



Attachment 15 to Item 3.1.1.

Floodplain Management Sub Committee
Business Papers 20 March 2024

Date of meeting: 26 March 2024
Location: Council Chambers
Time: 4:00pm



Floodplain Management Sub-Committee

Date of meeting: 20 March 2024
Location: Council Administration Building
Time: 3:00 PM

BUSINESS PAPER

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2. CONFIRMATION OF MINUTES

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1. AGENDA

Welcome

Minutes of the Meeting of the Floodplain Management Sub-Committee held in the Large Committee Room, Windsor, on 21 February 2024, commencing at 3:00pm.

ATTENDANCE

Present: Councillor Les Sheather, Hawkesbury City Council – (Chairperson)
Councillor Amanda Kotlash, Hawkesbury City Council – (Deputy Chairperson) – (Audio-Visual link)
Mr Andrew North, Community Representative
Mr Christopher Bell, Community Representative
Mr Lewis Adey, Macdonald Valley Association – (Audio-Visual Link)
Mr Lawrence Rose, Community Representative
Mr Troy Myers, Community Representative – (Audio-Visual)
Mr Harry Panagopoulos, Department of Climate Change, Energy, the Environment and Water
Ms Fiona Coe, Department of Climate Change, Energy, the Environment and Water
Dr Stephen Yeo, NSW Reconstruction Authority – (Audio-Visual Link)

Apologies: Mr Wayne Mitchell, Community Representative
Mr Murray West, Community Representative

In Attendance: Ms Monique Retallick, WMA Water
Mr Mark Babister, WMA Water
Mr Oscar Garrett, Rhelm
Mr David Tetley, Catchment Simulation Solutions
Ms Colleen Haron, Hawkesbury City Council
Mr Phillip Bow, Hawkesbury City Council

Member	18/10/2023	15/11/2023	21/02/2024
Mr Andrew North	X	A	✓
Mr Christopher Bell	✓	✓	✓
Mr Wayne Mitchell	✓	✓	A
Mr Lewis Adey	A	A	✓
Mr Harry Panagopoulos/ Ms Fiona Coe	✓	✓	✓
Mr Kevin Jones	✓	✓	X
Mr Stephen Yeo	✓	✓	✓
Councillor Amanda Kotlash	✓	X	✓
Councillor Les Sheather	✓	✓	✓
Mr Lawrence Rose	✓	✓	✓
Mr Murray West	✓	✓	A
Mr Troy Myers	✓	A	✓

Key: A = Formal Apology ✓ = Present X = Absent - no apology

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2. CONFIRMATION OF MINUTES

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Apologies

Apologies from Mr Wayne Mitchell and Mr Murray West were noted.

RESOLVED on the motion of Mr Andrew North, seconded by Mr Lawrence Rose.

Declaration of Interests

There were no Declarations of Interests made.

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FLOODPLAIN MANAGEMENT SUB-COMMITTEE

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2. CONFIRMATION OF MINUTES

The Committee resolved on the Motion of Mr Christopher Bell, seconded by Mr Lawrence Rose, that the Minutes from the previous meeting held on Wednesday, 15 November 2023 be confirmed.

FLOODPLAIN MANAGEMENT SUB-COMMITTEE

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3. REPORTS FOR DETERMINATION

3.1.1. FPSC – Review of Hawkesbury Floodplain Risk Management Study and Plan – Assessment of Preferred Management Options - (161821, 124414, 95498)

Previous Item: 3.1.2, Floodplain Management Sub-Committee (18 October 2023)

3.1.4, Floodplain Management Sub-Committee (27 September 2023)

3.1.2, Floodplain Management Sub-Committee (23 August 2023)

Directorate: City Planning

OFFICER'S RECOMMENDATION:

That the Floodplain Management Sub Committee consider the matters identified in the presentation by consultants WMA Water on the assessment of preferred management options associated with the Review of the Hawkesbury Floodplain Risk Management Study and Plan.

COMMITTEE RECOMMENDATION:

RESOLVED on the motion of Mr Andrew North and seconded by Mr Christopher Bell.

1. That the Floodplain Management Sub Committee consider the matters identified in the presentation by consultants WMA Water on the assessment of preferred management options associated with the Review of the Hawkesbury Floodplain Risk Management Study and Plan.
2. That the matter be further discussed with the consultants at a future meeting.

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2. CONFIRMATION OF MINUTES

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3.1.2. FPSC – Macdonald River, Colo River, Webbs Creek, Greens Creek Floodplain Risk Management Study and Plan – Draft Flood Study - (161821, 124414, 95498)

Directorate: City Planning

OFFICER'S RECOMMENDATION:

That the Floodplain Management Sub Committee consider the draft Flood Study for the Macdonald River, Colo River, Webbs Creek, Greens Creek Floodplain Risk Management Study and Plan following the presentation by consultants Rhelm.

COMMITTEE RECOMMENDATION:

RESOLVED on the motion of Councillor Amanda Kotlash and seconded by Mr Lewis Adey.

1. That the Floodplain Management Sub Committee consider the draft Flood Study for the Macdonald River, Colo River, Webbs Creek, Greens Creek Floodplain Risk Management Study and Plan following the presentation by consultants Rhelm.
2. That the consultants investigate the feasibility of extending the flood modelling further along the Macdonald River in Upper Macdonald in consultation with the Macdonald Valley Association.

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2. CONFIRMATION OF MINUTES

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3.1.3. FPSC – Floodplain Risk Management Project Updates & Project Program 2024 - (161821, 124414, 95498)

Previous Item: 3.1.2, Floodplain Management Sub-Committee (15 November 2023)

Directorate: City Planning

OFFICER'S RECOMMENDATION:

That the Floodplain Management Sub Committee receive the update on the status of Council's Floodplain Risk Management Projects and note the program for these works in 2024.

COMMITTEE RECOMMENDATION:

RESOLVED on the motion of Mr Lawrence Rose and seconded by Mr Andrew North.

That the Floodplain Management Sub Committee receive the update on the status of Council's Floodplain Risk Management Projects and note the program for these works in 2024.

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FLOODPLAIN MANAGEMENT SUB-COMMITTEE

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4. GENERAL BUSINESS

There was no general business discussed.

The next Floodplain Management Sub Committee meeting is proposed to be held on Wednesday, 20 March 2024 at 3:00pm.

The meeting terminated at 4:53pm.

FLOODPLAIN MANAGEMENT SUB-COMMITTEE

3. REPORTS FOR DETERMINATION

Meeting Date: 20 March 2024

3. REPORTS FOR DETERMINATION

3.1.1. FPSC - Presentation - Department of Climate Change, Energy, the Environment and Water - (161821, 95498)

Directorate: City Planning

PURPOSE OF THE REPORT:

The purpose of this report is to introduce a presentation from the Department of Climate Change, Energy, the Environment and Water in relation to the consideration of climate change in land use planning for flood risk management.

OFFICER'S RECOMMENDATION

That the Floodplain Management Sub-Committee receive the Department of Climate Change, Energy, the Environment and Water's presentation on the consideration of climate change in land use planning for flood risk management.

DISCUSSION

A presentation from Fiona Coe, Senior Natural Resource Officer (Floodplain), Department of Climate Change, Energy, the Environment and Water will be provided to the Floodplain Management Sub-Committee on the consideration of climate change in land use planning for flood risk management, including:

- How much climate change should be considered.
- What guidance is there.
- What other councils are doing.

ATTACHMENTS

There are no supporting documents for this report.

oooO END OF REPORT Oooo

FLOODPLAIN MANAGEMENT SUB-COMMITTEE

3. REPORTS FOR DETERMINATION

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3.1.2. FPSC - Review of Hawkesbury Floodplain Risk Management Study and Plan – Assessment of Preferred Management Options and Identification of Flood Planning Level/s – (161821, 124414, 95498)

Previous Item: 3.1.1, Floodplain Management Sub-Committee (21 February 2024)
3.1.2, Floodplain Management Sub-Committee (18 October 2023)
3.1.4, Floodplain Management Sub-Committee (27 September 2023)
3.1.2, Floodplain Management Sub-Committee (23 August 2023)

Directorate: City Planning

PURPOSE OF THE REPORT

The purpose of this report is to highlight the matters raised in WMA Water's presentation provided to the Floodplain Management Sub-Committee on 21 February 2024, and to facilitate discussion between the Sub-Committee and the consultants in relation to identifying:

- Preferred management options to be recommended for inclusion in the Review of the Hawkesbury Floodplain Risk Management Study and Plan, and
- Flood planning level, or levels, to be recommended for inclusion in the Review of the Hawkesbury Floodplain Risk Management Study and Plan to guide future development controls.

OFFICER'S RECOMMENDATION

That the Floodplain Management Sub-Committee recommend that the following be supported for inclusion in the Review of the Hawkesbury Floodplain Risk Management Study and Plan:

1. An approach of considering different flood planning levels in relation to development types and circumstances such as whether development is existing or new, including:
 - a) A flood planning level for new residential development of 1 in 200 plus 0.5m freeboard
 - b) A flood planning level for new commercial and industrial development of 1 in 100 plus 0.5m freeboard
 - c) A flood planning level for additions, alterations or redevelopment of existing development of 1 in 100 at the minimum.
2. The inclusion of the following management options:
 - Currency Creek bypass
 - Wilberforce Levee
 - High level bridge to West Portland Road

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- Raising Springwood Road
- Floodways, flood drainage and flood gates
- Assessment of flood evacuation routes

BACKGROUND

WMA Water's presentation

At the Floodplain Management Sub-Committee Meeting on 21 February 2024, a presentation was provided to the Sub-Committee by consultants WMA Water in relation to the assessment of the preferred options for the management of impacts from the flooding of the Hawkesbury River and the identification of the flood planning level/s.

At that Meeting, the Sub-Committee resolved:

1. *That the Floodplain Management Sub-Committee consider the matters identified in the presentation by consultants WMA Water on the assessment of preferred management options association with the Review of the Hawkesbury Floodplain Risk Management Study and Plan.*
2. *That the matter be further discussed with the consultants at a future meeting.*

WMA Water will be in attendance at this meeting to discuss flood planning levels and preferred management options for the Review of the Hawkesbury Floodplain Risk Management Study and Plan.

Flood-prone land package

The NSW Government's flood-prone land package commenced on 14 July 2021 and provides advice to Councils on considering flooding in land-use planning. As part of the package, the 'Considering flooding in land use planning' Guideline provides advice on the selection and use of flood planning levels.

The flood planning level is a combination of the flood level from the defined flood event and freeboard selected for flood risk management purposes. The defined flood event is the flood event selected as a general standard for the management of flooding to development.

Defined Flood Events

The defined flood events form the basis for determining the level of exposure to flooding and associated risks to life and property damage. The NSW Government's Floodplain Risk Management Manual identifies the 1% AEP flood event, or an equivalent historic flood, as an appropriate starting point for determining the defined flood event for development controls, including for residential development. The Manual allows the selection of a rarer defined flood event to address broad scale flood impacts in consideration of the social, economic, environmental and cultural consequences associated with floods of different probabilities.

Where Councils propose alternative flood planning levels, they are required to demonstrate and document, in a flood study and/or floodplain risk management study, the merits of this approach, based on a risk management approach that is consistent with the flood risk management process and the principles of the Manual.

Freeboard

The typical freeboard for residential development due to flooding from waterways, such as rivers or creeks, is 0.5m. A lower freeboard or an alternative approach to freeboard may be used where the consequences to people and property of low probability flood events are assessed as minor through the flood risk management process.

A freeboard is a factor of safety expressed as the height above the flood level. The freeboard compensates for uncertainties in the estimation of flood level, such as wave action, localised hydraulic behaviours and impacts that are specific event related, such as levee and embankment settlement, and other effects such as climate change.

The Guideline advises that Council may have different flood planning levels based on the land use type (for example, residential, industrial, or commercial).

DISCUSSION

Flood Planning Level/s

Within the Hawkesbury River floodplain, design flood levels have relatively large increases in relation to small decreases in frequency. The extent and depths of flooding, and large variation in flood levels gives the Hawkesbury-Nepean Valley the highest flood exposure in NSW, thereby having a significant impact on people's lives, properties, and livelihoods.

It is expected that there will also be large increases in flood levels in the future resulting from the impacts of climate change.

Currently, there is no formal guidance on including climate change in the determination of flood planning levels.

Given the large variation in flood levels, and the consequences (risks) associated with flooding in the Hawkesbury River, it is considered that different flood planning levels be adopted based on development type and/or circumstances.

In addition, it is deemed prudent that a rarer flood event than the traditional 1% AEP be considered as the flood planning level for new residential development.

WMA Water's presentation highlighted that the 1 in 200-year flood level with freeboard will be equivalent to the expected 1 in 100 year flood level in 2030 due to climate change impacts. The adoption of a flood planning level at the 1 in 200 year flood level plus freeboard is considered suitable for new residential development, and will provide a degree of protection for new housing into the future.

In consideration of risk to life factors and economic losses of flooding, it is considered that the 1 in 100 year flood level plus freeboard be recommended for commercial and industrial development.

To recognise existing lawful development, it is further suggested that a flood planning level at the 1 in 100 year flood level be retained for existing development (additions, alterations, redevelopment) as the minimum standard.

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Preferred Management Options

WMA Water’s presentation included the results of their investigations of the preferred management options. A summary of the result of the detailed assessment of these options is provided in Table 1 for consideration:

Legend: **Green** – Positive impact, **Red** – Negative impact, **Blue** - Neutral

	McGrath Hill Levee	Pitt Town Levee	Wilberforce Levee	South Windsor Levee	Currency Creek Bypass
Winsor Bridge	0.005	0.003	0.001	0.006	-0.91
North Richmond Bridge	0.003	0.002	0	0.006	-0.73
Sackville Ferry	0.005	0.003	0.001	0.007	0.59
Lower Portland	0.003	0.002	0.001	0.004	0.64
Reduction in flood levels	Minimal increase outside levee	Minimal increase outside levee	Very minimal increase outside levee	Localised reduction <u>However</u> impact over large area outside of levee	✓
Lowers Average Annual Damages	Protects 574 dwellings, however cost every property outside of the levee \$500	X	X	X	✓
Cost to construct	Extreme	Extreme	High	Moderate depending on how built	Extreme
Environmental Impacts	Minor	Minor	Minor	Minor	Moderate
Social Impacts	Only protecting downstairs unhabitable areas	X	Less people impacted/ Less complexities	Additional houses flooded	X
Affect on emergency services	Improves evacuation but encourages complacency	Encourages complacency	-	Improved evacuation of Windsor	✓
Access to emergency services and	X	X	X	Improved evacuation/ access	✓

Table 1: Summary of the assessment of the preferred management options

The above assessment identifies the Wilberforce levee and the Currency Creek Bypass as options that could be included in the recommendations of the Review of the Hawkesbury Risk Management Study and Plan.

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Options that were not assessed in detail, but are considered to not have a negative impact if designed in accordance with standard practice include:

- High level bridge to West Portland Road
- Raising Springwood Road
- Floodways, flood drainage and flood gates
- Assessment of flood evacuation routes.

Discussion of feasibility of these options will be included in the Review of the Hawkesbury Floodplain Risk Management Study and Plan.

On this basis, it is suggested that the following management options be included in the Review of the Hawkesbury Floodplain Risk Management Study and Plan:

- Currency Creek bypass
- Wilberforce Levee
- High level bridge to West Portland Road
- Raising Springwood Road
- Floodways, flood drainage and flood gates
- Assessment of flood evacuation routes.

ATTACHMENTS

There are no supporting documents for this report.

oooO END OF REPORT Oooo

FLOODPLAIN MANAGEMENT SUB-COMMITTEE

3. REPORTS FOR DETERMINATION

Meeting Date: 20 March 2024

3.1.3. FPSC - Floodplain Risk Management Project Updates - (161821, 95498)

Previous Item: 3.1.3, Floodplain Management Sub-Committee (21 February 2024)

Directorate: City Planning

PURPOSE OF THE REPORT

The purpose of this report is to provide updates in respect of the status of Council's various Floodplain Risk Management Projects.

OFFICER'S RECOMMENDATION

That the Floodplain Management Sub Committee receive the update on the status of Council's Floodplain Risk Management Projects.

BACKGROUND

Council currently has three grant funded Floodplain Risk Management projects that are underway, including:

1. Review of Hawkesbury Floodplain Risk Management Study and Plan 2012

This project is to undertake a review of the Hawkesbury Floodplain Risk Management Study and Plan 2012 considering the release of the Regional Flood Study for the Hawkesbury Nepean Valley by the NSW Reconstruction Authority, and to update management options as required.

2. Combined Macdonald River, Colo River, Webbs Creek and Greens Creek Flood Study and Floodplain Risk Management Study and Plan

This project is to undertake a Flood Study and Floodplain Risk Management Study and Plan for Macdonald River, Colo River, Webbs and Greens Creek. It aims to understand flood risk in these catchments where extended isolation and risk to life is present, and develop flood management options including engineering works, evacuation planning and appropriate development controls.

3. Redbank Creek Flood Study

The Redbank Creek Flood Study involves a comprehensive technical investigation of the flood behaviour of Redbank Creek that will provide the foundation for the development of a floodplain risk management plan. It aims to provide an understanding of the full range of flood behaviour and consequences in the Study Area.

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3. REPORTS FOR DETERMINATION

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DISCUSSION

The status of each Floodplain Risk Management project is outlined below:

1. Review of Hawkesbury Floodplain Risk Management Study and Plan

Figure 1 details what stage the Review of the Hawkesbury Floodplain Risk Management Study and Plan Project is at.

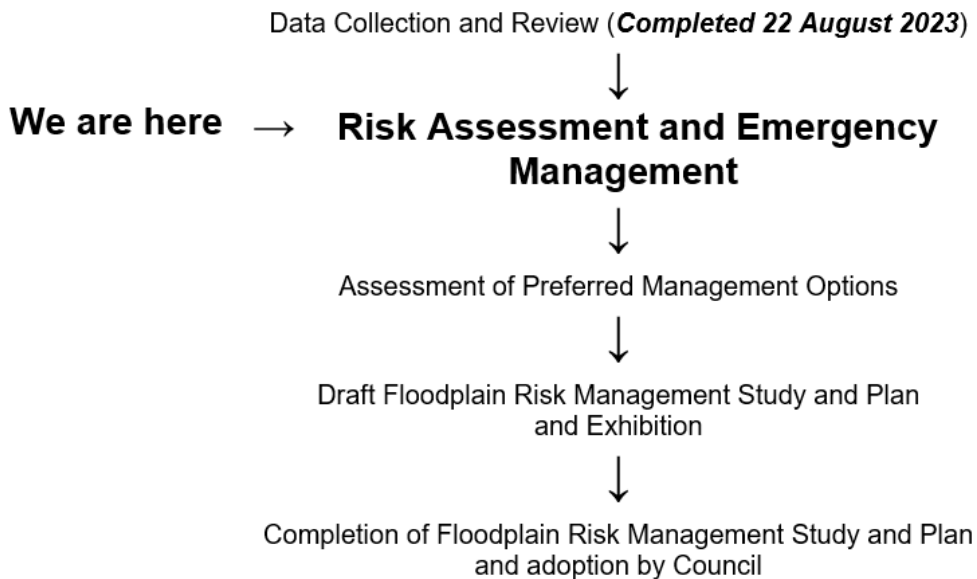


Figure 1: Status of the Review of the Hawkesbury Floodplain Risk Management Study and Plan Project

At the Floodplain Management Sub-Committee Meeting on 18 October 2023, WMA Water, the consultants for this project, presented to the Sub-Committee on the outcomes of the community consultation which sought public opinion as to the preferred management options to mitigate flood impacts, and to discuss potential management options for further investigation.

Using the current Regional Flood Model, WMA Water has now modelled the preferred options in order to determine the benefits or otherwise of the different options.

A summary of the outcomes of this modelling was presented by WMA Water at the Floodplain Management Sub-Committee Meeting held on 21 February 2024. WMA Water will be in attendance at this meeting to continue the discussion on the matters raised in their presentation.

Work is also progressing in relation to risk assessment and emergency management classification.

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2. Macdonald River, Colo River, Webbs Creeks and Greens Creek Flood Study and Floodplain Risk Management Study and Plan

Figure 2 details what stage the Macdonald River, Colo River, Webbs Creeks and Greens Creek Flood Study and Floodplain Risk Management Study and Plan Project is at.

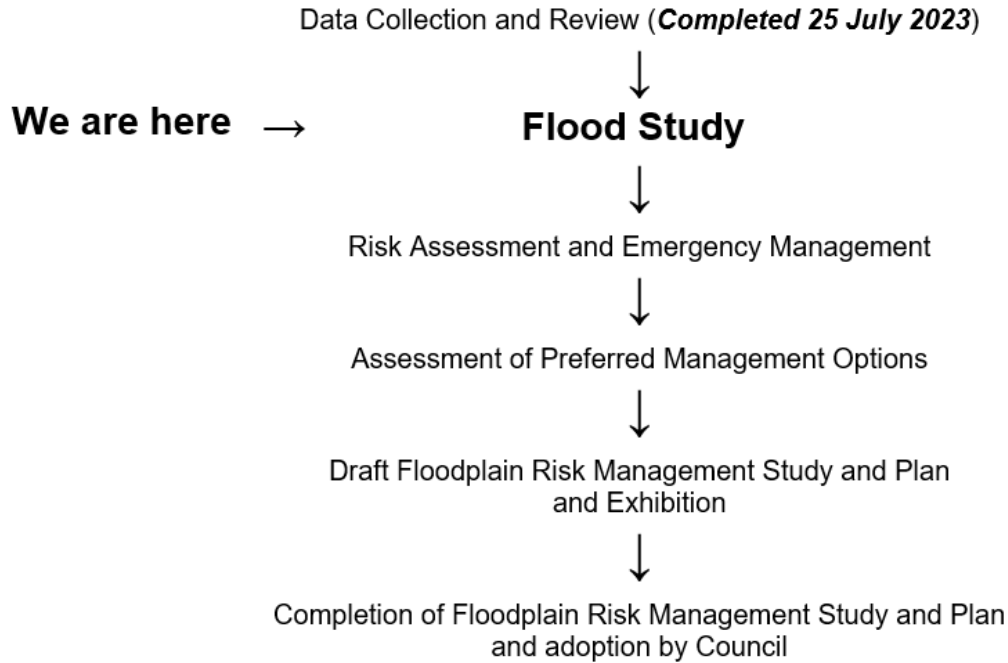


Figure 2: Status of the Macdonald River, Colo River, Webbs Creeks and Greens Creek Floodplain Management Project

Consultants Rhelm are currently progressing Stage 2 of this project, with the draft Flood Study expected to be finalised by the end of March 2024.

A summary of the outcomes from the flood modelling of the Macdonald River, Colo River, Webbs Creek and Greens Creek was presented by Rhelm at the Floodplain Management Sub-Committee Meeting on 21 February 2024.

3. Redbank Creek Flood Study

Figure 3 details what stage the Redbank Creek Flood Study Project is at.

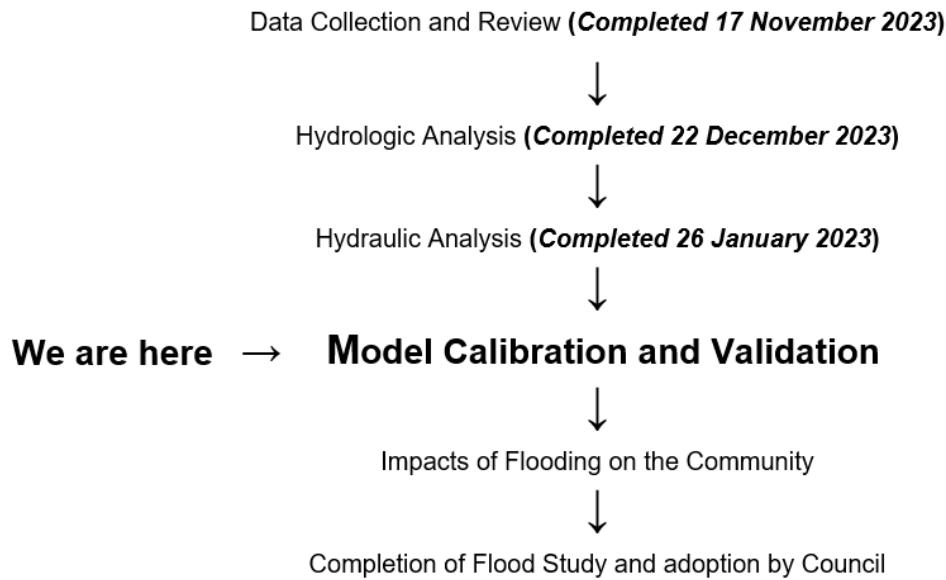


Figure 3: Status of the Redbank Creek Flood Study Project

This project commenced with the compilation and review of existing flood and GIS information for the catchment and with preliminary modelling activities to inform the identification of any additional data that may be required. Data collection and the review of this information has now been completed.

Hydrological analysis has commenced for this project with the completion of flood modelling. Currently, the consultants for this project are focusing on the validation of the model.

ATTACHMENTS

There are no supporting documents for this report.

oooO END OF REPORT Oooo

FLOODPLAIN MANAGEMENT SUB-COMMITTEE

4. GENERAL BUSINESS

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4. GENERAL BUSINESS



Floodplain Management Sub-Committee Meeting

End of Business Paper

This business paper has been produced electronically to reduce costs, improve efficiency and reduce the use of paper. Internal control systems ensure it is an accurate reproduction of Council's official copy of the business paper.