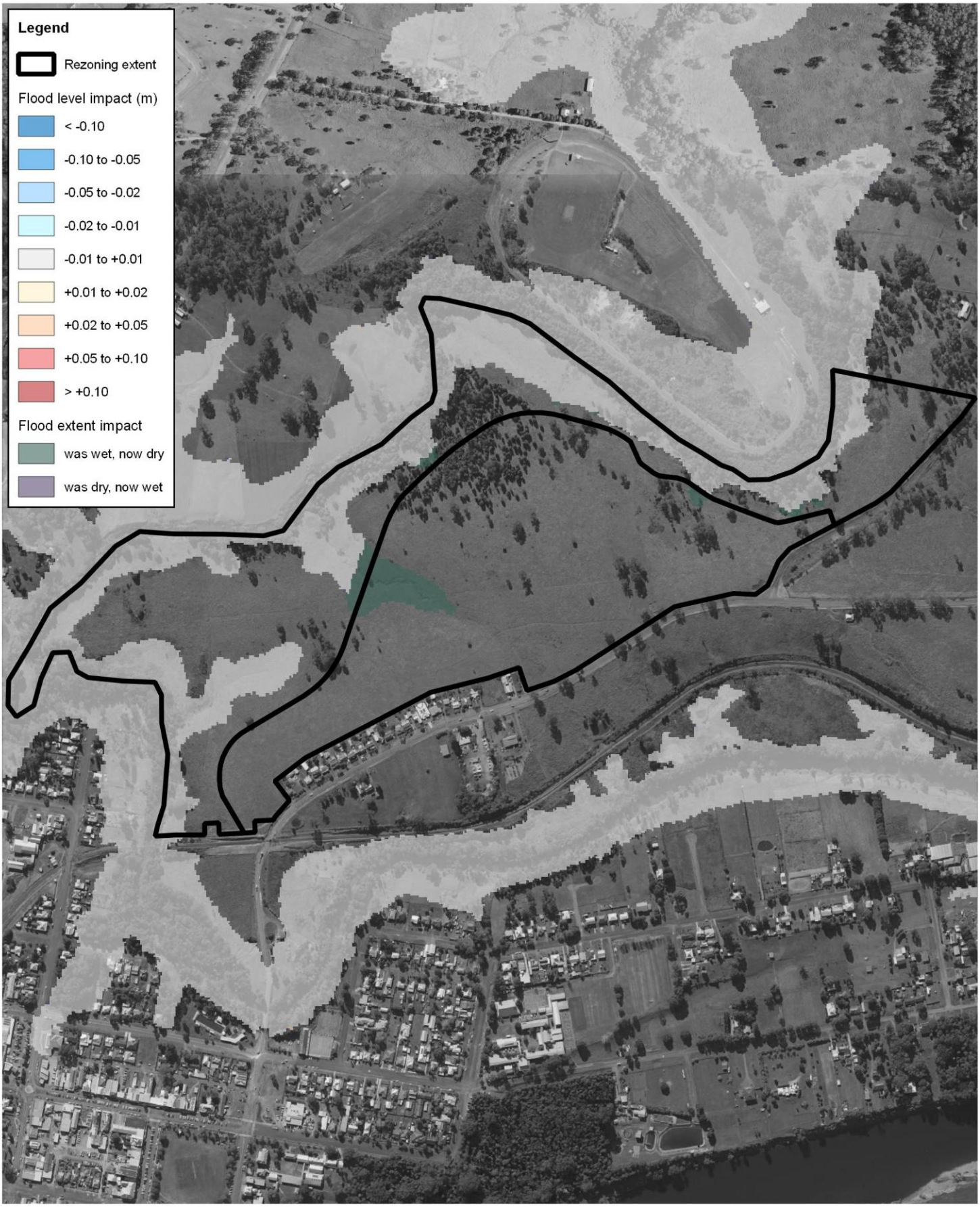
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Title:

Cedar Party Creek 0.5% AEP Event Peak Flood Level Impact

0 200 400 m

approx. scale

Figure: **C-5**

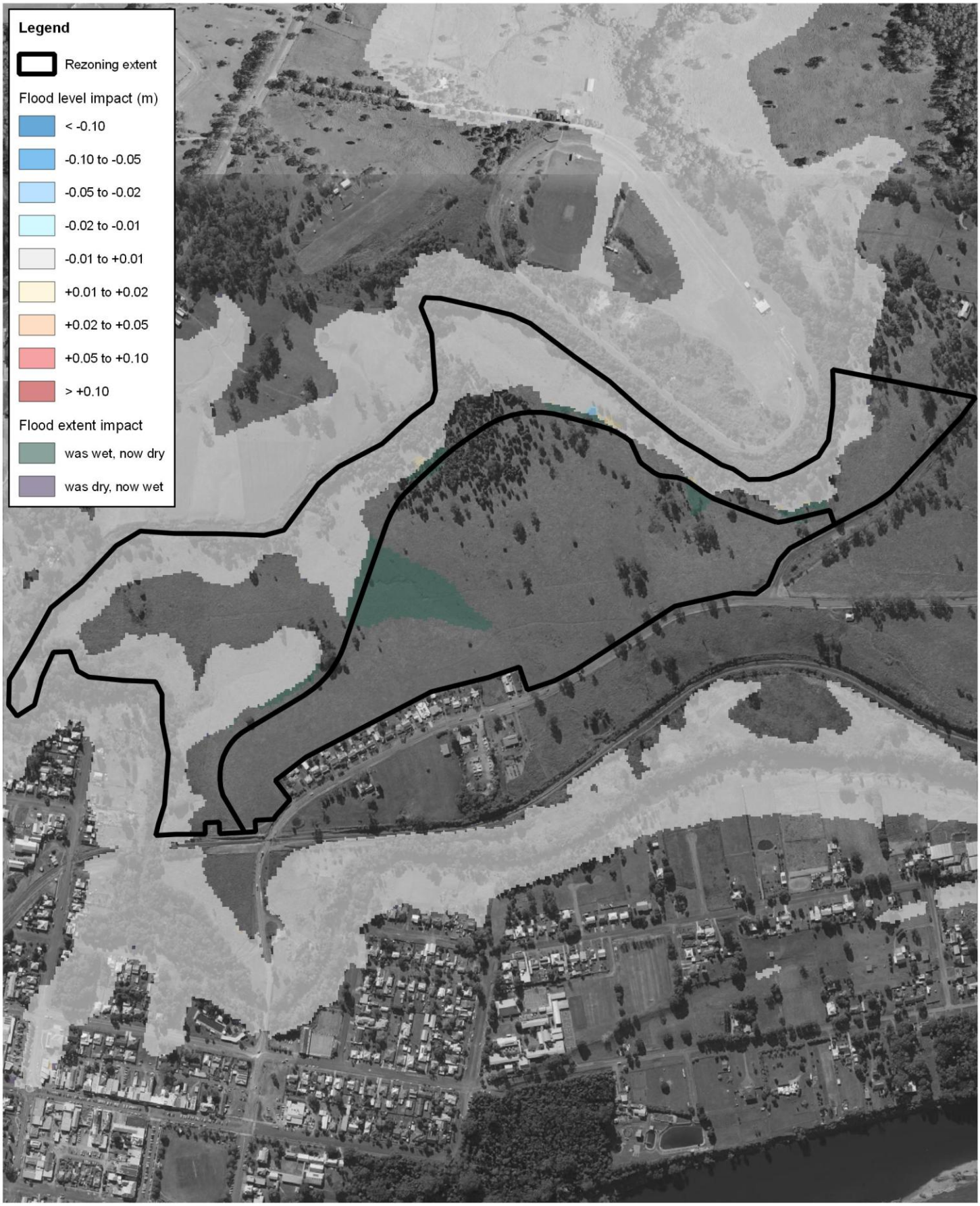
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Title:

Cedar Party Creek 0.05% AEP Event Peak Flood Level Impact

0 200 400 m

approx. scale

Figure: **C-6**

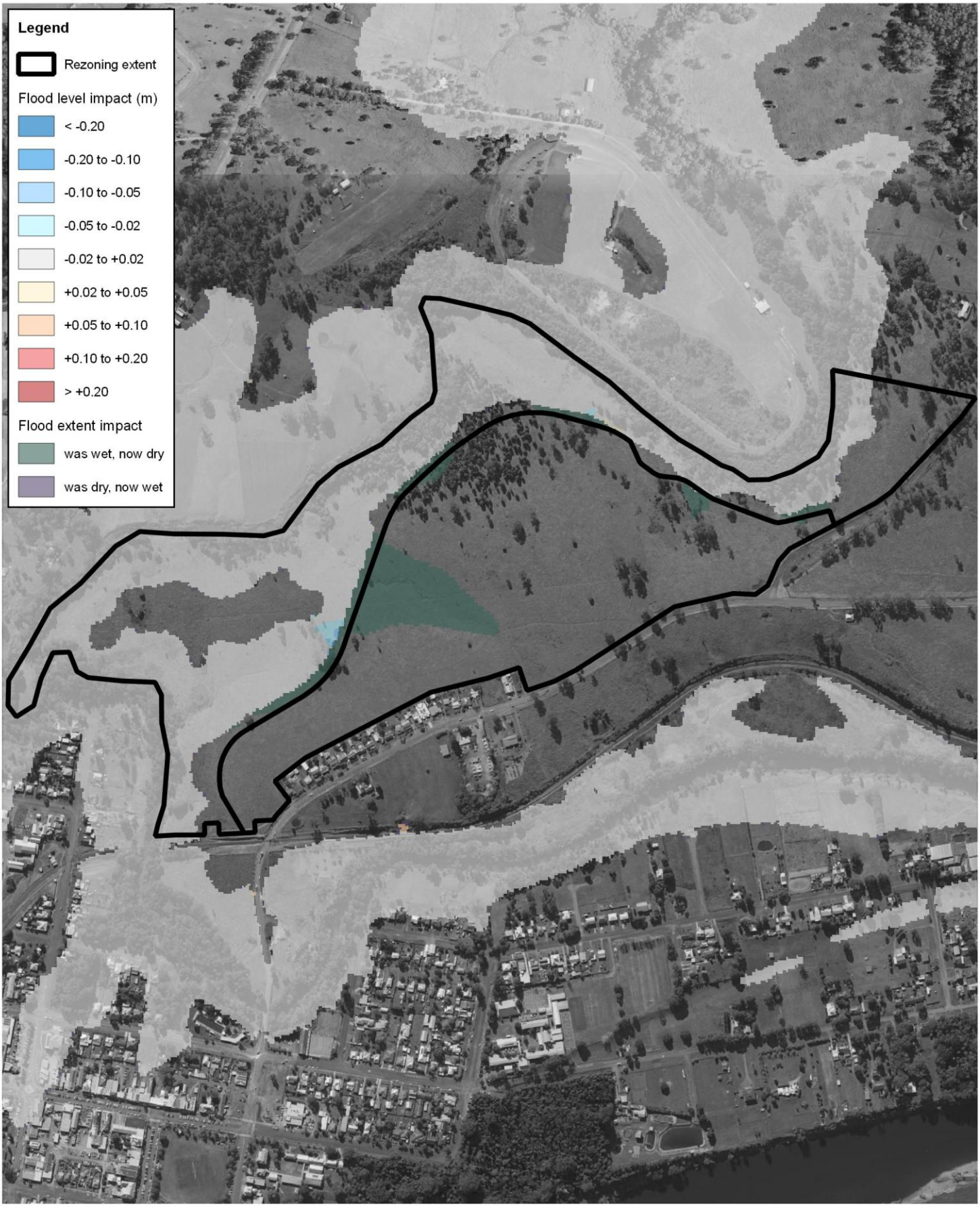
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Title:

Cedar Party Creek 0.02% AEP Event Peak Flood Level Impact

0 200 400 m

approx. scale

Figure: **C-7**

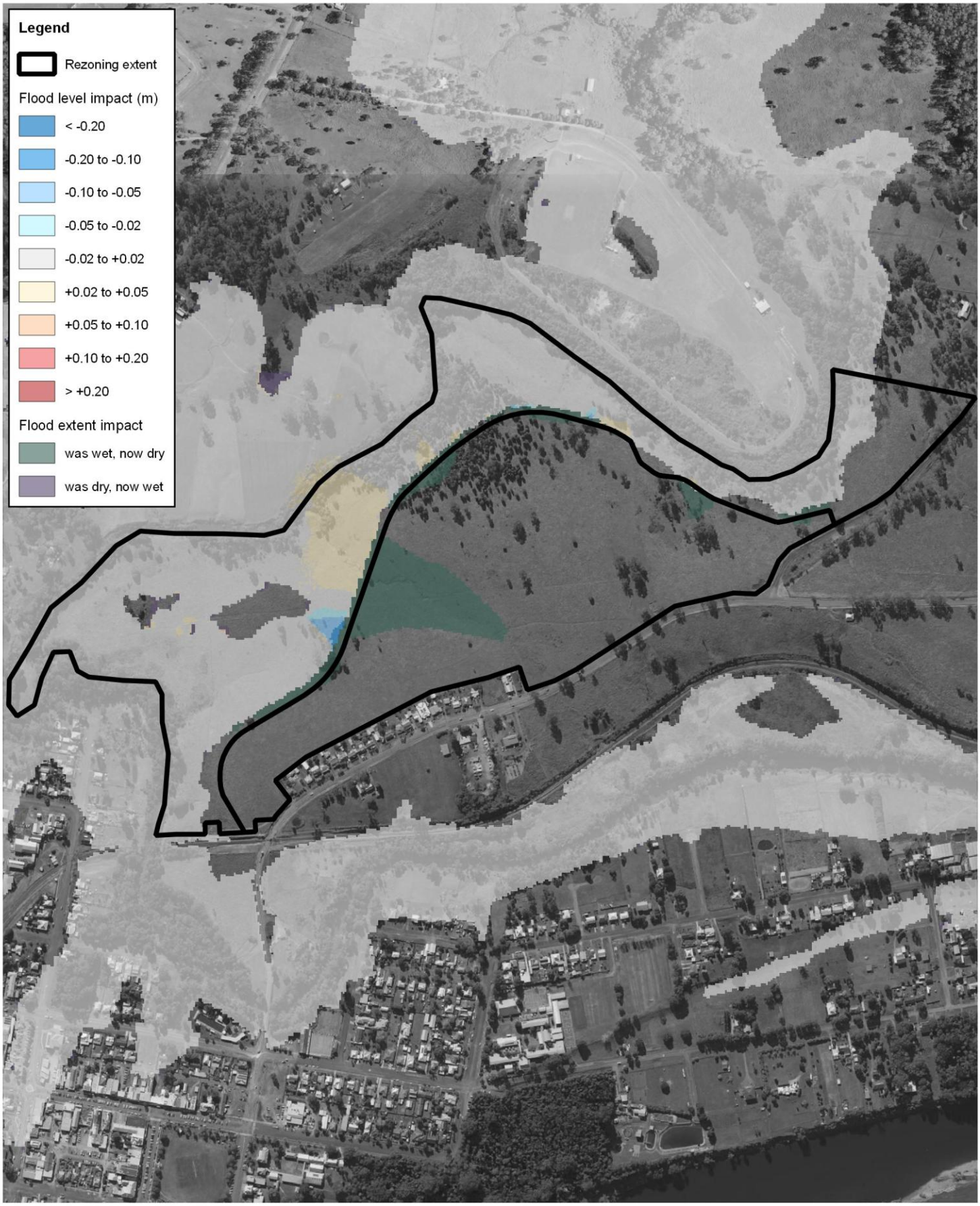
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Title:

Cedar Party Creek 0.01% AEP Event Peak Flood Level Impact

0 200 400 m

approx. scale

Figure: **C-8**

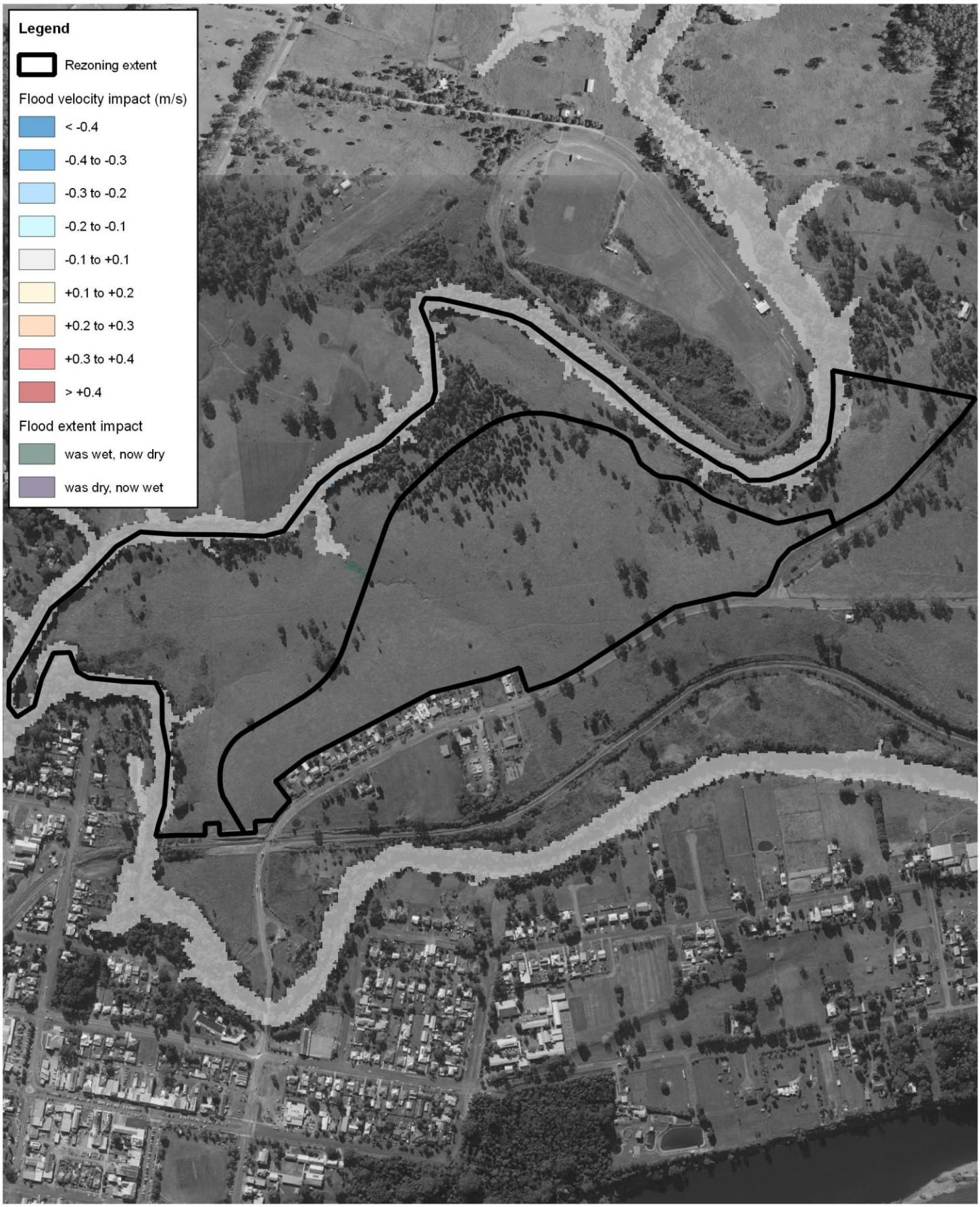
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Title:

Cedar Party Creek 20% AEP Event Peak Flood Velocity Impact

0 200 400 m

approx. scale

Figure: **C-9**

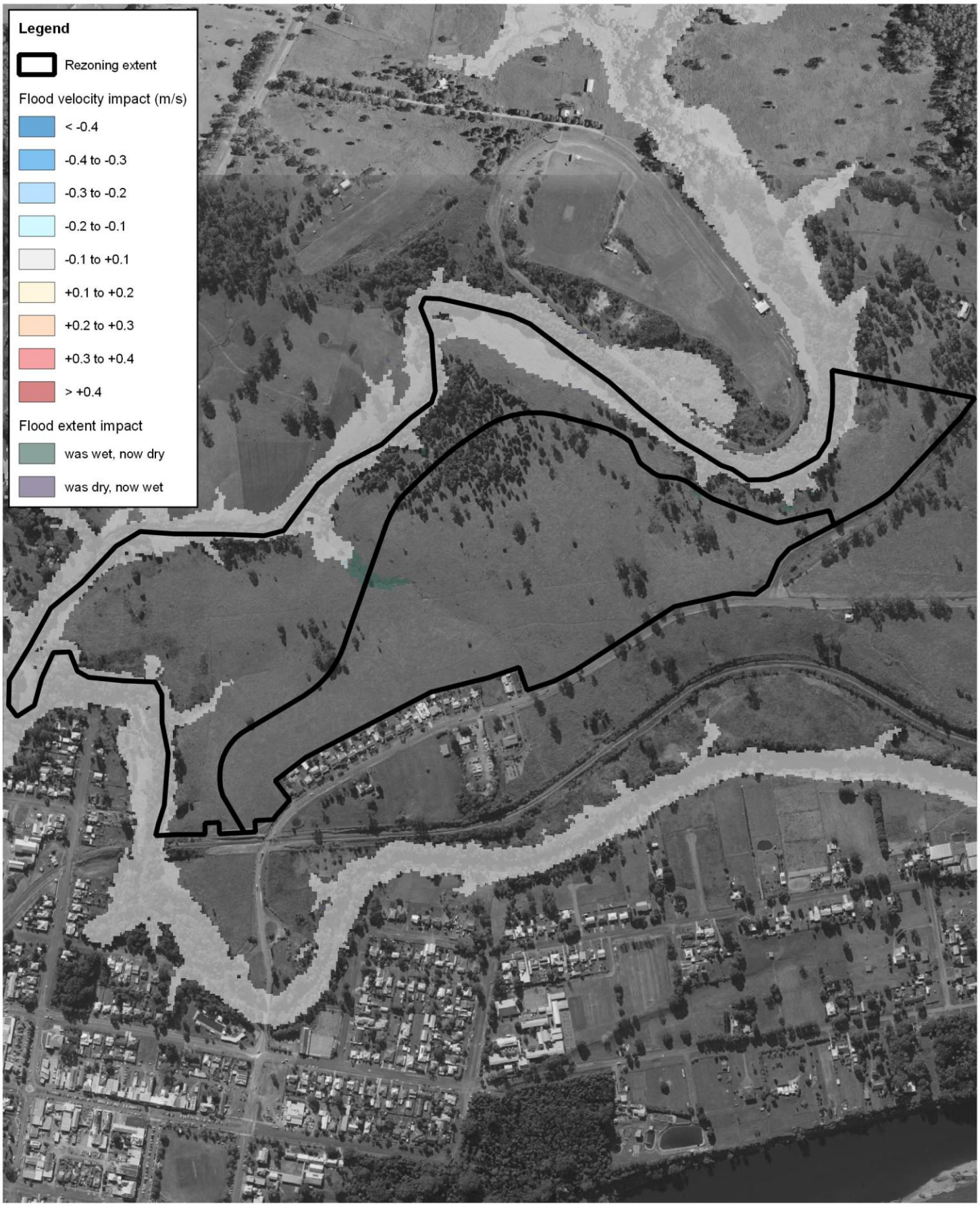
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Title:

Cedar Party Creek 10% AEP Event Peak Flood Velocity Impact

0 200 400 m

approx. scale

Figure: **C-10**

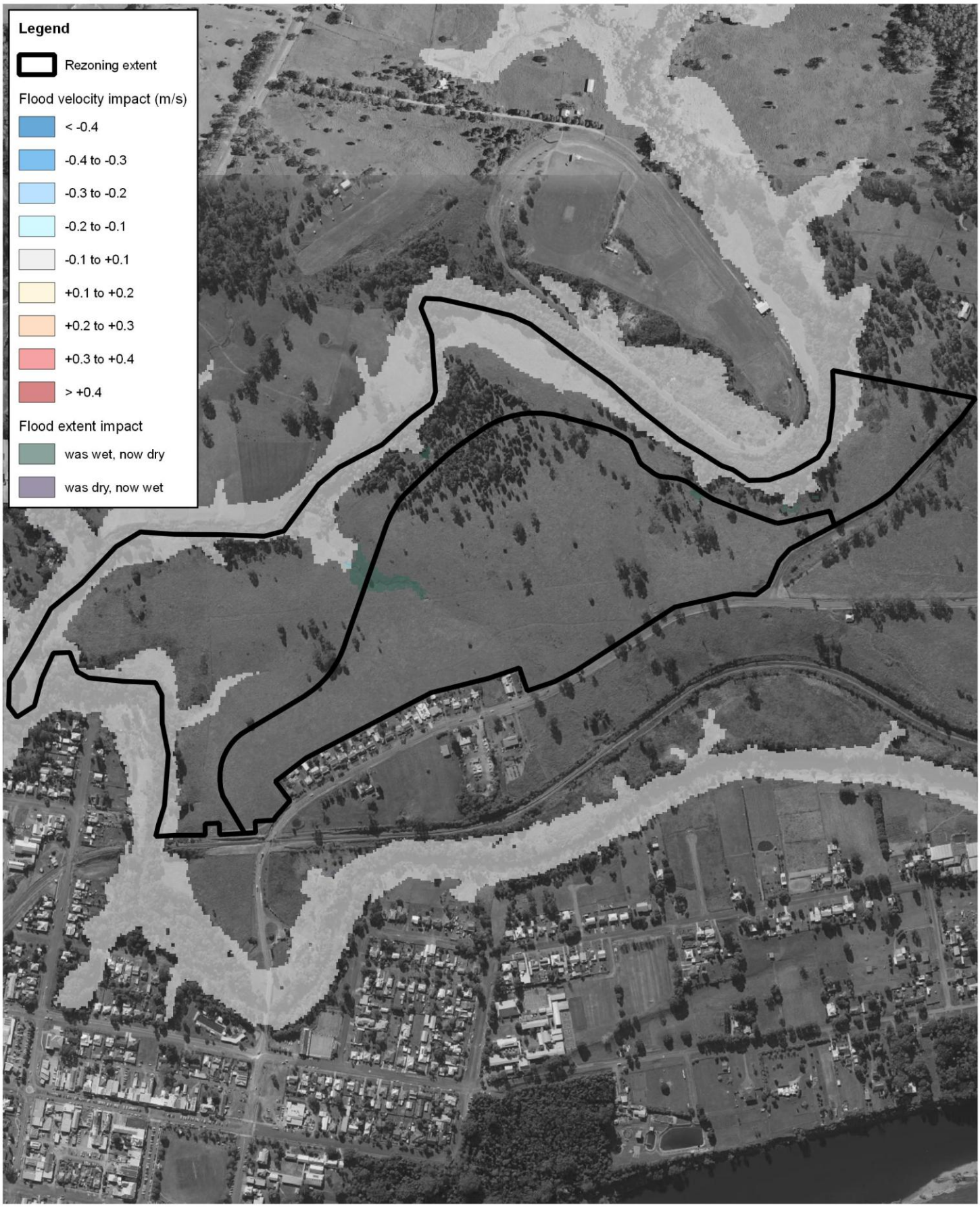
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Title:

Cedar Party Creek 5% AEP Event Peak Flood Velocity Impact

0 200 400 m

approx. scale

Figure: **C-11**

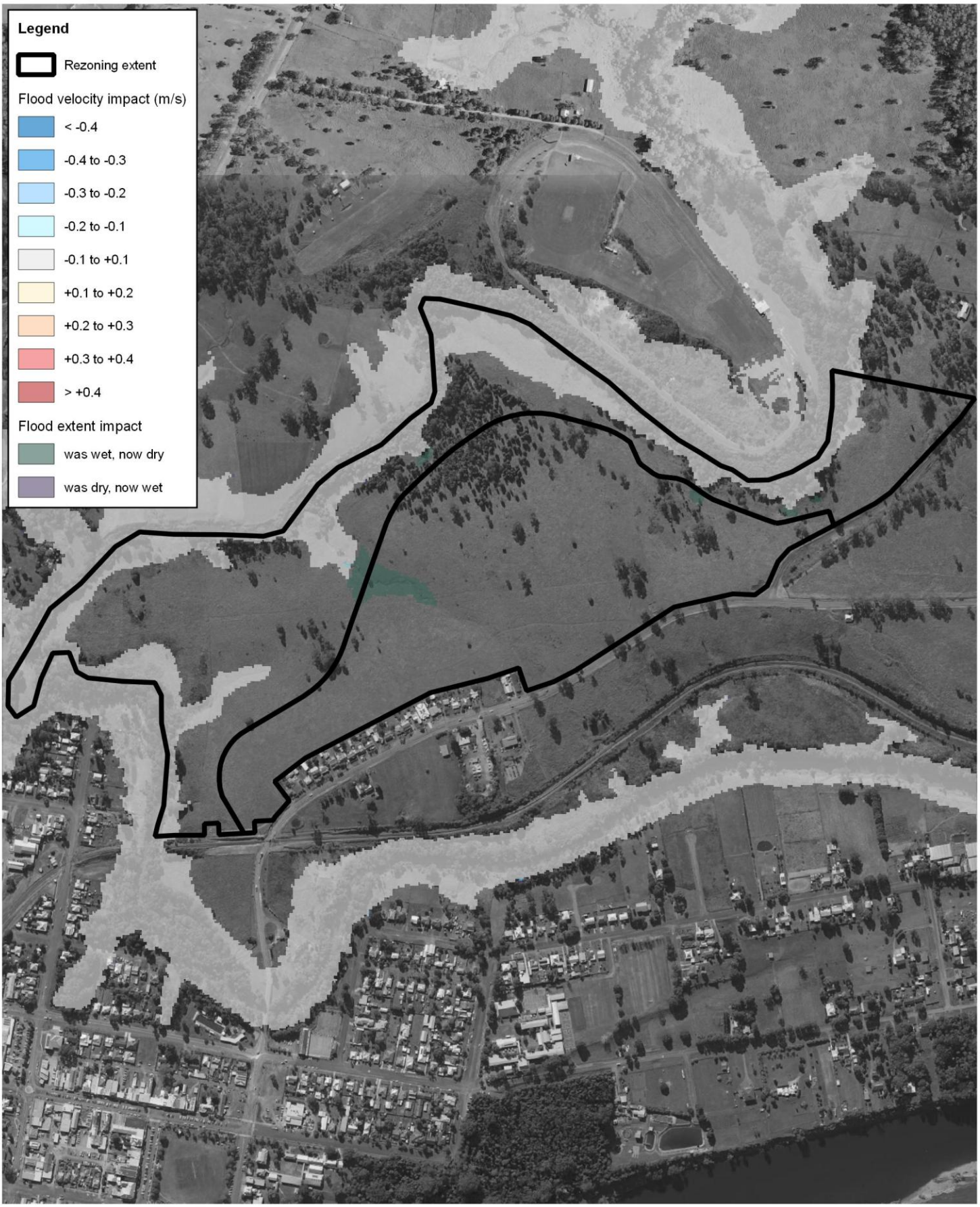
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Title:

Cedar Party Creek 2% AEP Event Peak Flood Velocity Impact

0 200 400 m

approx. scale

Figure: **C-12**

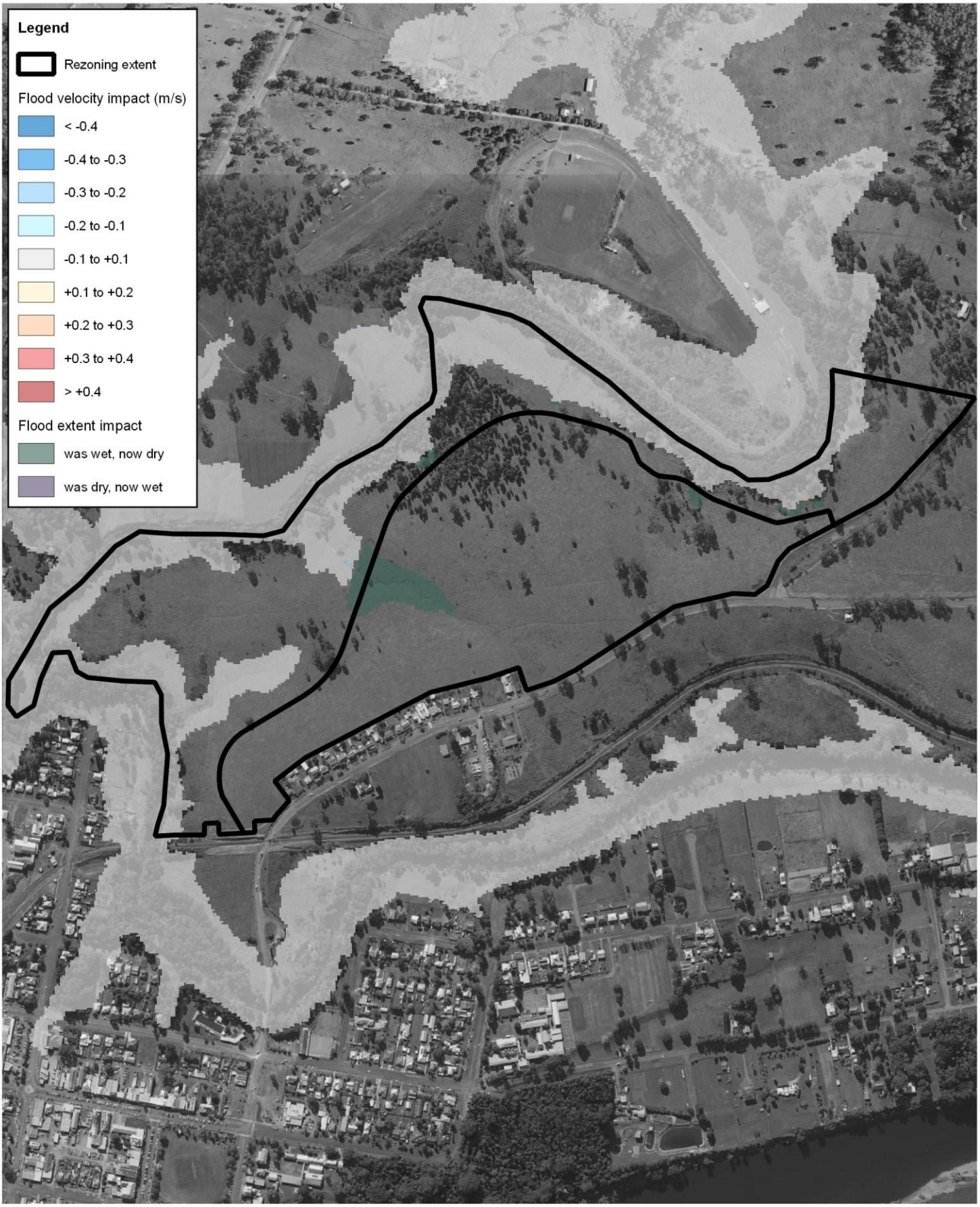
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Title:

Cedar Party Creek 0.5% AEP Event Peak Flood Velocity Impact

0 200 400 m

approx. scale

Figure: **C-13**

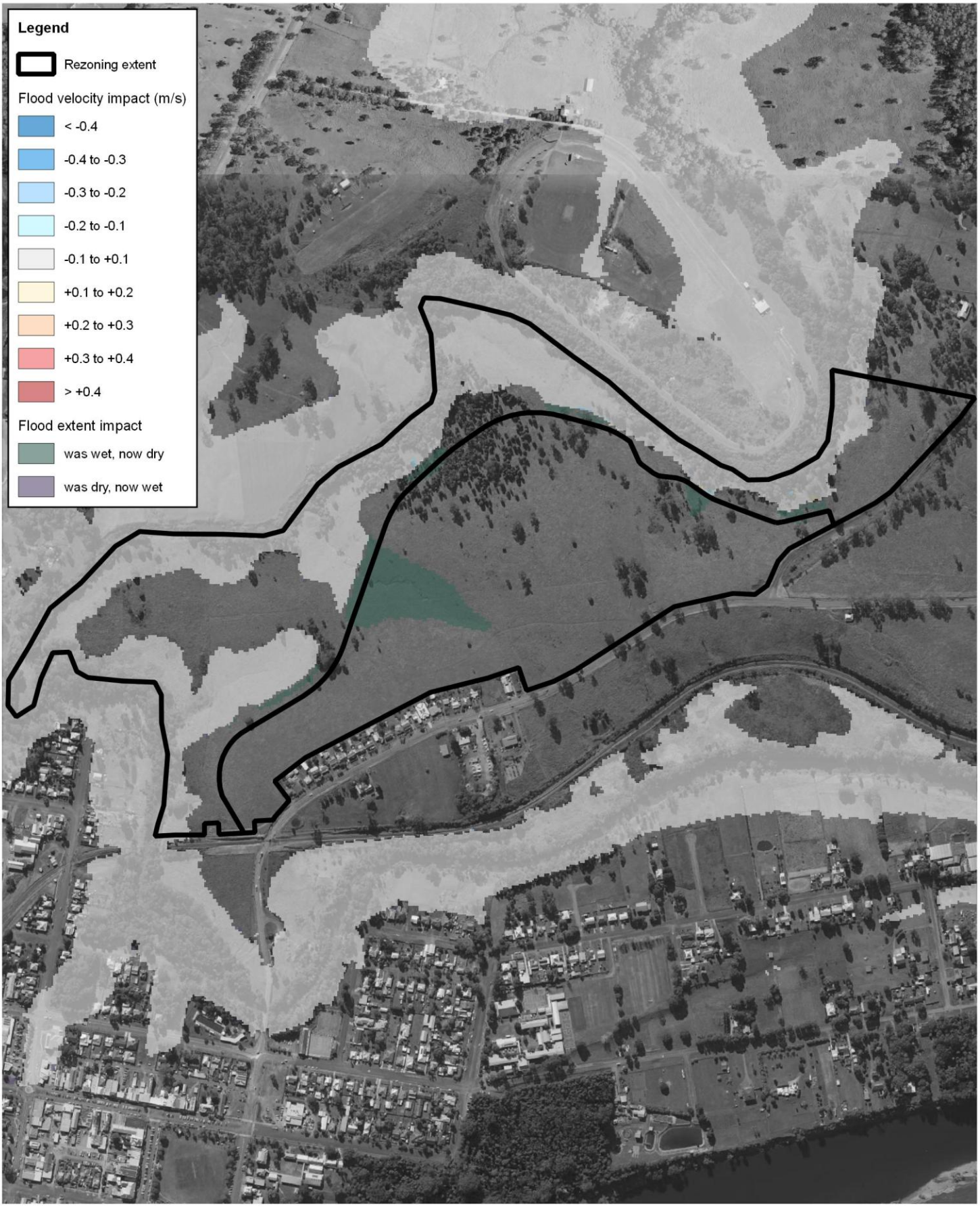
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Title:

Cedar Party Creek 0.05% AEP Event Peak Flood Velocity Impact

0 200 400 m

approx. scale

Figure: **C-14**

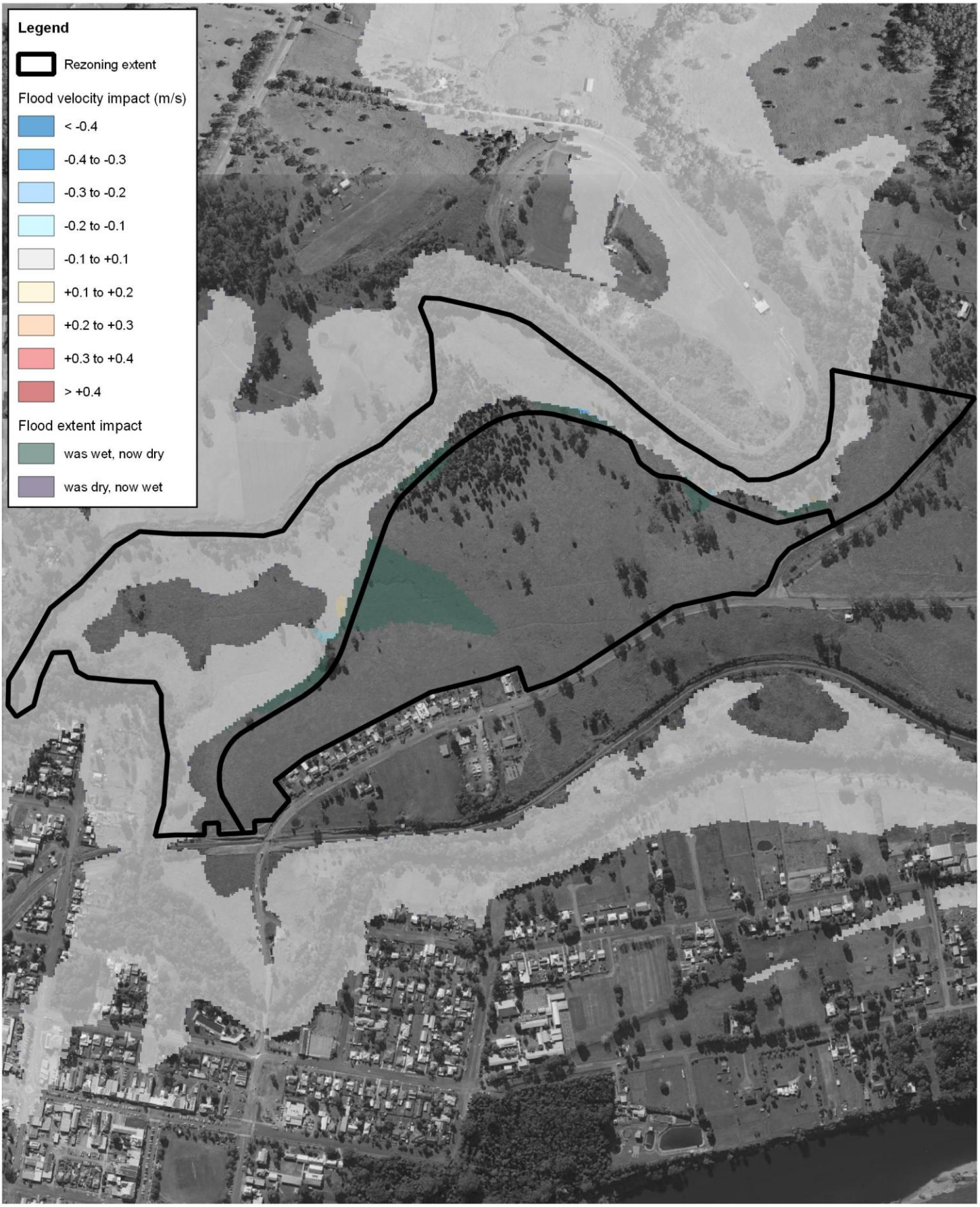
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Title:

Cedar Party Creek 0.02% AEP Event Peak Flood Velocity Impact

0 200 400 m

approx. scale

Figure: **C-15**

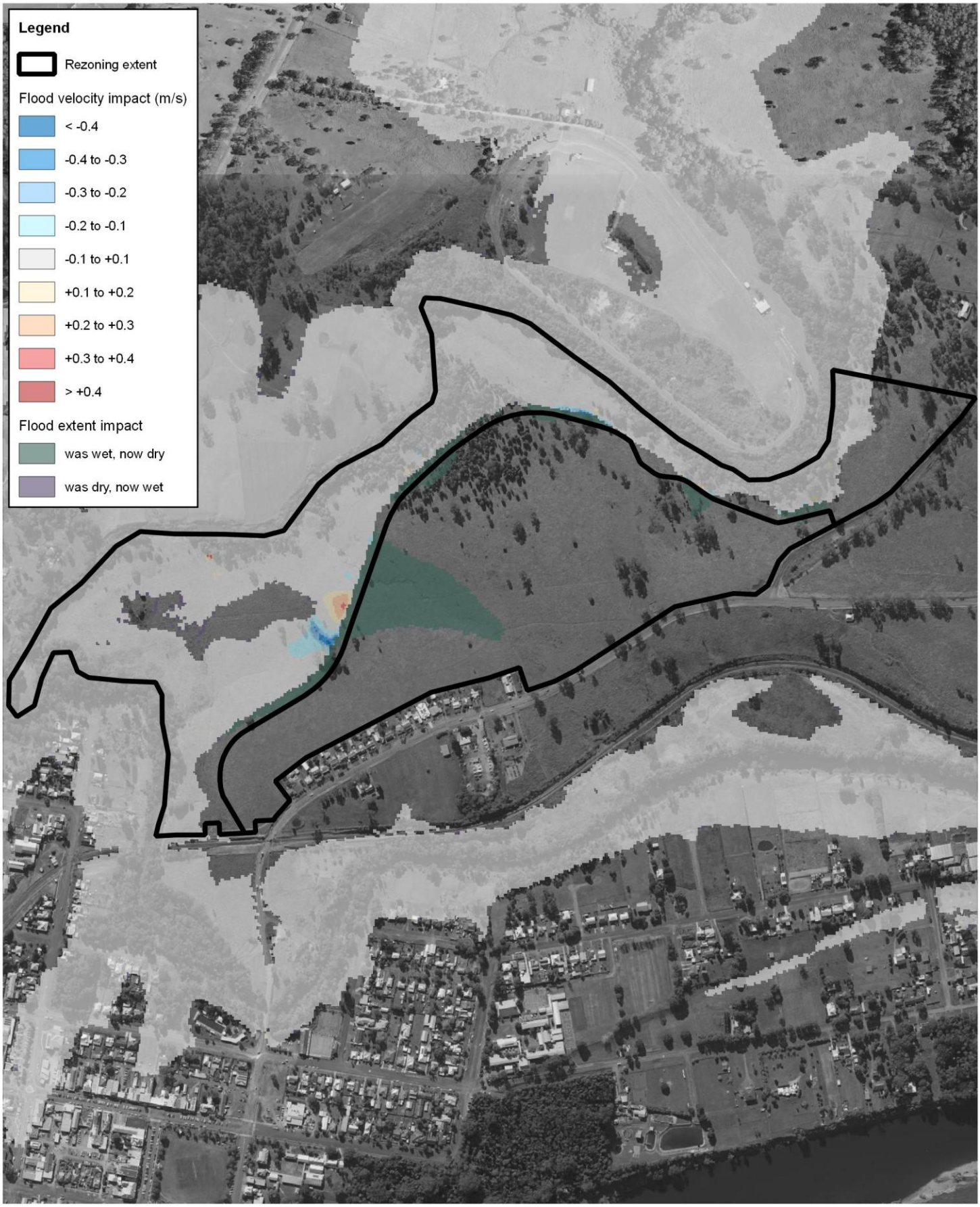
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Title:

Cedar Party Creek 0.01% AEP Event Peak Flood Velocity Impact

0 200 400 m

approx. scale

Figure: **C-16**

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Appendix D Response to NSW SES Comments

A letter was provided by NSW SES (ref 3115, dated 5 June 2025) in review of the previous version of this FIRA submitted with the Planning Proposal. The points raised in the letter are reproduced in italics below, each followed by a written response. It is noted that the comments made in the letter are often misplaced, misguided and/or misleading. There are very general statements made that are contrary to the evidence provided in the FIRA, which does not appear to have been understood or considered. Without a full understanding of the FIRA, someone reading this letter may be led to believe that the proposed development has a significantly higher level of flood risk exposure than is the case and is evidenced in this FIRA.

"The proposal may be considered a 'high risk proposal' as determined in the PS 24-001 Planning Circular as it is for a development with limited evacuation opportunities."

As demonstrated within this FIRA, the level of flood risk exposure to future residential development within the land proposed for rezoning is very low rather than high. The future development will also have ample opportunity for evacuation. Evacuation from the Site will only be required at around a 1-in-10,000 AEP probability, with the evacuation route being elevated above this, with a high-level route available to Taree with around a 1-in-20,000 AEP immunity. For a flood event rare enough to require an evacuation there would be days of warning available through forecast weather conditions, enabling safe and effective evacuation.

"The 2022 Flood Inquiry advocates for a planned retreat from areas at most risk on the floodplain. The proposed development is essentially an advance into the floodplain."

Areas at most risk within the floodplain for which a planned retreat is required is relevant to locations such as Lismore, where there is extensive development at a much greater level of risk exposure than the Flood Planning Level. It is not relevant to the proposed rezoning of the Site. The proposed development is not an advance into the floodplain. It seeks to fill the terminus of a first order stream, which is permitted under NSW Government Guidelines, to facilitate an efficient and logical perimeter road geometry.

"The site is a High Flood Island, with a portion of the subject land impacted by 1% AEP flooding events, and a significant part inundated in PMF events, and isolated in frequent events."

The Site is a High Flood Island, which means that it contains flood-free land above the PMF. Therefore, even in the extremely unlikely event of a PMF flood, there would be a safe place to refuge. Also, the Site only becomes an island (i.e. isolated) in very rare flood events. In a Cedar Party Creek flood event, the Site will become isolated from Wingham at around a 1-in-20,000 AEP probability and from Taree at around a 1-in-600,000 AEP probability. In a Manning River flood event, the Site will become isolated from Wingham at around a 1-in-200 AEP probability and from Taree at around a 1-in-20,000 AEP probability. Frequent flood events will not result in isolation of the Site, with only the most direct access route to Taree being cut at a 10% AEP (intermediate) flood event on the Manning River.

"In summary, we recommend careful consideration of the risks associated with placing more people within the floodplain at this location, which will result in more people exposed to significant flood risk as well as secondary impacts."

As documented in this FIRA, careful consideration has been given to the risks associated with flooding at this location. The proposal only places more people in the floodplain at a probability of around a 1-in-10,000 AEP (for the lowest elevated dwellings, with dwellings further from the Cedar Party Creek becoming increasingly more rarely impacted). The future subdivision and residential development of the Site will only result in more people being exposed to a very low level of flood risk.

"As a minimum, lots at risk of inundation from Cedar Party Creek and/or Manning River flooding should be excluded as they lose their evacuation route in frequent flood events and may become trapped."

There are no future residential allotments that require excluding because they are all elevated well above the FPL. Further, they have minimal (close to zero) risk exposure from Cedar Party Creek flood events, with isolation only occurring at around a 1-in-600,000 AEP probability and a relatively short isolation period. For Manning River flood events the expected isolation probability is around a 1-in-20,000 AEP and sufficient warning is available for flood evacuation.

"We note from the Council's email that the proponent is looking at extending the building envelope for the C4 Environmental Living land off Youngs Road to the east of the lot and that an amended Flood Impact and Risk Assessment (FIRA) will be prepared. This area is within the Manning River floodplain and inundated a PMF event. Flood behaviour here is characterised by deep and rapidly rising flood waters."

The location of the building envelope within the C4 was not considered in the previous revision of the FIRA, however, this has now been addressed in Section 7.2, including a location plan. The location proposed for the single building envelope in the C4 zoned land has a comparable level of flood risk exposure to those of the R1 zoned land, i.e. very low, and the flood emergency management requirements are also consistent.

"The current FIRA notes that both routes to Taree (east along Wingham Road) and to Wingham are cut as frequently as 10% AEP Manning River flooding events, and rarer events of the Cedar Party Creek. It is understood that works are under way to replace the bridge at Cedar Party Creek crossing, with the new bridge to be elevated "to meet or exceed the 100-year flood level, raising it to close to the level of the Wynter and Combined Streets intersection", increasing the flood resilience for the route to Wingham. Further, we note Council's email comment in relation to "an evacuation route around the 'long way' around on Youngs Road and Cedar Party Road", which, according to the current FIRA, is susceptible to potential impacts of local catchment flooding which should be considered."

Following the imminent completion of the new Cedar Party Creek bridge, the vehicular route from the Site to Wingham will only be impacted by flood events in the order of a 1-in-200 AEP Manning River flood event and 1-in-20,000 AEP Cedar Party Creek flood event. Whilst the main route to Taree is impacted at around a 10% AEP Manning River flood event, the high-level route via Youngs Road and Cedar Party Road only being cut at around the 1-in-20,000 AEP Manning River flood event.

The FIRA addressed the potential for local catchment flood affectation of the Youngs Road route to be comprehensive. However, it concludes that it is not a risk that compromises the function of the route as a reliable flood evacuation route. Most roads in any location across NSW are affected by potential flooding from local catchment sources, let alone falling trees or power lines. There is

never a guaranteed risk-free evacuation route, but the proposed route is considered low risk and consistent with many other existing routes that would be used for flood evacuation. The significantly shorter duration of local catchment flooding and the warning time available to evacuate minimise this potential risk, as documented in the FIRA.

"NSW SES teams responded to multiple requests in the Wingham area in May 2025, with around 85 flood-related requests. This included rescues, food and medical resupplies for isolated families, welfare checks for people who lost communications, assistance with evacuation and assistance with medical transport as people requiring medical care were unable to get to the hospital due to floodwaters. Historically, the NSW SES has also responded to flood rescue requests prior to the recent flood event, including along Wingham Road."

The May 2025 event is the largest flood to have occurred on the Manning River since modern records began. Whilst it inundated existing lower-lying areas in Wingham, it would not have inundated any of the future dwelling locations that will follow this proposed rezoning. Wingham Road is affected as frequently as a 10% AEP Manning River flood event to the east of Youngs Road (and at the former bridge crossing to Wingham) and so it is expected that rescues are likely to have occurred. However, the Site would have maintained access to Taree via Youngs Road and Cedar Party Road during the May 2025 event, as it was not rare enough (by a significant margin) to inundate the lowest level of this route between the proposed Site access and Taree.

"It is important to note that isolation of this area can last between 3- 5 days, which can result in more rescues and will likely require resupply for the community, as occurred in the May 2025 event, putting additional pressure on NSW SES and other emergency services resources as well as the community."

Whilst this statement may be true for some locations in the broader Manning River floodplain, it is not the case for the Site. Inundation of the high-level access route between the Site and Taree is extremely rare (~1-in-20,000 AEP) and flood levels above this would not be sustainable for a day, let alone three-to-five days.

"There is no known safe period of isolation, however, the longer the period of isolation, the more chance there is for mishap requiring external intervention, such as people taking the risk to drive through floodwaters. Even relatively brief periods of isolation, in the order of a few hours, can lead to personal medical emergencies that have to be responded to. During flooding it is likely that there will be a reduced capacity for the relevant emergency service agency to respond in these times."

This is fair statement and is why the level of risk exposure for the proposed development has been carefully considered and measures put in place to ensure that the level of risk exposure is minimised to a reasonable and acceptable degree.

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