

General Manager  
Byron Shire Council  
PO Box 219  
MULLUMBIMBY NSW 2482

Attention: Mr Sam Tarrant

Dear Mr Arnold

**RE: Planning Proposal 150 Lismore Road, Bangalow (PP-2021-3615)**

Thank you for your referral dated 6 April 2022 about the planning proposal to amend the Byron Local Environmental Plan 2014 to rezone part of Lot 4 DP 635505, 150 Lismore Road, Bangalow seeking comments from the Biodiversity and Conservation Division (BCD) of the Biodiversity, Conservation and Science Directorate in the Environment and Heritage Group of the Department of Planning and Environment. I appreciate the opportunity to provide input.

We have reviewed the documents supplied and advise that several issues are apparent with the assessments for biodiversity and flood risk management. These issues are discussed in detail in **Attachment 1** to this letter.

In summary, the BCD recommends that before the planning proposal is finalised:

1. Given its EEC status, the wetland portion of the site has High Environmental Value (HEV). As a result, the wetland, including a 20m buffer measured outward from the high bank surrounding the wetland, should be zoned C2 – Environmental Protection.
2. As Maori Creek is mapped on the Biodiversity Values (BV) Map, which is a component of HEV, land on both sides of Maori Creek should be zoned to C3 – Environmental Management, for a distance of 20m. This would align with the riparian corridor included on the BV Map, and result in a total riparian corridor width of 40m.
3. The planning proposal should be revised to include reference to the HEV present within the planning area, along with the exclusion of HEV from zoning to IN1, and its zoning to C2 – Environment Protection and C3 – Environmental Management.
4. The flood impact assessment should be reviewed and updated to provide details regarding the model calibration that has been used to inform the flood modelling reliability and performance. If flood data are available from the recent February-March 2022 flood for Byron Creek at Bangalow, it is recommended this be used for model verification purposes.

The BCD requests an opportunity to review and comment on an updated report.

If you have any questions about this advice, please do not hesitate to contact Ms Rachel Lonie, Senior Conservation Planning Officer, at [rachel.lonie@environment.nsw.gov.au](mailto:rachel.lonie@environment.nsw.gov.au) or 6650 7130.

Yours sincerely



27 May 2022

**GABRIELLE PIETRINI**  
**Director, North East Branch**  
**Biodiversity and Conservation**

Attachment 1. Detailed BCD Comments – Planning Proposal to rezone Lot 4 DP 635505, 150 Lismore Road, Bangalow

## Attachment 1: Detailed BCD Comments – Planning Proposal to rezone Lot 4 DP 635505, 150 Lismore Road, Bangalow

### A. The Proposal

The planning proposal involves rezoning part of Lot 4 from RU1 Primary Production to IN1 General Industrial and rezoning of a 20 metre wide riparian corridor along Maori Creek to C3 Environmental Management as shown in Figure 5.4 in the planning proposal report (see below).

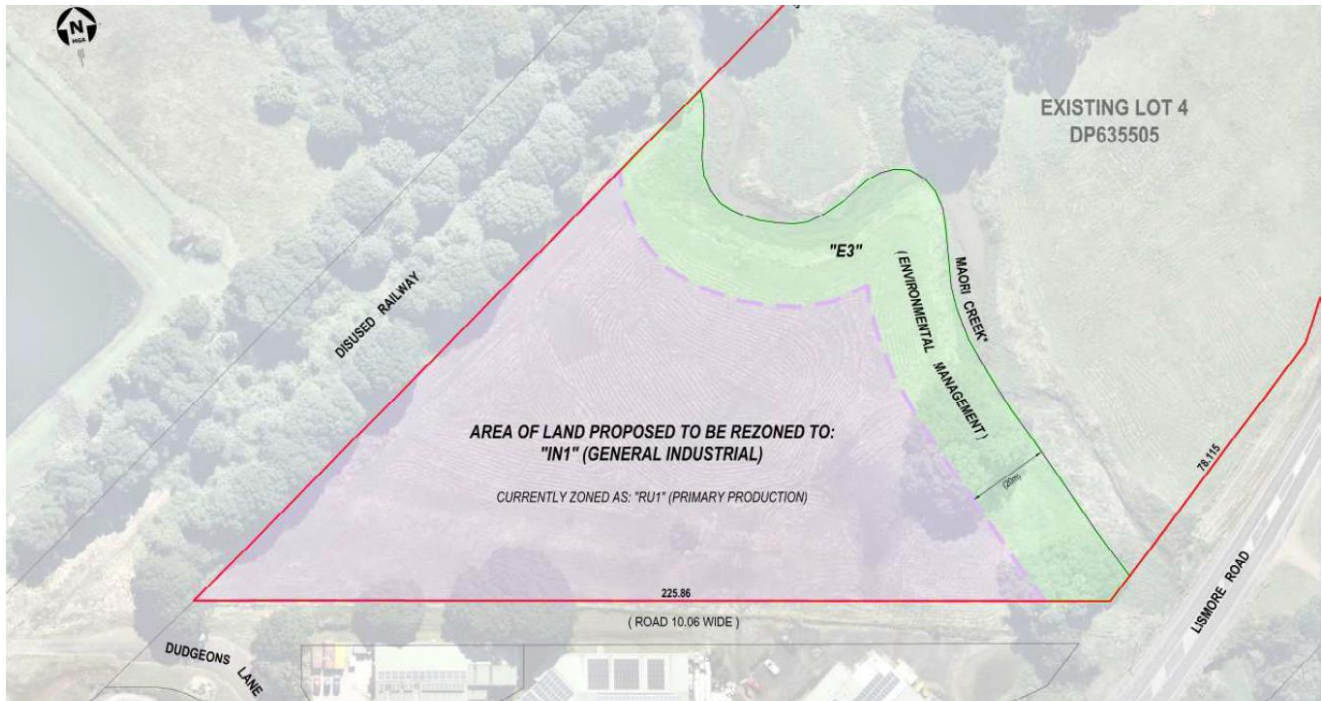


Figure 5.4 – Proposed Area to be Rezoned RU1 Primary Production and E3 Environmental Management

### B. Biodiversity

#### BCD Planning Proposal Advice

In 2021, the BCD provided advice to the Council regarding the assessment of biodiversity in planning proposals. Step 1 in the assessment approach is that the planning area should cover the entire cadastral lot unless only a part of the lot is identified in a growth management strategy, in which case the planning area could be limited to just that part of the lot. The site is not currently mapped in the urban growth area. However, the area of land proposed to be rezoned is identified within Byron Shire's *Business and Industrial Lands Strategy 2020* as being potentially suitable for industrial development.

The BCD provided comment on the draft *Byron Bay Employment Lands Strategy* in 2018 and identified significant issues that we considered required addressing before the strategy was finalised. We note that the draft strategy we reviewed did not include the current planning area and we were not provided with an opportunity to comment on any revised strategy. We had a long history of involvement and it is disappointing that this site was not referred to us for assessment.

However, we acknowledge that this strategy has been finalised and that part of Lot 4 is identified in the strategy as being potentially suitable for industrial development. Despite this, the land still requires assessment of its suitability for such a land use.

### Ecological Assessment – Bower Ecology Pty Ltd

We have reviewed the ecological assessment prepared in relation to the Planning Proposal by Bower Ecology, dated 15 May 2022. The ecological assessment was, in large part, prepared in response to the BCDs view that the planning area is potentially suitable for a range of threatened plant and animal species, including hairy-joint grass (*Arthraxon hispidus*) and koalas. We note that hairy-joint grass, nor any other threatened plant species, were observed within the planning area, despite a seemingly thorough examination of the site.

In addition, the planning area does not contain suitable koala feed trees. The dominant tree present across the planning area is camphor laurel.

Although no threatened flora or fauna species were observed, the ecological assessment identified a small portion of the south-eastern part of the planning area as a 'soak'. The assessment, despite the presence of several native wetland species, determined that the 'soak' is too small to form part of a wetland, and therefore, would not form part of a freshwater wetland endangered ecological community (EEC).

However, the NSW Scientific Committee's determination to list freshwater wetlands as an EEC does not include a minimum size for designation as freshwater wetland EEC. Therefore, it is our view that the soak, given it appears to be a natural system (i.e. not human made) and based on the mix of native wetland species present, is likely to comprise freshwater wetland EEC.

### High Environmental Value (HEV) land

To achieve the North Coast Regional Plan's biodiversity goals, directions, and actions, the Planning Proposal must identify all areas of High Environmental Value (HEV) at the property scale.

Based on the information presented in the ecological assessment and the examination of the Biodiversity Values (BV) Map, the BCD considers two areas of HEV are presented on the site, as set out below.

#### *BCD Recommendations:*

1. Given its EEC status, the 'soak' wetland portion of the site comprises HEV. As a result, the wetland, including a 20m buffer measured outward from the high bank surrounding the wetland, should be zoned C2 – Environmental Protection.

The 20m buffer distance is based on the Strahler stream ordering system riparian buffer distances set out in Appendix E of the Biodiversity Assessment Method 2020.

2. As Maori Creek is mapped on the BV Map (see Figure 1 overleaf), which is a component of HEV, land on both sides of Maori Creek should be zoned to C3 – Environmental Management, for a distance of 20m. This would align with the riparian corridor included on the BV Map, and result in a total riparian corridor width of 40m.



Biodiversity Values Map and Threshold Tool

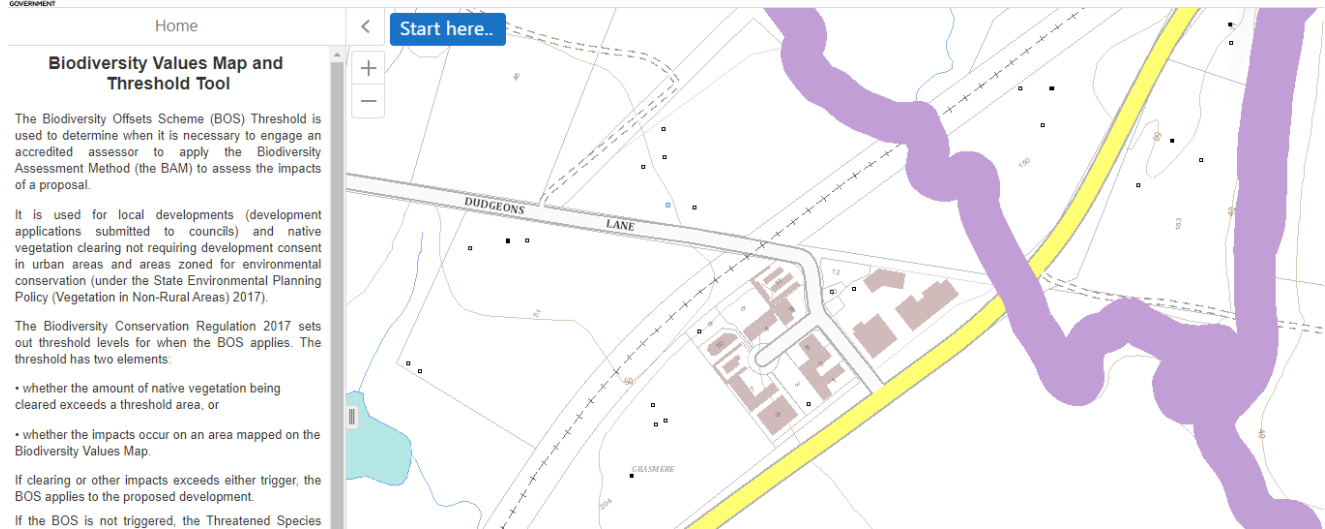


Figure 1. Extract from the Biodiversity Values (BV) Map showing Maori Creek is mapped as having BV values.

3. The planning proposal should be revised to include reference to the HEV present within the planning area, along with the exclusion of HEV from zoning to IN1, and its zoning to C2/C3.

As will be required by the Byron Development Control Plan at development application stage, we also support the revegetation of the creek line with native species, including koala feed trees. This would improve terrestrial fauna and fish habitat, as well as water quality more generally and provide other biodiversity values including connectivity.

### C. Flood risk management

The BCD has reviewed the Flood Impact Assessment report prepared by BMT dated May 2021. The report indicates that the model had been calibrated to the March 2017 and February 2020 flood events in Byron Creek but no details regarding the calibration can be found in the report to support the reliability or performance of the models. For this reason, it is difficult to accept the findings of the design floods such as the 1%AEP and 5% AEP events.

The BCD understands that Byron Shire Council had been collecting flood data from the recent February-March 2022 flood and the data may include Byron Creek at Bangalow. If data exists, this flood event would be ideal for model verification purposes.

*BCD Recommendation:*

4. Before the planning proposal is finalised, the flood impact assessment should be reviewed, updated and resubmitted in light of the above comments.

Our ref: L.A10672.005.docx

30 June 2022

Andrew More  
[moreandrew58@gmail.com]

Attention: Andrew More

Dear Andrew

**RE: Lot 150 – Bangalow Industrial Estate – Further Advice Re Flood Modelling**

This letter provides further explanation of what calibration activities were completed for the Byron Creek Flood model used in the flood impact assessment study. The whole report is lengthy and detailed, hence a summary of key information and figures is provided to overview what work was done. In short, the model uses contemporary approaches for hydrology and modern 2D hydraulic modelling approaches. The model was calibrated and validated against multiple flood events relevant to the catchment, although in the period investigated there were no major floods to use for calibration or validation.

**General**

A joint calibration approach has been undertaken calibrating both the XP-RAFTS hydrologic and TUFLOW HPC hydraulic models in tandem. The March 2017 Byron Creek flood event was selected for model calibration, and the February 2020 event was selected for a further model validation.

Calibration event rainfall data was applied to the hydrologic model to produce flow hydrographs which were then applied to the hydraulic model. The hydraulic model water level results were then compared to recorded flood levels in Byron Creek. Model parameters were adjusted as necessary until a satisfactory fit was determined.

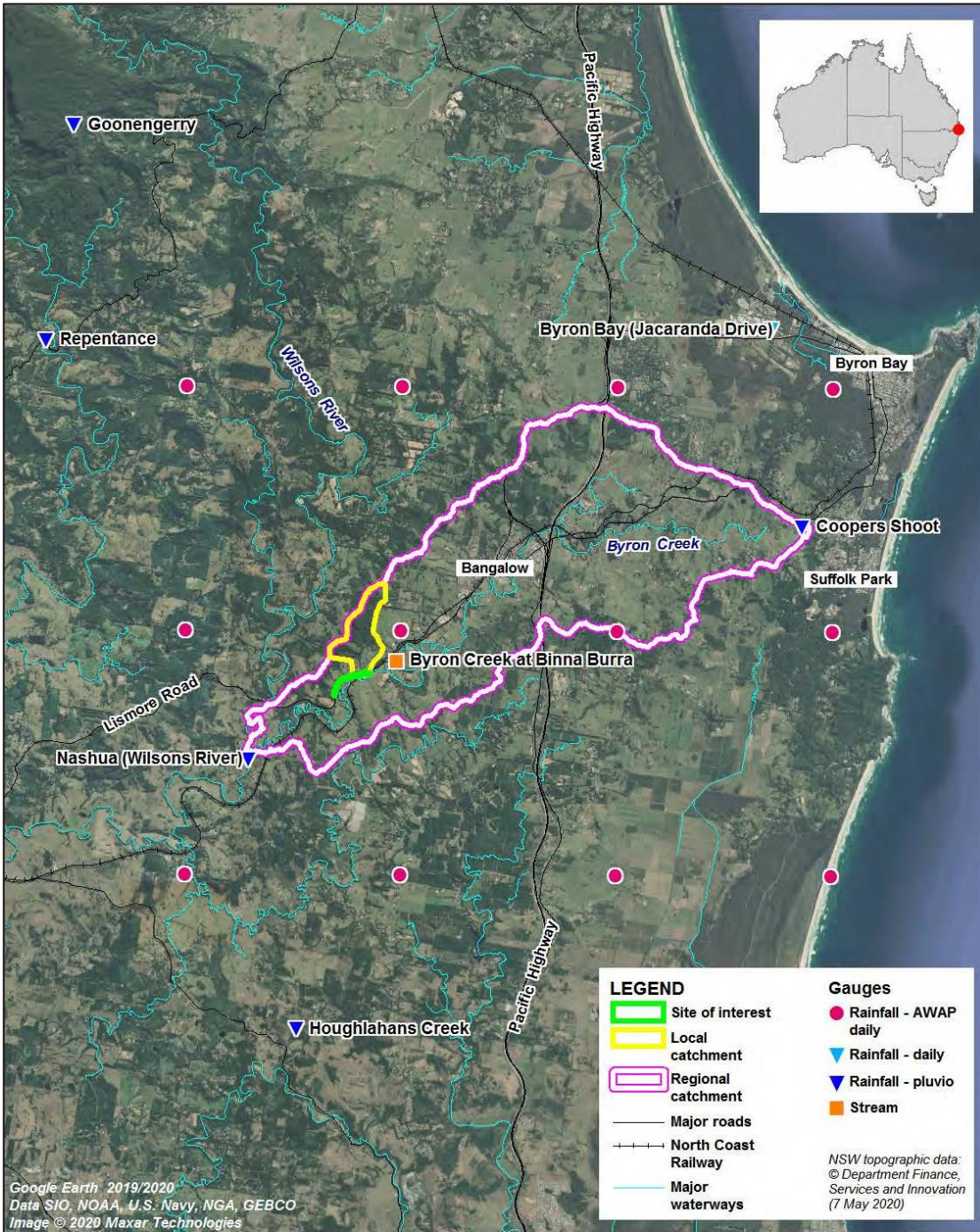
The calibrations used historical recorded rainfall data from the surrounding areas to inform the hydrologic models (Figure 1.1, Figure 1.2). Real stream water level gauging data was used from a recording location in Byron Creek (at Binna Burra). The model terminates a few kilometres downstream of this gauge where it meets the Wilsons River inflow.

The rating curve for the gauge at Binna Burra was verified with the model and found to be accurate (Figure 1.3). The rating curve allows for conversion of water level at the gauge to a flow rate. Water NSW developed the rating curve for the Binna Burra gauge.

Hydrologic calibration results were considered adequate to drive the hydraulic modelling (Figure 1.4 and 1.5).

Yours Sincerely,

**Damion Cavanagh**  
Principal Engineer



Title:  
**Rainfall and Stream Gauges**

Figure:  
**5-1**

Rev:  
**A**

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

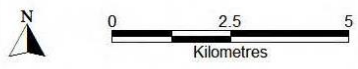


Figure 1.1 Rainfall and Stream Gauges

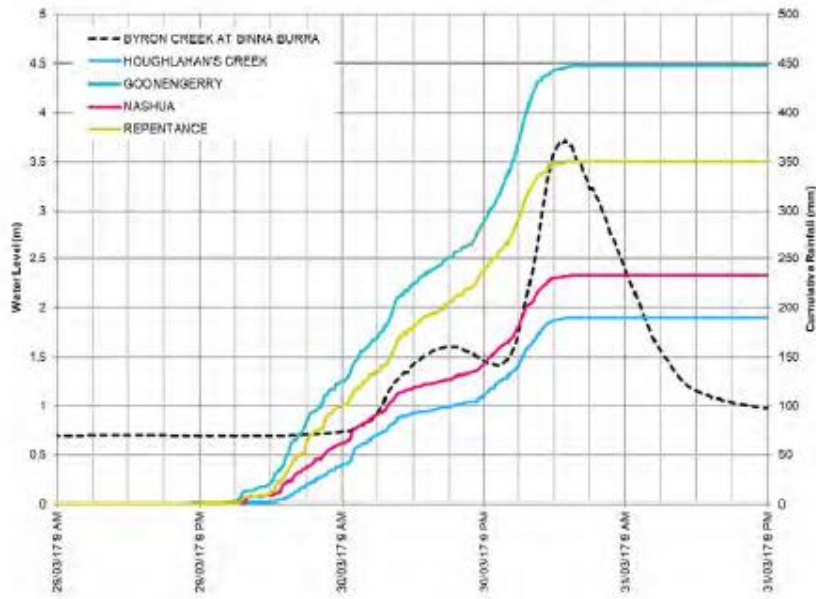


Figure 5-2 March 2017 Cumulative Rainfall and Stream Levels

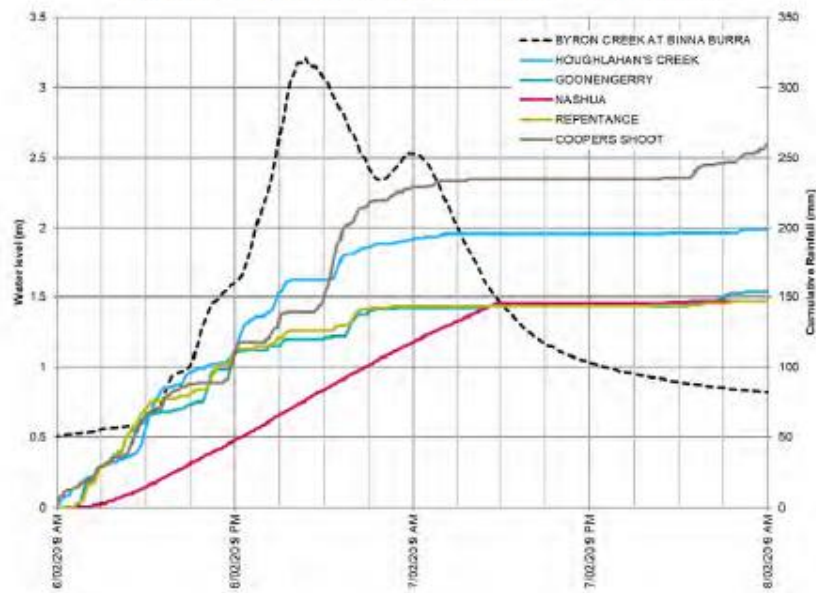


Figure 5-3 February 2020 Cumulative Rainfall and Stream Levels

Figure 1.2 Rainfall as a cumulative total and water level for 2017/2020 event



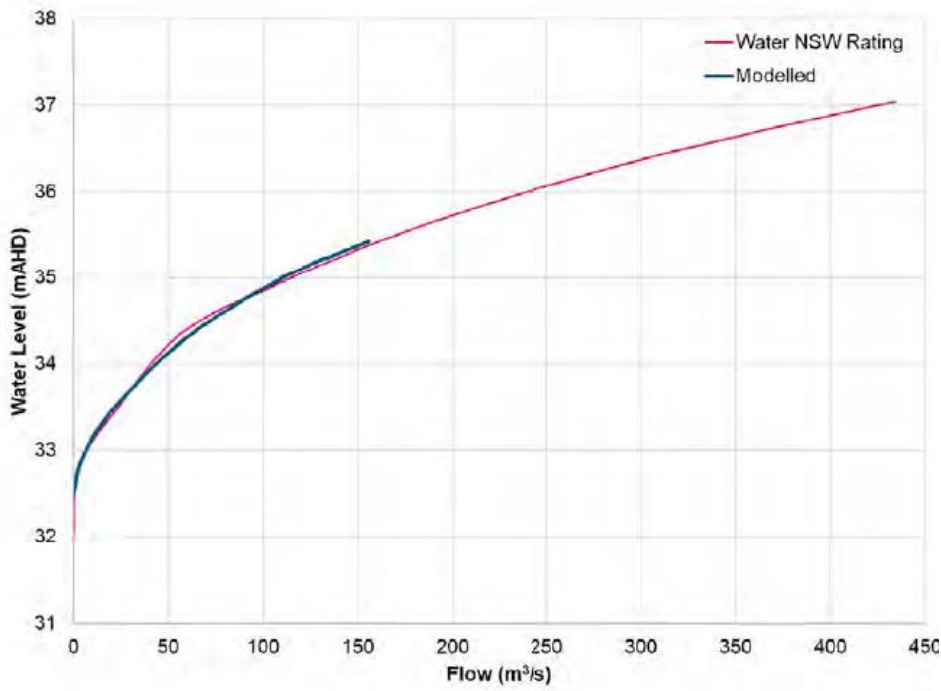


Figure 5-4 Current Water NSW Rating and Modelled Stage-Flow relationship at Binna Burra Gauge

Figure 1.3 Rating Curve comparison

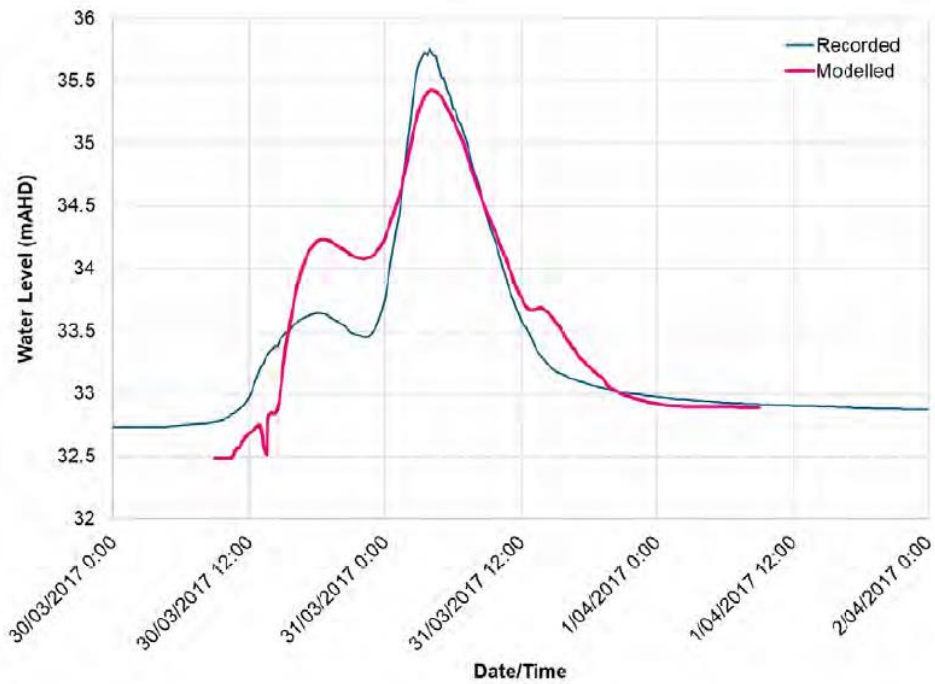


Figure 5-5 Calibration of March 2017 Event at Binna Burra Gauge

Figure 1.4 Water level calibration results 2017

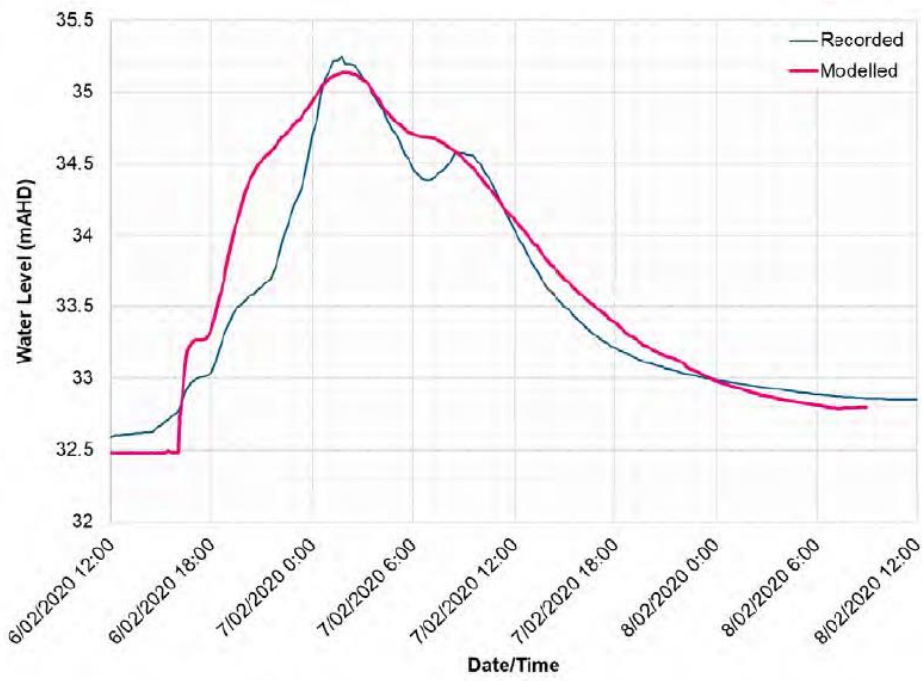


Figure 5-8 Validation of February 2020 Event at Binna Burra Gauge

Figure 1.5 Water level calibration results 2020

General Manager  
Byron Shire Council  
PO Box 219  
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Attention: Mr Sam Tarrant

Dear Mr Arnold

**RE: Updated Planning Proposal, 150 Lismore Road, Bangalow (PP-2021-3615)**

Thank you for your e-mail dated 5 July 2022 advising of updates to the Planning Proposal to amend the Byron Local Environmental Plan 2014 (LEP 2014) to rezone part of Lot 4 DP 635505, 150 Lismore Road, Bangalow, seeking comments from the Biodiversity and Conservation Division (BCD) of the Environment and Heritage Group of the Department of Planning and Environment. I appreciate the opportunity to provide ongoing input.

We are pleased to advise that we support the updates to the Planning Proposal and where relevant, to the supporting Ecological Assessment. The supported amendments are:

- The identification of areas included on the Biodiversity Values mapping, along with the freshwater wetland endangered ecological community (EEC) (the 'soak').
- Inclusion of a 40m minimum buffer between the IN1 zone and Maori Creek to better align with Fisheries buffer policy.

As such, we also support the subsequent amendments made to LEP 2014 that affect matters of statutory interest to the BC, namely:

- Increase the C3-Environmental Management zone to 40 metres on the western side of Maori Creek.
- Apply a C3- Environmental Management zone to the freshwater wetland EEC (the 'soak' area).
- Apply a 20m C3-Environmental Management buffer to the eastern side of Maori Creek.

In relation to flooding, as previously requested by the BCD in the letter dated 27 May 2022, further detail regarding the calibration of the flood model from the March 2017 and February 2020 flood events at the Binna Burra gauge has been provided, but not for the February-March 2022 event.

BCD seeks clarification from Council if data exists at the Binna Burra gauge for the February-March 2022 event. If so, this flood event should be used for model verification purposes to ensure that robust design flood levels such as the 5%AEP, 1%AEP and bigger floods for Byron Creek are obtained. Council is reminded that it ought to utilise the best available information to derive flood planning levels for land use planning purposes.

If you have any questions about this advice, please do not hesitate to contact Ms Nicky Owner, Senior Conservation Planning Officer, at [nicky.owner@environment.nsw.gov.au](mailto:nicky.owner@environment.nsw.gov.au) or 6659 8254.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Don Owner', written in a cursive style.

12 July 2022

**DON OWNER**  
**A/Senior Team Leader Planning, North East Branch**  
**Biodiversity and Conservation**