Department of Climate Change, Energy, the Environment and Water

What we heard report

Stage 1 public consultation: Draft Murrumbidgee Valley Floodplain Management Plan

July 2024

NSW GOVERNMENT

Acknowledgement of Country

Department of Climate Change, Energy, the Environment and Water acknowledges the traditional custodians of the land and pays respect to Elders past, present and future.

We recognise Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationships to place and their rich contribution to society.

Wiradjuri artist and designer Nathan Peckham from Yurana Creative created Guwunggan*.

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Contents

Executive summary

The Water Group in the NSW Department of Climate Change, Energy, the Environment and Water (the department) is developing a whole-of-valley floodplain management plan (FMP) under the *Water Management Act 2000* (the WM Act) for the Murrumbidgee Valley. This will replace the historical FMP that was originally developed under the *Water Act 1912*.

FMPs are legal instruments made under the WM Act. They set rules for what types of flood works can be constructed on a declared floodplain and where.

The department conducted Stage 1 public consultation from 25 March to 5 May 2024 to seek feedback on key elements that will inform the development of the draft *Floodplain Management Plan for the Murrumbidgee Valley Floodplain* (the draft FMP), including the:

- proposed floodplain boundary
- proposed flood events to be used in hydraulic flood modelling (design floods)
- proposed floodway network, which includes the main floodways, and areas important for the temporary storage of floodwater during the passage of a flood
- flood-dependent and flood-impacted Aboriginal cultural assets and values located within the floodplain
- flood-impacted heritage sites located within the floodplain
- flood-dependent ecological assets that have been identified within the floodplain
- local variances from default rules for flood work applications in different areas of the floodplain.

A report to assist public consultation was published on the department's website to explain the key elements proposed and provide prompts for feedback.

This report details the feedback we received during the Stage 1 public consultation period. Feedback was captured through individual appointments with departmental staff, an online submission form and written submissions. During the consultation period, the department received 33 submissions, and saw 48 people attend 41 appointments.

This feedback is directly informing the development of the full draft FMP, which will be released for public exhibition later in 2024.

About this report

This report provides an overview of community and stakeholder feedback on the key elements of the draft FMP, received during the consultation period 25 March to 5 May 2024.

The purpose of this report is to outline where changes are being considered or will be made in response to the feedback received. It also aims to assure community and stakeholders that we have heard the points of clarification, concerns and issues they raised in their feedback.

This report consists of:

- an overview of the engagement process and participation by stakeholders
- a summary of what we heard on the key elements proposed and our responses to the feedback received
- other feedback received that is out of scope of the draft FMP (detailed in Appendix 1)
- refinements made to the proposed floodway network (Appendix 2) and identified flood-dependent ecological assets (Appendix 3) in response to the feedback received.

Introduction

Background

The purpose of Stage 1 public consultation was to provide an early opportunity for community feedback on key elements that will inform the development of the draft FMP before formal public exhibition in late 2024. This included:

- confirming and verifying information that will be used in the draft FMP at a property scale,
- enabling the department to respond to stakeholder feedback and, where appropriate, make changes to the key elements prior to developing the draft FMP.

The department was seeking feedback on the proposed floodway network and flood-dependent assets to identify and confirm areas of the floodplain that require protection. FMPs protect these areas by restricting the types of flood works that can be constructed. This allows floodwater to move freely to and from a river, or to environmental and cultural assets that rely on it.

FMPs are required under the WM Act to consider the risk to life and property from the effects of flooding. The identification and confirmation of the proposed floodway network informs this consideration. The construction of a flood work in an area which has fast-flowing floodwater (floodways) can significantly increase the risk to life and property; both on the landholding where the flood work is constructed and on neighbouring properties. The draft FMP will limit the types and size of flood works constructed in floodways to minimise the risk to life and property.

To ensure community and stakeholders had an opportunity to have their say, the department held a series of in-person and online appointments throughout the consultation period. An overview of these activities and the key issues raised during consultation is outlined below.

Engagement overview

Stage 1 public consultation on the draft FMP commenced on 25 March and closed on 5 May 2024. To assist the public in understanding the key elements proposed and how to make a submission, we published several resources on a dedicated web page, including:

- a Report to assist Stage 1 public consultation

- a pre-recorded presentation
- an interactive spatial map displaying the:
    - proposed floodplain boundary
    - proposed floodway network
    - identified ecological assets
- details of where engagement activities were taking place and how to register.

Individual appointments with departmental staff were held in-person in Hay (3 April), Balranald (4 April), Darlington Point (10 April) and Wagga Wagga (11 April), as well as online (multiple dates) and over the phone (multiple dates).

To promote the consultation, we:

- posted letters to landholders within the mapped floodways (deep, fast-flowing floodwaters)[1].
- ran print, social and digital advertisements
- sent emails to registered landholders, peak bodies, and the department's Water e-newsletter subscribers.

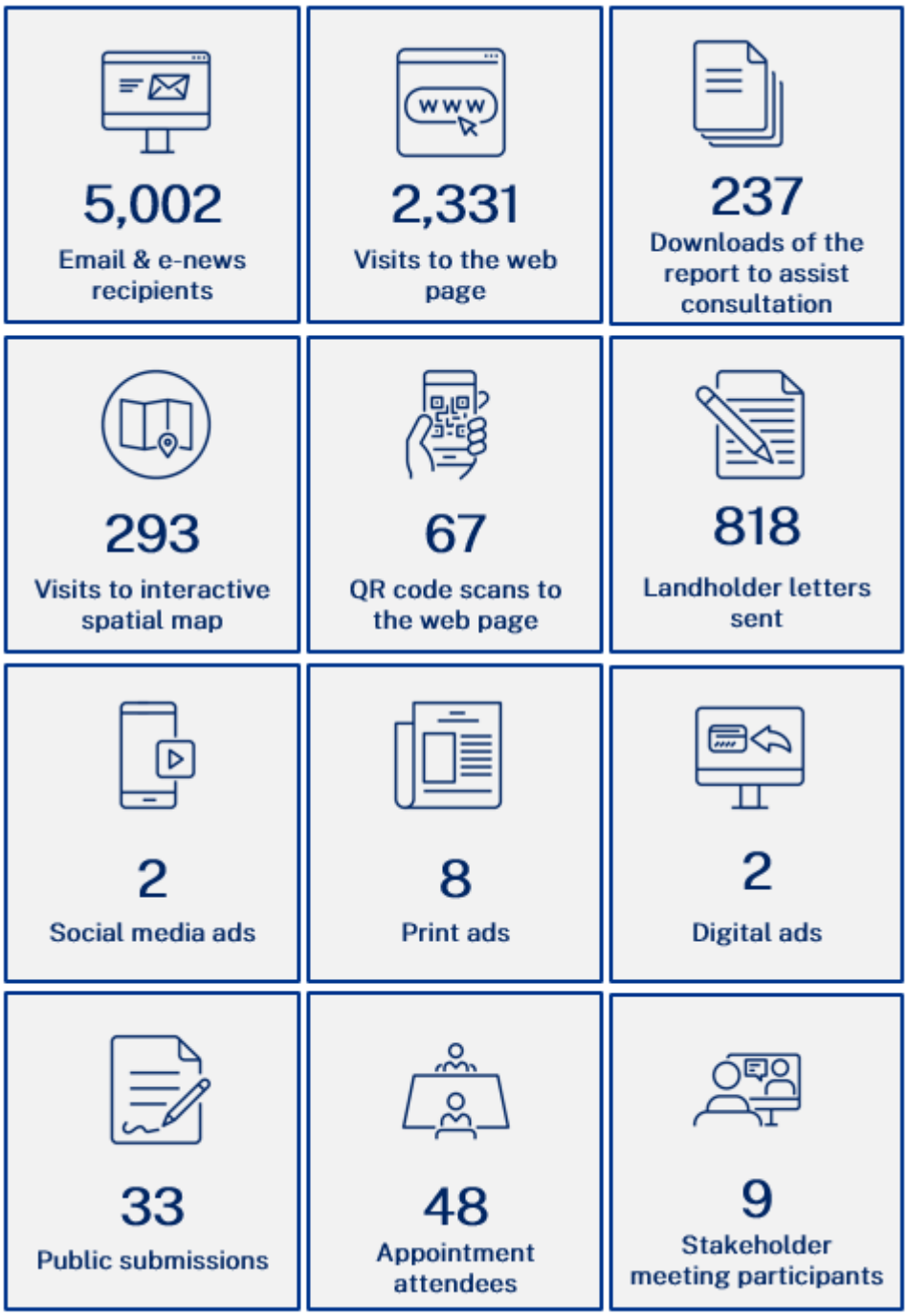
To ensure broad and equitable engagement, we extended invitations to individuals who participated in the information sessions held in June 2023 which aimed to collect flooding information, and to representative groups for:

- Traditional Owners and Aboriginal communities
- irrigators and other peak water users
- environmental interests
- business interests
- Australian Government, NSW Government and other state government agencies
- regional councils.

A summary of the engagement statistics is provided in Figure 1.

[1] Letters were targeted using postal address information from NSW Land Registry Services. This was the best available information to the department at the time. We acknowledge that not every landholder may have received a letter. To stay up to date with all current engagements within the department, please subscribe to our email distribution list.

Figure 1: Engagement activities at a glance



Who we spoke to

During the consultation period, we spoke with 48 individuals at 41 appointments. Appointments were primarily with individual landholders, irrigator groups and local councils. We also presented at a Murrumbidgee Aboriginal Water Committee meeting in Tumut. See Table 1 for an overview of engagement attendance.

Table 1: Overview of engagement attendance from 25 March to 5 May 2024

Date	Engagement platform	Participants
26 March 2024	Murrumbidgee Aboriginal Water Committee meeting	9
2 April 2024	Individual online/phone appointments	3
3 April 2024	Individual appointments at Hay	2
4 April 2024	Individual appointments at Balranald	7
8 April 2024	Individual online appointments	2
9 April 2024	Individual online/phone appointments	6
10 April 2024	Individual appointments at Darlington Point	15
11 April 2024	Individual appointments at Wagga Wagga	9
On request	Additional online/phone appointments	4
25 March to 5 May	Total number of participants engaged	57
25 March onwards	Submissions received	33

What we heard

This section provides a summary of the feedback received on the key elements presented in the Report to assist Stage 1 public consultation. This feedback includes submissions received, and questions and comments made in appointments with departmental staff.

Proposed floodplain boundary

The proposed Murrumbidgee Valley Floodplain boundary, shown in Figure 1 in the Report to assist public consultation, was mapped to capture the areas that are low-lying, adjacent to a river or creek, and are generally inundated during large flood events while considering flood works that may influence the way floodwater moves across the landscape.

The public were asked to make comments on the proposed floodplain boundary, in particular at a property scale. Table 2 outlines the feedback received.

In written submissions, most stakeholders did not comment on the proposed floodplain boundary. Of those who did, some agreed with the proposed floodplain boundary, either at their property scale or more broadly, and several made recommendations for updates.

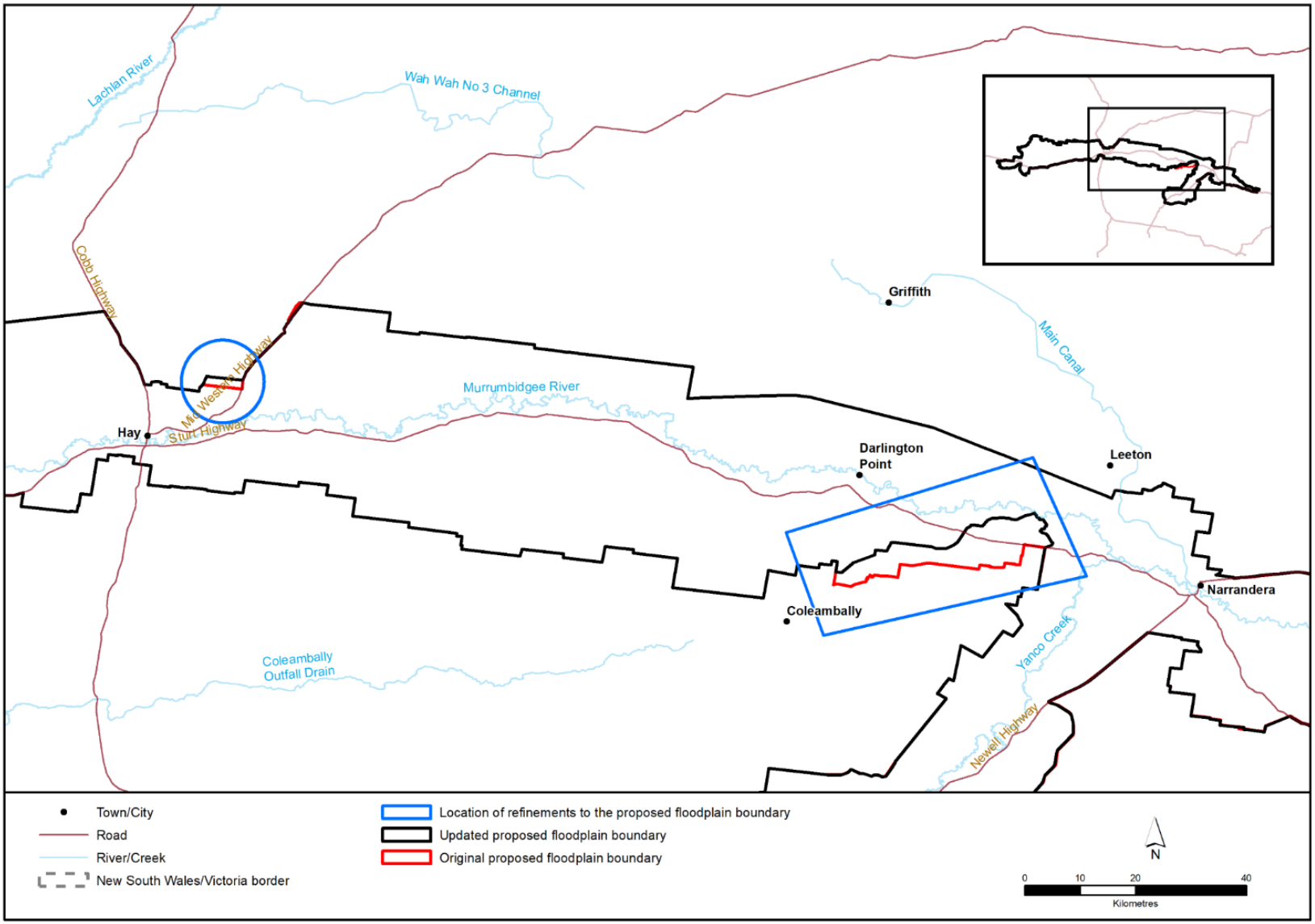
Table 2: Feedback received on the proposed Murrumbidgee Valley Floodplain boundary

Feedback	Departmental response
The floodplain boundary appears appropriate or acceptable.	Noted.
Localised and/or property-scale feedback on the proposed floodplain boundary was provided via a map, based on past experience of flooding in the area.	The feedback received has resulted in 2 refinements being made to the proposed floodplain boundary. These refinements are shown in Figure 2. The floodplain boundary west of Wagga Wagga was also smoothed to better align with the Sturt Highway. This change is not shown on Figure 3. Other refinements were investigated and a decision was made not to refine the boundary as the areas were determined to be within an adjacent floodplain area.
The boundary should be refined to reflect the extent of a larger 1% AEP flood event. This will account for future climate variability and	The proposed floodplain boundary has not been extended to reflect a larger flood event (1% AEP). The hydraulic model already accounts for climatic variability by using a relatively recent

Feedback	Departmental response
intensity, including linear depressions that flow out of the main Murrumbidgee River.	flood, therefore incorporating climate change that has occurred.
The floodplain boundary is incorrect. Different agencies offer different opinions with data.	Noted. The department has collaborated and consulted with several agencies to gather data to inform the proposed floodplain boundary.
There is a lack of confidence in the proposed floodplain boundary as it is based on models that cover a very large area, including over the top of sand hills.	While the proposed floodplain boundary uses hydraulic modelling results, it has also been mapped with consideration of: • inundation data within the catchment • the extent of the historical FMP • water source boundaries, as established in water sharing plans • local government areas • major roads and railway lines. Isolated areas of higher elevation such as sand hills are included within the proposed floodplain boundary. These areas will be mapped as being outside the proposed floodway network and consequently, will be considered in the same way to areas that are protected from flooding by approved flood works.
The proposed floodplain boundary does not take into account the Sturt Highway which is a levee.	The proposed floodplain boundary follows the Sturt Highway for 90 km southwest of Hay to southeast of Balranald. East of Hay, the proposed floodplain boundary includes Gum Creek which lies within the inundation extent for the large design flood (2012). The department notes that in many areas the Sturt Highway is causing localised flooding problems. The department will raise this feedback with the local councils and other relevant agencies.

Feedback	Departmental response
	It is important that road construction and maintenance is undertaken in a manner that ensures flood flow connectivity throughout the floodplain.
The proposed floodplain boundary should be modified to capture the extent of river flood inundation more accurately for the design event selected.	The department is confident that the proposed floodplain boundary reflects the extent of flooding associated with the large design flood (2012) and small design flood (2016). Some areas that were inundated and are external to the Murrumbidgee plan boundary are covered by adjacent FMPs, such as the Lachlan, Billabong and Murray.

Figure 2: Refinements to the proposed floodplain boundary



Proposed design floods

The following proposed design floods were used to model the proposed floodway network:

- large design flood of March 2012: 2% AEP at the Murrumbidgee River at Narrandera gauge (410005)
- small design flood of October 2016: 14% AEP at the Murrumbidgee River at Narrandera gauge (410005).

We asked the public for comments on the proposed design and if it aligned with their experience of past flood events. Table 3 outlines the feedback received and the department's responses.

In written submissions, most stakeholders did not comment on the proposed design floods. One submission noted that the design floods were significantly larger at Darlington Point than other areas of the proposed floodplain. A small number of stakeholders either agreed that the proposed design floods were reasonable to use or suggested that the 2022, 1974 or 1956 flood event should be used as the large design flood event.

Table 3: Key themes of feedback received on the proposed design floods

Feedback	Departmental response
The 2012 and 2016 floods are reasonable floods to use to model the floodway network.	Noted.
The timing of past flood events should also be taken into consideration. It should consider seasonal variation of groundcover which can affect the flow of flood water.	The groundcover is a variable incorporated into the hydraulic models, expressed as surface "roughness". This is a key calibration parameter for each flood event. More information about the hydraulic model data and parameters is presented in Appendix 1 of the Report to assist public consultation.
The 2022 flood event should be considered as the large design flood as it seems more relevant.	The March 2012 flood event was selected because flood flows were more consistent throughout the floodplain, as compared to other large flood events, including the 2022 flood. While there is a large amount of information about the 2022 flood event, flooding was less consistent across the valley, with lower flows recorded at Wagga Wagga (upstream) and larger flows around the Hay Weir (downstream). The 2012 flood event was more representative of a large flood in the Murrumbidgee Valley Floodplain.

Feedback	Departmental response
The extent of the 1956 and 1974 floods should be considered as reference points to the changes in inundation as a consequence of more recent floodplain development.	Older events such as the 1974 flood event have been modelled for comparison to the more recent events. Assessment of the cumulative impacts of floodplain development will be included within the draft FMP.
The 2012 and 2016 floods were significantly larger around Darlington Point and downstream of Hay than any other area in the proposed floodplain and this means the proposed floodways may be conservatively wide based on the modelling.	The 2012 peak at Darlington Point (gauge 410021) was similar to the 2022 flood event (7.75 m versus 7.61 m respectively). In many other locations, the 2022 flood was significantly greater than the 2012. The department has reviewed flow, volume and levels throughout the floodplain and determined that the 2012 flood is more representative of typical floods in the Murrumbidgee Valley and this is why it was chosen as the large design flood.

Proposed floodway network

The proposed floodway network is comprised of **floodways** (approximately 5% of the floodplain) and the **inundation extent** (ponding areas) (approximately 30% of the floodplain). The proposed floodway network is shown in Figure 2 in the Report to assist public consultation.

We asked stakeholders if the proposed floodways and inundation extent aligned with their experience of past flood events. Table 4 shows the feedback received and the department's responses.

In written submissions and individual appointments, most stakeholders provided localised feedback on the proposed floodways or inundation extent (or both) via a map. Several stakeholders did not comment on the proposed floodway network.

Table 4: Key themes of feedback received on the proposed floodway network

Feedback	Departmental response
The floodway network appears accurate.	Noted.
The floodway network should be amended to be consistent with the Narrandera Floodplain Risk Management Study and Plan.	The proposed floodway network has been amended to be consistent with the flood risk management plans and studies for Narrandera, Darlington Point, Hay and Maude. These

Feedback	Departmental response
	refinements are shown on Figures 3 to 6 in Appendix 2. The department will continue to work with local councils across the Murrumbidgee Valley Floodplain as part of developing the draft FMP, including sharing data from the hydraulic models.
Localised, property-scale feedback on the floodways or inundation extent (or both) was provided via a map, based on past experience of flooding in the area.	The feedback received has resulted in 15 refinements being made to the proposed floodway network. These refinements are shown on Figures 3 to 8 in Appendix 2. The proposed floodway network has also been refined to align with changes to the proposed floodplain boundary. Where proposed refinements related to unapproved flood works, no change was made. An updated interactive spatial map will be published as part of Stage 2 public consultation of the draft FMP.
The proposed floodway network does not account for existing floodplain development (for example, an embankment, supply channel or a storage).	Where existing floodplain development is approved, refinements have been made to the proposed floodway network to reflect this development. Where existing floodplain development is unapproved, no refinement has been made. In NSW, all flood works require a flood work approval unless an exemption applies. Landholders are encouraged to speak to WaterNSW about the status of any existing works. For more information, please contact WaterNSW on 1300 662 077 or customer.helpdesk@waternsw.com.au
The proposed floodway network does not account for existing public infrastructure.	Public infrastructure, such as roads, railways and WaterNSW structures have been

Feedback	Departmental response
	incorporated into the hydraulic models and have been reviewed following this feedback.
The frequency of water movement and inundation has been overstated and the floodway network is too simplistic.	The proposed floodway network is based on the proposed design floods. The frequency of a channel flowing is not a defining characteristic of the proposed floodway network. More information about the hydraulic model data and parameters is presented in Appendix 1 of the Report to assist public consultation.
Localised feedback on flood flow direction.	The department has investigated the areas identified and confirmed that the modelled flood flow direction is accurate, particularly when consideration is given to how the models do not recognise unapproved flood works. For more information, please refer to Figure 8 in the Report to assist public consultation.
Maps showing the inundation extent for different historical flood events would be helpful.	Noted. The department will investigate this suggestion for future periods of public consultation.

Identified flood-dependent and flood-impacted Aboriginal cultural assets and values

The Aboriginal cultural assets and values located within the Murrumbidgee Valley Floodplain and currently registered on the Aboriginal Heritage Information Management System (AHIMS) is shown in Figure 3 in the Report to assist public consultation. This information was presented to demonstrate the abundance of Aboriginal cultural sites throughout the Murrumbidgee Valley Floodplain.

We asked the public if any other Aboriginal cultural assets or values on the floodplain should be considered. Table 5 shows the feedback received and the department's responses.

In written submissions and individual appointments, most stakeholders did not comment on the identified Aboriginal cultural assets and values on the floodplain. Of the small amount of feedback received, most suggested that WaterNSW undertake a search of AHIMS prior to the pre-application meeting for flood work approvals.

Table 5: Feedback received on the identified flood-dependent and flood-impacted Aboriginal cultural assets and values

Feedback	Departmental response
Not all Aboriginal cultural assets and values are listed in AHIMS.	To ensure that Aboriginal cultural assets and values are protected from the impacts associated with flood works, the department has been explaining and promoting the use of AHIMS as part of consultation with Aboriginal communities.
If a search of AHIMS is required, it should be done by WaterNSW before the pre-application meeting for a flood work approval and the applicant informed of any issues that need addressing.	Noted. This feedback will be provided to WaterNSW for their consideration. A search of AHIMS is undertaken as part of the assessment process for flood work approvals.
All First Nations and Traditional Owners should be consulted along the Murrumbidgee River	The department has undertaken significant consultation with Aboriginal communities, including Traditional Owners, throughout the Murrumbidgee Valley Floodplain, and will continue to do so as the draft FMP is developed. For a summary of this consultation, please refer to Appendix 2 in the Report to assist public consultation.

Feedback	Departmental response
The use of AHIMS searches is a simple and effective way of identifying Aboriginal cultural assets.	Noted. A search of AHIMS is undertaken as part of the assessment process for flood work approvals.
While there has been a lot of development since the 1950s there would still be patches of woodland and grassland areas where First Nation's cultural assets can be preserved and left undeveloped.	Noted.
There are many Aboriginal cultural values on the floodplain and it shows the longevity of the river and the communities it supported for thousands of years and continues to support.	Noted.

Identified heritage sites

The heritage sites located within the Murrumbidgee Valley Floodplain and currently listed on the State Heritage Register are shown in Figure 4 in the Report to assist public consultation. This information was presented to demonstrate the range of heritage sites throughout the Murrumbidgee Valley floodplain.

We asked the public if any other heritage sites on the floodplain should be considered. The feedback received and associated departmental response is shown in Table 6 shows the feedback received and the department's responses.

In written submissions, most stakeholders did not comment on the identified heritage sites on the floodplain. Of the small amount of feedback received, most suggested that Water NSW undertake a search of heritage sites prior to the pre-application meeting for flood work approvals.

Table 6: Feedback received on heritage sites

Feedback	Departmental response
If the heritage sites are not flood-dependent, then the rules for allowable changes in flow conditions will ensure that they are not damaged.	Noted. Only flood-dependent or flood-impacted heritage sites are considered in FMPs.
If a search of heritage sites is required, it should be done by WaterNSW before the pre-application meeting for a flood work approval and the applicant informed of any issues that need addressing.	Noted. This feedback will be provided to WaterNSW for their consideration.

Feedback	Departmental response
	A search of the NSW Heritage database is undertaken as part of the assessment process for flood work approvals.
Many heritage sites have been damaged by fires and termites.	Noted.

Identified flood-dependent ecological assets

The following types of ecological assets were identified within the Murrumbidgee Valley Floodplain:

- wetlands: semi-permanent wetlands (non-woody) and floodplain wetlands (flood-dependent shrubland wetlands)
- other floodplain ecosystems: flood-dependent forest/woodland (wetlands) and flood-dependent woodland.

The identified flood-dependent ecological assets are shown in Figure 5 in the Report to assist public consultation.

We asked stakeholders if they agree with the types of assets identified and if there are any other ecological assets on the floodplain that should be considered. Table 7 shows the feedback received and the department's responses.

In written submissions, about one-third of stakeholders did not comment on the flood-dependent ecological assets. Most feedback received, either through written submissions or in individual appointments, suggested that the ecological assets were identified incorrectly at a localised and property-specific scale.

Table 7: Feedback received on identified flood-dependent ecological assets

Feedback	Departmental response
There was concern that some ecological assets are no longer visible in developed or cultivated areas or should not be considered flood-dependent assets (for example, isolated paddock trees). Localised, property-scale feedback on the mapped ecological assets was provided via a map.	The feedback received has resulted in refinements being made to the identified ecological assets in 10 areas. These refinements are shown in Figures 9 to 13 in Appendix 3. The identified flood-dependent ecological assets have also been refined to align with changes to the proposed floodplain boundary. Prior to Stage 2 public exhibition of the draft FMP, the department will refine the identified ecological assets further to remove:

Feedback	Departmental response
	• assets that are no longer visible within developed or cultivated areas • isolated trees in areas that have previously been cleared • gardens associated with rural dwellings and outbuildings. An updated interactive spatial map will be published as part of Stage 2 public exhibition of the draft FMP.
How are wetlands defined?	Wetlands refer to areas of land that are wet by surface water and/or groundwater for long enough periods that plants and animals within them have adapted to, and depend on, the moist conditions for at least part of their lifecycle. They include areas that are inundated cyclically, intermittingly or permanently with fresh, brackish or saline water, which is generally still or slow moving except in distribution channels. Wetlands in the ecological assets map include semi-permanent (non-woody) wetlands and floodplain (flood-dependent shrubland) wetlands. The plant community types in the wetland category and their watering requirements are shown in Table 10 in Appendix 3 of the Report to assist public consultation. The department notes that some areas in the ecological asset map have been incorrectly mapped as wetlands and have been corrected (for example, a water storage rather than a natural wetland).
Supportive of thorough approach taken to map ecological assets including using the directory of important wetlands in Australia. Ecological criteria underpinning the plan should use recognised data sources to emphasise the significance of the flood-dependent ecological assets on the floodplain.	Noted.

Feedback	Departmental response
The draft FMP could incorporate the CSIRO's work on groundwater dependent ecosystems in the Murrumbidgee Valley.	There are several groundwater dependent ecosystems (GDEs) that have been identified in the Murrumbidgee Valley Floodplain using the Probable Vegetation Groundwater Dependent Ecosystems - Murray / Murrumbidgee dataset (Department of Primary Industries Water 2016). These GDEs rely on a combination of groundwater and overland flows. The draft FMP aims to protect groundwater recharge, which GDEs are reliant on, by maintaining connectivity to key floodplain areas.
Red gums can use much more frequent waterings than black box.	Noted. Red gums and black box have been mapped separately in the flood-dependent ecological asset identification.
Ecological assets are easily identifiable from the spatial maps. WaterNSW should inform the applicant of any potential issues at the pre-application meeting.	Noted. The department will ensure this feedback is provided to WaterNSW. The ecological assets map will be published as an interactive map service when the FMP commences to support the implementation of the plan.
Concern that areas identified as ecological assets may have an impact on the future use of these areas.	Any development on a floodplain will need to consider the impact on flood-dependent ecological assets. This applies to areas within and outside flood-dependent ecological assets. The identified flood-dependent ecological assets are sourced from existing vegetation mapping, including the publicly available NSW State Vegetation Type Map (2022 release). FMPs are focused on the passage of floodwater to wetlands and other flood-dependent vegetation communities. Conversely, the biodiversity conservation framework is focused on native vegetation clearing. More information about biodiversity legislation in NSW is available on the department's website.

Localised variances to some rules for flood work applications

The types of flood works proposed to be permitted within a floodway are detailed in Table 1 in the Report to assist public consultation. Further, feedback was sought on the maximum height to be applied to standard and primary access roads with 10 cm being the lower end of the threshold and 50 cm being the upper end of the threshold.

We asked the public if other essential works types should be considered for approval in floodways and what an appropriate height would be for a standard or primary access road. Table 8, Table 9 and Table 10 show the feedback received and the department's responses.

In written submissions, most stakeholders did not comment on localised variances to some rules for flood work applications.

In relation to the proposed flood works to be permitted within a floodway, some stakeholders suggested that all types of works should be permitted if it can be demonstrated that the work will not pose an impact on neighbouring properties. A few stakeholders suggested that rules for all flood works should allow for connectivity of flood flows.

Table 8: Feedback received on proposed flood works permitted in a floodway

Feedback	Departmental response
Additional types of works should be allowed in a floodway such as above ground supply channels and levees.	Under the WM Act, the draft FMP must consider the risk to life and property during times of flood. The construction of a flood work, such as a levee or above ground supply channel, can significantly increase the risk to life and property; both on the landholding where the flood work is constructed and on neighbouring properties. The types of flood works proposed to be permitted within floodways balance the need to protect life, infrastructure, or stock, with the potential impact they may have on the flow and distribution of floodwater.
All types of works should be permitted in a floodway if they do not change the flow distribution, velocities or depth on any neighbouring property.	See response above.
The works should not be limited by type, they should only be limited by the effects they have, regardless of floodway network classification.	See response above.

Feedback	Departmental response
The list of flood work types be extended to capture supply channel and drainage infrastructure.	See response above.
New or proposed works should be treated differently to existing works	The draft FMP will include proposed rules that relate to flood works that were constructed in a floodway prior to the draft FMP commencing. The types of works permitted does not change, whether they are new or existing, however the assessment criteria is proposed to be slightly different to allow for the approval of existing works.
Before any works are permitted, a flood model should be used to see what the water does first and the works should allow for the adequate passage of floodwaters.	Building on the requirements in the existing Hay to Maude FMP, the draft FMP may require applicants for flood work approvals to submit technical studies or supporting information to demonstrate that a proposed flood work will meet the hydraulic and environmental assessment criteria in the draft FMP. The proposed rules and assessment criteria will be released for comment as part of Stage 2 public exhibition of the draft FMP.
Protection of high value permanent crops and associated infrastructure assets should also be considered. These may include pump stations, fertiliser and chemical sheds etc.	It is unlikely that a permanent crop area is located within an area of fast flowing floodwater (floodway). Outside of a floodway, levees may be constructed to protect crops, subject to meeting the relevant proposed rules and assessment criteria in the draft FMP. The intent of the rules and assessment criteria is to minimise impacts on neighbouring properties and the downstream environment. The proposed rules and assessment criteria will be released for comment as part of Stage 2 public exhibition of the draft FMP. Infrastructure protection works are flood works designed to protect infrastructure such as sheds and pump stations. These types of works are proposed to be permitted within a floodway.

Feedback	Departmental response
Where water channels cross a main flood runner, the channel should be a piped subway to allow the free flood flow.	Noted. This type of work would be a below ground supply channel or pipe and is proposed to be permitted within a floodway. The proposed rules in the draft FMP will include specifications for supply channels within floodways to allow for the adequate passage of floodwater.
Practicality and common sense need to prevail.	Noted.

In relation to the appropriate maximum height (10 cm to 50cm) for standard access roads within a floodway:

- one-third of stakeholders did not comment on the height of standard access roads
- one-third suggested an unlimited height if there is no impact or a maximum height of 20 cm if there is an impact on neighbouring properties
- a few stakeholders recommended various maximum heights between 10 cm and 100 cm, with 50 cm being the most common.

Table 9: Feedback received on standard access road heights (10 cm to 50 cm)

Feedback	Departmental response
The department should provide clarification around what the 10-50 cm height for access roads is referring to.	Feedback was sought on an appropriate maximum height of an access road, measured from the natural surface of the ground. The maximum height of an access road balances the need to ensure access during times of flood with the potential impact it may have on the flow and distribution of floodwater.
50 cm is not high enough. 100 cm would provide adequate access to infrastructure during flooding.	Noted. The department is currently reviewing all feedback received to determine an appropriate maximum height for standard access roads.
Where the access road has any effect on the floodway network on neighbouring properties the limit should be 20 cm. Where it can be demonstrated they have no effect there should be no limitation.	See response above.

Feedback	Departmental response
Standard access roads should be allowed to be built to 50 cm above natural surface level.	See response above.
Difficult because natural surface can be undulating so to put a max height is simplistic, 30 cm may be enough.	See response above.
Access roads need to have adequately sized culverts or causeways to allow the passage of floodwater.	The draft FMP will include proposed rules that require the installation of causeways as part of constructing an access road to maintain the flow of floodwater.
Good roadside drainage, that has somewhere to flow to, is more important than building the roads up higher.	See response above.
Practicality and common sense needs to prevail.	Noted.

In relation to the appropriate maximum height (10 cm to 50cm) for primary access roads within a floodway:

- one-third of stakeholders did not comment on the height of primary access roads
- one-third suggested an unlimited height if there is no impact or a maximum height of 20 cm if there is an impact on neighbouring properties
- a few stakeholders recommended a maximum height of 50 cm.

Table 10: Feedback received on primary access road heights (10 cm to 50 cm)

Feedback	Departmental response
Primary access roads should be allowed to be built to 50 cm above natural surface level.	Noted. The department is currently reviewing all feedback received to determine an appropriate maximum height for primary access roads.
Primary access roads should be allowed to be built to 100 cm above natural surface level or as high as required to get out during a flood.	See response above.
Where the access road has any effect on the floodway network on neighbouring properties the limit should be 20 cm. Where it can be	See response above.

Feedback	Departmental response
demonstrated they have no effect there should be no limitation.	
Access roads need to have adequately sized culverts or causeways to allow the passage of floodwater.	The proposed rules in the draft FMP will require the installation of causeways for access roads constructed within a floodway to allow for the adequate passage of floodwater. This requirement may also apply in other areas of the floodplain depending on where and how the floodwater moves.
The construction of access roads, and the requirement to include culverts on these roads adds an enormous financial burden on landholders without receiving financial support/assistance from government to construct these.	The proposed rules in the draft FMP will require the installation of causeways for access roads constructed within a floodway to allow for the adequate passage of floodwater. This requirement may also apply in other areas of the floodplain depending on where and how the floodwater moves. It is the responsibility of each landholder to decide whether, and where, to construct an access road and to apply for a flood work approval.
Practicality and common sense needs to prevail.	Noted.

General feedback

As part of Stage 1 public consultation, stakeholders were able provide general feedback or any other comments. Some of the general feedback is outside the scope of the draft FMP and is summarised in Appendix 1. Table 11 shows the general feedback that relates to the draft FMP and the department's responses.

Table 11: General feedback provided by stakeholders

Feedback	Departmental response
Local roads such as the Sturt Highway or Newell Highway are causing localised flooding problems. There needs to be adequate drainage (siphons, culverts and causeways) to allow floodwater to reach the full extent of floodplain and flood runners.	The department will raise this feedback with the relevant local councils and other government agencies. It is important that road construction and maintenance is undertaken in a manner that ensures flood flow connectivity throughout the floodplain.

Feedback	Departmental response
The models should be adaptive and respond to changes in the region with periodic review.	The hydraulic models are reviewed and updated regularly. They are updated to incorporate additional flood works following the granting of a flood work approval or other changes in the landscape such as road or rail upgrades. The hydraulic models are also reviewed and updated based on the availability of new information and technology.
Modelling should consider water quality to improve environmental outcomes.	The hydraulic models have been developed to identify how flood water moves across the floodplain during times of flood. Building on the requirements in the existing Hay to Maude FMP, the draft FMP may require applicants for flood work approvals to submit technical studies (e.g. modelling results) to demonstrate that a proposed flood work will meet the hydraulic and environmental assessment criteria in the draft FMP. This includes the proposed requirement to minimise local increases in flood flow velocities that may lead to erosion and siltation. This requirement contributes to the protection of water quality. The proposed rules and assessment criteria will be released for comment as part of Stage 2 public exhibition of the draft FMP.
The assessment criteria for flood work applications in the FMP should have larger allowable changes to flood flow depth, velocity and redistribution as the 2012 and 2016 design floods were significantly larger around Darlington Point and downstream of Hay than any other area in the proposed floodplain.	Noted. The proposed rules and assessment criteria will be released for comment as part of Stage 2 public exhibition of the draft FMP.
There were issues in the northern basin FMPs where the rules prevented the approval of appropriate development. Suggest the intent of the FMPs are to sterilise the areas.	FMPs only restrict the type of flood work that can be constructed within a floodway to ensure that floodwater can move freely to or from a river or to assets that rely on it. For areas outside floodways, the proposed rules and assessment criteria will allow for floodplain

Feedback	Departmental response
	development to occur in a coordinated manner while minimising negative impacts to neighbouring properties and flood-dependent assets. Flood works also have a cumulative impact on the floodplain landscape over time. The proposed rules and assessment criteria are intended to balance the need to protect life and property with the need to facilitate the orderly passage of floodwater through the floodplain. The proposed rules and assessment criteria will be released for comment as part of Stage 2 public exhibition of the draft FMP.
The hydraulic model grid size in the Darlington Point to Hay section of the model is 40 m. This is the least detailed area of the model and is the least accurate in terms of defining the terrain and determining the extents of inundation. A model grid size of 15m should be used for confidence in the model outputs that determine the floodway network.	The hydraulic model size around Darlington Point uses a combination of 40 m grid size on broad floodplain areas, 20 m grid size around structures and 10 m grid size in key waterways.
Concerns about neighbours having unapproved flood works.	The Natural Resources Access Regulator (NRAR) is responsible for investigating potentially unapproved flood works and taking compliance action when necessary. To report concerns regarding unapproved works, please visit the NRAR website at nrar.nsw.gov.au/report-suspicious-water-activities. You can also contact NRAR on 1800 633 362 during business hours or via email nrar.enquiries@nrar.nsw.gov.au
One on one meetings are preferred and works well.	Noted. The department has also found the one-on-one meetings very constructive in receiving feedback and being made aware of local floodplain management issues.

Feedback	Departmental response
Phone calls to inform of events relating to FMPs.	The department distributes information about engagement activities for FMPs in a number of different ways to reach as many people as possible in the most efficient way. To promote this public consultation, we: • posted letters to landholders within the mapped floodways • ran print, social and digital advertisements • sent emails to registered landholders, peak bodies, and the department's Water e-newsletter subscribers. To stay informed about FMPs and other engagement opportunities, please subscribe to receive email updates from the Water Group, including our e-newsletter.
Floodwater should be allowed to flow unimpeded.	Noted. FMPs aim to maintain the unimpeded flow of floodwater while balancing the need to protect life and property during times of flood.
The Murrumbidgee FMP should attempt to be 'Nature Positive' and be used to protect its natural assets.	The draft FMP will protect flood-dependent ecological assets from the impacts of development on the floodplain.
I was not informed the FMP was being developed.	The department distributes information about engagement activities for FMPs in a number of different ways to reach as many people as possible in the most efficient way. To promote this public consultation, we: • posted letters to landholders within the mapped floodways • ran print, social and digital advertisements • sent emails to registered landholders, peak bodies, and the department's Water e-newsletter subscribers. To stay informed about FMPs and other engagement opportunities, please subscribe to

Feedback	Departmental response
	receive email updates from the Water Group, including our e-newsletter.

Next steps

The feedback outlined in this report is informing the development of the draft FMP. The department will refine the proposed key elements where it is indicated in our responses that a change will occur. Feedback that is not factored into the draft FMP will be communicated in future documents.

Consultation on the draft FMP is an ongoing process, and we will continue to communicate with the community and stakeholders. Public exhibition of the draft FMP is scheduled for late 2024. We will share project updates on our website at: water.nsw.gov.au/murrumbidgee-floodplain-management-plan

Appendices

Appendix 1: Broader issues

The issues summarised in Table 12 are out of scope for the development of the draft FMP. However, they are provided for information and context.

Table 12: Broader issues raised during Stage 1 public consultation

Feedback	Departmental response
Consider expanding ecological assets instead of destroying habitat for housing developments or more agriculture.	Noted.
Confusion between the process for developing the draft FMP and the Reconnecting River Country Program.	The draft FMP will set rules for what types of flood works can be constructed and where on the floodplain. It does not deal with the take of water or environmental flows. The Reconnecting River Country Program is working toward the future delivery of environmental flows to improve the health of the environment and ensure Murray-Darling Basin Plan environmental outcomes are met. The Basin Plan program proposes to establish flow corridors to facilitate the flexible use of environmental water in the Murrumbidgee and Murray River systems. The process to establish the flow corridor involves the program working with stakeholders and Basin state governments to identify feasible program measures that can be implemented to relax flow constraints and mitigate impacts from higher environmental water delivery. For more information, visit dpie.nsw.gov.au/water/our-work/water-infrastructure-nsw/sdlam/reconnecting-river-country-program Both programs have the common goal of improved river and floodplain health, while

Feedback	Departmental response
	using the best available data and information to make planning decisions. Our teams are working together to deliver the best possible outcomes for floodplain communities and the environment in the Murrumbidgee Valley.
Concern that areas identified as ecological assets may have an impact on any future compensation in regard to the "Reconnecting Rivers Program".	See response above.
Concerned with risk to life and property as a result of environmental flows in relation to Reconnecting River Country.	See response above.
Grants would assist in design and implementing flood works and for maintenance of these works.	This is out the of scope of an FMP under the WM Act. The FMP will set rules for what type of flood work can be constructed and where throughout the floodplain. It is the responsibility of each landholder to decide whether to construct a flood work and, once approved and constructed, to maintain the flood work.
Old levees have breached and not been repaired.	It is the responsibility of the landholder to repair and maintain flood works on their land.
Who do I contact to seek an approval to fill in an old drain that is no longer needed?	An application for a controlled activity approval may apply. For more information or assistance, contact the department's Licensing and Approvals team via water.enquiries@dpie.nsw.gov.au or call 1300 081 047.
Finding a suitable aquifer to hold water underground would be an enormous advantage when droughts come. These can be used to reduce the impacts of flooding plus give us some protection from drought.	Noted. The NSW Government is in the early stages of investigating managed aquifer recharge as an option for improving town water security and to possibly support the agricultural sector. See

Feedback	Departmental response
	Priority 6 of the NSW Water Strategy for more information. The draft Murrumbidgee Regional Water Strategy was also on public exhibition from Wednesday 22 May to Sunday 14 July 2024. For more information on constructing a bore or obtaining a groundwater licence, please contact WaterNSW on 1300 662 077 or customer.helpdesk@waternsw.com.au
Improved connectivity between wetlands can be achieved when constraints are removed. Modelling should be used to help produce maps that look at optimising existing flood works to improve environmental outcomes.	FMPs do not deal with the removal of flood works. The modelling data is being shared with the Reconnecting River Country Program. This program is working toward the future delivery of environmental flows to improve the health of the environment and ensure Murray-Darling Basin Plan environmental outcomes are met. For more information, visit dpie.nsw.gov.au/water/our-work/water-infrastructure-nsw/sdlam/reconnecting-river-country-program
Some floods can be a long duration, there is a need to publicly share flood model information with landholders. Including timely and consistent volumetric water quantity and quality data as well as making publicly available the modelling of surface water, groundwater interactions, flow regimes, water quality for various time-series and time-scales.	The department prepares hydraulic models to assist in land use planning and does not have a role in emergency management of floods. However, the hydraulic models will be provided to local councils, the Bureau of Meteorology and the NSW State Emergency Service to assist in flood response.

Appendix 2: Refined floodway network maps

The following maps (Figures 3 to 8) provide an overview of refinements to the proposed floodway network in response to stakeholder feedback. Red areas show where part of the proposed floodway have been removed in response to feedback. Pink areas show where part of the inundation extent have been removed in response to feedback. The updated proposed floodway network is shown in bright blue (floodways) and pale blue (inundation extent) and will be available in an interactive spatial map as part of Stage 2 public exhibition.

Figure 3: Refinements made to the proposed floodway network around Narrandera

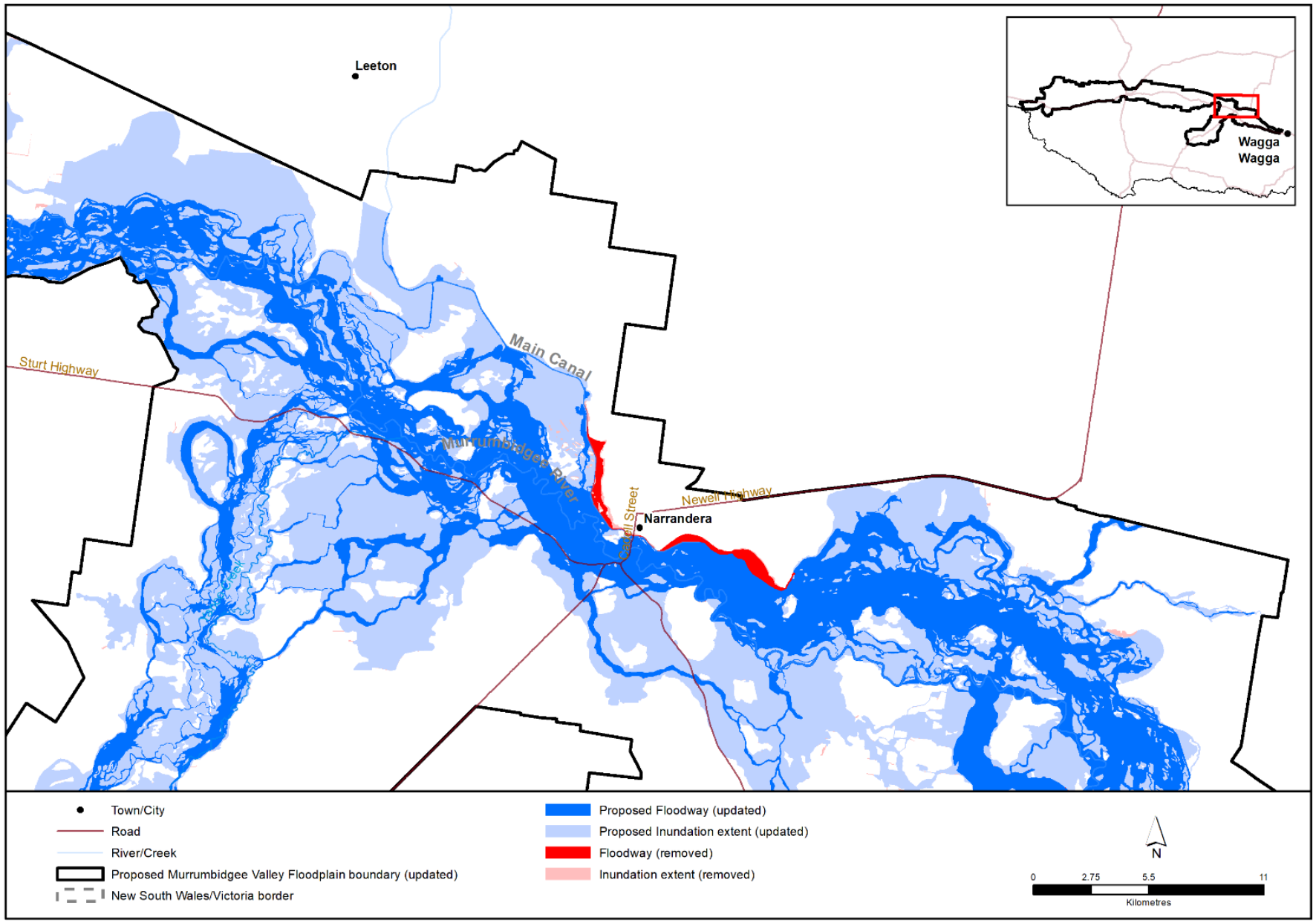
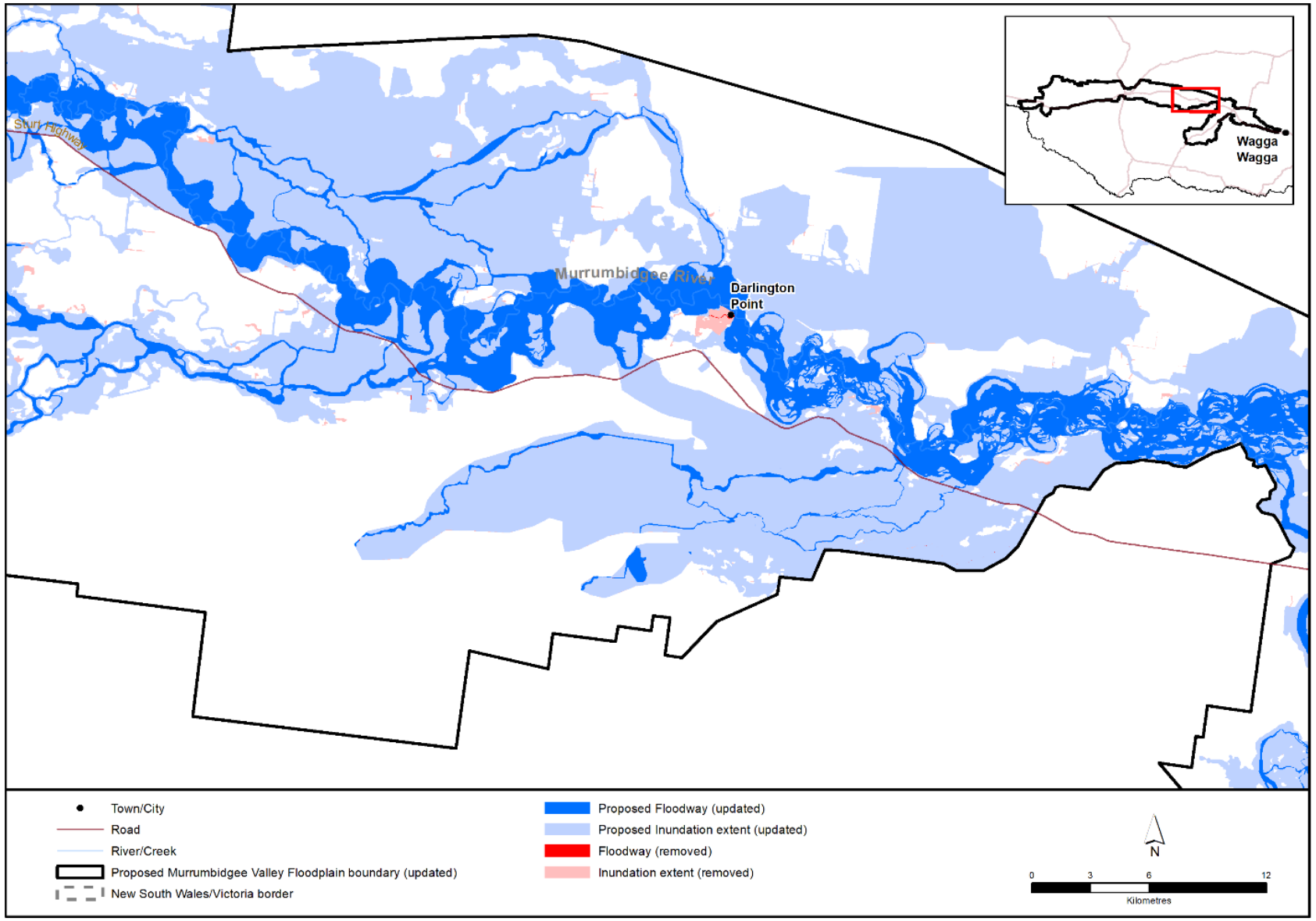


Figure 4: Refinements made to the proposed floodway network around Darlington Point



Note: The proposed floodway network and identified ecological assets have also been adjusted to align with the proposed change to the floodplain boundary southeast of Darlington Point.

Figure 5: Refinements made to the proposed floodway network around Hay

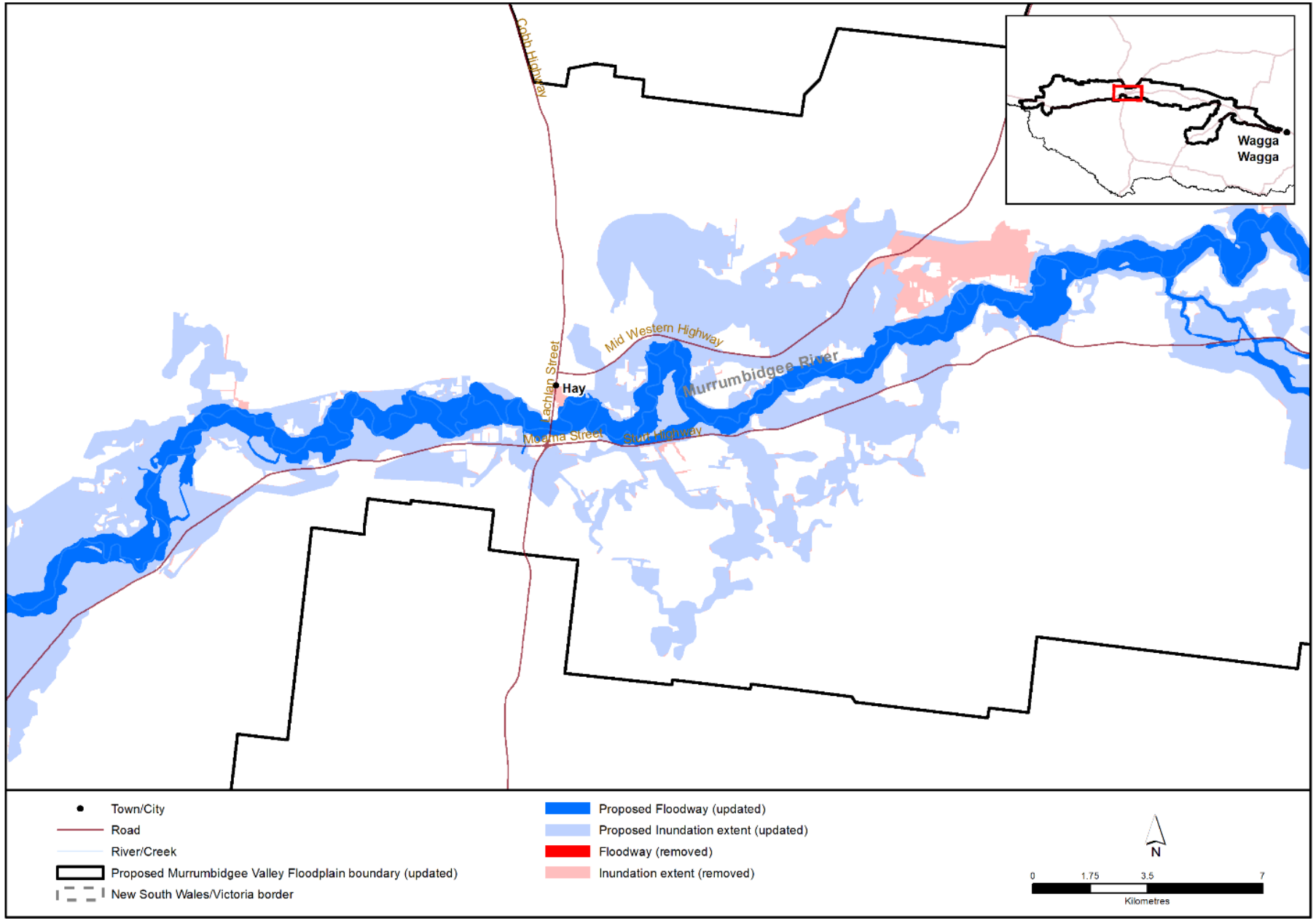


Figure 6: Refinements made to the proposed floodway network around Maude

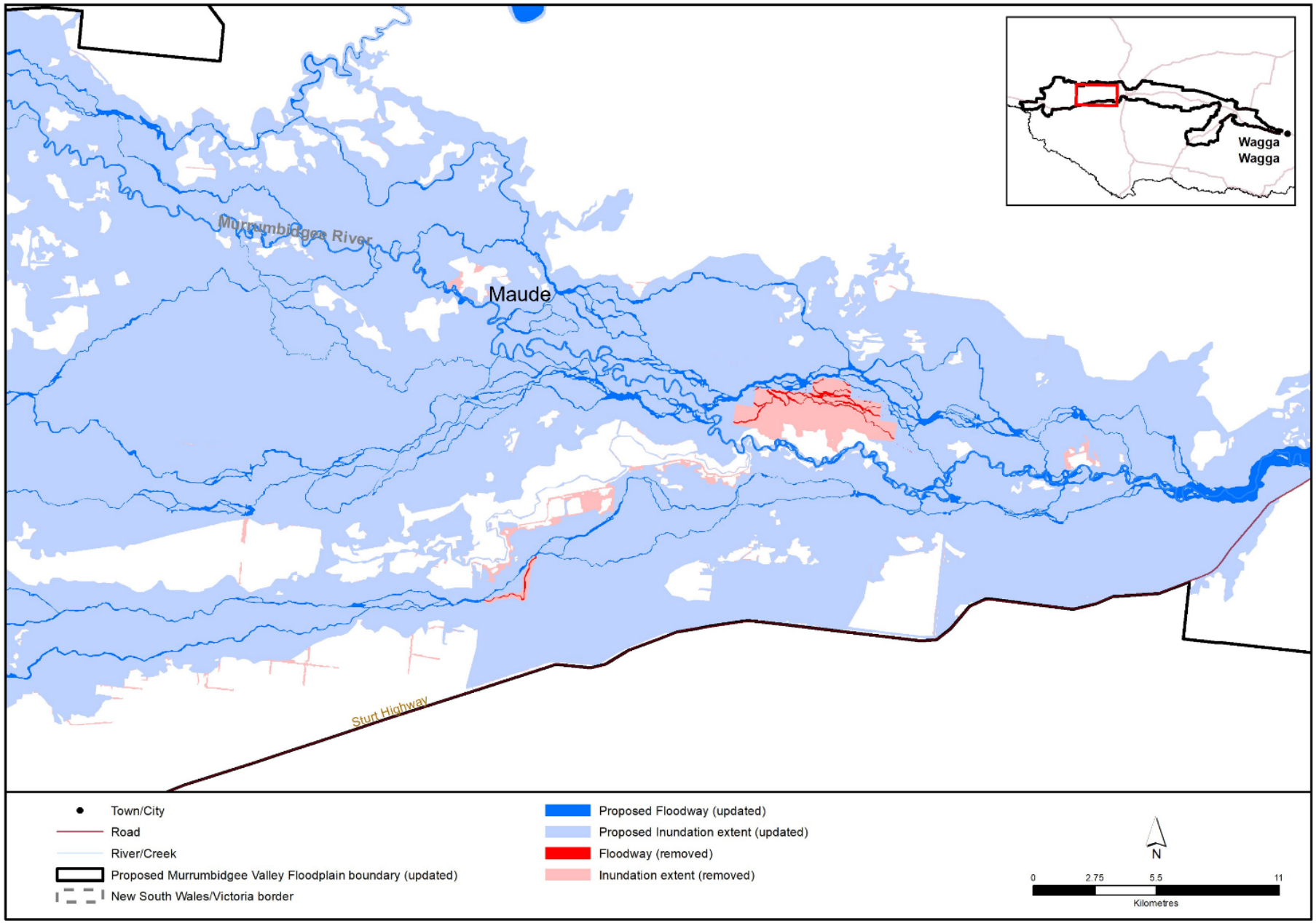


Figure 7: Refinements made to the proposed floodway network

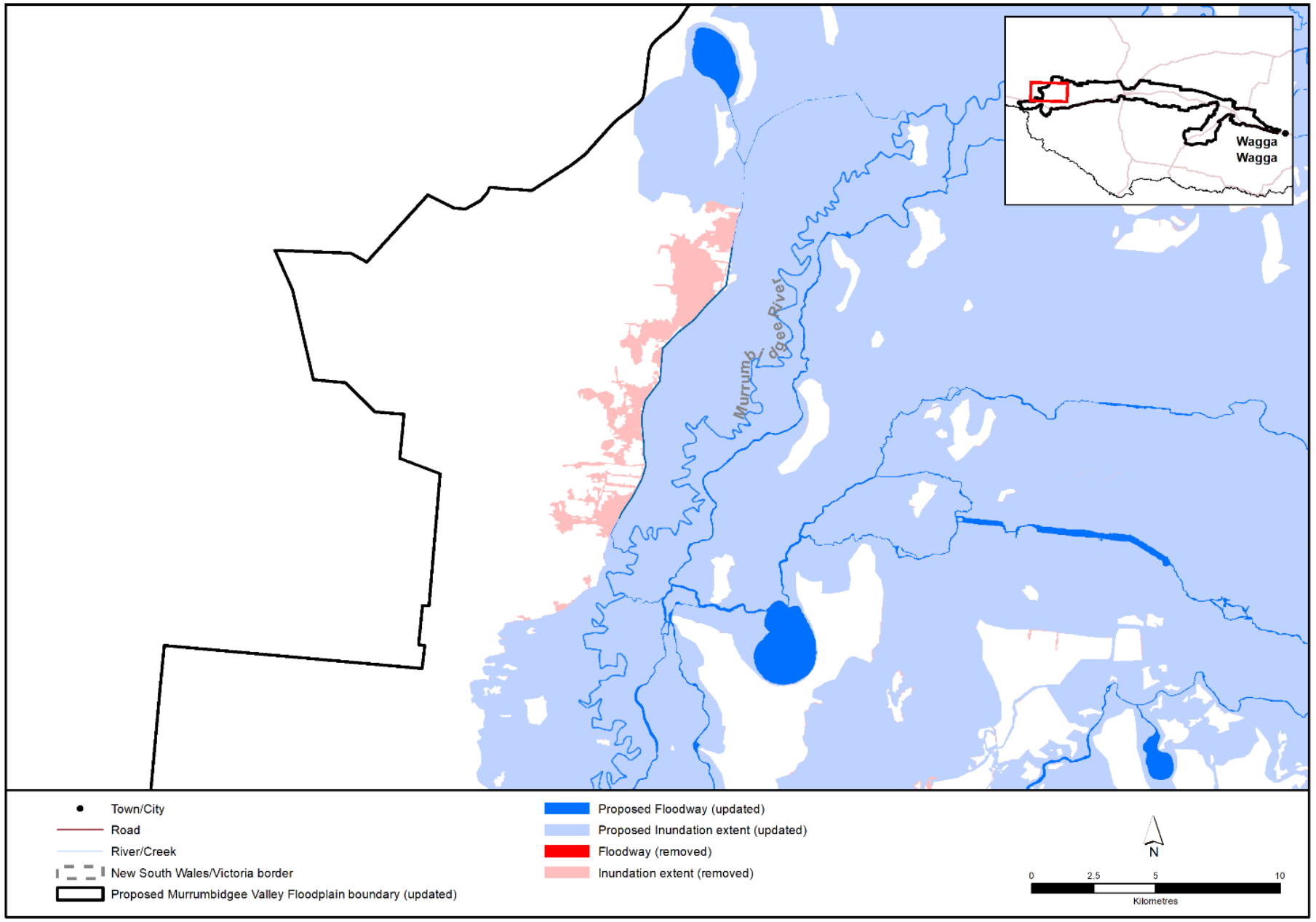
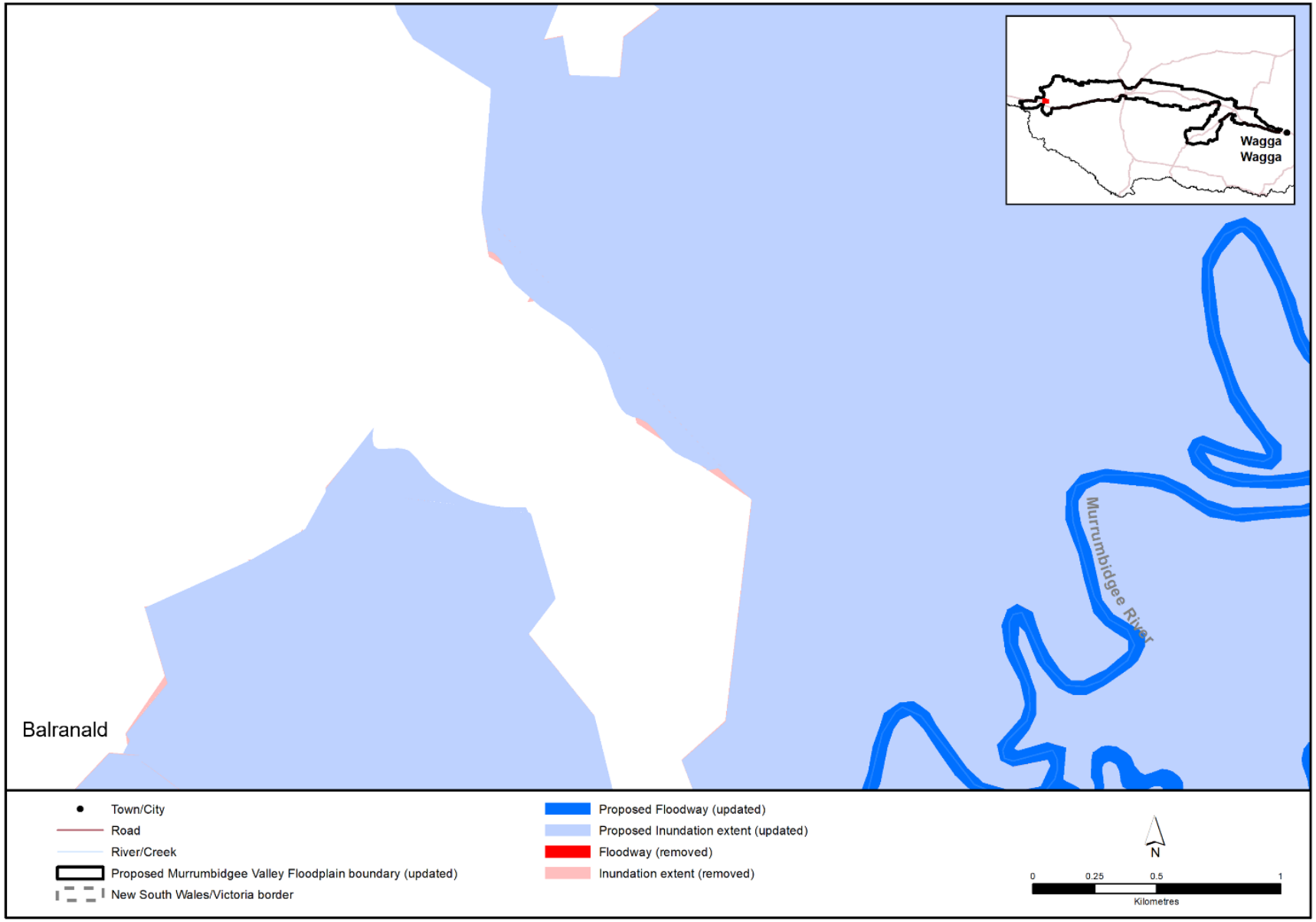


Figure 8: Refinements made to the proposed floodway network around Balranald



Appendix 3: Refined ecological asset maps

The following maps (Figures 9 to 13) provide an overview of refinements made to the identified flood-dependent ecological assets in response to stakeholder feedback. Red areas show where areas of wetland have been removed in response to feedback. Orange areas show other floodplain ecosystems that have been removed in response to feedback. The updated flood-dependent ecological assets are shown in blue (wetlands) and green (other floodplain ecosystems). Further investigation and possible refinements will be undertaken prior to Stage 2 public exhibition, as outlined in Table 7. An updated interactive spatial map will be published during Stage 2 public exhibition.

Figure 9: Refinements made to the identified ecological assets map northwest of Wagga Wagga

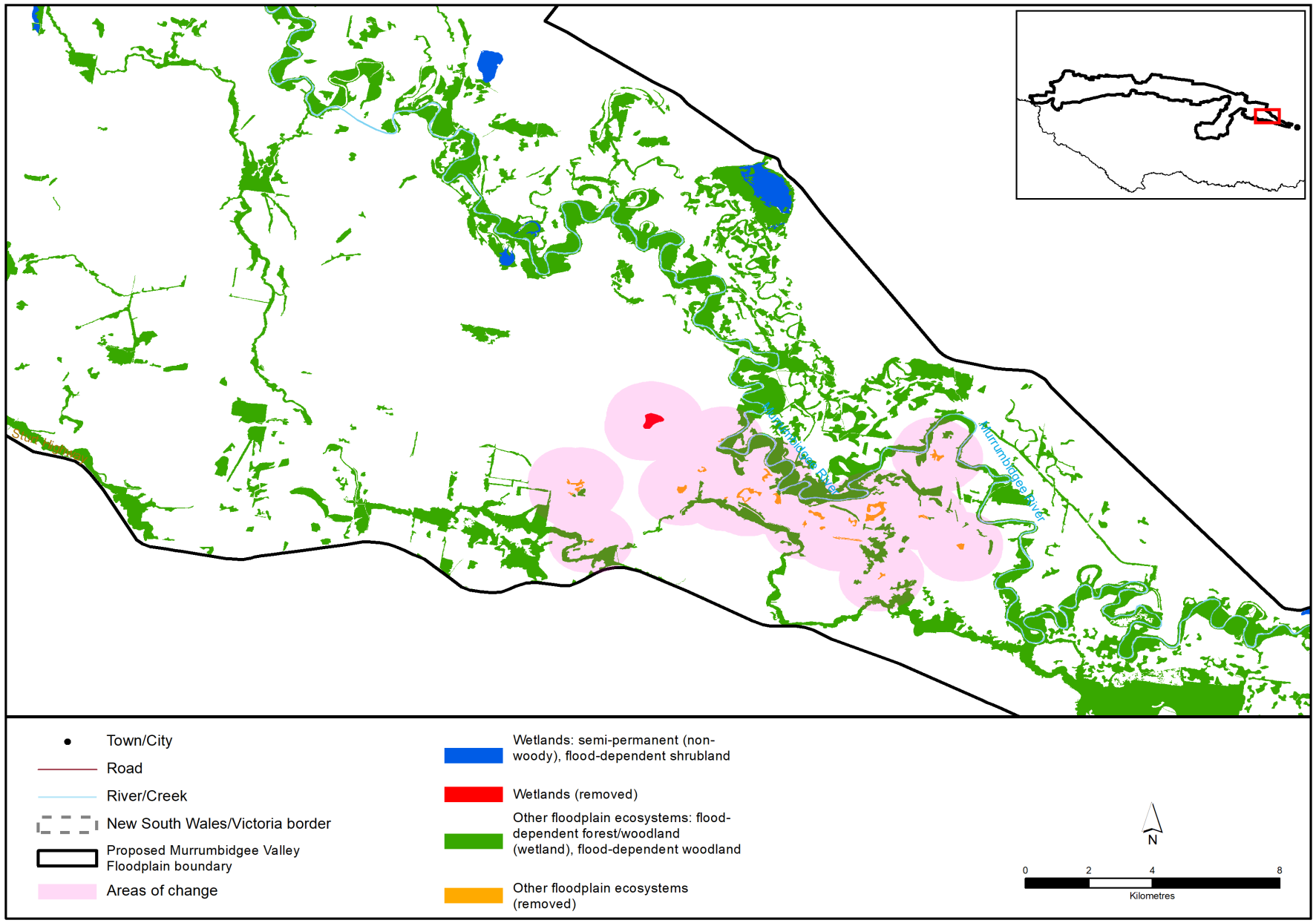


Figure 10: Refinements made to the identified ecological assets map near Grong Grong

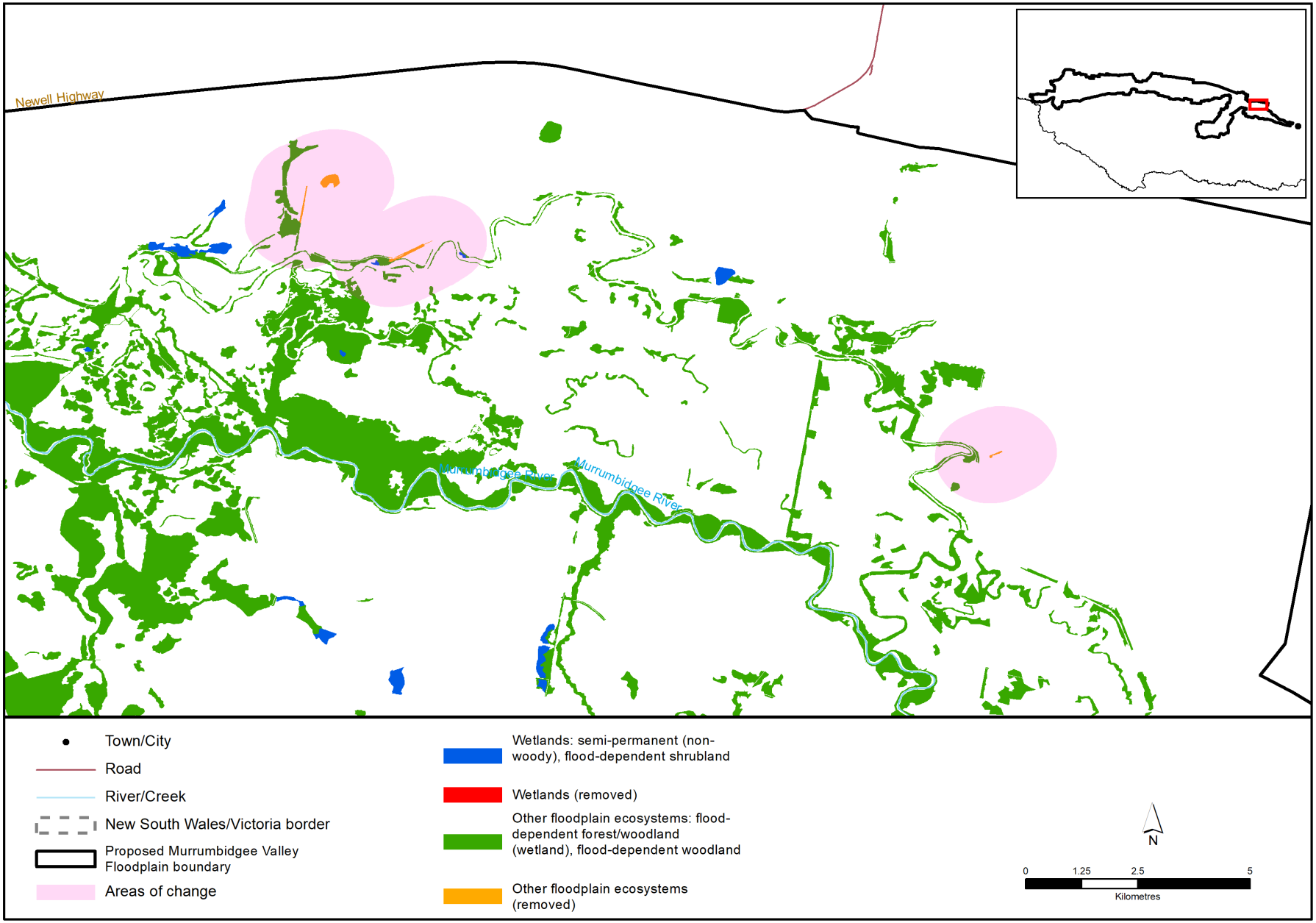
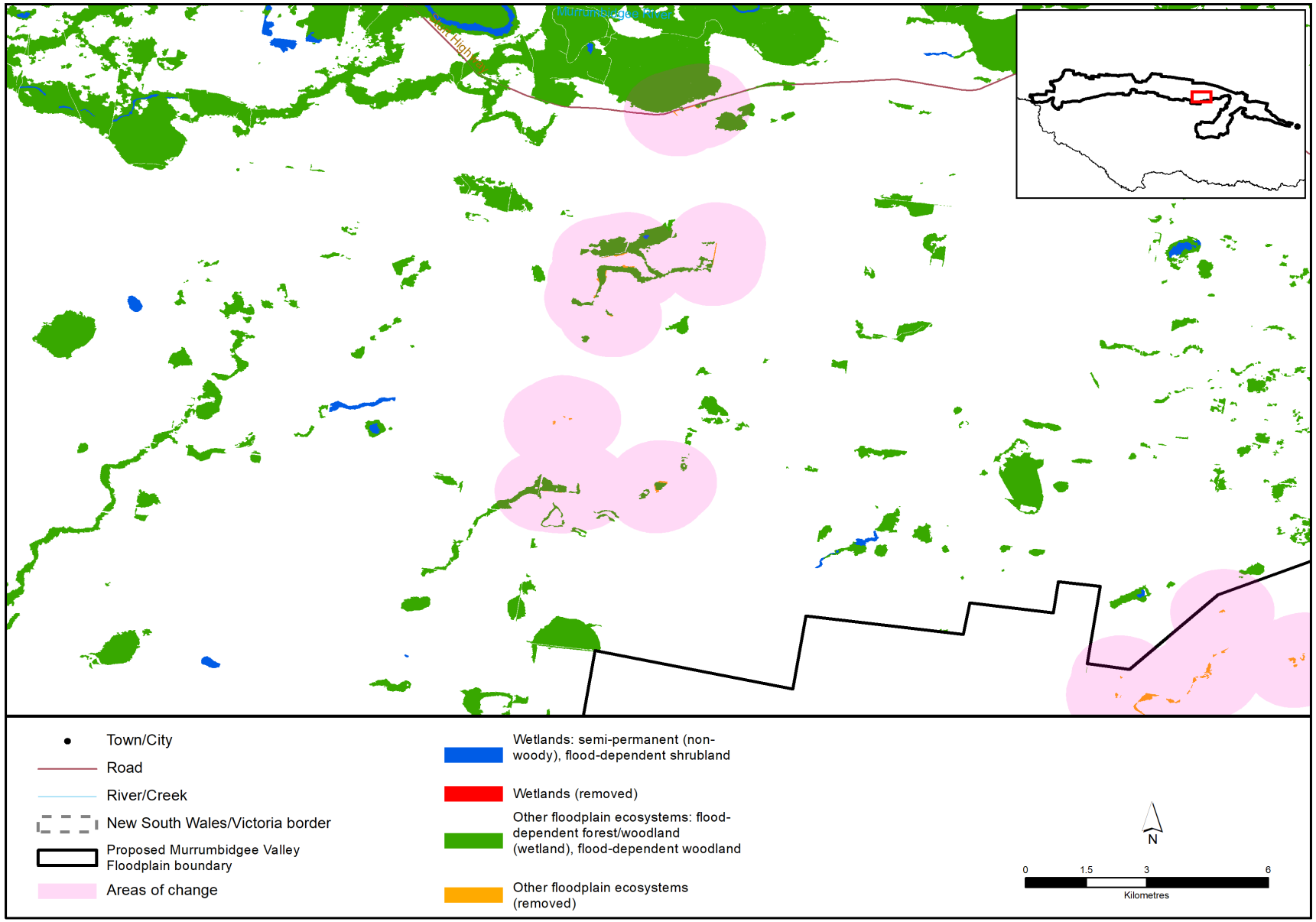


Figure 11: Refinements made to the identified ecological assets map southwest of Darlington Point



Note: This map includes changes to the identified flood-dependent ecological assets that align with changes to the proposed floodplain boundary.

Figure 12: Refinements made to the identified ecological assets map near Carrathool

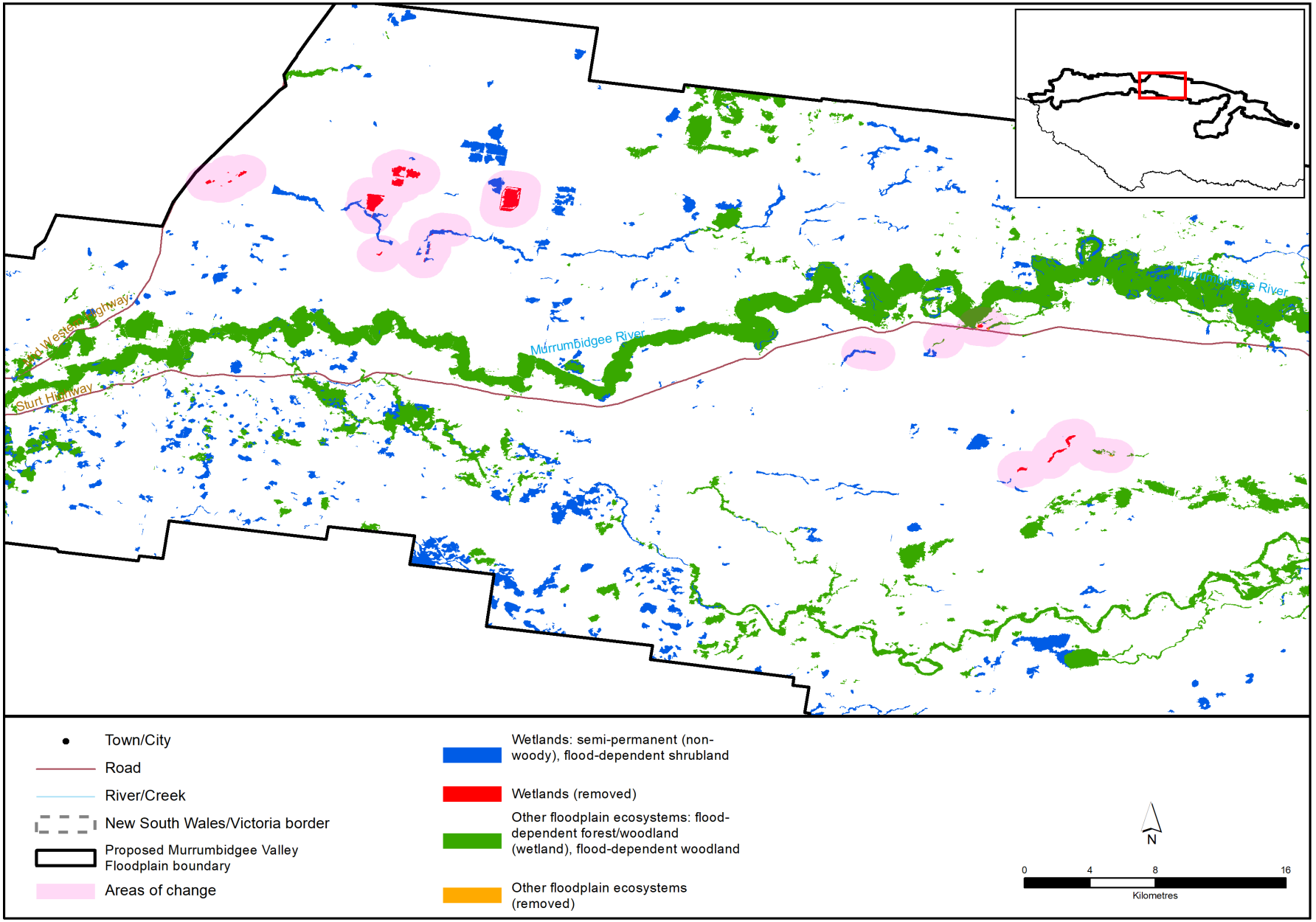


Figure 13: Refinements made to the identified ecological assets map near Hay