



# Coast, Estuary & Floodplain Advisory Sub- Committee

## Business Paper

**date of meeting:** Thursday 30 January 2020

**location:** Function Room  
Port Macquarie-Hastings Council  
17 Burrawan Street  
Port Macquarie

**time:** 2:00pm

## Coast, Estuary & Floodplain Sub-Committee

### CHARTER

Adopted: OC 21/08/19

#### 1.0 OBJECTIVES

- Assist Council in undertaking coast, estuary and floodplain management and planning.
- Assist Council in reviewing coast, estuary and floodplain studies, plans, and policies.
- Engage with and provide input to Council on other coast, estuary and floodplain matters and issues which are relevant to the Local Government Area.
- Provide and receive two-way feedback from the community.

#### 2.0 KEY FUNCTIONS

- Advise Council on conditions and management issues for the coast, estuaries and floodplains of the Port Macquarie-Hastings Local Government Area.
- Advise Council on the development of coastal, estuary and floodplain management plans for the Port Macquarie-Hastings Local Government Area.
- Advise Council on the implementation of adopted coastal, estuary and floodplain management plans.
- Act as a Sub- Committee for the purpose of relevant NSW guidelines as they relate to coastal, estuary and floodplain management.

#### 3.0 MEMBERSHIP

##### 3.1 Members

Community Representatives			
Name	Title	Catchment	Coast, estuary, flood
Alan MacIntyre	Community Representative	Camden Haven	Coast and estuary
Vacant	Community Representative	Hastings	Coast and estuary
Bob Jolly	Community Representative	Lake Cathie	Coast and estuary
Kingsley Searle	Oyster Industry	Hastings	Coast and estuary
Tony Troup	Oyster Industry	Camden Haven	Coast and estuary
Paul Hyde	Fishing Industry	Hastings	Coast and estuary
Vacant	Development Industry	Hastings	Flood
Vacant	Development Industry	Camden Haven	Flood
Vacant	Community Representative	Hastings	Flood
Vacant	Community Representative	Camden Haven	Flood
Vacant	Community Representative Revive Lake Cathie (RLC)	Lake Cathie	Flood



Council Representatives	
Name	Title
Michael Cusato (Chairperson)	Councillor
	Director, Development & Environment
	Manager, Environmental Services
	Natural Resources Manager
	Environmental Projects Officer

Agency Representatives			
Name	Title	Organisation	Coast, estuary, flood
Tina Clemens	NRM Project Officer	DPI - Lands	All
Mick Northam Scott Anderson (alternative)	Fisheries Officer	DPI - Fisheries	Coast and estuary
Shane Robinson Geoff James (alternative)	Manager, Hastings Macleay Area North Coast Branch	DPIE - NPWS	Coast and estuary
John Schmidt Toong Chin (alternative)	Natural Resource Officer - Water, Floodplains & Coast	DPIE - Biodiversity and Conservation Division	Coast and estuary
Nic Denshire Toong Chin (alternative)	Principal Floodplain Officer - Water, Floodplains & Coast	DPIE - Biodiversity and Conservation Division	Flood
Paul Burg Maria Frazer (alternative)	Local Commander, Hastings Cluster	SES	Flood
Matt Dawson Andre Uljee (alternative)	Boating Safety Officer	RMS	Coast and estuary

### 3.2 Obligations of Members

- Act honestly and in good faith.
- To act professionally and respectfully.
- Act impartially at all times.
- Participate actively in the work of the Sub-Committee.
- Exercise the care, diligence and skill that would be expected of a reasonable person in comparable circumstances.
- Comply with this Charter at all times.
- Facilitate and encourage community engagement with the Sub-Committee and Council.
- As per Section 226 (c) of the NSW Local Government Act 1993, the Mayor is the principal spokesperson for the governing body and Councillors that are members of a Sub-Committee are to obtain the Mayor's agreement to make media and other statements. Further, only the Mayor, or a Councillor with the Mayor's agreement and otherwise in accordance with Council policies and procedures, may release Council information through media statements or otherwise, and the release of such information must be lawful under the Council adopted Code of Conduct.
- A Councillor as a member of a Sub-Committee or the Sub-Committee itself has no delegation or authority to make decisions on behalf of Council, nor to direct the business of Council. The only decision making power open to Councillors is through formal resolutions of Council.

- A Councillor as a member of a Sub-Committee or the Sub-Committee itself cannot direct staff and must abide by the decisions of Council and the policies of Council.
- Councillors, Council staff and members of this Sub-Committee must comply with the applicable provisions of Council's Code of Conduct in carrying out the functions as Council officials. It is the personal responsibility of Council officials to comply with the standards in the Code of Conduct and regularly review their personal circumstances with this in mind.

### **3.3 Member Tenure**

Sub-Committee members will serve for a period of five (5) years after which Council will call expressions of interest for the next five (5) year period. Existing Sub-Committee members will be eligible to re-apply for a position and serve additional terms. Any changes in the composition of the Sub-Committee requires the approval of Council.

### **3.4 Appointment of Members**

- A formal Expression of Interest process will be undertaken across the Local Government Area as a way of determining the independent representatives on the Sub-Committee.
- Applications from individuals and representatives from interest groups, and who meet the selection criteria will be encouraged.
- Council, by resolution duly passed, will appoint members to the Sub-Committee.

## **4.0 TIMETABLE OF MEETINGS**

Meetings will be held quarterly as a minimum or more regularly if required. Meetings will generally be held at the main administration office of Port Macquarie-Hastings Council.

## **5.0 MEETING PRACTICES**

### **5.1 Decision Making**

- Recommendations of the Sub-Committee shall be by majority of the members present at each Meeting and each member shall have one (1) vote.
- The Chairperson shall not have a casting vote.
- In the event of an equality of votes on any matter, the matter shall be referred directly to Council's Executive Group and then to Council.
- Recommendations from the Sub-Committee are to be made through the relevant Director, who will determine under delegation, the process for implementation.
- The Sub-Committee has no delegation to allocate funding on behalf of Council. The Sub-Committee may make recommendations to Council about how funding should be spent in relation to the above-mentioned objectives, however those funds will only be applied and expended following a formal resolution of Council.
- The Sub-Committee may establish working groups to support actions and activities within the strategies or to assist in the delivery of projects and events as deemed appropriate. All projects are to be aligned with Council's suite of Integrated Planning and Reporting documents.

### **5.2 Quorum**

The quorum for the Sub-Committee will be half of the members plus one. A quorum must include a minimum of one (1) Councillor and one (1) Council staff member being present.

### **5.3 Chairperson and Deputy Chairperson**

- The Chairperson shall be the Councillor, Chair Coast, Estuary and Floodplain Sub-Committee
- At all Meetings of the Sub-Committee, the Chairperson shall occupy the Chair and preside. In the absence of the Chairperson the Director will act as Chairperson for that meeting.

### **5.4 Secretariat**

- The Director is responsible for ensuring the Sub-Committee has adequate secretariat support.
- The secretariat will ensure that the business paper and supporting papers are circulated at least three (3) days prior to each meeting.
- Minutes shall be appropriately approved and circulated to each member within three (3) weeks of a meeting being held.
- All Sub-Committee agendas and minutes will be made available to the public via Council's web site, unless otherwise restricted by legislation.

### **5.5 Recording of decisions and explicit discussions on risks**

The Secretariat shall record all discussions that relate to risks.

### **6.0 CONVENING OF "OUTCOME SPECIFIC" WORKING GROUPS**

- The Sub-Committee can at times request a working group to be convened, for a limited period of time, for a specific action, these specifics will be minuted clearly. The working group will report back to the Sub-Committee with outcomes.
- Any working groups established under this Sub-Committee will be responsible for providing updates to the Sub-Committee. The working groups will be an informal gathering with notes collected and managed by the senior staff member in attendance and will be tabled at the Sub-Committee meetings.

### **7.0 CONFIDENTIALITY AND CONFLICT OF INTEREST**

- Any independent members of the Sub-Committee will be required to complete a confidentiality agreement that will cover the period of their membership of the Sub-Committee.
- Sub-Committee members must declare any conflict of interests at the start of each meeting or before discussion of a relevant item or topic. Details of any conflicts of interest should be appropriately minuted.
- Where members or invitees at Sub-Committee meetings are deemed to have a real or perceived conflict of interest, it may be appropriate that they be excused from Sub-Committee deliberations on the issue where the conflict of interest may exist

## Coast, Estuary & Floodplain Sub-Committee

### ATTENDANCE REGISTER

Community Representatives	Representing	Catchment	Expertise Area	Date	Date	Date
Alan MacIntyre	Community	Camden Haven	Coast, Estuary			
Bob Jolly	Community	Lake Cathie	Coast, Estuary			
Kingsley Searle	Oyster Industry	Hastings	Coast & Estuary			
Tony Troup	Oyster Industry	Camden Haven	Coast & Estuary			
Paul Hyde	Fishing Industry	Hastings	Coast & Estuary			
Vacant	Development Industry	Hastings	Flood			
Vacant	Development Industry	Camden Haven	Flood			
Vacant	Community	Hastings	Flood			
Vacant	Community	Camden Haven	Flood			
Vacant	Community - Revive Lake Cathie	Lake Cathie	Flood			
<b>Council Representatives</b>						
Councillor Peter Alley (Chair)						
Councillor Lisa Intemann (Deputy Chair)						
Director Development & Environment - Melissa Watkins						
Group Manager Regulatory & Environment Services - Debbie Archer						
Natural Resources Manager - Blayne West						
Environmental Projects Officer - Jesse Dick						
Agency Representatives	Title	Organisation	Expertise Area			
Tina Clemens	NRM Project Officer	DPI - Lands	Coast, Estuary, Flood			
Michael Northam Scott Anderson (alt.)	Fisheries Officer	DPI - Fisheries	Coast, Estuary			
Shane Robinson Geoffrey James (alt.)	Manager, Hastings Macleay Area North Coast Branch	DPIE - NPWS	Coast, Estuary			
John Schmidt	Natural Resource Officer - Water, Floodplains & Coast	DPIE - Biodiversity & Conservation Division	Coast, Estuary			
Nic Denshire	Principal Floodplain Officer - Water, Floodplains & Coast	DPIE - Biodiversity & Conservation Division	Flood			
Paul Burg Maria Fraser (alt.)	Local Commander, Hastings Cluster	SES	Flood			
Matt Dawson Andre Uljee (alt.)	Boating Safety Officer	RMS	Coast, Estuary			

**Key:** ✓ = Present  
**A** = Absent With Apology  
**X** = Absent Without Apology

# Coast, Estuary & Floodplain Advisory Sub-Committee Meeting

Thursday 30 January 2020

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**Item: 01**

**Subject: ACKNOWLEDGEMENT OF COUNTRY**

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"I acknowledge that we are gathered on Birpai Land. I pay respect to the Birpai Elders both past and present. I also extend that respect to all other Aboriginal and Torres Strait Islander people present."

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**Item: 02**

**Subject: APOLOGIES**

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**RECOMMENDATION**

That the apologies received be accepted.

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**Item: 03**

**Subject: CONFIRMATION OF PREVIOUS MINUTES**

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**RECOMMENDATION**

That the Minutes of the Coast, Estuary & Floodplain Advisory Sub-Committee Meeting held on 28 March 2019 be confirmed.



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## **PRESENT**

### **Members:**

Councillor Mike Cusato (Chair)  
Alan MacIntyre (Community Rep.)  
Bob Jolly (Community Rep. - Lake Cathie)  
Kingsley Searle (Oyster Industry & Community Rep – North Shore)  
Laurie Lardner (Community Rep.)  
Patrick McEntee (Community Rep.)

### **Staff:**

Melissa Watkins (PMHC)  
Blayne West (PMHC)  
Gordon Cameron (PMHC)  
Jesse Dick (PMHC)

### **Agencies:**

Michael Northam (DPI - Fisheries)  
John Schmidt/Nicholas Denshire (Office of Environment & Heritage)  
Andre Uljee (Maritime Division - RMS)  
Maria Frazer (State Emergency Services)  
Michael Stubbs represented Paul Burg (State Emergency Services)  
Michael Barberie represented Tina Clemens (Lands Department)  
Geoffrey James represented Shane Robinson (National Parks Wildlife Service)

### **Other Attendees:**

Chris Thomas (Advisian - consultant)  
Lih Chong (Jacobs - consultant)  
Mark Edenborough (PMHC - Stormwater)  
Caroline Ortel (Office of Environment & Heritage)

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The meeting opened at 2.00pm.

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## **01 ACKNOWLEDGEMENT OF COUNTRY**

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The Acknowledgement of Country was not delivered.

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## **02 APOLOGIES**

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That the following apologies be accepted:

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Councillor Rob Turner (Deputy Chair)  
Maria Doherty (PMHC)  
Paul Burg (State Emergency Services)  
Tony Troup (Oyster Industry)  
Tina Clemens (Lands Department)  
Shane Robinson (National Parks Wildlife Service)  
Matt Dawson (Maritime Division - RMS)

Council staff to follow up with Paul Hyde and Adrian Button to confirm whether they still wish to be active members of the committee noting that Adrian Button has recently moved to Queensland and the Hastings Fisherman's Co-op has closed.

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### **03 CONFIRMATION OF MINUTES**

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#### **CONSENSUS**

That the Minutes of the Coast, Estuary & Floodplain Advisory Sub-Committee Meeting held on 31 July 2018 be confirmed.

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### **04 DISCLOSURES OF INTEREST**

There were no disclosures of interest presented.

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### **05 BUSINESS ARISING FROM PREVIOUS MINUTES**

Nil.

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**09 IMPACTS OF THE RECENT CLIMATE CHANGE DECISION OF COUNCIL ON FLOODPLAIN MANAGEMENT**

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Committee members agreed to bring Item 9 forward for discussion.

There was robust discussion on various aspects of the report.

Committee members strongly disagreed with the new policy direction on the basis the 900mm sea level rise requirement has been in place for many years and change will create uncertainty. The committee noted that there will be many wide ranging implications as a result of the new policy direction.

Chair Cusato proposed to discuss the recent decision with Councillors and Staff.

Melissa Watkins proposed a further briefing with Councillors and Staff.

**CONSENSUS**

That the Committee recommend Council review the decision/report.

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**06 HIBBARD PRECINCT FLOOD STUDY - DRAFT REPORT**

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Chris Thomas (Advisian) provided a detailed presentation on the report. The presentation was well received by the committee.

Kingsley Searle noted importance of Connection Creek on flooding in the lower Hastings catchment.

Gordon Cameron discussed the next stage of the project after the flood study (ie. The management study).

**CONSENSUS**

That the Committee recommend to Council, that the draft Hibbard Precinct Flood Study (2019) be placed on public exhibition for not less than 28 days.

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**08 LAKE CATHIE FISH KILL**

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Committee members agreed to bring Item 8 forward for discussion.

There was general discussion on various aspects of the report.

Bob Jolly queried whether Council had been in contact with the media to explain the current situation, especially considering the formulation of the new community action group. Melissa Watkins confirmed that Council had been contacted by the media on numerous occasions and Council had provided information on the management issues of the lake system.

Kingsley Searle questioned how quickly Council can initiate an opening if required. Gordon Cameron confirmed that machinery can be mobilised within days, however optimum conditions are unlikely to be present for a low level opening regardless of how quickly an

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opening can occur.

**CONSENSUS**

That the Committee note the report on the Lake Cathie Fish Kill.

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**07 NORTH BROTHER LOCAL CATCHMENTS FLOOD STUDY - DRAFT REPORT**

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Mark Edenborough (PMHC – stormwater) provided a background to the project.

Lih Chong (Jacobs) provided a detailed presentation on the report. The presentation was well received by the committee.

Gordon Cameron discussed the next stage of the project after the flood study (ie. The management study).

**CONSENSUS**

That the Committee recommend to Council that the draft North Brother Local Catchments Flood Study (2019) be placed on public exhibition.

Item - 08 Lake Cathie Fish Kill - has been moved to another part of the document.

Item - 09 Impacts of the Recent Climate Change Decision of Council on Floodplain Management - has been moved to another part of the document.

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**10 ACTIVE COAST, ESTUARY & FLOODPLAIN PROJECTS STATUS UPDATE**

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Jesse Dick presented the report.

**CONSENSUS**

That the Committee note the status of the active Coast, Estuary and Floodplain projects.

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**11 GENERAL BUSINESS**

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**11.01 COMMITTEE MEMBERSHIP**

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Patrick McEntee and Alan MacIntyre both advised the committee of poor health and confirmed their wish to continue on the committee.

Laurie Lardner noted Thor Aaso's resignation from Council and queried whether a new Acid Sulphate Soils (ASS) officer would be employed to replace Thor. Gordon Cameron confirmed that Blayne West has taken this role.

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Laurie Lardner confirmed that this would be his last meeting and would be resigning from the committee. Laurie Lardner spoke highly of the committee and its achievements for the community over the past years. Specifically the ASS program and the change to dredging activities in the estuaries. Laurie Lardner also commended Councillor Lisa Intemann for her work in this area and her contribution on previous committees. Councillor Cusato & Gordon Cameron both thanked Laurie Lardner for his attendance over many years and confirmed that his contribution was greatly valued and that his resignation will be a loss for both the committee and the community as a whole.

Jesse Dick noted that new memberships to the committee may be required due to absences created since the Coast & Estuary and Floodplain committees merged in 2015. Gordon Cameron noted a good spread of members across the main estuary areas, however more experience in flooding would be useful. Council will consider the membership of the Committee and will advertise for expressions of interest for new committee members with an interest in floodplain management – ie. one each from the Camden Haven and Hastings floodplains in particular.

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#### **11.02 FORESTRY OPERATIONS, LORNE STATE FOREST**

Gordon Cameron at the request of Tony Troup noted the Forestry operations occurring within the Lorne State Forest, particularly at Cold Nob Road. Gordon Cameron confirmed that Blayne West has raised this issue with NSW Forestry and a response will be provided at the next meeting.

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#### **11.03 PERSONAL WATERCRAFT USE IN LOCAL WATERWAYS**

Gordon Cameron noted that there has been reports from the community about personal watercraft use (Jet Ski's) within local waterways. Andre Uljee (RMS) requested that Council ensure that state government agencies be made aware when issues arise that they are responsible for managing. Melissa Watkins confirmed that Council aims to contact agencies as soon as issues arise so that they can be involved. However this issue stemmed from a Councillor request on a matter that had occurred over 12 months ago which only came to light via a community strategic planning meeting held earlier in the year.

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The meeting closed at 4.51pm.

Item: 04  
Subject: DISCLOSURES OF INTEREST

**RECOMMENDATION**

That Disclosures of Interest be presented

**DISCLOSURE OF INTEREST DECLARATION**

<b>Name of Meeting:</b>	
<b>Meeting Date:</b>	
<b>Item Number:</b>	
<b>Subject:</b>	
<b>I, the undersigned, hereby declare the following interest:</b>	
<input type="checkbox"/> <b>Pecuniary:</b> Take no part in the consideration and voting and be out of sight of the meeting.	
<input type="checkbox"/> <b>Non-Pecuniary – Significant Interest:</b> Take no part in the consideration and voting and be out of sight of the meeting.	
<input type="checkbox"/> <b>Non-Pecuniary – Less than Significant Interest:</b> May participate in consideration and voting.	
<b>For the reason that:</b>	
<b>Name:</b>  <b>Signed:</b>	<b>Date:</b>
<b>Please submit to the Governance Support Officer at the Council Meeting.</b>	

*(Refer to next page and the Code of Conduct)*



**Pecuniary Interest**

- 4.1 A pecuniary interest is an interest that you have in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to you or a person referred to in clause 4.3.
- 4.2 You will not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision you might make in relation to the matter, or if the interest is of a kind specified in clause 4.6.
- 4.3 For the purposes of this Part, you will have a pecuniary interest in a matter if the pecuniary interest is:
- (a) your interest, or
  - (b) the interest of your spouse or de facto partner, your relative, or your partner or employer, or
  - (c) a company or other body of which you, or your nominee, partner or employer, is a shareholder or member.
- 4.4 For the purposes of clause 4.3:
- (a) Your "relative" is any of the following:
    - i) your parent, grandparent, brother, sister, uncle, aunt, nephew, niece, lineal descendant or adopted child
    - ii) your spouse's or de facto partner's parent, grandparent, brother, sister, uncle, aunt, nephew, niece, lineal descendant or adopted child
    - iii) the spouse or de facto partner of a person referred to in paragraphs (i) and (i)
  - (b) "de facto partner" has the same meaning as defined in section 21C of the *Interpretation Act 1987*.
- 4.5 You will not have a pecuniary interest in relation to a person referred to in subclauses 4.3(b) or (c)
- (a) if you are unaware of the relevant pecuniary interest of your spouse, de facto partner, relative, partner, employer or company or other body, or
  - (b) just because the person is a member of, or is employed by, a council or a statutory body, or is employed by the Crown, or
  - (c) just because the person is a member of, or a delegate of a council to, a company or other body that has a pecuniary interest in the matter, so long as the person has no beneficial interest in any shares of the company or body.

**Non-Pecuniary**

- 5.1 Non-pecuniary interests are private or personal interests a council official has that do not amount to a pecuniary interest as defined in clause 4.1 of this code. These commonly arise out of family or personal relationships, or out of involvement in sporting, social, religious or other cultural groups and associations, and may include an interest of a financial nature.
- 5.2 A non-pecuniary conflict of interest exists where a reasonable and informed person would perceive that you could be influenced by a private interest when carrying out your official functions in relation to a matter.
- 5.3 The personal or political views of a council official do not constitute a private interest for the purposes of clause 5.2.
- 5.4 Non-pecuniary conflicts of interest must be identified and appropriately managed to uphold community confidence in the probity of council decision-making. The onus is on you to identify any non-pecuniary conflict of interest you may have in matters that you deal with, to disclose the interest fully and in writing, and to take appropriate action to manage the conflict in accordance with this code.
- 5.5 When considering whether or not you have a non-pecuniary conflict of interest in a matter you are dealing with, it is always important to think about how others would view your situation.

**Managing non-pecuniary conflicts of interest**

- 5.6 Where you have a non-pecuniary conflict of interest in a matter for the purposes of clause 5.2, you must disclose the relevant private interest you have in relation to the matter fully and in writing as soon as practicable after becoming aware of the non-pecuniary conflict of interest and on each occasion on which the non-pecuniary conflict of interest arises in relation to the matter. In the case of members of council staff other than the general manager, such a disclosure is to be made to the staff member's manager. In the case of the general manager, such a disclosure is to be made to the mayor.
- 5.7 If a disclosure is made at a council or committee meeting, both the disclosure and the nature of the interest must be recorded in the minutes on each occasion on which the non-pecuniary conflict of interest arises. This disclosure constitutes disclosure in writing for the purposes of clause 5.6.
- 5.8 How you manage a non-pecuniary conflict of interest will depend on whether or not it is significant.
- 5.9 As a general rule, a non-pecuniary conflict of interest will be significant where it does not involve a pecuniary interest for the purposes of clause 4.1, but it involves:
- a) a relationship between a council official and another person who is affected by a decision or a matter under consideration that is particularly close, such as a current or former spouse or de facto partner, a relative for the purposes of clause 4.4 or another person from the council official's extended family that the council official has a close personal relationship with, or another person living in the same household
  - b) other relationships with persons who are affected by a decision or a matter under consideration that are particularly close, such as friendships and business relationships. Closeness is defined by the nature of the friendship or business relationship, the frequency of contact and the duration of the friendship or relationship.
  - c) an affiliation between the council official and an organisation (such as a sporting body, club, religious, cultural or charitable organisation, corporation or association) that is affected by a decision or a matter under consideration that is particularly strong. The strength of a council official's affiliation with an organisation is to be determined by the extent to which they actively participate in the management, administration or other activities of the organisation.
  - d) membership, as the council's representative, of the board or management committee of an organisation that is affected by a decision or a matter under consideration, in circumstances where the interests of the council and the organisation are potentially in conflict in relation to the particular matter
  - e) a financial interest (other than an interest of a type referred to in clause 4.6) that is not a pecuniary interest for the purposes of clause 4.1
  - f) the conferral or loss of a personal benefit other than one conferred or lost as a member of the community or a broader class of people affected by a decision.
- 5.10 Significant non-pecuniary conflicts of interest must be managed in one of two ways:
- a) by not participating in consideration of, or decision making in relation to, the matter in which you have the significant non-pecuniary conflict of interest and the matter being allocated to another person for consideration or determination, or
  - b) if the significant non-pecuniary conflict of interest arises in relation to a matter under consideration at a council or committee meeting, by managing the conflict of interest as if you had a pecuniary interest in the matter by complying with clauses 4.28 and 4.29.
- 5.11 If you determine that you have a non-pecuniary conflict of interest in a matter that is not significant and does not require further action, when disclosing the interest you must also explain in writing why you consider that the non-pecuniary conflict of interest is not significant and does not require further action in the circumstances.
- 5.12 If you are a member of staff of council other than the general manager, the decision on which option should be taken to manage a non-pecuniary conflict of interest must be made in consultation with and at the direction of your manager. In the case of the general manager, the decision on which option should be taken to manage a non-pecuniary conflict of interest must be made in consultation with and at the direction of the mayor.
- 5.13 Despite clause 5.10(b), a councillor who has a significant non-pecuniary conflict of interest in a matter, may participate in a decision to delegate consideration of the matter in question to another body or person.
- 5.14 Council committee members are not required to declare and manage a non-pecuniary conflict of interest in accordance with the requirements of this Part where it arises from an interest they have as a person chosen to represent the community, or as a member of a non-profit organisation or other community or special interest group, if they have been appointed to represent the organisation or group on the council committee.

**SPECIAL DISCLOSURE OF PECUNIARY INTEREST DECLARATION**

*This form must be completed using block letters or typed.  
If there is insufficient space for all the information you are required to disclose,  
you must attach an appendix which is to be properly identified and signed by you.*

<b>By</b> <i>[insert full name of councillor]</i>	
<b>In the matter of</b> <i>[insert name of environmental planning instrument]</i>	
<b>Which is to be considered at a meeting of the</b> <i>[insert name of meeting]</i>	
<b>Held on</b> <i>[insert date of meeting]</i>	
<b>PECUNIARY INTEREST</b>	
Address of the affected principal place of residence of the councillor or an associated person, company or body <i>(the <b>identified land</b>)</i>	
Relationship of identified land to councillor <i>[Tick or cross one box.]</i>	<input type="checkbox"/> The councillor has interest in the land (e.g. is owner or has other interest arising out of a mortgage, lease, trust, option or contract, or otherwise). <input type="checkbox"/> An associated person of the councillor has an interest in the land. <input type="checkbox"/> An associated company or body of the councillor has interest in the land.
<b>MATTER GIVING RISE TO PECUNIARY INTEREST<sup>1</sup></b>	
Nature of land that is subject to a change in zone/planning control by proposed LEP <i>(the <b>subject land</b><sup>2</sup>)</i> <i>[Tick or cross one box]</i>	<input type="checkbox"/> The identified land. <input type="checkbox"/> Land that adjoins or is adjacent to or is in proximity to the identified land.
Current zone/planning control <i>[Insert name of current planning instrument and identify relevant zone/planning control applying to the subject land]</i>	
Proposed change of zone/planning control <i>[Insert name of proposed LEP and identify proposed change of zone/planning control applying to the subject land]</i>	
Effect of proposed change of zone/planning control on councillor or associated person <i>[Tick or cross one box]</i>	<input type="checkbox"/> Appreciable financial gain. <input type="checkbox"/> Appreciable financial loss.

*[If more than one pecuniary interest is to be declared, reprint the above box and fill in for each additional interest]*

**Councillor's Signature:** ..... **Date:** .....

*This form is to be retained by the council's general manager and included in full in the minutes of the meeting*

Last Updated: 3 June 2019

### **Important Information**

This information is being collected for the purpose of making a special disclosure of pecuniary interests under clause 4.36(c) of the Model Code of Conduct for Local Councils in NSW (the Model Code of Conduct).

The special disclosure must relate only to a pecuniary interest that a councillor has in the councillor's principal place of residence, or an interest another person (whose interests are relevant under clause 4.3 of the Model Code of Conduct) has in that person's principal place of residence.

Clause 4.3 of the Model Code of Conduct states that you will have a pecuniary interest in a matter because of the pecuniary interest of your spouse or your de facto partner or your relative or because your business partner or employer has a pecuniary interest. You will also have a pecuniary interest in a matter because you, your nominee, your business partner or your employer is a member of a company or other body that has a pecuniary interest in the matter.

"Relative" is defined by clause 4.4 of the Model Code of Conduct as meaning your, your spouse's or your de facto partner's parent, grandparent, brother, sister, uncle, aunt, nephew, niece, lineal descendant or adopted child and the spouse or de facto partner of any of those persons.

You must not make a special disclosure that you know or ought reasonably to know is false or misleading in a material particular. Complaints about breaches of these requirements are to be referred to the Office of Local Government and may result in disciplinary action by the Chief Executive of the Office of Local Government or the NSW Civil and Administrative Tribunal.

This form must be completed by you before the commencement of the council or council committee meeting at which the special disclosure is being made. The completed form must be tabled at the meeting. Everyone is entitled to inspect it. The special disclosure must be recorded in the minutes of the meeting.

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<sup>1</sup> Clause 4.1 of the Model Code of Conduct provides that a pecuniary interest is an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person. A person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to the matter, or if the interest is of a kind specified in clause 4.6 of the Model Code of Conduct.

<sup>2</sup> A pecuniary interest may arise by way of a change of permissible use of land adjoining, adjacent to or in proximity to land in which a councillor or a person, company or body referred to in clause 4.3 of the Model Code of Conduct has a proprietary interest

**Item: 05**

**Subject: BUSINESS ARISING FROM PREVIOUS MINUTES**

<b>Item:</b>	11.02	<b>Date:</b>	28/03/2019
<b>Subject:</b>	Forestry Operations, Lorne State Forest		
<b>Action Required:</b>	Tony Troup expressed his concern over the management of land under the control of NSW State Forests, particularly within the Lorne State Forest.		
<b>Current Status:</b>	Blayne West contacted NSW State Forests regarding this matter but no response was received.		

<b>Item:</b>	11.03	<b>Date:</b>	28/03/2019
<b>Subject:</b>	Personal Watercraft use in local waterways		
<b>Action Required:</b>	Gordon Cameron noted that there have been reports from the community about personal watercraft use (Jet Ski's) within local waterways. Andre Uljee (RMS) requested that Council ensure that state government agencies be made aware when issues arise that they are responsible for managing.		
<b>Current Status:</b>	Melissa Watkins confirmed that Council aims to contact agencies as soon as issues arise so that they can be involved. However this issue stemmed from a Councillor request on a matter that had occurred over 12 months ago which only came to light via a community strategic planning meeting held earlier in the year.		

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**Item: 06**

**Subject: MEMBERSHIP OF THE COAST, ESTUARY AND FLOODPLAIN  
ADVISORY SUB-COMMITTEE**

**Presented by: Development and Environment, Melissa Watkins**

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## **RECOMMENDATION**

**That the Committee:**

- 1. Note the report; and**
- 2. Note that Councillor Peter Alley has been appointed as Chair and Deputy Mayor Lisa Intemann has been appointed as Alternate Chair.**

## **Discussion**

At the March 2019 meeting of the Coast, Estuary and Floodplain Advisory Sub-Committee (CE&F) it was noted that new memberships may be required due to vacancies that have been created since the Coast and Estuary and Floodplain committees merged in 2015.

In addition to recruiting new members, staff took the opportunity to revise and update the committee's charter. The objectives of this review were to ensure:

- that the Charter is consistent with other committees of Council and Council's adopted Code of Conduct and Code of Meeting Practice
- equitable community representation for the main catchments within the PMHC LGA
- an equitable representation of members with skills and knowledge in floodplain management, coastal management and estuary management.

At the 21 August 2019 meeting, Council resolved to adopt a new CE&F charter, a revised membership composition and proceed to seek formal Expressions of Interest for recruitment of new members as follows.

*RESOLVED: Cusato/Turner*

*That Council:*

- 1. Adopt the revised Coast, Estuary and Floodplain Sub-Committee Charter as included in Attachment 2 to the report.*
- 2. Adopt the revised membership composition of the Coast, Estuary and Floodplain Sub-Committee which provides for equitable representation for key catchment areas and an even spread across the flood management, coastal management and estuary management disciplines as follows:*



Community Representatives				
Name	Title	Organisation	Catchment	Coast, Estuary, Flood
Alan MacIntyre	Community Representative	NA	Camden Haven	Coast and estuary
Patrick McEntee	Community Representative	NA	Hastings	Coast and estuary
Bob Jolly	Community Representative	NA	Lake Cathie	Coast and estuary
Kingsley Searle	Oyster Industry	NA	Hastings	Coast and estuary
Tony Troup	Oyster Industry	NA	Camden Haven	Coast and estuary
Paul Hyde	Fishing Industry	NA	Hastings	Coast and estuary
New	Development Industry		Hastings	Flood
New	Development Industry		Camden Haven	Flood
New	Community Representative		Hastings	Flood
New	Community Representative		Camden Haven	Flood
New	Community Representative	Revive Lake Cathie	Lake Cathie	Flood

3. *Proceed to seek formal Expressions of Interest for replacement and new members for the Coast, Estuary and Floodplain Sub-Committee.*

Following the August 2019 Ordinary Council meeting staff initiated an Expression of Interest (EOI) process in order to recruit suitable new members to the CEF Sub-Committee.

At the close of the EOI period there was an insufficient pool of applications to progress to appointments of representatives of both industry and general community members.

Accordingly, a report was prepared for Council in December which provided an update on the recruitment process. At the 12 December 2019 meeting Council resolved to re-initiate the recruitment process.

**RESOLVED: Intemann/Turner**

*That Council:*

- Note the information contained in the report.*
- Write to people who have submitted an application (Expression of Interest) and advise of Council's decision to re-initiate the recruitment process next year and that they do not need to re-apply.*
- Appoint Councillor Peter Alley as the Chair of the Coast, Estuary and Floodplain Sub-Committee and Deputy Mayor Intemann as Alternate Chair.*
- Recognise the highly valued and significant contribution to this Sub-Committee continuously since 1995 of Laurie Lardner and Patrick McEntee, sadly*



*deceased during 2019, and report this resolution to the next meeting of the Sub-Committee.*

5. *Council receive an update report on recruitment at the April 2020 Ordinary Council meeting.*

Note: Refer to separate agenda item in relation to point 4 of the above resolution.

Accordingly, staff will recommence the EOI procedure in February 2020. During the new recruitment phase existing Coast, Estuary and Floodplain Sub-Committee members will be consulted with to ensure a wide audience is reached when recruiting for the positions.

Council also propose to recruit for the Fishing Industry - Hastings - Coast & Estuary position, as the current member has not attended meetings for some time and is not contactable.

At the recently held Lake Cathie key community stakeholder and agency meetings it was identified that a representative from the Biripi Local Aboriginal Land Council (LALC) could should attend future Coast, Estuary and Floodplain Advisory Sub-Committee meetings. As the August 2019 Council meeting did not include a position for the attendance of a LALC representative, it is proposed that the Biripi LALC be invited to attend meetings as a guest. The committee is requested to consider this proposal and discuss the potential to include a Biripi LALC rep as a regular member to CE&F meetings in the future.

In addition, due to the ongoing significant concerns with the condition of the Lake Cathie/Lake Innes Estuarine system and the time taken to recruit new members to the sub-committee it was agreed at the Community Stakeholder meeting in December 2019 that a member from that forum be nominated to attend the sub-committee on behalf of the community stakeholders until membership is confirmed. The Community Stakeholder forum nominated Mr David Curry of Revive Lake Cathie to attend.

Council staff will undertake the extended EOI process immediately following the CE&F sub-committee meeting in order to report back to Council at the April 2020 meeting.

An update on the EOI process will be provided to CE&F committee members at a future meeting.

#### **Attachments**

1. [Council Meeting - AGENDA, August 2019](#)
2. [Council Meeting - MINUTES - August 2019](#)
3. [Committee CHARTER - Adopted August 2019](#)
4. [Council Meeting - AGENDA - December 2019](#)
5. [Council Meeting - MINUTES - December 2019](#)

## AGENDA

ORDINARY COUNCIL  
21/08/2019

Item: 13.10

Subject: **MEMBERSHIP OF THE COAST, ESTUARY AND FLOODPLAIN  
SUB- COMMITTEE**

Presented by: Development and Environment, Melissa Watkins

**Alignment with Delivery Program**

4.3.1 Undertake transparent and efficient development assessment in accordance with relevant legislation.

**RECOMMENDATION**

That Council:

1. Adopt the revised **Coast, Estuary and Floodplain Sub-Committee Charter** as included in Attachment 2.
2. Adopt the revised membership composition of the **Coast, Estuary and Floodplain Sub-Committee** which provides for equitable representation for key catchment areas and an even spread across the flood management, coastal management and estuary management disciplines as follows:

Community Representatives				
Name	Title	Organisation	Catchment	Coast, estuary, flood
Alan MacIntyre	Community Representative	NA	Camden Haven	Coast and estuary
Patrick McEntee	Community Representative	NA	Hastings	Coast and estuary
Bob Jolly	Community Representative	NA	Lake Cathie	Coast and estuary
Kingsley Searle	Oyster Industry	NA	Hastings	Coast and estuary
Tony Troup	Oyster Industry	NA	Camden Haven	Coast and estuary
Paul Hyde	Fishing Industry	NA	Hastings	Coast and estuary
New	Development Industry		Hastings	Flood
New	Development Industry		Camden Haven	Flood
New	Community Representative		Hastings	Flood
New	Community Representative		Camden Haven	Flood

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New	Community Representative	Revive Lake Cathie	Lake Cathie	Flood
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3. Proceed to seek formal Expressions of Interest for replacement and new members for the Coast, Estuary and Floodplain Sub-Committee.

## Executive Summary

Over the last few years there have been a number of departures from the Coast, Estuary and Floodplain (CEF) Sub-Committee resulting in an uneven spread of expertise and local area representation with remaining sub-committee members. This has resulted in limited expertise on the Sub-Committee in respect of flood planning/management and uneven representation of community members across the coastal and estuarine zone.

In addition, due to the strategic nature of coast and estuary projects, the extensive regulatory planning requirements and changes in coastal legislation, Council projects in this area have been slow to progress, resulting in infrequent consultation with the Sub-Committee. It has also been a number of years since the Sub-Committee has been utilised optimally or its composition or Charter reviewed.

Over the next five years, there will also be a significant body of work involved in the development of the new comprehensive Coastal Management Program for the Port Macquarie-Hastings Local Government Area and a number of flood studies and ongoing estuarine issues that will require specialist input from the Sub-Committee.

Accordingly, to ensure appropriate membership composition and expertise on the Sub-Committee the Charter has now been reviewed to better reflect the roles and to improve representation and expertise distribution across the areas of coast, estuaries, and flooding. Further, this review has been undertaken to ensure that it is consistent with other committees of Council and Council's adopted *Code of Conduct* and *Code of Meeting Practice*. The revised Charter is included in **Attachment 2**. The existing Charter and the report adopted by Council on 18 November 2015 is included here as **Attachment 1**.

This report recommends that the revised Charter and Sub-Committee membership composition be adopted.

## Discussion

The *Coastal Management Act 2016* and *Coastal Management State Environmental Planning Policy 2018* commenced on 3 April 2018. The *Coastal Management Act* has introduced Coastal Management Programs (CMP) to replace the Coastal Zone Management Plans (CZMPs). Port Macquarie-Hastings Council (PMHC) is about to commence the new comprehensive CMP process.

In addition, Flood Management Studies are about to commence for the Hibbard area and Wrights Creek catchments and flood management options and mapping need to progress for the Hastings and Camden Haven areas.

Typically, coastal estuary and flood 'management plans' are strategic in nature, taking a number of years to deliberate over, consult on options and are thus slow to

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complete. Given the number of Council projects coming on line and the changes in legislation requiring different plans and a new coastal and estuary program to be determined, there is now a number of projects requiring consultation and feedback. A robust and expert Coast, Estuary and Floodplain (CEF) Sub-Committee is required to engage and advise on these upcoming projects.

Over the last few years there have also been a number of departures from the CEF Sub-Committee resulting in reduction in the skillset relating to flooding and also inequitable representation across the Local Government Area (LGA).

The current membership of the Sub-Committee is as follows:

Community Representatives - Existing				
Name	Title	Organisation	Catchment	Coast, estuary, flood
Vacant	Waterways User Representative	NA	Hastings	Coast and estuary
Alan MacIntyre	Community Representative	NA	Camden Haven	Coast and estuary
Patrick McEntee	Community Representative	NA	Hastings	Coast and estuary
Bob Jolly	Community Representative	NA	Lake Cathie	Coast and estuary
Kingsley Searle	Oyster Industry	NA	Hastings	Coast and estuary
Vacant	Oyster Industry	NA	Hastings	Coast and estuary
Tony Troup	Oyster Industry	NA	Camden Haven	Coast and estuary
Paul Hyde	Fishing Industry	NA	Hastings	Coast and estuary
Council Representatives - Existing				
Michael Cusato Chairperson	Councillor	PMHC	All	All
Melissa Watkins	Director, Development & Environment	PMHC	All	All
Maria Doherty	Manager Environmental Services	PMHC	All	All
Gordon Cameron	Waste & Environmental Manager	PMHC	All	All
Blayne West	Natural Resources Manager	PMHC	All	All
Jesse Dick	Environmental Projects Officer	PMHC	All	All
Agency Representatives - Existing				
Tina Clemens	NRM Project Officer	DPI - Lands	All	All

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Mick Northam Scott Anderson (alternative)	Fisheries Officer	DPI - Fisheries	All	Coast and estuary
Shane Robinson Geoff James (alternative)	Manager Hastings Macleay Area North Coast Branch	DPIE - NPWS	All	Coast and estuary
John Schmidt Toong Chin (alternative)	Natural Resource Officer - Water, Floodplains & Coast	DPIE - Biodiversity and Conservation Division	All	Coast and estuary
Nic Denshire Toong Chin (alternative)	Principal Floodplain Officer - Water, Floodplains & Coast	DPIE - Biodiversity and Conservation Division	All	Flood
Paul Burg Maria Frazer (alternative)	Local Commander, Hastings Cluster	SES	All	Flood
Matt Dawson Andre Uljee (alternative)	Boating Safety Officer	RMS	All	Coast and estuary

In light of the above and as part of the review of the Charter, a review of the membership of the CEF Sub-Committee has been undertaken. The objectives of this review were to ensure:

- that the Charter is consistent with other committees of Council and Council's adopted *Code of Conduct* and *Code of Meeting Practice*
- equitable community representation for the main catchments within the PMHC LGA
- an equitable representation of members with skills and knowledge in floodplain management, coastal management and estuary management.

Based on the issues and projects emerging for Council over the next five years it is recommended that membership composition of the Coast, Estuary and Floodplain Sub-Committee be amended as follows:

Community Representatives - Proposed				
Name	Title	Organisation	Catchment	Coast, estuary, flood
Alan MacIntyre	Community Representative	NA	Camden Haven	Coast & estuary
Patrick McEntee	Community Representative	NA	Hastings	Coast & estuary
Bob Jolly	Community Representative	NA	Lake Cathie	Coast & estuary
Kingsley Searle	Oyster Industry	NA	Hastings	Coast & estuary
Tony Troup	Oyster Industry	NA	Camden Haven	Coast & estuary

## AGENDA

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Paul Hyde	Fishing Industry	NA	Hastings	Coast & estuary
New	Development Industry		Hastings	Flood
New	Development Industry		Camden Haven	Flood
New	Community Representative		Hastings	Flood
New	Community Representative		Camden Haven	Flood
New	Community Representative	Revive Lake Cathie (RLC)	Lake Cathie	Flood

It is proposed that all staff and State Government Agencies (eg. Fisheries, NPWS etc) representation remain unchanged.

Due to the lapse in time since the *Charter of the Committee* has been reviewed (18 November 2015) and given the vacancies in membership and the need for a change in composition of the Sub-Committee, a review of the Charter has now been undertaken to ensure that the Charter is consistent with other committees of Council and Council's adopted *Code of Conduct* and *Code of Meeting Practice* and that membership representation is appropriate.

The revised Charter is included as **Attachment 2**

**Options**

The Council may choose to:

1. Adopt the revised membership composition, Charter and advertise for new members for the vacant positions; or
2. Disband the CEF Sub-Committee and advertise for new community members; or
3. Maintain the existing CEF Sub-Committee membership and seek Expression of Interest for those areas deemed to be lacking or vacant.

**Community Engagement & Internal Consultation**

The proposal to review the Sub-Committee has been discussed with PMHC staff and Councillors.

Once a determination is made by Council a meeting of the CEF Sub-Committee will be held to advise the existing members of Council's decision.

**Planning & Policy Implications**

Council is required to have a community reference committee for all Flood Management Plans and the new CMP process.

**Financial & Economic Implications**

There are no financial and economic implications in relation to this report.

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**AGENDA**

**ORDINARY COUNCIL**  
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**Attachments**

- 1[View](#). Existing Charter - Coast Estuary and Floodplain Sub-Committee 2015 11 18.pdf
- 2[View](#). Revised Charter - Coast Estuary and Floodplain Sub-Committee.pdf

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**MINUTES**  
**Ordinary Council Meeting**  
**21/08/2019**

**CARRIED:** 9/0  
**FOR:** Alley, Cusato, Dixon, Griffiths, Hawkins, Intemann, Levido, Pinson and Turner  
**AGAINST:** Nil

### 13.10 MEMBERSHIP OF THE COAST, ESTUARY AND FLOODPLAIN SUB-COMMITTEE

**RESOLVED:** Cusato/Turner

That Council:

1. Adopt the revised Coast, Estuary and Floodplain Sub-Committee Charter as included in Attachment 2 to the report.
2. Adopt the revised membership composition of the Coast, Estuary and Floodplain Sub-Committee which provides for equitable representation for key catchment areas and an even spread across the flood management, coastal management and estuary management disciplines as follows:

Community Representatives				
Name	Title	Organisation	Catchment	Coast, Estuary, Flood
Alan MacIntyre	Community Representative	NA	Camden Haven	Coast and estuary
Patrick McEntee	Community Representative	NA	Hastings	Coast and estuary
Bob Jolly	Community Representative	NA	Lake Cathie	Coast and estuary
Kingsley Searle	Oyster Industry	NA	Hastings	Coast and estuary
Tony Troup	Oyster Industry	NA	Camden Haven	Coast and estuary
Paul Hyde	Fishing Industry	NA	Hastings	Coast and estuary
New	Development Industry		Hastings	Flood
New	Development Industry		Camden Haven	Flood
New	Community Representative		Hastings	Flood
New	Community Representative		Camden Haven	Flood
New	Community Representative	Revive Lake Cathie	Lake Cathie	Flood

3. Proceed to seek formal Expressions of Interest for replacement and new members for the Coast, Estuary and Floodplain Sub-Committee.

**MINUTES**  
**Ordinary Council Meeting**  
**21/08/2019**

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*CARRIED: 9/0*  
*FOR: Alley, Cusato, Dixon, Griffiths, Hawkins, Intemann, Levido, Pinson and Turner*  
*AGAINST: Nil*

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**13.11 THE SETTLERS INN, 101 HASTINGS RIVER DRIVE, PORT MACQUARIE -  
INSPECTION REPORT RECEIVED FROM NSW FIRE & RESCUE**

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*RESOLVED: Turner/Alley*

That Council:

1. Note the contents of the Fire Safety Inspection report, dated 5 July 2019, from NSW Fire & Rescue, as shown in Attachment 1 to this report.
2. Exercise the powers conferred on Council by the Environmental Planning and Assessment Act, 1979 (Division 9.3 and Schedule 5), to issue a Fire Safety Order to address the outstanding fire safety concerns at the premises 101 Hastings River Drive, Port Macquarie.

*CARRIED: 9/0*  
*FOR: Alley, Cusato, Dixon, Griffiths, Hawkins, Intemann, Levido, Pinson and Turner*  
*AGAINST: Nil*

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**14 ITEMS TO BE DEALT WITH BY EXCEPTION**

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Nil.

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**CONFIDENTIAL COMMITTEE OF THE WHOLE**

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*RESOLVED: Turner/Dixon*

1. That pursuant to section 10A subsections 2 & 3 and 10B of the Local Government Act 1993 (as amended), the press and public be excluded from the proceedings of the Council in Confidential Committee of the Whole (Closed Session) on the basis that items to be considered are of a confidential nature.
2. That Council move into Confidential Committee of the Whole (Closed Session) to receive and consider the following items

Item 15.01 Innes Gardens Memorial Park Crematorium and Lawn Cemetery  
- Negotiations with Interested Parties

This item is considered confidential under Section 10A(2)(c) of the Local Government Act 1993, as it contains information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

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## COAST, ESTUARY & FLOODPLAIN SUB-COMMITTEE CHARTER

Adopted: Ordinary Council YYYY MM DD

### 1.0 OBJECTIVES

- Assist Council in undertaking coast, estuary and floodplain management and planning.
- Assist Council in reviewing coast, estuary and floodplain studies, plans, and policies.
- Engage with and provide input to Council on other coast, estuary and floodplain matters and issues which are relevant to the Local Government Area.
- Provide and receive two-way feedback from the community.

### 2.0 KEY FUNCTIONS

- Advise Council on conditions and management issues for the coast, estuaries and floodplains of the Port Macquarie-Hastings Local Government Area.
- Advise Council on the development of coastal, estuary and floodplain management plans for the Port Macquarie-Hastings Local Government Area.
- Advise Council on the implementation of adopted coastal, estuary and floodplain management plans.
- Act as a Sub-Committee for the purpose of relevant NSW guidelines as they relate to coastal, estuary and floodplain management.

### 3.0 MEMBERSHIP

#### 3.1 Members

Community Representatives			
Name	Title	Catchment	Coast, estuary, flood
Alan MacIntyre	Community Representative	Camden Haven	Coast and estuary
Patrick McEntee	Community Representative	Hastings	Coast and estuary
Bob Jolly	Community Representative	Lake Cathie	Coast and estuary
Kingsley Searle	Oyster Industry	Hastings	Coast and estuary
Tony Troup	Oyster Industry	Camden Haven	Coast and estuary
Paul Hyde	Fishing Industry	Hastings	Coast and estuary
Vacant	Development Industry	Hastings	Flood
Vacant	Development Industry	Camden Haven	Flood
Vacant	Community Representative	Hastings	Flood
Vacant	Community Representative	Camden Haven	Flood
Vacant	Community Representative Revive Lake Cathie (RLC)	Lake Cathie	Flood

[Coast, Estuary and Floodplain Sub-Committee] Charter  
Page 1 of 4

Council Representatives	
Name	Title
Michael Cusato (Chairperson)	Councillor
	Director, Development & Environment
	Manager, Environmental Services
	Natural Resources Manager
	Environmental Projects Officer

Agency Representatives			
Name	Title	Organisation	Coast, estuary, flood
Tina Clemens	NRM Project Officer	DPI - Lands	All
Mick Northam Scott Anderson (alternative)	Fisheries Officer	DPI - Fisheries	Coast and estuary
Shane Robinson Geoff James (alternative)	Manager, Hastings Macleay Area North Coast Branch	DPIE - NPWS	Coast and estuary
John Schmidt Toong Chin (alternative)	Natural Resource Officer - Water, Floodplains & Coast	DPIE - Biodiversity and Conservation Division	Coast and estuary
Nic Denshire Toong Chin (alternative)	Principal Floodplain Officer - Water, Floodplains & Coast	DPIE - Biodiversity and Conservation Division	Flood
Paul Burg Maria Frazer (alternative)	Local Commander, Hastings Cluster	SES	Flood
Matt Dawson Andre Uljee (alternative)	Boating Safety Officer	RMS	Coast and estuary

### 3.2 Obligations of Members

- Act honestly and in good faith.
- To act professionally and respectfully.
- Act impartially at all times.
- Participate actively in the work of the Sub-Committee.
- Exercise the care, diligence and skill that would be expected of a reasonable person in comparable circumstances.
- Comply with this Charter at all times.
- Facilitate and encourage community engagement with the Sub-Committee and Council.
- As per Section 226 (c) of the NSW Local Government Act 1993, the Mayor is the principal spokesperson for the governing body and Councillors that are members of a Sub-Committee are to obtain the Mayor's agreement to make media and other statements. Further, only the Mayor, or a Councillor with the Mayor's agreement and otherwise in accordance with Council policies and procedures, may release Council information through media statements or otherwise, and the release of such information must be lawful under the Council adopted Code of Conduct.
- A Councillor as a member of a Sub-Committee or the Sub-Committee itself has no delegation or authority to make decisions on behalf of Council, nor to direct the business of Council. The only decision making power open to Councillors is through formal resolutions of Council.

## ATTACHMENT

ORDINARY COUNCIL  
21/08/2019

- A Councillor as a member of a Sub-Committee or the Sub-Committee itself cannot direct staff and must abide by the decisions of Council and the policies of Council.
- Councillors, Council staff and members of this Sub-Committee must comply with the applicable provisions of Council's Code of Conduct in carrying out the functions as Council officials. It is the personal responsibility of Council officials to comply with the standards in the Code of Conduct and regularly review their personal circumstances with this in mind.

### 3.3 Member Tenure

Sub-Committee members will serve for a period of five (5) years after which Council will call expressions of interest for the next five (5) year period. Existing Sub-Committee members will be eligible to re-apply for a position and serve additional terms. Any changes in the composition of the Sub-Committee requires the approval of Council.

### 3.4 Appointment of Members

- A formal Expression of Interest process will be undertaken across the Local Government Area as a way of determining the independent representatives on the Sub-Committee.
- Applications from individuals and representatives from interest groups, and who meet the selection criteria will be encouraged.
- Council, by resolution duly passed, will appoint members to the Sub-Committee.

### 4.0 TIMETABLE OF MEETINGS

Meetings will be held quarterly as a minimum or more regularly if required. Meetings will generally be held at the main administration office of Port Macquarie-Hastings Council.

### 5.0 MEETING PRACTICES

#### 5.1 Decision Making

- Recommendations of the Sub-Committee shall be by majority of the members present at each Meeting and each member shall have one (1) vote.
- The Chairperson shall not have a casting vote.
- In the event of an equality of votes on any matter, the matter shall be referred directly to Council's Executive Group and then to Council.
- Recommendations from the Sub-Committee are to be made through the relevant Director, who will determine under delegation, the process for implementation.
- The Sub-Committee has no delegation to allocate funding on behalf of Council. The Sub-Committee may make recommendations to Council about how funding should be spent in relation to the above-mentioned objectives, however those funds will only be applied and expended following a formal resolution of Council.
- The Sub-Committee may establish working groups to support actions and activities within the strategies or to assist in the delivery of projects and events as deemed appropriate. All projects are to be aligned with Council's suite of Integrated Planning and Reporting documents.

#### 5.2 Quorum

The quorum for the Sub-Committee will be half of the members plus one. A quorum must include a minimum of one (1) Councillor and one (1) Council staff member being present.



## ATTACHMENT

ORDINARY COUNCIL  
21/08/2019

## 5.3 Chairperson and Deputy Chairperson

- The Chairperson shall be the Councillor, Chair Coast, Estuary and Floodplain Sub-Committee
- At all Meetings of the Sub-Committee, the Chairperson shall occupy the Chair and preside. In the absence of the Chairperson the Director will act as Chairperson for that meeting.

## 5.4 Secretariat

- The Director is responsible for ensuring the Sub-Committee has adequate secretariat support.
- The secretariat will ensure that the business paper and supporting papers are circulated at least three (3) days prior to each meeting.
- Minutes shall be appropriately approved and circulated to each member within three (3) weeks of a meeting being held.
- All Sub-Committee agendas and minutes will be made available to the public via Council's web site, unless otherwise restricted by legislation.

## 5.5 Recording of decisions and explicit discussions on risks

The Secretariat shall record all discussions that relate to risks.

## 6.0 CONVENING OF "OUTCOME SPECIFIC" WORKING GROUPS

- The Sub-Committee can at times request a working group to be convened, for a limited period of time, for a specific action, these specifics will be minuted clearly. The working group will report back to the Sub-Committee with outcomes.
- Any working groups established under this Sub-Committee will be responsible for providing updates to the Sub-Committee. The working groups will be an informal gathering with notes collected and managed by the senior staff member in attendance and will be tabled at the Sub-Committee meetings.

## 7.0 CONFIDENTIALITY AND CONFLICT OF INTEREST

- Any independent members of the Sub-Committee will be required to complete a confidentiality agreement that will cover the period of their membership of the Sub-Committee.
- Sub-Committee members must declare any conflict of interests at the start of each meeting or before discussion of a relevant item or topic. Details of any conflicts of interest should be appropriately minuted.
- Where members or invitees at Sub-Committee meetings are deemed to have a real or perceived conflict of interest, it may be appropriate that they be excused from Sub-Committee deliberations on the issue where the conflict of interest may exist.

## AGENDA

ORDINARY COUNCIL  
11/12/2019

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Item: 13.07Subject: **MEMBERSHIP OF THE COAST, ESTUARY AND FLOODPLAIN  
SUB- COMMITTEE**Presented by: Development and Environment, Melissa Watkins

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**Alignment with Delivery Program**

4.3.1 Undertake transparent and efficient development assessment in accordance with relevant legislation.

**RECOMMENDATION****That Council:**

1. Note the information contained in the report.
2. Write to people who have submitted an application (Expression of Interest) and advise of Council's decision to re-initiate the recruitment process next year and that they do not need to re-apply.
3. Appoint Councillor Peter Alley as the Chair of the Coast, Estuary and Floodplain Sub-Committee.
4. Council receive an update report on recruitment at the April 2020 Ordinary Council meeting.

**Executive Summary**

At the 21 August 2019 meeting, Council resolved to adopt a new Coast, Estuary & Floodplain Sub-Committee (CEF) charter, a revised membership composition and proceed to seek formal Expressions of Interest for recruitment of new members. Since the meeting, Council staff have initiated an Expression of Interest (EOI) process in order to recruit suitable new members to the CEF Sub-Committee.

This report outlines the work completed to date in recruitment of new members, the ongoing recruitment that is required and the recommended appointment of Councillor Peter Alley as the Chair of the Coast, Estuary and Floodplain sub-committee.

**Discussion**

Following the August 2019 Ordinary Council meeting staff initiated an Expression of Interest (EOI) process in order to recruit suitable new members to the CEF Sub-Committee.

The process Council staff used for the EOI are as follows:

- Created a page on Council's website;
- Created a web homepage banner advertising the EOI;
- Promoted the EOI through social media channels;
- Created a recruitment position application profile on Scout;
- Numerous advertisements *Community Now* of local newspapers;

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- Advertised EOI to subscribers of Council's Construction Industry eNewsletter;
- Direct emails to environmental organisations.

At the close of the EOI period there was an insufficient pool of applications to progress to appointments of representatives of both industry and general community members. As such, staff will recommence the expression of interest procedure in February 2020. During the new recruitment phase the Coast, Estuary and Floodplain Sub-Committee will be consulted with to ensure a wide audience is reached when recruiting for the positions.

During recruitment Councillor Peter Alley has been nominated as the Chair of the Coast, Estuary and Floodplain sub-committee. Council staff are now seeking the official endorsement of Council.

Council staff will provide Council with an updated report on progress of recruitment at the April 2020 meeting.

**Options**

The following options are available to Council:

1. Note the information in the report.
2. Write to applicants of the above listed vacant positions advising Council's decision to seek further expressions of interest in 2020 and that they do not need to re-apply.
3. Close recruitment and leave positions vacant.

**Community Engagement & Internal Consultation**

The proposal to review the CEF Sub-Committee has been discussed with Council staff and Councillors.

Once a determination is made by Council a meeting of the CEF Sub-Committee will be held to advise the existing members of Council's decision and consider further methods for encouraging member applications.

**Planning & Policy Implications**

Council is required to have a community reference committee for all Flood Management Plans and the new Coastal Management Plan process.

**Financial & Economic Implications**

There are no financial and economic implications in relation to this report.

**Attachments**

1 [View](#). Adopted Charter - Coast Estuary and Floodplain Sub-Committee.pdf



**MINUTES**  
*Ordinary Council Meeting*  
**11/12/2019**

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#### **13.07 MEMBERSHIP OF THE COAST, ESTUARY AND FLOODPLAIN SUB-COMMITTEE**

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*RESOLVED: Intemann/Turner*

That Council:

1. Note the information contained in the report.
2. Write to people who have submitted an application (Expression of Interest) and advise of Council's decision to re-initiate the recruitment process next year and that they do not need to re-apply.
3. Appoint Councillor Peter Alley as the Chair of the Coast, Estuary and Floodplain Sub-Committee and Deputy Mayor Intemann as Alternate Chair.
4. Recognise the highly valued and significant contribution to this Sub-Committee continuously since 1995 of Laurie Lardner and Patrick McEntee, sadly deceased during 2019, and report this resolution to the next meeting of the Sub-Committee.
5. Council receive an update report on recruitment at the April 2020 Ordinary Council meeting.

*CARRIED: 7/0*

*FOR: Alley, Griffiths, Hawkins, Intemann, Levido, Pinson and Turner*

*AGAINST: Nil*

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**Item: 07**

**Subject: FLOODPLAIN MANAGEMENT**

**Presented by: Development and Environment, Melissa Watkins**

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## **RECOMMENDATION**

**That the Committee note the Floodplain Management report.**

### **Discussion**

At the December 2018 Council meeting, Council made the decision to adopt climate change 'Scenario 3' (400mm SLR plus 10% increase in rainfall) for the basis of the Flood Planning Area (FPA) in the Hastings River & Wrights Creek Catchments rather than the recommended 'Scenario 1' (900mm SLR plus 10% increase in rainfall).

This decision represented a significant change in flood policy direction and was a departure from Port Macquarie-Hastings Council's (PMHC) historical approach to floodplain management. This policy change has, and will, have impacts on current and ongoing flood projects.

Staff considered the implications of these changes and provided an options report to Council to consider in November 2019 (Attachment 1).

Council, at the meeting held on 20 November 2019 considered the report and resolved as follows:

*RESOLVED: Intemann/Alley*

*That Council:*

- 1. Reconsider the adoption of Climate Change 'Scenario 3' (400mm SLR plus 10% increase in rainfall) as the basis of the Flood Planning Area (FPA) and adopt 'Scenario 1' (900mm SLR plus 10% increase in rainfall).*
- 2. Note that the Floodplain Risk Management Study phase of the Wrights Creek and Hibbard Precinct projects will not be undertaken at this time.*
- 3. Note that the next phase of both projects will be subject to a future Operational Plan budget process.*
- 4. Write to people who made a submission on both projects and advise them that the Floodplain Risk Management Study phase will not be undertaken at this time.*

This decision repeals the resolution from December 2018 where Climate Change 'Scenario 3' (400mm SLR plus 10% increase in rainfall) was adopted for the basis of the Flood Planning Area (FPA) in the Hastings River & Wrights Creek catchments.

This decision now ensures that all major catchments within the LGA have the same FPA provisions thereby ensuring consistency in planning decisions and adequately future proofing developments against the impacts of climate change.

However, the December 2018 decision along with delays from consultants has prevented Council proceeding to the next phase of the *Wrights Creek Floodplain Management Plan* and the *Hibbard Precinct Flood Study* in a timely manner. These delays have impacted Council's ability to deliver the projects within the timeframes agreed to under the grant program (ie. the NSW Floodplain Management Program).

The OEH grant unit (now part of DPIE) have adopted new strict funding rules that have reduced the flexibility of these types of long duration and variable scope projects.

As a result, the *Wrights Creek Floodplain Management Plan* project has been terminated and the *Hibbard Floodway Investigation* project has been suspended for a minimum of 18 months.

As a result of the termination and suspension of these projects, without additional funding Council cannot proceed with the Floodplain Risk Management Study (FRMS) phases for both projects, as resolved by Council on 12 December 2018.

Note: refer to separate report for additional information on items 2 and 3 of the above resolution.

Council staff are now working on producing the final mapping and GIS data for the Hastings River, Hibbard & Wrights Creek projects and aims to have this mapping finalised mid-year.

#### **Attachments**

- 1 [↓](#). 20 November 2019 Council Meeting - AGENDA
- 2 [↓](#). 20 November 2019 Council Meeting - MINUTES



## AGENDA

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Item: 13.08

Subject: FLOODPLAIN MANAGEMENT

Presented by: Development and Environment, Melissa Watkins

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**Alignment with Delivery Program**

4.2.1 Develop and implement coastal, estuary, floodplain, and bushfire management plans.

**RECOMMENDATION**

That Council:

1. Reconsider the adoption of Climate Change 'Scenario 3' (400mm SLR plus 10% increase in rainfall) as the basis of the Flood Planning Area (FPA) and adopt 'Scenario 1' (900mm SLR plus 10% increase in rainfall).
2. Note that the Floodplain Risk Management Study phase of the Wrights Creek and Hibbard Precinct projects will not be undertaken at this time.
3. Note that the next phase of both projects will be subject to a future Operational Plan budget process.
4. Write to people who made a submission on both projects and advise them that the Floodplain Risk Management Study phase will not be undertaken at this time.

**Executive Summary**

At the 12 December 2018 meeting, Council resolved to adopt climate change 'Scenario 3' (400mm SLR plus 10% increase in rainfall) as the basis of the Flood Planning Areas (FPA) in the Hastings River (Item 12.12) and Wrights Creek (Item 12.13) catchments. Climate change 'Scenario 1' (900mm SLR plus 10% increase in rainfall) was recommended to be adopted for both items.

This was a change in policy direction and is a departure from Port Macquarie-Hastings Councils (PMHC) approach to floodplain management.

Since the adoption of Scenario 3 for Flood Planning Areas in the Hastings River and Wrights Creek, work has commenced on implementing this new direction. This work has identified that the new policy direction has resulted in a range of issues that need to be considered further. This report outlines the implications of this decision on existing projects and work completed since the decision was made.

**Implications of adopting climate change Scenario 3**

1. Adopting climate change Scenario 3 for Hastings and Wrights Creek catchments results in inconsistencies with adopted Flood Policy (2018) and other catchments in the LGA specifically the Camden Haven.



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2. New flood mapping is required to ensure consistency across the LGA
3. The Flood Policy will require amendment to ensure consistency across the LGA and to clarify how development types other than dwellings will be assessed.
4. Additional funding of approximately \$100,000 is required to align flood mapping, the policy and flood projects with the Scenario 3 decision.

Flood projects

The December 2018 decision along with delays from consultants has prevented Council proceeding to the next phase of the *Wrights Creek Floodplain Management Plan* in a timely manner. These delays have impacted Councils ability to deliver the project within the timeframes agreed to under the grant program (ie. the NSW Floodplain Management Program).

The *Hibbard Precinct Flood Study* (2019) was adopted on 17 July 2019 (Item 13.06) as recommended (ie. with a 900mm SLR scenario). However, a range of issues have impacted Councils ability to deliver the Hibbard Floodway Investigation project within the timeframes agreed to under the grant program (ie. the NSW Floodplain Management Program).

The OEH grant unit (now part of DPIE) have adopted new strict funding rules that have reduced the flexibility of these types of long duration and variable scope projects.

As a result, the *Wrights Creek Floodplain Management Plan* project has been terminated and the *Hibbard Floodway Investigation* project has been suspended for a minimum of 18 months.

As a result of the termination and suspension of these projects, without additional funding Council cannot proceed with the Floodplain Risk Management Study (FRMS) phases for both projects, as resolved by Council on 12 December 2018.

Grants - Floodplain Management Program

Council has not been able to proceed to the next phases of the Wrights Creek and Hibbard precinct Flood Management Studies and is required to return \$97,100 in unspent grant funds.

Future grant applications will need to be made to secure future funding to complete these projects.

The grant for the *Hastings River Flood Study Update (2018)* was successfully completed and the grant was acquitted in March 2018.

This report recommends that due to the increased cost implications and potential conflict with existing flood studies, Council reconsider the adoption of climate change scenario3 and instead adopt climate change scenario 1.

**Discussion**Background

Under the *NSW Government Flood Prone Land Policy*, management of flood prone land is primarily the responsibility of Councils. A Council must complete a four stage floodplain management program in accordance with the *NSW Governments*



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*Floodplain Development Manual (2005)* (see Figure 1). The formulation and implementation of floodplain risk management plans is the main goal of the floodplain management process. The process ensures economic, social and environmental costs of floods are considered and explores the options available to address flood risk.

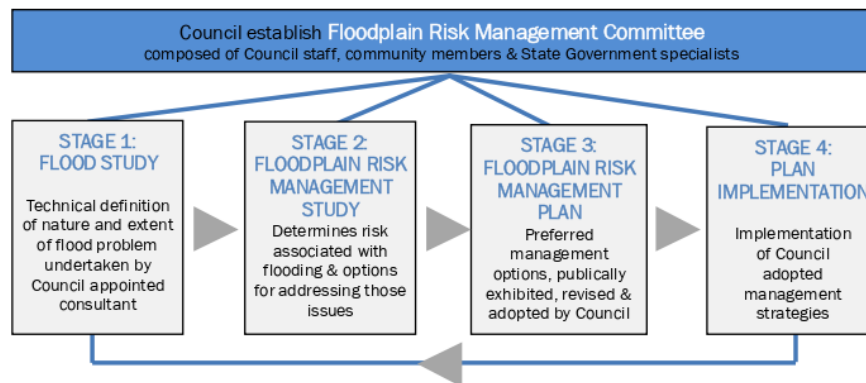


Figure 1 - Flood management process

#### Historical Floodplain Management

PMHC have proactively applied freeboard to mitigate risks associated with the inherent inaccuracies of flood modelling, accounting for the potential impacts from larger flood events and for flooding impacts of climate change. This foresight has ensured that many developments completed within the past 30 years have factored climate change into their planning, design and construction.

In 1990, Council amended its *Flood Prone Land Policies No. 69 and 70* (ie. the Camden Haven River and Hastings River) and adopted an 800mm freeboard above the 100 year flood level. This allowance was for a 'Greenhouse Effect' and included 300mm SLR allowance in accordance with its *Greenhouse Policy*.

In April 2007, Council adopted the *Interim Port Macquarie-Hastings LGA Flood Policy (2007)*. This policy combined the two existing flood policies of the Camden Haven River and Hastings River catchments. The 2007 Flood Policy applied a climate change allowance of an 800mm freeboard downstream (East) of the Pacific Highway and a 400mm freeboard upstream (West) of the Pacific Highway.

In 2009 the NSW Government adopted a *Sea Level Rise Policy Statement* to support adaptation to projected sea level rise (SLR) impacts. The Policy Statement includes SLR planning benchmarks for use in assessing the potential impacts of SLR in coastal areas, including flood risk and coastal hazard assessment. These benchmarks projected rise in sea level relative to 1990 mean sea level. The projections (scenarios) were derived from sea level rise projections by the Intergovernmental Panel on Climate Change (IPCC) and the CSIRO.

In 2010, Council adopted a small increase (100mm) to the 'interim' climate change allowance resulting in a 900mm freeboard downstream (East) of the Pacific Highway

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and a 600mm freeboard upstream (West) of the Pacific Highway. This reflected the NSW Governments *Sea Level Rise Policy Statement*.

The *Sea Level Rise Policy Statement* was repealed by the NSW Government in 2012, however coastal councils were encouraged to adopt their own sea level rise projections. Regardless of the NSW Government's approach, the 'benchmarks' described in the *Sea Level Rise Policy Statement* remain the best information available for Council and remains widely used in NSW.

The release of the *NSW Sea Level Rise Policy Statement* occurred during the development of the *Hastings River Floodplain Management Study* (2012). It was agreed with OEH to adopt 'interim' climate change modelling as a means of not delaying the Management Study and that an action would be included in the final Hastings Floodplain Risk Management Plan recommending Council undertake climate change modelling at a later stage. This action was ultimately adopted in the *Hastings Floodplain Risk Management Plan* (2014), which was adopted by Council in May 2014.

The *Hastings River Flood Study Update* (2018) was the result of a priority action in the *Hastings River Floodplain Risk Management Plan* (2014) to update the 2006 *Hastings River Flood Study* and to undertake comprehensive climate change modelling. Given the historical direction of PMHC, this flood study update project focused on a 900mm SLR scenario but still modelled other scenarios for completeness and to consider relative impacts.

The *Hastings River Flood Study Update* (2018) also included flood model refinements including improved terrain information such as new subdivisions and the new Pacific and Oxley Highway features. The flood model software has also been improved since the 2006 version.

The *Coast, Estuary and Flood (CE&F) Advisory Sub-Committee* endorsed the *Hastings River Flood Study Update* report and the *Wrights Creek Flood Study Update* report on 30 March 2017 and 31 July 2018 respectively. The CE&F Sub-Committee recommended to Council that each report be placed on public exhibition.

**Community Engagement & Internal Consultation***Hastings River*

On 16 May 2018 (Item 12.04), Council resolved to publicly exhibit the draft *Hastings River Flood Study Update* report and the revised draft *Port Macquarie-Hastings Flood Policy* (**Attachment 1**) for 60 days.

As part of the public exhibition Council staff;

- Sent over 380 letters to properties that would be directly affected by the proposed FPA changes
- Presented at a meeting attended by key local development and construction industry representatives
- Held a public 'drop-in-session' which was also attended by the flood consultant
- Hosted a 'Have Your Say' webpage on the PMHC website



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- Published multiple 'Community Now' notices in local newspapers
- Published a media release advising impacted residents to contact Council
- The Port News also published a news article about the study.

Five submissions were received during the exhibition period.

Wrights Creek

On 19 September 2018, Council resolved to publicly exhibit the draft *Wrights Creek Flood Study Update* report for a minimum of 28 days. The report was placed on public exhibition from 1 October to 2 November 2018 (32 days)

As part of the public exhibition process council staff:

- Wrote to property owners within the Wrights creek catchment to advise them of the Draft Flood Study (approx. 480 properties)
- Notified key local development and construction industry representatives via the *Construction Industry Connect* newsletter
- Held a public 'drop-in-session' which was also attended by councils flood consultant
- Hosted a 'Have Your Say' webpage on the PMHC website
- Published 'Community Now' notices in local newspapers
- Posted the draft Flood Study on Council's social media account
- The Port News also posted a story on their social media platforms

12 submissions were received during the public exhibition period.

Hibbard Floodway Investigation

At its meeting on 15 May 2019 (Item 12.04), Council resolved to publicly exhibit the draft *Hibbard Precinct Flood Study* report for a minimum of 28 days. The report was placed on public exhibition from 20 May to 17 June 2019 (29 days)

The following details the consultation undertake for this project.

- Hosted a 'Have Your Say' webpage on the PMHC website
- Held a public 'drop-in-session' which was also attended by the flood consultant
- Advised key construction and industry stakeholders via the local Construction Industry Association Group (CIAG) newsletter.

During the public consultation period a total of two submissions were received.

All studies were presented to the CE&F Sub-Committee and were recommended for exhibition.

Internal consultation was held with key Council staff and support was provided for the findings of the studies.

Council briefing sessions

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At the 12 December 2018 meeting, Council resolved to adopt climate change 'Scenario 3' (400mm SLR plus 10% increase in rainfall) for the basis of the Flood Planning Areas (FPA) in the Hastings River (Item 12.12) and Wrights Creek (Item 12.13) catchments.

Briefing sessions with Councillors were held on 14 March 2018, 7 November 2018 and 1 May 2019 to discuss the climate change scenarios.

**Planning & Policy Implications**Implications of adopting climate change Scenario 3

The adoption of Scenario 3 (400mm SLR plus 10% increase in rainfall) for flood planning levels (FPL) in the Hastings and Wrights Creek catchments has created uncertainty with how PMHC will manage other areas of the floodplain (e.g. the Camden Haven) which has been utilising results from Scenario 1 since the Flood Policy was adopted in 2015.

Staff have further considered the implications of adopting Scenario 3 and below is an overview of the key issues, implications and actions that are relevant following this Council decision.

Community implications

Each scenario impacts on the land defined as flood prone. PMHC has had a SLR allowance for nearly 30 years with the community and development industry familiar with these requirements. This was reflected during the community consultation phase where very few submissions were received, especially from the development industry who have been using 900mm SLR in all development industry led rezoning's, planning proposals and subdivisions since around 2005.

Predominantly, the largest changes to the Flood Planning Area (FPA) will be defined by SLR impacts near the ocean entrance at Port Macquarie. Climate change impacts from increased rainfall intensity will have more impact between Wauchope and Bains Bridge (ie. upstream of Rocks Ferry Bridge).

For Wrights Creek the impact of SLR is effectively nil. This is due to steep nature of the catchment. The impacts of all climate change scenarios do not extend beyond the Lake Road bridge - there is no difference to the flood levels in this catchment regardless of which Scenario is chosen. However, for consistency and completeness Scenario 1 was recommended by the consultants and staff.

The adopted Flood Policy (2018) is reflective of a 900mm SLR scenario and included special precinct areas designed to clarify areas where development and flood risk is well understood.

A 900mm SLR allowance was adopted for the Camden Haven River catchment in 2015. This value has been applied to all developments undertaken within the catchment and remains in place (ie. It was not affected by the December 2018 decision). This creates inconsistency across PMHCs two main catchments (ie. Hastings and Camden Haven).

Flood mapping

Until the December 2018 resolution, a 900mm SLR allowance was used in all PMHC flood studies and development industry flood studies commissioned for rezoning and



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Development Application purposes. Effectively all catchments that have developed a flood study since 2005 have used a 900mm sea level rise allowance.

Flood studies with a 900mm SLR component include:

- *Yippin Creek Flood Study (2005 & 2007),*
- *Area 13 Flood Study (2007) (ie. Thrumster/Sovereign Hills),*
- *Area 14 Flood Study (2010) (ie. Lake Cathie/Bonny Hills),*
- *Area 15 Flood Study (2011) (ie. West Haven/Kew),*
- *Camden Haven and Lakes System Flood Study (2013),*
- *Beechwood Rural Residential Flood Study (2015).*
- *Hibbard Precinct Flood Study (2019)*
- *North Brother Local Catchments Flood Study (2019)*

The adoption of 400mm for SLR in the Hastings and Wrights Creek catchments, creates inconsistency across the LGA. The *Camden Haven and Lakes System Flood Study (2013)* was adopted by Council in November 2013, and included a 900mm SLR scenario. All flood mapping and FPA requirements used since this time have been based on a 900mm scenario.

In addition, PMHC does not have any digital flood planning mapping based on the 400mm SLR scenario that can be used in planning and development related enquiries or Local Environment Plan (LEP) purposes. While the flood modelling exists for Scenario 3 in most catchments, the mapping does not.

PMHC has commenced some flood mapping work to reflect the 400mm SLR scenario, however further work and funding in the order of \$100,000 will be required to complete all the necessary catchments in the LGA.

Indemnity

Legal advice was sought to ensure Council remain protected under section 733 of the *Local Government Act (1993)* following this policy decision. Section 733 of the *Local Government Act (1993)* indemnifies councils provided planning and development decisions are in accordance with the flood management plan process.

Legal advice has confirmed that Council and its staff are protected and the December 2018 decision is valid.

Flood Policy

The adopted *Port Macquarie-Hastings Council Flood Policy (2018)* will require an amendment as a result of the adoption of the 400mm SLR scenario. The adopted Flood Policy is largely based on a 900mm SLR allowance and does not reflect a 400mm SLR scenario.

The Flood Policy must now clarify the flood levels to be used for development types other than dwellings (eg. roads, bridges, rezoning's etc.). Currently these development types with long term planning horizons (ie. long design lives), adopt the 900mm SLR scenario.



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The adopted **Hastings River Flood Study Update** (2018) report is primarily based on the 900mm SLR (Scenario 1). As Council has adopted Scenario 3 (400mm SLR), the bulk of the text in the consultant's report is now redundant. Regardless, this report has been issued as 'Final' and the project has been closed out.

The current **Wrights Creek Floodplain Management Plan** will be affected by the new SLR policy direction, however to a lesser extent. The **Wrights Creek Flood Study Update (2018)** report and mapping all relate to 900mm SLR (Scenario 1), however flood modelling has been done for Scenario 3. While the flood study report does not reflect the sentiments of the December 2018 Council decision, staff and OEH (now Department of Planning, Industry and Environment - DPIE) representatives believe the project could continue without revising the Flood Study report.

However, due to the delays incurred by the consultant in initially delivering the flood study and the December 2018 decision, Council has not been able to proceed to the next phase of this project in a timely manner. These delays have impacted Councils ability to deliver the project within the timeframes agreed to under the grant program (ie. the NSW Floodplain Management Program). As a result, the **Wrights Creek Floodplain Management Plan** project has been terminated.

On 12 December 2018, Council also resolved to proceed to the next phase of the project, the Floodplain Risk Management Study (FRMS), however due to the termination of the project, the FRMS cannot proceed at this time. The FRMS phase involves investigating ways to improve the flood problem (ie. via road raising, bridge and culvert upgrades, levees etc.) within the Wrights Creek catchment. Council must accordingly return the unspent grant funds totalling \$52,000. A new grant application may be made in the future to complete the final phase of the project.

The **Hibbard Floodway Investigation** also focuses on a 900mm SLR scenario and as with other reports, does not reflect the sentiments of the December 2018 Council decision.

At its meeting on 15 May 2019 (Item 12.04), Council resolved to publicly exhibit the draft Hibbard Precinct Flood Study report for a minimum of 28 days. The **Hibbard Precinct Flood Study (2019)** was adopted on 17 July 2019 (Item 13.06) as recommended (ie. with a 900mm SLR scenario). However, if the 400mm SLR scenario remains, additional modelling and mapping will be required.

Nevertheless, a range of issues have impacted Councils ability to deliver the project within the timeframes agreed to under the grant program (ie. the NSW Floodplain Management Program). As a result, the Hibbard Floodway Investigation project has been suspended.

The main issues impacting this project include:

- This grant was initially placed on a 'reserve list' in December 2015 and from OEH's perspective the grant commenced on this date, however the grant was not officially awarded until March 2016.
- The project budget was originally \$50,000 based on estimates within the **Hastings River Floodplain Risk Management Plan (2014)**. The accepted tendered price was ultimately \$115,000 and while a grant variation/increase



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was approved by OEH, Council was advised that no further increase to funding would be approved.

- The December 2018 climate change decision delayed the tendering of the project, by diverting resource elsewhere, and when a time variation was subsequently approved by OEH (after awarding the tender), Council was advised that further increases to time would be unlikely.
- In January 2019, Council submitted a variation to extend the time by 14 months to July 2020. This was due to the complexities experienced in the floodway definition. When this variation was approved by OEH, Council was advised that no further extension to the time would be approved.

In addition to the above, the OEH grant unit have adopted new strict funding rules have that reduces the flexibility of these types of long duration and variable scope projects. Council staff have discussed various way to maintain both the Wrights Creek and Hibbard projects, however the OEH grant unit have advised Council that given the current state of project, both grants should be ended.

The Wrights Creek project was terminated following discussions with the consultant. While the Hibbard project was suspended due to the historical knowledge of the consultant, the development pressures in the Hibbard precinct and future procurement cost savings, a suspension of the project is proposed rather than a termination.

As a result of the project being suspended, Council cannot proceed with the FRMS, as resolved by Council on 12 December 2018.

Due to the development pressures in the Hibbard precinct and community expectations in the Wrights Creek catchment, it is proposed to commence the FRMS phase for both projects as soon as possible. It is expected a minimum delay of 18 months is likely. Council is required to return the unspent grant funds totalling \$45,100. A new grant application may be made under the next grant funding round (opening in November 2019), however this will depend on the capacity of council considering existing projects and resources.

The **North Brother Flood Study** also focuses on a 900mm SLR scenario and as with other reports, does not reflect the sentiments of the December 2018 Council decision. However, both PMHC staff and OEH representatives believe the project can continue given it is predominantly a stormwater analysis of local catchment runoff.

A draft report was presented to the CE&F Sub-Committee on 28 March 2019 and the committee made a recommendation to Council that the draft report be placed on public exhibition. At its meeting on 15 May 2019, Council resolved to publicly exhibit the draft *North Brother Local Catchments Flood Study* report for a minimum of 28 days.

The *North Brother Local Catchments Flood Study* (2019) was adopted by Council on 17 July 2019 (Item 13.04) as recommended (ie. a 900mm SLR scenario). If the 400mm SLR scenario remains, elements of this study and report will need to be revisited.



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## Financial &amp; Economic Implications

Finance and Insurance Companies

All finance and insurance companies undertake their own risk assessments based on a range of data sets. For instance, even though PMHC has adopted a 400mm SLR scenario, all flood studies completed to date with a 900mm SLR scenario are publicly available documents and finance and insurance companies will use this data to calculate their lending rates and insurance premiums. It is possible flood insurance premiums may increase if Council sets floor levels lower than what is indicated in flood studies, and was recommended for adoption in the flood studies.

It is important to note the Probable Maximum Flood (PMF) (sometimes described as a 10,000-year flood), sets the extent of the floodplain. This extent is much larger than the climate change scenarios referred to in this report. Thus the PMF completely encompasses all other flood events. The PMF may therefore be used by finance and insurance companies to determine properties at risk (ie. land subject to flooding).

How finance and insurance companies ultimately manage this issue is determined by each individual insurance company. Council's knowledge on how each insurance company chooses to implement the findings of the flood studies is limited, however it is beyond Council's control.

Grant Funding

Given Council have not been able to proceed to the next phases of the Wrights Creek and Hibbard Precinct Flood Studies; Council must return \$97,100 in unspent grant funds.

Future grant applications will need to be made to secure future funding to complete these projects.

Until Council has an adopted FRMP grant funding cannot be received for projects to alleviate flooding within the Wrights Creek and Hibbard precincts (ie. road/bridge upgrades, culvert upgrades, levees and the like). Should Council propose to upgrade infrastructure for flood management reasons (eg. upgrading the Herschell Street creek crossing), Council will need to fully fund these works, rather than receiving 2:1 grant funding.

This funding requirements would be in the order of \$197,100 and includes;

1. completing the Wrights Creek and Hibbard Precinct Flood Studies (\$97,100), and
2. \$100,000 to implement the climate change (Scenario 3) mapping changes.

## Options

Council could:

- 1) Reaffirm its decision of 12 December 2018 (items 12.12 and 12.13), and if so:
  - a) Generate new flood mapping for a 400mm sea level rise (SLR) plus 10% rainfall increase scenario for all Council commissioned flood studies that apply within the LGA.
  - b) Revise the Flood Policy to reflect the new 400mm SLR plus 10% rainfall increase policy direction.



Item 13.08

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**AGENDA****ORDINARY COUNCIL**  
20/11/2019

- c) Allocate \$100,000 to undertake the above.

Or

2)

- a) Reconsider the adoption of Climate Change 'Scenario 3' (400mm SLR plus 10% increase in rainfall) as the basis of the Flood Planning Area (FPA). If this option is chosen, 'Scenario 1' (900mm SLR plus 10% increase in rainfall) is recommended to be adopted;
- b) Make further applications for \$97,100 funding assistance to complete the Wrights Creek and Hibbard Precinct Flood Studies.

This report recommends that option 2 be adopted.

**Attachments**

Nil

YOUR NATURAL AND  
BUILT ENVIRONMENT



Item 13.08

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**13.08 FLOODPLAIN MANAGEMENT**

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Mr Stephen Healy addressed Council in support of the recommendation. Mr Healy answered questions from Councillors.

**RESOLVED:** *Intemann/Alley*

That Council:

1. Reconsider the adoption of Climate Change 'Scenario 3' (400mm SLR plus 10% increase in rainfall) as the basis of the Flood Planning Area (FPA) and adopt 'Scenario 1' (900mm SLR plus 10% increase in rainfall).
- 

**Port Macquarie-Hastings Council**

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**MINUTES**  
**Ordinary Council Meeting**  
**20/11/2019**

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2. Note that the Floodplain Risk Management Study phase of the Wrights Creek and Hibbard Precinct projects will not be undertaken at this time.
3. Note that the next phase of both projects will be subject to a future Operational Plan budget process.
4. Write to people who made a submission on both projects and advise them that the Floodplain Risk Management Study phase will not be undertaken at this time.

**CARRIED:** 5/3  
**FOR:** *Alley, Dixon, Intemann, Levido and Turner*  
**AGAINST:** *Griffiths, Hawkins and Pinson*



---

Item: 08

Subject: NORTH BROTHER LOCAL CATCHMENTS FLOOD STUDY - STAGE 2  
- FLOODPLAIN RISK MANAGEMENT STUDY - INITIAL OPTIONS  
ASSESSMENT REPORT

Presented by: Development and Environment, Melissa Watkins

---

## RECOMMENDATION

That the Committee:

1. Note the progress made in commencing the North Brother Local Catchments Floodplain Risk Management Study
2. Endorse the *North Brother Local Catchments Flood Study Working Draft Options Report*.
3. Recommend that the *North Brother Local Catchments Flood Study Working Draft Options Report* be placed on public exhibition for 28 days.
4. Provide feedback on any preferences for location/options to be included in the detailed assessment and prioritisation of options, which will ultimately be utilised to inform the Floodplain Risk Management Study phase of the project.

## Discussion

Following the adoption of the North Brother Local Catchments Flood Study by Council in July 2019, Council has entered Phase 2 of this ongoing project, being the completion of the North Brother Local Catchments Floodplain Risk Management Study (FRMS).

In this regard, the development of Floodplain Management Plans follow guidelines established in the *NSW Government's Floodplain Development Manual (2005)*.

The manual outlines the steps involved in the process, and the activities required to develop a Floodplain Management Plan in flood affected areas.

The Floodplain Risk Management process involves the following stages:

STAGE	DESCRIPTION
1. Flood Study - Adopted by Council 19 July 2019	Determines the nature and extent of the flood problem.
2. Floodplain Risk Management Study - Presently Underway	Evaluates management options for the floodplain in respect of both existing and proposed developments.
3. Floodplain Risk Management Plan	Involves formal adoption by Council of a plan of management for the floodplain.
4. Implementation of Plan	Results in construction of flood mitigation works to protect existing development and the application of environmental and planning controls to ensure that new development is

compatible with the hazard.
-----------------------------

Following the completion of the Flood Study Phase and in commencing the FRMS phase of this project, Council, via consultants Jacobs Pty Ltd have completed the following:

#### Flood Level Survey

Based on an analysis of the impacts of the flooding identified by the Flood Study, a floor level survey was undertaken in October 2019 for selected properties in the study area. This involved the survey of the minimum habitable floor level of some 270 buildings which were identified based on the presence of potential high hazard flooding to the dwelling in the modelled 1% AEP storm event. A map of the surveyed properties is included at Attachment 1.

The floor level of remaining properties (those located clear of modelled high hazard flooding to the dwelling in the modelled 1% AEP) were estimated to be 200mm above the height of the ground level at the dwelling.

#### Determination of Above Flood Level Flooding

Utilising the floor level information obtained above, mapping of above floor level flooding in the 0.2EY, 5%, 2%, 1%AEP and PMF flood events was undertaken to visually identify those properties impacted by flooding of varying magnitudes. A copy of the 'above-floor flooding at dwellings' mapping is included within the attached North Brother Local Catchments Flood Study Working Draft Options Report, Attachment 2.

The mapping illustrates priorities for flood mitigation works by identifying vulnerable properties and areas within the catchment.

Of particular interest, the mapping illustrates the following:

- **462 residential properties** are at risk of habitable floor flooding during a **1% AEP storm event** in the catchment,
- A further **27 non-residential/commercial** properties are also modelled to be subject to inundation of habitable floor levels during a **1% AEP** storm event.
- If the required freeboard height is added to the flood levels, those figures jump to 834 and 89 respectively.
- More significantly and in reflection of the scale of inadequacy of existing infrastructure and controls, **161 residential properties and 10 non-residential/properties** are identified as being at risk of over floor level flooding during a comparatively common **20% AEP storm event** (334 and 31 respectively when the required freeboard height is added to the flood levels).
- Properties identified as being at risk of above floor level flooding are not confined to one area, and are spread throughout the catchment, demonstrating that multiple solutions of varying scales will be required.

Whilst only a snapshot of the figures presented in the report, the mapping and above figures clearly outlines the scale of the significant stormwater related issues impacting the catchment.

#### Identification of Sensitive Properties and Critical Infrastructure

In addition to determining the quantum of properties impacted by above floor level flooding generally, sensitive properties and critical infrastructure within the study area were also identified and mapped. Sensitive properties and critical infrastructure includes schools, pre-schools, aged care facilities, emergency services and the like.

Utilising the mapping, Flood Study phase outcomes and floor level data, the sensitive properties and critical infrastructure identified as being directly affected by overland flooding are summarised below:

Name	Flood Hazard	
	1% AEP	PMF
<b>Sensitive Properties</b>		
Stockland Camden View Retirement Village	H6	H6
Kids Haven Pre School	H1	H5
Laurieton Public School	H1	H2
Laurieton Retirement Village	Mostly H1 – H3	H6
St Josephs Primary School	H2	H5
St Josephs Early Childhood Services	H4	H5
Stockland Queens Lake Retirement Village	Mostly H1/H2	H5
Laurieton Lakeside Aged Care Residence	Mostly H1	H5
Kids Haven Early Learning Centre	H1	H1
Camden Haven High School	Mostly H1	Mostly H1, up to H4 in low-lying southern part of school
<b>Critical Facilities and Infrastructure</b>		
NSW Ambulance Laurieton	H1	H3
NSW SES Camden Haven unit	H1	H3
Laurieton Police Station	H1	H2
Fire station Laurieton	H3	H4
Laurieton sewage pumping station	H4	H6

For reference, the flood hazard categories are as follow:

- H1 – Generally safe for people, vehicles and buildings
- H2 – Unsafe for small vehicles
- H3 - Unsafe for vehicles, children and the elderly
- H4 - Unsafe for people and vehicles
- H5 - Unsafe for people and vehicles. Buildings require special engineering design and construction
- H6 – Unsafe for people or vehicles. All buildings types considered vulnerable to failure.

Flood Damages Assessment

Jacobs then undertook a Flood Damages Assessment in accordance with the procedures outlined in the *Floodplain Development Manual, NSW Government, 2005*. Details of the procedures followed can be found in the attached Working Draft Options Report, however the table below summarises the estimated tangible flood damages due to overland flooding as identified by the North Brother Local Catchments Flood Study:

Event	Based on Floor Level*		Based on Protection Level (Floor Levels minus Freeboard)*	
	Number of properties flooded above floor level	Estimated Flood Damage	Number of properties flooded above protection level	Estimated Flood Damage
<b>Residential</b>				
20% AEP	161	\$15.7M	344	\$40.3M
5% AEP	222	\$21.1M	429	\$50.8M
2% AEP	378	\$34.9M	677	\$80.4M
1% AEP	462	\$41.9M	834	\$98.4M
PMF	1,613	\$155.4M	2,059	\$274.1M
AAD		\$7.3M		\$17.6M
<b>Commercial/Non-Residential</b>				
20% AEP	10	\$1.0M	31	\$4.2M
5% AEP	14	\$1.4M	35	\$5.3M
2% AEP	25	\$2.1M	50	\$7.3M
1% AEP	27	\$2.2M	53	\$7.5M
PMF	76	\$11.3M	89	\$20.3M
AAD		\$0.5M		\$1.7M

\* Damages estimate based on Protection Level is to be adopted. Estimate based on floor level used as a sensitivity check.

The values in the table above reflect the Annual Average Damage (AAD). The AAD is equal to the total damage caused by all floods over a long period of time divided by the number of years in that period. The AAD for the existing case then provides a benchmark by which to assess the merit of flood management options.

Key findings are:

- The residential AAD for the study area is **\$17.6 million**.
- The commercial/non-residential AAD is \$1.7 million.
- 

While flood damage estimates for the study area are indicative only, they are useful in the evaluation of flood management options, aimed at reducing flood damage estimates while being economically viable to implement.

Identification of Floodplain Risk Management Measures

Following completion of the Damages Assessment the next stage of the project is to identify, assess and compare various floodplain risk management options to deal with the identified flood risks in the study area considering and assessing their social, economic, ecological and cultural impacts and their ability to mitigate flood impacts.

Utilising the list of flooding hotspots identified by the Flood Study in combination with the information summarised above, Jacobs have identified an **initial priority list of 16 key locations** for flood mitigation works as outlined below:

1. Black Swan Terrace, West Haven
2. Ringtail Close and Sirius Drive, Lakewood
3. Lilli Pilli Close, Lakewood
4. Mission Terrace, Lakewood
5. Kirmington Terrace to Pelican Court, West Haven
6. Flinders Drive Estate, West Haven
7. Tunis Street Overland Flow Path, Laurieton
8. Quarry Way Overland Flow Path, Laurieton
9. Lake Street at Seymour Street, Laurieton
10. St Joseph's School, Laurieton
11. Harbourside Crescent Villas and Bold Street, Laurieton
12. Norman Street and Mill Street, Laurieton
13. Sirius Drive, Honeysuckle Avenue and Mahogany Close, Lakewood
14. Elouera Place, West Haven
15. Sandpiper Close, Lakewood
16. Ocean Drive East of Hoschke Road, West Haven

Conceptual mitigation options at each of these locations vary, however generally include such measures as open channel construction and augmentation, provision of new/upgraded stormwater pipe/culvert infrastructure, provision of protection berms/bunds upstream of property, stormwater detention facilities, verge modifications to deflect water and kerb inlet improvements.

Furthermore, and specifically with reference to potential private property impact, there are two locations where voluntary property acquisitions are identified as potential options (Pelican Court and Kermington Terrace), and three locations where block walls, structural works and flood proofing is an option within allotments (Harbourside Crescent Villas, Laurieton RSL and Laurieton Hotel/Bottle Shop).

Each of the identified preliminary options identified has also been assessed, with a priority assigned based on factors including:

- Identification of locations as critical flood problem areas
- Areas of high flood hazard
- Areas with above-floor flooding of dwellings particularly in more frequent events
- Presence of flood problems on sensitive properties



- Perceived difficulties or constraints in implementing the options e.g. environmental constraints, works required on private property, presence/conflicts with existing structures and utilities, etc.
- Lower priority sites could potentially be raised in priority if low-cost options are identified for flood mitigation.

Table 3-5 of the attached “North Brother Local Catchments Flood Study - Working Draft Options Report” summarises the options identified, any constraints, benefits, opportunities and defines the preliminary priority assigned for detailed assessment.

#### Preliminary High Priority Options

As can be seen in the attached report, options identified at **four of the 16 locations** have been assigned a preliminary **High priority** for further assessment. The report also notes that Council is currently designing and planning to implement flood mitigation measures at Black Swan Terrace as the **highest priority** site, in addition to the four listed in the report.

Those High priority options are defined further below for reference.

##### a. Kirmington Terrace to Pelican Court, West Haven

This area is identified as a critical flood problem area with significant flooding of properties in Koonwarra Street, Captain Cook Bicentennial Drive villas, Ocean Drive and Pelican Court. The flood hazard is high to very high (H4, some H5) on properties and on roads in the 1% AEP event. The area is highly affected in frequent events such as the 0.2EY event.

Five options have been identified to mitigate the flooding and risks at this location, with three of those assessed as a high priority, being:

- Option 4A - voluntary acquisition of at least one property in Koonwarra Street (number 53, and possibly number 51) which has floodway and H5 flood hazard conditions.
  - High property prices are listed as a constraint for this option, however proceeding with this option would realise the removal of at least one property from a high hazard floodway and result in substantial improvements to five other nearby properties in Koonwarra Terrace.
- Option 4B - new additional trunk drainage pipelines (2x 1200mm diameter), intercepting flows at the downstream end of the channel on Captain Cook Bicentennial Drive villas, running across Ocean Drive and under The Gateway, discharging to receiving waterway to the north of Pelican Court.
  - Potential service clashes and conflicts with existing infrastructure will constrain the development of this option, however the proposal would result in a reduction in 1%AEP flows in Pelican Court by 25%.
- Option 4C - voluntary acquisition of one property, either 7 or 9 Pelican Court, adjacent to the access road to form a larger flow path and provide additional capacity for flows out of Pelican Court sag.



- Similarly, to Option 4A, high property prices are listed as a constraint for this option, however proceeding with this option would realise the removal of at least one property from a high hazard floodway and result in substantial improvements to ten other nearby properties in Pelican Court.

•

See Attachment 2 for more detail.

b. Lake Street at Seymour Street, Laurieton

This corner property receives significant overland flows and trunk drainage flows from the Quarry Way flow path. There is an open channel and flow path through this property, where the dwelling is surrounded by high hazard flooding to depths of over 1m in the 1% AEP event. The floodwaters pond behind the raised road crest in Lake Street before overflowing over the road and around the southern side of the Laurieton United Services Club. It is identified as being affected by above-floor flooding.

Three options have been identified to mitigate the flooding and risks at this location, with one of which being assessed as a preliminary high priority:

- Option 8B – Installation of a debris inlet control structure at the culvert inlet.
  - There are no significant constraints to the implementation of this option, however as with any inlet protection, regular inspection and maintenance is required to ensure reliability. This option results in a lowering of the floor levels over Lake Street and resultant reduction in flooding within the upstream private property.

•

See Attachment 2 for more detail.

c. St Joseph's School, Laurieton

Flooding at the school results from a number of natural flow paths being directed down to Ocean Drive to three culvert crossings and into the school property. Flows exceed 0.5m deep in the 1% AEP event with areas of very high (H5) flood hazard.

Three options have been identified to mitigate the flooding and risks at this location, with two options, assessed as a preliminary high priority:

- In this scenario, both Options 9A and 9B consist of the same scope of works at alternate alignments some 60m apart - being the construction of new trunk drainage culverts along the length of the flow path (2x 3m x 1.2m box culvert) OR works to widen an existing open channel at each location.
  - Both of these options are constrained by service/utility clashes in upstream Ocean Dr and disruptions to traffic and school operations during works, however both also result in significant reductions in overland flooding within the school and reduced exposure of students and staff to flood flows.

See Attachment 2 for more detail.

d. Harbourside Crescent Villas and Bold Street, Laurieton

This property is listed as the Stockland Camden View Retirement Village and is located adjacent to a major natural overland flow path which flows down from North Brother Mountain, crossing Bold Street via an existing 1500mm diameter pipe. Flooding over Bold Street is significant with 0.2EY event flood depths over 0.5m and 1% AEP event flood depths of 0.6 – 0.8m and a very high H5 hazard rating.

Two options have been identified to mitigate the flooding and risks at this location, with one of which identified as a preliminary high priority:

- Option 10A - Upgrade existing 1500mm diameter cross drainage pipe to 2x 3m x 1.5m box culverts and provision of debris control screen upstream.
  - These works are constrained by potential service clashes in Bold Street and the potential for significant traffic disruptions to that road during construction. However, the works do result in the provision of a 5% AEP capacity road drainage system and a significant reduction in risk to flooding of downstream villas within the Harbourside Crescent Villas.

See Attachment 2 for more detail.

In addition to the above and as noted, Black Swan Terrace has also been identified as a high priority location for investigation and concept design, however this location has been excluded from the assessment on the basis that it is currently the subject of a separately funded design and construction project being coordinated by Council. The works proposed by Council at this location include the construction of a stormwater basin, inlet protection device and diversion bund that function to both increase the capacity of the existing downstream piped drainage network and divert any remaining overland flows around those flood impacted properties in Black Swan Terrace.

Conclusions and Next Steps

The committee is requested to:

1. Consider both the long list of options and locations nominated in the attached report and the preliminary high priority options listed for potential mitigation works.
2. Select a short list of options for further detailed assessment with the assistance of Jacobs.
3. Request Jacobs to undertake assessment of the short-listed options in the TUFLOW flood hydraulic model in addition to cost-benefit and multi-criteria analyses for evaluation of the options. Final testing of options will include combinations of options, which are likely to complement each other.

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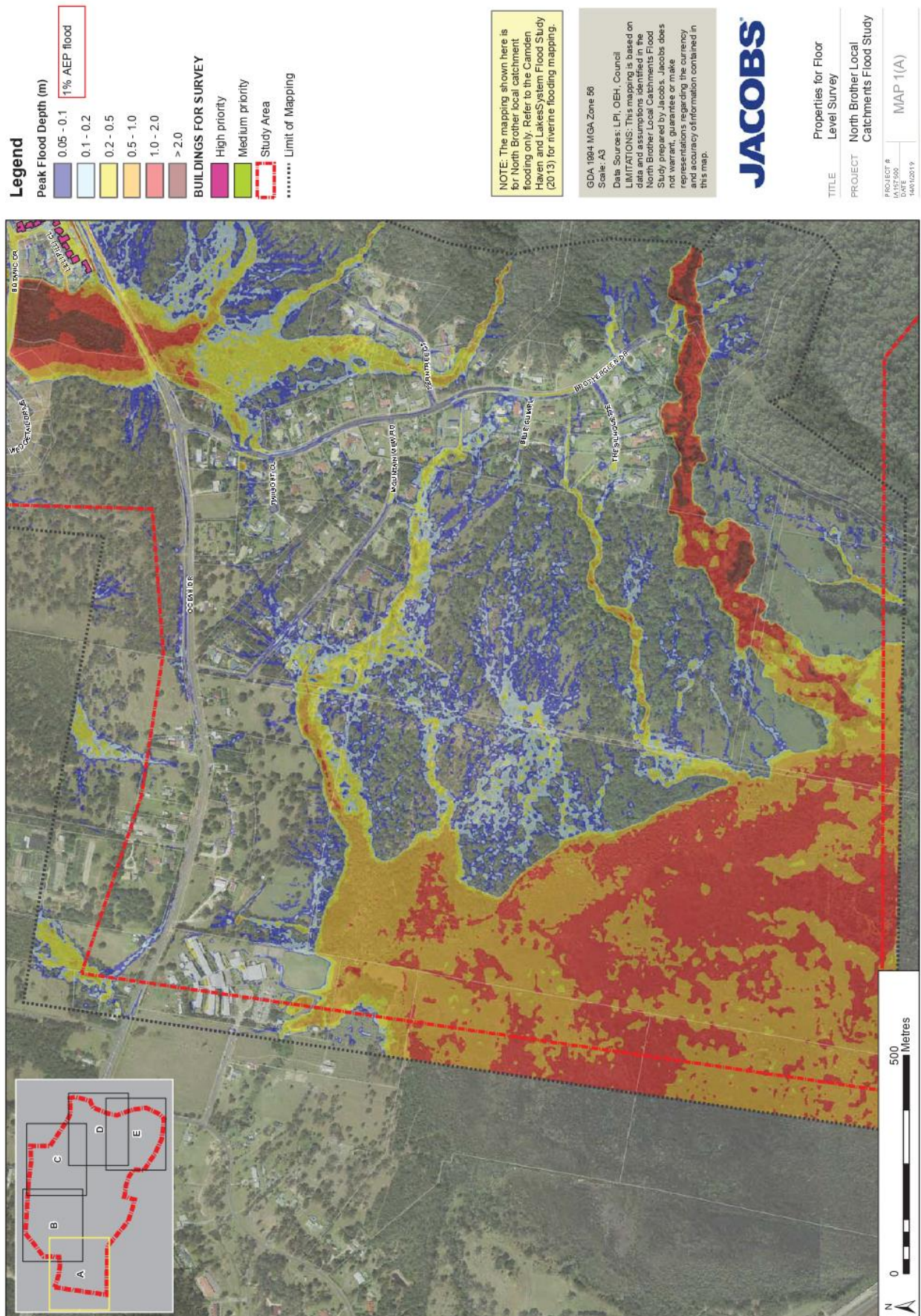
Accordingly, the Coast, Estuary and Floodplain Advisory Sub-Committees endorsement of the Working Draft Options Report (Attachment 2) and any feedback on the committee's preferences for additional locations/options to be included, or current locations/options to be excluded from the detailed assessment and prioritisation of options are now sought.

Pending no objections to the report, the Committees endorsement to place the identified options on public exhibition for shortlisting is requested.

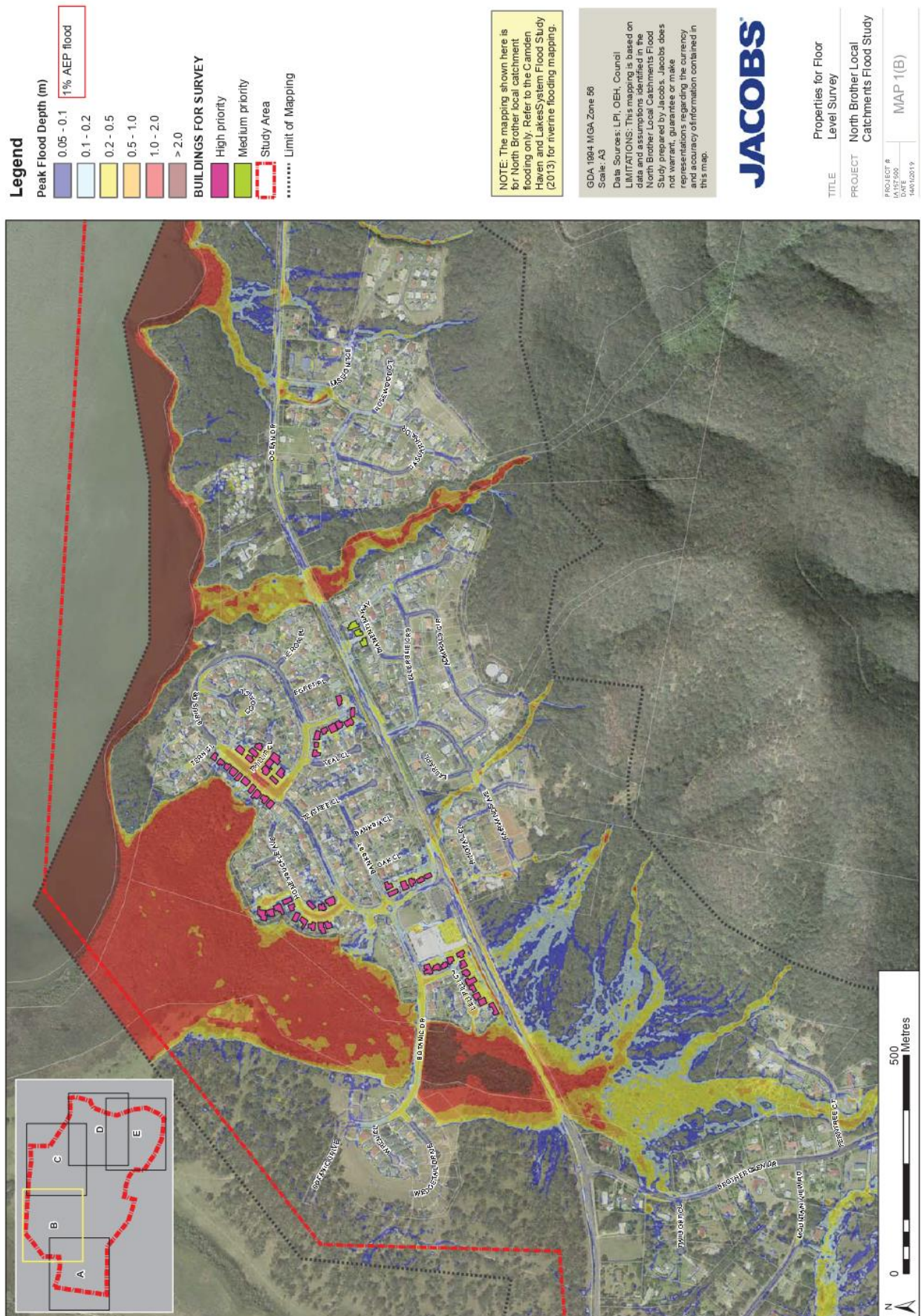
**Attachments**

- 1 [!\[\]\(511a36c244659513b679df9c639945de\_img.jpg\)](#). Map of Properties for Floor Level Survey
- 2 [!\[\]\(2c0783baf87a2728b2fe49eb1c34c456\_img.jpg\)](#). North Brother Local Catchments Flood Study - Working Draft Options Report

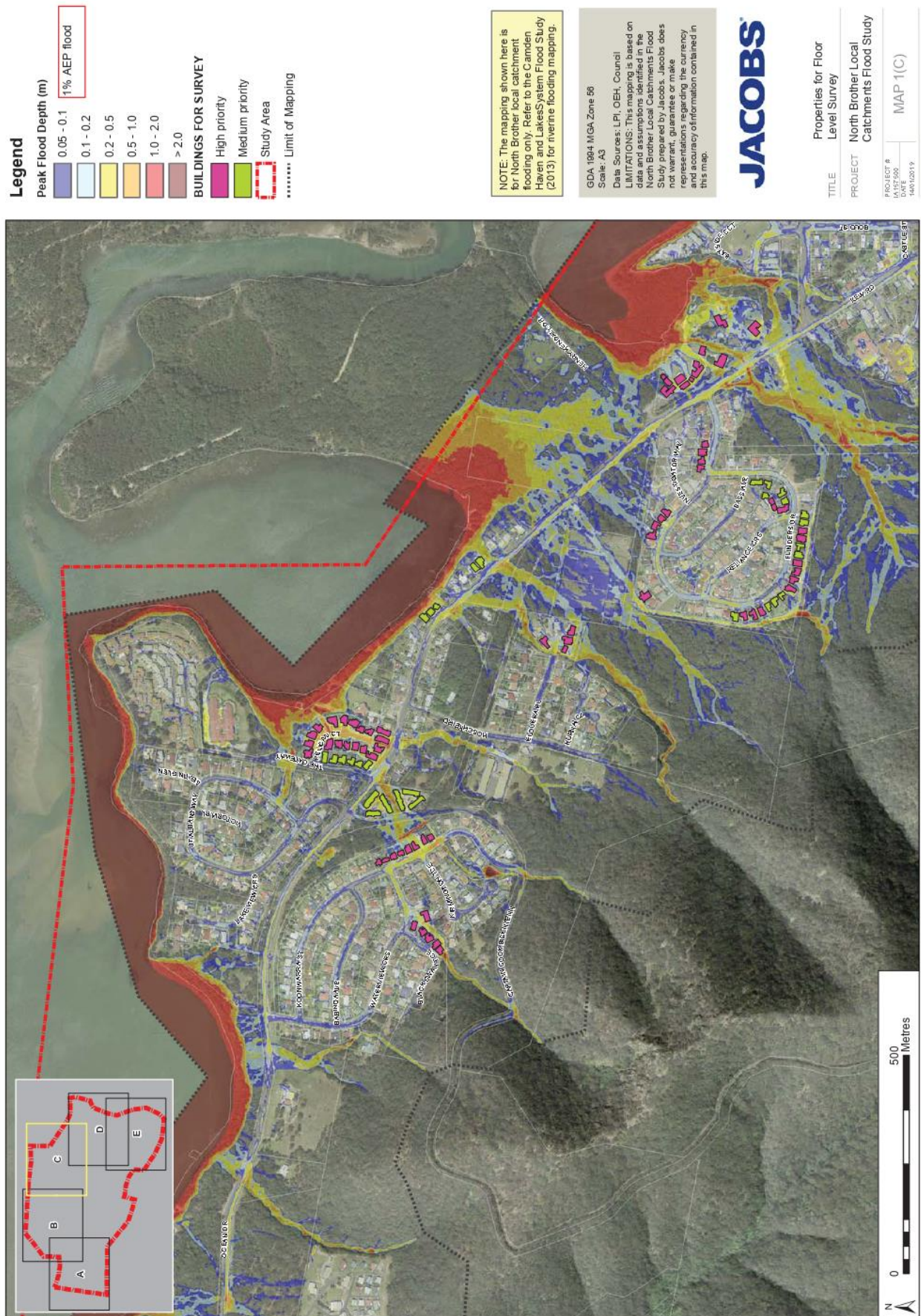




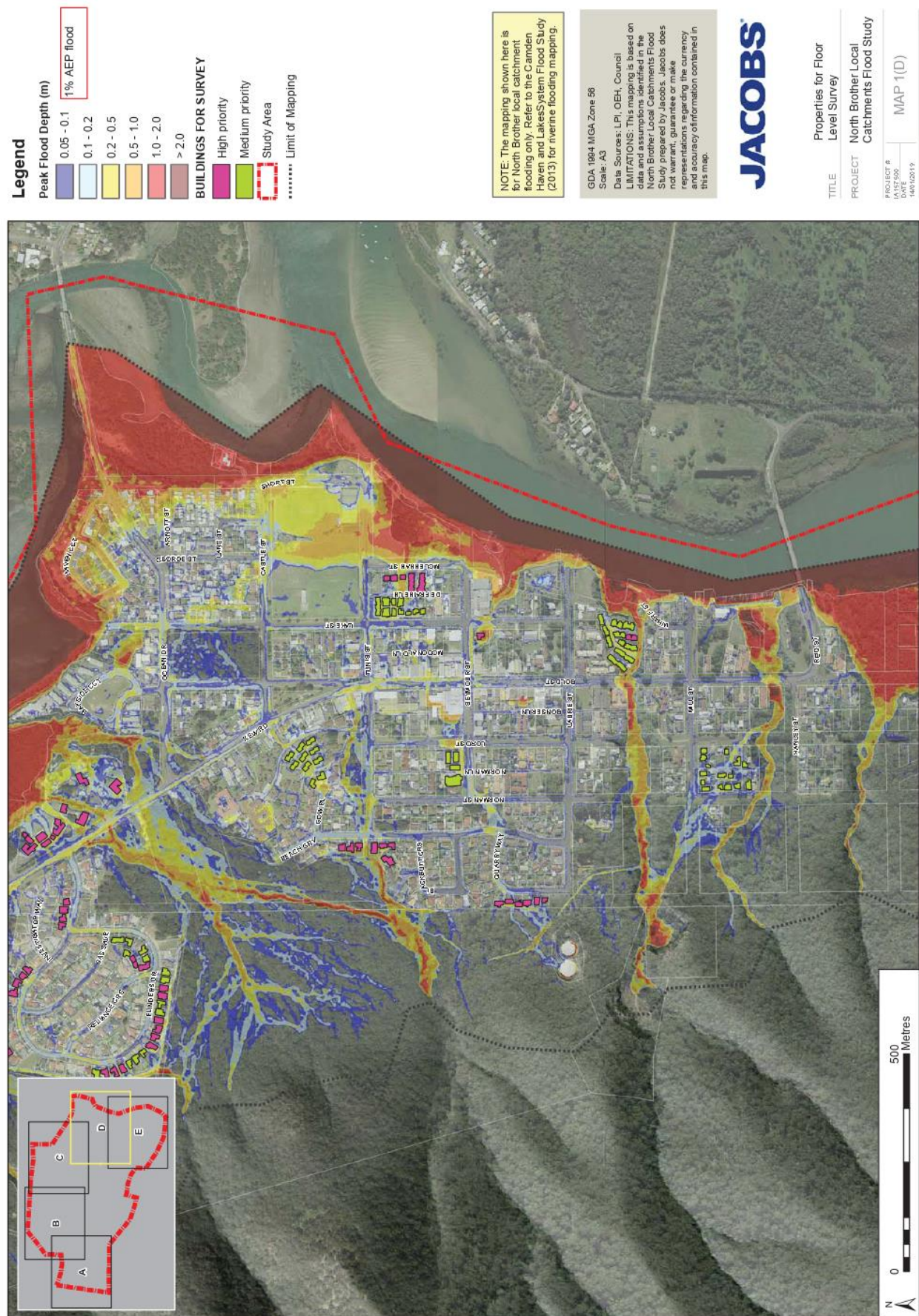




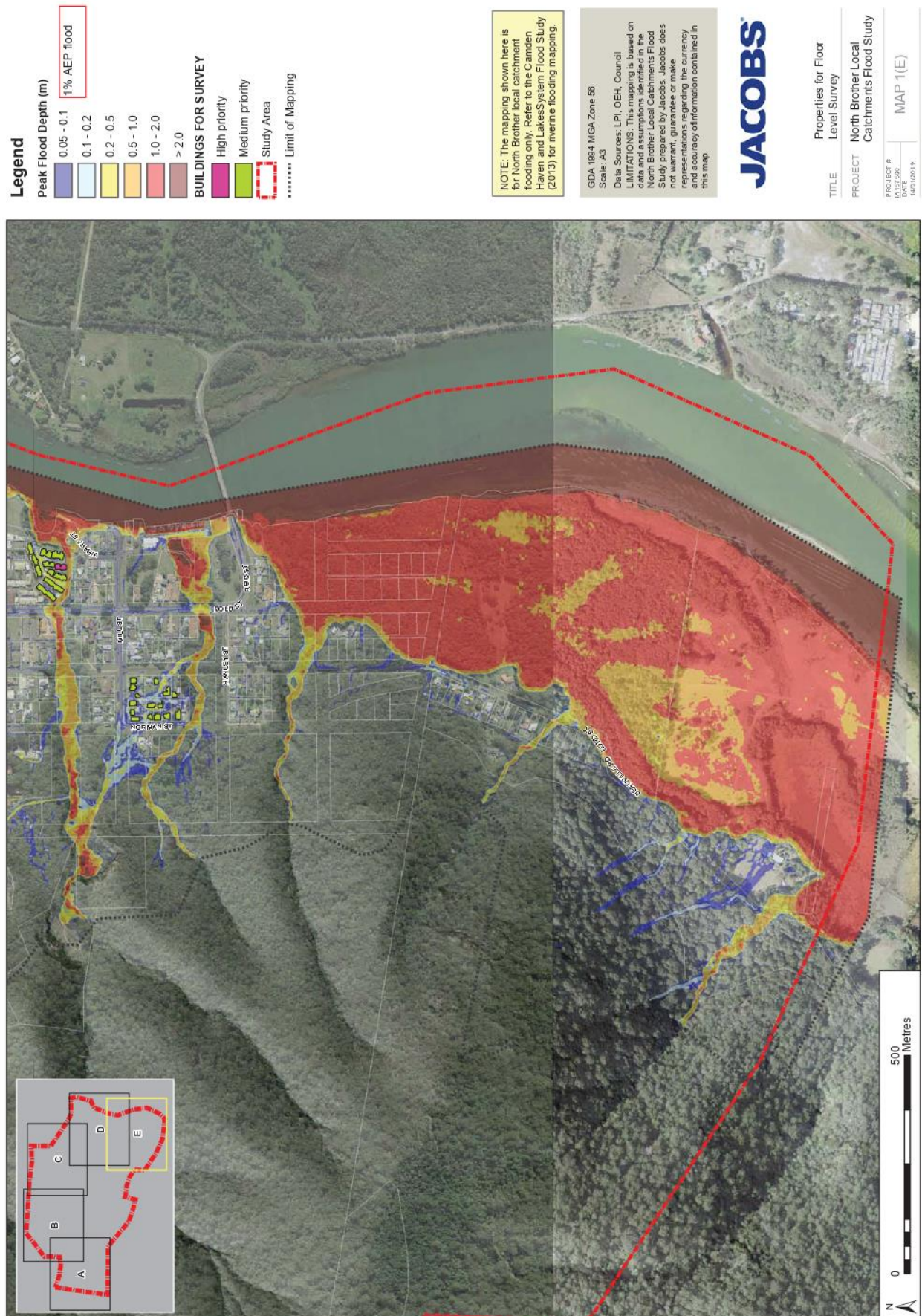














## **North Brother Local Catchments Flood Study**

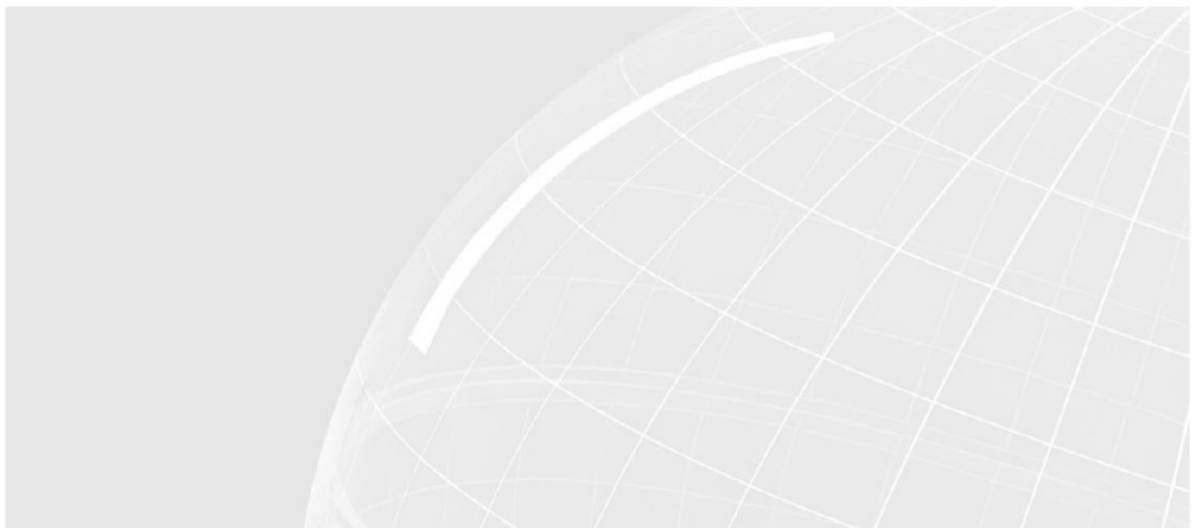
Port Macquarie Hastings Council

### **Working Draft Options Report**

Revision A

9 December 2019

IA157500



## Working Draft Options Report



## North Brother Local Catchments Flood Study

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NB\_WorkingDraftOptionsReport.docx

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## Document history and status

Revision	Date	Description	By	Review	Approved
A	9/12/2019	Working Draft Options Report	L Chong	A Hossain	A Hossain

## Working Draft Options Report



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## Working Draft Options Report



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## Working Draft Options Report



## Foreword

The primary objective of the New South Wales Government's Flood Prone Land Policy is to reduce the impact of flooding and flood liability on individual owners and occupiers of flood prone property, and to reduce private and public losses resulting from floods, utilising ecologically positive methods, wherever possible. Under the Policy, the management of flood prone land remains the responsibility of local government.

The policy provides for a floodplain management system comprising the following five sequential stages:

- 1. Data Collection** Involves compilation of existing data and collection of additional data
- 2. Flood Study** Determines the nature and extent of the flood problem
- 3. Floodplain Risk Management Study** Evaluates management options in consideration of social, ecological and economic factors relating to flood risk with respect to both existing and future development
- 4. Floodplain Risk Management Plan** Involves formal adoption by Council of a plan of management for the floodplain
- 5. Implementation of the Plan** Implementation of flood, response and property modification measures (including mitigation works, planning controls, flood warnings, flood preparedness, environmental rehabilitation, ongoing data collection and monitoring by Council)

Port Macquarie Hastings Council is undertaking this study for the North Brother Local Catchments study area to investigate the existing and future flood risks in accordance with the NSW Government's *Floodplain Development Manual*. The study identifies and assesses potential flood mitigation options and guides land use planning and future development on the floodplain in the study area.

This study represents stages 1 to 4 of the management process and has been prepared for Council by Jacobs. This report is a progress report documenting the options identification of the floodplain risk management stage of the study.

**Working Draft Options Report****Important note about this report**

The sole purpose of this report and the associated services performed by Jacobs is to undertake a flood study for the North Brother Local Catchments study area located in New South Wales in accordance with the scope of services set out in the contract between Jacobs and Port Macquarie Hastings Council (the Client). That scope of services, as described in this report, was developed with the Client.

In preparing this report, Jacobs has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Client and/or from other sources. Except as otherwise stated in the report, Jacobs has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

Jacobs derived the data in this report from information sourced from the Client, third parties, and/or available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations and conclusions expressed in this report. Jacobs has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by Jacobs for use of any part of this report in any other context.

Topographic data used in this study included that sourced from a LiDAR survey and ground survey which were undertaken by third parties. Undertaking independent checks on the accuracy of the data was outside Jacobs's scope of work for this study.

This report has been prepared on behalf of, and for the exclusive use of, Jacobs's Client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party.

## Working Draft Options Report



## 1. Introduction

### 1.1 General

This report describes the potential works-based flood mitigation options identified for the North Brother local catchments study area for discussion and consideration by Port Macquarie Hastings Council and the floodplain advisory sub-committee ("committee"). Preliminary recommendations for options to be analysed in further detail in the TUFLOW hydraulic model of the catchment are made, for approval by Council and the committee. The options aim to alleviate flooding at identified flooding trouble spots particularly where properties are at risk to flooding of elevated hazard.

The content of this report will be included in the subsequent Options Evaluation Report and Draft Floodplain Risk Management Study (FRMS) report.

### 1.2 Consultation

The options, or a selected list of the options, described in this report are to be discussed with Council, the committee and stakeholders and landowners as a part of the options development process. Community consultation is scheduled to occur on a finalised list of the options during public exhibition.

## 2. The Existing Flooding Problem

### 2.1 Summary of Flood Problem Areas

Flooding hot spots are identified in the flood study, confirming problem areas previously identified by Council. The hot spots are summarised in Table 2-1 below. Critical areas with consideration of high flood depths, velocities or hazard are highlighted with orange cell or text shading. In summary, the identified critical locations include:

- Black Swan Terrace, West Haven.
- Kirmington Terrace, Koonwarra Street, Captain Cook Bicentennial Drive villas and Ocean Street property and Pelican Court, West Haven.
- Bold Street, Laurieton
  - Laurieton Hotel and adjoining areas
  - Harbourside Crescent villas.
- Lake Street property, Laurieton. Corner Seymour Street.
- St Joseph's School, Laurieton.
- Lilli Pilli Close, Lakewood (road flooding).
- Sirius Drive, Honeysuckle Avenue and Mahogany Close, Lakewood (road flooding).
- Ocean Drive between Fairwinds Avenue and Mission Terrace (road flooding).
- Pelican Court, West Haven (road flooding).
- Waterview Crescent, Kirmington Terrace and Koonwarra Drive, West Haven (road flooding).
- Bold Street between Laurie Street and Mill Street (road flooding).
- Lord Street at Seymour Street, Laurieton (road flooding).

Table 2-1 Description of Flooding Hot Spots

Location	Description
<b>Property flooding</b>	
Black Swan Terrace, West Haven	Flow depths on properties up to 0.5m in the 0.2EY event and up to 0.7m in the 1% AEP event. Swift flows of 2m/s. Flood hazard up to H5 rating in the 1% AEP event.
Ringtail Cl, Lakewood	Overflows from open channel onto properties with flooding in backyards to depths 0.2 – 0.3m in the 1% AEP event. Relatively low flooding impact.
Lilli Pilli Cl, Lakewood	Flooding in backyards to depths of 0.3 – 0.5m in the 1% AEP event from open drain overflows. Flooding in cul-de-sac to depths up to 0.8m.  Also significant flooding of car park around Lakewood shopping centre.
Mission Terrace, Lakewood	Overflows with depths of 0.1 – 0.3m in the 1% AEP event from cul-de-sac onto downhill property. Overflows from the overland flow path running through properties on the uphill side of the road with depths up to 0.2m
Kirmington Terrace to Pelican Court, West Haven	Flows through properties on low side of Koonwarra Street of 0.3m in the 0.2EY event and exceeding 0.5m in the 1% AEP event. Velocities up to 2m/s in the 1% AEP event. Flood



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	<p>hazard up to H4 (some localised H5) rating in the 1% AEP event.</p> <p>Flow depths 0.5m in the 0.2EY event and up to 0.8m in the 1% AEP event on Captain Cook Bicentennial Drive villas and Ocean Drive property, at dwellings. Flood hazard up to H4 rating in the 1% AEP event.</p> <p>Flood depths of 0.6 – 0.8m in the 0.2EY event within Pelican Court roadway and pedestrian walkway. Depths up to 0.6m at dwellings in 1% AEP event. Flood hazard up to H4 rating on properties and H5 on roadway in the 1% AEP event.</p> <p>Groundwater springs occur in this area but are not directly related to the surface water flood risk. These springs appear to be a spatially random occurrence.</p>
Flinders Dr Estate, Laurieton	<p>Overflows from drainage easement swale onto properties with depths to 0.3m in the 0.2EY event and 0.5m in the 1% AEP event.</p> <p>Overflows from Reliance Crescent sag point onto properties to depths of 0.2m in the 0.2EY event and 0.4m in the 1% AEP event.</p>
Bold Street area, Laurieton	<p>Significant flows through Laurieton Hotel with H4 hazard rating.</p> <p>Trapped drainage point on western side of commercial properties with significant depths, though local drainage may be present which would mitigate the flood depths.</p> <p>Overflows down fire trail at Norman Street/ Mill Street affecting properties with depths up to 0.3m in the 1% AEP.</p> <p>Overflows onto units on Harbourside Crescent from trunk drainage channel to depths exceeding 0.5m in the 1% AEP event, with H5 hazard rating.</p>
Quarry Way, Laurieton	<p>Overflows from flow diversion drain to depths of 0.5m in the 1% AEP event on properties. The drain is reported to be affected by significant debris blockage.</p>
Lake Street, Laurieton	<p>Flood depths up to 1m in the 1% AEP event affecting dwelling on the corner of Lake Street and Seymour Street.</p> <p>Overflows from Lake Street onto properties between Ocean Drive and Castle Street to depths of 0.3m in the 1% AEP.</p>
St Joseph's School, Laurieton.	<p>Swift flows in overland flow paths to depths of 0.8m and velocities exceeding 2m/s in the 1% AEP event.</p> <p>Flows between buildings are 0.4m in the 0.2EY event and 0.6m in the 1% AEP event, with velocities up to 2m/s. Flood hazard rating of H4 in pedestrian walkways and H5 in overland flow paths in the 1% AEP event.</p>
Properties adjacent to Stingray Creek and Camden Haven River, Laurieton	<p>Numerous properties on low-lying land at risk of oceanic inundation during storm surge events. Estimated depths on the flood mapping expected to be conservative due to likely attenuation of ocean inflows through the river mouth.</p>
Blackbutt Crescent and Peach Grove, Laurieton	<p>Overflows from flow diversion drain to depths of 0.5m in the 1% AEP event on properties. The drain cross-sectional profile and capacity significantly reduces near its discharge point onto Peach Grove at Tunis Street. Flows into the drain originate from natural watercourse further uphill, which is significantly affected by rubble and debris blockage.</p>
Elouera Place, West Haven	<p>Overflows from watercourse and diversion drain. Depths over 0.3m in the 0.2EY event and 0.5m in the 1% AEP event.</p>

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Sirius Drive, Honeysuckle Avenue and Mahogany Close, Lakewood	Flood depths on properties 0.3 – 0.5m in the 1% AEP event, built up from road ponding areas.
Sirius Drive and Oak Close, Lakewood	Depths 0.3 – 0.4m and velocities 1m/s in the 1% AEP event.
Sandpiper Close	Overflows from concrete channel along Ocean Drive. Depths 0.3 – 0.4m and velocities 1m/s in the 1% AEP event.
Properties on lower side of Ocean Drive, 200m east of Hoschke Road, West Haven	Road low point overflows onto properties with depths of 0.5m and velocities of 1m/s in the 1% AEP event.
<b>Roads</b>	
Ocean Drive west of Lakewood shopping centre	5% AEP event flood depths of 0.4m 1% AEP event flood depths of 0.5m, H3 hazard rating
Botanic Drive, Lakewood	1% AEP event flood depths of 0.4m, H2 hazard rating
Lilli Pili Close, Lakewood	5% AEP event flood depths of 0.6m 1% AEP event flood depths of 0.7m, H3 hazard rating
Ocean Drive east of Lakewood shopping centre	5% AEP event flood depths of 0.3m 1% AEP event flood depths of 0.35m, >H4 hazard rating
Sirius Drive, Honeysuckle Avenue and Mahogany Close, Lakewood	0.2EY event flood depths of 0.6 – 0.7m 1% AEP flood depths 1m, H3 hazard rating
Ocean Drive between Fairwinds Avenue and Mission Terrace	0.2EY events flood depths of 0.5m 1% AEP event flood depths of 0.7m, >H4 hazard rating
Ocean Drive and Mission Terrace intersection	0.2EY event flood depths of 0.4m 1% AEP event flood depths of 0.6m, H3 hazard rating
Ocean Drive near Waterview Crescent	5% AEP event flood depths of 0.2 – 0.3m 1% AEP event flood depths of 0.3m, low hazard rating but long section of flooding
Ocean Drive near Pelican Court	5% AEP event flood depths of 0.3m 1% AEP event flood depths of 0.4m, H3 hazard rating
Pelican Court, West Haven	0.2EY event flood depths 0.6m 1% AEP event flood depths of 1m, H5 hazard rating
Waterview Crescent, Kirmington Terrace and Koonwarra Drive, West Haven	0.2EY event flood depths of 0.2m with 2m/s velocity; max 0.6m depths (low velocity) 1% AEP event flood depths up to 0.7m, H5 – H6 hazard rating
Ocean Drive east of Hoschke Road	0.2EY event flood depths of 0.4m 1% AEP event flood depths of 0.5m, H3 hazard rating
Ocean Drive east of Flinders Drive	5% AEP event flood depths of 0.3m 1% AEP event flood depths of 0.4m, H3 hazard rating
Kew Road/Bold Street near Tunis Street, Laurieton	1% AEP event flood depths of 0.5m, H2 hazard rating
Bold Street between Laurie Street and Mill Street	0.2EY event flood depths over 0.5m 1% AEP event flood depths 0.6 – 0.8m, H5 hazard rating

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Bold Street north of Hanley Street, Laurieton	0.2EY event flood depths of 0.3m with 1m/s velocity 1% AEP event flood depths up to 0.5m, H3 hazard rating
Lord Street at Seymour Street, Laurieton	0.2EY event flood depths of 0.5m 1% AEP event flood depths up to 0.7m, H3 hazard rating
Flinders Drive, Laurieton Tunis Street, Laurieton Rosewood Court and Mission Terrace, Lakewood Diamantina Way, Lakewood	H5 hazard rating on steep sections of road (1% AEP event)

## 2.2 Above-Floor Property Flooding

A floor level survey was undertaken in October 2019 for selected properties in the study area, which were identified based on presence of high hazard flooding at the dwelling in the 1% AEP event. The minimum habitable floor level was surveyed at a total of approximately 270 buildings. Floor levels for the remaining 2,000 (approximately) properties in the study area were estimated based on an assumed 0.2m height above the maximum ground level at the dwelling.

Above-floor flooding in the 0.2EY, 5%, 2% and 1% AEP and PMF flood events is mapped on Figure 2-1. The buildings shown on the map were selected as those affected by main flow paths and bodies of flooding, and exclude those affected by minor ponding. This selection process was done for each flood AEP and was also used in the flood damages assessment (see Section 2.4).

Above-floor flooding is expected to incur significantly greater flood damages to the building and contents compared to yard (i.e. below floor level) flooding. The map indicates the spatial distribution of properties with above-floor flooding and their relative vulnerability, with properties affected in frequent events such as the 0.2EY event being more vulnerable than those affected only in rarer events such as the 1% AEP event.

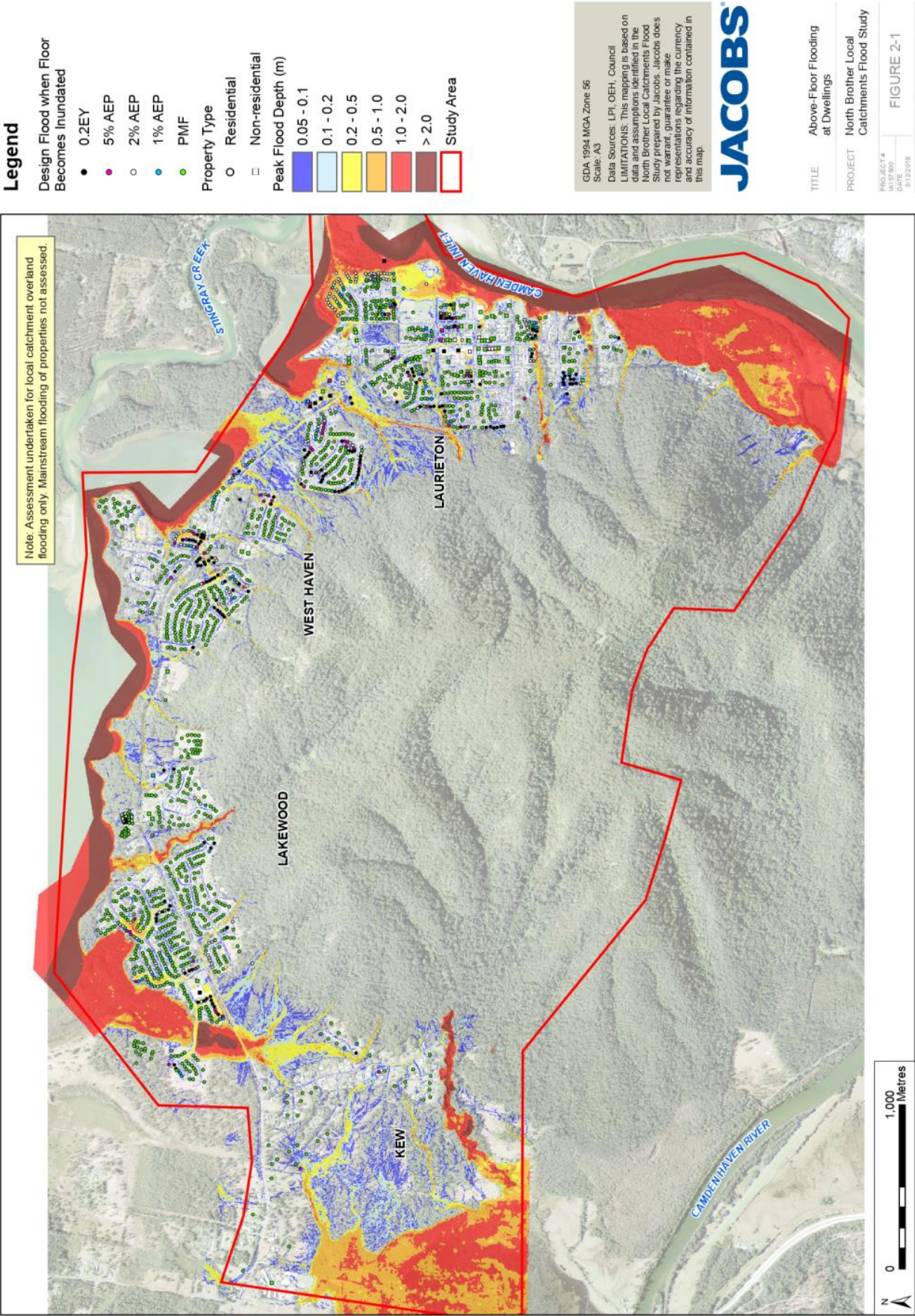
The mapping illustrates where flood mitigation works could be prioritised. Targeting improvements to flooding conditions in areas with clusters of more vulnerable properties (e.g. above-floor flooding in the 0.2EY event) could provide relatively greater benefits compared to targeting areas with few or no properties affected in rare flood events. Note that other factors may be considered in prioritising flood mitigation works, such as the presence of high hazard flood conditions on sensitive properties including schools.

## 2.3 Sensitive Properties and Critical Infrastructure

Sensitive properties and critical infrastructure have been identified in the catchment. Certain types of properties may require specific evacuation considerations due to the vulnerability of their occupants, such as schools and pre-schools, and aged care facilities. Critical infrastructure impacted by flooding may have effects on the recovery and functioning of the community following a flood event.

The sensitive properties and critical infrastructure are mapped on Figure 2-2. The flood hazard in the PMF event is mapped on the figure.











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The sensitive properties and critical infrastructure identified as being directly affected by overland flooding are summarised in Table 2-2 with the flood hazard on each site indicated. Note that the list is based on the overland flood modelling in this study, and a number of sites may be impacted by mainstream flooding which is not assessed.

Table 2-2 List of flood-affected sensitive properties and critical infrastructure

Name	Flood Hazard	
	1% AEP	PMF
<b>Sensitive Properties</b>		
Stockland Camden View Retirement Village	H6	H6
Kids Haven Pre School	H1	H5
Laurieton Public School	H1	H2
Laurieton Retirement Village	Mostly H1 – H3	H6
St Josephs Primary School	H2	H5
St Josephs Early Childhood Services	H4	H5
Stockland Queens Lake Retirement Village	Mostly H1/H2	H5
Laurieton Lakeside Aged Care Residence	Mostly H1	H5
Kids Haven Early Learning Centre	H1	H1
Camden Haven High School	Mostly H1	Mostly H1, up to H4 in low-lying southern part of school
<b>Critical Facilities and Infrastructure</b>		
NSW Ambulance Laurieton	H1	H3
NSW SES Camden Haven unit	H1	H3
Laurieton Police Station	H1	H2
Fire station Laurieton	H3	H4
Laurieton sewage pumping station	H4	H6

The flood hazard is classified according to flow depths and velocities based on *Australian Disaster Resilience Handbook 7. Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia* (AIDR, 2017a) and *Guideline 7-3 Flood Hazard* (AIDR, 2017b). The flood hazard categories according to the AIDR definition are:

- H1 – Generally safe for people, vehicles and buildings
- H2 – Unsafe for small vehicles
- H3 - Unsafe for vehicles, children and the elderly
- H4 - Unsafe for people and vehicles
- H5 - Unsafe for people and vehicles. Buildings require special engineering design and construction
- H6 – Unsafe for people or vehicles. All buildings types considered vulnerable to failure.

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## 2.4 Flood Damages Assessment

### 2.4.1 Overview

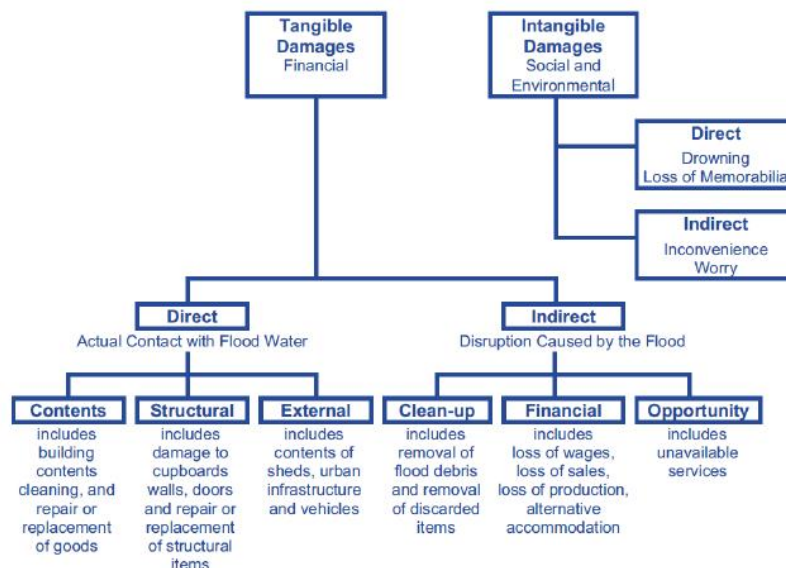
Flood events may cause damage to property with significant costs to property owners and insurers. The damage may occur due to floodwaters affecting the building façade and interior (weatherboard exterior, gyprock interior walls, carpets), electrical wiring and building contents and other property outside the dwelling (vehicles, contents of sheds and garages, etc). Structural damage to the dwelling can also occur due to extreme flood hazard conditions.

The cost of flooding is estimated to identify the magnitude of the event to a community, and subsequently provide a benchmark for the viability of potential measures for mitigating the impacts of flooding. This section describes the estimation of flood damage costs in the study area, focussing on residential and commercial properties.

### 2.4.2 Flood Damages Categories

The type of damages associated with floods is shown in Figure 2-3 (*Floodplain Development Manual, NSW Government 2005*). The cost of damage caused by floods may include tangible and intangible components. Tangible damage costs include the direct material damage and rebuilding costs to existing homes, property and infrastructure, and also the indirect costs associated with the social disruption of the floods, such as: clean-up; lost income during and after the flood event; and the cost of alternative accommodation for people displaced by the floods. A monetary value can be readily placed on the direct damages, which are the focus of this assessment.

Figure 2-3 Types of Flood Damage



Other social and environmental damages to which a monetary value cannot readily be placed are intangible damages, which include emotional stress of the flood event, injury and loss of life. While these damages cannot readily be incorporated into an economic feasibility assessment of mitigation options, it is still important to consider the potential for these intangible damages, particularly if there is an elevated risk of loss of life.

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### 2.4.3 Estimation of Direct Tangible Flood Damage Costs

#### 2.4.3.1 Property Information

Residential and commercial properties were identified and characterised based on knowledge and site observations of the study area.

Residential house types in the study area are generally a mixture of one and two storey houses, in addition to a number of villa and apartment complexes. In floodplains with deep flooding (riverine floodplains) two storey houses would experience a second increment of flood damages as floodwaters rise and affect the second storey. While some properties in the low-lying areas adjacent to the rivers and lakes would be affected by riverine flooding, the focus of this study is on overland flows from the local catchments, affecting up to the first storey of the house only. For the purposes of this assessment all houses were assumed to be single storey.

Flood damages are estimated based on flood level in relation to building floor level, with the damages increasing as the flood levels increase. The floor levels of approximately 270 buildings, selected based on high hazard flooding in the 1% AEP event, were surveyed. The floor levels of remaining buildings were estimated based on LiDAR ground levels plus and assumed 0.2m above the highest ground level at the building.

Affected buildings for the flood damages assessment were selected based on interpretation of overland flood extents from the flood mapping, to include only those properties affected by main flow paths and significant ponding shown on the mapping so as not to overestimate the flood damages. The affected properties were selected for each event assessed in the flood damages estimation, i.e. the 0.2EY, 5%, 2% and 1% AEP and PMF events. This approach was taken so as not to overestimate the flood damages.

#### 2.4.3.2 Residential Property Damages

Residential flood damages guidelines and a calculation spreadsheet was developed by the NSW Office of Environment and Heritage (OEH, 2016b). The calculation spreadsheet includes a representative stage-damage curve derived for typical house types in the study area to estimate structural, contents and external damage. The amount of damage is based on the flood inundation depth, for a suite of annual exceedance probability events ranging from the 20% AEP event up to the PMF. These values are then summed to provide a total damage for each flood event analysed. The AEP of the PMF in the study area is assumed to be 1 in 10,000,000.

The stage-damage curves assume some flood damages for flood levels below the floor level. A minimum damage value of \$12,060 (2018 dollars) is assumed to occur at a level 0.5m below the floor level. This approach accounts for flood damages to parts of the dwelling and property below the floor level and ensures that damages are not underestimated.

Various input parameters are used to define the flooding and location characteristics which derive a location specific damage curve. The parameters adopted for the study area are presented in Table 2-3. Unless otherwise stated, default parameters have been used (as recommended in the *Residential Flood Damage Guidelines* (OEH, 2016b)).

The DECCW stage-damage curves within the spreadsheet are derived for late 2001, and have been updated using an Average Weekly Earnings (AWE) factor to the current day values. AWE is used to update residential flood damage curves rather than the inflation rate measured by the Consumer Price Index (CPI). The most recent AWE value from the Australian Bureau of Statistics (ABS, 2019) at the time of the assessment was November 2018, however, this resulted in a multiplication factor on 2001 dollars of 2.37, which was significantly out of step from the factor value derived from November 2017 AWE of 1.76 and from previous recent years. On this basis, a factor of 1.9 was assumed for up to August 2019 to keep in trend with AWE increases for the years prior to November 2017.

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Table 2-3 Input parameters for damage calculations

Parameter	Value	Comment
Regional Cost Variation Factor	1.0	Appropriate value for a major city (Sydney) and surrounds
Post flood inflation factor	1.15	
Typical duration of immersion	1 hour	
Building damage repair limitation Factor	0.85	Represents short duration flood (<12 hours) where some materials can recover from short periods of flooding and may not need replacement
Typical free-standing house size	240m <sup>2</sup>	
Contents damage repair limitation Factor	0.75	Guidelines suggest a value of 0.75 for short duration floods
Effective warning time (hrs)	0	Only marginal improvement in damages cost when effective warning time is increased to 1 hour as a sensitivity assessment
Level of flood awareness	Low	Flood warning times are nil and it is assumed that residents are typically not aware of potential damage of flood waters and the measures to minimise damages (e.g. elevated storage of goods).

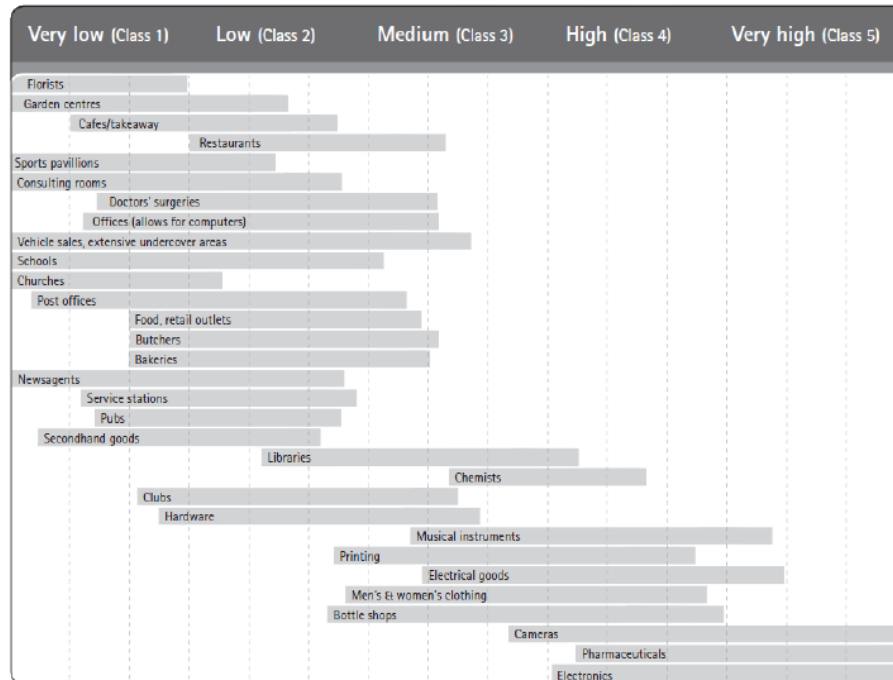
## 2.4.3.3 Commercial Property Damages

No information on commercial property flood damage costs in NSW was found during a literature search. The most relevant information obtained was published in the Queensland Government Natural Resources and Management Department's *Guidance on the Assessment of Tangible Flood Damages* (2002). This document contains flood damage curves for commercial properties over a range of property footprint areas and degrees of susceptibility to flooding and is based on information published in *ANUFLOOD: A Field Guide* (Centre for Resource and Environmental Studies (Australian National University), 1992). Different types of commercial and non-residential properties were assigned a susceptibility rating, as illustrated in Figure 2-4.

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Figure 2-4 Damage categories for commercial properties (reproduced from *Guidance on the Assessment of Tangible Flood Damages* (Qld. Government, 2002))



The stage-damage data were factored up by a value of 1.9 from late 2001 dollars to current values based on Average Weekly Earnings (AWE), similar to the approach adopted for the residential flood damages.

An additional multiplication factor of 1.6 was applied based on guidance in *Rapid-Appraisal Method (RAM) for Floodplain Management* (Victorian Government Natural Resources and Environment, 2000), which suggests that the ANUFLOOD values are underestimated and should be increased by 60%.

A total of 89 commercial and non-residential premises/buildings which are potentially flood-affected were identified. Detached buildings on non-residential properties were assessed individually e.g. on school grounds. Individual shops within an overall commercial building complex were also assessed separately where possible. The results of the commercial and non-residential property flood damages assessment are provided in Section 2.4.3.5.

#### 2.4.3.4 Damages to Utilities and Infrastructure

Utilities and infrastructure in the study area which are susceptible to flooding may include roads and other public infrastructure such as sewage pumping stations, electrical transformer boxes, etc.

The potential cost of damage to roads is difficult to estimate for the study area, as the nature of flooding in a significant portion of study area is typically due to relatively shallow, short-duration flows, although road damage is possible for roads conveying higher velocity flows.

The roads damages guidance published in the references cited in this study are based on longer-duration mainstream flooding damages and hence are likely to overestimate the flood damages to roads in the study area. Hence these costs have not been included in this assessment.



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#### 2.4.3.5 Damage Assessment Results

The most convenient way to express flood damage for a range of flood events is by calculating the Annual Average Damage (AAD). The AAD is equal to the total damage caused by all floods over a long period of time divided by the number of years in that period. The AAD for the existing case then provides a benchmark by which to assess the merit of flood management options.

The AAD value is determined by multiplying the damages that can occur in a given flood by the probability of that flood actually occurring in a given year and then summing across a range of floods. This method allows smaller floods, which occur more frequently to be given a greater weighting than the rarer catastrophic floods.

Table 2-4 summarises the residential damages and the commercial and non-residential damages. The residential and commercial property flood damages include direct damages to property such as structural, external and contents damage, and indirect damages such as clean up costs and accommodation/ loss of rent costs. Infrastructure damage, vehicular damage and intangible damages are not included.

The OEH (2016b) guidelines recommend that the adopted freeboard in the flood planning level (0.5m) be considered in the flood damages estimation. This gives the "Protection Level" which reduces the floor level relative to the flood levels in the calculations which are adopted as the damages estimates. Calculations of damages based on floor level (no freeboard adjustment applied) are also provided as a sensitivity check.

The flood damages here are "potential flood damages", which may be reduced with increased flood awareness and preparedness in the community. The Net Present Value of the flood damages assumes a 7% discount rate over a 50 year life, as per the OEH (2016b) guidelines. The damages are in 2019 dollar values.

**Table 2-4 Estimated Tangible Flood Damages due to Overland Flooding**

Event	Based on Floor Level*		Based on Protection Level (Floor Levels minus Freeboard)*	
	Number of properties flooded above floor level	Estimated Flood Damage	Number of properties flooded above protection level	Estimated Flood Damage
<b>Residential</b>				
20% AEP	161	\$15.7M	344	\$40.3M
5% AEP	222	\$21.1M	429	\$50.8M
2% AEP	378	\$34.9M	677	\$80.4M
1% AEP	462	\$41.9M	834	\$98.4M
PMF	1,613	\$155.4M	2,059	\$274.1M
<b>AAD</b>		<b>\$7.3M</b>		<b>\$17.6M</b>
<b>Commercial/Non-Residential</b>				
20% AEP	10	\$1.0M	31	\$4.2M
5% AEP	14	\$1.4M	35	\$5.3M
2% AEP	25	\$2.1M	50	\$7.3M
1% AEP	27	\$2.2M	53	\$7.5M
PMF	76	\$11.3M	89	\$20.3M
<b>AAD</b>		<b>\$0.5M</b>		<b>\$1.7M</b>

\* Damages estimate based on Protection Level is to be adopted. Estimate based on floor level used as a sensitivity check.

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**2.4.4 Application of Flood Damage Curves to the Study Area**

It should be noted that the flood damages estimated for the study area need to be considered with care. The OEH residential stage-damage curves recommended for use in NSW have been developed based on flood damages from low-land mainstream/ flooding, where flood surface gradients are relatively flat and the depth of flooding within a dwelling is fairly uniform. Due to the steep terrain in parts of the study area and the generally shallow nature of overland flows (particularly in the more frequent flood events), flood levels may vary greatly on a property and damage may be concentrated on one side of a dwelling. Flood depths are also relatively shallow so the damage incurred may be less than those suggested by the curves. Nevertheless, the stage-damage curves provide the best guidance available for estimating flood damages given the scarcity of actual flood damage data to residential properties on highland overland flow paths and have been adopted for the purposes of this study.

**2.4.5 Summary**

Flood damages in the study area is primarily attributed to residential dwellings that are impacted by overland flooding. The estimates based on Protection Level are to be adopted. The flood damages estimates were based on properties selected based on their affectation from main areas of flooding, and excludes those affected by localised minor ponding. The residential AAD for the study area is \$17.6 million. The commercial/non-residential AAD is \$1.7 million.

There are 489 residential and non-residential properties that are estimated to experience above floor flooding (not protection level) for the 1% AEP event. In the PMF, 1,689 properties are estimated to experience above floor flooding.

While flood damage estimates for the study area are indicative only, they are useful in the evaluation of flood management options, aimed at reducing flood damage estimates while being economically viable to implement.

### 3. Floodplain Risk Management Measures

#### 3.1 Overview

One of the objectives of this Floodplain Risk Management Study is to identify and compare various floodplain risk management options to deal with existing and future flood risk in the study area, considering and assessing their social, economic, ecological and cultural impacts and their ability to mitigate flood impacts.

The *Floodplain Development Manual* (NSW Government, 2005) describes floodplain risk management measures in three broad categories as described below:

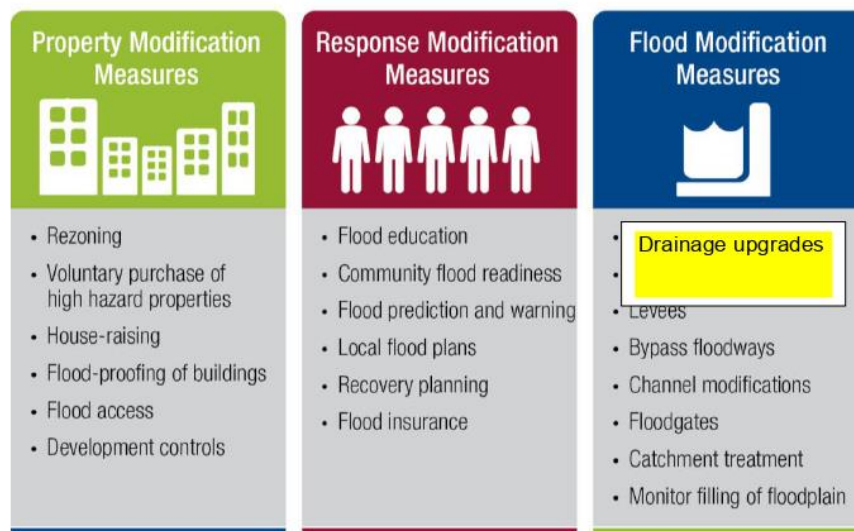
- **Property modification** measures involve modifying existing properties (for example, house-raising) and/or imposing controls on new property and infrastructure development (for example, floor height restrictions);
- **Response modification** measures involve modifying the response of the population at risk to better cope with a flood event (for example improving community flood readiness); and
- **Flood modification** measures involve modifying the behaviour of the flood itself (for example, construction of a levee to exclude floodwaters from an area or flood retarding/detention basins to store floodwaters and reduce peak outflows).

Examples of measures falling under the three categories are outlined in Figure 3-1. Some of these measures may or may not be appropriate in a particular catchment, depending on factors such as the flooding behaviour and patterns of development.

A description and qualitative evaluation of potentially suitable works-based flood modification options for specific locations, nominated for further detailed modelling assessment, is provided in Section 3.3. The identified options aim to mitigate flooding at the locations summarised in Table 2-1, in particular property flooding. A number of options are identified for each location which may be treated as alternative options or may need to be implemented in combination. Sketches are provided for each option.

Property and response modification measures will be addressed in the draft FRMS.

**Figure 3-1 Floodplain Risk Management Measures** (Source: *Floodplain Development Manual*, 2005)



### 3.2 Considerations in Options Identification and Prioritisation

In determining the nature and priority of potential options for further detailed assessment, the following factors have been considered:

- The identified mitigation options are aimed at improving flooding conditions due to local catchment flooding. Riverine flood levels exceed the local catchment flood levels by a substantial amount particularly in the 1% AEP event and inundate low-lying areas of the study area. The local catchment flood mitigation options in these areas should be designed not to worsen the susceptibility of these areas to riverine flooding. For example, substantial lowering of raised berms may allow overtopping of river floodwaters in more frequent events.
- Design river tailwater conditions due to elevated ocean levels are up to 2.1m AHD in the 1% AEP event. Some low-lying areas on properties and roads have a ground level of approximately 2.6m AHD and would be difficult to drain via underground pipes.
- The effectiveness of mitigation options during future climate change scenario is to be considered. The design river tailwater conditions due to elevated ocean levels would increase to 3.0m AHD in the 1% AEP event in a climate change scenario, with 0.9m of sea level rise.
- The design riverine flood levels are 2.3 – 2.4m AHD in the 5% AEP event and 2.9 – 3.0m AHD in the 1% AEP event in the current climate. The flood levels in a climate change scenario are expected to increase by up to 0.8m in the 1% AEP event as a result of 0.9m sea level rise and 10% increase in rainfall (Patterson Britton and Partners, 2013).
- Given the low elevation of a number of identified sites for potential mitigation, it is expected that the effectiveness of the mitigation options would be reduced if local overland flooding coincided with a mainstream flood peak. Some contingency will be incorporated into the options modelling with adoption of elevated, but not peak, river tailwater levels.

Preliminary priority has been assigned to mitigation of flooding at each identified location based on factors including:

- Identification of locations as critical flood problem areas
- Areas of high flood hazard
- Areas with above-floor flooding of dwellings particularly in more frequent events
- Presence of flood problems on sensitive properties
- Perceived difficulties or constraints in implementing the options e.g. environmental constraints, works required on private property, presence/conflicts with existing structures and utilities, etc.
- Lower priority sites could potentially be raised in priority if low-cost options are identified for flood mitigation.

Several sub-options have been identified at most locations and may be considered alternative options from each other or may need to be implemented in combination.

### 3.3 Description of Proposed Options

The identified options for flood mitigation are discussed on a location-basis in this section.

#### 3.3.1 Black Swan Terrace, West Haven

Council commissioned, separately from this study, a design for an improved trunk drainage pipe inlet arrangement and high-flow diversion to the street. Additional works in the street including raising of the road verge and driveways is proposed. Details of the design were provided following the final flood study, hence it has not been incorporated into the design flood modelling and mapping. Since the design development of mitigation works at this location are already well-advanced, further mitigation options are not proposed in this study.



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It is proposed to retain the pre-developed conditions in the mitigation case modelling. Post-development hydraulic modelling is being undertaken by others on behalf of Council. Flow conditions in Koonwarra Street, downstream of the works, are not expected to be significantly changed as a result of the works, hence omission of the works from the mitigation case modelling should not affect the assessment of other mitigation options.

### 3.3.2 Ringtail Close and Sirius Drive, Lakewood

Overflows from an adjacent open channel affect yards to depths 0.2 – 0.3m in the 1% AEP event. Total flows in the 5% AEP event are around 8.7m<sup>3</sup>/s and in the 1% AEP are around 11.4m<sup>3</sup>/s. The existing channel has a capacity of approximately 0.2EY capacity (about 5m<sup>3</sup>/s). There is a water main pipe crossing the lower end of Ringtail Close channel, with about 0.5m clearance under the pipe, which is likely to obstruct flows. The channel then turns west along Ocean Drive with a width of about 6m and depth around 0.5m. Overflows exceeding the channel capacity spill over Ocean Drive into Sirius Drive and adjacent properties (up to 5m<sup>3</sup>/s in the 1% AEP).

#### Potential Options

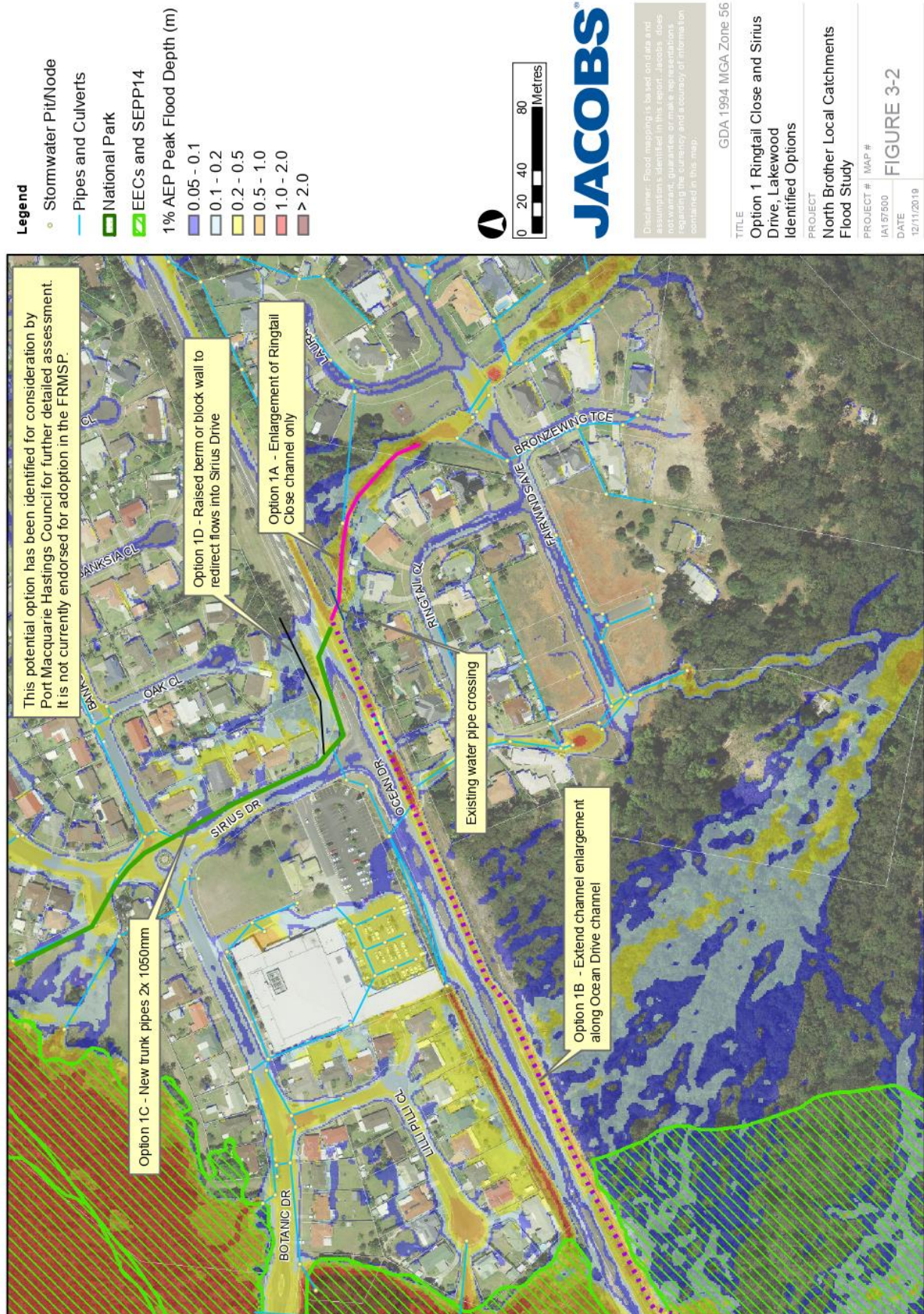
- Option 1A – localised channel enlargement. Increase channel width to 10m (currently 6m) to provide for 1% AEP capacity. This option would be relatively low cost and provide local benefits to the properties in Ringtail Close only. Deepening (up to 0.5m) and widening of channel under water pipe crossing. Removal of existing trees and other vegetation would be required (not listed as EEC). New structural support for the water main would be required if the channel is widened/deepened under the pipe.
- Option 1B – localised channel enlargement as per Option 1A, plus Ocean Drive (south side) channel enlargement particularly where the Ringtail Close channel tails out at its downstream end. It is proposed to deepen the Ringtail Close and Ocean Drive channels by about 0.5m (up to 1m where possible) including steepening of side slopes. Existing underground utilities along Ocean Drive and telegraph poles are likely constraints on widening Ocean Drive channel in addition to the existing vegetation. Enlargement of Ocean Drive channel would divert some flows away (up to 5m<sup>3</sup>/s in the 1% AEP depending on constraints) from affected properties in Sirius Drive, Banks Street, Honeysuckle Avenue etc. Deepening the channel would allow more flow under the pipe and reduce overflows onto Ringtail Close properties.
- Option 1C – localised channel enlargement as per Option 1A plus trunk drainage pipe conveying some flows in this flow path. The pipe would cross Ocean Drive and run down Sirius Drive, before turning through a park to the north of Botanic Drive and discharge into the downstream wetland area. There is an existing 525mm pipe through the park, draining Banks Street. Existing utilities and existing vegetation are potential constraints. There are Endangered Ecological Communities (EECs) and SEPP 14 wetlands at and downstream of the proposed discharge point. Assuming twin 1050mm diameter pipes could be installed, this could reduce the flows currently conveyed to the Honeysuckle Avenue area by about 5m<sup>3</sup>/s.
- Option 1D – construct an earth bund or block wall along footpath, up to 0.5m high approximately, to direct Ocean Drive overflows into Sirius Drive and away from properties.

Refer to Figure 3-2 for illustration of options. Options 1B and 1C are alternatives to each other, and would not be required in combination. Either of 1B or 1C may negate the need for Option 1D. Option 1D could be selected if 1B or 1C are not feasible.

#### Priority

Option 1A is rated as a **low** priority, as it offers localised improvements to properties with only yard flooding. Options 1B and 1C are rated as **medium** priority as it has potential to provide improvements to properties further downstream from Ringtail Close by bypassing flows away from Honeysuckle Drive and adjacent properties. Option 1D is rated as **medium** priority as it could benefit up to eight properties at relatively low cost, although checks for downstream flood impacts in Sirius Drive is required.







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**3.3.3 Lilli Pilli Close, Lakewood**

Flooding occurs in backyards to depths of 0.3 – 0.5m in the 1% AEP event from open drain overflows. Flooding occurs in the cul-de-sac to depths up to 0.8m in the 1% AEP event. Existing drainage in the cul-de-sac is limited to a single kerb inlet pit with approximately 2m lintel length and a 375mm diameter pipe which discharges to a downstream vegetated area. Overflows from the cul-de-sac are conveyed through an easement between properties.

The existing constructed open channel along Ocean Drive conveys flows discharged from a 750mm pipe in addition to overflows over Ocean Drive from the southern side of the road. The channel is unlined with vegetation growing in the channel. It conveys approximately 2.5m<sup>3</sup>/s in up to the 1% AEP. The northern bank of the channel 1m above the channel invert and is lower than the road level by over 1m and flows are able to spill into the backyards of properties.

**Potential Options**

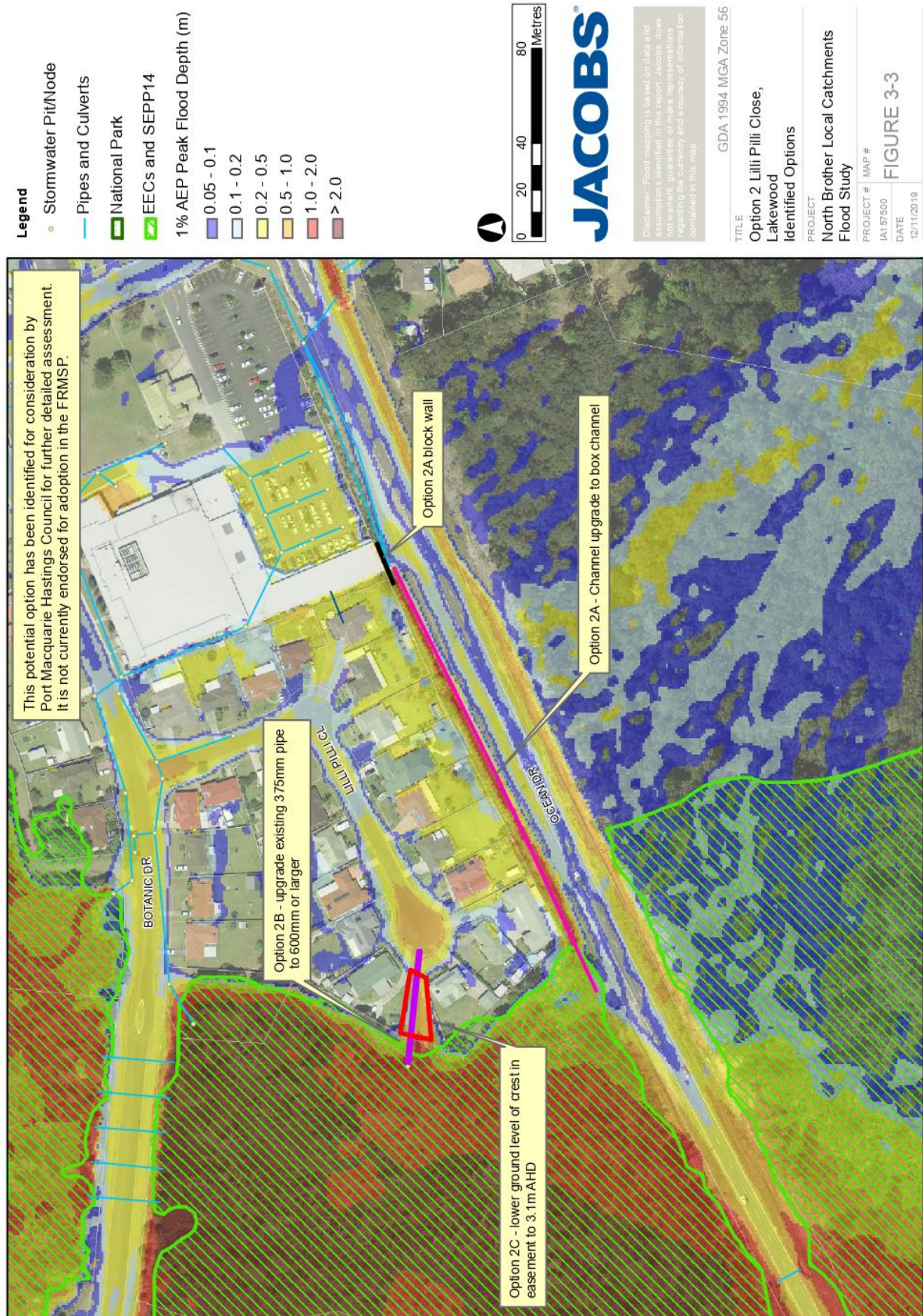
- Option 2A – channel upgrade to concrete-lined box channel. Northern side of the channel could have a raised lip to above the adjacent backyard levels, to increase flow capacity. Existing telegraph poles along Ocean Drive limit options for widening the channel and structural design of the channel would need to consider the stability of the poles. A block wall along the upstream end of the channel, bordering the Lakewood shopping centre property, would be required to prevent water overflowing around the western corridor of that property.
- Option 2B – increase cul-de-sac pipe drainage capacity from existing 375mm diameter to 600mm (or larger) diameter pipe. Drainage capacity would be increased by a factor of 2.5.
- Option 2C – lower the ground level of the easement at the cul-de-sac head to reduce the overflow weir level. The current ground level is at 3.4m AHD. Lowering the level to 3.1m AHD could reduce flood levels by about 0.2m and would be above the design 1% AEP overland flood tailwater level of 3m AHD (current climate).

Refer to Figure 3-3 for illustration of options.

**Priority**

The priority for Option 2A is rated as **medium to high**. Not critical location (no high hazard flooding in 1% AEP) but a number of properties with above-floor flooding between Lilli Pilli Close and Ocean Drive.

Options 2B and 2C are rated as **medium**. Flood depths are substantial in the roads though this area was not listed as a critical location and there are no properties with above floor flooding in the 1% AEP event.





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**3.3.4 Mission Terrace, Lakewood**

An overland flow path spills floodwaters onto the cul-de-sac of Mission Terrace, which then overflows onto properties on the downstream side of the road to depths of over 0.2m in up to the 1% AEP event. Properties on the high side of the road are adjacent to the flow path and affected to over 0.2m depth in the 1% AEP event. The overland flow path is intercepted by a 600mm diameter pipe which drains into the Mission Terrace drainage network but this pipe's capacity is exceeded in the 0.2EY event. Additionally, a substantial portion of flows bypass this pipe.

**Potential Options**

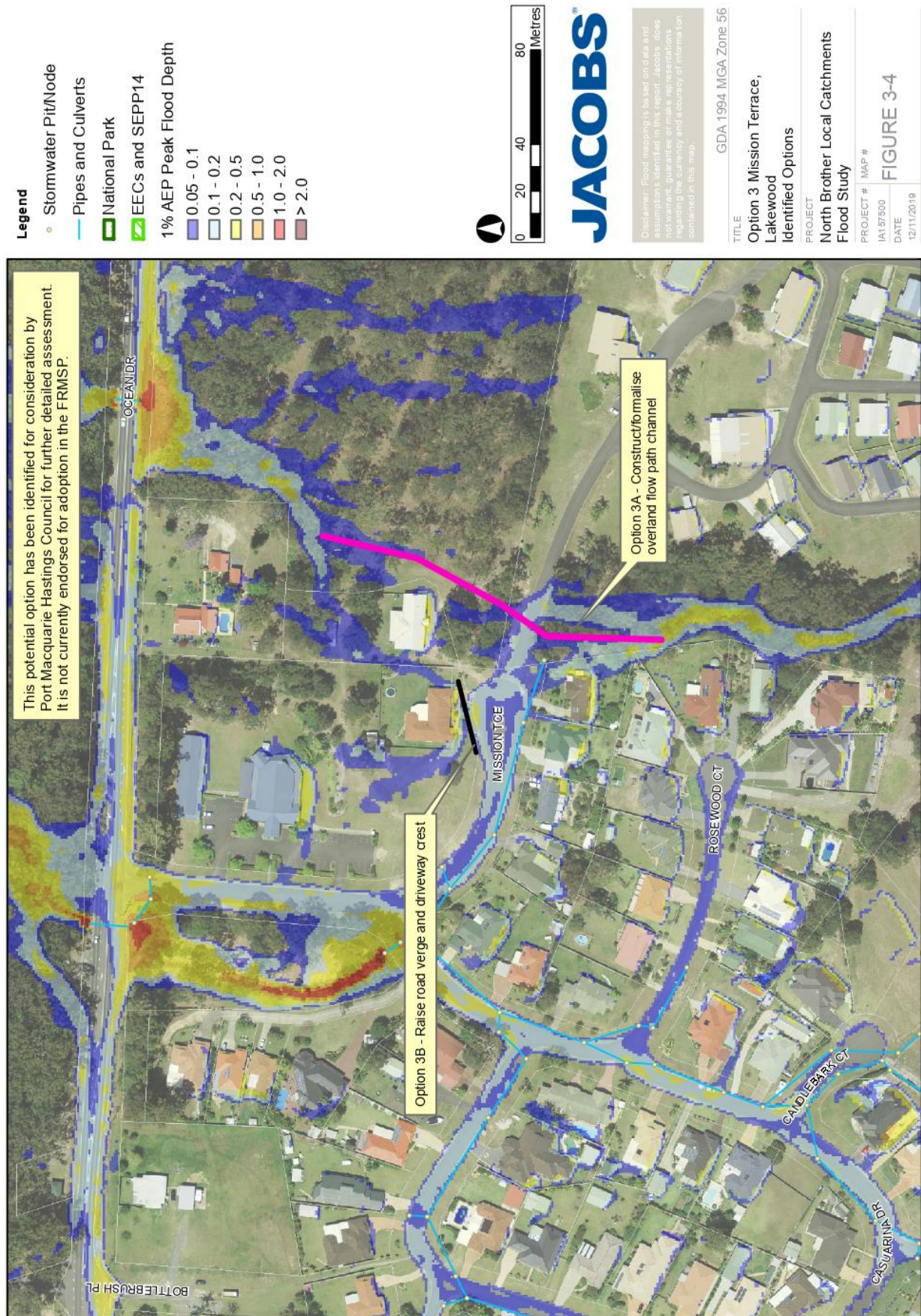
- Option 3A – construct an open channel to formalise the overland flow path. Direct the flow path around the eastern sides of properties on Mission Terrace. Size the channel for the 1% AEP flood, for a flow of approximately 3m<sup>3</sup>/s (approximate sizing 3m wide by 1m deep). Works would need to be done on private property. A culvert would need to be installed under a private property internal road. Additional works may be required at Ocean Drive to mitigate any resultant impacts, although the overland flows currently drain down to Ocean Drive already, in an informal manner.
- Option 3B – raise road verge and driveway to protect one property on lower side of road. This option would likely provide benefits for frequent flood events only. Driveway grading needs to be checked for vehicle underside scraping, in relation to raising of the driveway crest.

Refer to Figure 3-4 for illustration of options.

**Priority**

The options for this site are considered **low** priority given the number of affected properties affected by shallow flooding. However, the **priority could be raised** as the options could reduce flood damages at about two properties with above floor flooding in the 0.2EY event at relatively low cost.







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### 3.3.5 Kirmington Terrace to Pelican Court, West Haven

This area is identified as a critical flood problem area with significant flooding of properties in Koonwarra Street, Captain Cook Bicentennial Drive villas, Ocean Drive and Pelican Court. The flood hazard is high to very high (H4, some H5) on properties and on roads in the 1% AEP event. The area is highly affected in frequent events such as the 0.2EY event.

Flooding originates from three separate overland flow paths, including one from Black Swan Terrace, a second near Kirmington Terrace and a third from near Hoschke Road. Flow paths 1 and 2 converge in Koonwarra Street and then flow path 3 converges at Pelican Court. Overland flows are about 15m<sup>3</sup>/s in flow paths 1 and 2 in total in the 1% AEP downstream of Koonwarra Street, and 20m<sup>3</sup>/s in combined flow paths 1, 2 and 3 in Pelican Court. Existing pipe flows in Pelican Court are 3m<sup>3</sup>/s in the 1% AEP event in addition to the overland flows. The existing pipes in the network run full in the 0.2EY event. Flow paths 1 and 2 affect a number of properties throughout this area.

Flow path 3 directly affects two dwellings on Ocean Drive (numbers 384 and 386) near Hoschke Road in addition to contributing to flows in Pelican Court. It includes a 2m wide drainage channel through properties on the higher side of Ocean Drive, draining to a 2.4m x 0.9m box culvert under Ocean Drive, which is the main flow constraint. The culvert conveys 3.7m<sup>3</sup>/s in the 1% AEP while another 3.7m<sup>3</sup>/s overflows over Ocean Drive. It discharges to the formed swale on the low side of the road before the flows enter Pelican Court.

Floodwaters pond in Pelican Court and overflow overland via an access road in addition to through properties to discharge to Queens Lake.

#### Potential Options

- Option 4A – voluntary acquisition of at least one property in Koonwarra Street (number 53, and possibly number 51) which has floodway and H5 flood hazard conditions. Regrade the site to form a flow path which should help to relieve flood conditions in the road and on adjacent properties. Consider raising the road verge on the adjacent properties to direct flows to the flow path.
- Option 4B – new additional trunk drainage line 2x 1200mm diameter pipes, intercepting flows at downstream end of channel on Captain Cook Bicentennial Drive villas, cross Ocean Drive and run under The Gateway and discharge to receiving waterway to the north of Pelican Court. This proposed pipe capacity would be approximately 5m<sup>3</sup>/s which would reduce the total overland flow in Pelican Court by about 25% in the 1% AEP event. An inlet basin/rock debris trap similar to that proposed at Black Swan Terrace would be required. Existing underground utilities in Ocean Drive and available space in The Gateway road corridor (including significance of existing vegetation in the road corridor) are likely constraints. The potential impacts to existing flooding conditions around The Gateway needs to be checked.
- Option 4C – voluntary acquisition of one property, either 7 or 9 Pelican Court, adjacent to the access road to form a larger flow path and provide additional capacity for flows out of Pelican Court sag.
- Option 4D – construct a 10,000m<sup>2</sup> flood detention basin by excavation and raising of existing berms by about 1.5m in the vegetated open space between Koonwarra Street and Ocean Drive, to the west of Captain Cook Bicentennial Drive to detain flows from flow paths 1 and 2. Points of discussion are provided below:
  - Approximately 10,000 – 15,000m<sup>3</sup> of storage could be provided.
  - The spillway could be placed opposite the St Albans Way intersection with Ocean Drive.
  - The existing 900mm pipe crossing Captain Cook Bicentennial Drive would be upgraded to 1050 – 1200mm as the low flow pipe for the basin. Retain existing 900mm pipe draining into St Albans Way easement as a second low flow outlet.
  - Preliminary assessment in DRAINS indicates this basin could reduce flows from flow paths 1 and 2 into Pelican Court from about 15m<sup>3</sup>/s to about 7m<sup>3</sup>/s in the 1% AEP event (about 35% reduction in total flows to Pelican Court). Further sizing assessment required to confirm performance.
  - Significant area of vegetation including trees to be removed, although this is not a listed EEC.

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- The basin should not be revegetated significantly in order to allow for periodic maintenance.
  - The basin should be clay-lined to minimise collection and then infiltration of runoff into the sub-soil water flows. Similarly, the clay lining may minimise interception of groundwater flows. Geotechnical and groundwater specialist advice needs to be obtained.
  - There is a risk that the basin could redistribute overland flows to St Albans Way and cause flood impacts, if not configured properly.
  - The basin embankment would probably need to be listed as a prescribed dam under the NSW Dams Safety Act 2015, with significant engineering design, construction and maintenance required over its life.
  - A basin fully in cut could be considered as an alternative and would not be required to be listed as a prescribed dam. However, it is expected that the achievable storage volumes would be markedly reduced.
- Option 4E – duplicate the existing box culvert under Ocean Drive to the east of Pelican Court which would reduce the afflux of floodwater on the high side of Ocean Drive with benefits to two properties.

Refer to Figure 3-5 for illustration of options.

A detention basin on flow path 3 near Hoschke Road was not considered since the peak flows in that flow path are a relatively small portion of the overall flows in Pelican Court (5m<sup>3</sup>/s in the 1% AEP event, compared to 20m<sup>3</sup>/s total).

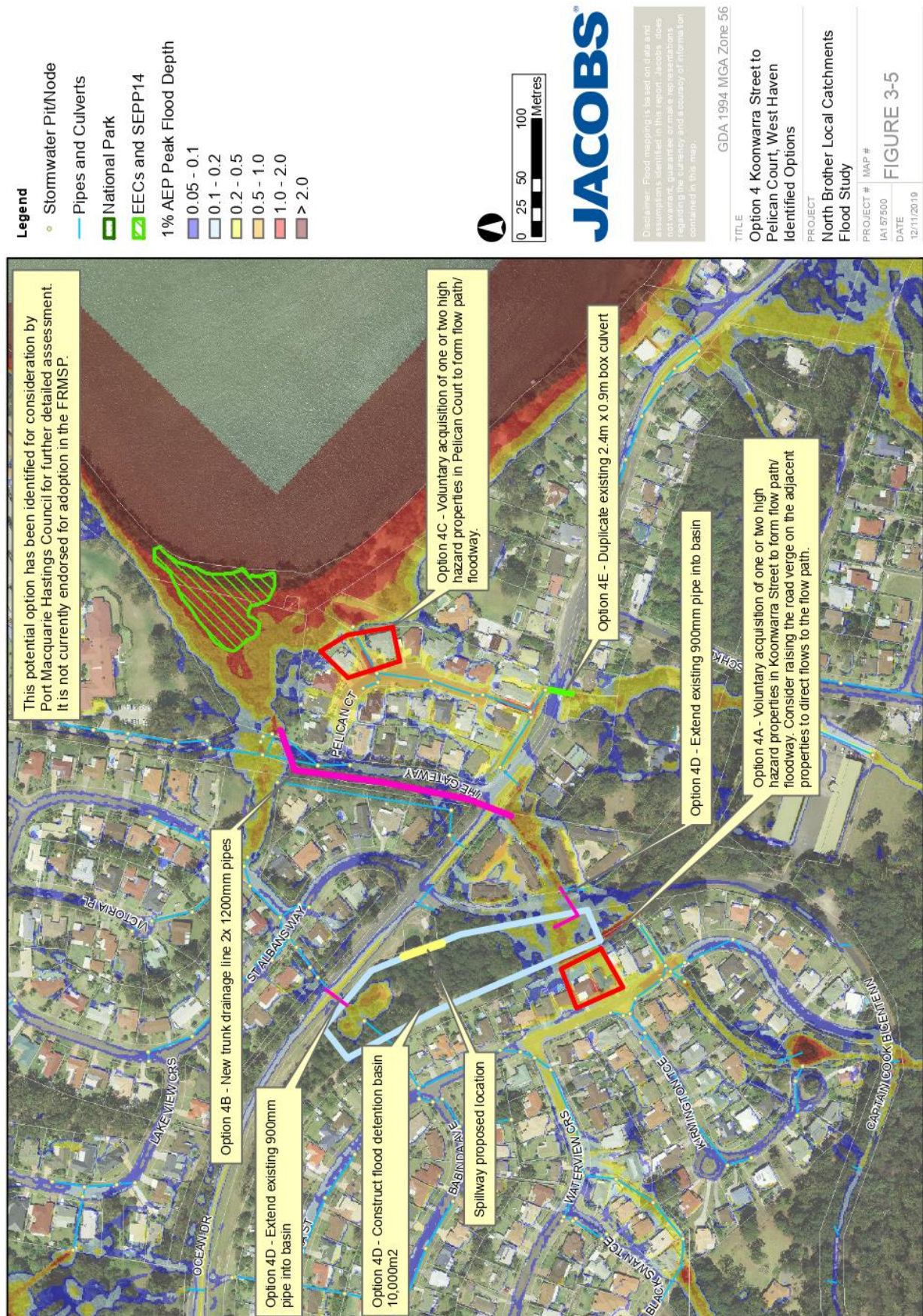
Capacity upgrade of the trunk drainage line through Pelican Court was not considered as the space in the easement is limited and additional pipes could not be fit along that alignment.

#### Priority

This area covers a number of identified critical flood trouble spots and the overall priority for this site is high. A combination of Options 4A to 4D should be considered. Options 4A to 4C are **high** priority. Option 4D is **medium-high** priority, with a reduced rating due to perceived construction and operation challenges of a detention basin in this location, such as provision of suitable spillway flow path through existing development and construction and maintenance of a raised basin embankment. Selection of options is to be undertaken in consultation with Council.

Option 4E is classed as a **low to medium priority** as the affected properties have elevated habitable floors but which are affected by above-floor flooding in moderate events including the 5% AEP and rarer.







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### 3.3.6 Flinders Drive Estate, West Haven

The Flinders Drive residential estate is bound by flood diversion channels on its western and southern sides. The channels overflow onto a number of properties, with floodwaters then spilling onto and are conveyed in Flinders Drive. The floodwaters then flow onto other properties at the northern portion of the estate before reaching Ocean Drive. At the north-western corner of the estate the western channel cuts across the corner of two properties, affecting yards but also potentially the dwellings in the rare flood events.

The western channel conveys about 9m<sup>3</sup>/s at the upstream end in the 1% AEP event, but about 4m<sup>3</sup>/s overflows through properties. The channel corridor is quite wide so it is expected it could contain the entire flow without overflows. Similarly the southern channel carries a maximum of 3m<sup>3</sup>/s in the 1% AEP event and 1.5m<sup>3</sup>/s overflows. The western and southern channels are shallow, approximately 0.7m deep through the drainage easement around the estate and as little as 0.4m deep on properties.

There are two sag points at either end of Reliance Crescent which capture the channel overflows in addition to local runoff. The sag points overflow in events as frequent as the 0.2EY event and flood properties. The sag points are both drained by 375mm pipes.

The sag point at the northern section of Flinders Drive, to the west of Investigator Way, also overflows in events as frequent as the 0.2EY event and flood properties. The sag point is drained by a 450mm pipe.

#### Potential Options

- Option 5A – upgrade a section of the western channel to contain flows in up to the 1% AEP event. The channel passes through private properties on the south-western corner of the estate hence works on private property would be required. Consider rerouting the channel around the north-western corner of the estate outside of private properties to reduce their flood-affectation
- Option 5B – upgrade southern channel to contain existing flows in up to the 1% AEP event, and potentially supplement the western channel capacity. Works are outside private property. This option would direct more flows down to St Joseph's School, which is already a flood trouble spot. This option would need to be combined with drainage upgrade options at the school.
- Option 5C – upgrade Reliance Crescent eastern sag drainage from existing 375mm to a proposed 900mm pipe, including pits. Extend upgrades down Flinders Drive. Flows could be allowed to surcharge in Flinders Drive downstream of Bass Avenue. It is understood the verge and driveway has recently been raised by Council to help to contain flows in the street.
- Option 5D – new drainage line in Flinders Drive west, uphill of Reliance Drive to capture road overland flows. Turn new drainage west through easement to western diversion channel, allow to surcharge. Propose 2x 1050mm pipes and required pits to capture 5% AEP flow of 3.6m<sup>3</sup>/s.
- Option 5E - upgrade Flinders Drive northern sag drainage. Upgrade of the pipe capacity would need to extend down into Investigator Way. Existing overflows are 4m<sup>3</sup>/s in the 1% AEP event.

Refer to Figure 3-6 for illustration of options.

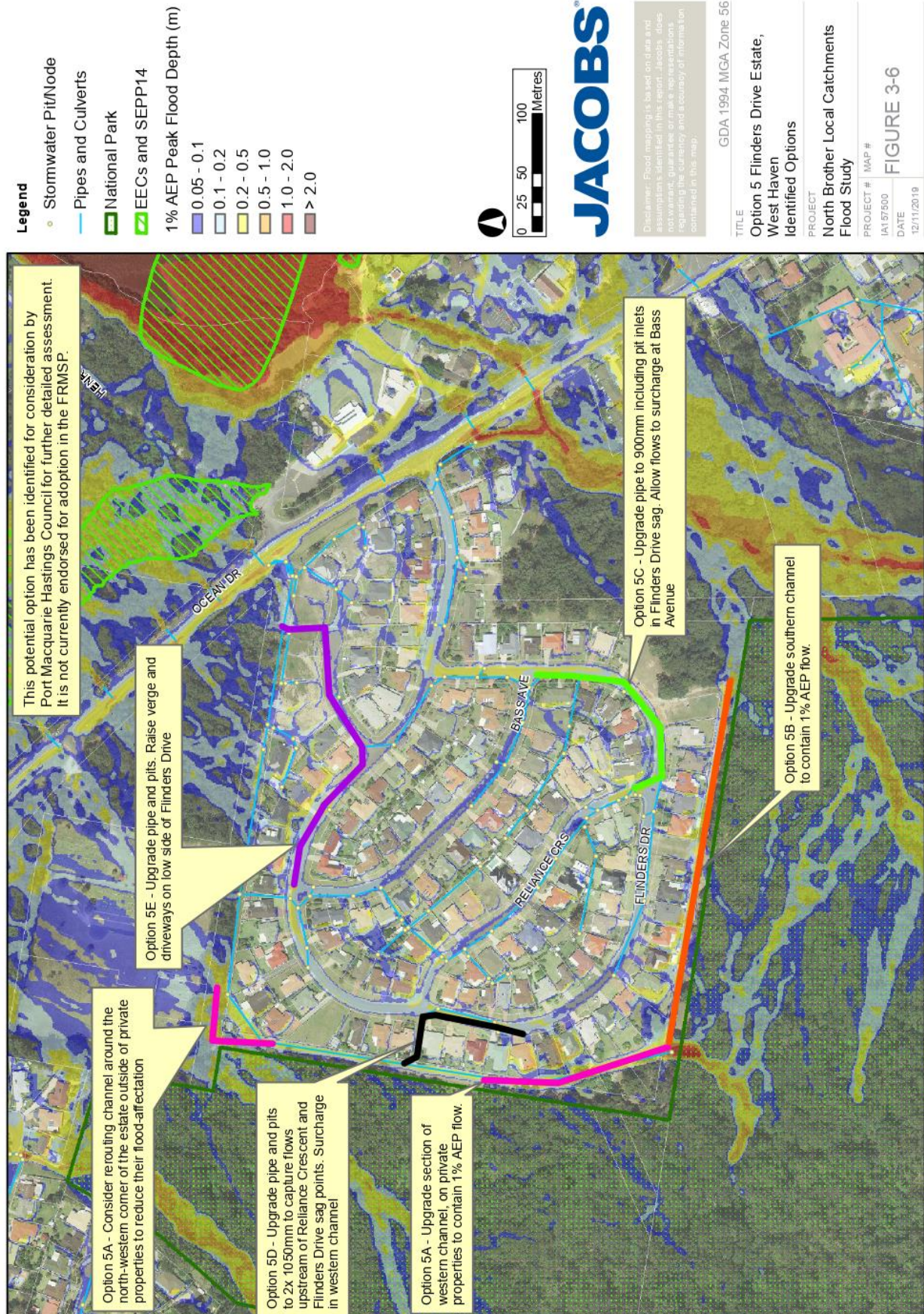
Rerouting the western channel around the south-western corner of the estate was not considered due to the high ground elevations and required 6m deep channel.

#### Priority

A combination of options 5A to 5D are recommended as **medium to high** priority for this known flood problem area. This location is not listed as a critical flood problem area. Option 5E is listed as a **low** priority.

Recommended selected order of options is from upstream to downstream and also based on relative ease of implementation. Options 5A and 5B are relatively easy channel surface works and upstream of sites. Option 5C and 5D are next in line in the downstream direction, and option 5E last in order. Sizing of options 5C to 5E are dependent on the flow reductions from the upstream options.







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### 3.3.7 Tunis Street Overland Flow Path, Laurieton

This overland flow path originates above Blackbutt Crescent and Peach Grove, where a natural gully overflows into a constructed diversion channel which skirts around properties on Blackbutt Crescent and conveys flows through an easement to Peach Grove at Tunis Street. There is an existing low capacity pipe (375mm diameter) draining the flows in the easement to the existing drainage system. Flows in excess of the overland flow path spill out onto properties on Peach Grove and contribute to flooding at the main complex at Laurieton retirement village, although flooding at this complex is exacerbated by partially-trapped drainage low points.

The main flow path splits around Gow Place and Norman Street/Tunis Street intersection, with the northern branch flowing through the Laurieton retirement village villas and exiting around Kew Road at Castle Street, and the southern branch draining to the sag point on Bold Street at Tunis Street, and then joining a separate flow path through commercial and residential properties on Bold Street to McLennan Street.

The main stormwater drainage line consists of up to 900mm pipe in Tunis Street, draining to the river.

Overland flows in these flow paths are summarised in Table 3-1.

**Table 3-1 Flood flows at Tunis Street overland flow path**

Location	Event AEP		
	0.2EY	5% AEP	1% AEP
Upstream of Peach Grove	5.2	9.4	14.1
Tunis Street at Peach Grove	3.5	6.2	9.2
Gow Street branch	1.8	3.2	5.0
Tunis Street and natural gully at Lord Street	2.1	4.1	7.1

#### Potential Options

- Option 6A – construct/raise berm between the natural flow path and the diversion channel above Blackbutt Crescent to reduce overflows into the diversion channel and hence reduce flows through the properties downstream. However, this would increase the flows being directed toward St Josephs School, and works would need to be conducted within the national park area. Periodic maintenance may be required.
- Option 6B – increase the existing diversion channel capacity behind Blackbutt Crescent properties to reduce overflows onto properties. This could be achieved by a combination of excavating the channel, raising the banks (e.g. block retaining wall along the property boundaries) and clearing of vegetation in the channel. Works would need to be undertaken in part on national park land.
- Option 6C – construct new, or enhance existing, diversion channel behind Peach Grove properties north of Tunis Street to direct flows south to the easement at the end of Tunis Street. This is outside of the national park.
- Option 6D – install new trunk drainage line from the easement down Tunis Street to discharge to the river. A system capacity of approximately 5% AEP (about 9.5m<sup>3</sup>/s) would require a box culvert 3m x 1.2m, or 3 x 1.35m diameter pipes, and would reduce the 1% AEP overland flows through downstream properties by about 67% which would result in similar flooding to the 0.2EY event, although there would still be flooding

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on Gow Place properties and retirement village villas to depths of up to 0.5m. Increasing the capacity to 1% AEP could be considered. There are potential clashes with existing underground utilities in Bold Street, and there would be disruptions to traffic in Bold Street during construction including trucks delivering to Coles Supermarket. A rock debris trap/basin would need to be constructed at the trunk drainage inlet to reduce the inlet blockage risk.

- Option 6E – upgrade drainage in Gow Place cul-de-sac and raise road verge and driveways to reduce overflows through properties and the retirement village villas. The existing drainage consists of a 450mm pipe which drains through an easement and discharges to open space between Gow Place and Tunis Street. However, this would discharge more flows onto non-residential properties (service station/mechanic, café) on Kew Road/Bold Street at Tunis Street. A connection to the new trunk drainage line or a separate parallel line could be installed to run down Tunis Street to mitigate the increased flows onto these non-residential properties. This overall option would be a secondary measure and would need to be installed following Option 6D. Sizing depends on upstream measures.

Refer to Figure 3-7 for illustration of options.

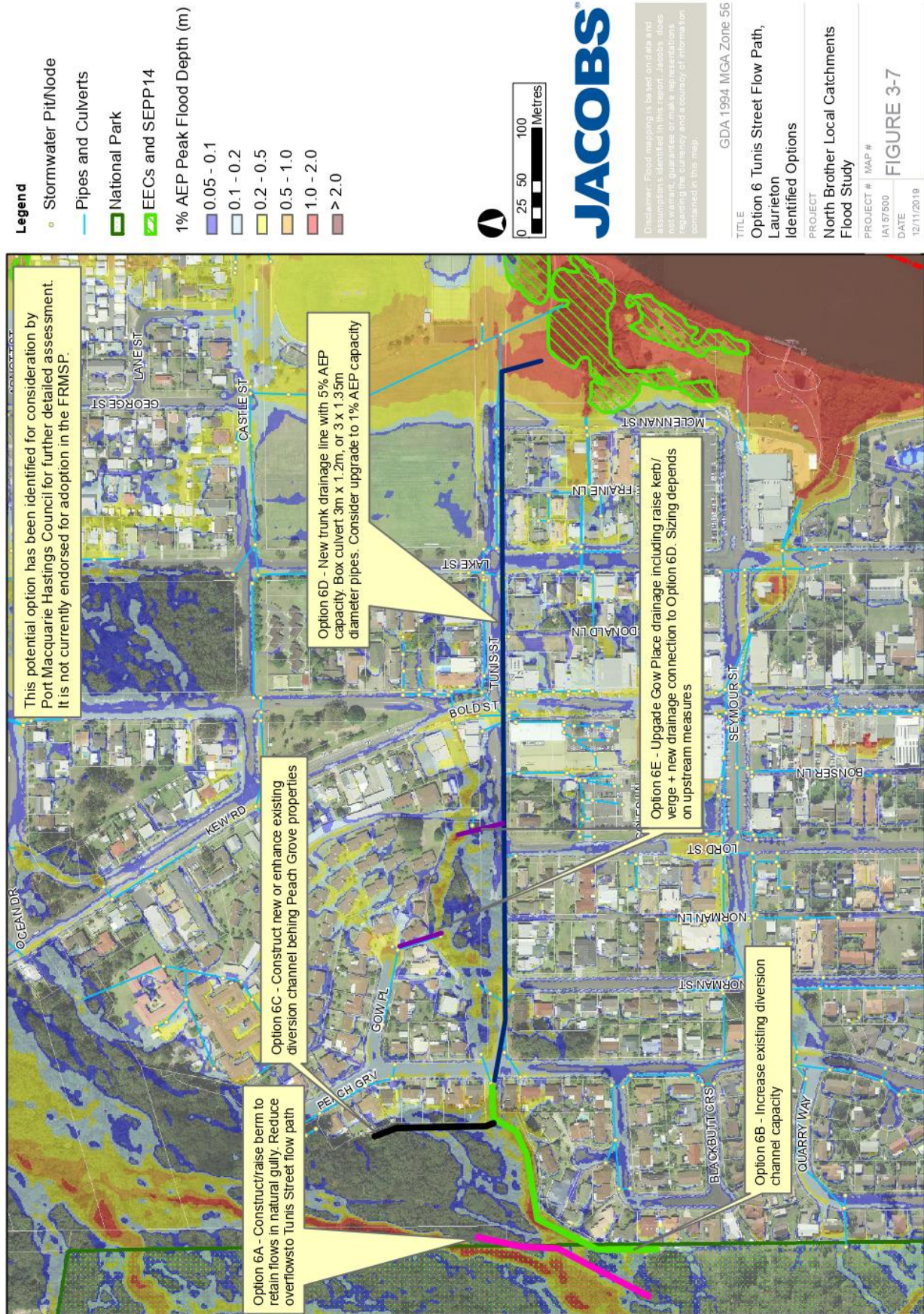
**Priority**

This is not identified as a critical flood problem area as there are generally no high hazard flows on properties, although there are dwellings with above-floor flooding in the 0.2EY event. It has a general medium priority.

Option 6A has a **low** priority due to potential impacts from redistribution of flows, increased mitigation requirements elsewhere, in addition to significant works required within the national park.

Options 6B to 6E have **medium-high** priority for protection of properties with frequent above-floor flooding (0.2EY event). Option 6D is expected to have high implementation cost, which may reduce its feasibility and priority.







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### 3.3.8 Quarry Way Overland Flow Path, Laurieton

This flow path originates above Quarry Way and Laurie Street, with a main diversion channel overflowing to a second minor channel at the back of properties on Quarry Way. The main channel is reported to be blocked by debris which is a main cause of the overflows. The overland flows are conveyed in Quarry Way, then through open space to Seymour Street and Lord Street and onto and through Laurieton Hotel. Flows then continue through residential and commercial properties to McLennan Street, joining flows from the Tunis Street flow path,

There are existing trunk drainage pipes and connected street drainage network in Seymour Street consisting of up to two 1.2m diameter pipes which discharge into the open channel on the property at the corner of Lake Street and Seymour Street, which is also a critical flood problem site.

The road verge in Lord Street already has a raised berm constructed to help direct water into the existing stormwater pits and reduce overflows into the Laurieton Hotel. There is existing grassed open space uphill of the hotel which could be used for flood mitigation infrastructure e.g. trunk drainage inlet works.

Overland flows in these flow paths are summarised in Table 3-2.

**Table 3-2 Flood flows in Quarry Way overland flow path**

Location	Event AEP		
	0.2EY	5% AEP	1% AEP
In Quarry Way	2.2	3.3	4.6
Peach Grove at Quarry Way	2.5	4.3	6.0
Lord Street	2.2	4.5	6.5
Bold Street near Seymour Street	2.3	5.3	7.5

#### Potential Options

- Option 7A – remove blockages from diversion channel, upgrade main and secondary channels to reduce overflows onto Quarry Way properties. Works will be in the national park. Additional flows (3.5m<sup>3</sup>/s) would be directed to the natural flow path south of Laurie Street, which drains towards Harbourside Crescent villas, another problem area. Additional mitigation may be required at that site (refer to Section 3.3.11).
- Option 7B – new trunk drainage line from Norman Street down Seymour Street, discharging to the river. This would need to replace, and provide capacity in addition to the existing trunk drainage in Seymour Street (up to two existing 1.2m pipes carrying about 4m<sup>3</sup>/s). Total capacity of close to the 1% AEP event would be ideal as properties are significantly flood-affected in even the 0.2EY event. Indicative sizing of 3.6m x 1.2m box culvert would have sufficient capacity for approximately the 1% AEP total flow (if Option 7A not implemented). Inlets to the trunk drainage line would be required in Lord Street sag, Laurieton Hotel rear car park and Bold Street, by upgrading the existing street drainage. The grassed area immediately west of the Laurieton Hotel rear car park could be used for large inlet works. Note that there appears to be minimal street drainage on the eastern side of Bold Street, north of Seymour Street, which contributes to the flooding issues.

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- Option 7C – provide drainage in Bold Street eastern side to direct flows into Seymour Street drainage line. There is currently limited drainage in Bold Street.
- Option 7D – localised flood-proofing such as concealed or inflatable flood barriers could be installed at the rear of the Laurieton Hotel to prevent floodwaters from entering the building itself, and directing it through the bottle shop drive-through. Inspection of the site is required to assess feasibility.

Refer to Figure 3-8 for illustration of options.

**Priority**

This area includes a number of critical flood problem locations/properties and is rated as overall high priority.

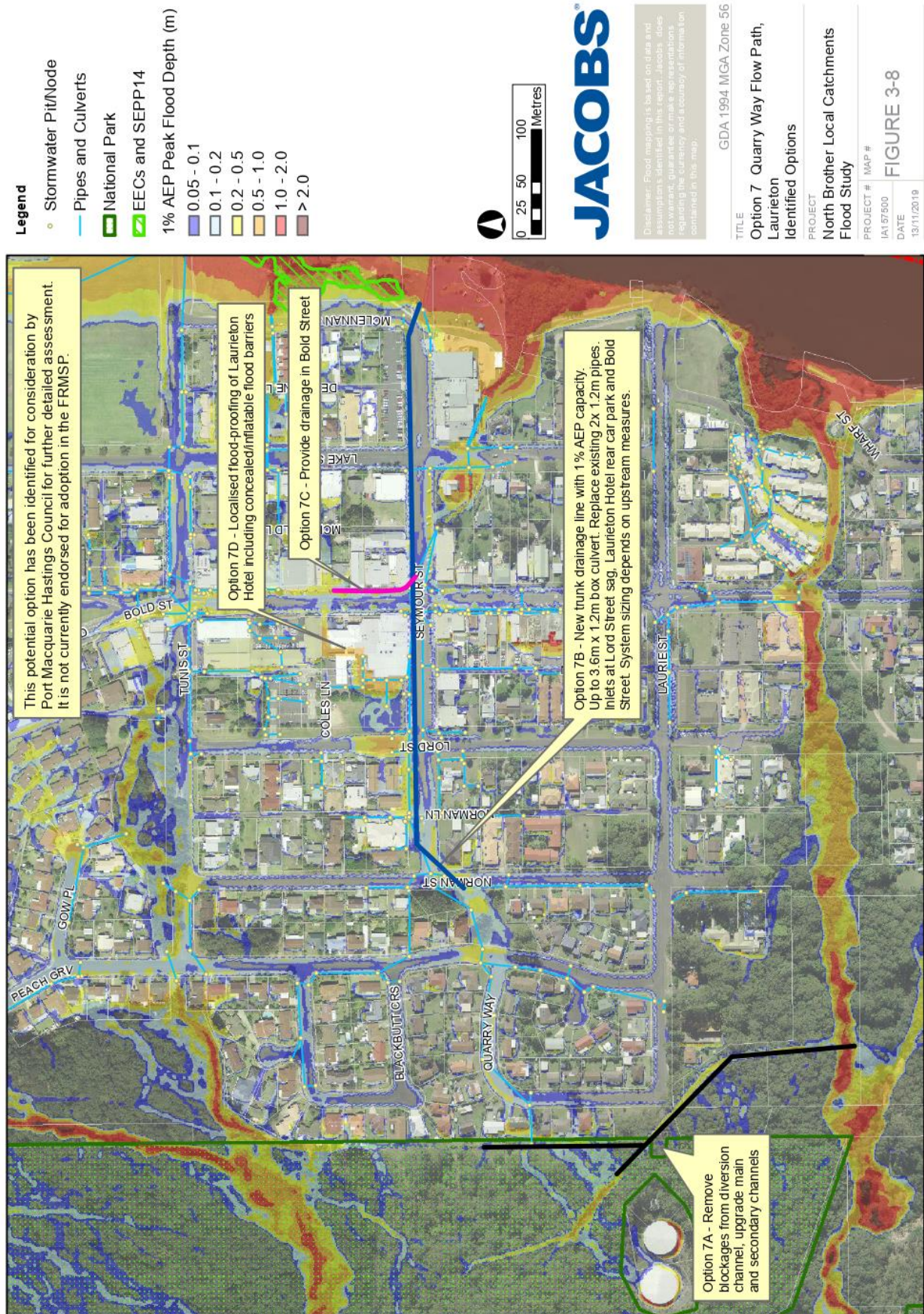
Option 7A has **medium-high** priority for improvement to flooding on properties with frequent above-floor flooding (0.2EY event). No high hazard flooding on these properties.

Option 7B is **medium-high** priority, based on management of significant overland flow path through main developed area of the study area. Potential to significantly improve flooding on a high number of properties including critical properties. However, the high cost of this option is likely to reduce its feasibility.

Option 7C is rated as **low-medium** priority, with main benefits to a number of commercial properties with above-floor flooding in the 2% AEP event, and potentially minor benefits to other downstream properties. Need for this option may be negated if Option 7B is implemented.

Option 7D is rated as **medium** priority as benefits are localised to one commercial property. The rating is elevated from low-medium due to potential co-funding from Laurieton Hotel owners.







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**3.3.9 Lake Street at Seymour Street, Laurieton**

The corner property at this location receives overland flows and trunk drainage flows from the Quarry Way flow path. There is an open channel and flow path through this property, where the dwelling is surrounded by high hazard flooding to depths of over 1m in the 1% AEP event. The floodwaters pond behind the raised road crest in Lake Street before overflowing over the road and around the southern side of the Laurieton United Services Club. It is identified as being affected by above-floor flooding.

The drainage at this location includes 2x 1.5m x 0.75m box culverts at the inlet at the downstream end of the channel through this property, turning into 2x 1200mm pipes crossing Lake Street, which then increase to 2x 1500mm pipes on the low side of the road and discharging to a channel on the southern side of the Services Club.

Flood mitigation works proposed for the Quarry Way flow path as described in Section 3.3.8 would mitigate flooding at this location. Further works could be provided for additional mitigation.

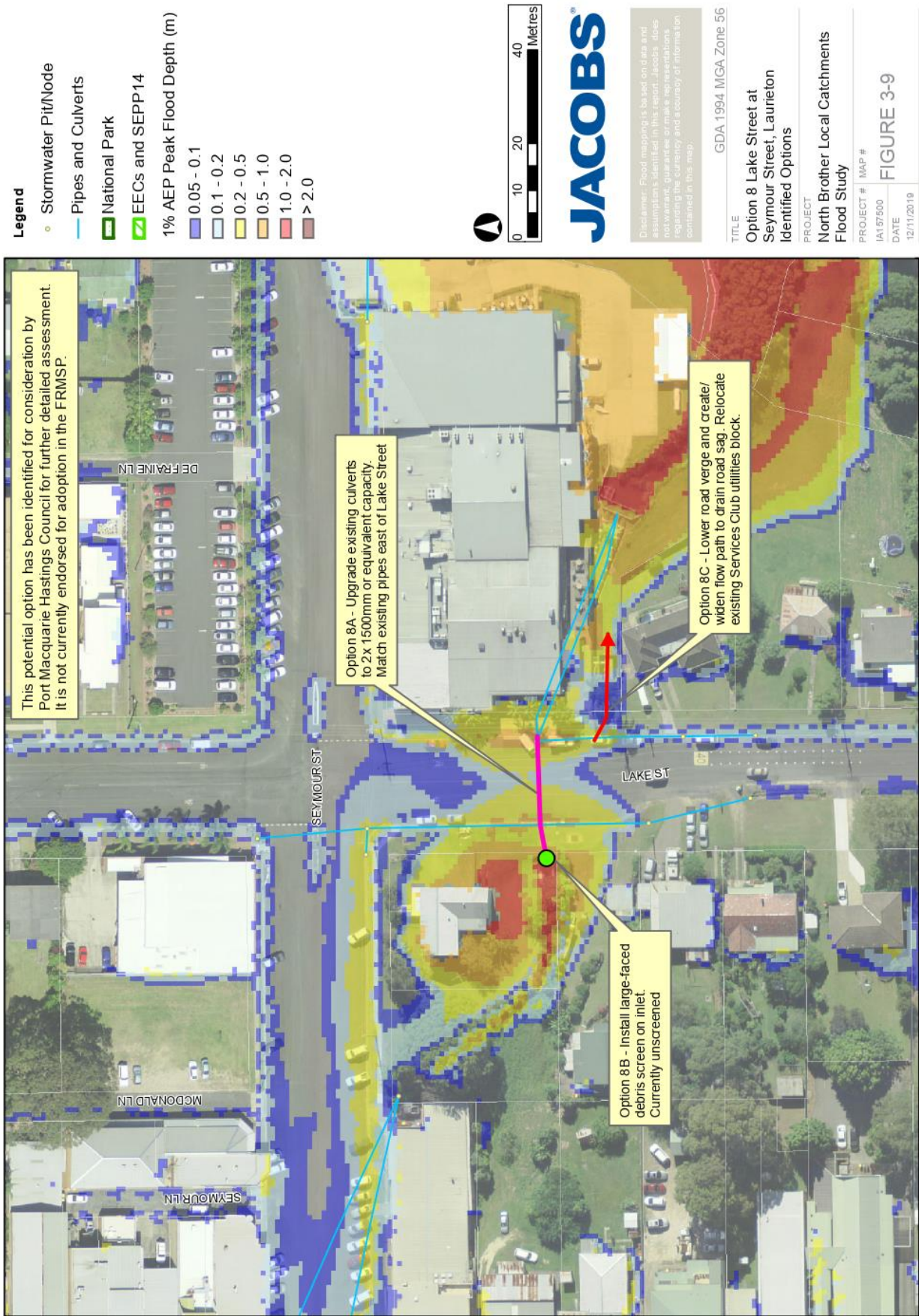
**Potential Options**

- Option 8A – upgrade culverts crossing Lake Street up to 2x 1500mm pipe or equivalent, to match the outlet pipe capacity.
- Option 8B – the culvert inlet is currently unscreened and has been modelled as 50% blocked due to likely debris blockage. A large-faced screen and other debris controls could be installed to reduce the risk of blockage. Could be used to retrofit existing culvert or improve proposed culvert upgrade.
- Option 8C – regrade (lower) the road verge on eastern side of Lake Street to allow road sag to drain more freely. Create a new or widen the existing flow path from the road and down the southern side of the Services Club. There are existing utilities associated with the Club in this location which are surrounded by a block wall structure and which could not be identified from site photos. Relocation of these utilities and lowering the ground in this area would allow water to flow off the road more freely, in addition to directing flows away from the Club's understorey car park.

Refer to Figure 3-9 for illustration of options.

**Priority**

This site is identified as a critical flood problem location and is rated as a high priority. Option 8B is rated as **high** priority for assessment. Options 8A and 8C are rated as a **low** priority for assessment due to high cost and with the main benefit is to a commercial property with no above-floor flooding in up to and including the 1% AEP event.



## Working Draft Options Report



## 3.3.10 St Joseph's School, Laurieton

Flooding at the school results from natural flow paths being directed down to Ocean Drive to three culvert crossings. The culverts discharge on the low side of the road and along with road overflows, overland flooding passes through the school in three main flow paths, including one through the main cluster of school administration and classroom buildings. There is no existing underground trunk drainage conveying flows through the school grounds. Flows exceed 0.5m deep in the 1% AEP event with areas of very high (H5) flood hazard.

Overland flows in these flow paths are summarised in Table 3-3.

Table 3-3 Flood flows in overland flow paths at St Joseph's School

Location	Event AEP		
	0.2EY	5% AEP	1% AEP
Northern flow path (admin bldg.)	4	5.5	8
Middle flow path	5.5	6.5	8.5
Southern flow path	8.5	10	12.5
Total	17.5	22	29

## Potential Options

- Option 9A – provide underground box culvert trunk drainage through the school. Approximately 2x 3m x 1.2m box culverts would have capacity to convey the 1% AEP flows in the middle and southern flow path. The southern flow path and road cross culvert is the main flow path and there is a formalised open channel provided for this flow path. It appears preferable and least disruptive to the school grounds to install the culverts in/along the southern flow path as there is a wider corridor between existing buildings. However, the open channel and its banks appear to be landscaped with well-established gardens, which are likely to be of high value to the school and adjacent church. Alternatively, widening the existing channel could be considered. Further investigation required to check for clashes with existing buildings.
- Option 9B – alternatively, the box culverts could be placed in the middle flow path, since the southern flow path open channel has nearly sufficient capacity for 1% AEP flows conveyed in that channel. Additionally, the road cross culvert for the middle flow path is actually at lower elevation than the southern flow path/ culvert, and it may be possible to capture more of the road overflow as this is a lower point of the road compared to the southern flow path. The existing middle flow path through the school is relatively low (less than 3m AHD ground surface) and would need to be back-filled to provide cover over the culvert. This would mean loss of an overland flow path or replacement with a lower capacity one. The culverts would need to be fit between existing school buildings.
- Option 9C – upgrade and extend the northern road cross culvert by 160m to discharge to the area behind the school. This existing 1.5m x 0.6m culvert does not appear to be connected to internal school drainage, or, the school drainage is unlikely to have sufficient capacity for this culvert flow. The culvert currently conveys only 1.5m<sup>3</sup>/s and could be upgraded to carry higher flows to protect the school administration building and adjacent buildings. Sizing would depend on the performance of Options 9A or 9B. Indicative sizing for existing flows is 3m x 1.2m box culvert. There are possible impacts to EEC/SEPP14 wetlands, as a new tail-out channel may need to be excavated to discharge to the downstream lake.



## Working Draft Options Report



Both Option 9A and 9B would require a constructed inlet basin as a rock debris trap at their inlets. There are existing underground utilities and telegraph poles on the southern side of Ocean Drive which need to be considered with the upgrade of road cross culverts. A number of trees and existing pavement in the school car park and grounds would need to be removed and replaced.

Expanding the existing southern flow path channel through the school to convey the southern/middle flow path flood flows was not considered in detail. The channel would need to be widened by approximately 60% to convey the 1% AEP flows and there appear to be space constraints on the site with existing buildings, car parks etc. However, further assessment could be made if requested. The road culvert crossing would also need to be upgraded.

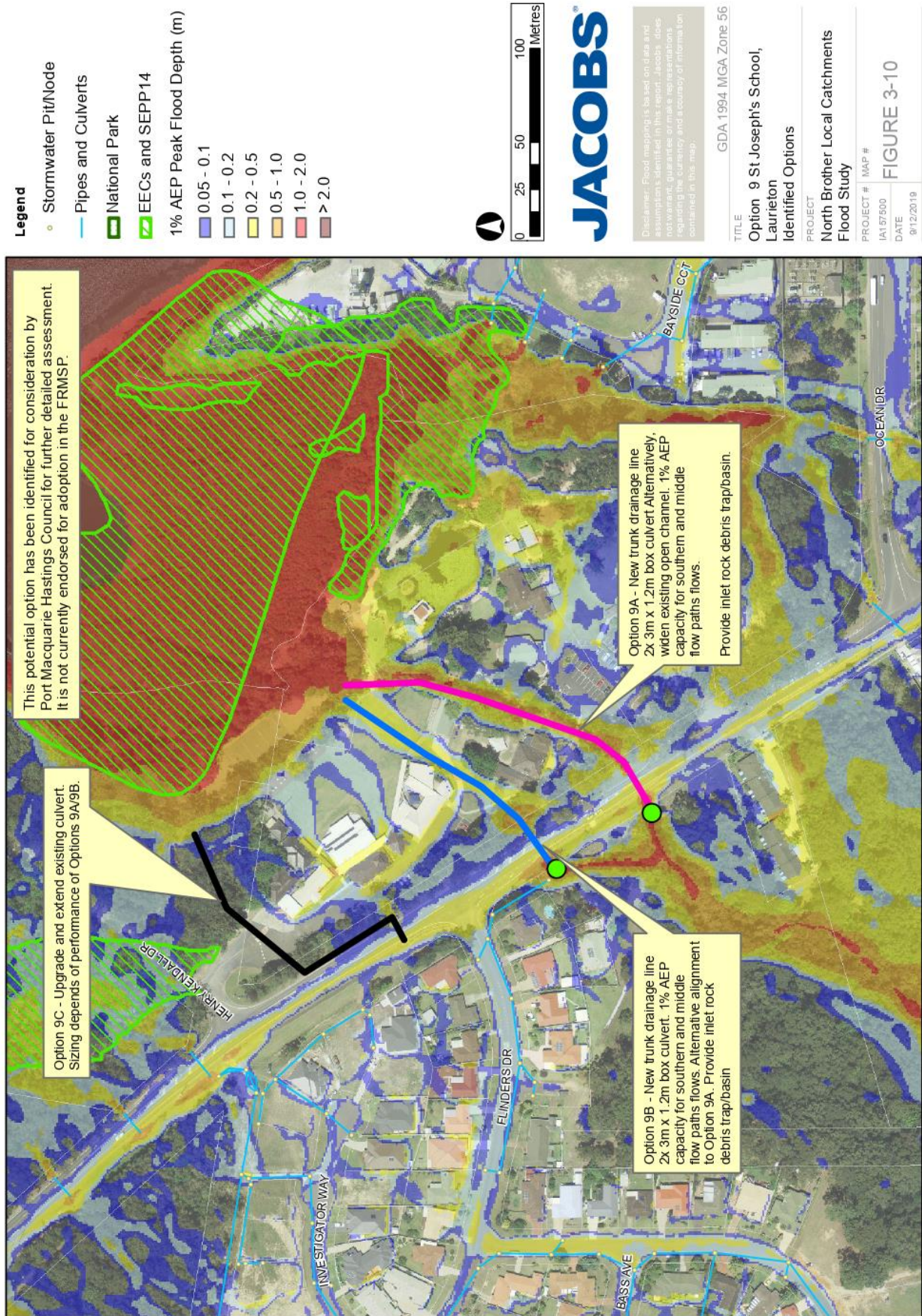
Refer to Figure 3-10 for illustration of options.

**Priority**

This location is a high priority site for mitigation given its known historic flooding problems and susceptibility of its occupants (i.e. primary school children).

Option 9A or 9B (both **high priority**) should be trialled first before trialling of Option 9C (**medium-high priority**) if additional flow conveyance capacity is required.





## Working Draft Options Report



### 3.3.11 Harbourside Crescent Villas and Bold Street, Laurieton

This property is listed as the Stockland Camden View Retirement Village and is located adjacent to a major natural overland flow path which flows down from North Brother Mountain, crossing Bold Street via an existing 1500mm diameter pipe as well as over the road crossing. The flows discharge into an 8m wide open channel which then discharges to the river. Flooding over Bold Street is significant with 0.2EY event flood depths over 0.5m and 1% AEP event flood depths of 0.6 – 0.8m and a very high H5 hazard rating. While this site is along the Camden Haven River, it is situated above the current climate 1% AEP mainstream flood level (about 3m AHD). Parts of the site would be affected by the 1% AEP mainstream flood level (about 3.8m AHD) under future climate change scenario.

Flood flows in these flow paths are summarised in Table 3-4.

Table 3-4 Flood flows at Harbourside Crescent Villas and Bold Street

Location	Event AEP		
	0.2EY	5% AEP	1% AEP
Pipe crossing of Bold Street	4	4	4
Bold Street overflows	11	18	27
Total	15	22	31

The existing open channel is either unlined or shotcrete-lined with some sparse vegetation on its base and tree/shrub vegetation on its banks. It appears to have sufficient capacity to convey the 1% AEP flow, but floodwaters overtopping Bold Street bypass around the upstream side of the channel and flow onto the Harbourside Crescent villas, causing above-floor flooding in the 0.2EY event and rarer.

#### Potential Options

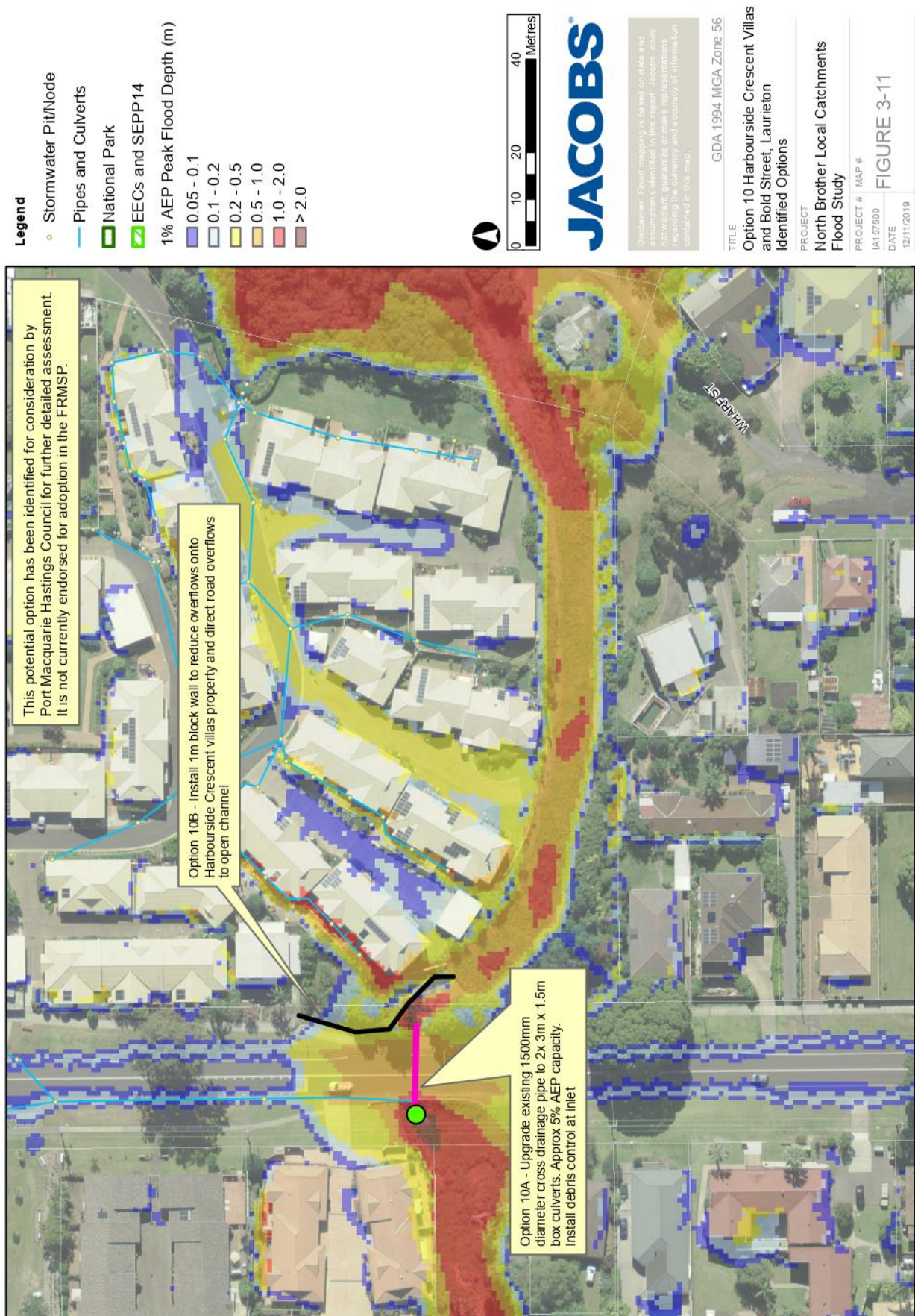
- Option 10A – upgrade Bold Street cross drainage pipe with 2x 3m x 1.5m box culverts. This should have capacity for over the 5% AEP event flow. A large screened inlet or other vegetation debris control should be considered. The existing inlet is unscreened. A constructed inlet basin as a rock debris trap at the culvert inlet should be considered depending on expected rock debris loads in flood flows. The site is located some distance from the foot of North Brother Mountain and rock debris loads may be deposited further upstream.
- Option 10B – install block wall up to 1m high along property boundary on low side of Bold Street, north of open channel, to reduce overflows onto Harbourside Crescent villas property and direct road overflows into the open channel. The wall may need to extend onto the property along the bank of the channel to focus the flows into the channel. There is an existing concrete wall along this side of the channel which may need to be raised and/or extended.

Refer to Figure 3-11 for illustration of options.

#### Priority

This location is listed as a critical site for property and road flooding due to high depths of flooding and high hazard on property and hence is rated as a high priority location. Option 10A is rated as **high** priority for assessment while Option 10B is a **medium-high** priority for assessment due to potential upstream flood impacts.





## Working Draft Options Report

**3.3.12 Norman Street and Mill Street, Laurieton**

Overland flows are directed onto residential properties on Norman Street and Mill Street due to a fire trail crossing a natural gully in the bushland to the west of this site. Flows in excess of the fire trail culvert crossing are conveyed down and along the fire trail and onto the residential area. Properties are affected by over-floor flooding in the 0.2EY event and this is a known problem area with previous reports from residents. Flows are around 5.5m<sup>3</sup>/s in the 1% AEP event.

**Potential Options**

- Option 11A – construct a diversion channel through the bushland to direct flows in up to the 1% AEP event from the fire trail to a second natural gully to the south near Hanley Street. Regrade fire trail to redirect flows into channel. These works are not within the national park. This would increase flows in the Hanley Street flow path by about 25% from existing. Flood flows are generally contained within the Hanley Street flow path, but the proposed case flows would need to be monitored for increases in flood levels and resultant above-floor flooding on properties downstream.

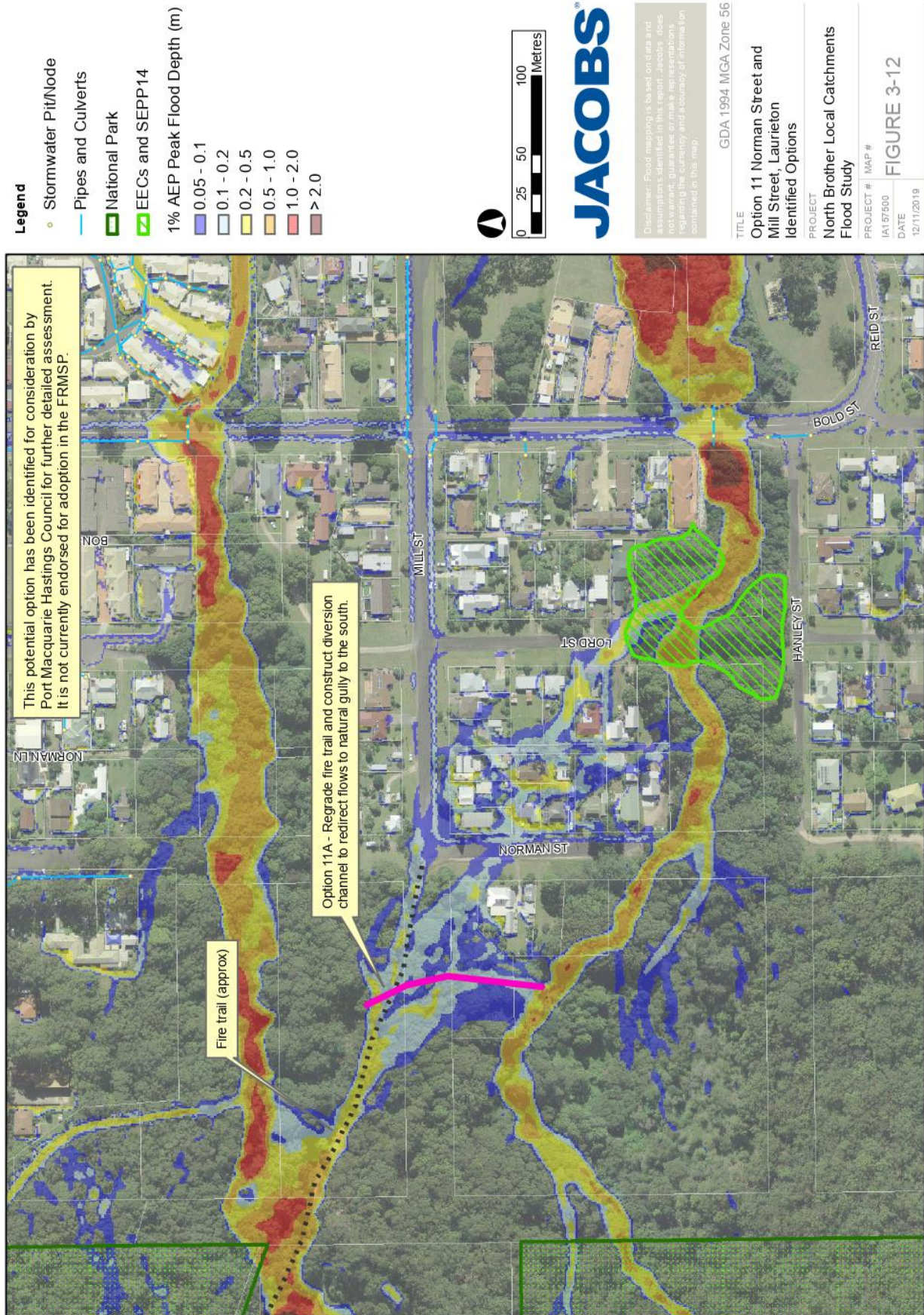
Refer to Figure 3-12 for illustration of options.

Retaining the overflows in the original gully is not considered, as this gully flow down to the Harbourside Crescent villas location, which already experiences flooding problems.

**Priority**

This is listed as a **medium** priority location and option. It is not a critical flood area due to lower flood hazard on properties but is a previously reported overland flow problem site.







## Working Draft Options Report

**3.3.13 Sirius Drive, Honeysuckle Avenue and Mahogany Close, Lakewood**

Flooding occurs to depths on properties of 0.3 – 0.5m in the 1% AEP event, as a result of floodwaters ponding in the roads. There are three main ponding areas, one in each of these roads. There is one property with above-floor flooding in the 0.2EY event in Mahogany Close and three on Sirius Drive. The road sag elevations are low, down to 2.4m AHD which presents challenges with drainage considering high tailwater levels, particularly in a future climate change scenario.

The Honeysuckle Avenue and Mahogany Close sag points are drained by two 450mm pipes and a 375mm pipe, respectively. Property ground levels are built up to 3.0 – 3.1m AHD, typically, which prevents free surface drainage of the sag to the downstream waterway. The 450mm pipes draining Honeysuckle Avenue run through properties, while the 375mm pipe draining Mahogany Close runs through an easement. A levee was proposed as a recommended measure in the Camden Haven Floodplain Risk Management Plan (Bewsher Consulting, 2004), to be installed behind the properties in this location, refer to Section 2.8 of the FRMP report. Overland flood mitigation measures should have consideration of the function of this proposed levee, which may be constructed in the future. The flooding at this location may benefit from mitigation works upstream, at Ringtail Close (see Section 3.3.2).

The Sirius Drive sag is a major sag point with depths of flooding in the road over 1m in the 1% AEP event and affecting a number of properties with above-floor flooding in addition to flooding of other streets. The sag is drained by 2x 1050mm pipes through a 4m wide easement. The easement ground level is built up to 3.3m AHD.

The site is affected by the current climate 1% AEP mainstream flood level, and would also be affected in the future climate change scenario.

**Potential Options**

- Option 12A – upgrade existing pipes in Honeysuckle Avenue and Mahogany Close including through properties. Sizes of up to 750mm diameter are suggested. Pit inlet capacities including additional street pits would be required. Works through properties would be disruptive to the residents. One-way flap gate at outlet to prevent backwater flooding through drainage pipes. Duplication of existing pipes was considered but given the small existing pipe sizes would not provide a significant increase in capacity.
- Option 12B – upgrade existing pipes draining Sirius Drive. Installing a 2.4m x 1.2m box culvert would increase drainage capacity by about 67%. A 3m x 1.2m culvert would more than double the capacity but works would likely extend onto properties. Additional pits or drainage network upgrades would be required. Lower the ground level in the easement to 3.1m AHD. One-way flap gate at outlet to prevent backwater flooding through drainage pipes. Installation of an additional 1050mm pipe to the existing twin pipes could be considered if there is sufficient space.

The option of running an upgraded pipe line from Honeysuckle Avenue sag down to Mahogany Close and out through the easement, a distance of 240m, was initially considered. However, given the low ground elevations there would not be sufficient fall or grade for such a pipe. Assuming the existing outlet level of 1m AHD, the 240m run at 0.5% grade would result in an upstream invert level of 2.2m AHD, which is near the surface level. Lowering the outlet level and a flatter pipe grade of 0.3% could be considered.

Purchase of properties to create a floodway to drain the sag points via the surface would relieve flood levels in the roads but is likely to be prohibitively costly. The properties are not high hazard in the 1% AEP and would not qualify for funding through NSW Government voluntary purchase scheme.

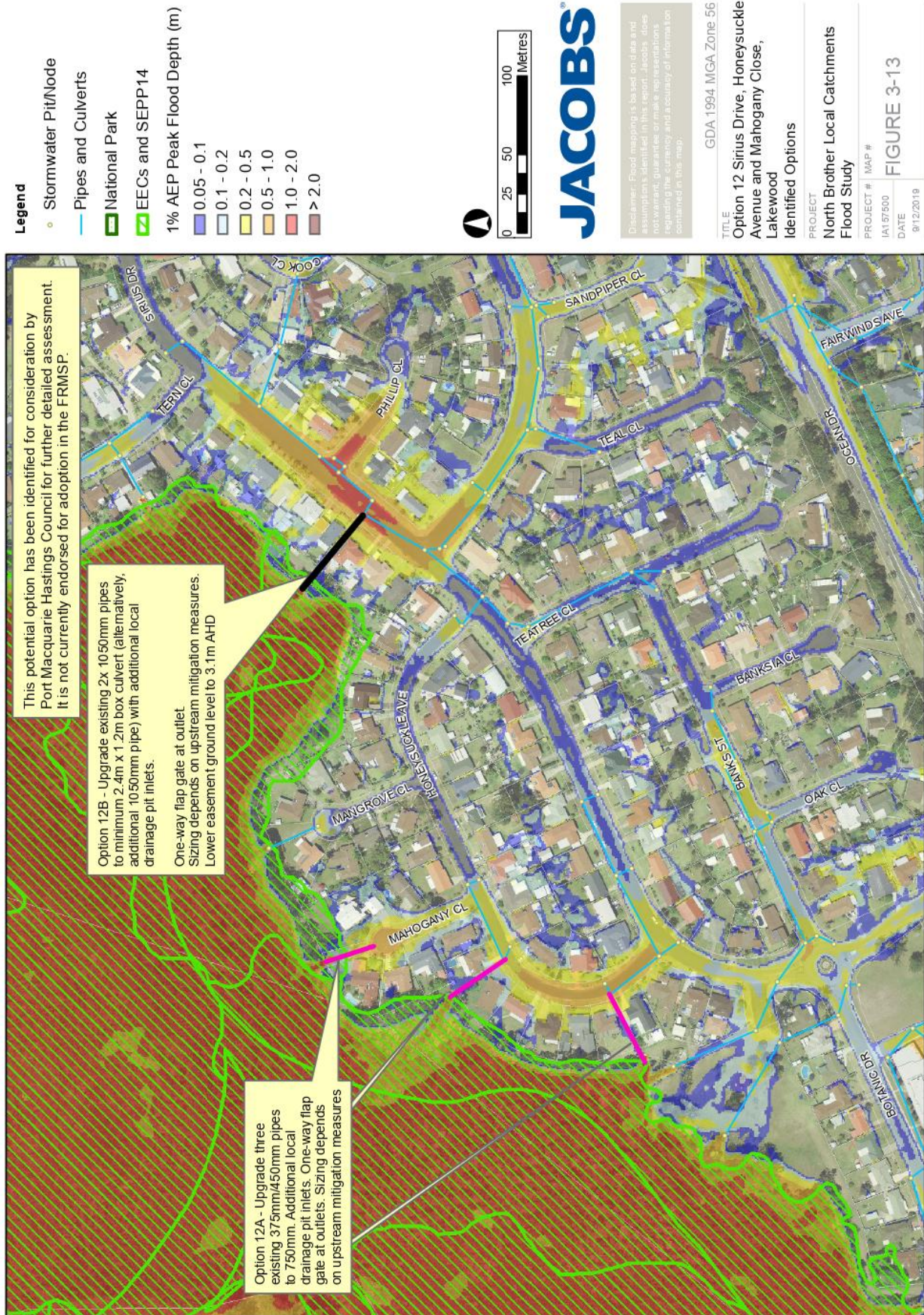
Refer to Figure 3-13 for illustration of options.

**Priority**

This site is listed as a **medium priority**. It is not listed as a critical location for property flooding in Section 2.1.

Option 12B should be considered first priority due to the greater flood depths and higher flood impacts to adjacent properties.







## Working Draft Options Report

**3.3.14 Elouera Place, West Haven**

Two dwellings are affected with above-floor flooding in the 0.2EY event with an additional two properties in the 5% AEP event due to overflows from a natural gully spilling onto the properties. The total flow is 11m<sup>3</sup>/s in the 1% AEP event with about 6.5m<sup>3</sup>/s overflowing through properties. There is an existing diversion channel upstream of properties on the south side of the cul-de-sac but this is only 2m wide and shallow.

The existing culvert crossing Elouera Place is a 2x 0.9m x 0.6m culvert. Overflows over the road affect two properties with above-floor flooding in the 5% AEP event.

**Potential Options**

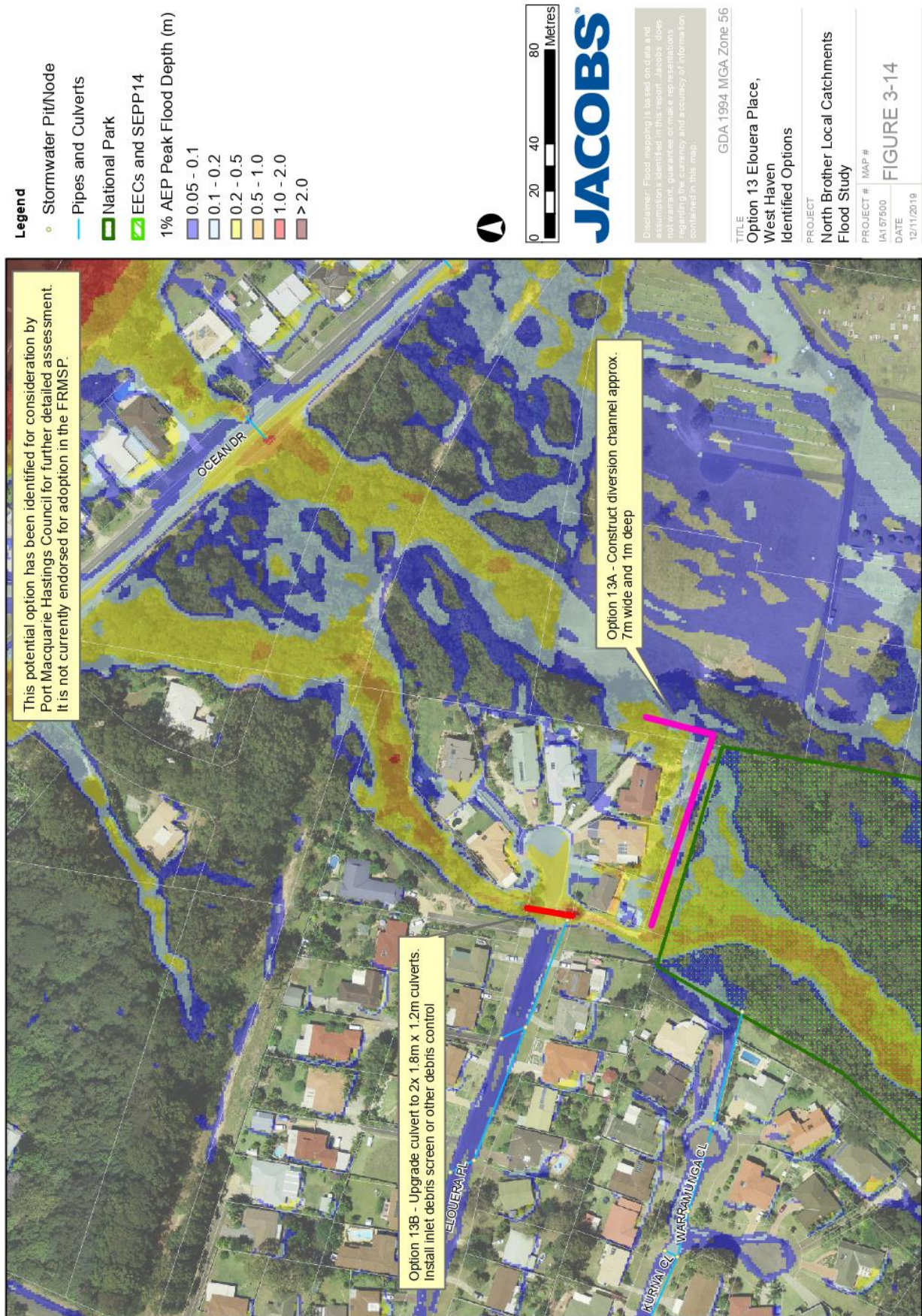
- Option 13A – construct/upgrade diversion channel approx. 7m wide and 1m deep along high side of properties in the bushland/open space area. Discharge to the area to the east, which is where the existing overland flows through the properties is currently conveyed to. Potential downstream flood impacts need to be confirmed.
- Option 13B – upgrade the road cross culvert to reduce road overflows onto properties. It may be possible to fit 2x 1.8m x 1.2m culverts which would have about 1% AEP capacity. An inlet debris screen or other debris control should be installed. Potential downstream flood impacts need to be confirmed.

Refer to Figure 3-14 for illustration of options.

**Priority**

This site is not identified as a critical flood problem location. There are only localised patches of high hazard flooding in the 1% AEP event. The site is rated with a medium priority due to presence of dwellings with frequent above-floor flooding. Option 13A has a **medium** priority due to potentially lower cost and potential benefits to four properties (two with above-floor flooding in the 0.2EY event). Option 13B has a **low** priority due to potential effectiveness of Option 13A upstream, and benefit to only two properties.





## Working Draft Options Report

**3.3.15 Sandpiper Close, Lakewood**

Flooding has historically occurred on these properties due to the existing concrete rectangular channel capacity being exceeded, allowing floodwater to overflow into the yards and buildings on properties. The existing concrete box section of the channel is about 1.8m wide and 0.6m deep, with a low earth berm on the lower side up to about 0.3m high. The channel capacity is about 1.6m<sup>3</sup>/s while the overflow onto properties is about 1.2 m<sup>3</sup>/s in the 0.2EY event, 4m<sup>3</sup>/s in the 5% AEP event and 5.5m<sup>3</sup>/s in the 1% AEP event. There is a 6m setback between the existing channel bank and the property boundary. A number of properties are flooded above-floor in the 0.2EY event.

**Potential Options**

- Option 14A – reconstruct the concrete channel to convey the 5% AEP flow, including widening and deepening the channel. A box section 4m wide x 1.2m would have about the 5% AEP capacity and reduce the 1% AEP overflows onto properties by about 70%. Tail-out works at the discharge point would be required to accommodate the deeper channel and higher flows. Mitigation at this site would markedly reduce the volume of flow conveyed to the Sirius Drive sag point.
- Option 14B – new 1200mm pipe on southern side of Ocean Drive. Although 5% AEP flow capacity is not expected to be achieved with this option, this could convey flows and mitigate flooding of properties in the 0.2 EY event and larger.

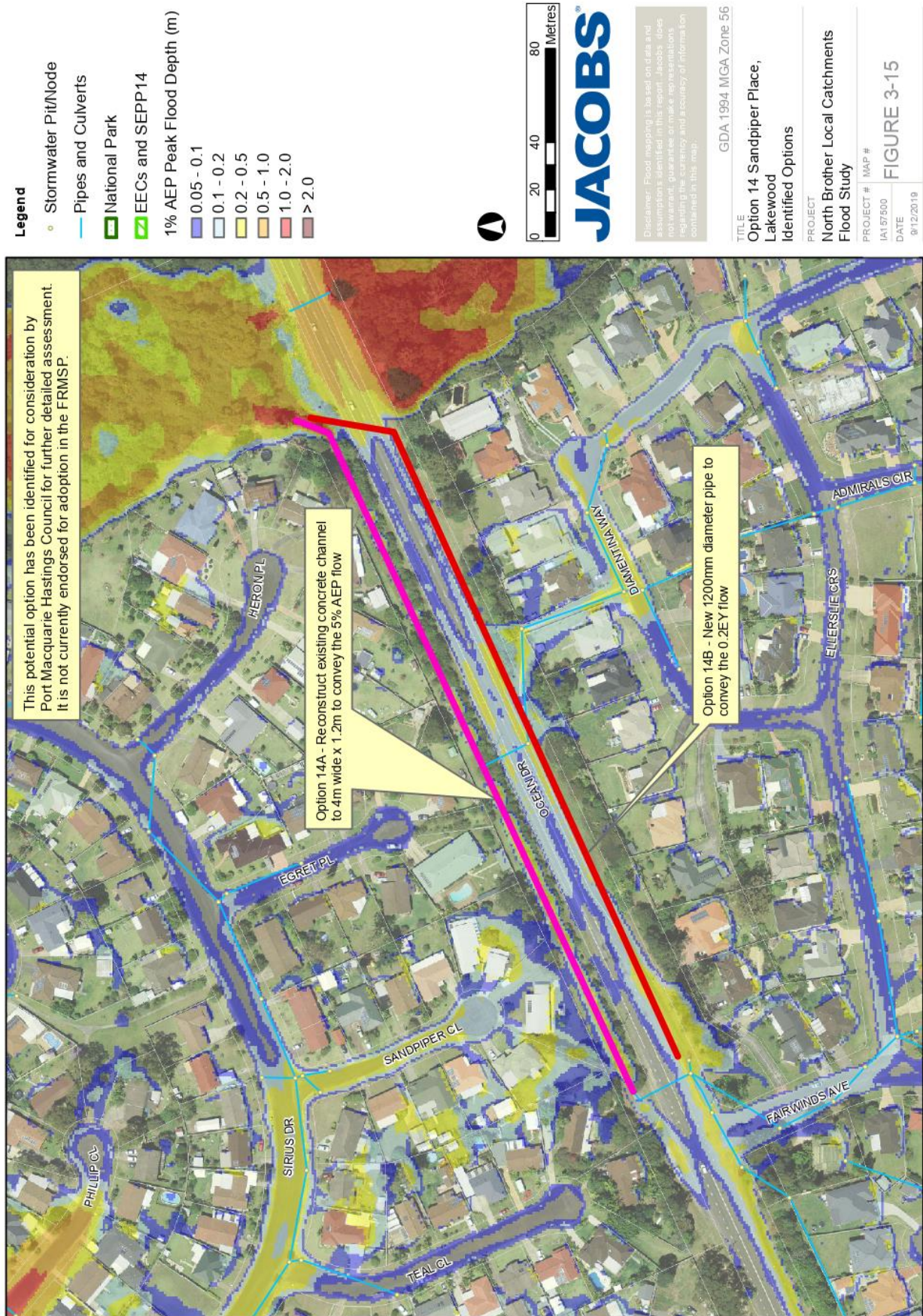
Refer to Figure 3-15 for illustration of options.

**Priority**

This site is classed as a **medium to high** priority. Although not listed as a critical location with high hazard flooding, a number of dwellings are affected by above-floor flooding, including seven dwellings in the 0.2EY event.

Option 14A is rated as a **medium** priority, with a reduced rating due to likely high costs. Option 14B is potentially a lower cost option and is given a **medium-high** priority.







## Working Draft Options Report

**3.3.16 Ocean Drive East of Hoschke Road, West Haven**

A number of properties are affected by floodwaters overflowing over Ocean Drive 200 – 400m east of Hoschke Road, with depths of 0.3 – 0.5m in the 1% AEP event on properties and with velocities of 1m/s. One property is affected by above-floor flooding in the 0.2EY event, one additional in the 5% AEP event and four additional properties in the 1% AEP event. This is also a significant location of flooding over Ocean Drive including observed flooding conditions in historic flood events.

Floodwaters drain to this area via two overland flow paths and with drainage under Ocean drive by a 2.4m x 1.2m and a 1.8m x 0.6m box culverts. Outflows from both culverts and overland flows generally drain through vacant land, although land ownership of these areas is uncertain. Total flows are 20m<sup>3</sup>/s in the 1% AEP event with 13.5m<sup>3</sup>/s overflowing Ocean Drive.

**Potential Options**

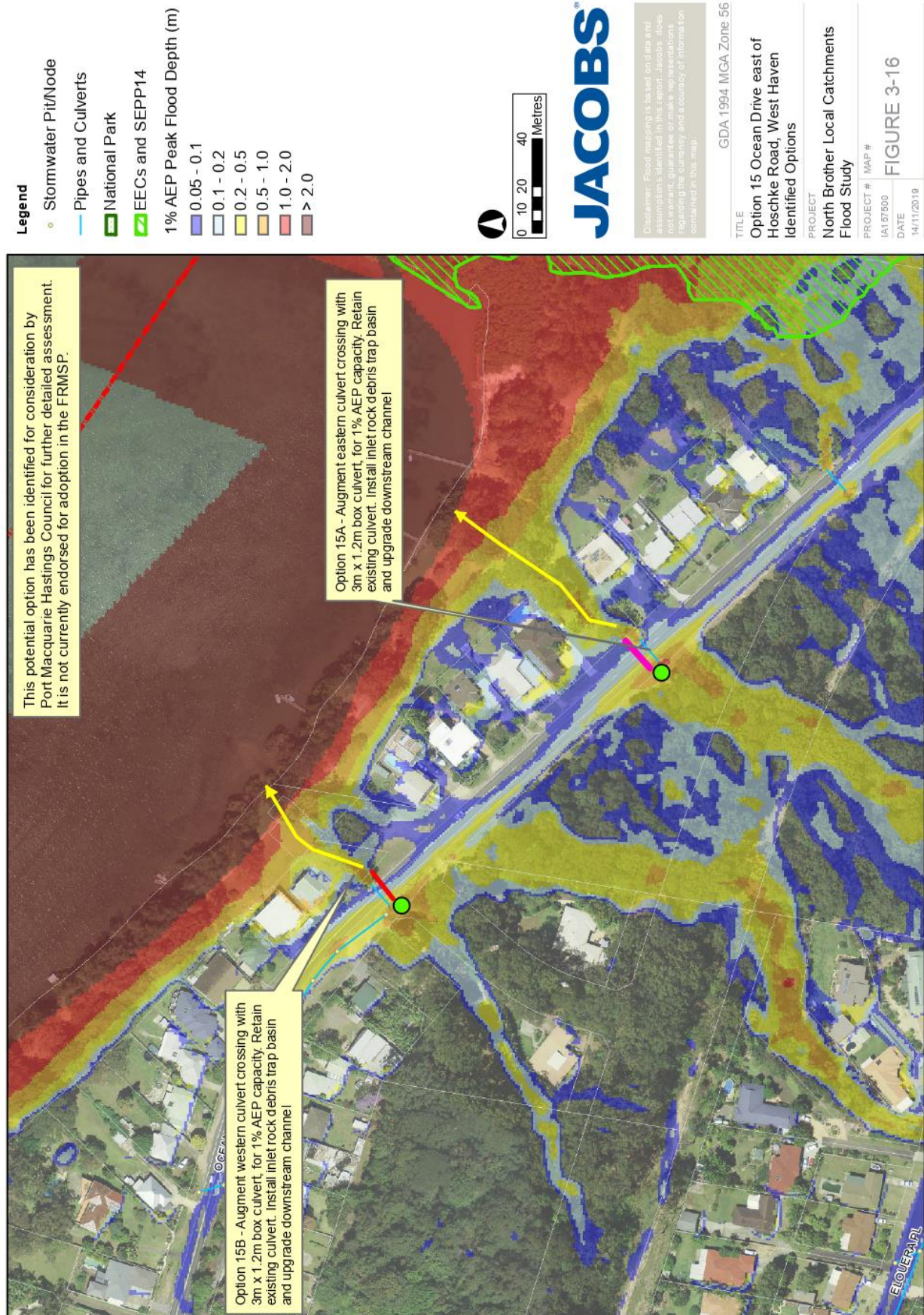
- Option 15A – augment eastern culvert crossing to convey 1% AEP road overflow (about 8m<sup>3</sup>/s). Install 3m x 1.2m box culvert. Retain existing culvert. Construct rock debris inlet basin upstream. Clear and widen existing downstream channel to approximately 8m wide x 1m deep to discharge to lake. Works would be on public land, however, the parcel on the downstream side appears to have been landscaped and is used by the adjacent residents.
- Option 15B – augment western culvert crossing to convey 1% AEP road overflow (about 6m<sup>3</sup>/s). Install 3m x 1.2m box culvert. Retain existing culvert. Construct rock debris inlet basin upstream. Clear and widen existing downstream channel to approximately 8m wide x 1m deep to discharge to lake. Upstream works would be on public land (paper road) although there may be space constraints. Downstream works are on a vacant but private lot (397 Ocean Drive), as this is the discharge location of the existing culvert.

Refer to Figure 3-16 for illustration of options.

**Priority**

This is a medium priority location as there is only localised high hazard flooding on properties.

Option 15A is **medium** priority due to one dwelling with above-floor flooding in the 0.2EY event. Option 15B is **low** priority as the existing dwellings have raised floors and do not experience above-floor flooding in the 1% AEP event.





## Working Draft Options Report

**3.3.17 Other Locations Considered**

A number of locations are identified as flood-affected in this study and listed in Table 2-1. Mitigation measures were initially reviewed but not considered in further detail due to various factors as discussed below.

- Laurieton retirement village, Peach Grove. Floodwater ponding around the main village complex is resultant from low capacity site drainage on this private property (typically 300mm diameter pipe network). There may be opportunities to regrade parts of the site to drain the trapped ponding areas by surface flows, in combination with drainage upgrades. It would be appropriate for the retirement village management to investigate drainage upgrades separate from this study.
- Residential block bounded by Lake Street, Ocean Drive, George Street and Castle Street. This block also contains the Laurieton Gardens Caravan Resort. There is a flow path draining from Lake Street and discharging to the corner of Castle Street and George Street. The site is low-lying with ground elevations down to under 2m AHD which presents challenges with drainage and mitigation of these overland flows particularly with consideration of future climate change effects of increased tailwater levels and flooding. The depths of flow are around 0.3m in the 1% AEP, while it appears that most dwellings are raised above the ground to mitigate against mainstream flooding and hence the potential for property damage from overland flows is significantly reduced. Therefore, overland flood mitigation in this area was not considered further.
- Properties adjacent to Stingray Creek and Camden Haven River, Laurieton. Numerous properties on low-lying land would be exposed to oceanic inundation during storm surge events in addition to riverine flooding. It is assumed that flood mitigation measures for these areas were previously considered in the Camden Haven Floodplain Risk Management Plan (Bewsher Consulting, 2004).

**3.4 Summary of Options**

The identified options are summarised in Table 3-5. A description, constraints/impacts, likely benefits and preliminary priority for detailed assessment is provided. Further detailed assessment will include testing for hydraulic performance in the TUFLOW model, cost estimation and benefit-cost assessment and multi-criteria assessment.



Table 3-5 Summary of identified flood modification options for detailed assessment

Option	Location	Description	Constraints, Impacts and Notable Issues	Likely Benefits and Opportunities	Priority for Detailed Assessment
1A	Ringtail Close and Sinus Drive, Lakewood	Increase channel locally width to 10m (currently 6m) to provide for 1% AEP capacity. Deepen channel under water mains crossing	<ul style="list-style-type: none"> <li>Remove existing vegetation (not EEC)</li> <li>Structural support for water mains may be needed</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding on 2 -3 properties (yard flooding)</li> </ul>	L
1B		As per Option 1A + Ocean Drive (south side) channel enlargement	<ul style="list-style-type: none"> <li>As per Option 1A</li> <li>Existing underground utilities along Ocean Drive and telegraph poles</li> </ul>	<ul style="list-style-type: none"> <li>As per Option 1A</li> <li>Reduction of flows being conveyed overland to Sinus Drive, Banks Street etc. (up to 5m<sup>3</sup>/s depending on constraints).</li> <li>Improvements to up to 8 properties on Sinus Drive and Banks Avenue, in addition to approx. 8 properties on Honeysuckle Drive</li> </ul>	M
1C		As per Option 1A + new 2x 1050mm pipes down Sinus Drive	<ul style="list-style-type: none"> <li>As per Option 1A</li> <li>Crossing of existing underground utilities in Ocean Drive</li> <li>EECs and SEPP-14 wetlands downstream of new pipe discharge point</li> </ul>	<ul style="list-style-type: none"> <li>As per Option 1A</li> <li>Reduction in flows being conveyed overland to Sinus Drive, Honeysuckle Ave etc. (up to 5m<sup>3</sup>/s depending on constraints).</li> <li>Improvements to up to 8 properties on Sinus Drive and Banks Avenue, in addition to approx. 8 properties on Honeysuckle Drive</li> </ul>	M
1D		Construct 0.5m high bund or block wall to redirect flows into Sinus Drive May not be required if Option 1B or 1C implemented	<ul style="list-style-type: none"> <li>Check for downstream flood impacts required</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to up to 8 properties on Sinus Drive and Banks Ave.</li> </ul>	M
2A	Lilli Pili Close, Lakewood	Ocean Drive channel upgrade to concrete box channel. Block wall on northern side to increase capacity and prevent bypass down side of Lakewood shops	<ul style="list-style-type: none"> <li>Existing telegraph poles limit widening. Stability of poles to be considered</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to 12 or more properties</li> <li>Improvements in road flooding on Lilli Pili Close</li> </ul>	M-H
2B		Upgrade Lilli Pili Close cul-de-sac drainage from existing 375mm to 600mm pipe or larger	<ul style="list-style-type: none"> <li>No significant constraints</li> </ul>	<ul style="list-style-type: none"> <li>Improvements in road flooding on Lilli Pili Close</li> </ul>	M
2C		Lower the ground level in Lilli Pili Close cul-de-sac easement from 3.4m AHD to 3.1m AHD	<ul style="list-style-type: none"> <li>No significant constraints.</li> <li>Possible lower level for ingress of backwater flooding during mainstream flood event.</li> </ul>	<ul style="list-style-type: none"> <li>Improvements in road flooding on Lilli Pili Close</li> </ul>	M
3A	Mission Terrace, Lakewood	Construct an open channel with 1% AEP capacity to formalise the overland flow path. Direct the flow path around the eastern sides of properties on Mission Terrace.	<ul style="list-style-type: none"> <li>Works on private property</li> <li>Culvert under private property internal road required</li> </ul>	<ul style="list-style-type: none"> <li>Flood improvements to two properties</li> </ul>	L
3B		Raise road verge and driveway of one property on Mission Terrace	<ul style="list-style-type: none"> <li>Vehicle scraping on raised driveway – limits the height of raised driveway</li> </ul>	<ul style="list-style-type: none"> <li>Flood improvements to one property</li> </ul>	L

Option	Location	Description	Constraints, Impacts and Notable Issues	Likely Benefits and Opportunities	Priority for Detailed Assessment
4A		Voluntary acquisition of at least one property (53 Koonwarra Street), up to two properties (51 Koonwarra Street). Regrade site to form flow path. Consider raising road verge/driveways to direct flows into flow path	<ul style="list-style-type: none"> <li>High property prices (~\$500K)</li> </ul>	<ul style="list-style-type: none"> <li>Removal of at least one property with floodway/ very high flood hazard (H5)</li> <li>Improvements to flooding on adjacent properties (approx. 5) on Koonwarra Street</li> </ul>	H
4B		New additional trunk drainage line 2x 1200mm diameter pipes, intercepting flows at downstream end of channel on Captain Cook Bicentennial Drive villas, cross Ocean Drive and run under The Gateway. Inlet debris trap basin required.	<ul style="list-style-type: none"> <li>Existing utilities in Ocean Drive corridor</li> <li>Available space in The Gateway corridor for new trunk drainage line</li> <li>Need to check for potential impacts to flooding around The Gateway</li> </ul>	<ul style="list-style-type: none"> <li>Reduce 1% AEP flows conveyed to Pelican Court by approx. 25%</li> </ul>	H
4C	Kirmington Terrace to Pelican Court, West Haven	Voluntary acquisition of at one property (either 7 or 9 Pelican Court). Regrade site to form flow path.	<ul style="list-style-type: none"> <li>High property prices (~\$500K)</li> </ul>	<ul style="list-style-type: none"> <li>Removal of at least one property with floodway/ high flood hazard (H3-H4) areas on the property</li> <li>Improvements to flooding on adjacent properties (approx. 10) on Pelican Court and in road</li> </ul>	H
4D		Construct 10,000m <sup>2</sup> detention basin between Koonwarra Street and Ocean Drive	<ul style="list-style-type: none"> <li>Significant clearing of vegetation (not EEC), basin not to be revegetated</li> <li>Potential redistribution of flood flows and resultant flood impacts in rare/extreme floods, including impacts to accessibility of roads</li> <li>Dam safety requirements (design, maintenance, operation)</li> </ul>	<ul style="list-style-type: none"> <li>Potential reduction in 1% AEP flows conveyed to Pelican Court of up to 35%. Reduction in 1% AEP flows through Captain Cook Bicentennial Drive villas of approx. 50% (to be confirmed)</li> </ul>	M-H
4E		Duplicate existing box culvert under Ocean Drive to the east of Pelican Court	<ul style="list-style-type: none"> <li>Existing utilities in Ocean Drive corridor</li> <li>Potential flood impacts to properties in Pelican Court needs to be checked</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding on two properties on high side of Ocean Drive</li> </ul>	L-M
5A		Upgrade sections of western flood diversion channel for 1% AEP capacity. Consider rerouting around north-western corner of estate	<ul style="list-style-type: none"> <li>Works on private property – impacts to yards (deepening of channel)</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding of approx. 5 dwellings including 2-3 with high hazard flooding/floodway</li> </ul>	M-H
5B	Flinders Drive Estate, West Haven	Upgrade sections of southern flood diversion channel for 1% AEP capacity. Consider higher capacity to supplement western channel	<ul style="list-style-type: none"> <li>Potential flood impacts to St Joseph's School – reduced channel overflows and increased flows to school</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding of approx. 10 dwellings</li> </ul>	M-H
5C		Upgrade Reliance Crescent eastern sag drainage from existing 375mm to a proposed 900mm pipe, including pits. Extend upgrades down and surcharge into Flinders Drive. Sizing depends on performance of Option 5B	<ul style="list-style-type: none"> <li>Existing utilities</li> <li>Localised high flow conditions from surcharge pit – impacts to vehicles</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding of approx. 6 dwellings</li> </ul>	M-H

Option	Location	Description	Constraints, Impacts and Notable Issues	Likely Benefits and Opportunities	Priority for Detailed Assessment
5D		New drainage line in Flinders Drive west, uphill of Reliance Drive to capture road overland flows. Turn new drainage west through easement to western diversion channel, allow to surcharge. Propose 2x 1050mm pipes and required pits to capture 5% AEP flow. Sizing depends on performance of Option 5A/5B	<ul style="list-style-type: none"> <li>Existing utilities</li> <li>Need for a number of large pit inlets to capture 5% AEP flow (3.6m<sup>3</sup>/s)</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding of approx. 9 dwellings</li> </ul>	M-H
5E		Upgrade Flinders Drive northern sag drainage. Upgrade of the pipe capacity to extend down into Investigator Way. Sizing dependent on performance of Options 5A – 5D	<ul style="list-style-type: none"> <li>Existing utilities</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding of approx. 8 dwellings</li> </ul>	L
6A		Construct/raise berm between the natural flow path and the diversion channel above Blackbutt Crescent to reduce overflows into the diversion channel	<ul style="list-style-type: none"> <li>Works in national park</li> <li>Periodic maintenance of berm</li> <li>Increased flows directed to St Joseph's School</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in flows of up to 16m<sup>3</sup>/s in 1% AEP in Tunis Street flow path</li> <li>Improvements to flooding to &gt;20 downstream properties</li> </ul>	L
6B		Increase existing diversion channel capacity behind Blackbutt Crescent properties by a combination of excavating the channel, raising the banks (e.g. block retaining wall along the property boundaries) and clearing of vegetation in the channel.	<ul style="list-style-type: none"> <li>Limited section of works in national park</li> <li>Clearing of vegetation in channel – national park</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding on approx. 15 properties on Blackbutt Crescent and Peach Grove</li> </ul>	M-H
6C	Tunis Street Overland Flow Path, Laurieon	Construct new, or enhance existing, diversion channel behind Peach Grove to direct flows south to the easement at the end of Tunis Street	<ul style="list-style-type: none"> <li>Clearing of vegetation for channel</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding on approx. 8 properties on Peach Grove</li> </ul>	M-H
6D		New trunk drainage line down Tunis Street, 5% AEP capacity (about 9.5m <sup>3</sup> /s). Box culvert 3m x 1.2m, or 3 x 1.35m diameter pipes. Inlet debris trap basin	<ul style="list-style-type: none"> <li>Existing utilities</li> <li>Space constraints</li> <li>Traffic disruption in Tunis Street/Bold Street including Coles Supermarket truck access</li> <li>Requires implementation of Options 6B and 6C for maximum performance by concentrating flows at proposed trunk drainage inlet</li> </ul>	<ul style="list-style-type: none"> <li>Reduce 1% AEP overland flows by up to 67%</li> <li>Improvements to flooding on approx. 10 residential and commercial properties</li> <li>Potential minor improvements to flooding on properties east of Bold Street</li> <li>Improvements to road flooding on Bold Street, Kew Road, Tunis Street</li> </ul>	M-H
6E		Upgrade drainage in Gow Place cul-de-sac and raise road verge and driveways. Connection to new trunk drainage line (if adopted). Secondary measure to Option 6D. Sizing depends on upstream measures performance.	<ul style="list-style-type: none"> <li>Vehicle scraping (driveway raising)</li> <li>Existing utilities</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding on 5 properties and 12 retirement centre villas</li> </ul>	M-H



Option	Location	Description	Constraints, Impacts and Notable Issues	Likely Benefits and Opportunities	Priority for Detailed Assessment
7A	Quarry Way Overland Flow Path, Laurieton	Remove debris blockages from diversion channel, upgrade main and secondary diversion channels	<ul style="list-style-type: none"> <li>Works in national park</li> <li>Increased flows directed to Harbourside Crescent villas. Additional mitigation may be required</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding of 6 properties with above-floor flooding in the 0.2EY event immediately downstream of the works.</li> <li>Minor improvements to flooding on additional &gt;10 residential and commercial properties downstream of Peach Grove</li> </ul>	M-H
7B		New trunk drainage line from Norman Street down Seymour Street, discharging to the river. Indicative sizing 3.6m x 1.2m box culvert for 1% AEP capacity (if Option 7A not implemented). Replaces existing two 1200mm trunk pipes.	<ul style="list-style-type: none"> <li>Likely high cost</li> <li>Existing utilities</li> <li>Potential space constraints</li> <li>Traffic disruption in Seymour Street, Bold Street</li> <li>Extensive reconstruction of existing trunk and local drainage infrastructure required</li> </ul>	<ul style="list-style-type: none"> <li>Significant reduction in total 1% AEP overland flow</li> <li>Improvements to flooding of up to 5 properties with above-floor flooding in the 0.2EY event, including a number of critical flood problem properties</li> <li>Potential minor improvements to flooding on properties east of Bold Street/north of Seymour Street</li> <li>Improvements to road flooding on Bold Street, Norman Street, Lord Street, Seymour Street, Lake Street</li> </ul>	M-H
7C		Provide drainage in Bold Street eastern side to direct flows into Seymour Street drainage line. This option may not be required if Option 7B is implemented	<ul style="list-style-type: none"> <li>Existing utilities</li> <li>Increased flows redirected to Lake Street/Seymour Street property, if Option 7B not implemented</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding on commercial properties on eastern side of Bold Street including one with above floor flooding in the 2% AEP event</li> <li>Potential minor improvements to flooding on properties east of Bold Street/north of Seymour Street</li> </ul>	L-M
7D		Localised flood-proofing at Laurieton Hotel/bottle shop e.g. concealed or inflatable flood barrier	<ul style="list-style-type: none"> <li>Potential space constraints in building</li> <li>Potentially significant retrofitting works to Hotel/bottle shop premises</li> </ul>	<ul style="list-style-type: none"> <li>Prevention or significantly reduced ingress of floodwaters through Hotel in up to 1% AEP</li> <li>Potential for co-funding from Laurieton Hotel owners.</li> </ul>	M
8A	Lake Street at Seymour Street, Laurieton	Upgrade culverts crossing Lake Street up to 2x 1500mm pipe or equivalent	<ul style="list-style-type: none"> <li>Existing utilities</li> <li>Traffic disruption on Lake Street</li> </ul>	<ul style="list-style-type: none"> <li>Improvement to flooding at Lake Street/Seymour Street property and Laurieton United Services Club</li> <li>Improvement to road flooding in Lake Street</li> </ul>	L
8B		Install debris control structure at existing or proposed upgraded culvert inlet	<ul style="list-style-type: none"> <li>No significant constraints</li> <li>Inspection and maintenance after storm events required to increase reliability</li> </ul>	<ul style="list-style-type: none"> <li>Improvement to flooding at Lake Street/Seymour Street property and Laurieton United Services Club</li> <li>Improvement to road flooding in Lake Street</li> </ul>	H

Option	Location	Description	Constraints, Impacts and Notable Issues	Likely Benefits and Opportunities	Priority for Detailed Assessment
8C		Regrade (lower) the road verge on eastern side of Lake Street, create/widen the existing flow path from the road and down the southern side of the Laurieton United Services Club. Relocation of existing utilities block from proposed flow path	<ul style="list-style-type: none"> <li>Purpose of existing utilities block unknown. Difficulty in relocating utilities unknown</li> </ul>	<ul style="list-style-type: none"> <li>Improvement to flooding at Laurieton United Services Club, potential minor improvement at Lake Street/Seymour Street property</li> <li>Improvement to road flooding in Lake Street</li> </ul>	L
9A		Install 2x 3m x 1.2m box culvert in the southern flow path to convey 1% AEP flows in middle and southern flow paths. Alternatively, widening the existing channel could be considered. Inlet rock debris trap basin required	<ul style="list-style-type: none"> <li>Existing utilities in Ocean Drive</li> <li>Possible loss of existing landscaped open channel and gardens</li> <li>Some disruption to school operations expected during construction</li> <li>Traffic disruption in Ocean Drive</li> <li>Further investigation required to check for clashes with existing buildings (channel widening option)</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to overland flooding on school grounds. Reduced exposure of students and staff to flood flows due to conveying flows in underground structures</li> </ul>	H
9B	St Joseph's School, Laurieton	Install 2x 3m x 1.2m box culvert in the middle flow path to convey 1% AEP flows in middle and southern flow paths. Inlet rock debris trap basin required	<ul style="list-style-type: none"> <li>Existing utilities in Ocean Drive</li> <li>Space constraints between school buildings</li> <li>Loss of existing overland flow path, or replaced with reduced capacity flow path</li> <li>Increased disruption to school during construction, compared to Option 9A</li> <li>Traffic disruption in Ocean Drive</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to overland flooding on school grounds. Reduced exposure of students and staff to flood flows due to conveying flows in underground structures</li> </ul>	H
9C		Upgrade and extend the northern road cross culvert by 160m. Sizing dependent on performance of Options 9A/9B. Indicative sizing for existing flows is 3m x 1.2m box culvert.	<ul style="list-style-type: none"> <li>Disruption to school operations expected during construction – works required in car park/main school entrance</li> <li>Impacts to EEC/SEPP14 wetlands, new tail-out channel may need to be excavated to discharge to downstream lake</li> <li>Traffic disruption in Ocean Drive</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to overland flooding on school grounds. Reduced exposure of students and staff to flood flows due to conveying flows in underground structures</li> </ul>	M-H
10A	Harbourside Crescent Villas and Bold Street, Laurieton	Upgrade Bold Street cross drainage pipe with 2x 3m x 1.5m box culverts (approx. 5% AEP capacity). Large inlet debris control screen. Requirement for rock debris trap at inlet to be assessed.	<ul style="list-style-type: none"> <li>Existing utilities in Bold Street requiring protection</li> <li>Traffic disruption in Bold Street during construction</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding on Harbourside Crescent villas</li> <li>Improvements to road flooding in Bold Street</li> </ul>	H
10B		Install block wall up to 1m high along property boundary on low side of Bold Street, extend onto property if required, to reduce overflows onto Harbourside Crescent Villas property	<ul style="list-style-type: none"> <li>Potential upstream flood impacts to be checked</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding on Harbourside Crescent villas (&gt;8 villa buildings)</li> </ul>	M-H
11A	Norman Street and Mill Street, Laurieton	Diversion channel through the bushland to direct flows in up to the 1% AEP event from the fire trail to a natural gully to the south near Hanley Street. Regrade fire trail to assist in flow diversion	<ul style="list-style-type: none"> <li>Clearing of vegetation along diversion channel alignment (not national park)</li> <li>Redirection of flows – impacts to flood levels and property flooding needs to be checked.</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding on 12 properties</li> </ul>	M

Option	Location	Description	Constraints, Impacts and Notable Issues	Likely Benefits and Opportunities	Priority for Detailed Assessment
12A	Sirius Drive, Honeysuckle Avenue and Mahogany Close, Lakewood	Upgrade existing pipes in Honeysuckle Avenue and Mahogany Close including through properties. Sizes of up to 750mm diameter are suggested, depending on performance of upstream mitigation measures. Additional pits/inlets required. One-way flap gate at outlet to prevent backwater flooding through drainage pipes.	<ul style="list-style-type: none"> <li>Works through two properties to upgrade pipes, close proximity to existing structures</li> <li>Existing utilities</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding on &gt;10 properties including one with above-floor flooding in 5% AEP event</li> </ul>	M
12B		Upgrade existing drainage for Sirius Drive sag to a 2.4m x 1.2m box culvert (minimum); consider up to 3m x 1.2m) and lower the easement ground level to 3.1m AHD. One-way flap gate at outlet to prevent backwater flooding through drainage pipes. Installation of an additional 1050mm pipe to the existing twin pipes could be considered if there is sufficient space.	<ul style="list-style-type: none"> <li>Space constraints in easement</li> <li>Existing utilities</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding on &gt;15 properties including four with above-floor flooding in 5% AEP event</li> </ul>	M-H
13A	Elouera Place, West Haven	Construct/upgrade diversion channel approx. 7m wide and 1m deep along high side of properties to south of cul-de-sac	<ul style="list-style-type: none"> <li>Clearing of vegetation for diversion channel</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding on four properties including two with above-floor flooding in 0.2EY event.</li> </ul>	M
13B		Upgrade road cross culvert with 2x 1.8m x 1.2m culverts (about 1% AEP capacity). An inlet debris screen or other debris control should be installed.	<ul style="list-style-type: none"> <li>Existing utilities</li> <li>Disruption to traffic and property access</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding on two properties above-floor flooding in 5% AEP event.</li> </ul>	L
14A	Sandpiper Close, Lakewood	Reconstruct existing concrete channel including widening and deepening the channel. 4m wide x 1.2m would have about the 5% AEP capacity	<ul style="list-style-type: none"> <li>Potential clash with existing utilities</li> </ul>	<ul style="list-style-type: none"> <li>Improvement in flooding on about 11 properties including 7 with above-floor flooding in the 0.2EY event.</li> <li>Reduction in 1% AEP overflows onto properties by 70% (about 4m<sup>3</sup>/s)</li> <li>Reduction in flows conveyed to Sirius Drive sag point.</li> </ul>	M
14B		New 1200mm pipe on southern side of Ocean Drive. Although 5% AEP flow capacity is not expected to be achieved with this option, this could convey flows and mitigate flooding of properties in the 0.2 EY event and larger.	<ul style="list-style-type: none"> <li>Potential clash with existing utilities</li> <li>May need to connect existing 600mm dia pipe from Diamantina Way if clashing</li> </ul>	<ul style="list-style-type: none"> <li>Improvement in flooding on about 11 properties including 7 with above-floor flooding in the 0.2EY event.</li> <li>Reduction in 1% AEP overflows onto properties by 70% (about 2m<sup>3</sup>/s reduction)</li> <li>Reduction in flows conveyed to Sirius Drive sag point.</li> </ul>	M-H
15A	Ocean Drive East of Hoshke Road, West Haven	Augment eastern culvert crossing with 3m x 1.2m box culvert, for 1% AEP capacity. Clear and widen existing downstream channel to approximately 8m wide x 1m deep to discharge to lake. Retain existing culvert. Install inlet rock debris trap basin and upgrade downstream channel	<ul style="list-style-type: none"> <li>Existing utilities</li> <li>Disruption to traffic and property access</li> <li>Clearing of vegetation (no EECs), landscaping by residents</li> <li>Land parcel currently used by residents</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding on approx three properties including one with above-floor flooding in 0.2EY event</li> <li>Improvements in road flooding on Ocean Drive</li> </ul>	M



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Option	Location	Description	Constraints, Impacts and Notable Issues	Likely Benefits and Opportunities	Priority for Detailed Assessment
15B		Augment western culvert crossing with 3m x 1.2m box culvert, for 1% AEP capacity. Clear and widen existing downstream channel to approximately 8m wide x 1m deep to discharge to lake. Retain existing culvert. Install inlet rock debris trap basin and upgrade downstream channel	<ul style="list-style-type: none"> <li>Existing utilities</li> <li>Disruption to traffic and property access</li> <li>Clearing of vegetation (no EECs)</li> </ul>	<ul style="list-style-type: none"> <li>Improvements to flooding on three properties</li> <li>Improvements in road flooding on Ocean Drive</li> </ul>	L

## 4. Conclusions and Recommendations

### 4.1 Conclusions

A long list of mitigation options presented in this Working Draft Options Report outline a comprehensive list of identified possible mitigation works for the North Brother local catchments flood study area and include a preliminary and qualitative assessment of the options. The long list was developed to address flooding issues at the identified trouble spots discussed in Section 2.1 with a focus on property flooding. A total of 15 locations/potential schemes are identified and discussed.

Council and the floodplain advisory sub-committee should consider the long list of options and locations nominated in this report for potential mitigation works. A short list should be selected by Council with assistance from Jacobs for further detailed assessment. As per the project brief we have allowed for development and assessment of six structural management options or combined schemes of options (e.g. 7A+7B+7D). It is recommended the short-listing be undertaken on a location basis as per the locations described in Section 3.3. The main constraint on the assessment of options/schemes of options is on model runs, results processing and analysis effort. Jacobs could undertake assessment of additional schemes as a variation.

The selection of options should consider the potential benefits and opportunities and the likely costs, impacts and constraints relevant to each option. There may be constraints and other issues related to each option which may not be resolvable and may preclude some options from further assessment. Coordination between Council and Jacobs is required to agree on the configuration of the options for detailed assessment.

Following this, Jacobs will undertake assessment of the short-listed options in the TUFLOW flood hydraulic model in addition to cost-benefit and multi-criteria analyses for evaluation of the options. Final testing of options should include combinations of options which are likely to complement each other.

### 4.2 Recommendations

- A short-list of options for assessment in the hydraulic model, cost estimation, feasibility etc. is to be selected by Council and the committee.
- Consultation with stakeholders, landowners and community is to be undertaken on the short-listed options.

## 5. References

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- Institution of Engineers, Australia (1987) Australian Rainfall and Runoff: A Guide to Flood Estimation, Vol. 1, Editor-in-chief D.H. Pilgrim, Revised Edition 1987 (Reprinted edition 1998), Barton, ACT
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- Office of Environment and Heritage (2013a) Floodplain Management Program Guidelines for Voluntary House Raising Schemes. Document OEH 2013/0056.
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- Queensland Government (2002) Guidance on the Assessment of Tangible Flood Damages. Department of Natural Resources and Mines
- Smith GP, Davey EK and Cox RJ (2014) Flood hazard, Technical report 2014/07, Water Research Laboratory, University of New South Wales, Sydney.
- Victorian Government (2002) Rapid-Appraisal Method (RAM) for Floodplain Management. Department of Natural Resources and Environment.



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## 6. Glossary

Annual Exceedance Probability (AEP)

The chance of a flood of a given or larger size occurring in any one year, usually expressed as a percentage. In this study AEP has been used consistently to define the probability of occurrence of flooding. It is to be noted that design rainfalls used in the estimation of design floods up to and including 100 year ARI (ie. 1% AEP) events was derived from 1987 Australian Rainfall and Runoff. The following relationships between AEP and ARI applies to this study (AR&R, 2016).

Frequency Descriptor	EY	AEP (%)	AEP (1 in x)	ARI
Very frequent	12			
	6	99.75	1.002	0.17
	4	98.17	1.02	0.25
	3	95.02	1.05	0.33
	2	86.47	1.16	0.50
	1	63.2	1.58	1.00
Frequent	0.69	50.00	2	1.44
	0.5	39.35	2.54	2.00
	0.22	20.00	5	4.48
	0.2	18.13	5.52	5.00
	0.11	10.00	10.00	9.49
Infrequent	0.05	5.00	20	20.0
	0.02	2.00	50	50.0
	0.01	1.00	100	100
	0.005	0.50	200	200
Rare	0.002	0.20	500	500
	0.001	0.10	1000	1000
	0.0005	0.05	2000	2000
	0.0002	0.02	5000	5000
Extremely Rare			↓	
Extreme			PMP	

Australian Height Datum (AHD)

A common national surface level datum approximately corresponding to mean sea level.

Average Annual Damage (AAD)

Depending on its size (or severity), each flood will cause a different amount of flood damage to a flood prone area. AAD is the average damage per year that would

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occur in a nominated development situation from flooding over a very long period of time.

Average Recurrence Interval (ARI)	The long-term average number of years between the occurrences of a flood as big as or larger than the selected event. For example, floods with a discharge as great as or greater than the 20 year ARI flood event will occur on average once every 20 years. ARI is another way of expressing the likelihood of occurrence of a flood event.
Catchment	The land area draining through the main stream, as well as tributary streams, to a particular site. It always relates to an area above a specific location.
DRAINS	DRAINS is a computer program which is used to simulate local catchment rainfall-runoff and stormwater system hydraulics and is widely used across Australia.
Development	<p>Is defined in Part 4 of the EP&amp;A Act</p> <p><u>In fill development</u>: refers to the development of vacant blocks of land that are generally surrounded by developed properties and is permissible under the current zoning of the land. Conditions such as minimum floor levels may be imposed on infill development.</p> <p>New development: refers to development of a completely different nature to that associated with the former land use. Eg. The urban subdivision of an area previously used for rural purposes. New developments involve re-zoning and typically require major extensions of exiting urban services, such as roads, water supply, sewerage and electric power.</p> <p>Redevelopment: refers to rebuilding in an area. Eg. As urban areas age, it may become necessary to demolish and reconstruct buildings on a relatively large scale. Redevelopment generally does not require either re-zoning or major extensions to urban services.</p>
Effective Warning Time	The time available after receiving advise of an impending flood and before the floodwaters prevent appropriate flood response actions being undertaken. The effective warning time is typically used to move farm equipment, move stock, raise furniture, evacuate people and transport their possessions.
Exceedances per Year (EY)	The number of times an event is likely to occur or be exceeded within any given year.
Flood	Relatively high stream flow which overtops the natural or artificial banks in any part of a stream, river, estuary, lake or dam, and/or local overland flooding associated with major drainage before entering a watercourse, and/or coastal inundation resulting from super-elevated sea levels and/or waves overtopping coastline defences excluding tsunami.
Flood fringe areas	The remaining area of flood prone land after floodway and flood storage areas have been defined.

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Flood liable land	Is synonymous with flood prone land (i.e.) land susceptibility to flooding by the PMF event. Note that the term flooding liable land covers the whole floodplain, not just that part below the FPL (see flood planning area)
Floodplain	Area of land which is subject to inundation by floods up to and including the probable maximum flood event, that is flood prone land.
Floodplain risk management options	The measures that might be feasible for the management of particular area of the floodplain. Preparation of a floodplain risk management plan requires a detailed evaluation of floodplain risk management options.
Floodplain risk management plan	A management plan developed in accordance with the principles and guidelines in this manual. Usually include both written and diagrammatic information describing how particular areas of flood prone land are to be used and managed to achieve defined objectives.
Flood plan (local)	A sub-plan of a disaster plan that deals specifically with flooding. They can exist at state, division and local levels. Local flood plans are prepared under the leadership of the SES.
Flood planning levels (FPLs)	Are the combination of flood levels (derived from significant historical flood events or floods of specific AEPs) and freeboards selected for floodplain risk management purposes, as determined in management studies and incorporated in management plans. FPLs supersede the "designated flood" or the "flood standard" used in earlier studies.
Flood proofing	A combination of measures incorporated in the design, construction and alteration of individual buildings and structures subject to flooding, to reduce or eliminate flood damages.
Flood readiness	Readiness is an ability to react within the effective warning time.
Flood risk	<p>Potential danger to personal safety and potential damage to property resulting from flooding. The degree of risk varies with circumstances across the full range of floods. Flood risk in this manual is divided into 3 types, existing, future and continuing risks. They are described below.</p> <p><u>Existing flood risk</u>: the risk a community is exposed to as a result of its location on the floodplain.</p> <p><u>Future flood risk</u>: the risk a community may be exposed to as a result of new development on the floodplain.</p> <p><u>Continuing flood risk</u>: the risk a community is exposed to after floodplain risk management measures have been implemented. For a town protected by levees, the continuing flood risk is the consequences of the levees being overtopped. For an area without any floodplain risk management measures, the continuing flood risk is simply the existence of its flood exposure.</p>
Flood storage areas	Those parts of the floodplain that are important for the temporary storage of floodwaters during passage of a flood. The extent and behaviour of flood storage areas may change with flood severity, and loss of flood storage can increase the



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severity of flood impacts by reducing natural flood attenuation. Hence, it is necessary to investigate a range of flood sizes before defining flood storage areas

Floodway areas	Those areas of the floodplain where a significant discharge of water occurs during floods. They are often aligned with naturally defined channels. Floodways are areas that, even if only partially blocked, would cause a significant redistribution of flood flow, or a significant increase in flood levels.
Freeboard	Provides reasonable certainty that the risk exposure selected in deciding on a particular flood chosen as the basis for the FPL is actually provided. It is a factor of safety typically used in relation to the setting of floor levels, levee crest levels, etc. Freeboard is included in the flood planning level.
Hazard	A source of potential harm or situation with a potential to cause loss. In relation to this manual the hazard is flooding which has the potential to cause damage to the community.
Local overland flooding	Inundation by local runoff rather than overbank discharge from a stream, river, estuary, lake or dam.
m AHD	Metres Australian Height Datum (AHD)
m/s	Metres per second. Unit used to describe the velocity of floodwaters.
m <sup>3</sup> /s	Cubic metres per second or "cumecs". A unit of measurement of creek or river flows or discharges. It is the rate of flow of water measured in terms of volume per unit time.
Mainstream flooding	Inundation of normally dry land occurring when water overflows the natural or artificial banks of a stream, river, estuary, lake or dam.
Modification measures	Measures that modify either the flood, the property or the response to flooding.
Overland flow path	The path that floodwaters can follow as they are conveyed towards the main flow channel or if they leave the confines of the main flow channel. Overland flow paths can occur through private property or along roads.
Probable Maximum Flood (PMF)	The largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event. The PMF defines the extent of flood prone land, that is, the floodplain.
Probable Maximum Precipitation (PMP)	The PMP is the greatest depth of precipitation for a given duration meteorologically possible over a given size storm area at a particular location at a particular time of the year, with no allowance made for long-term climatic trends (World Meteorological Organisation, 1986). It is the primary input to PMF estimation.
Risk	Chance of something happening that will have an impact. It is measured in terms of consequences and likelihood. In the context of the manual it is the likelihood of

**Working Draft Options Report**

consequences arising from the interaction of floods, communities and the environment.

Runoff

The amount of rainfall which ends up as a streamflow, also known as rainfall excess.

Stage

Equivalent to water level (both measured with reference to a specified datum)

TUFLOW

TUFLOW is a computer program which is used to simulate free-surface flow for flood and tidal wave propagation. It provides coupled 1D and 2D hydraulic solutions using a powerful and robust computation. The engine has seamless interfacing with GIS and is widely used across Australia.

Item: 09

Subject: ACTIVE COAST, ESTUARY & FLOODPLAIN PROJECTS STATUS  
UPDATE

Presented by: Development and Environment, Melissa Watkins

## RECOMMENDATION

That the Committee note the status of the active Coast, Estuary & Floodplain projects.

### Discussion

This report provides an update on active PMHC Coast, Estuary and Floodplain projects. Where applicable, each project has been listed with the current project cost and corresponding grant amount provided by DPIE (formerly OEH).

## FLOODPLAIN MANAGEMENT

### 1. Hibbard Floodway Investigation - Current status - Suspended

#### *Financial Breakdown*

Items	Cost
Former total project cost	\$114,650
Former OEH grant funding component	\$76,433.33
Amount of money returned to OEH (November 2019)	\$46,223.33
Council funding spent	\$40,200
OEH grant funding spent	\$30,210
Total amount of money spent	\$70,410

#### *Milestones completed to date*

- Successful grant application under 2015-16 Floodplain Management funding round.
- This project was reported to the July 2019 Council Meeting. The flood study component (Stage 1) was completed in July 2019.

#### *Identified issues to date*

A range of issues have impacted Councils ability to deliver the project within the timeframes agreed to under the grant program (i.e. the NSW Floodplain Management



Program). As a result, **the Hibbard Floodway Investigation project has been suspended.**

The main issues impacting this project include:

- This grant was initially placed on a 'reserve list' in December 2015 and from OEH's perspective the grant commenced on this date, however the grant was not officially awarded until March 2016.
- The project budget was originally \$50,000 based on estimates within the *Hastings River Floodplain Risk Management Plan* (2014). The accepted tendered price was ultimately \$115,000 and while a grant variation/increase was approved by OEH, Council was advised that no further increase to funding would be approved.
- The December 2018 climate change decision delayed the project and diverted resources elsewhere, and when a time variation was subsequently approved by OEH (after awarding the tender), they advised Council that further increases to time would be unlikely.
- In January 2019, Council submitted a variation to extend the time by 14 months to July 2020. This was due to the complexities experienced in the floodway definition phase. When this variation was approved by OEH, Council was advised that no further extension to the time would be approved.

In addition to the above, the OEH grant unit have adopted new strict funding rules that reduces the flexibility of these types of long duration and variable scope projects.

#### *Ramifications of issues*

Council staff have discussed various way to maintain the Hibbard project, however the OEH grant unit have advised Council that given the current state of the project the grant should be terminated. As such, Council returned the unspent grant funds totalling \$46,223.33.

#### *Future works*

Due to the development pressures in the Hibbard precinct and community expectations, it is proposed to commence the Floodplain Risk Management Study (FRMS) phase (stages 2 & 3) for this projects as soon as possible. It is expected a minimum delay of 18 months is likely. A new grant application may be made under the next grant funding round, however this will depend on the capacity of Council considering existing projects and resources.

## **2. Hastings River Climate Change Modelling - Current status - Completed**

#### *Financial Breakdown*

Items	Cost
OEH grant funding component	\$42,533.33
Council funded	\$26,186.67
<b>Total project cost</b>	<b>\$68,720</b>

*Milestones*

- Successful grant application under 2015-16 Floodplain Management funding round.
- This project was finalised with OEH in 2017.
- This project was reported to the December 2018 Council meeting and then to the November 2019 Council Meeting.

Refer to separate report titled '*Floodplain management*' for further details.

**3. Wrights Creek Flood Study Update, Climate Change Modelling & Floodplain Risk Management Study & Plan - Current status - Terminated**

*Financial Breakdown*

Items	Cost
Former total project cost	\$110,310
Former OEH grant funding component	\$73,540
Amount of money returned to OEH (October 2019)	\$52,060
Council funding spent	\$22,566.67
OEH grant funding spent	\$21,480
Total amount of money spent	\$44,046.67

*Milestones completed to date*

- Successful grant application under 2015-16 Floodplain Management funding round.
- This project was reported to the December 2018 Council meeting.
- The flood study component (Stage 1) was completed in December 2018.

*Identified issues to date*

A range of issues have impacted Councils ability to deliver the project within the timeframes agreed to under the grant program (ie. the NSW Floodplain Management Program). As a result, **the Wrights Creek Floodplain Management Plan project has been terminated.**

The main issues impacting this project include:

- This grant was initially placed on a 'reserve list' in December 2015 and from OEH's perspective the grant commenced on this date, however the grant was not officially awarded until March 2016.
- The December 2018 climate change decision delayed the project, by diverting resource elsewhere, and when a time variation was subsequently approved by OEH (after awarding the tender), Council was advised that further increases to time would be unlikely.

- Significant costs were wholly borne by Council after OEH did not agree to fund a share of the detailed feature survey due to a minor error by Council in the grant reporting process. This resulted in Council's budget being adversely impacted.

*Ramifications of issues*

On 12 December 2018, Council also resolved to proceed to the next phase of the project, the Floodplain Risk Management Study and Plan (FRMP) (stages 2 & 3), however due to the termination of the project, the FRMP cannot proceed at this time. The FRMP phase involved investigating ways to improve the flood problem (ie. via road raising, bridge and culvert upgrades, levees etc.) within the Wrights Creek catchment.

Council returned the unspent grant funds totalling \$52,000.

*Future works*

A new grant application may be made in the future to complete the final phase of the project, however this will depend on the capacity of council considering existing projects and resources.

**4. North Brother Local Catchments Flood Study - Current status - Ongoing**

*Financial Breakdown*

<b>Items</b>	<b>Cost</b>
Total project cost	\$153,820
OEH grant funding component	\$102,546.67
Council funding spent (to date)	\$14,847.33
OEH grant funding spent (to date)	\$29,694.67
Total amount of money spent (to date)	\$44,542

*Milestones completed to date*

- Successful grant application under 2016-17 Floodplain Management funding round.
- Project is underway with the flood study component (Stage 1) adopted by Council at the July 2019 Council meeting.
- The Floodplain Risk Management Study - Options Assessment phase (stage 2) is now underway.

*Refer to separate report for further details.*

**5. Hastings River Gauge Network Upgrades - Current status - Completed**



*Financial Breakdown*

Items	Cost
Total project cost	\$50,000
OEH grant funding component	\$33,333
Council funding spent	\$16,667
Total amount of money spent	\$50,000



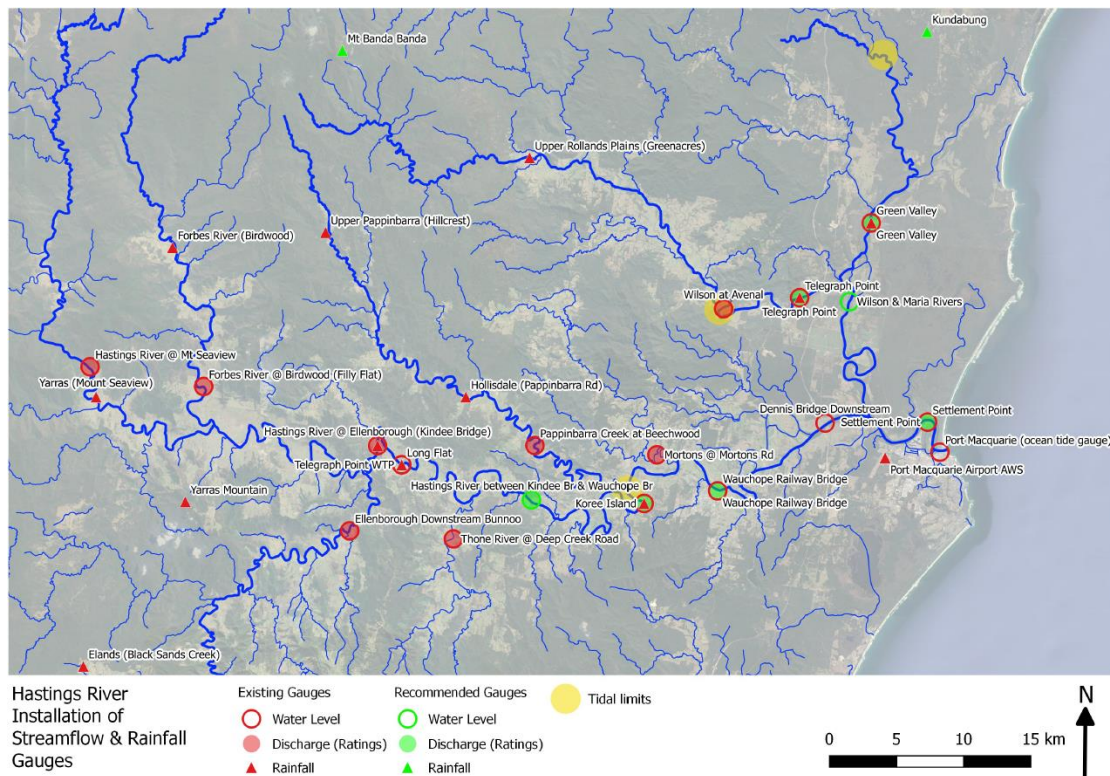
New flood gauge at Mundays Lane

*Milestones completed to date*

- Successful grant application under 2017-18 Floodplain Management funding round.

- This project is now complete, with Manly Hydraulics Laboratory (MHL) undertaking installation of the gauge in November 2019.
- The gauge is now operational and live data can be found at the following location: <http://new.mhl.nsw.gov.au/Site-2074127>. The gauge provides instantaneous water level and hourly rainfall data. The data from this gauge is collected primarily to provide improved data for future flood studies however can be utilised by BOM for forecasting purposes and SES for emergency management.

This was the first gauge to be installed or upgraded within the Hastings Catchment. Several other gauges within the catchment (rainfall and/or river level and/or streamflow) been identified for installation or upgrade by MHL. Refer to below image.



MHL Hastings River catchment gauge network showing existing and proposed gauges.

#### *Future works*

Additional water level and rainfall gauges are proposed to be installed within the Hastings River catchment, including upstream of Koree Island, within the upper Maria River catchment (near Kundabung) and in the upper Wilson River catchment (near Mt Banda Banda). Upgrades to existing gauges to improve their functionality are also recommended, including the Wauchope Gauge, the Settlement Point Gauge, the Telegraph Point Gauge and the Green Valley gauge. New grant applications may be made under future grant funding rounds for the additional gauges, however this will depend on the capacity of Council considering existing projects and resources.



Dunbogan Flood Access Road – Construction - **Current status - Ongoing**

*Financial Breakdown*

Items	Cost
Total project cost	\$1,500,000
OEH grant funding component	\$1,000,000
Council funded	\$500,000
Total amount of money spent to date	\$nil (however contract has been awarded for road construction work worth \$1,114,057.80 (ex GST))

*Milestones completed to date*

- Successful grant application under 2018-19 Floodplain Management funding round.
- Council has commenced work to upgrade the final stage of the Dunbogan Flood Access Road project with stage 1A works commencing on 6 January 2020.
- Works are being undertaken by EIRE constructions and are scheduled to be completed by late March 2020.

**COASTAL MANAGEMENT**

Illaroo Road Stormwater Redirection – Construction - **Current Status - Ongoing**

*Financial Breakdown*

Items	Cost
Total project cost	\$865,803.93
OEH grant funding component	\$432,901.97
Council funded	\$432,901.97
Total amount of money spent (to date)	\$nil (however contract has been awarded for archaeology work worth \$24,450 (ex GST))

*Milestones*

- Successful grant application under 2017-18 Coastal Management funding round. Council applied for grant funding in early 2018 and were notified of our successful grant application in late October.

*Identified issues to date*

- The discovery of dumped asbestos and aboriginal archaeological deposits at the proposed outlet location has complicated matters and has delayed the project significantly.

Council have been successful in obtaining grant funding to remediate the asbestos and carry out initial investigations into the aboriginal archaeology. A consultant was engaged to carry out aboriginal investigation works which are due to commence early 2020.



Middle Rock and Chepana Street Stormwater Outlet – Maintenance Works - **Current Status - Completed**

*Financial Breakdown*

Items	Cost
Total project cost	\$114,000
OEH grant funding component	\$57,000
Council funding spent	\$57,000
Total amount of money spent	\$114,000

*Milestones*

- Successful grant application under 2016-17 Coastal Management funding round.
- Construction works have been completed on two southernmost outlets (i.e at the Middle Rock Carpark and at the southern end of Chepana Street). These works were completed in late 2018/early 2019.
- This project is complete and the final grant funding claim forms were submitted in early 2019.

Lake Cathie CZMP – Funding Model - **Current Status - Ongoing**

*Financial Breakdown*

Items	Cost
Total project cost	\$87,500
OEH grant funding component	\$68,700
Council funded	\$18,800
Total amount of money spent to date	\$70,575.99

*Milestones*

- Successful grant application under 2016-17 Coastal Management funding round.
- Project is underway with Marsden Jacob Pty Ltd engaged.

*Future works*

In addition to the Funding Model, this project now involves a review of the cost benefit analysis (CBA) previously completed by OEH in 2016. There have been significant delays in completing this project for numerous reasons. Primarily Council has been reliant on technical advice from DPIE which is still yet to be provided.

*Flynns Beach Retaining Wall Replacement (Stage 1) - Current Status - Completed*

*Financial Breakdown*

Items	Cost
Total project cost	\$2,568,096
OEH grant funding component	\$1,167,851.90
Council funded	\$1,400,244.10
Total amount of money spent to date	\$2,568,096

*Milestones*

- Successful grant application under 2015-16 Coastal Management funding round.
- The procurement and tendering phase was finalised with a 'Design and Construct' methodology being adopted by the successful contractor.
- The project was assessed by Council's Development Assessment team with approval granted in April 2019. Construction works commenced in May 2019 and were completed in November 2019.

**ESTUARY MANAGEMENT**

*Estuarine Lake Linkages: Protecting the Islands & Foreshores of the Camden Haven - Current Status - Completed*

*Financial Breakdown*

Items	Cost
Total project cost	\$372,049
OEH grant funding component	\$186,047
Council funded	\$186,002
Total amount of money spent to date	\$372,049

*Milestones*

- Successful grant application under 2015-16 Estuary Management funding round.
- The project officer position was filled and two years of management works were completed.
- Six months of management works were carried out by contractors.
- This project was completed in mid-2019.

**Lake Innes Acid Sulphate Soil Management Options Study - Current Status -  
Ongoing**

This study has been initiated after consultation with key stakeholders, including NPWS, DPIE, Fisheries & Crown Lands. The project consists of specialist studies that quantify the Acid Sulphate Soil (ASS) risk to the lake system. The findings from these studies will then be used to inform the review of the 2013 Lake Innes Reversion Study in order to determine if the currently listed management actions are applicable or if new management actions are appropriate in lieu of the new information and the second outcome will be to provide Council with a list of management options to address the ASS risk in the immediate future to deal with emergency containment works.

*Financial Breakdown*

<b>Items</b>	<b>Cost</b>
Estimated total project cost	\$295,000
Requested DPIE grant funding	\$147,500
Council funded	\$147,500
Total amount of money spent to date	\$nil (awaiting grant notification)

*Milestones*

- Council recently made an application to DPIE under the 2019-20 Coast and Estuary Management funding round to undertake this project.

*Future works*

- Council hopes to receive notification on whether the grant application has been successful in the near future.

**Attachments**

Nil



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Item: 10

Subject: LAKE INNES / LAKE CATHIE ESTUARINE SYSTEM - UPDATE

Presented by: Development and Environment, Melissa Watkins

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## RECOMMENDATION

That the Committee:

1. Note the Lake Innes / Lake Cathie Estuarine System - Update report.
2. Note the Lake Cathie and Lake Innes Acid Sulphate Soil Risk Assessment (2019).
3. Note the Coastal Management in the Port Macquarie-Hastings timeline document.

## Discussion

Since the last CE&F committee meeting held in March 2019, there have been five separate Council reports regarding the Lake Innes, Lake Cathie estuarine system. These reports were presented to the Council meetings in 2019 held on 15 May, 19 June, 21 September, 16 October and a Mayoral Minute was presented to the 20 November meeting. Refer to attached reports for further detailed information (**Attachment 1**).

An Acid Sulphate Soil (ASS) study was also commissioned and completed during this time period. A copy of this report has been provided as **Attachment 2**.

There have also been five separate meetings, three of which have been with key government stakeholder agencies (i.e. NPWS, DPIE, Fisheries, Crown Lands, Soil Conservation, etc) and two with key community groups (i.e. Revive Lake Cathie, Camden Haven Chamber of Commerce and Lake Cathie Progress Association). As a result of these meetings, Council meetings and the ASS report, a timeline and flowchart has been developed which provides a pathway for the Coastal Management Program (CMP) and environmental approvals which are required for Council to re-commence its management of the lake system. Refer to **Attachment 3**.

## Summary of Council Meetings:

### *15 May 2019 Council Meeting:*

A Notice of Motion was put forward by Councillor Hawkins for Council to consider a submission by the community group known as Revive Lake Cathie (RLC). This submission also included 787 signed letters of support from community members. The RLC submission proposed a way forward to improve the condition of Lake Cathie. In light of this submission, Council resolved to provide a range of state agencies and members of Parliament with a copy of the submission from RLC. Council also resolved to seek advice from the State Government on whether a review of the *Lake Cathie Opening Strategy* should be initiated and to also give

consideration in the *2019-2020 Operational Plan* (OP) to undertake such actions as were deemed necessary.

Refer to **Attachment 1** for further details.

*19 June 2019 Council Meeting:*

In response to consideration of Council's draft 2019-2020 Operational Plan (OP) and budget, Council resolved to undertake a review of the existing *Lake Cathie Opening Strategy* in consultation with the National Parks and Wildlife Services (NPWS); the Office of Environment and Heritage (OEH); NSW Fisheries and Department of Industry (DPI - Lands); and the community, including the RLC community group.

It is noted that the June resolution came before responses from the State Government agencies had been received in respect of the resolution from the 15 May 2019 ordinary meeting.

While the OP submission from RLC was not adopted by Council at the June meeting, the May 2019 resolution aimed to address and highlight that the management of the Lake Cathie and Lake Innes estuary system is complex and is the responsibility of a number of stakeholders.

Refer to **Attachment 1** for further details.

*21 September 2019 Council Meeting:*

A notice of Motion was put forward by Councillor Levido at this meeting for, among other things, Council to borrow \$1M for improvements to the Lake Innes, Lake Cathie Estuarine System. This funding would be sought through borrowings. The resolution requested that a further report be brought back to the October 2019 Council meeting for consideration.

Refer to **Attachment 1** for further details.

*16 October 2019 Council Meeting:*

At this meeting, two separate reports were considered by Council on the lake system. An update was provided on the Notice of Motion from the May Council meeting and a resolution was provided on the Notice of Motion from the October Council meeting.

At the October meeting Council resolved to provide \$147,500 towards undertaking initial background studies into the lake system whilst seeking a matching contribution of \$147,500 from the State Government (\$295,000 total project cost).

The background studies stemmed from meetings which were held with the key government agencies involved in the management of the Lake Cathie and Lake Innes estuarine system. These stakeholders being, National Parks and Wildlife Services (NPWS), Department of Primary Industries - Fisheries (DPI Fisheries), Department of Primary Industries - Crown lands (DPI Crown Land). Soil Conservation Services (SCS) was also involved in the meetings.

The Background Studies agreed upon include:

- A digestion model of the Acid Sulphate Soil (ASS) recently uncovered as a result of a study commissioned by Council and NPWS in May 2019 - \$185,000
- A review of 2013 Lake Innes Reversion Study - \$50,000
- An ecological condition assessment of the saltmarsh community within Lake Innes - \$10,000. **NB:** The Australian Government has listed *Subtropical and Temperate Coastal Saltmarsh* as **vulnerable** in the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- Review of possible short term emergency ASS containment works - \$50,000.

Council's funding contribution for these projects (i.e. \$147,500) was ultimately provided by borrowings from the original \$1M that was proposed by Councillor Levido at the September Council meeting.

Refer to **Attachment 1** for further details.

*20 November 2019 Council Meeting:*

Mayor Pinson provided a Mayoral Minute which proposed to initiate an opening of Lake Cathie to the ocean, noting that the Opening Strategy trigger conditions had been met.

A Crown Land licence application was submitted in late November but was not granted citing shortfalls in the Environmental Approval documents which date from 1995. Additional information was requested by Crown Lands.

Refer to **Attachment 1** for further details.

Crown Land Advice:

Council submitted a Short Term Licence (STL) application with Crown Lands for the purpose of opening Lake Cathie to the ocean.

As part of the STL application, Council:

- Relied upon the 1994 Estuary Management Plan (EMP) and Opening Strategy, and;
- Relied upon the 1995 Environmental Review (environmental approval), which was based on the 1994 EMP and Opening Strategy.

On 27 November 2019, Council received confirmation from Crown Land that as the environmental approval was more than 5 years old the STL could not be issued.

The main issues that have become apparent based on this advice include:

- The 1994 EMP is no longer considered relevant.
- The 1994 Opening Strategy is redundant.
- The 1995 Environmental Approval is redundant.

The above 3 documents were the main reports that contained Council's key management responsibilities and approval to undertake works within the lake system. The Crown Lands advice now virtually renders these documents obsolete.

As a result, in order to undertake any form of opening for recreational or estuary management purposes a significant environmental assessment must be undertaken



and approved by all stakeholders. Council may be able to undertake emergency stormwater works to open the lake to the ocean by utilising the Local Government Act should infrastructure be at risk due to flooding.

Council staff have undertaken initial investigations into the environmental approval pathway and a new Review of Environmental Factors (REF) will need to be prepared to undertake opening works. Due to the complexity of the REF, this is not likely to be completed until 2022. However, this is heavily dependent on additional Council resources and is likely to be a best case scenario timeframe given the extreme complexity of the management of the lake system. Provided attached is a summary document which outlines options, processes and timeframes for three (3) lake opening options (Attachment 3).

As a result of the recent advice from Crown Land it is now apparent that Council's main involvement in the management of the lake system no longer exists. Until this advice was received, Council was working on the assumption that the 1994 Estuary Management Plan and Opening Strategy and the 1995 Environmental Approval was still relevant.

*Note: the Lake Cathie Coastal Zone Management Plan (CZMP) is still relevant and will remain in force until December 2021. Under this plan Council can still dredge the creek mouth for recreational purposes and place the dredged sand in front of Illaroo Road.*

Whilst the Crown Land advice is quite simplistic in requiring a new environmental approval, there is much more work that needs to be undertaken before this can be completed, including, ideally, adoption of a new Coastal Management Program (CMP) (Attachment 3).

#### Coastal Management Program:

The 2016 Coastal Management Act (adopted late 2018) is the new state government mandated plan which all Council's should follow in order to manage coastal and estuarine areas. The new CM Act is the key driver behind the 1994 EMP becoming superseded.

The CM Act has technically made all Council adopted EMP's obsolete (including the Hastings and Camden Haven EMP's which were adopted in 2001 and 2002 respectively). Critically the CM Act did not contain any savings or transitional arrangements. However, Council was working off the assumption that the old EMP's were still relevant given the complexity of adopting a new CMP and the significant amount of time that this would take to complete, (e.g. the Crown Land licence application relying on the 1994 EMP information).

Ideally, the Coastal Management Program (CMP) process should be completed or at least significantly commenced before undertaking a detailed environmental approval for lake openings.

The CMP process has been designed to gather input and community sentiment on the overall management of coastal and estuarine areas of the LGA.

A CMP for the lake system would have a broad focus and would look into:

- How the lake system should be managed,
- How the land around the lake system should be managed,

- How lake openings should occur,
- How the bridges should be managed,
- Whether Lake Innes should be reverted to freshwater,
- How the fishing licences in Lake Innes should be managed,

Note: this list is not exhaustive and is quite simplistic, but gives an indication on the breadth of matters that ideally should be considered before undertaking an environmental approval to undertake future lake openings.

Until the CMP process is significantly commenced there is a risk that an environmental approval for a lake opening for recreational or environmental purposes may be quickly superseded. For example, the CMP process may confirm that Lake Innes be reverted to freshwater, however Council has resolved to proceed with this work.

Input is sought from the committee on this matter.

Initial Acid Sulphate Soil (ASS) Investigation:

In early April 2019, Council in partnership with NPWS, engaged Soil Conservation Services (SCS) to undertake soil sampling and testing in various areas of the lake system to confirm (or otherwise) the presence of ASS.

This report was finalised in July 2019 and provided managing stakeholders with ASS risk results and management recommendations.

Whilst the report was limited to an initial investigation into the ASS landscape within the lake system, the findings of the report sheds new light on the ASS risk to wetting and drying cycles driven by the (now redundant) Lake Cathie Opening Strategy. Further to this, the report highlighted the fact that the ASS risk was underestimated in the Lake Innes Environmental Assessment which was completed for the Federal Government in 2013.

Since the ASS report was finalised in July, Council and NPWS have increased the frequency of water quality monitoring within the lake system and samples are now being tested for acidity and aluminium within the water column.

The detailed ASS investigation project (that Council has recently applied for state government funding to complete) was a direct recommendation from the initial ASS report. Similarly, as per the recommendation of the initial ASS report, the 2013 Lake Innes Environmental Assessment report will be reviewed.

Until the ASS risk is fully quantified appropriate management decisions on the lake system cannot be made.

Refer to **Attachment 2** for further information.

Council Management:

Historically, Council primary involvement in the management of the Lake System, including surrounding lands, has been via:

<i><b>Management Area</b></i>	<i><b>Management Responsibility</b></i>	<i><b>Management Plan/Approval to Manage document</b></i>	<i><b>Current Status</b></i>
Foreshore Reserve	Council appointed as trustee manager	19 May 1933 Gazettal	Unchanged, Council remains trustee manager
Jabiru Reserve	Council appointed as trustee manager	19 May 1933 Gazettal	Unchanged, Council remains trustee manager
Aqua Reserve	Council manager (informally)	No formal management plans or approvals	Unchanged, Council remains informal manager
Illaroo Road	Council manager (informally)	No formal management plans or approvals however Lake Cathie Coastal Zone Management Plan (2016) applies	Unchanged, Council remains informal manager, 2016 CZMP contains relevant management actions
Lake Mouth/Entrance/Lagoon (i.e. Area downstream of Ocean Drive Bridge)	Council responsible for lake opening works & recreational dredging works	Lake Cathie Coastal Zone Management Plan (2016),	Unchanged, 2016 CZMP contains relevant management actions including dredging and beach nourishment.
		Lake Cathie Estuary Management Plan (1994)	<b>1994 EMP now out of date. No approvals in place to open Lake mouth to ocean as a result of 2019 Crown Land advice.</b>

Council is now in a position whereby it is at the very beginning of the process in the management of the lake system. The commencement of the CMP and the recent Crown Land advice has significantly impacted on previous Council management responsibilities and associated environmental approvals to work within the estuarine system (aside from the dredging under the 2016 CZMP and 2007 dredging strategy).



Council may however be able to undertake emergency stormwater works utilising the Local Government Act should infrastructure be at risk due to flooding.

Obtaining approval for Council to re-commence openings (i.e. via an REF) is likely to cost around \$300,000 - 400,000, with 50% possibly available via the Coast and Estuary Grants Program.

Key Government Stakeholder Meetings & Community group Meetings:

Council staff have held three meetings with Key State Government Stakeholder Agencies and two meetings with community groups (Revive Lake Cathie, Lake Cathie Progress Association and Camden Haven Chamber of Commerce). The local member for Port Macquarie, the Honourable Leslie Williams MP and a number of Councillors also attended meetings.

The government stakeholders in attendance at these meetings have consistently supported a minimal impact approach to the management of the lake. Government agencies were supportive of the monitoring that Council was undertaking and the position to keep the lake system closed to the ocean due to the potential risks associated with an opening.

Government stakeholders were keen to see Council progress the Coastal Management Program as a priority, either for the whole LGA or specifically for the lake system.

Recent staff changes, heightened community interest and severe drought conditions have impacted on Council's ability to focus on initiating the CMP. Instead Council staff have been focussed on:

- Responding to the resolutions of Council,
- Responding to community interest and suggested solutions,
- Facilitating the stakeholder and community meetings,
- Project managing the initial ASS study,
- Preparing the grant application for the detailed ASS study,
- Responding to customer enquiries,
- Managing the remaining coasts, estuaries and floodplains of the LGA.

Regardless, the main output from these meetings has been the commencement of the four detailed investigation projects (see Current Projects section below) primarily focussing on the ASS risk, freshwater reversion of Lake Innes and impacts to saltmarsh communities found throughout the lake system. These projects are the key focus stemming from the government stakeholder group meetings.

As a result of the recent Crown Land advice, options for opening the lake to the ocean were also discussed at the final meeting held with community groups in December. At this meeting various potential options for lake openings were discussed and recommended for further investigation. These projects are the key focus stemming from the community group meetings. Refer to **Attachment 3** for the options that have been investigated for assessment.

Current Projects:

Council staff have been working on the Scoping Study phase of the CMP process over the past 12 months. This is phase one and the 'first draft' stage of this project.

As a result of the government stakeholder meetings, Council initiated the process to undertake numerous detailed investigations into the lake system. These being:

- A digestion model of the Acid Sulphate Soil (ASS) recently uncovered as a result of a study commissioned by Council & NPWS in May 2019.
- A review of 2013 Lake Innes Reversion Study.
- An ecological condition assessment of the saltmarsh community within Lake Innes.
- Review of possible short term emergency ASS containment works.

Council has submitted a grant application to the State Government under the Coast and Estuary Grant Management Program for \$147,500. This will match Council's contribution of \$147,500. Council is still awaiting the outcome of this application.

It is noted that the results of these reports are required before the environmental impacts assessment or review of environmental factors can be completed and a lake opening considered.

#### Environmental Approval for lake openings

Council have commenced investigation works into the environmental approval pathway in order to gain permission to undertake opening works.

There are options available to Council on the approval pathway, depending on the reason for the opening, the works proposed and the location of these works. These will continue to be investigated over coming months.

The environmental approval pathway will run in parallel with the Coastal Management Program.

Refer to **Attachment 3**.- Coastal Management Program timeline document for further information.

#### **Attachments**

1. [Council Meeting Reports & Resolutions](#)
2. [Lake Cathie Lake Innes ASS Report](#)
3. [PMHC Coastal Management Plan Scoping Study Timeline](#)

## AGENDA

ORDINARY COUNCIL  
15/05/2019LEADERSHIP AND  
GOVERNANCE

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Item: 09.01Subject: NOTICE OF MOTION - SUBMISSION FROM REVIVE LAKE CATHIE  
INC.TO PMHC 2019-2020 OPERATIONAL PLAN

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Councillor Hawkins has given notice of his intention to move the following motion:

**RECOMMENDATION****That Council:**

1. Thank the Revive Lake Cathie group for its submission on Lake Cathie.
2. Note that Lake Cathie is an asset of the Crown and management of the Lake Cathie system is the responsibility of a number of stakeholders including:
  - a) Council;
  - b) National Parks and Wildlife Service (NPWS);
  - c) Office of the Environment and Heritage (OEH); and
  - d) NSW Fisheries and Department of Industry (Lands),in accordance with the NSW Coastal Management Act 2016 and the Lake Cathie Opening Strategy
3. Request the General Manager to forward a copy of the Revive Lake Cathie Group's submission to:
  - a) National Parks and Wildlife Service;
  - b) Office of the Environment and Heritage (OEH);
  - c) NSW Fisheries and Department of Industry (Lands);
  - d) NSW Minister for Water, Property and Housing;
  - e) NSW Local Member (and local resident) Leslie Williams;
  - f) Premier Gladys Berejiklian; and
  - g) Deputy Premier John Barilaro
4. Request the General Manager to seek advice from the NSW Government referred to in 3 above as to whether, as a result of the Revive Lake Cathie submission, the existing Lake Cathie Opening Strategy should be reviewed.
5. Request the General Manager to make a further request of the NSW Government that if it deems a review of the Lake Cathie Opening Strategy is required, that the necessary resources to undertake such a review be provided, along with any resources required for associated capital works that may be prescribed by an updated strategy or management plan.

**Comments by Councillor** (if provided)

No comments provided.

**Attachments**

Nil



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**MINUTES**  
**Ordinary Council Meeting**  
**15/05/2019**

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**09.01 NOTICE OF MOTION - SUBMISSION FROM REVIVE LAKE CATHIE  
INC.TO PMHC 2019-2020 OPERATIONAL PLAN**

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Ms Danielle Maltman addressed Council in support of the recommendation and responded to questions from Councillors.

*RESOLVED: Hawkins/Griffiths*

That Council:

1. Thank the Revive Lake Cathie group for its submission on Lake Cathie.
2. Note that Lake Cathie is an asset of the Crown and management of the Lake Cathie system is the responsibility of a number of stakeholders including:
  - a) Council;
  - b) National Parks and Wildlife Service (NPWS);
  - c) Office of the Environment and Heritage (OEH); and
  - d) NSW Fisheries and Department of Industry (Lands),in accordance with the NSW Coastal Management Act 2016 and the Lake Cathie Opening Strategy
3. Request the General Manager to forward a copy of the Revive Lake Cathie Group's submission to:
  - a) National Parks and Wildlife Service;
  - b) Office of the Environment and Heritage (OEH);
  - c) NSW Fisheries and Department of Industry (Lands);
  - d) NSW Minister for Water, Property and Housing;
  - e) NSW Local Member (and local resident) Leslie Williams;
  - f) Premier Gladys Berejiklian;
  - g) Deputy Premier John Barilaro;
  - h) Newly elected Federal Members for Lyne and Cowper;
  - i) Newly appointed Federal Environment Minister.
4. Request the General Manager to seek advice from the NSW Government referred to in 3 above as to whether, as a result of the Revive Lake Cathie submission, the existing Lake Cathie Opening Strategy should be reviewed.
5. Request the General Manager to make a further request of the NSW Government that if it deems a review of the Lake Cathie Opening Strategy is required, that the necessary resources to undertake such a review be provided, along with any resources required for associated capital works that may be prescribed by an updated strategy or management plan.
6. Give consideration to including an allocation in the 2019/20 Operational Budget to support the initial work required.
7. Request the General Manager submit an update report to the September, 2019 meeting of council.

*CARRIED: 8/0*

*FOR: Alley, Dixon, Griffiths, Hawkins, Intemann, Levido, Pinson and Turner*

*AGAINST: Nil*

Councillor Levido left the meeting, the time being 06:43pm.

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Item: 10.04

Subject: INTEGRATED PLANNING AND REPORTING (IPR) DOCUMENTS

Presented by: Corporate Performance, Rebecca Olsen

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**Alignment with Delivery Program**

1.1.4 Provide easy to understand and accessible community reporting.

**RECOMMENDATION**

That Council:

1. Adopt the following Integrated Planning and Reporting (IPR) documents:
  - a) Delivery Program 2017-2021 (Revised 2019); and
  - b) Operational Plan 2019-2020
2. Not opt into the new parking fine concession fee scheme.
3. Undertake a review of the existing Lake Cathie Opening Strategy in consultation with the National Parks and Wildlife Services (NPWS); the Office of Environment and Heritage (OEH); NSW Fisheries and Department of Industry (DPI - Lands); and the community including the Revive Lake Cathie community group.
4. Note the 2019-2020 budget position of a \$975,198 shortfall which will be reported to Council monthly during the financial year.
5. Should adequate savings to address the shortfall position not be achieved during the financial year, that the shortfall be funded from the Strategic Priorities reserve.
6. Enter into total borrowings of \$1.5 million as outlined in the Financial Implications section of the report for playing fields at Wauchope.

**Executive Summary**

It is a Local Government statutory requirement for NSW Councils to develop the Integrated Planning and Reporting (IPR) documents, and for them to be endorsed by Council, by 30 June in the year following a Council election. The election occurred in September 2016.

Each year Council is required by legislation to review its four year Delivery Program and create a 12 month Operational Plan. Legislation (Section 404 and 405 of the Local Government Act (1993)) requires the IPR documents be placed on public exhibition annually for a minimum of 28 days before being endorsed by the Council. For the 2019-20 documents the public exhibition period was from 19 March to 18 April 2019.

At the conclusion of the public exhibition period, a meeting was held with Senior Council staff and Councillors to review and consider all submissions, with a view to identifying changes required to the draft plans. The purpose of this report is to



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consider the community feedback received during the public exhibition period and evaluate the changes and alterations now proposed by staff in order to finalise the planning documents prior to the start of the new financial year.

Changes recommended to the documents are outlined in detail in the body of this report. The budget position has altered between March and June to allow for budget to better align with planned works.

The budget statement now indicates a shortfall position of \$975,198.

Total expenditure, excluding depreciation, developer provided assets and loss on disposal of assets will be \$209.8m, with total revenues expected to be \$195.1m (excluding the developer provided assets contribution). The difference between the income and expenditure is funded by a combination of loans and money previously allocated to reserves for specific purposes. This results in a net cash shortfall position for 2019-2020 of \$975k. Further information relating to the 2019-2020 budget can be found under the Financial & Economic Implications section of this report, as well as the attached one year 2019-2020 Operational Plan.

The 2019-2020 financial year will see Council continue to deliver/commence some major infrastructure works such as Lighthouse Road Upgrade, Bago Road Rehabilitation, Hastings River Drive Upgrade, Dunbogan Bridge and Kew Main Street. Sporting and recreation works include Lake Cathie Foreshore skate facility, Rainbow Beach Sports Fields, Playground upgrades at Riverview Reserve, Scribbly Bark Reserve, Blair Reserve and Rocks Ferry Reserve, in addition to Playground replacements at Settlement Point Reserve, Town Beach Skate Park and Reservoir Park. Other projects include Stuart Park Regional Sporting Precinct upgrades, The Ruins Way reconstruction, Port Macquarie Foreshore Walkway Project, Hastings Regional Sporting Complex construction and Kindee Bridge detailed designs.

In addition to delivering some major projects, Council will continue to deliver other services such as water and sewer services, library services, cultural services and waste services. Council will also continue to maintain our \$2 billion of assets on behalf of the community.

Whilst there is a shortfall of \$975,198 for the 2019-2020 financial year the budget is considered representative of key priorities across the LGA. Ongoing financial diligence will occur and be reported to Council to address this position over the coming financial year. Should the shortfall position not be addressed during the financial year by adequate savings, it will be funded through the Strategic Priorities reserve. Savings from 2018-2019 (if any) will be allocated to this reserve in addition to any dividend payable from Water and Sewer Funds from the 2017-2018 financial year which is pending approval.

Documents to be endorsed (as attached) are:

- Delivery Program 2017-2021(Revised 2019)
- Operational Plan 2019-2020

The supplementary documents to the Operational Plan 2019-2020 are:

- Fees and Charges;
- Annual statement of Revenue Policy; and
- Rating Maps.



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These documents have been included in a separate report tabled to this same Council meeting with subject: 'Making of Rates and Charges for 2019/2020, Adoption of the Fees and Charges and Revenue Policy for 2019/2020'.

In relation to Council Fees and Charges, Council considered a report in December 2018 regarding the June 2018 NSW Government announcement of plans to make parking fines fairer for residents across NSW. As the first step in this initiative the Government reduced a range of State Government issued parking fines by 25%.

Council received advice from the Hon Dominic Perrottet MP NSW Treasurer and Minister for Industrial Relations on 30 November 2018 regarding the regulatory changes necessary to allow Council's to reduce their parking fines as well.

Under the new framework, Councils can reduce their parking fines from \$112 to \$80. These concessions do not however apply automatically; Council must opt in to apply these reduced fines.

In considering this report Council resolved as follows:

**12.15 NSW PARKING FINES CONCESSION SCHEME**

*RESOLVED: Alley/Intemann*

*That Council:*

1. *Not opt into the new parking fine concession fee scheme at this time.*
2. *Give consideration to the implications of opting into the scheme at a later opt in date in conjunction with development of the draft 2019/20 Operational Plan.*
3. *Request the General Manager undertake community engagement in February 2019 regarding the proposed scheme.*
4. *Request the General Manager to advise the NSW Treasurer of Council's determination in this matter.*

**CARRIED:** 8/0

**FOR:** Alley, Cusato, Griffiths, Hawkins, Intemann, Levido, Pinson and Turner

**AGAINST:** Nil

This issue was included in the community engagement period for the draft 2019-2020 Operational Plan. There were no submissions or comments received in favour or against a possible reduction in parking fines. Accordingly, no change to the existing parking fines are proposed with the 2019-2020 Operational Plan.

**Discussion**

At the ordinary Council meeting on 20 March 2019 Council resolved to place the suite of Integrated Planning and Reporting documents for 2019-2020, listed above on public exhibition for a period of 28 days from 19 March to 18 April 2019.

The Integrated Planning and Reporting framework, adopted by NSW Government in 2009, outlines the important relationship between Council's funding priorities, service

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levels and community expectations. To comply with legislation Port Macquarie-Hastings Council has completed the annual review and developed its suite of planning documents.

Port Macquarie-Hastings Council IPR documents consists of:

*Draft Delivery Program 2017-2021 (Revised) and 2019-2020 Operational Plan*

This combined document includes:

Four Year Delivery Program (DP) 2017-2021 (Revised)

Developed by Councillors for their four year term the DP is Council's commitment to undertake principal activities under each of the community themes as established by the Community Strategic Plan (CSP) within the resources available under the Resourcing Strategy. The DP includes the intended outcomes, how performance will be assessed and a four-year financial plan.

The DP is aligned to the adopted *Towards 2030 Community Strategic Plan* that commits to the community vision of "A sustainable high quality of life for all", and also to the mission "Building the future together - people, place, health, education and technology".

One Year Operational Plan (OP) 2019-2020

Supporting the DP is the one year OP which includes individual projects and actions which will be undertaken during the 2019-2020 financial year. This document is organised by the community themes that are consistent throughout the integrated council suite of documents.

The OP includes a budget snapshot providing an overview of key projects proposed across the region that have been prioritised by the community, a breakdown of major projects by area.

The proposed 2019-2020 capital works program is included within the body of the Operational Plan according to Community Themes and totals \$85.57m.

The documents within the framework must align to the quadruple bottom line addressing civic leadership, social, environmental and economic issues in an integrated manner.

The Port Macquarie-Hastings CSP, DP and OP are structured under four community themes that align to the quadruple bottom line:

- Leadership and Governance;
- Your Community Life;
- Your Business and Industry; and
- Your Natural and Built Environment.

To strengthen Integrated Planning and Reporting, Council has achieved 'integration' across the suite of plans by:

- Clearly linking the goals in the CSP to the activities in the DP and OP, using colour coding and alpha/numeric referencing;



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- Reflecting asset, financial, and workforce activities in the Resourcing Strategy in both the DP and OP; and
- Identifying activities in Workforce Plan and Asset Plans which will have impact on the Financial Plans.

Some of the major commitments in capital works and operational priorities for 2019-2020 include:

## Across the region

- Road Resealing works throughout the Local Government Area - \$2,080,077
- Construction of footpaths in the Local Government Area - \$1,000,000
- Local Roads Proactive Transport Program - \$331,273
- Stormwater Renewal Program \$650,000
- Small Towns Sewerage Scheme Construction - Finalisation of the Small Village Sewerage Scheme at Long Flat, Comboyne, and Telegraph Point - \$18,000,000

## Laurieton/Camden Haven and surrounds

- Lake Cathie Foreshore Reserve - Master plan implementation - Construction of Skate Facility - \$312,000
- Kendall Sports Ground - Sports facility upgrade - \$155,000
- North Haven Beach Reserve - Pedestrian Facility - Upgrade of North Haven to Bonny Hills walkway - \$104,000
- Rainbow Beach Sports Fields - Acquisition of Land - \$1,707,572
- Rainbow Beach Sports Fields - Preconstruction works - \$290,000
- Rainbow Beach Sports Fields - District Facilities - \$4,165,000
- Riverview Reserve - Playground Upgrade - \$85,750
- Scribbly Bark Reserve, Scribbly Bark Place - Playground Replacement - \$85,750
- Construction of the Southern Arm Trunk Main (DN750) - Pacific Hwy to Bonny Hills - \$200,000
- Continuation of construction of Kew Sewerage Treatment Plant \$5,000,000
- Bold Street Pedestrian Crossing - Detailed Investigation and Design - \$255,000
- Bold Street Pedestrian Crossing - Construction finalisation \$200,000

## Port Macquarie

- Blair Reserve - Playground Upgrade - \$85,750
- Flynn's Beach - Seawall Replacement - Stage 1 - \$1,622,200
- Red Ochre Park - Develop new park facilities - Local Facilities - \$446,000
- Ruins Way Park - Develop new park facilities - Local Facilities - \$312,000
- Settlement Point Reserve, Settlement Point Road - Playground Replacement - \$85,750
- Stuart Park - Regional Sporting Precinct - \$2,539,586
- Town Beach Park, Stewart Street - Playground Replacement - \$415,000
- Walkways - Various - Replacement of walkways (Sandhurst Reserve; Blair Reserve; Harry's Lookout) - \$150,000
- Port Macquarie Aquatic Facility - Design finalisation - \$450,000
- Port Macquarie Airport - Parallel Taxiway Stage 1 and General Aviation Pavement Renewal - Finalise Detailed Design - \$150,000



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- Port Macquarie Airport Terminal Upgrade - Construction finalisation - \$2,375,000
- Thrumster Sewerage Treatment Plant (Area 13) - Phase 1 - \$400,000
- Inlet works replacement for Port Macquarie Sewerage Treatment Plan - \$1,000,000
- Koala Street Upgrade Concept Designs - \$150,000
- The Ruins Way reconstruction - Major Innes Road to Sitella Street - \$950,000
- Port Macquarie Foreshore Walkway Project - \$985,000

## Wauchope, Rural and surrounds

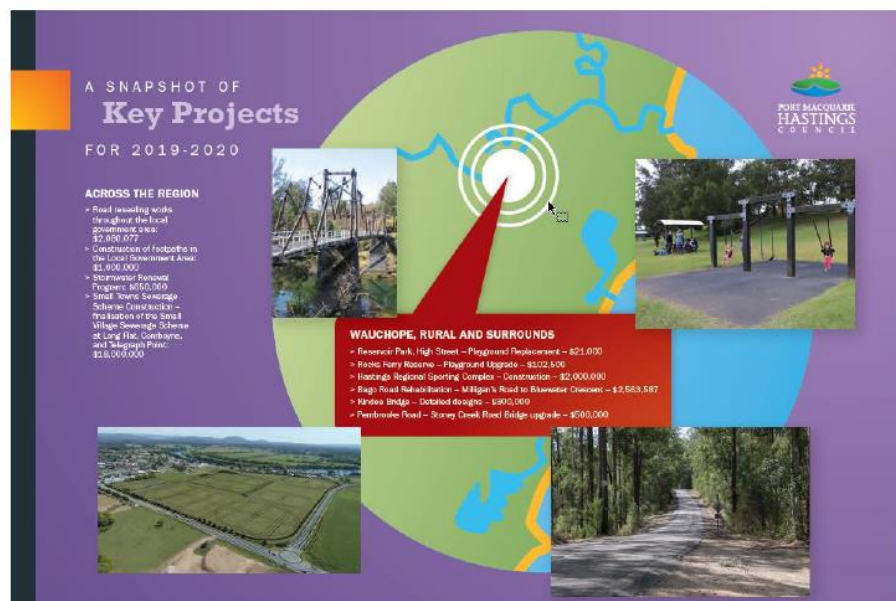
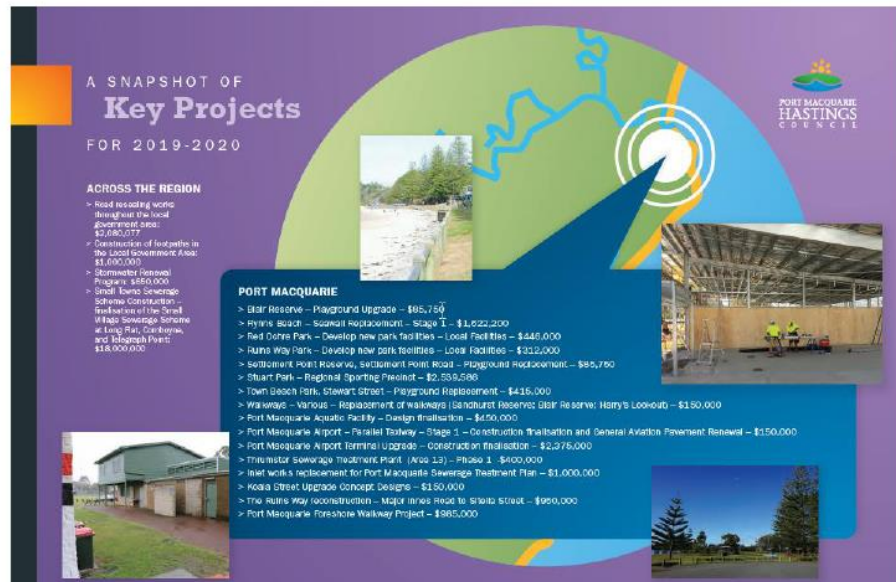
- Reservoir Park, High Street - Playground Replacement - \$21,000
- Rocks Ferry Reserve - Playground Upgrade - \$102,500
- Hastings Regional Sporting Complex - Construction - \$2,000,000
- Bago Road Rehabilitation - Milligan's Road to Bluewater Crescent - \$2,563,587
- Kindee Bridge - Detailed designs - \$ 300,000
- Pembroke Road - Stoney Creek Road Bridge upgrade - \$500,000

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## AGENDA

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19/06/2019Exhibition Period and Submissions

The draft documents were placed on public exhibition from 19 March to 18 April 2019. The engagement activities undertaken are outlined in the Community Engagement and Internal Consultation section of this report. A number of submissions were received during this period and the details of these, and staff

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responses, are also outlined in the Community Engagement and Internal Consultation section of this report.

A workshop was also held between staff and Councillors to discuss the submissions and any potential changes to the budget and IPR documentation as a result of the submissions.

Post Exhibition Amendments to the Capital Works Program

The capital works program incorporated in the one-year Operational Plan 2019- 2020 that was placed on public exhibition was valued at \$67.37m. In the intervening weeks there have been a number of changes to the program. As a result of these changes the capital works program outlined in the Operational Plan 2019-2020 is now \$85.57m. The following table lists the specific changes to the program, with the reasons for adjustment relating to one of the following:

- **Deferral:** part or all of project deferred from 2018-2019 to 2019-2020. This is due to managers undertaking a detailed review of the ability to deliver the projects in the 2018-2019 plan or where projects are multi-year projects.
- **Work program review:** addition or removal of part or all of projects. This arises where the continuous review of work programs has highlighted a change in priorities or delivery requirements since the draft program.
- **Grant:** items added to allow for the delivery of grant funded projects where additional grant funding has been received in the intervening period.
- **Public exhibition feedback:** items added as a result of feedback received during the public exhibition period.

Item	Section	Reason for adjustment	Amount
Telegraph Point Pedestrian Safety Upgrades	Asset Design	Deferral	\$560,000
Westport Stormwater Management Plan Design	Drainage	Deferral	\$270,000
Calwalla Crescent, Port Macquarie - Stormwater Remediation	Drainage	Deferral	\$200,000
Rodley Street, Bonny Hills - Flooding Mitigation Measures	Drainage	Deferral	\$400,000
Diamond Head Road / The Boulevard Flood Access Stage 1A	Natural Resources	Deferral	\$1,390,000
Illaroo Road - Stormwater Remediation	Natural Resources	Deferral	\$700,000
Port Macquarie Coastal Walk	Parks & Recreation	Deferral	\$780,000
Flynns Beach Seawall - Design and Construction	Parks & Recreation	Deferral	\$900,000
Sancroix/Thrumster Sports Fields	Parks & Recreation	Deferral	\$267,000
Wood Street - Road Upgrade	Parks & Recreation	Deferral	\$950,000
Wayne Richards Park - Stages 3 & 4	Parks & Recreation	Deferral	\$250,000
Dunbogan Bridge - Reid Street - Structural Rehabilitation	Transport & Traffic	Deferral	\$3,276,000
Hastings River Drive & Boundary Street Upgrade	Transport & Traffic	Deferral	\$654,000



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Item	Section	Reason for adjustment	Amount
Lighthouse Road, Port Macquarie - East Upgrade - Tourism Connectivity Project	Transport & Traffic	Deferral	\$1,470,000
Ocean Drive, Lake Cathie - Miala to Orana - Design	Transport & Traffic	Deferral	\$145,000
Bold Street, Laurieton - Crossing between Seymour and Tunis Streets - Preconstruction	Transport & Traffic	Deferral	\$255,000
John Oxley Drive - Upgrade Preconstruction	Transport & Traffic	Deferral	\$484,000
Reclaimed Water - Area 14 Trunk Main - Inlet & Outlet	Water Supply / Sewerage Services	Deferral	\$1,300,000
Trunkmain - Sancrox Reservoir to Area 13	Water Supply	Deferral	\$991,000
Trunk Main Augmentation - Sancrox Reservoir to Wauchope	Water Supply	Deferral	\$1,133,000
Sewer Telemetry Radios Port Macquarie Replacement	Sewerage Services	Work program review	\$200,000
Sewer DNP3 Port Macquarie - Roll Out	Sewerage Services	Work program review	\$250,000
Lid Replacement Program	Sewerage Services	Work program review	\$200,000
Electrical STP Asset Replacement Allocation	Sewerage Services	Work program review	(\$100,000)
Mechanical STP Asset Replacement Allocation	Sewerage Services	Work program review	(\$200,000)
Sewer Pump Replacement Program	Sewerage Services	Work program review	(\$50,000)
Sewer Relining Works	Sewerage Services	Work program review	(\$140,000)
Marbuk Motorised Valve Relocation	Water Supply	Work program review	\$350,000
Water SCADA Replacement	Water Supply	Work program review	\$30,000
Safety Improvements Pembroke Road	Transport & Traffic	Grant	\$130,000
Safety Improvements Rawdon Island Road	Transport & Traffic	Grant	\$150,000
Scrubby Creek Bridge Upgrade	Transport & Traffic	Grant	\$455,000
Kew Main Street	Transport & Traffic	Grant	\$340,000
Port Macquarie Town Signage	Community Place	Public exhibition feedback	\$150,000
Beechwood Tennis Courts	Parks & Recreation	Public exhibition feedback	\$60,000
<b>Total</b>			<b>\$18,200,000</b>

Post Exhibition Amendments to the Operational Budgets

The following items were added to the operational budgets:



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Item	Section	Amount
Swimming Pool Contract	Aquatic Facilities	\$109,598
Increase in Emergency Services Levy	Emergency Management	\$104,235
Increase in General Manager remuneration (adjusted for overheads)	General Manager	\$9,345
Preparation of Support Studies for Fernbank Creek / Sancrox	Strategic Planning	\$150,000
Preparation of Heritage Inventory	Strategic Planning	\$60,000
<b>Total</b>		<b>\$433,178</b>

## Options

It is a statutory requirement to adopt the Integrated Planning and Reporting documents by 30 June 2019. Not adopting the documents cited in the resolution would jeopardise compliance with this legislation.

Council could seek additional information or make other amendments to the documentation.

## Community Engagement and Internal Consultation

The draft documents were placed on public exhibition from 19 March to 18 April 2019. During this time the following actions were carried out in order to generate widespread community feedback.

## Exhibition Promotion:

- Media release upon exhibition
- Facebook Posts
- Advertised in Community Now NOTICES, posters in all offices and libraries;
- Mayoral promotion through Facebook video, radio spot and Mayor's column;
- E-news article sent to all subscribers;
- E-news story to Have Your Say database;
- Hard copy of all documents placed at Council Customer Service Offices and Libraries Branches;
- Pop up engagement stalls at local shopping centres across the region during the exhibition period.

## Exhibition Participation:

Pop up community engagement stalls were held in local shopping centres across the region during the 28 days public exhibition period. Conversations were held with the community in the following locations:

- 27 March 2019 - Wauchope, High Street - (20 conversations)
- 2 April 2019 - Port Macquarie, Settlement City - (74 conversations)
- 4 April 2019 - Port Macquarie, Port Central - (71 conversations)
- 9 April 2019 - Lake Cathie, Woolworths - (66 conversations)
- 11 April 2019 - Laurieton, Coles - (80 conversations)

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- 11 April 2019 - Port Macquarie, Library - (6 conversations)
- 13 April 2019 - Port Macquarie, Foreshore Markets - (93 conversations)

The "Have Your Say" online portal activity during the exhibition period was as follows:

- Total visits - 1,200
- Max visitors per day - 98
- Engaged visitors (submissions) - 75
- Informed visitors (downloaded documents) - 257
- Aware visitors (read through documents without downloading) - 975

948 submissions were received via letter, e-mail, on-line, and pop-up engagements and related to a broad range of Council Services including the Roads, Bridges and Transport, Economic Development, Financial Management, Stormwater and Drainage, Natural Resource Management, Sports and Recreation, Sewerage, Waste Management, Water Supply, Glasshouse, Strategic Land Use Planning and Building Maintenance and Development Assessment.

Of the total 948 submissions, 836 pertain to 'Management of Lake Cathie'. These 836 submissions included 1 from 'Revive Lake Cathie' attached to which there were 787 submissions of support, plus an additional 48 individual submissions. The following is Council's position to this concern:

Management of Lake Cathie

Council has received many submissions regarding the management of Lake Cathie calling for Council to undertake further studies and action in respect of the opening of the lake and general management of the lake. Unfortunately, this is a complex issue for Council, government and the community and not one for Council alone to resolve.

Lake Cathie is classified as an ICOLL - an Intermittently Closed and Open Lake or Lagoon, and is one of about [70 such coastal lakes and lagoons located along the coast of NSW](#). ICOLLs are complex systems that have adapted to varying water levels and varying salinity levels. They are usually highly biodiverse and support a large range of fauna and flora. They are also very sensitive to human disturbance. Lake Cathie and Lake Innes are well studied lakes with much in depth scientific research and modelling completed over the years.

The management of the Lake Cathie system is the responsibility of a number of stakeholders including:

- Port Macquarie Hastings Council;
- National Parks and Wildlife Services (NPWS);
- Office of Environment and Heritage (OEH); and
- NSW Fisheries and Department of Industry (DPI - Lands).

Under the NSW Coastal Management Act 2016, the preference for management of this type of lake is to maintain natural processes as much as possible.

The opening of ICOLL entrances is often the subject of much debate and enquiry. While the Coastal Management Act prefers that no modification of an ICOLL entrance occurs, sometimes ICOLLs are opened manually to the sea to reduce the impacts of localised flooding. When water levels rise in a closed ICOLL following



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rainfall, flooding of urban and rural development adjacent to the lake or lagoon foreshore, can occur. Port Macquarie Hastings Council are quick to act when these flooding issues occur and last opened the entrance to Lake Cathie in July 2018 when high water levels were reached.

Many NSW ICOLLS are currently experiencing drought conditions, and as a result many communities, experiencing the dry-out ICOLL environment, are asking for these lakes to be opened. Usually, as there are so many stakeholders involved in the management of these systems, there is an Opening or Entrance Management Policy.

For Lake Cathie any manual or 'artificial' opening of the lake is undertaken according to the [Lake Cathie Opening Strategy](#). The Strategy has been in place for several years and has been thoroughly tested by [scientific data and a recent extensive study](#) and [hydrological model](#) developed in 2014. This model demonstrated that the *Opening Strategy* reflected the best management for the lake. (The model and research also examined widening Kenwood Drive bridge and separating Lake Innes to allow it to return to a freshwater lake. None of these conditions were recommended as they will have a negligible impact on the health of the lakes).

Notwithstanding, the existing Opening Strategy has been in place for a number of years and as such it may be timely for the strategy to be reviewed in line with current best practice in the management of ICOLL's.

It is therefore recommended that Council undertake a review of the existing Lake Cathie Opening Strategy in consultation with National Parks and Wildlife Services (NPWS); the Office of Environment and Heritage (OEH); NSW Fisheries and Department of Industry (DPI - Lands); and the community including the Revive Lake Cathie community group.

This action has been included in the 2019-2020 Operational Plan for completion in the next 12 months. Refer to Operational Plan Action 4.2.1.12 - Undertake a review of the existing Lake Cathie Opening Strategy in consultation with the National Parks and Wildlife Services (NPWS); the Office of Environment and Heritage (OEH); NSW Fisheries and Department of Industry (DPI - Lands); and the community including the Revive Lake Cathie community group. It is noted that a number of submissions requested additional funding to be allocated to the management of Lake Cathie. At this stage additional funding has not been allocated in the 2019-2020 budget. This is due to the fact that until the above review is completed, the extent of funding required is not determined. Once the review of the strategy has been completed and outcomes identified, further actions and associated funding requirements will be assessed and incorporated into Council's Operational Plan as required. There is an existing allocation of funding within the 2019-2020 budget for the management of Lake Cathie in accordance with the existing Lake Opening Strategy and maintenance, in addition to the above Operational Plan action.

Council responses to submissions are in the following sections of this report.

Submissions response summary

Due to the volume of submissions and supporting documentation received, it is not practical to include hardcopies with the attachments to this report, the information and tables below instead summarises the submissions and Council's response.



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Councillors have been provided with full copies of the submissions prior to the Council meeting.

Council Service: Building Maintenance	
Submitter's name	Submitter's issue
Podmore - 6535	Request for Public toilets Crestwood Drive PMQ - Entrance to Googik
<b>Response</b>  There are a number of entry points to the Googik Track in Port Macquarie. At this time Council has no plans to provide public toilets at Crestwood or any of the other entry points to the Googik Track.	
Maxwell - 6552	Maintenance of beach shower facilities and dredging of Dunbogan saltwater pool
<b>Response</b>  Staff will undertake an inspection of beach showers in the Camden Haven and will undertake required maintenance as soon as possible.  Staff will investigate the possibility of dredging Dunbogan Baths. The presence of protected ribbon grass within the baths is an issue and staff will liaise with relevant state government agencies to determine what options are available to Council in being able to improve swimming opportunity at this facility.	
Jones - 6603	Public amenities for playgrounds
<b>Response</b>  Council currently has 64 playground facilities across the local government area. It is not practical to provide public toilets at all playground facilities. Council's focus is on providing and maintaining public toilets at regional and district level parks.  Council's interactive playground maps provide a range of information including playground location and nearby facilities including public toilets. The community is encouraged to use this resource when planning playground outings:  <a href="https://www.pmhc.nsw.gov.au/Facilities-Recreation/Outdoor-Spaces/Playgrounds-Parks-Reserves/Playgrounds-Parks-and-Reserves-interactive-map">https://www.pmhc.nsw.gov.au/Facilities-Recreation/Outdoor-Spaces/Playgrounds-Parks-Reserves/Playgrounds-Parks-and-Reserves-interactive-map</a>	
Jeayes - 6762	Request for no concrete paths at River Reserve on the North Shore. New toilets at Coal Wharf to be considered. Additional Parking at Coal Wharf to be considered.
<b>Response</b>  A number of projects have been identified through the community planning process as priorities for the North shore these include: <ul style="list-style-type: none"> <li>• Footpath connects</li> <li>• A amenities facility at Coal Wharf and</li> <li>• Extension or additional car parking at Coal wharf</li> </ul>	

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All these project will require further investigation as well as community consultation prior to being ready to be included council planning process (Operational Plan). Work will continue with the North Shore Community Council action team (CCAT) to further determine key priorities as well as how they should be achieved.

**Council Service:**  
**Commercial Business Units - Glasshouse**

Submitter's name	Submitter's issue
Arts Mid North Coast - 6785	1. Fees and charges for the Ross Family Studio in the Glasshouse 2. The criteria for discounts for use of the Ross Family Studio.
Got Ya Back Productions - 6798	Support the Fees and Charges for use of Ross Family Studio Glasshouse

**Response**

Thank you for your submission, we acknowledge your support of the proposed discounted fees for Ross Family Studio hire for 3 or 5 days as listed in the draft fees and charges. The Glasshouse Strategic Plan is currently being reviewed with feedback having been sought from the Cultural Steering Group. Consideration is currently being given through that review to the fees model for the Studio space, and applicability of the community discount. It is anticipated that the Glasshouse Strategic Plan will be placed on public exhibition for comment in the coming months.

**Council Service:**  
**Drainage**

Submitter's name	Submitter's issue
Lenehan - 5277	Inadequate drainage and consequent flooding in Leighton Close North Haven

**Response**

Council is aware of the historic stormwater issues impacting residents of Leighton Close. The issues at this location form part of a larger known stormwater 'hotspot' (or problem area), located generally between Coral Street and the open drain downstream of the Beachfront Caravan Park on the south-eastern side of The Parade. Given the scale of the issue, and in order to efficiently and correctly identify, prioritise and address these longstanding issues, a whole of catchment stormwater management plan is required to identify solutions to the large scale stormwater issues impacting the locality.

This plan has been previously identified for completion within Council's register of pending stormwater upgrades and improvements, however no funding is currently allocated due to other higher priority stormwater improvement works.

Whilst Council has no short term solution to these ongoing stormwater issues, Council will continue to monitor and maintain the existing drainage system to ensure that that this system is functioning at maximum capacity. Catchment management plans provide assessment of a broader area, allowing Council to prioritise identified hotspot locations for future planning of staged upgrades, which has proven to be the most effective and efficient use of resources to address known issues. Prioritisation of works is determined based upon risk factors to safety, property (private and public), social and economic impacts to the area, and extent of area affected.

**Council Service:**  
**Drainage - Canal Maintenance**


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Submitter's name	Submitter's issue
Black - 5583	Can you advise what are the plans for dredging of the canals in Port Macquarie? The older canals have not been dredged in over 10 years and the commitment was every 5 years. I do not see a financial line item in the draft. If there is a line item please advise where it is in the draft budget.
<b>Response</b>  Maintenance dredging of the Settlement Shores Canals was included in the 2019/20 Operational Plan with dredging works expected to commence in July 2019, subject to contractor availability. The dredging of the Settlement Shores Canals is listed as item 4.1.6.5 in the 2019-20 DRAFT Operational Plan.	
<b>Council Service:</b> <b>Drainage - Stormwater</b>	
Submitter's name	Submitter's issue
Chapman - 6783	The North Shore has a very poor storm water system. Following rain, there is significant pooling in several areas. This pooling is danger to pedestrians, causes damage to the roads and contributes to mosquito breeding. I would like to suggest that monies allocated to flood water measures and the PAMP plan for the North shore be implemented to address the worst areas. Currently the PAMP shows two planned footpaths - one along the foreshore that appears to be to assist school children make their way from the ferry, and one between the Ferry and the Coal Wharf reserve. I would like to suggest that monies be directed towards the implementation of the later.
<b>Response</b>  Council currently doesn't have any funding allocated to stormwater or pathway upgrades on the North Shore. Maintenance works will continue to be undertaken to help alleviate some of the issues associated with water ponding. It is noted that your preference for any future implementation of the Pedestrian Access Mobility Plan (PAMP) is for the pathway to Coal Wharf reserve be given a high priority.	
<b>Council Service:</b> <b>Economic Development</b>	
Submitter's name	Submitter's issue
Mowle - 5978	The main entry signage for Port Macquarie is long outdated and well overdue for replacement, it looks like it hails from the 1980's. The southern entry from Ocean Drive has the same vintage, whilst 'The Gateway' off the Pacific Hwy has no entry statement at all. The lack of modern, sophisticated and world class entry statements is something that needs to be addressed urgently as we move into our Bicentenary Celebrations. A separate Entry Statement/Signage project needs to be raised to get traction & bring about delivery in a reasonable timeframe. I suggest that this be given some consideration.
<b>Response</b>	

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Based on current adopted roll-out program, entrance signage for Port Macquarie is scheduled for 2020-2021. The proposed Port Macquarie signs includes a range of suburb signs, as well as a Tier 1 Entrance sign at the Port Macquarie exit onto the Oxley Highway and Tier 2 signs at the Hastings River Drive and Ocean Drive entrances.

The proposed sign design is as per the Strategy adopted by Council in 2014, which is consistent with the signs rolled out in the Camden Haven etc. The Port Macquarie signage has been considered during the 2019-2020 budget process and has been re-prioritised, to bring forward the Port Macquarie entrance signage installation into the 2019-2020 financial year.

Submitter's name	Submitter's issue
Cooper - 6503	Request for wheelchair symbol to be put on tourist leaflets

**Response**

Council continually works towards providing more accessibility information on a range of places and facilities across the region - from our beaches and toilets to local businesses. Some recent initiatives include new icons on our destination website for businesses/attractions that are access friendly and continues to be considered when planning new initiatives such as the Eat See Do Visitor guide being developed later in the year.

Greater Port Macquarie Tourism Association (GPMTA) - 6680	<p>The Association request that consideration be given to including performance measures that are more meaningful and enable the success of the strategies and actions to be properly assessed relating to:</p> <p>3.1.3.2 Implement actions from the Port Macquarie-Hastings Events Plan and</p> <p>3.1.4.1 Work with stakeholders to implement actions from the Destination Management Plan in accordance with the identified strategic outcomes</p> <p>The Association notes and supports the allocation of funds to the Coastal Walk, the Airport Terminal Upgrade, the Town Centre Master Plan and the Tasting on Hasting Event.</p> <p>Finally, it was noted that the Cultural Steering Group was not been referenced on Page 71 of the Operational Plan under Community Theme 2 'Your Community Life' as a group that will 'assist' Council achieve its goals.</p>
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**Response**

Council appreciates the GPMTA support and ongoing engagement for our Destination Management and Major Events work. Council acknowledges the feedback in relation to key performance indicators, which Council does strive to ensure outcomes are effectively measured in relation to both on-going and defined project priorities and will do so when updating the Destination Management and Events Plan (which are not yet finalised). Council plans to report progress against KPI's on a quarterly basis in relation to both plans, which can be shared with GPMTA. With regard to the destination website visitation growth KPI - this is crucial to monitor success and ensure continuous improvement. Council has seen greater than 15% year on year growth in the year to date (due to the change in web platform) and believe that a 15% growth target moving forward is an ambitious target we would like to aim for.

The feedback provided in relation to reference of The Cultural Steering Group has been taken on board and will be included in the finalised document as a group that will assist Council achieve its goals.



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Jane - 6893	1/. Would like an Information Hub which would include ALL information on our beautiful Laurieon and surrounding areas 2/. Additional shopping centre seating
<b>Response</b>  1/. Having previously reviewed our visitor/information services, Council does not currently propose to provide new information outlets/hubs but we do encourage the community to visit the friendly staff at the Glasshouse Visitor Information Centre (managed by Council) and iKew (managed by the Camden Haven Chamber of Commerce) and some of our local businesses which have visitor information displays. With regard to the technology support suggestion, unfortunately, education services such as the delivery of technology training or problem solving are not within the realm of Council service delivery and we would encourage you to access this type of assistance via one of our great local training providers (some of whom offer free/low cost seniors training) or businesses selling and servicing technology products.  2/. Unfortunately, the provision of shopping centre seating is not something that council can control or regulate. It is a matter for the shopping centre management. Council does however provide and manage seating and pedestrian infrastructure in public spaces.	
<b>Council Service:</b> <b>Waste</b>	
<b>Submitter's name</b>	<b>Submitter's issue</b>
Hann - 6200	Waste charges. In our bid to reduce our personal waste footprint on our property in rural Byabarra, we would like to recycle all items at appropriate recycling centres and do away with our bins altogether. However, council informs me that even if we have our bins removed we will still be liable to pay approx. \$385 per annum because the truck runs past our property
<b>Response</b>  Council provides waste collection services over the whole Local Government Area extending as far as Comboyne. These services include the collection of household recycling, organics and general waste. The Local Government Act 1993 states that a Council must charge for a domestic waste service if that service is available, therefore a 'Minimiser' charge will still apply if bins are removed or not used.	
Boland - 6316	I would love to see the bins that are at the Dunbogan jetty (across from the takeaway store) relocated from their current location (to close by) as they obstruct the view to the water from the picnic table. It would make a huge difference to the amenity of the area.
<b>Response</b>  Waste services will investigate and consider the ability to relocate this bin.	
Anonymous	Improved recycling plant
<b>Response</b>  Submission noted.	



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Kennedy - 5611	Rubbish disposal along Hastings River leaving it to be taken by floods
<b>Response</b>	
Illegal dumping being investigated by the waste section.	
Garett - 6821	I am beyond angry at the fact we no longer get two free council rubbish pickups anymore. The so-called "free" tip tickets are useless to people who don't have tow bars, trailers or a way of accessing the tip.
<b>Response</b>	
Many Councils are now advising residents that they have 'free tip tickets' rather than 'free pickups' due to the large cost of collecting waste from residential homes. Council can organise to come and collect excess waste but it does come with an additional cost. Port Macquarie Hastings Council are trying to incentivise residents and community members to avoid waste as much as possible. Currently Council pay over \$4M in a waste levy to state government for landfilled waste. Any way we can reduce waste to landfill is encouraged.	
<b>Council Service: Natural Resource Management</b>	
<b>Submitter's name</b>	<b>Submitter's issue</b>
Revive Lake Cathie Incorporated	<p>'Revive Lake Cathie' submission included 787 signed letters of support in seeking funding in the 2019-2020 Operational Plan of \$1M for the following items:</p> <p>\$100,000 – towards allocation of a Port Macquarie-Hastings Council staff member to the role of implementing strategies to Revive Lake Cathie, in direct consultation with Revive Lake Cathie Inc.</p> <p>\$250,000 – Completion of Environment Impact Study (EIS) for Lake Cathie and Lake Cathie Lagoon.</p> <p>\$650,000 – For commencement of an implementation plan</p> <p>Suggested solutions from Revive Lake Cathie incorporated include:</p> <p>1/. Complete an EIS for Lake Cathie and Lake Cathie lagoon.</p> <p>2/. Allocation of Council Staff Member to the role of implementing strategies to Revive Lake Cathie.</p> <p>3/. Following the EIS:</p> <p>3a/. Prepare concept designs for Kenwood Drive bridge [widening].</p> <p>3b/. Remove sediment from Lake Cathie and Innes estuary.</p> <p>3c/. Sediment barrier infrastructure to stop sediment moving from Cathie Creek into the lake system.</p> <p>3d/. Install remote water monitoring devices (similar to Hastings River).</p> <p>3e/. Multiple height gauges.</p> <p>3f/. Membership to NSW Waterwatch.</p>
<b>Response</b>	
1/ An EIS is undertaken when a development proposal is being considered. It is not a general environmental study. Nevertheless, Port Macquarie-Hastings Council (PMHC) has undertaken numerous studies and investigations of the Lake Cathie/Innes estuary system	

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since the 1980s. These studies provide a great deal of information and all generally point to supporting the current Lake Opening Strategy and management practices.

2/ PMHC has environmental staff that manage the lake and surrounding environment.

3a/ PMHC prepared a hydrodynamic model of the Lake Cathie and Lake Innes systems in 2011 to test this scenario. The results suggest that widening the Kenwood Drive bridge would have some beneficial impact on water quality between Cathie Creek and Lake Cathie, however, the report also found that isolating Lake Innes would provide the greatest impact to tidal flows and water quality. The report also found these options would additionally pose the greatest threat to local ecology and/or other social or economic values through a loss of habitat, increase acidification, fish passage obstruction and destruction of marine vegetation.

3b/ Lake Cathie (south of Kenwood Drive bridge), Cathie Creek and Lake Innes are Nature Reserves managed by the National Parks and Wildlife Services (NPWS). The lower lake/estuary is Crown Land (Waterway) that PMHC manages with consultation from other stakeholders - NPWS, the Office of Environment and Heritage (OEH), NSW Fisheries, and Department of Industry (DPI - Crown Lands). PMHC has a dredging strategy to remove sediment from the lower estuary to support recreational values.

Given waterways upstream of Ocean Drive bridge are Nature Reserves, it would be very unlikely environmental approvals would be provided to dredge in Nature Reserves. Nevertheless, the hydrodynamic model of the Lake Cathie and Lake Innes systems prepared in 2011 tested dredging a channel between Ocean Drive bridge and Kenwood Drive bridge. This scenario was found to have limited water flow benefits. In addition, historic aerial photos from the 1940s show only minimal change to overall sediment and sholing in the estuary.

3c/ Historic aerial photos from the 1940s show only minimal change to overall sediment and sholing in the estuary. The most potential for sediment transport is from marine sands entering the lower lake. This sediment transport is increased lake openings (i.e. the more/longer the lake is open to the ocean the more marine sand enters the lower lake). PMHC seeks to manage this marine sand through its dredging strategy for the lower lake.

3d/ The gauges proposed for the Hastings river are rainfall and river flow gauges that will assist in flood warning and modelling. PMHC undertakes monthly water quality of Lake Cathie. Since the start of 2019, PMHC has undertaken weekly water quality monitoring. Results are on the web site. Water quality parameters indicate the water quality is fair to good. PMHC does not propose to install remote water quality monitoring gauges.

3e/ An automating and manual water level gauge is located on the Ocean Drive bridge (south-west corner). This water level gauge is managed by Manly Hydraulics Laboratory. PMHC does not propose to install additional water level (height) gauges. The water level data can be found at <http://new.mhl.nsw.gov.au/Site-207441>

3f/ PMHC was a member of Waterwatch for a brief period several years ago, however found that the Eco health aquatic ecosystem monitoring program provided better indicators the health of our rivers and estuaries. Eco health reports on the condition of key environmental indicators including water quality, riparian (riverbank) vegetation, geomorphology (channel shape), estuarine zooplankton and macroinvertebrate (waterbug) communities.

6329 - King	Support for the 'Revive Lake Cathie Incorporated' submission
6341 - Curry	Support for the 'Revive Lake Cathie Incorporated' submission



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6349 - Schneider	Support for the 'Revive Lake Cathie Incorporated' submission
6418 - Simoes	Support for the 'Revive Lake Cathie Incorporated' submission
6420 - King	Support for the 'Revive Lake Cathie Incorporated' submission
6424 - Tenley	Support for the 'Revive Lake Cathie Incorporated' submission
6434 - Phillips	Support for the 'Revive Lake Cathie Incorporated' submission
6436 - Beedell	Support for the 'Revive Lake Cathie Incorporated' submission
6438 - McAnally	Support for the 'Revive Lake Cathie Incorporated' submission
6444 - Catherall	Support for the 'Revive Lake Cathie Incorporated' submission
6457 - Kent	Support for the 'Revive Lake Cathie Incorporated' submission
6459 - Pearse	Support for the 'Revive Lake Cathie Incorporated' submission
6463 - Sugden	Support for the 'Revive Lake Cathie Incorporated' submission
6466 - Graham	Support for the 'Revive Lake Cathie Incorporated' submission
6468 - Aston	Support for the 'Revive Lake Cathie Incorporated' submission
6470 - Wood	Support for the 'Revive Lake Cathie Incorporated' submission
6473 - Toombs	Support for the 'Revive Lake Cathie Incorporated' submission
6477 - Errington	Support for the 'Revive Lake Cathie Incorporated' submission
6479 - Medcalf	Support for the 'Revive Lake Cathie Incorporated' submission
6481 - Whitton	Support for the 'Revive Lake Cathie Incorporated' submission
6483 - Robinson	Support for the 'Revive Lake Cathie Incorporated' submission
6491 - Bruce	Support for the 'Revive Lake Cathie Incorporated' submission
6536 - Lawless	Support for the 'Revive Lake Cathie Incorporated' submission
6542 - Candia	Support for the 'Revive Lake Cathie Incorporated' submission
6570 - Norgate	Support for the 'Revive Lake Cathie Incorporated' submission
6611 - Teutelink	Support for the 'Revive Lake Cathie Incorporated' submission
6613 - Potts	Support for the 'Revive Lake Cathie Incorporated' submission
6615 - Field	Support for the 'Revive Lake Cathie Incorporated' submission
6619 - Campey	Support for the 'Revive Lake Cathie Incorporated' submission
6621 - Field	Support for the 'Revive Lake Cathie Incorporated' submission
6636 - Maurer	Support for the 'Revive Lake Cathie Incorporated' submission

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6638 - Murray	Support for the 'Revive Lake Cathie Incorporated' submission
6645 - McGuigan	Support for the 'Revive Lake Cathie Incorporated' submission
6659 - Steep	Support for the 'Revive Lake Cathie Incorporated' submission
6668 - Donnelly	Support for the 'Revive Lake Cathie Incorporated' submission
6676 - Geronimi	Support for the 'Revive Lake Cathie Incorporated' submission
6677 - Higgins	Support for the 'Revive Lake Cathie Incorporated' submission
6698 - Kent	Support for the 'Revive Lake Cathie Incorporated' submission
6708 - Kent	Support for the 'Revive Lake Cathie Incorporated' submission
6733 - Reynolds	Support for the 'Revive Lake Cathie Incorporated' submission
6759 - Genin	Support for the 'Revive Lake Cathie Incorporated' submission
6771 - Maltman	Support for the 'Revive Lake Cathie Incorporated' submission
6789 - Drinkwater	Support for the 'Revive Lake Cathie Incorporated' submission
6848 - Drinkwater	Support for the 'Revive Lake Cathie Incorporated' submission
6421 - Kolder	Support for the 'Revive Lake Cathie Incorporated' submission
5398 - Donkin	Support for the 'Revive Lake Cathie Incorporated' submission
6321 - Smith	Support to the Revive Lake Cathie volunteer group that supports the restoration of Cathie Creek and Lake Cathie plus the restoration of Lake Innes to its original status. To this end, I urge Council to make it a priority to seek government funding to close the man-made channel (cut in 1933) that has allowed the ingress of saltwater to Lake Innes and ruined its ecological value. It would be a fine legacy for future generations if Council could facilitate this worthy endeavour.
<p><b>Response</b></p> <p>The Northern Rivers Catchment Management Authority prepared the Lake Innes Environmental Assessment in 2013 to consider the reversion back to freshwater. The report found that:</p> <p>Although there are some benefits, the benefits are marginal compared to the negative impacts and risks posed by such an action. It is almost certain that the isolation of Lake Innes would lead to the loss of a significant area of coastal saltmarsh endangered ecological community and result in the loss of the commercial fishery from the Lake. There are significant risks to water quality in both the short and long term and little in the way of social or economic benefits. Therefore, it is our conclusion that the isolation of Lake Innes and reversion to freshwater represents too high a risk to environmental, social and economic values and we recommend that the action not proceed.</p>	
6323 - Dick	Support for Revive Lake Cathie. The bridge on Ocean Drive and the bridge at Kenwood Drive Lake Cathie need to be extended to allow proper water flow under both bridges to reduce the current siltation being observed over the past 15



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	<p>years or more bought by the lakes width being reduced by the reduction in width.</p> <p>The lake also requires dredging now from the Cut/Drain all the way down to the entrance of the estuary which has occurred from inaction of the issues presented.</p>
<p><b>Response</b></p> <p>Council prepared a hydrodynamic model of the Lake Cathie and Lake Innes systems in 2011 to test this scenario. The results suggest that widening the Kenwood Drive bridge would have some beneficial impact on water quality between Cathie Creek and Lake Cathie, however the report also found that isolating Lake Innes would provide the greatest impact to tidal flows and water quality. The report also found these options would additionally pose the greatest threat to local ecology and/or other social or economic values through a loss of habitat, increase acidification, fish passage obstruction and destruction of marine vegetation.</p>	
<p>Lake Cathie Progress Association - 6357</p>	<p>1. \$360k was provided in grant funding in August 2018-2019 under the NSW Government Coastal and Estuary Grants program and need to remain in the 2019-2020 Operational Plan along with any remaining funds Council allocated to the redirection of the storm water drainage along Illaroo Road.</p> <p>2. We acknowledge and thank Council for the \$314k funding provided in the 2019-2020 Draft Operational Plan for the construction of the Skate Park as approved in the Lake Cathie Foreshore Master Plan and urge Council to keep this funding in the final Operational Plan</p> <p>3. We also support the allocation of funding in the Draft Operational Plan for the design and development of the sporting fields and amenities block to be built behind the public school in area 14 of Lake Cathie.</p>
<p><b>Response</b></p> <p>1/ This funding will roll over in to 2019-2020 FY. The Illaroo Road Stormwater Redirection project is expected to commence in Mid-2019. Total project cost \$720,000. Operational Plan action 4.2.1.11 CW</p> <p>2/ and 3/ Your support of budgetary inclusions for Lake Cathie Skate Park and Rainbow Beach Sports Fields in the draft Operational Plan is noted. Council will keep LCPA informed as the projects progress.</p>	
<p>Garett - 6821</p>	<p>I am sick of seeing notifiable and noxious weeds along roadways and highways and council does nothing to remove these.</p>
<p><b>Response</b></p> <p>On an annual basis Council undertakes weed management on 2,300km of roadside weeds. Work is undertaken by a number of methods including outreach mowing and pruning, mowing/slashing and roadside spraying. Council maintains a purpose-built vehicle for roadside spraying with carefully calibrated equipment allowing for site specific spray specifications. Council utilises best practice methods in roadside spraying to minimise spray drift and off-target impact. Responsible herbicide use leaves a defined strip of dead vegetation on the road edge with control lasting up to 6 months depending on weather conditions.</p>	



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Council also has a dedicated Biosecurity Officer who monitors and manages Councils responsibility under the Biosecurity Act. We encourage residents to contact Council if they see a plant of concern on 6581 8111 to report individual instances that we can investigate.

Dirago - 6827	Flying Fox Problem - Thousands of residents have sought positive action to address this problem. The draft Plan highlights education and offers little in practical action. What practical actions are proposed for 2019-2020 and what are the related performance measures?
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**Response**

Council have worked collaboratively with key stakeholders within the community to address concerns about the Flying Foxes at Kooloongbung Creek. A draft Camp Management Plan has been developed and was placed on public exhibition in April and May 2019 seeking community feedback. A final report is being presented to the Ordinary Council Meeting in June 2019.

Flying Foxes are an endangered species and Council must work within conservation restrictions and legislation to ensure they remain protected and unharmed. There are many practical management options available to Council and the community such as water spraying and relocation and buffer zone implementation - all of these are outlined in the Draft Flying Fox Camp Management Plan.

**Council Service:**  
**Financial Management**

Submitter's name	Submitter's issue
Rutherford - 5373	I feel that the cost of living is getting too expensive. Rates are getting out of control as well as water costs. I think Council should try to reduce rates down to around \$2000 per annum maximum per property. There has to be some incentive to owning a house.

**Response**

Your submission in regard to the cost of living getting too expensive is noted. Council levies rates in order to be able to provide a wide range of services to the Community. These services cover a number of key areas including roads and transport, sewerage, water, stormwater, waste management, environmental services, community facilities, sport and recreation facilities and services. The cost to provide these services is significant with total expenditure in 2019-2020 budgeted to be \$216.3m. Reducing rates would require a reduction in the provision of these services, however previous community surveys have indicated that our community does not desire this outcome.

Council is not proposing an increase to rates for the 2019-2020 financial year beyond the limits placed on councils in setting rates, (known as rate pegging). The rate peg determines the maximum amount by which a council may increase its rating income for the year and is set independently by IPART (Independent Pricing and Regulatory Tribunal) NSW.

Through an independent review of Council's financial sustainability (undertaken in late 2017 by the University of Technology Sydney (UTS) Institute for Public Policy and Governance Centre for Local Government), the review found that Councils overall financial sustainability is strong and particularly impressive given the operating environment of Council. The review also found that in general, Council has taken important steps in recent years to improve its financial sustainability and that continuing to focus on areas of potential improvement will help Council to continue to strengthen its financial sustainability in the years to come.



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The UTS states that continued prudent management is the best course of action in ensuring the ongoing financial sustainability of Council and in light of this, we aim to continue our progress toward continued and improved financial sustainability in 2019-2020.

Bray - 6731

Forward Planning and Financial Control

- 1/. Balanced budgets
- 2/. More detailed financial information
- 3/. Financial details to be split by funds
- 4/. The Capital Works programs to be individually detailed to show how bulk figures are arrived at
- 5/. The Capital works program should be on a priority listed and rolling basis and adjusted regularly in accordance with variation listed in the monthly Financial Reports and approved by Council
- 6/. More details should be given on possible amounts that could be raised by loans to increase the rate of Capital Works proposed
- 7/. Devote as many resources as possible to the strategic planning for the future

**Response**

## 1/. Balanced Budgets

Council does endeavour to adopt a balanced budget position at the commencement of the budget cycle. However due to strategic and operational priorities including giving submissions from the community due consideration, this is not always possible. Where a deficit position is adopted, there is significant analysis and monitoring undertaken by management during the year with an aim to achieve a surplus position by year end. These adjustments are reported as recommendations through the monthly financial report to Council.

## 2/. More detailed financial information

The information provided is in accordance with legislative guidance and importantly does include Council's performance measures to allow transparency and clarity on what Council is planning to deliver. Management aims to provide the community with meaningful financial data. There is however significant detail underlying the financial data provided, which is available through other reporting mechanisms, such as the annual financial statements.

## 3/. Financial Details to be split by funds

Council is required to follow the Integrated Planning & Reporting Framework. The Towards 2030 Community Strategic Plan has been developed into the four themes that continue through to the Delivery Program and Operational Plan. This is why the information is presented via these themes as opposed to by Fund.

The performance of the Funds is reported through the end of year financial statements which include the results for the year, balance sheet position and key performance measures by individual fund.

## 4/. The Capital Works programs to be individually detailed to show how bulk figures are arrived at.

The Capital Works programs are detailed only for the first year in light of Council adopting a one-year operational plan. Management does however maintain detailed work programs for the outer years which are rolled up to provide the bulk figures reported.

## 5/. The Capital works program should be on a priority listed and rolling basis and adjusted regularly in accordance with variation listed in the monthly Financial Reports and approved by Council.



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As noted above, management maintains detailed capital works programs. These programs are monitored and updated as priorities and circumstances change. Variances related to adopted budgets are reported to Council through the monthly financial report.

6/. More details should be given on possible amounts that could be raised by loans to increase the rate of Capital Works proposed'

As part of the preparation of the annual budget and long term financial plan, Council assesses the requirement for new loans. This assessment focuses not only on funding needs but the 'affordability' of loan funds and the impact of finance costs moving forward on Council's long term financial sustainability. Council has determined at this stage that loan funds are not required to meet its objectives in the outer years.

Whilst loan repayments are forecast to increase, this relates to the principal repayment component only. Interest paid is forecast to decrease.

7/. Devote as many resources as possible to the strategic planning for the future

As with any service delivery area, management assesses the delivery requirements, including community expectations, and associated resourcing requirements, and adjusts resourcing levels if required. Funding has been included in the 2019-2020 draft budget for additional resources in this area.

Donkin - 5398

Rate charges are excessive as I live on a very small parcel of land

**Response**

Council levies rates in order to be able to provide a wide range of services to the Community. These services cover a number of key areas including roads and transport, sewerage, water, stormwater, waste management, environmental services, community facilities, sport and recreation facilities and services.

The cost to provide these services is significant with total expenditure in 2019-2020 budgeted to be \$216.3m. Reducing rates would require a reduction in the provision of these services, however previous community surveys have indicated that our community does not desire this outcome. Whilst it is noted that you live on a small parcel of land, the calculation of rates is tied to the value of the property. The value is supplied by the NSW Valuer General.

Johnston - 5557

Credit Card surcharge was removed last year, but now has been brought back in, but much higher than before. Does Council actually get charged this much?

**Response**

The credit card surcharge has been implemented to cover costs incurred by Council in providing this payment method. The surcharge has been set at a level which is below the direct costs of the payment method, in accordance with legislative requirements.

The direct costs of the payment method vary month on month, depending on the level of transactions. However, during the last 12 months, the level of direct costs charged have been between 0.63% and 0.9%.

**Council Service:****Sports and Recreation - Aquatic****Submitter's name****Submitter's issue**

Hannah - 5367

Rock pool, you ask what we think about upcoming plans, well I don't see any plans for promised rock pool, in fact not one word has been said about it.



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Dirago - 6827	Investigation into an Ocean Pool - Many residents support the feasibility study.
Garett - 6821	I would like to see an ocean tidal pool in Port Macquarie.
<b>Response</b>  Council acknowledges community support for development of a tidal pool in the Port Macquarie-Hastings. Council's current focus in relation to swimming facilities is on the completion of the upgrades to Wauchope Pool, and planning for a new aquatic facility in Port Macquarie which has commenced this year. These projects have been prioritised over development of a tidal pool as both existing facilities were known to have significant structural issues.	
<b>Council Service:</b> <b>Parks and Recreation - Parks</b>	
<b>Submitter's name</b>	<b>Submitter's issue</b>
Rotary Group of Port Macquarie Sunrise Incorporated - 13780	Town Beach Reserve Master Plan - request to include Seniors Exercise Park and Amphitheatre
<b>Response</b>  The upgrade of Town Beach Playground is identified within the draft Operational Plan. The opportunity to include seniors exercise/play as part of this upgrade is supported in principle by staff who will engage with your club through the design phase of project delivery. Council recognise that the amphitheatre is an important element of the Town Beach Master Plan. However, Council is unable to fund this improvement as this time.	
Lake Cathie - Bonny Hills Lions Club - 5178	Acknowledge and support the Skate Park Project funding for Lake Cathie Foreshore
Lake Cathie Skate and Recreation Park Project working group - 6320	<p>Lake Cathie Skate and Recreation Park Project working group would like to thank Port Macquarie Hastings Council for the inclusion of funding in the 2019-2020 Draft Operational Plan for the Lake Cathie Skate &amp; Rec Park as part of the Lake Cathie Masterplan.</p> <p>We would like to ask Port Macquarie Hastings Council to allocate the funds as detailed in the Draft Operational Plan, and include said funds in the finalised 2019-2020 Operational Plan.</p>
Cooper - 6494	In support of skate park at Lake Cathie
Franklin - 6498	In support of skate park at Lake Cathie
Tierne - 6564	In support of skate park at Lake Cathie
Fitzgerald - 6608	In support of skate park at Lake Cathie
Miller - 6642	In support of skate park at Lake Cathie
Jolly - 6792	In support of skate park at Lake Cathie



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<b>Response</b>	
Council acknowledges the support of budgetary inclusions for Lake Cathie Skate Park	
6421 - Kolder	Location of Skate Park at Lake Cathie
<b>Response</b>	
The location of the skate park within Foreshore has been resolved through the development and adoption of the Lake Cathie Foreshore Master Plan. This plan was developed following a comprehensive community engagement process and there is broad community support for the development of the skate park in this location.	
Rogers - 5606	Bain Park Playground - request for shade provision in summer
<b>Response</b>	
The upgrade of this playground is tentatively scheduled for renewal in 2021-2022. As a district level playground, this facility will include a shade structure when it is replaced. When the current playground was first designed and constructed shade was provided by existing mature trees located around the site. The removal of a dead tree since playground development has reduced the amount of natural shade provided at this facility. A replacement tree will be planted in coming months.	
Elliott - 5705	Rocks Ferry Reserve - Riverbank restoration works and request for funding to allocated to undertake work
<b>Response</b>	
Rocks Ferry Reserve is recognised as a significant recreational asset for Wauchope and the broader community. On this basis, it is important to understand the broader community desire for this area which ideally would be tested through the development of the Wauchope Community Plan which will commence in September 2019.	
Member of the Kew, Kendall, Lome and Herons Creek CCAT - Conman - 5951	Requesting that Kew Parklands be included in the 2019-2020 Operational Plan.
Kew Parklands and Kew Main street Committee - Bignell - 6560	Request the Kew Parklands proposal be considered in the operational plan for the 2019-2020 budget.
Chumside - 6411	Approval be given in support of The Parklands project at Kew
<b>Response</b>	
Council acknowledges that there is a need for open space to service the existing and future community of Kew. Council's planning recognises this and plans for the provision of a children's play facility are currently being developed in consultation with the community. This facility will be constructed later in 2019. At this time staff are unable to support the Kew Parklands proposal but recognises that additional open space will be required to service the community as development continues to the west of the village.	
McIntosh - 5956	The allocation of funds to upgrade Vince Inman Sporting fields in Laurieton is great and further funds needs to be included across the next few years to enable these well used fields to be maintained and the facilities upgraded to a satisfactory level.



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	As part of this allocation the lighting at the tennis courts needs to be included in the lighting system across the ovals. At present the lights at the tennis courts are not at a recommended standard
<b>Response</b>	
Council is currently working with the Vince Inmon Sporting Fields user groups to develop a facility master plan for this sporting precinct. Through this process staff will work with user groups to prioritise improvements and will support them to seek grant funding above and beyond the \$560,000 included in the draft Operational Plan to deliver desired upgrades in partnership with Council.	
Proud - 5973	Coastal Walkways - access at northern end of Shelly Beach is not easily gained at high tide and sand being washed away with large rocks exposed and then the rocks also become slippery.
<b>Response</b>	
Council is aware of the challenges experienced by some Coastal Walk users during high tides and periods of large swell. As a result of this access issue, Council has completed detailed designs for the upgrade of Pacific Drive between Leanda Street and Parklands Close, including the provision of a shared path to provide an alternate route when access is difficult at North Shelley Beach. This project is not considered a priority at this time. Current focus is on upgrading the sections of the Coastal Walk between Town Beach and Flagstaff Hill and Oxley Beach and Windmill Hill. This project will be considered in development of future budgets.	
Friends of Mrs Yorks Garden - Davidson - 6243	Requesting at least \$50,000 be allocated to continuing the re-creation of the Garden, incorporating the Master Plan features approved by PMHC at its meeting on 20/3/2019.
<b>Response</b>	
There will be a balance of funds from the \$50,000 included in the current financial year budget for development of the Mrs York's Garden Master Plan. The scale of available funding is subject to confirmation but staff are supportive of this funding being used by FMYG for master plan implementation. Further, staff will support FMYG in making application for grant funding to undertake further master planned works.	
Cooper - 6501	Footpath from Mrs Yorks Garden to Gaol Point
<b>Response</b>	
The construction of the missing pathway link between Gaol Point and Mrs York's Garden is a current priority for one of our local service groups. Council is supporting this group to achieve this outcome.	
Bailey - 6741	Request for non-slip crossing over stream on Doctors Walk
<b>Response</b>	
The upgrade of Doctors Walk including the bridging of the stream crossing section is a current priority project for Council. The detailed design for the upgrade of this section of the Coastal Walk has commenced and construction will occur later in 2019.	

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Lake Cathie Bonny Hills Sports Field Committee - Spencer - 6756	Support the adoption of the allocated funding for the Lake Cathie - Bonny Hills Sporting Fields.
Williams - 6830	Rainbow Beach Sports fields and the adoption of allocated funding in the budget.
<b>Response</b>	
Lake Cathie Sports Field Committees support for the Rainbow Beach Sports Fields project inclusion in the draft 2019/20 Operational Plan is noted. Council staff will continue to engage with your committee as project plans develop.	
Nalty - 6797	Request to install children's playground and exercise equipment and upgrade boardwalk North Haven
<b>Response</b>	
There is strong community support for this sort of improvements to the Beach to Beach Walk as identified through the Camden Haven Community Planning process. Council has identified the need to replace the Bunnys Corner playground in 2019/20. Staff are engaging with the Camden Haven CCAT to determine whether this facility could be relocated to better integrate with the Beach to Beach Walk and other existing infrastructure. Other improvements can be considered through strategic planning for the Beach to Beach Walk and development of a public art strategy which is currently underway.	
Cook - 5579	Is there any provision in Council's draft budget plan for the establishment of an athletics field? There is no year round marked athletic field in Port Macquarie. For the past 10 years Council has "promised" to create an athletics field in the Wayne Richards sporting fields complex but nothing has happened.
<b>Response</b>	
Provision of an athletics facility in Port Macquarie has been identified in the Council adopted Wayne Richards Park Master Plan. Detailed design for the athletics facility is a current Council project. At this time, Council engagement with the athletics community has been limited to discussions with Athletics NSW. However, engagement with local athletics stakeholders will occur as the planning process develops. A timeframe for construction of this facility cannot be confirmed at this time.	
Nash - 6528	Is there money allocated to maintaining the Queenslake walking/shared pathway?
<b>Response</b>	
There is not a specific maintenance budget for the Queens Lake Walking Trail in West Haven. There is a centralised area-based budget for maintenance of parks and reserves including recreational assets such as this walking trail. Staff will inspect the walking trail and will program maintenance as required.	
North Shore Community-Council Action Team (CCAT) - 6796	Over the past 3 months the North Shore CCAT has identified the following as the key short-term priorities for the North Shore and wish to have these priorities considered for inclusion in Council's 2019-2020 Operational Plan: 1/. Erection of a toilet block to serve the Coal Wharf Reserve area;



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	2/. Extension of hours for the Hibbard Ferry from 5:30 am to 8pm and 3/. Erection of a boat ramp and explore options for a floating jetty to serve the North Shore
<p><b>Response</b></p> <p>1/. The provision of new amenities at Coal Wharf Reserve is currently not in our planning. Amenities were formerly provided at Coal Wharf Reserve but were decommissioned when a decision was made in consultation with the community to replace the Coal Wharf amenities at Ferry Reserve.</p> <p>If there is a proven need, Staff would consider a community led proposal to install these facilities, however this would be reliant on community being able to fund construction and maintenance of this asset.</p> <p>2/. Council will work with the current ferry operator to understand the cost implications of increase the hours of operation of the Hibbard Ferry, including the potential for a trial of extended hours to analyse the additional usage and benefit to the community. Information gained from this investigation will help develop future operating specifications.</p> <p>3/. The boat ramp is not considered a current priority for Council in the 19/20 operational plan. However, this project is included in Council's 10-year recreation works programme and funding will be considered for this purpose in development of future Operational Plans.</p>	
Johnston - 5557	Wauchope and Laurieton have a dog park, Port doesn't have one - suggest using the empty Council land up from Oxley Oval.
<p><b>Response</b></p> <p>Council has prioritised provision of a dog off-leash park in Port Macquarie at Stuart Park Sporting Complex. A range of sites were carefully considered before confirming Stuart Park as the preferred site, including Oxley Oval. Oxley Oval was not the preferred site on the basis that is located quite close to an existing dog exercise area at Nobbys Beach.</p> <p>At present all dog exercise areas in Port Macquarie are located at beaches. Provision of a dog off-leash park at Stuart Park improves accessibility for dog owners in western parts of Port Macquarie.</p>	
Men at Work - Cargill - 6175	Where is Red Ochre Park going to be located?
<p><b>Response</b></p> <p>Red Ochre Park is to be established within Council owned Community land located in the area of Howell Avenue to The Point Drive and to the east to adjoin the existing bushland area.</p> <p>Council will engage with local residents early in the planning phase of this project through to completion of the park project.</p>	
Donkin - 5398	1/. Would like an upgrade to the shower facilities at Bartlett 2/. Request clean-up of overgrown and half dead trees at Bartlett
<p>1/. The upgrade of the Bartlett's Beach amenities block is identified as an action in the Council adopted Bonny Hills Reserves Master Plan. While not an immediate priority, the upgrade of this facility will be considered in future Operational Plans.</p>	

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<p>2/. Council's position regarding termite control on lands it manages is that they are an important part of the ecosystems, being highly important in the process of tree hollow formation which provides habitat and nesting dens for many native animals.</p> <p>Council does not treat termite infestations on public lands. With a large local government area to maintain it is not possible to provide termite management services with the current level of funding. For this reason, it remains the responsibility of property owners to ensure their property is suitably protected against termite infestation and arranging regular inspections to be carried out by a licensed pest controller.</p>	
Bowmaker - 6520	Would like a shade area at Laura Place Reserve Lakewood
<p><b>Response</b></p> <p>Council currently has 64 playground facilities across the local government area. It is not practical to provide shade structures at all playground facilities. Council's focus is on providing and maintaining shade structures at regional and district level parks where natural shade is not provided.</p>	
Copper - 6530	Compliment on Westport Park footpath
<p><b>Response</b></p> <p>Submission noted and will be included in Council's compliments register.</p>	
Dirago - 6827	<p>Implementing the approved Tacking Point Master Plan - Council approved this Master Plan some years ago but no action has been taken to design and construct the approved access facility for people with disabilities. Why is this the case?</p> <p>What action is planned for 2019-2020. What grants will be sought in 2019-2020. Which Council Director has responsibility for the project.</p>
<p><b>Response</b></p> <p>Melissa Watkins, as Director of Development and Environment is responsible for implementation of Tacking Point Lighthouse Master Plan. Council has sought, and will continue to seek, grant funding for construction of the accessible walkway connection to Tacking Point Lighthouse. While this connection is considered important, the current focus for improving facilities for persons with a disability is a range of other projects including (but not limited to):</p> <ul style="list-style-type: none"> <li>• Short Street Accessible Amenities including an adult change facility</li> <li>• Provision of accessible, gender neutral amenities and an accessible 1.9km walking loop as part of the Stuart Park Regional Sporting Precinct Project</li> <li>• Construction of Rainbow Beach Sports Fields including accessible amenities and related infrastructure</li> <li>• Construction of new accessible amenities at Foreshore Reserve, Lake Cathie and Pilot Beach, Camden Head</li> <li>• Construction of Stage 1 of Flynns Beach Seawall including accessible pathways and access ramp onto the beach</li> <li>• Upgrade of Blair Reserve Playground and Town Beach playgrounds to be more inclusive in their design</li> </ul> <p>On this basis, no action is planned in regard to the accessible ramp project at Tacking Point Lighthouse Reserve during 2019/20 unless a suitable grant opportunity arises and this project is prioritised for application.</p>	
<b>Council Service:</b>	

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Parks and Recreation - Trees	
Vollebergh - 6674	Trees and Drainage issues on The Binnacle - Residents of Macquarie Palms
<p><b>Response</b></p> <p>Council's geospatial information system indicates that the stormwater pipes are not located under these paperbark trees but in fact on the opposite side of the road. Council has inspected this intersection on several occasions and has deemed the line marking as appropriate at this intersection.</p> <p>Removing mature trees in an urban environment must be significantly justified to counter the environmental impact this would have, it has been previously assessed by Arborist and Transport Engineer and determined that the removal of the trees is not justified. The stormwater system in this area is not known as a flooding hotspot and the drainage system will continue to be maintained in line with current level of service.</p>	
Council Service: Roads, Bridges and Transport - Footpaths	
Submitter's name	Submitter's issue
Schools to Schools committee - Koeing - 6898	<p>Request to include shared pathways for Schools to Schools and request to have specific footpaths for schools to schools included in the 2019-2020</p> <p>1/. Construction of footpath between Brother Glen and Sirius Drive on northern side of Ocean Drive</p> <p>2/. Engineering, Planning and construction of footpath between Henry Kendall Drive and Bayside Circuit on northern side of Ocean Drive</p> <p>3/. Engineering and Planning of footpath between Laurie Street and Seymore Street on western side of Lake Road</p> <p>4/. Engineering and Planning of footpath between Homedale Drive and Old Bridge Road on north side of Kendall Road</p>
<p><b>Response</b></p> <p>Council has an annual footpath, cycling and pedestrian works program, which covers the Local Government Area (LGA). As part of this program Council also applies for funding from the State Government for specific pathway projects. Council has applied for funding to continue the schools to schools pathway from Sirius Drive to Brother Glen Drive, which, if successful will also require Council funding from this program.</p> <p>Council has also applied funding to support planning and design of the section from Homedale Drive to Old Bridge Road. Please be aware that Council receives a large number of requests annually for the construction of new pathways across the entire LGA. Due to the limitations of funding it is not possible to design and construct all of the pathways that are requested by the community and large allocations of funding to specific projects detracts from providing improvement works in other areas of the LGA.</p> <p>Council allocates priorities to new footpath works on the basis of safety, construction cost, traffic volume on adjacent road, proximity to town centres, shops, schools, medical facilities, recreation areas and other factors.</p> <p>In accordance with the Schools to Schools shared pathway strategic alignment plan, Council will continue to give consideration to this pathway and the required planning, design and construction works needed in line with other pedestrian and cycling works priorities across the LGA.</p>	



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Lobbon - 5383	Would like to see more consideration of shared path/cycleways
<b>Response</b>  Council receives a large number of requests annually for the construction of new footpaths but it is not possible to construct all of the new paths that are requested by the community. Council allocates priorities to new footpath works on the basis of safety, construction cost, traffic volume on adjacent road, proximity to town centres, shops, schools, medical facilities, recreation areas and other factors.	
Davies - 5386	Pilot Beach Cycle Track - Beach to Beach are carrying out work on the above track in the future. I would like to see this escalated as I am blind and need to be able to walk to Pilot Beach. Pilot Beach is narrow and carries some heavy vehicles which is dangerous. Do you have any plans to work on this access route?
Davies - 5954	Re: 4.4.1.55 - Beach to Beach – shared path project at Camden Haven. Request to build a boardwalk ASAP around the mangroves at the end of the tip road in Dunbogan. We are not getting a fair share of money allocated in Dunbogan when there are many non-life threatening projects attracting money from PMHC budgets.
<b>Response</b>  Council is currently developing a masterplan for the remaining sections of the Beach to Beach shared pathway project connecting Dunbogan Bridge to Pilot Beach. The first stage in the masterplan process, which is currently in progress, is to determine the environmental approvals required to construct each section of path. Once this work is complete Council will be able identify the next sections of the path that are likely to be constructed subject to funding. This will include consideration of the section of path leading to Pilot Beach.	
Ritchie Village Property Pty Ltd - 6779	Request for development of a strategic Pathways Plan to consolidate and construct the B2B, Ck2Ck and S2S and supplementary pathways network, in alignment with other identified key linkages to public spaces, reserves, national parks and recreational parks. Request to include a shared pathway of approximately 1.7km that links businesses and residents situated on Diamond Head Road and Beach St to Dunbogan, Laurieton and the greater Camden Haven.
Wassell - 6265	Request for a footpath at Dunbogan - Diamond Head Road. Men's Shed / Diamond Waters Caravan Park.
Fay - 6326	Request for a footpath at Dunbogan - Diamond Head Road. Men's Shed / Diamond Waters Caravan Park.
Buchanan - 6378	Request for a footpath at Dunbogan - Diamond Head Road. Men's Shed / Diamond Waters Caravan Park.
Niller - 6505	Request for a footpath at Dunbogan - Diamond Head Road. Men's Shed / Diamond Waters Caravan Park.
Richards - 6506	Request for a footpath at Dunbogan - Diamond Head Road. Men's Shed / Diamond Waters Caravan Park.

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St George - 6512	Request for a footpath at Dunbogan - Diamond Head Road. Men's Shed / Diamond Waters Caravan Park.
Burton - 6514	Request for a footpath at Dunbogan - Diamond Head Road. Men's Shed / Diamond Waters Caravan Park.
Miller - 6518	Request for a footpath at Dunbogan - Diamond Head Road. Men's Shed / Diamond Waters Caravan Park.
Tranter - 6284	Request for a footpath at Dunbogan - Diamond Head Road. Men's Shed / Diamond Waters Caravan Park.

**Response**

Council is currently developing a masterplan for the remaining sections of the Beach to Beach shared pathway project connecting Dunbogan Bridge to Pilot Beach. This alignment study will add to the existing strategic alignment plan for Schools to Schools. Council will continue to work with the Creek to Creek committee to identify the best way to develop a master plan for this particular pathway noting the majority of the alignment is across Crown Lands.

These strategic plans along with Council's Pedestrian Access and Mobility Plan form the overall Strategic Pathways Plan. Council Community Action Teams (CCAT) will help guide how best to consolidate the plans to show an overall alignment network plan of the area.

Council has an annual footpath program and will consider for inclusion the suggested new path along Diamond Head Road from the Dunbogan Bridge to the Diamond Waters caravan park.

Please be aware that Council receives a large number of requests annually for the construction of new footpaths. However, due to the limitations of this funding it is not possible to construct all of the new footpaths that are requested by the community. Council allocates priorities to new footpath works on the basis of safety, construction cost, traffic volume on adjacent road, proximity to town centres, shops, schools, medical facilities, recreation areas and other factors.

Council has received grant money to upgrade the intersection of Diamond Head Road and The Boulevard to improve flood access. This project includes the construction of a pathway from the Bridge to meet the shared path on The Boulevard, approximately 270m, a segment of which is on the requested route.

The cost of a new path for approximately 1.7km along Diamond Head Road from the Dunbogan Bridge to the Diamond Waters Caravan Park would likely exceed the current annual allocation and based on the adopted criteria for prioritisation under this program would not rank highly.

Groves - 6448	Would like to see completion of paths and cycleways in Lakewood
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**Response**

Council has an annual footpath, cycling and pedestrian works program. As part of this program Council also applies for funding from the State Government for specific pathway projects. Council has applied for funding to continue the schools to schools pathway from Sirius Drive to Brother Glen Drive. Council will also give consideration to other pathway and pedestrian works in the Lakewood area, but please be aware that Council receives a large number of requests annually for the construction of new footpaths. Due to the limitations of funding it is not possible to construct all of the new footpaths that are requested by the



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community. Council allocates priorities to new footpath works on the basis of safety, construction cost, traffic volume on adjacent road, proximity to town centres, shops, schools, medical facilities, recreation areas and other factors.	
McNiece - 6454	Beach to Beach (B2B) pathways and safety issues in Dunbogan - the pathway should be on the residential side of the road and not the waters edge. The ambiance and environment protection of the river are of utmost importance to the area.
<p><b>Response</b></p> <p>Council is currently developing a masterplan for the remaining sections of the Beach to Beach shared pathway project connecting Dunbogan Bridge to Pilot Beach. The first stage in the masterplan process, which is currently in progress, is to determine the environmental approvals required to construct each section of path.</p> <p>Key considerations during this planning work is protecting the environment and ensuring the path is safe for all users. Once this work is complete Council will be able identify the next sections of the path that are likely to be constructed subject to funding. Council is working closely with the B2B Community Committee and the Community-Council Action Team (a part of the new community planning incentive) to have input on the pathway planning.</p>	
Scott - 6455	Request completion of the Beach to Beach footpath from Laurieton to Dunbogan due to safety concerns
<p><b>Response</b></p> <p>Council is currently developing a masterplan for the remaining sections of the Beach to Beach shared pathway project connecting Dunbogan Bridge to Pilot Beach. The first stage in the masterplan process, which is currently in progress, is to determine the environmental approvals required to construct each section of path.</p> <p>Key considerations during this planning work is protecting the environment and ensuring the path is safe for all users. Once this work is complete Council will be able identify the next sections of the path that are likely to be constructed subject to funding. This includes the section of path from the Tip Road to the Boat Shed. Council is working closely with the B2B Community Committee and the Community-Council Action Team (a part of the new community planning incentive) to have input on the pathway planning.</p>	
Lill - 6508	Support for pedestrian crossing near Real Estate at Bold St in Laurieton
<p><b>Response</b></p> <p>Noted that this submission supports the proposed location of the pedestrian crossing on Bold Street in Laurieton.</p>	
Hamilton - 6523	Request for a pedestrian refuge for shared path - Sirius Drive Lakewood
<p><b>Response</b></p> <p>Unfortunately, due to the configuration of the intersection of Sirius Drive and Ocean Drive (a requirement to maintain turning lanes) and the significant number of services adjacent to</p>	



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<p>the road it is not feasible to construction a pedestrian refuge on Sirius Drive to connect the shared path.</p> <p>Council's strategic planning has identified the potential need to upgrade this intersection to traffic signals, which would include a controlled pedestrian crossing on Sirius Drive. Consideration will be given to investigation and design funding in future operation plans.</p>	
Smith - 6532	Footpath on Hoskie Road West Haven
<p><b>Response</b></p> <p>Council has an annual footpath, cycling and pedestrian works program and will consider for inclusion the suggested new path along Hoschke Road. Please be aware that Council receives a large number of requests annually for the construction of new footpaths.</p> <p>However, due to the limitations of this funding it is not possible to construct all of the new footpaths that are requested by the community. Council allocates priorities to new footpath works on the basis of safety, construction cost, traffic volume on adjacent road, proximity to town centres, shops, schools, medical facilities, recreation areas and other factors.</p>	
Lameloise - 6601	Pedestrian crossing corner of Stewart Street - Grant Street Port Macquarie
<p><b>Response</b></p> <p>Council has an annual footpath, cycling and pedestrian works program and will consider for inclusion investigation and design works to improve pedestrian safety at the intersection of Grant and Stewart Streets.</p> <p>Please be aware that Council receives a large number of requests annually for pedestrian improvement works. However, due to the limitations of this funding it is not possible to undertake all works that are requested by the community. Council allocates priorities to works on the basis of safety, construction cost, traffic volume on adjacent road, proximity to town centres, shops, schools, medical facilities, recreation areas and other factors. Planning and design works are an important first step in providing infrastructure improvements.</p>	
Camden Haven Community Council Action Team (CCAT) - 6729	Camden Haven CCAT have agreed with the that the most urgent priority, is to create opportunity for the Camden Haven to be a more connected community. This can be achieved by completing the planning and construction of the three projects known as: Beach to Beach, Creek to Creek and Schools to Schools shared pathways as well as identifying/constructing key pathways across the community to ensure connectivity between key public spaces, beaches, waterways, reserves, national parks and recreational parks.
<p><b>Response</b></p> <p>Council will work with the CCAT to help identify the best way to utilise the limited resources to complete the required planning for the Camden Haven pathway network and the prioritisation of sections for construction.</p>	
Every - 6791	Request footpath from Hill Street to Roto House Port Macquarie

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Council has an annual footpath, cycling and pedestrian works program and will consider for inclusion the suggested new path along Lord Street connecting to Roto House.

Please be aware that Council receives a large number of requests annually for the construction of new footpaths. However, due to the limitations of this funding it is not possible to construct all of the new footpaths that are requested by the community. Council allocates priorities to new footpath works on the basis of safety, construction cost, traffic volume on adjacent road, proximity to town centres, shops, schools, medical facilities, recreation areas and other factors.

Every - 6794

Request for extension of footpath Emerald Drive and Matthew Flinders Drive from near the roundabout at Marbuk Ave / Lighthouse Plaza entry through to the path in the reserve adjoining

**Response**

Council has an annual footpath, cycling and pedestrian works program and will consider for inclusion the suggested new path along Emerald Drive.

Please be aware that Council receives a large number of requests annually for the construction of new footpaths. However, due to the limitations of this funding it is not possible to construct all of the new footpaths that are requested by the community. Council allocates priorities to new footpath works on the basis of safety, construction cost, traffic volume on adjacent road, proximity to town centres, shops, schools, medical facilities, recreation areas and other factors.

Counsell - 6795

Request for pathway at the north/eastern side of Ocean Drive between Rodley and Beach Streets and beautification of Bonny Hills

**Response**

Council has completed concept designs for a shared path along Ocean Drive from Rodley Street and Beach Street. Unfortunately, due to the narrow road and steep terrain in this area the cost estimate is approximately \$1.5Million. While Council does have funding for an annual footpath, cycling and pedestrian works program this funding is for the entire Local Government Area. Council will continue to seek grant funding opportunities that may apply to improving pedestrian connectivity in Bonny Hills.

Regarding the current stockpile site to the south of Bonny Hills, this site is critical to road maintenance operations in the Camden Haven. Council understands the amenity impacts of having an operational stockpile site located at the entrance to a town and as such is currently reviewing our stockpiling procedures.

Woodgate - 5570

1. Footpath needed near houses at 48 and 50 Currawong Drive - approx. 90 meters long.
2. Major Innes Road to the school - crossing at the pedestrian safety zone becomes crowded with children from the bus drop off zone. No lolliepop person or line marking on the road approaches.
3. Footpath needed near the bus stop zone on Major Innes Road, near house 25 and 31 Currawong Drive



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	4. Footpath needed near 21 and 31 Currawong Drive and 48 and 50 Currawong Drive, there is a gap of several hundred meters.
<b>Response</b>	
Council has an annual footpath program and will consider for inclusion the three sections of suggested new path along Currawong Drive.	
Please be aware that Council receives a large number of requests annually for the construction of new footpaths. However, due to the limitations of this funding it is not possible to construct all of the new footpaths that are requested by the community. Council allocates priorities to new footpath works on the basis of safety, construction cost, traffic volume on adjacent road, proximity to town centres, shops, schools, medical facilities, recreation areas and other factors.	
Currently there is no children's crossing zones around St Columba Anglican School. An application for a children's crossing zone and crossing Supervisor is made by the School Principal. All applications made are assessed by Transport for NSW against a set of criteria. Council works closely with all schools across the Local Government Area to help improve safety for school children.	
Nash - 6528	Of the allocation of \$1,000,000 for new pathways can a large chunk go to Schools to Schools and Beach to Beach?
<b>Response</b>	
Council has an annual footpath, cycling and pedestrian works program, which covers the Local Government Area (LGA). As part of this program Council also applies for funding from the State Government for specific pathway projects. Council has applied for funding to continue the schools to schools pathway from Sirius Drive to Brother Glen Drive, which if successful will also require Council funding from this program. Please be aware that Council receives a large number of requests annually for the construction of new footpaths across the entire LGA.	
Due to the limitations of funding it is not possible to construct all of the new footpaths that are requested by the community and large allocations of funding to specific projects detracts from providing improvement works in other areas of the LGA. Council allocates priorities to new footpath works on the basis of safety, construction cost, traffic volume on adjacent road, proximity to town centres, shops, schools, medical facilities, recreation areas and other factors.	
<b>Council Service: Roads and Transport – Roads</b>	
<b>Submitter's name</b>	<b>Submitter's issue</b>
Coman - 5274	The Kew Main Street has not been included, this has just received federal funding of \$800,000 with a co-contribution of \$800,000 from council. I would have thought this would form part of the Operational Plan?
<b>Response</b>	
The Kew Main Street project was omitted from the draft 2019-2020 Operational Plan due to the timing and confirmation of the Federal Government funding application announcement. This project will be delivered over multiple years commencing 2019-2020. Therefore, the final Operational Plan will be updated to include this project. Refer to 4.4.1.34 CW.	



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Cleary - 5292	Pappinbarra Road is dangerous. Corners are difficult to navigate for buses and large vehicles and the road also has no line marking, is this because of the width of the road?
<p><b>Response</b></p> <p>Like many rural roads, Pappinbarra road has been constructed to best suite the terrain and as such winds through steep terrain. Council reviews road safety and crash data across the Local Government area and implements safety improvements on high priority sites as funding permits.</p> <p>The line marking on rural roads is dictated by traffic volumes and road width, if narrow roads have high volumes of traffic, then a centre line is typically installed. The eastern section of Pappinbarra Road has higher traffic volumes therefore further line marking was installed in 2018. The western sections has lower volumes therefore line marking is not warranted.</p>	
Jones - 5298	The condition of Lighthouse road is dangerous, need upgrades done immediately. There is no footpath for children to walk or ride their push bikes on.
<p><b>Response</b></p> <p>Council was recently successful in receiving Federal Government grant funding to contribute towards Council funding enabling the upgrade the eastern section of Lighthouse Road (from Matthew Flinders Drive to the Lighthouse), with construction works scheduled to starting in the coming months.</p> <p>In the 2019-2020 Operational Plan, Council has an operational task to work with National Parks and Wildlife Services to adjust road boundaries that go over National Park boundaries, this includes the western end of Lighthouse Road. Following the adjustment of the road boundary Council will continue to seek grant funding to complete the designed upgrades of the western section of Lighthouse Road.</p>	
Thogersen - 5355	Where can I find details about the reconstruction of the Ruins Way?
<p><b>Response</b></p> <p>The reconstruction of The Ruins Way is currently in the design phase, the project will include the resurfacing of the The Ruins Way between Major Innes Road and Sitella Street. Works will include the construction of kerb and gutter on the eastern side with continuation of the pathway from Sitella Street to Major Innes Road intersection. Council staff are happy to answer any specific questions you might have.</p>	
Hicks - 5379	No curb on both sides of Ocean Drive Lake Cathie with water continually running from the road to our property, eroding the ground.
<p><b>Response</b></p> <p>Council's primary focus is to maintain rather than upgrade existing road infrastructure. Typically, new kerb and gutter is installed through private development.</p> <p>There have been recent community discussions about future upgrades to Ocean Dr which is likely to result in new kerb and gutter between Middle Rock Rd and Tallong Dr however the community have indicated that completion of the southern end of this project will take</p>	



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<p>priority. Undertaking this project requires significant investment and partnership with the State and Federal Governments.</p> <p>This project is listed as item 4.4.1.33 in the DRAFT Operational Plan for detailed design work though unfortunately it concludes short of 1629 Ocean Drive.</p>	
Desouza - 5393	Only one way into and out of Timbertown estate. Should there be fire, there is no way to get out. Please build another access road to make it safe.
<p><b>Response</b></p> <p>Strategic plans for the area includes a secondary access for the Timber Town estate via Bushman Drive. There is currently an approved Development Application on the parcel of land to the west of Timber Estate that includes the extension of Bushman Drive and a secondary intersection on the Oxley Highway. As this forms part of a private development any associated timeframes are outside Council's control.</p> <p>For estates across the Local Government area such as Timber Town that currently have single access points, Council works with the Local Emergency Management Committee to ensure emergency response provisions are adequate.</p>	
Kennedy - 5611	Forbes River Road, Cattle grid and weight loading need to be addressed.
<p><b>Response</b></p> <p>Works are planned for May 2019 to address the pavement defects surrounding the cattle grids. The cattle grids are maintained by the adjoining property owners in accordance with Council Policy and standards. Weight limiting the road restricts access for all users and without any reasonable detours to divert traffic, this action is not permitted.</p>	
Whitlock - 5777	Request for an extension of school bus route on The Ruins Way due to inadequate safe walking paths from the bottom of the Ruins Way to past the Winery
<p><b>Response</b></p> <p>Bus routes are set by Transport for NSW in conjunction with the bus provider (Busways). Council will refer your request for an extension of the bus route on The Ruins Way to Transport for NSW for consideration. We are pleased to advise you that as part of the resurfacing works planned on the Ruins Way in the 2019-2020 Operational Plan, a pathway will be installed between Sitella Street and Major Innes Road. Extensions of this pathway will continue toward Annabella Drive in the future.</p>	
Hutchison - 5944	Would like to see consideration in the plans to seal some unsealed roads and it could be achieved with Council's budget and with support of State or Federal funding. Particularly Lorne Road up to Comboyne (14.1km).
<p><b>Response</b></p> <p>Unfortunately, Council's roads budgets cannot support the sealing of unsealed roads such Lorne Road as it would significantly affect the level of service for road maintenance across the Local Government Area. This is reflected in Council's Unsealed Roads Policy.</p>	

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<p>Council does from time to time apply for State and Federal Government grants to support the upgrade of unsealed roads, a recent example being Maria River Road. Grant applications are typically supported by investigation and designs for the upgrades in order to get an accurate estimate of the costs and outline how the projects meet specific criteria in order to be successful.</p> <p>Council will consider undertaking investigation and design works on Lorne Road in future operational plans in preparation for any grant programs that would be applicable to such a project. Typically, there has to be a specific grant funding program on offer from the Government to apply for funding. Until such time Lorne Road will continue to be maintained as an import arterial road link.</p>	
Knight - 6681	Sealing of Batar Creek Road - The unsealed gravel intersection of Batar Creek Rd and Cedar Loggers Lane is a serious hazard to the community and particularly school children.
<p><b>Response</b></p> <p>Unfortunately, Council's roads budgets cannot support the sealing of unsealed roads such as Batar Creek Road as it would affect the level of service for road maintenance across the Local Government Area. Council reviews road safety and crash data across the Local Government area along with traffic volumes and implements safety improvements on high priority sites as funding permits. This intersection has a low traffic volume and no recorded crashes. Council will review this intersection and discuss with Busways regarding the safety of the school bus stop.</p>	
Dean - 6747	Road maintenance from the new Bunnings site - debris lying in drains and gutters - the island looks disgraceful to tourist.
<p><b>Response</b></p> <p>Council undertakes a range of road maintenance activities, including vegetation maintenance, across the entire Local Government Area within the limitations of the available funding.</p>	
King and Campbell Pty Ltd - Thorn - 6812	Support for The Ruins Way reconstruction on behalf of St Agnes Parish
<p><b>Response</b></p> <p>Thank you for your support of the upcoming construction works to upgrade the Ruins Way. During finalising the design, consideration will be given to any future intersection adjacent to Lot 14 and the requirement to minimise any services in this location.</p>	
McMahon - 6846	Request for sealing of Batar Creek Road
<p><b>Response</b></p> <p>Unfortunately, Council's roads budgets cannot support the sealing of unsealed roads such as Batar Creek Road as it would affect the level of service for road maintenance across the Local Government Area. Council reviews road safety and crash data across the Local Government area along with traffic volumes and implements safety improvements on high priority sites as funding permits.</p>	
Johnston - 5557	1. Do the rest of Lake Road duplication instead of just saying planning.



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	2. Herschell Street goat track needs fixing.
<b>Response</b>	
<p>1/. Undertaking detailed investigation and planning for road upgrades is an important first step to any construction works. Council considers funding for important upgrades like Lake Road duplication in line with all other services that are delivered to the Community. The continual upgrade of Lake Road will be considered in future operational plans.</p> <p>2/. The road rehabilitation works on Herschell have been delayed pending the Wrights Creek Flood Study. The section of Herschell Street that needs repairing has stormwater culverts beneath it that affect how the road can be repaired. Any changes to the stormwater culverts or road levels may lead to flooding of properties up of downstream. The flood study is nearly complete, and once it is, Council will be able to correctly design the required upgrades to Herschell Street. It is anticipated this will occur within the next 3 years.</p>	
Men at Work - Cargill - 6175	<p>1/. Does the Ruins Way Upgrade between Major Innes Dr and Sitella Street include the addition of a footpath?</p> <p>2/. Will the design for duplication of Lake Road (Ocean Drive to Chestnut Road) be completed the 2019-2020 year?</p>
<b>Response</b>	
<p>1/. The reconstruction of The Ruins Way is currently in the design phase, the project will include the resurfacing of the The Ruins Way between Major Innes Road and Sitella Street. Works will include the construction of kerb and gutter on the eastern side with continuation of the pathway from Sitella Street to Major Innes Road intersection.</p> <p>2/. No, the concept designs are currently being finalised, with the next phase of the project being to adjust the road boundaries with the Lake Innes Nature Reserve (National Park). Adjusting boundaries of National Parks is a lengthy process and will likely include an Act of NSW Parliament. Once Council has in-principle agreement from the National Parks and Wildlife Services and the concept design is acceptable, the detailed design can commence. Consideration will be given to funding the detailed design in future operational plans.</p>	
Garett - 6821	<p>I am against the new road link proposal that will bulldoze people's houses and go through a koala and kangaroo colony in Port Macquarie.</p> <p>I feel like Wauchope misses out on council funding.</p> <p>I would like to see bike lanes and more parking in Wauchope.</p>
<b>Response</b>	
<p>Thank you for your comments regarding the Orbital Road, Council has recently completed the public consultation with the consultation report being tabled at June 2019 Council Meeting. At this meeting, Council will make a decision whether to proceed with the strategic business case for this project which will assess all viable options to improve our transport network around the Ocean Drive, Lake Road and Wrights Road precincts of Port Macquarie.</p> <p>Wauchope is a key population area within our LGA. In recent years has received a large portion of Council's road maintenance funding with numerous road resurfacing works carried out around the area. Included in the 2019/20 Operational Plan is funding for the continuation of the Bago Road rehabilitation project from Milligans Road to Blue Water Crescent. Also, Council has partnered with RMS to deliver the \$2 million Wauchope Main Street project to improve pedestrian safety and the amenity of the main street.</p>	



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<p>Smaller projects that Council has delivered to Wauchope community is the off leash dog park and improvement works to Rocks Ferry Reserve. Also included in the 2019/20 Operational Plan is Council's Parking Strategy which will include Wauchope.</p> <p>In the longer term, as part of planning for the continual growth in our region Council is currently developing a Regional Integrated Transport Strategy to identify the key transport decisions and actions that will guide Council to ensure our transport networks are safe, operate efficiently and have adequate capacity for now and into the future. This strategy will include all modes of transport including cycling.</p> <p>In the interim, Council's planning for cycle lanes and shared pedestrian and Council's Bike Plan guides bike paths. Where feasible Council includes cycle lanes in road upgrade projects.</p>	
Streetwise Road Safety and Traffic Services Pty Ltd - 6342	<p>Request Council to consider providing funding in the 2019-2020 budget towards improving cycling facilities in the Port Macquarie area. Cycling in our area has been ignored by for many years now, and the few existing cycle lanes we have in the area are becoming an increasing hazard.</p> <p>The state of existing on-road cycle lanes is poor, and I suggest that any proposed funding should focus on addressing existing issues before extending the local cycling network, including the following:</p> <ul style="list-style-type: none"> <li>- Review and map the location of existing cycling lanes and infrastructure in the Port Macquarie area.</li> <li>- Assess the safety of existing cycle lanes, including widths, signage, intersections, driveways, poor surfaces, kerb blisters, grated stormwater pits etc. Consider independent road safety audit.</li> <li>- Address the lack of connectivity and lack of direction for cyclists at the end of existing cycle ways.</li> <li>- Council have not given enough consideration to cyclists and Council's approved Bike Plan during the following activities: DA assessment, Council roadwork design, TCPs and traffic management around Council and private roadworks Traffic Committee.</li> </ul>
Dirago - 6827	Road Safety – Lighthouse Road (East) - The Mayor and Councillors are congratulated on providing/obtaining funds in 2018-2019 for safety improvements to Lighthouse Road (East), benefitting residents and tourists. When will the work commence and be completed?
<p>Response</p> <p>The project will be completed by the end of the year, favourable weather permitting.</p>	
<p><b>Response</b></p> <p>Council has proposed \$1,000,000 for the Footpath, Cycleway and Pedestrian works program for 2019-2020. A portion of this funding will be used for the cycleway element of the program, including undertaking practical safety improvements on cycle ways and</p>	



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consideration will be given to reviewing Council's Bike Plan and identifying the highest priority works for inclusion in future programs.	
Chumside - 6411	For pedestrian safety and local amenity, heavy goods vehicles entering and exiting the newly approved heavy industrial sites on Herons Creek Road Kew, must be prohibited from travelling through the Kew town centre.
<b>Response</b>  The current configuration of the road network and with the Pacific Highway being a controlled access road, unfortunately there is no alternate access route to the Kew industrial area. Access from the north via Ron Banks Road is also limited by the railway under pass bridge having a height restriction of 3.8m.	
<b>Council Service:</b> <b>Roads, Bridges and Transport - Ferry Services</b>	
<b>Submitter's name</b>	<b>Submitter's issue</b>
Jeayes - 6762	Request for the Hibbard ferry to be bigger and a third ferry somewhere.
<b>Response</b>  The existing level of service provided by the Hibbard and Settlement Point ferries including road approaches is considered appropriate for the current level of usage. Should traffic volumes change in the future the level of service will be reviewed and improvements implemented if deemed necessary. Heavy vehicles are permitted to use our road network.	
<b>Council Service:</b> <b>Sewerage - Sewer</b>	
<b>Submitter's name</b>	<b>Submitter's issue</b>
Hann - 6346	Annual charges for septic systems mean that properties with septic systems are assigned into a low, medium or high risk category. Although our property in Byabarra is assigned in a medium risk category (to be checked once every 3 years), we are forced to pay an ANNUAL fee for a service that is only provided once every 3 years! This is unfair and a blatant example of "fees for no service".
<b>Response</b>  Council is legislatively required and has a duty to monitor onsite sewage management (OSM) systems and issue operational approvals on their performance. Under the Local Government Act 1993 Council has the ability to recoup or fund the approvals program through the issuing of an annual fee. The annual approval to operate is renewed upon payment of the fee. The fee and its incursion does not directly relate to a specific inspection but the approval.  Inspections are conducted based on the risk allocated to the OSM systems, which is based on their location and their proximity to sensitive areas. The current program and its structure assigns higher fees to those systems on a more frequent inspection cycle (higher risk) and more moderate fees for those less frequently inspected (lower risk).	
Dirago - 6827	Waste Treatment Port Macquarie - Residents have regularly brought to attention the foul odours from the Koala Street

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	facility. What action is planned by Council in 2019-2020. What funds have been allocated?
<p><b>Response</b></p> <p>Council implemented an odour mitigation dosing unit at the Port Macquarie Wastewater Treatment Plant in February 2019. The dosing unit sprays a misting chemical into the air within the treatment plant which binds up odour causing compounds. Trials are still underway with this unit to optimise its effectiveness in response to odour complaints received. The system is planned to be switched to 24 hour / 7 days a week operation in early May 2019 to determine if it is a viable ongoing odour mitigation measure.</p> <p>It is hoped that this system can prove to be effective as the alternative odour control measures will require significant investment of ratepayer money to construct additional infrastructure at the treatment plant site. Initial works would involve approximately \$750,000 for odour control equipment with further works to follow. It is anticipated that the trials and evaluation of the chemical dosing system will be completed by September 2019 at which point a determination will be made into any further infrastructure requirements.</p>	
<p><b>Council Service:</b> <b>Strategic Land Use Planning</b></p>	
<b>Submitter's name</b>	<b>Submitter's issue</b>
Rodgers - 6205	Investigate the capacity of land at the intersection of Ocean Drive with Bonny View Drive for light industrial development or for use as a school. It is with major concern that I read the above. The area along Bonny View Drive has for many years been rural residential with the intersection being the school bus stop for the area. I believe that it would be totally inappropriate for this intersection to be used for light industrial development as this would destroy the rural amenity of the area. In addition it would result in increased traffic flows and pose a danger to the many school children who embark and disembark from school buses.
<p><b>Response</b></p> <p>This submission correctly notes that land at the intersection of Ocean Drive and Bonny View Drive has been identified for investigation for light industrial development or for a school, as Action 17 in the adopted Port Macquarie- Hastings Urban Growth Management Strategy (UGMS). Figure 40 (Volume 2 p.93) in the UGMS shows a buffer to existing rural residential development on Bonny View Drive.</p> <p>It is also noted on p.93 that: "The investigation... will include consideration of the need for visual buffering to main roads and the creation of an internal access road, from Houston Mitchell Drive to Bonny View Drive. The proposed Outline Plan for West Bonny Hills will also consider, amongst other things, the need for light industrial development to serve the Lake Cathie and Bonny Hills communities."</p>	
Dick - 6210	Objection to the omission of an updated Heritage Study/Heritage Inventory for the Port Macquarie-Hastings Local Government Area in the draft 2019-2020 Operational Plan currently on exhibition. My submission primarily relates to this matter and relies upon the adopted actions from the Urban Growth Management Strategy.

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The submission correctly notes that Council's adopted Urban Growth Management Strategy includes:

Action 31: A review of the Port Macquarie-Hastings Heritage Inventory, and Action 2: A review of planning for the Wauchope CBD and adjoining mixed use area. The indicative timing for these actions in the UGMS is: Year 1-2 for Action 31 (i.e. 2018-2019 and 2019-2020), and Year 3-4 for Action 2 (i.e. 2020-2021 and 2021-2022). In 2017-2018, Council completed Stage 1 work towards a review of the 1991 Heritage Inventory. Australian Heritage Specialists (AHS) were engaged to review the heritage inventory contained in Schedule 5 of the Port Macquarie-Hastings Local Environmental Plan (LEP) 2011 and Council's management practices in relation to heritage, and to make recommendations for aligning them with best-practice frameworks. It is not feasible to amend the LEP based on the report by AHS because the report does not contain sufficient detail in relation to the items that are recommended for further investigation.

The existing 1991 heritage study and inventory are old and in need of update, and that there is increased risk in the absence of the Heritage Inventory Review that decisions will be made that compromise the integrity of existing and potential heritage items and this action is consistent with the North Coast Regional Plan.

Council resolved on 17 April 2019, to "Give consideration to the required \$60,000 funding for the preparation of a heritage inventory as part of the 2019-2020 budget". This consideration has resulted in the \$60,000 being funded in the 2019-2020 budget for the works to be carried out.

King and Campbell Pty  
Ltd - Thorn - 6817

Submission supports inclusion of the Operational Plan action - 4.5.1.1 - Investigate the capacity of land at the section of Ocean Drive with Houston Mitchell Drive for light industrial use and at the intersection of Ocean Drive with Bonny View Drive for light industrial development or for use as a school.

**Response**

Noted. Consistent with adopted Urban Growth Management Strategy 2017-2036.

**Council Service:  
Water Supply - Water****Submitter's name****Submitter's issue**

Wynn - 6672

Water supply - If Council hadn't allowed so many new houses in our area, we would have had enough water to carry us through drought conditions. I came here in 2002 and we were on strict water rationing. The new Cowarra dam was built soon after to save us from restrictions. Then the building boom started in Lake Cathie/Bonny Hills/Kendall/Kew/Lakewood. Shame on you Council, you put us back 17 years in growth.

**Response**

Port Macquarie Hastings Council has adopted an approach recommended by the NSW State Government in determining the capacity of our local water supply. The current design capacity of both Cowarra Dam and Port Macquarie Dam is based on population growth and demand projections, and the expected flow that can be drawn from the Hastings River. The combined total storage for both dams is 12,500 mega litres.



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Council regularly updates water demand and population projections and develops long term construction works programs to meet the projected growth and demand. Planned future capital works include a number of projects that will increase yield potential and additional redundancy in the network while at the same time ensuring maintenance and upgrading of existing infrastructure is taking place.

Council also needs to ensure that new development areas are also adequately serviced. It also follows that long term financial modelling is required to ensure water pricing is considered to ensure that future water services are financially sustainable.

Water supply is under regular review, with the need to supply a secure, safe and affordable supply of paramount concern. Council cannot guarantee an unlimited storage capacity and unlimited supply of water, hence the need for water restrictions during periods of extreme dry, low water flow or quality - as is the case at present and throughout much of NSW.

Cook - 5579

With the population of Port Macquarie increasing rapidly what provision is there for water management in times of drought periods?

**Response**

Port Macquarie Hastings Council has adopted an approach recommended by the NSW State Government in determining the capacity of our local water supply. The current design capacity of both Cowarra Dam and Port Macquarie Dam is based on population growth and demand projections, and the expected flow that can be drawn from the Hastings River. The combined total storage for both dams is 12,500 mega litres.

Council regularly updates water demand and population projections and develops long term construction works programs to meet the projected growth and demand. Planned future capital works include a number of projects that will increase yield potential and additional redundancy in the network while at the same time ensuring maintenance and upgrading of existing infrastructure is taking place. Council also needs to ensure that new development areas are also adequately serviced.

It also follows that long term financial modelling is required to ensure water pricing is considered to ensure that future water services are financially sustainable. Water supply is under regular review, with the need to supply a secure, safe and affordable supply of paramount concern. Council cannot guarantee an unlimited storage capacity and unlimited supply of water, hence the need for water restrictions during periods of extreme dry, low water flow or quality - as is the case at present and throughout much of NSW.

Johnston - 5557

20c increase in water usage is too much. Affordability for people who are already struggling.

**Response**

The water usage charge has been increased by 20c per kl, however the access charge for a 20mm meter has reduced from \$205.00 in 2018-2019 to \$198.00 in 2019-2020. This change in billing structure has been implemented over 3 years with the goal that 75% of water income will be derived from user charges by 2021-2022 as opposed to access charges.

This is in line with best practice recommendations and is designed to help drive efficient water use. Councils overall water income has however not increased above the level it would have under the previous structure.

**Council Service:**

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<b>Compliance - Beach Driving</b>	
Jeayes - 6762	Beach driving problems now includes quad bikes driving in dunes and teenagers going without helmets
<b>Response</b>	
Rangers continue to undertake regular patrols and will take action on any unlawful behaviour.	
Council Service Governance and Procurement - Councillors	
Dirago - 6827	Councillor Availability - Throughout 2018-2019 we will also continue to take as many opportunities as possible to engage with our community, as it is these interactions that bring Council closer to the community" reports the Plan. Will the Councillors meet with the residents of Port Macquarie even once in 2019-2020?
<b>Response</b>	
Councillors are elected to represent the collective interests of residents, ratepayers and the community and facilitate communication between the local community and the governing body. Councillors are available through email and phone and also proactively engage with the community with 11 Council meetings. Two of these are offsite in Wauchope and Laurieton with the aim of bringing Council closer to the community.	

Internal Consultation

The following levels of staff have reviewed, assessed and considered the draft documents throughout the public exhibition period:

- Councillors
- Executive
- Senior Leadership Team
- Integrated Planning and Reporting Development Officer
- Planning and Reporting Officer
- Staff

**Planning & Policy Implications**

This report is aligned with Council's legislative obligations under the requirements of the NSW Integrated Planning and Reporting Framework.

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## Financial &amp; Economic Implications

The 2019-2020 Budget

Within the one-year Operational Plan is an overview of how the proposed activities included in the plan will be funded, including the budget statement and capital works program.

The 2019-2020 budget forecasts a budget shortfall (excluding depreciation and loss on disposal of assets) of \$975,198. This compares to the \$511,873 shortfall in the previous (2018-2019) budget.

Budget Summary

	2019-2020 Budget
<b>Operating Budget</b>	
Operating Income	195,123,375
Developer Provided Asset Contributions	6,500,000
Operating Expenses (excluding depreciation, loss on disposal of assets and interest expense)	(111,644,169)
Interest Expense	(2,464,723)
<b>Net Operating Budget</b>	<b>87,514,483</b>
<b>Capital Items</b>	
Net Transfers from Reserves	12,178,103
New Loans	1,500,000
Purchase of Assets	(85,570,344)
Developer Provided Assets	(6,500,000)
Loan Principal Repayments	(10,097,440)
<b>Net Capital Result</b>	<b>(88,489,681)</b>
<b>Budget Result Surplus/(Shortfall)</b>	<b>(975,198)</b>

Council's projected expenditure for 2019-2020 is \$216.3m which includes the following:

	2019-2020 Budget
Ongoing Operational Costs (excluding depreciation, loss on disposal of assets and interest expense)	111,644,169
Capital Works Projects	85,570,344
Developer Provided Assets	6,500,000
Debt Servicing Costs	12,562,163
	<b>216,276,676</b>

Council's projected income for 2019-2020 is \$201.6m which includes the following:

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	2019-2020 Budget
Rates and Annual Charges	100,315,591
User Charges and Fees (for services such as water, waste management, building and planning, animal registration, crematorium, airport and library)	39,803,585
Interest Income	8,701,024
Grants and Contributions (made up primarily of state and federal government grants and developer contributions)	40,862,872
Developer Provided Asset Contributions	6,500,000
Other Revenue (such waste management income, rental of Council facilities and fines)	5,440,303
	201,623,375

To provide for the future needs of our community, Council borrows money to fund infrastructure and community assets which cannot be funded out of normal revenue sources.

Total borrowings for 2019-2020 will be \$1.5 million. This includes proposed new borrowings as shown below:

New Borrowings by Project	Amount
Sporting Fields	1,500,000
	1,500,000

In addition to a budget shortfall position of \$975k, the 2019-2020 budget forecasts an operating surplus of \$3,549k on a consolidated basis and an operating deficit of \$7,506k for Council's general fund. The budget position, although a shortfall, is deemed to be manageable and the consolidated operating result is strong. The general fund operating result is forecast to be negative, however it is noted that there are a number of factors impacting this result including:

- a number of non-recurrent expenditures which have been prioritised and included in the budget to meet longer term strategic goals. Although contributing to a negative operating result in 2019-2020, these items are one-off in nature and generally will not impact the operating result going forward;
- a number of significant cyclical expenditure items which are forecast to occur in 2019-2020, which however do not impact every financial year;
- impact of cost shifting from other levels of government where appropriate funding is not provided. In 2017-2018, the impact was estimated to be \$12.9m. This represents a significant financial impost on Council and highlights a significant level of funding which could otherwise be utilised on service delivery.

Although a negative operating result is manageable in the short-term in light of the above factors and in light of Council's overall financial position, the importance of ensuring Council's ongoing financial sustainability is recognised. On this basis, Council will continue to focus on improving the general fund operating result, with the following focus areas noted:

- completion of 5 service reviews of business critical areas;



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- continued focus on ensuring Council's fees and charges structure is appropriate;
- review of depreciation and appropriateness of underlying assumptions.

It should be noted that the 2019-2020 budget includes grant funding from the Federal Government in the form of a Financial Assistance Grant. The budget has assumed a small uplift from the 2018-2019 levels. Any reduction to this funding could impact upon Council's ability to deliver services.

It should also be noted that the Federal Government has in recent years made advance payments of the annual allocation of the Financial Assistance Grant. Council is required to bring these revenues to account in the year in which they are received as opposed to the year to which they relate. The 2019-2020 revenue budget in effect includes the second half of the 2019-2020 annual allocation and the first half of the 2020-2021 annual allocation (assuming the latter, which will be held in restricted cash until 2020-2021, is paid in advance). Should the Federal Government cease payment in advance, this will have a significant impact on the monies actually received in 2019-2020 and therefore on the operating result for this period. It is noted however that this is a timing issue only and overall monies received across the 2 years will not be impacted.

**Attachments**

1[View](#). Four Year Delivery Program 2017-2021 (Revised 2019) and One Year Operational Plan 2019-2020

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**10.04 INTEGRATED PLANNING AND REPORTING (IPR) DOCUMENTS**

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Ms Cara Dale, C2Hills Consultancy, representing Revive Lake Cathie Inc., addressed Council in opposition of the recommendation and answered questions from Councillors.

Mr Stewart Cooper addressed Council in support of recommendation 3 and answered questions from Councillors.

Ms Danielle Maltman, President of Revive Lake Cathie Inc., addressed Council in opposition of the recommendation and in support of recommendation 3 and answered questions from Councillors.

**MOTION**

*MOVED: Pinson/Griffiths*

That Council:

1. Adopt the following Integrated Planning and Reporting (IPR) documents:
  - a) Delivery Program 2017-2021 (Revised 2019); and
  - b) Operational Plan 2019-2020
2. Not opt into the new parking fine concession fee scheme.
3. Undertake a review of the existing Lake Cathie Opening Strategy in consultation with the National Parks and Wildlife Services (NPWS); the Office of Environment and Heritage (OEH); NSW Fisheries and Department of Industry (DPI - Lands); and the community including the Revive Lake Cathie community group.
4. Note the 2019-2020 budget position of a \$975,198 shortfall, which will be reported to Council monthly during the financial year.
5. Should adequate savings to address the shortfall position not be achieved during the financial year that the shortfall be funded from the Strategic Priorities reserve.
6. Enter into total borrowings of \$1.5 million as outlined in the Financial Implications section of the report for playing fields at Wauchope.
7. Request the General Manager:
  - a) Investigate the feasibility of utilising some of the funding currently held in the Strategic Priorities Reserve for the purpose of:
    - i. Advancing some of the initiatives as detailed in the Revive Lake Cathie Operational Plan submission.
    - ii. The upgrading of Bril Bril Road.
    - iii. Upgrading The Hatch Road.
    - iv. Increasing Council's budget for unsealed rural road maintenance.
    - v. Upgrading of Lorne Road.
  - b) Table a report at the September 2019 Council Meeting with the result of the investigations as detailed directly above in 7a).



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## AMENDMENT

*MOVED: Alley/Hawkins*

That Council:

1. Adopt the following Integrated Planning and Reporting (IPR) documents:
  - a) Delivery Program 2017-2021 (Revised 2019); and
  - b) Operational Plan 2019-2020
2. Not opt into the new parking fine concession fee scheme.
3. Undertake a review of the existing Lake Cathie Opening Strategy in consultation with the National Parks and Wildlife Services (NPWS); the Office of Environment and Heritage (OEH); NSW Fisheries and Department of Industry (DPI - Lands); and the community including the Revive Lake Cathie community group.
4. Note the 2019-2020 budget position of a \$975,198 shortfall which will be reported to Council monthly during the financial year.
5. Should adequate savings to address the shortfall position not be achieved during the financial year, that the shortfall be funded from the Strategic Priorities reserve.
6. Enter into total borrowings of \$1.5 million as outlined in the Financial Implications section of the report for playing fields at Wauchope.

## THE AMENDMENT WAS PUT

*MOVED: Alley/Hawkins*

That Council:

1. Adopt the following Integrated Planning and Reporting (IPR) documents:
  - a) Delivery Program 2017-2021 (Revised 2019); and
  - b) Operational Plan 2019-2020
2. Not opt into the new parking fine concession fee scheme.
3. Undertake a review of the existing Lake Cathie Opening Strategy in consultation with the National Parks and Wildlife Services (NPWS); the Office of Environment and Heritage (OEH); NSW Fisheries and Department of Industry (DPI - Lands); and the community including the Revive Lake Cathie community group.
4. Note the 2019-2020 budget position of a \$975,198 shortfall which will be reported to Council monthly during the financial year.
5. Should adequate savings to address the shortfall position not be achieved during the financial year, that the shortfall be funded from the Strategic Priorities reserve.
6. Enter into total borrowings of \$1.5 million as outlined in the Financial Implications section of the report for playing fields at Wauchope.

*CARRIED: 8/1*

*FOR: Alley, Cusato, Dixon, Griffiths, Hawkins, Intemann, Levido and Turner*

*AGAINST: Pinson*



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**THE AMENDMENT BECAME THE MOTION AND WAS PUT**

*RESOLVED: Alley/Hawkins*

That Council:

1. Adopt the following Integrated Planning and Reporting (IPR) documents:
  - a) Delivery Program 2017-2021 (Revised 2019); and
  - b) Operational Plan 2019-2020
2. Not opt into the new parking fine concession fee scheme.
3. Undertake a review of the existing Lake Cathie Opening Strategy in consultation with the National Parks and Wildlife Services (NPWS); the Office of Environment and Heritage (OEH); NSW Fisheries and Department of Industry (DPI - Lands); and the community including the Revive Lake Cathie community group.
4. Note the 2019-2020 budget position of a \$975,198 shortfall which will be reported to Council monthly during the financial year.
5. Should adequate savings to address the shortfall position not be achieved during the financial year, that the shortfall be funded from the Strategic Priorities reserve.
6. Enter into total borrowings of \$1.5 million as outlined in the Financial Implications section of the report for playing fields at Wauchope.

*CARRIED: 9/0*

*FOR: Alley, Cusato, Dixon, Griffiths, Hawkins, Intemann, Levido, Pinson and Turner*

*AGAINST: Nil*



## AGENDA

ORDINARY COUNCIL  
21/08/2019

Item: 10.08

Subject: NOTICE OF MOTION - BORROWING FOR PROJECTS

Councillor Levido has given notice of his intention to move the following motion:

**RECOMMENDATION**

That the General Manager bring back a Report to Council's October 2019 meeting detailing an actual proposal for Council to forthwith borrow, on commercial terms, the sum of \$25,000,000.00 on the basis that the loan funds so borrowed be utilised and allocated for the following project purposes on the basis that all will see commencement (being commencement of design and/or other preconstruction requirements) during the first quarter of 2020, namely:

1. Carry out the upgrade of Boundary Street, Port Macquarie from its intersection with Hastings River Drive to the Port Macquarie Airport entry based on current investigations and planning in an amount of \$15,000,000.00;
2. Carry out upgrade works to Bril Bril Road, Rollands Plains based on prior discussions and investigations with the local community in an amount of \$6,000,000.00;
3. Carry out upgrade works to The Hatch, Blackmans Point based on prior discussions and investigations with the local community in an amount of \$1,200,000.00;
4. Carry out further works with respect to the "School to School" project from Kendall Public School, Kendall to Laurieton Public School, Laurieton, with reference to the existing Strategic Alignment Study and in consultation with the School to School local committee, in an amount of \$900,000.00;
5. Carry out further works with respect to the "Beach 2 Beach" project from North Haven to Dunbogan, with reference to the proposed Strategic Alignment Study and in consultation with the Beach 2 Beach local committee, in an amount of \$900,000.00; and
6. Utilise \$1,000,000.00 with respect to undertaking investigative works as to tidal improvements to that part of the Lake Cathie and Lake Innes Estuarine System from the Ocean Drive bridge in a westerly direction.

**Comments by Councillor (if provided)**

Council continues to face important decisions as to the prioritisation of infrastructure spending based on its limited income & resources, on the one hand and the less than perfect funding model to which it is subject, on the other.

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With the conclusion of the recent NSW State Election and Federal Election, it is fair to say, that Council is now moving into the stage of its funding cycle where the cupboards in Sydney and Canberra will be a little barer for the foreseeable future.

At the Crawford Leadership Forum in Canberra on Monday 24 June 2019, Reserve Bank Governor, Philip Lowe, urged the Federal Government to borrow while interest rates were at record lows to fund the construction of projects. He said, amongst other things:

"If the government can build productive capacity by borrowing at low interest rates, it seems like that is a good thing to do"

and

"Governments here and around the world should have their top drawers full of really good ideas that are shovel-ready in case growth slows"

Whilst we are not a Federal Government, the relevance and applicability to Council as "Local Government" should not be lost.

We live in an era of record low interest rates which are predicted to continue for some time. Council through prudent financial management since administration ended in 2012 is well poised to borrow to fund required and important infrastructure without unreasonable strain on its finances.

Whilst Council will remain critically dependent on State and Federal Government funding to provide the bulk of significant infrastructure moving forward, there are projects that are currently unfunded that can be advanced for the betterment of the Local Government Area through Council initiative.

This Notice of Motion proposes borrowing \$25,000,000.00 to fund, in the manner set out, the 6 projects listed.

The upgrade of Boundary Street, Port Macquarie is long overdue and made more necessary with the imminent completion of the upgrade of the Port Macquarie Airport Terminal in late 2019/early 2020 at a cost of approximately \$10,000,000.00. It will deliver an appropriate "gateway" to visitors and provide a 1:20 year flood free access arrangement to this critical regional infrastructure.

The upgrade of Bril Bril Road at Rollands Plains is a significant start as to reducing the backlog on works required to the existing rural road network and improving the quality of life for the residents of that area.

The Hatch at Blackmans Point has received some funding from the Federal Government announced just prior to the recent Federal Election but more funds are required to provide a more complete solution.

Both the School to School and Beach to Beach projects in the Camden Haven are worthy community based projects that significantly enhance the quality of life of those communities and their residents generally.

The Lake Cathie and Lake Innes Estuarine System is currently undergoing further investigation as to how that system can be protected, improved and enhanced.



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Whilst Council is one of many Government stakeholders (and the smallest of such stakeholders) it is important that Council take a lead in applying resources to undertake investigative works as to tidal improvements to that part of the system from the Ocean Drive bridge in a westerly direction.

Common sense dictates that there is a prudent amount to which Council should borrow and owe.

In a perfect world, Council should be able to fully solve and fix all infrastructure problems in its Local Government Area with minimal delay and regardless of cost.

Common sense does prevail, and Council accepts that it does not live in a perfect world.

**Attachments**

Nil

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**10.08 NOTICE OF MOTION - BORROWING FOR PROJECTS**

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Mr Jason Koenig, on behalf of Camden Haven Schools to Schools, addressed Council in support of the recommendation - Point 4 - Schools to Schools pathway and tabled a map on pathway priorities.

Mr Koenig introduced Mr Thomas Bates who also spoke in favour of the Schools to Schools pathway project.

Mr Koenig answered questions from Councillors.

**RESOLVED:** *Levido/Intemann*

That the General Manager bring back a Report to Council's October 2019 meeting detailing an actual proposal, including implications, for Council to forthwith borrow, on commercial terms, or otherwise, raise the sum of \$25,000,000.00 on the basis that the loan funds so borrowed be utilised and allocated for the following project purposes on the basis that all will see commencement (being commencement of design and/or other preconstruction requirements) during the first quarter of 2020, namely:

1. Carry out the upgrade of Boundary Street, Port Macquarie from its intersection with Hastings River Drive to the Port Macquarie Airport entry based on current investigations and planning in an amount of \$15,000,000.00.
2. Carry out upgrade works to Bril Bril Road, Rollands Plains based on prior discussions and investigations with the local community in an amount of \$6,000,000.00.
3. Carry out upgrade works to The Hatch, Blackmans Point based on prior discussions and investigations with the local community in an amount of \$1,200,000.00.





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- 
4. Carry out further works with respect to the "Schools to Schools" project from Kendall Public School, Kendall to Laurieton Public School, Laurieton, with reference to the existing Strategic Alignment Study and in consultation with the School to School local committee, in an amount of \$900,000.00.
  5. Carry out further works with respect to the "Beach 2 Beach" project from North Haven to Dunbogan, with reference to the proposed Strategic Alignment Study and in consultation with the Beach 2 Beach local committee, in an amount of \$900,000.00.
  6. Utilise \$1,000,000.00 with respect to undertaking investigative and/or construction works as to tidal improvements to that part of the Lake Innes and Lake Cathie Estuarine System from the Ocean Drive bridge in a westerly direction.

**CARRIED: 7/2**

**FOR: Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner**

**AGAINST: Griffiths and Pinson**

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**Item: 10.08****Subject: BORROWING FOR PROJECTS****Presented by: Corporate Performance, Rebecca Olsen**

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**Alignment with Delivery Program**

1.5.1 Manage Council's financial assets and provide accurate, timely and reliable information.

**RECOMMENDATION**

**That the information in the Borrowing for Projects report be noted.**

**Executive Summary**

This report details a proposal, including implications, for Council to forthwith borrow, on commercial terms, or otherwise, and raise the sum of \$25,000,000 on the basis that the funds be utilised and allocated for various capital projects for commencement during the first quarter of 2020.

There are a number of advantages to proceeding with the borrowings/projects, including taking advantage of current low interest rates and the potential positive impact on economic stimulation. However, there are also a number of financial implications which need to be carefully considered, including considerations around borrowing capacity and the impact of borrowings of Council's future cash flows and financial sustainability.

The report will outline the implications of borrowing, and provide analysis around the financial impacts. It is not the intent of this report to examine the benefits of the individual projects identified. The report will demonstrate that it is possible to borrow \$25,000,000 for the projects outlined on commercial terms and outline options to mitigate the financial impacts.

**Discussion**Background

At the Ordinary Council Meeting held on 21 August 2019, Council resolved the following:



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16/10/2019**10.08 NOTICE OF MOTION - BORROWING FOR PROJECTS****RESOLVED:** *Levido/Intemann*

*That the General Manager bring back a Report to Council's October 2019 meeting detailing an actual proposal, including implications, for Council to forthwith borrow, on commercial terms, or otherwise, raise the sum of \$25,000,000.00 on the basis that the loan funds so borrowed be utilised and allocated for the following project purposes on the basis that all will see commencement (being commencement of design and/or other preconstruction requirements) during the first quarter of 2020, namely:*

1. *Carry out the upgrade of Boundary Street, Port Macquarie from its intersection with Hastings River Drive to the Port Macquarie Airport entry based on current investigations and planning in an amount of \$15,000,000.00.*
2. *Carry out upgrade works to Bril Bril Road, Rollands Plains based on prior discussions and investigations with the local community in an amount of \$6,000,000.00.*
3. *Carry out upgrade works to The Hatch, Blackmans Point based on prior discussions and investigations with the local community in an amount of \$1,200,000.00.*
4. *Carry out further works with respect to the "Schools to Schools" project from Kendall Public School, Kendall to Laurieton Public School, Laurieton, with reference to the existing Strategic Alignment Study and in consultation with the School to School local committee, in an amount of \$900,000.00.*
5. *Carry out further works with respect to the "Beach 2 Beach" project from North Haven to Dunbogan, with reference to the proposed Strategic Alignment Study and in consultation with the Beach 2 Beach local committee, in an amount of \$900,000.00.*
6. *Utilise \$1,000,000.00 with respect to undertaking investigative and/or construction works as to tidal improvements to that part of the Lake Innes and Lake Cathie Estuarine System from the Ocean Drive bridge in a westerly direction.*

**CARRIED:** 7/2**FOR:** *Alley, Cusato, Dixon, Hawkins, Intemann, Levido and Turner***AGAINST:** *Griffiths and Pinson*

This report addresses the above recommendation.

Advantages of prioritising and funding capital projects

There are a range of advantages in prioritising and funding capital projects with some of these outlined below. It should be noted that these are general comments without focussing on the specific benefits of each of the listed projects.

Economic Stimulation

Delivering the abovementioned projects may provide economic stimulation. For example, during construction phases, materials and labour are required, which increases local employment and has the opportunity to assist local business in the purchase of goods and services. Such investment supports jobs growth, connects

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people to their jobs, homes and communities, and supports the efficient movement of people and products in and around our region. All of this adds to growing our economy and improving the liveability of our region.

*Low interest rates*

Borrowing funds in the current interest rate environment would allow Council to take advantage of historically low interest rates to deliver the projects identified. Securing debt funding in a low interest market, as opposed to potentially borrowing in the future, would mean that Council could potentially avoid higher future costs of borrowing. In addition, securing low interest rate funds now may mean that existing cash reserves can be preserved in investments which are attracting a higher rate of return than the interest cost of debt.

Should borrowing be staged, (not drawn up front), in line with project delivery, future interest rates may increase. It is noted that where works are scheduled to be delivered on a staged approach, should borrowings be drawn up front, the funds will remain in reserve until required to fund the works. This means that there will be a period where the funds are not technically required, but where interest is being incurred on the borrowings. This cost will be offset to an extent by the investment revenue earned on the reserves. However unlike existing investments, new investments are likely to be made at a lower rate than the current cost of borrowing. The risk of the net cost to council would therefore need to be considered against the risk of potentially higher interest rates should the borrowings be drawn on a stages approach in the future.

*Intergenerational equity principles*

Intergenerational equity is the concept of fairness between generations and includes consideration of the financial impacts of decisions on future generations, as well as ensuring that the cost of services / assets provided are funded by those generations receiving the benefits of those services / assets.

Utilising debt to fund infrastructure projects and aligning repayments with the life of these assets supports the concept of intergenerational equity as in effect the generations 'paying' for the assets are those utilising and therefore gaining benefit from the assets.

*Benefits of the Individual Projects*

Each of the projects listed have benefits for stakeholders and the community. It is not within the scope of this report to expand on these benefits, or to comment on whether these are priority projects for Council, as this is a matter for Council to determine.

Implications of funding the projects

Notwithstanding the above-mentioned benefits, no decisions are without implications. The implications for consideration are as follows:

*Capacity to borrow*

Capacity to borrow refers to the amount of money available for Council to borrow based on its current financial status. Ultimately were Council to proceed with the



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borrowings, the capacity to borrow would be determined by the lenders, the outcome of which would determine whether Council could borrow the proposed funds.

The debt service cover ratio (which measures the affordability of debt), may however provide an indicator of capacity to borrow. Council's long term financial planning currently projects debt service cover ratios above the Office of Local Government's benchmark of 2x on both a consolidated and general fund basis and would still be projected to remain above benchmark on a consolidated and general fund basis with the additional borrowings taken into account.

*Commercial Terms*

Council has approached TCorp and a local commercial bank to obtain indicative loan interest rates for the proposed borrowings, with a range of durations and at both fixed and variable rates. Council has also consulted with its investment advisors to determine what likely interest rates would be in the current market.

These approaches have indicated that Council could borrow the funds on commercial terms, with likely interest rates in an approximate range of 2% - 3.5%.

*Cash flow to repay borrowings (and budget position)*

Funding the projects through borrowings will impact future cash flows with additional interest and principal repayments which are currently not included in Council's long term financial planning. A borrowing of \$25,000,000 over a 20-year loan term with bi-annual repayments would incur the following approximate repayments over the next 10 years:

Interest Rate	Annual Principal Repayments	Interest Repayments 2020/21	Interest Repayments 2028/29
2%	\$1.25m	\$495k	\$295k
3.5%	\$1.25m	\$865k	\$515k

The above means that approximate annual repayments and therefore additional cash flow requirements would be:

Interest Rate	2020/21	2028/29
2%	\$1.7m	\$1.5m
3.5%	\$2.1m	\$1.8m

Council's long term financial planning, (excluding the proposed loan repayments), is currently projecting budget deficit positions up to 2022/23, returning to surplus in 2023/24 with a projected surplus of \$9.5m in 2028/29. This is due largely to existing loans reaching the end of their term and therefore a reduction in loan repayments.

The impact of the above additional cash flow requirements will result in projected budget deficit positions for the next 5 years, with a return to surplus in 2025/26. The following table outlines the major impacts:



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Interest Rate	Cumulative Deficits over Next Five Years	Projected Surplus in 2028/29
2%	\$11.1m	\$7.9m
3.5%	\$12.8m	\$8.0m

The above means that additional loan repayments would result in placing additional short term pressure on future cash flows. This would need mitigation over this period.

*Financial Sustainability and Impact on Ratios*

In addition to the budget position noted above, an important consideration in determining the appropriateness of debt funding is the affordability of the borrowings and the impact on future financial sustainability. This can be measured through a number of key financial indicators as follows:

- **Operating Performance Ratio:** measures Council's ability to contain operating expenditure within operating revenue. This is considered to be a key measure of financial sustainability.
- **Debt Service Cover Ratio:** measures the affordability of debt held by Council.
- **Unrestricted Current Ratio:** measures Council's ability to meet short-term financial obligations as they fall due.

Council's long term financial planning is currently projecting debt service cover and unrestricted current ratios above the Office of Local Government's benchmarks, (> 2x and >1.5x respectively), on both a consolidated and general fund basis. Whilst additional interest and principal repayments will adversely impact these ratios, they are still projected to remain above benchmark.

The consolidated operating performance ratio is projected to be positive and whilst additional interest repayments will reduce this ratio, it is still projected to remain above benchmark, (>0%). The general fund is however projecting annual negative operating performance ratios moving forward and additional interest repayments will place further pressure on this position.

The following tables summarise the impacts on these financial indicators on both a consolidated and general fund basis:

With an interest rate of 2%

Fund	Ratio	2020/21		2028/29	
		Current Projection	Projection with Additional Borrowings	Current Projection	Projection with Additional Borrowings
Consolidated	Operating Performance Ratio	3.43%	3.15%	12.02%	11.89%
	Debt Service Cover Ratio	4.97	4.35	468.02	52.4
	Unrestricted Current Ratio	2.30	2.20	3.76	3.58

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Fund	Ratio	2020/21		2028/29	
		Current Projection	Projection with Additional Borrowings	Current Projection	Projection with Additional Borrowings
General Fund	Operating Performance Ratio	-4.78%	-5.22%	-3.29%	-3.48%
	Debt Service Cover Ratio	3.16	2.63	215.49	24.13
	Unrestricted Current Ratio	2.11	2.02	3.50	3.34

With an interest rate of 3.5%

Fund	Ratio	2020/21		2028/29	
		Current Projection	Projection with Additional Borrowings	Current Projection	Projection with Additional Borrowings
Consolidated	Operating Performance Ratio	3.43%	2.94%	12.02%	11.80%
	Debt Service Cover Ratio	4.97	4.24	468.02	46.51
	Unrestricted Current Ratio	2.30	2.20	3.76	3.58
General Fund	Operating Performance Ratio	-4.78%	-5.55%	-3.29%	-3.62%
	Debt Service Cover Ratio	3.16	2.54	215.49	21.41
	Unrestricted Current Ratio	2.11	2.02	3.50	3.34

*Potential future strategic projects*

Council's forward planning has identified a number of significant strategic projects in the coming years, which may require some level of funding from borrowings. These projects include the following:

- Port Macquarie Aquatic Facility
- Hastings Regional Sporting Complex
- Thrumster Sewerage Treatment Plant
- Cowarra Dam Water Treatment / Filtration Plant

It is noted that the above projects have previously been identified as future priorities by resolutions of Council.

The above projects are significant in cost and may require borrowings. Whether borrowings are used to fund these future strategic projects or the projects identified as part of this report, there are similar considerations in relation to the impacts on future cash flows and financial sustainability. However, should these future strategic projects require borrowings on top of the \$25m for the projects identified in this



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report, the cash flow requirements from these borrowings would further adversely impact the financial indicators above. Cash flow requirements could be mitigated through reprioritising expenditure and/or increasing revenue.

In addition, Council's future capacity to borrow may be limited by funding \$25m through borrowings now, although this would depend on the quantum. Should this occur, there could be a greater need to find alternate funding sources for the above future strategic projects such as grants.

*Integrated Planning & Reporting*

The Integrated Planning and Reporting framework recognises that council plans and policies should not exist in isolation - that they are interconnected. The framework allows NSW councils to draw their various plans together, understand how they interact and get the maximum leverage from their efforts by planning holistically and sustainably for the future.

As noted above, the priorities of Council are for Council to determine. However, should these projects be prioritised out of the Integrated Planning and Reporting annual process, then it is possible that other projects that otherwise would have been priorities for Council, will now have to be deferred. Consideration would need to be given as to whether a re-exhibition of the 2019/20 Operational Plan would be required.

*Project Delivery*

The projects identified have a range of delivery timeframes as outlined in the table below, noting that a reallocation of priorities could bring forward more of the programs into the current financial year:

Project	Identified Sum	FY 19/20	FY 20/21	Outer Years
Boundary Street	\$15 million	\$0 Go out to tender for detailed design in Q4.	\$500k - Commence Detailed Design	21/22 - 24/25 Complete detailed design, EIS, Acquisitions, construction planning and construction
Bril Bril Road	\$6 million	\$0	\$300k to commence design	21/22 - 24/25 Finalise design and commence construction planning inclusive of any property acquisitions, service realignments, bridges etc
The Hatch	\$1.2 million	Underway - Aiming to commence construction pre-30 June with informed design on costings	Complete Construction	N/A
Schools to Schools	\$0.9 million	\$0, noting that there is \$1.1m in the current Operational Plan	\$200k to commence detailed design on High priority areas.	21/22 - 23/24 \$200k to complete detailed design and \$500k to commence construction



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Project	Identified Sum	FY 19/20	FY 20/21	Outer Years
Beach 2 Beach	\$0.9 million	\$200k could be spent on EIS and commencing Detailed Design for Remaining sections	\$300k to complete detailed design and commence construction	21/22 - construction using remaining funding/possible grants
Lake Cathie Estuarine System	\$1.0 million	Part progress - refer below		

In terms of the Lake Cathie Estuarine System, it is envisaged that the following would be undertaken, noting that this is indicative only at this stage:

- a. Develop a Coastal Management Program (CMP) for the Lake Innes/Lake Cathie Estuarine System - **\$50,000**. *This would commence in 19/20 but not completed.*
- b. Council's 50% to commence initial background studies in order to undertake the Lake Innes/Lake Cathie Estuarine System CMP as follows:
  - A digestion model of the Acid Sulphate Soil (ASS) recently uncovered as a result of a study commissioned by Council & NPWS in May 2019 - \$185,000
  - A review of 2013 Lake Innes Reversion Study - \$50,000
  - An ecological condition assessment of the saltmarsh community within Lake Innes - \$10,000.
  - Review of possible short term emergency ASS containment works - \$50,000.

The above actions are estimated to cost \$295,000. Funding can be applied for at any time with 50/50 (i.e. NSW government/other) funding available through the CMP process (i.e. NSW Coastal and Estuary Grants Program). Accordingly, Council's 50% contribution would be **\$147,500**. *This could be completed in 19/20.*

- c. Employment of an Environmental Projects Officer to undertake the Lake Innes/Lake Cathie Estuarine System CMP for a fixed term of 24 months - **\$235,000** *This would commence in the current financial year but will take 2 years to complete.*
- d. Undertake identified mitigation works **\$332,500** *This is contingent on Point 1 and Government approval.*

As can be seen from this table, most of the \$25 million total capital cost would not be required in this financial year, and would be spread across to 2023/2024. Hence, there would be two options for borrowing:

1. Borrow now and place the unspent loans in reserve pending cash flow needs. This would increase reserve balances, but lock in lower interest rates.

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## 2. Phase borrowings in line with cash flow requirements.

Council already has an adopted capital works program of \$85.6m (excluding developer provided assets), in addition to carryover projects from the 2018-2019 financial year of \$24.8m. The actual spend on the capital works program over the last 5 years is as follows:

Year	Total Capital Spend* (\$'m)
2014/15	42.1
2015/16	70.0
2016/17	65.0
2017/18	51.8
2018/19	58.1

*\*Noting the above excludes developer provider assets*

Hence, based on historical capital delivery levels, the current year is already an ambitious program and adding further projects could result in a deferral of projects in the current year, and in the forward works program.

Options for Funding \$25 million in Loan Repayments

Noting the requirement for any borrowings to be repaid, and the current and projected cash flow deficit, there are a range of options for Council to consider to be able to repay the loan:

1. In recent times, service levels have been maintained. An option to fund the loan repayments would be to reduce existing services by an amount to cover the loan repayments. This would entail undertaking detailed engagement with the community to understand priorities around service type and quality of service, in order to be able to determine appropriate service levels moving forward. Resourcing of this exercise would require a re-prioritisation of current OP priorities, as the current OP does not include provisions for this work.
2. As well as maintaining service levels, funding in a number of areas has been increased over the last several years, for example footpath renewals, road maintenance, stormwater renewals, and tree maintenance. An option to fund the loan repayments would be to reduce funding in one or more of these areas, on either a temporary or permanent basis.
3. Reduction of existing budgets across the organisation which will have the effect of constraining delivery across the organisation as opposed to a single targeted service.
4. Increasing revenue, e.g. via a special rate variation.

Alternative Funding Options for the Projects

As an alternative to borrowing (whether in relation to these projects or future strategic projects), Council may consider some alternatives to borrowing to fund the projects which can reduce the cash requirement to fund the loan repayments. These may include:

1. Developer contribution funding\*: an initial review has been performed on the potential availability of developer contribution funding for the abovementioned



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- projects. This review indicates that whilst some funding may be available, in particular for the "Schools to Schools" and "Beach 2 Beach" projects, this is not likely to be significant.
2. Reserve funding\*\*: an initial review has been performed of the potential availability of reserve funding for the abovementioned projects. This review has indicated that significant reserve funding is not available unless Council elects to modify the priorities and commitments currently allocated to the reserves.
  3. Sale of assets: Council may consider using proceeds from, for example, the sale of the Crematorium, Thrumster subdivision or general asset sales to fund the loan repayments.

*\*Developer contributions are a funding mechanism that permits the levying of funds from developers to provide certain public amenities or services. Council adopts contribution plans which detail how these funds will be spent. It is noted that there are a range of legislative restrictions on how these funds may be spent.*

*\*\*Council holds cash and investments in a number of reserves which ensure that funds are set aside for future projects. These reserves may have external legislative restrictions placed on them which mean that they are not available for general use. They may also have internal restrictions placed on them whereby they are held by Council for specific future purposes as determined by Council*

Proposal

Approaches to commercial lenders have indicated that Council could borrow the funds on commercial terms, with exact terms not known until finalisation of an application process.

Council would be able to borrow the funds, on commercial terms, on an upfront basis or staged approach, with terms of up to 20 years and current interest rates likely to fall within a range of approximately 2% to 3.5%. The borrowings would have a number of implications which would need to be considered.

Analysis indicates that loan repayments would result in placing short term pressure on cash flows, and longer term increased pressure on Council's operating results and future financial sustainability. These impacts could be mitigated by other measures, such as a reduction in existing budgeted expenditure, a re-prioritisation of existing services / projects and associated funding and/or an increase in revenue. Whilst the impacts are not significant for the current financial year, measures would need to be considered during the 2020/2021 operational plan development and implemented to address the impact on cash flow and operating performance.

**Options**

1. To proceed to borrow for the projects in the original Council resolution either:
  - a. On an upfront basis, placing unspent loan funds in reserve pending cash flow requirements or
  - b. Borrow over multiple years on a staged approach in line with project timeframes
2. Consider these projects (and associated funding) as part of the 2020/2021 Operational Plan (OP) development where all projects can be considered and



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prioritised. This would entail delaying a decision now to borrow so that this could be considered in the development of the 2020/2021 OP.

**Community Engagement & Internal Consultation**

Consultation has taken place with the following:

- General Manager
- Executive Team
- Acting Group Manager Financial Services
- Infrastructure Division
- TCorp and a local commercial bank

**Planning & Policy Implications**

There are no planning and policy implications in relation to this report.

**Financial & Economic Implications**

The financial and economic implications in relation to this report have been detailed in the above analysis.

**Attachments**

Nil





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**10.08 BORROWING FOR PROJECTS**

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Ms Kate Aston, Revive Lake Cathie Inc., addressed Council in support of the recommendation.

Mr Blair Maxwell addressed Council in support of the recommendation.

**MOTION**

*MOVED: Levido/Intemann*

That Council:

1. Note the importance of the following projects and prioritise them for planning and design:
    - a) Upgrade of Boundary Street, Port Macquarie from its intersection with Hastings River Drive to the Port Macquarie Airport entry based on current investigations and planning in an amount of \$15,000,000.00 for the complete project.
    - b) Carry out upgrade works to Bril Bril Road, Rollands Plains based on prior discussions and investigations with the local community in an amount of \$6,000,000.00 for the complete project.
    - c) Carry out further works with respect to the "Schools to Schools" project from Kendall Public School, Kendall to Laurieton Public School, Laurieton, with reference to the existing Strategic Alignment Study and the high priority sections identified in consultation with the School to School local committee.
    - d) Carry out further works with respect to the "Beach 2 Beach" project from North Haven to Dunbogan, with reference to the proposed Strategic Alignment Study and in consultation with the Beach 2 Beach local committee.
    - e) Carry out investigations and planning with respect to undertaking tidal improvements to that part of the Lake Innes and Lake Cathie Estuarine System from the Ocean Drive bridge in a westerly direction.
  2. Add to the 2019-2020 Operational Plan the components of planning and design for the projects listed above so as to substantially progress each, using internal and/or contracted resources so as to not prevent completion of other existing projects in the 2019-2020 operational plan.
  3. Request the General Manager to add the remaining planning and design work for the projects listed above, plus substantial further work on each project, to
-



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- the draft 2020-2021 Operational Plan.
4. Request the General Manager to fund the nominated planning and design work specified in point 2, above, with loan borrowings raised immediately to the amount of \$2,400,000.00.
  5. Request the General Manager to consider (in the current 2019-2020 operational plan, the draft 2020-2021 operational plan and in the review of the long term financial plan) the appropriate mitigation factors to offset the cashflow requirements (and operating performance impacts) of repaying the interest and principal associated with the above borrowings.
  6. Request the General Manager to consider additional borrowings up to \$25,000,000.00 in total to fund the balance of the projects listed 1a) and 1b) above and progressing the projects listed 1c), 1d) and 1e) above (in the draft 2020-2021 operational plan and in the review of the long term financial plan), together with the appropriate mitigation factors to offset the cash flow requirements (and operating performance impacts) of repaying the interest and principal associated with the additional borrowings.

**AMENDMENT**

*MOVED: Pinson/Griffiths*

That Item 10.08 be deferred and given consideration by the entire elected body due to the significance of the borrowing of \$25,000,000.00 and further discussions on how to consult with our community can be undertaken.

**THE AMENDMENT WAS PUT AND WAS LOST**

*MOVED: Pinson/Griffiths*

That Item 10.08 be deferred and given consideration by the entire elected body due to the significance of the borrowing of \$25,000,000.00 and further discussions on how to consult with our community can be undertaken.

*LOST: 2/6*

*FOR: Griffiths and Pinson*

*AGAINST: Alley, Dixon, Hawkins, Intemann, Levido and Turner*

**AMENDMENT**

*MOVED: Pinson/Griffiths*

That Council:

1. Request the General Manager to investigate the sourcing of \$2.4M to fund the nominated planning and design work for the projects specified below from the unrestricted reserves fund:
  - a) Upgrade of Boundary Street, Port Macquarie from its intersection with Hastings River Drive to the Port Macquarie Airport entry based on current investigations and planning in an amount of \$15,000,000.00 for the complete project.
  - b) Carry out upgrade works to Bril Bril Road, Rollands Plains based on prior discussions and investigations with the local community in an amount of \$6,000,000.00 for the complete project.
  - c) Carry out further works with respect to the "Schools to Schools" project



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- from Kendall Public School, Kendall to Laurieton Public School, Laurieton, with reference to the existing Strategic Alignment Study and the high priority sections identified in consultation with the School to School local committee.
- d) Carry out further works with respect to the "Beach 2 Beach" project from North Haven to Dunbogan, with reference to the proposed Strategic Alignment Study and in consultation with the Beach 2 Beach local committee.
  - e) Carry out investigations and planning with respect to undertaking tidal improvements to that part of the Lake Innes and Lake Cathie Estuarine System from the Ocean Drive bridge in a westerly direction.
2. Request the General Manager bring a report back to Council at the December 2019 Council Meeting for further consideration.

**THE AMENDMENT WAS PUT AND WAS LOST**

*MOVED: Pinson/Griffiths*

That Council:

- 1. Request the General Manager to investigate the sourcing of \$2.4M to fund the nominated planning and design work for the projects specified below from the unrestricted reserves fund:
  - a) Upgrade of Boundary Street, Port Macquarie from its intersection with Hastings River Drive to the Port Macquarie Airport entry based on current investigations and planning in an amount of \$15,000,000.00 for the complete project.
  - b) Carry out upgrade works to Bril Bril Road, Rollands Plains based on prior discussions and investigations with the local community in an amount of \$6,000,000.00 for the complete project.
  - c) Carry out further works with respect to the "Schools to Schools" project from Kendall Public School, Kendall to Laurieton Public School, Laurieton, with reference to the existing Strategic Alignment Study and the high priority sections identified in consultation with the School to School local committee.
  - d) Carry out further works with respect to the "Beach 2 Beach" project from North Haven to Dunbogan, with reference to the proposed Strategic Alignment Study and in consultation with the Beach 2 Beach local committee.
  - e) Carry out investigations and planning with respect to undertaking tidal improvements to that part of the Lake Innes and Lake Cathie Estuarine System from the Ocean Drive bridge in a westerly direction.
- 2. Request the General Manager bring a report back to Council at the December 2019 Council Meeting for further consideration.

*LOST: 3/5*

*FOR: Dixon, Griffiths and Pinson*

*AGAINST: Alley, Hawkins, Intemann, Levido and Turner*

**THE MOTION WAS PUT**

*RESOLVED: Levido/Intemann*

That Council:



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- 
1. Note the importance of the following projects and prioritise them for planning and design:
    - a) Upgrade of Boundary Street, Port Macquarie from its intersection with Hastings River Drive to the Port Macquarie Airport entry based on current investigations and planning in an amount of \$15,000,000.00 for the complete project.
    - b) Carry out upgrade works to Bril Bril Road, Rollands Plains based on prior discussions and investigations with the local community in an amount of \$6,000,000.00 for the complete project.
    - c) Carry out further works with respect to the "Schools to Schools" project from Kendall Public School, Kendall to Laurieton Public School, Laurieton, with reference to the existing Strategic Alignment Study and the high priority sections identified in consultation with the School to School local committee.
    - d) Carry out further works with respect to the "Beach 2 Beach" project from North Haven to Dunbogan, with reference to the proposed Strategic Alignment Study and in consultation with the Beach 2 Beach local committee.
    - e) Carry out investigations and planning with respect to undertaking tidal improvements to that part of the Lake Innes and Lake Cathie Estuarine System from the Ocean Drive bridge in a westerly direction.
  2. Add to the 2019-2020 Operational Plan the components of planning and design for the projects listed above so as to substantially progress each, using internal and/or contracted resources so as to not prevent completion of other existing projects in the 2019-2020 operational plan.
  3. Request the General Manager to add the remaining planning and design work for the projects listed above, plus substantial further work on each project, to the draft 2020-2021 Operational Plan.
  4. Request the General Manager to fund the nominated planning and design work specified in point 2, above, with loan borrowings raised immediately to the amount of \$2,400,000.00.
  5. Request the General Manager to consider (in the current 2019-2020 operational plan, the draft 2020-2021 operational plan and in the review of the long term financial plan) the appropriate mitigation factors to offset the cashflow requirements (and operating performance impacts) of repaying the interest and principal associated with the above borrowings.
  6. Request the General Manager to consider additional borrowings up to \$25,000,000.00 in total to fund the balance of the projects listed 1a) and 1b) above and progressing the projects listed 1c), 1d) and 1e) above (in the draft 2020-2021 operational plan and in the review of the long term financial plan), together with the appropriate mitigation factors to offset the cash flow requirements (and operating performance impacts) of repaying the interest and principal associated with the additional borrowings.

*CARRIED: 6/2*

*FOR: Alley, Dixon, Hawkins, Intemann, Levido and Turner*

*AGAINST: Griffiths and Pinson*



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Item: 13.09

Subject: LAKE INNES/LAKE CATHIE ESTUARY SYSTEM UPDATE REPORT

Presented by: Development and Environment, Melissa Watkins

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**Alignment with Delivery Program**

4.8.2 Increase community awareness and enable access to the natural environment.

**RECOMMENDATION**

That Council:

1. Note the information provided in the Lake Innes/Lake Cathie Estuary System Update Report.
2. Request the General Manager to seek 50% Coastal Management Program funding to undertake the initial background studies as outlined, for input to the Lake Innes/Lake Cathie Coastal Management Program being \$147,500.

**Executive Summary**

At the 15 May 2019 Ordinary meeting, Council resolved as follows:

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**09.01 NOTICE OF MOTION - SUBMISSION FROM REVIVE LAKE CATHIE INC. TO PMHC 2019-2020 OPERATIONAL PLAN**

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*Ms Danielle Maltman addressed Council in support of the recommendation and responded to questions from Councillors.***RESOLVED:** Hawkins/Griffiths

That Council:

1. Thank the Revive Lake Cathie group for its submission on Lake Cathie.
2. Note that Lake Cathie is an asset of the Crown and management of the Lake Cathie system is the responsibility of a number of stakeholders including:
  - a) Council;
  - b) National Parks and Wildlife Service (NPWS);
  - c) Office of the Environment and Heritage (OEH); and
  - d) NSW Fisheries and Department of Industry (Lands),in accordance with the NSW Coastal Management Act 2016 and the Lake Cathie Opening Strategy
3. Request the General Manager to forward a copy of the Revive Lake Cathie Group's submission to:
  - a) National Parks and Wildlife Service;
  - b) Office of the Environment and Heritage (OEH);

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- 
- c) *NSW Fisheries and Department of Industry (Lands);*
  - d) *NSW Minister for Water, Property and Housing;*
  - e) *NSW Local Member (and local resident) Leslie Williams;*
  - f) *Premier Gladys Berejiklian;*
  - g) *Deputy Premier John Barilaro;*
  - h) *Newly elected Federal Members for Lyne and Cowper;*
  - i) *Newly appointed Federal Environment Minister.*
- 4. *Request the General Manager to seek advice from the NSW Government referred to in 3 above as to whether, as a result of the Revive Lake Cathie submission, the existing Lake Cathie Opening Strategy should be reviewed.*
  - 5. *Request the General Manager to make a further request of the NSW Government that if it deems a review of the Lake Cathie Opening Strategy is required, that the necessary resources to undertake such a review be provided, along with any resources required for associated capital works that may be prescribed by an updated strategy or management plan.*
  - 6. *Give consideration to including an allocation in the 2019/20 Operational Budget to support the initial work required.*
  - 7. *Request the General Manager submit an update report to the September, 2019 meeting of council.*

CARRIED: 8/0

FOR: *Alley, Dixon, Griffiths, Hawkins, Intemann, Levido, Pinson and Turner*

AGAINST: Nil

At the 19 June 2019 Ordinary meeting of Council, in response to consideration of the 2019-2020 OP and budget, Council subsequently resolved as follows:

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16/10/2019**10.04 INTEGRATED PLANNING AND REPORTING (IPR) DOCUMENTS****RESOLVED:** Alley/Hawkins*That Council:*

1. Adopt the following Integrated Planning and Reporting (IPR) documents:
  - a) Delivery Program 2017-2021 (Revised 2019); and
  - b) Operational Plan 2019-2020
2. Not opt into the new parking fine concession fee scheme.
3. Undertake a review of the existing Lake Cathie Opening Strategy in consultation with the National Parks and Wildlife Services (NPWS); the Office of Environment and Heritage (OEH); NSW Fisheries and Department of Industry (DPI - Lands); and the community including the Revive Lake Cathie community group.
4. Note the 2019-2020 budget position of a \$975,198 shortfall which will be reported to Council monthly during the financial year.
5. Should adequate savings to address the shortfall position not be achieved during the financial year, that the shortfall be funded from the Strategic Priorities reserve.
6. Enter into total borrowings of \$1.5 million as outlined in the Financial Implications section of the report for playing fields at Wauchope.

CARRIED: 9/0

FOR: Alley, Cusato, Dixon, Griffiths, Hawkins, Intemann, Levido, Pinson and Turner

AGAINST: Nil

The June resolution came before responses had been received in respect to the current resolution from the 15 May 2019 Ordinary meeting.

This report provides an update on the actions to date in addressing the resolutions from 15 May 2019 (Item 09.01) in accordance with point 7 of the resolution, and point 3 from 19 June 2019 regarding a review of the *Lake Cathie Opening Strategy* (Item 10.04).

**Discussion**

The management of the Lake Cathie/Lake Innes estuary system is complex and is the responsibility of a number of stakeholders. It is not one for Council alone to resolve.

The table below lists the items within the resolution from May 2019, the progress made to date and if further action is required.

Action Item	Progress to date	Further Action Required
1. Thank the Revive Lake Cathie group for its submission on Lake Cathie.	Complete	Nil

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Action Item	Progress to date	Further Action Required
<p>2. Note that Lake Cathie is an asset of the Crown and management of the Lake Cathie system is the responsibility of a number of stakeholders including:</p> <p>a) Council;</p> <p>b) National Parks and Wildlife Service (NPWS);</p> <p>c) Office of the Environment and Heritage (OEH); and</p> <p>d) NSW Fisheries and Department of Industry (Lands),</p> <p>in accordance with the NSW Coastal Management Act 2016 and the Lake Cathie Opening Strategy</p>	<p>Complete</p> <p><b>NB:</b> following a NSW government restructure all of these agencies now fall under a 'super' department called the Department of Environment, Industry and Planning (DPIE).</p>	Nil
<p>3. Request the General Manager to forward a copy of the Revive Lake Cathie Group's submission to:</p> <p>a) National Parks and Wildlife Service;</p> <p>b) Office of the Environment and Heritage (OEH);</p> <p>c) NSW Fisheries and Department of Industry (Lands);</p> <p>d) NSW Minister for Water, Property and Housing;</p> <p>e) NSW Local Member (and local resident) Leslie Williams;</p> <p>f) Premier Gladys Berejiklian;</p> <p>g) Deputy Premier John Barilaro;</p> <p>h) Newly elected Federal Members for Lyne and Cowper;</p>	<p>Complete</p> <p>Letters were sent to all parties listed on 3 July 2019.</p> <p>Responses received are attached to this report as <b>Attachment 1 and 2</b>.</p> <p>Responses were received from:</p> <p>Mark Taylor on behalf of the Hon Sussan Ley, Federal Minister for the Environment.</p> <p>Dimitri Young on behalf of DPIE (encompassing NPWS, OEH &amp; NSW Fisheries &amp; Lands).</p> <p>Responses are discussed below in <i>Community Engagement &amp; Internal Consultation</i>.</p>	Nil

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Action Item	Progress to date	Further Action Required
i) Newly appointed Federal Environment Minister.		
4. Request the General Manager to seek advice from the NSW Government referred to in 3 above as to whether, as a result of the Revive Lake Cathie submission, the existing <i>Lake Cathie Opening Strategy</i> should be reviewed.	Complete  Letters were sent to all parties listed on 3 July 2019.  At the 19 June 2019, Council subsequently resolved to review the <i>Lake Cathie Opening Strategy</i> independent of the advice received from the state government.	The Lake Cathie Opening Strategy review is yet to commence.
5. Request the General Manager to make a further request of the NSW Government that if it deems a review of the <i>Lake Cathie Opening Strategy</i> is required, that the necessary resources to undertake such a review be provided, along with any resources required for associated capital works that may be prescribed by an updated strategy or management plan.	Complete  Letters were sent to all parties listed on 3 July 2019.  At the 19 June 2019, Council subsequently resolved to review the <i>Lake Cathie Opening Strategy</i> independent of the advice received from the state government.	The Lake Cathie Opening Strategy review is yet to commence.
6. Give consideration to including an allocation in the 2019/20 Operational Budget to support the initial work required.	Complete  An allocation to complete various studies required under the Coastal Management Program (CMP) has been provided in the 2019/20 budget.  The Lake Cathie Opening Strategy review will be funded through this allocation.	The Lake Cathie Opening Strategy review is yet to commence.  The initial Scoping Study required by the CMP process is underway.
7. Request the General Manager submit an update report to the September, 2019 meeting of council.	Complete  This report has been prepared to respond to the notice of motion. The report was delayed pending a meeting with community stakeholders	

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Action Item	Progress to date	Further Action Required
	held on 4 September 2019 and agency stakeholders held on 16 September 2019.	

Since the resolutions in May and June 2019, Council staff have held three meetings with the key government agencies involved in the management of the Lake Cathie and Lake Innes estuary system. These stakeholders include, National Park and Wildlife Services (NPWS), Department of Primary Industries - Fisheries (DPI Fisheries), Department of Primary Industries - Crown Lands (DPI Crown Land). Soil Conservation Services (SCS) was also involved in the meetings.

Council staff also met with key Community Stakeholders including Revive Lake Cathie, the Lake Cathie Progress Association, and the Camden Haven Chamber of Commerce on 4 September 2019.

Following these meetings Council staff and government agencies have agreed on a way forward that revolves around the NSW governments' Coastal Management Program (CMP) framework which Council is obliged to complete in order to manage Coast and Estuarine matters and to receive funding for projects.

However, in order to commence with development a CMP the following initial background studies have been identified by the stakeholders:

1. A digestion model of the Acid Sulfate Soil (ASS) recently uncovered as a result of a study commissioned by Council & NPWS in May 2019 - \$185,000
2. A review of 2013 Lake Innes Reversion Study - \$50,000
3. An ecological condition assessment of the saltmarsh community within Lake Innes - \$10,000. **NB:** The Australian Government has listed *Subtropical and Temperate Coastal Saltmarsh* as **vulnerable** in the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
4. Review of possible short term emergency ASS containment works - \$50,000.

The above actions are estimated to cost \$295,000.

While it is appropriate that Council take the lead in developing the CMP, given that Lake Innes and much of Lake Cathie is National Park and under the tenure of the NSW government it cannot be Council alone that takes responsibility for the cost of these studies and the development of the CMP for the Lake Innes/Lake Cathie Estuary System.

Funding can be applied for at any time with 50/50 (ie. NSW government/other) funding available through the CMP process (ie. NSW Coastal and Estuary Grants Program).

There may be an expectation that the NSW government should fund most if not all the above work. However, recent advice from NPWS and NSW Fisheries is that they cannot contribute funding to the above actions. For the actions to proceed, Council

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may accordingly need to approach the Minister for the Environment to seek 100% of the funding in the absence of any contribution from other agencies (eg. NPWS, Fisheries, etc) or consider some other option(s) for funding.

## Options

Council may choose to:

1. Seek 100% (\$295,000) grant funding for the necessary activities (ie. No funding by council) via the Minister for the Environment.
2. Allocate 50% (\$147,500) funding for the necessary activities on the basis of 50% grant funding is provided by the NSW government.
3. Allocate 25% (\$73,750) funding for the necessary activities as Council's contribution on the basis that a part contribution of 75% is provided by DPIE being a contribution from NPWS, NSW Fisheries and through the NSW Coastal and Estuary Grants Program.

## Community Engagement &amp; Internal Consultation

The following table details the responses received in response to the two Council resolutions:

Name	Response/Comment:
Mark Taylor on behalf of the Hon Sussan Ley, Federal Minister for the Environment.	Letter will be passed to the Department of Environment and Energy for a reply. <b>NB:</b> No response received.
	Australian Government has a role in the RAMSAR Convention but no role in Lake Cathie-Innes.
	Commends Council for stakeholder engagement.
	Funding is available for RLC or council through the Australian Governments Communities Environment Program - up to \$150,000 for each electorate. Closing 10 October 2019. <a href="https://www.environment.gov.au/cep">https://www.environment.gov.au/cep</a> <a href="https://www.business.gov.au/assistance/communities-environment-program">https://www.business.gov.au/assistance/communities-environment-program</a>
	The Communities Environment Program is being delivered by the AusIndustry Business Grants Hub on behalf of the Department of the Environment and Energy.
	Interested community members and organisations need to contact their local federal Member of Parliament to discuss local environmental priorities and/or their potential projects.  Federal Members of Parliament who choose to participate in the program play a key role in the program's roll out, as they are responsible for

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Name	Response/Comment:
	identifying and nominating suitable projects, as well as the organisations that are to deliver them, to the AusIndustry Business Grants Hub. It is those organisations who will then be invited to apply.
	Contact regional staff at DPIE for advice on management measures.
<b>Dimitri Young on behalf of DPIE (encompassing NPWS, OEH &amp; NSW Fisheries &amp; Lands).</b>	The Biodiversity and Conservation Division was formally the Office of Environment and Heritage (OEH) but now is part of DPIE.
	Waters, floodplains and coast team are best placed to provide comment on behalf of the department (DPIE).
	Notes the inter-agency consultation initiated by council.

**Planning & Policy Implications**

There are no planning and policy implications in relation to this report.

The review of the *Lake Cathie Opening Strategy* may generate planning and policy implications, however the review will be presented to Council in a future report.

**Financial & Economic Implications**

There may be financial and economic implications in relation to this report depending on the final grant funding sought and provided.

The review of the *Lake Cathie Opening Strategy* may generate financial and economic implications, however the review will be presented to Council in a future report, in the interim funding has been included in the 2019/20 OP for the review.

**Attachments**

[1View](#). Attachment 1 - Response from the Hon Sussan Ley MP

[2View](#). Attachment 2 - Response from OEH/DPIE

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#### **13.09 LAKE INNES/LAKE CATHIE ESTUARY SYSTEM UPDATE REPORT**

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Ms Kate Aston, Revive Lake Cathie Inc., addressed Council in support of the recommendation and answered questions from Councillors.

Dr Deborah Geronimi addressed Council in support of the recommendation and answered questions from Councillors.

*RESOLVED: Alley/Griffiths*

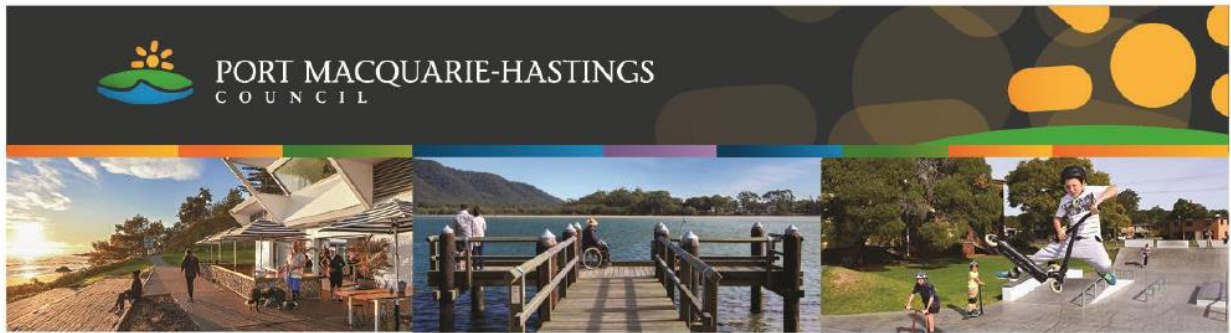
That Council:

1. Note the information provided in the Lake Innes/Lake Cathie Estuary System Update Report.
2. Request the General Manager to seek 50% Coastal Management Program funding to undertake the initial background studies as outlined, for input to the Lake Innes/Lake Cathie Coastal Management Program being \$147,500.

*CARRIED: 8/0*

*FOR: Alley, Dixon, Griffiths, Hawkins, Intemann, Levido, Pinson and Turner*

*AGAINST: Nil*



# Ordinary Council

## MAYORAL MINUTE

### Business Paper

**date of meeting:** Wednesday 20 November 2019

**location:** Council Chambers  
17 Burrawan Street  
Port Macquarie

**time:** 5.30pm

**Note:** Council is distributing this agenda on the strict understanding that the publication and/or announcement of any material from the Paper before the meeting not be such as to presume the outcome of consideration of the matters thereon.

<b>Community Vision</b>	A sustainable high quality of life for all
<b>Community Mission</b>	Building the future together People Place Health Education Technology
<b>Council's Corporate Values</b>	<ul style="list-style-type: none"><li>★ Sustainability</li><li>★ Excellence in Service Delivery</li><li>★ Consultation and Communication</li><li>★ Openness and Accountability</li><li>★ Community Advocacy</li></ul>
<b>Community Themes</b>	<ul style="list-style-type: none"><li>★ Leadership and Governance</li><li>★ Your Community Life</li><li>★ Your Business and Industry</li><li>★ Your Natural and Built Environment</li></ul>

**Ordinary Council Meeting**

Wednesday, 20 November 2019

**MAYORAL MINUTE****Items of Business**

<b>Item</b>	<b>Subject</b>	<b>Page</b>
06.01	Lake Cathie Opening.....	4



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Item: 06.01

Subject: MAYORAL MINUTE - LAKE CATHIE OPENING

Mayor, Peta Pinson

---

#### RECOMMENDATION

That Council:

1. Note the current Lake Cathie Opening Strategy.
2. Note the Opening Strategy conditions have been met with salinity in the Lake being greater than 40ppt and the water level currently recorded at 11.00 am on 19 November 2019 as -0.443m AHD with water quality being reported as poor.
3. Request the General Manager immediately prepare, lodge and apply for a Short Term Licence (STL) with Crown Lands for the purpose of opening Lake Cathie.
4. Request the General Manager write to the State Member for Oxley, the Hon Melinda Pavey MP and State Member for Port Macquarie, the Hon Leslie Williams MP, seeking their support to fast track Council's Short Term License application due to the above-mentioned extreme environmental factors.
5. Request the General Manager, upon approval of the Licence by Crown Lands, engage a contractor to undertake the process of opening the entrance to the lagoon at the appropriate tides.
6. Request the General Manager to prepare a Communications Strategy to inform the community of the decision of Council and any possible consequences due to the opening.

#### Comments by Mayor Pinson

Lake Cathie is integral to the identity of the local community who, along with visitors to the area, enjoy all the recreational activities that Lake Cathie has to offer.

Whilst the management of the Lake Cathie estuarine system is the responsibility of a number of government stakeholders, Council holds the primary responsibility for areas downstream of the Ocean Drive bridge, including the lagoon.

The Lake Cathie Opening Strategy is a plan of action that determines when it is best to open the lake.

This Strategy aims to minimise adverse effects on the ecology of the wider area, minimise build-up of sand in the lake entrance, and reduce impacts of flooding, while providing residents and visitors with opportunities for recreational activities.

Now is the time to take action on behalf of our environment and community through a co-ordinated and sensible approach to the lagoon system which is in the care of Council.

Item 06.01

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**Attachments**

- 1[View](#). Item 09.01 - Ordinary Council Meeting 2019 05 15 - NOM - Submission from Revive Lake Cathie on 2019-20 Operational Plan
- 2[View](#). Item 10.04 - Ordinary Council Meeting 2019 06 19 - Integrated Planning and Reporting IPR Documents - Council Resolution
- 3[View](#). Item 13.09 - Ordinary Council Meeting 2019 10 16 - Lake Innes-Lake Cathie Estuary System Update - Council Report and Resolution



**MINUTES**  
*Ordinary Council Meeting*  
**20/11/2019**

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#### **06.01 MAYORAL MINUTE - LAKE CATHIE OPENING**

---

*RESOLVED: Pinson/Intemann*

That Council:

1. Note the current Lake Cathie Opening Strategy.
2. Note the Opening Strategy conditions have been met with salinity in the Lake being greater than 40ppt and the water level currently recorded at 11.00 am on 19 November 2019 as -0.443m AHD with water quality being reported as poor.
3. Request the General Manager immediately prepare, lodge and apply for a Short Term Licence (STL) with Crown Lands for the purpose of opening Lake Cathie.
4. Request the General Manager write to the State Member for Oxley, the Hon Melinda Pavey MP and State Member for Port Macquarie, the Hon Leslie Williams MP, seeking their support to fast track Council's Short Term License application due to the abovementioned extreme environmental factors.
5. Request the General Manager, upon approval of the Licence by Crown Lands, engage a contractor to undertake the process of opening the entrance to the lagoon at the appropriate tides.
6. Request the General Manager to prepare a Communications Strategy to inform the community of the decision of Council and any possible consequences due to the opening.

*CARRIED: 6/2*

*FOR: Dixon, Griffiths, Hawkins, Intemann, Pinson and Turner*

*AGAINST: Alley and Levido*



## Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment



Local Land  
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Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment

**Published by**

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**More information**

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**Acknowledgments**

Analysis and interpretation of laboratory results was undertaken with the assistance of Professor Scott Johnston from the Southern Cross GeoScience Unit, Southern Cross University, Lismore NSW.

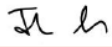

Field work as assisted by PMHC staff member, Jack Hiscok.

**Cover Photo:** Northern shoreline of Lake Innes, during extreme low water level conditions (-0.1m AHD) May 2019.

**Document build:**

Version	Date	Author	Details	Sections modified
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0.2	26/6/19	Clayton Colmer	Internal review	various
0.3	20/7/19	State agencies and PMHC	External review	various
1.0	25/7/19	Thor Aaso	Final draft	various

**External distribution:**

Version	Date	Prepared by (sign)	Approved by (sign)	Released to
1.0	25/7/19			PMHC, NPWS

**Disclaimer**

The information contained in this publication is based on knowledge and understanding at the time of writing, July 2019. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of Soil Conservation Service or the user's independent adviser.

## Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment

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**Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment**

---

**1. Introduction**

Port Macquarie – Hastings Council (PMHC) and NSW National Parks has engaged the NSW Soil Conservation Service (SCS) to undertake an assessment of the current and potential Acid Sulfate Soil (ASS) risk of the Lake Cathie and Innes Lake system under a scenario of protracted drought. This report summarises the methodology, findings and conclusions of undertaking this assessment.

The Lake Cathie and Innes Lake system runs from Port Macquarie, south to the NSW coastal town of Lake Cathie as shown in Figure 1. Both lakes are located within National Park estate, namely the Lake Innes Nature Reserve.



Figure 1: Location of Lake Cathie / Innes

## Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment

## 1.1. A short history of Lake Innes / Cathie system

During the last phase of the Holocene marine transgression, ~7900-2000 years BP, sea levels were some ~2m above current levels (Sloss *et al.*, 2007). During this sea level phase, the Lake Innes / Cathie system was a connected brackish / saline coastal embayment (Creighton, 1983; Umwelt, 2003). During this period, inputs of organic matter, marine sulfate, and a low oxygen (anoxic) environment provided the conditions for Potential Acid Sulfate Soil (PASS) material to form (Dent, 1986; see Figure 2).

Since the last Holocene marine transgression (approximately the last 2000 yrs), sea levels dropped, and have remained relatively stable at today's levels. Lake Innes would have been separated from the estuary system of Cathie Creek and Lake Cathie under most conditions by way of a naturally formed berm of elevation estimated at 1.7m AHD (Armstrong, 2002). It is likely that Lake Innes was almost always fresh, with perhaps periods of brackish conditions (Hale, 2013). Only during extreme flood events would the Lake Innes / Cathie system naturally open to the sea (Umwelt, 2003; Creighton, 1983).

In 1933, Lake Innes was drained via an artificial channel to Lake Cathie (Hale, 2013). Both lakes now operate as a combined Intermittently Closed and Open Lake and Lagoons (ICOLL) regulated by the Lake Cathie Combined Entrance Opening Strategy (LCCEOS) by Port Macquarie Hastings Council (PMHC) as summarised in Appendix A).

With the combination of the artificial connection to Lake Cathie and the frequent regulated openings under the LCCEOS since 1994 (Umwelt, 2003), the geochemical conditions similar to that of the Holocene marine transgression period have been artificially re-established, resulting in the formation of PASS materials within the recent bed sediments and potentially in the pore water of older sediments at depth in Lake Innes.

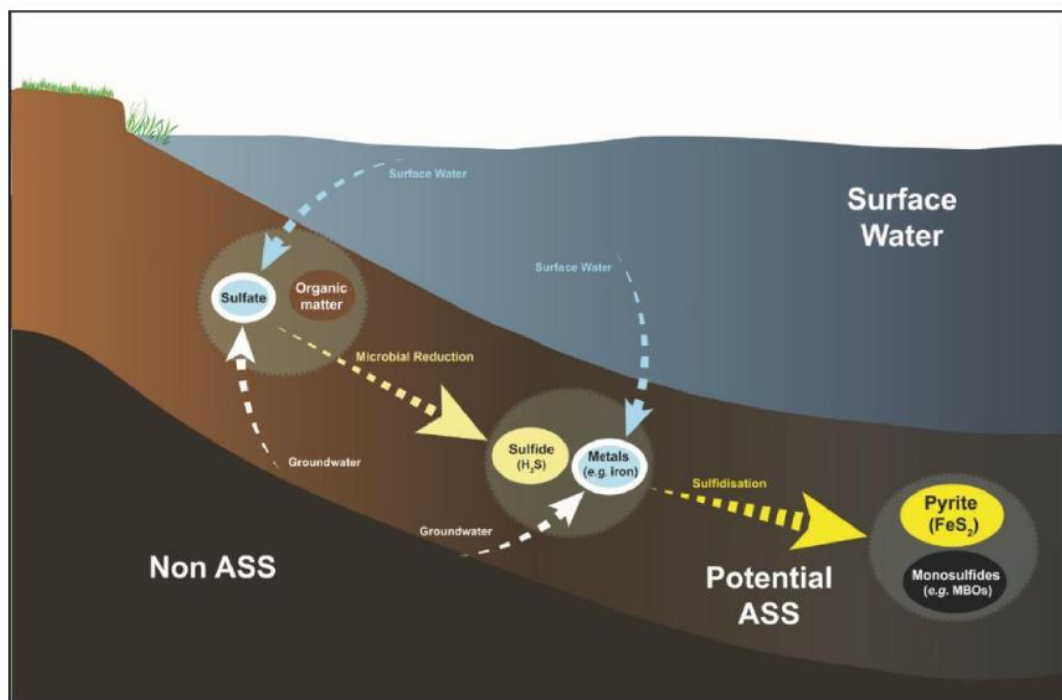


Figure 2: Conceptual model of the formation of Acid Sulfate Soil material within lake bed sediments

Source: Sullivan (*et al.*, 2018)



### Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment

Poor water quality has been documented in the form of elevated dissolved aluminium, and low pH associated with exposure of these PASS sediments during lake entrance opening events (Ryder *et. al*, 2012; 2017). The recent drying of lake beds after the 2018 lake opening event, has raised concerns on the ASS risk if the lake levels were to fall further.

## 1.2. Lake condition phases driven by entrance opening events

The physiochemical conditions of both Lake Cathie and Innes are governed by the interplay of rainfall, seasons, and the timing of lake opening events (Creighton, 1983). In times of high rainfall, the lake system fills up to a maximum level of 1.6m AHD before being artificially opened to the sea to drain. During a lake filling stage, both lakes transition from saline to brackish / freshwater conditions. When drought conditions proceed a lake opening event, ingressed seawater into the lakes evaporate, forming hypersaline conditions and often elevated water temperatures.

During these periods of low water levels, Lake Innes experiences elevated levels of turbidity from the churning up of bed sediments associated with wind / wave action. In extreme cases, as in the case of the post July 2018 lake opening event, water levels can drop below - 0.1m AHD resulting in the complete desiccation Lake Cathie west of Kenwood Drive Bridge and water depths dropping to 0.1 to 0.5m deep in Lake Innes. Figure 5 and Figure 6 provide a visual comparison of conditions between wet and dry phases of the lakes.

### 1.2.1. The current 2018-2019 drying event

The latest artificial opening of Lake Cathie occurred in mid July 2018 as water levels reached the upper threshold of 1.6m AHD under the LCCEOS. The draining of the lake system followed a similar pattern to other lake full opening events whereby the initial discharge of lake water scours the beach berm down to meet the prevailing low tide mark, or indurated sand beds. For the July 2018 opening event, this level was approximately -0.1m AHD and was reached approximately 2 weeks after the initial opening of the lake (Figure 3). The duration of lake opening is governed by the interplay of prevailing wave / storm events and catchment inflows. The 2018 lake opening event was sustained to October 2018.

As water level recedes and flow rates dissipate, the beach profile is restored with the gradual build-up of the berm, raising the invert of the lake entrance to ~0.5m AHD. In the absence of major flood events, the beach berm continues to build under successive flood tides. Under average climatic conditions, the lake system proceeds to fill up with successive rainfall events.

However the ongoing drought conditions on the east coast of Australia has produced one of the lowest annual rainfall totals since 1885 in the last 12 months. A total of 760mm of rain fell since the Lake was last drained, compared to a long term average of 1529mm, see Figure 4. This has resulted in lake water levels to continue to fall. In June water levels were at -0.194m AHD, falling on an average rate of approximately 3cm per month since 1<sup>st</sup> March 2019. During May and June this rate of water level fall increased to 6cm per month. A total of 131mm of rain was received in late June, early July, which has temporarily stabilised water lake water levels at approximately -0.15m AHD.

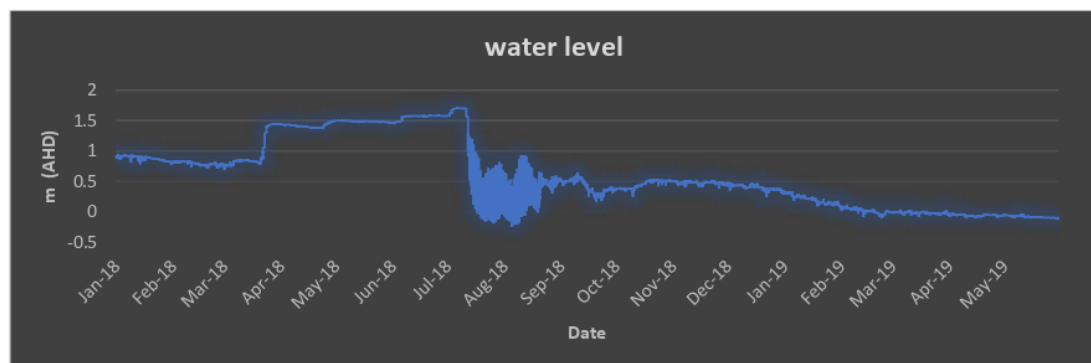


Figure 3: Lake Cathie water levels 2018-2019, MHL AWS 207441

## Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment

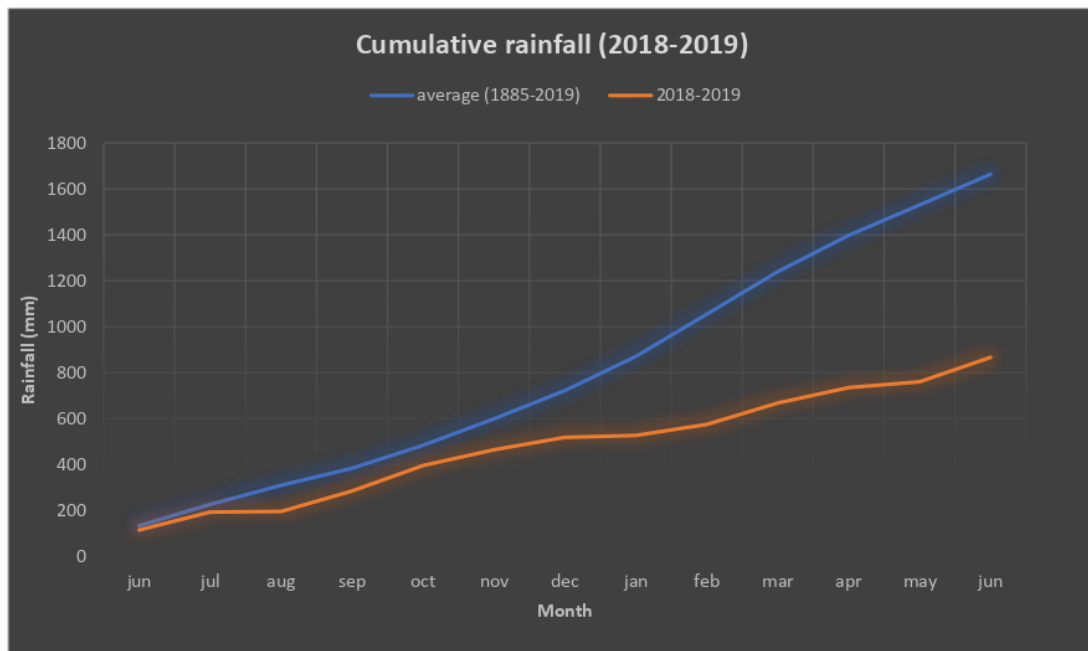


Figure 4: Cumulative rainfall (mm) 2018-2019 Laurieton (ELOUERA ST) (060022)

Source: BoM (2019)

This reduction in water levels has resulted in the exposure of approximately 900ha and 170ha of lake bed sediments in Lake Innes and Lake Cathie respectively (Figure 7). These exposed lake beds contain varying concentrations of Acid Sulfate Soil (ASS) materials. When exposed to oxygen, these ASS materials have the potential to generate sulfuric acid and metal leachate by-products within the pore waters of the lake bed sediments. This acidic water can impact on fish and benthic lake organisms through the direct toxicity of aluminium-rich, acid waters (Sammur, *et al.*, 1996) and the smothering of lake bed sediments with ferrous oxides (Johnston, *et al.*, 2016).

Immediately after the opening of the lake, an acid discharge event occurred, associated with the exposure of large areas of organic rich bed sediments containing surficial Monosulfidic Black Oozes (MBOs), principally in Lake Innes. Nearmap imagery taken on the 23rd of July 2018 documents the oxidation of MBOs and production of iron-rich acidic discharge as shown in Figure 8 and Figure 9. This oxidation event coincides with the rapid drop in water levels in the 2 weeks following the opening of the lake in mid-July as shown in Figure 3 and Figure 9. This rapid acidification of MBOs is likely to occur after every lake opening event.

Based on bathymetric surveys and stage volume calculations undertaken by Rayner and Glamore (2012) it is estimated lake volumes within Lake Innes fluctuate between 23.5GL at 1.6m AHD to 2.3GL at -0.1m AHD.

## Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment

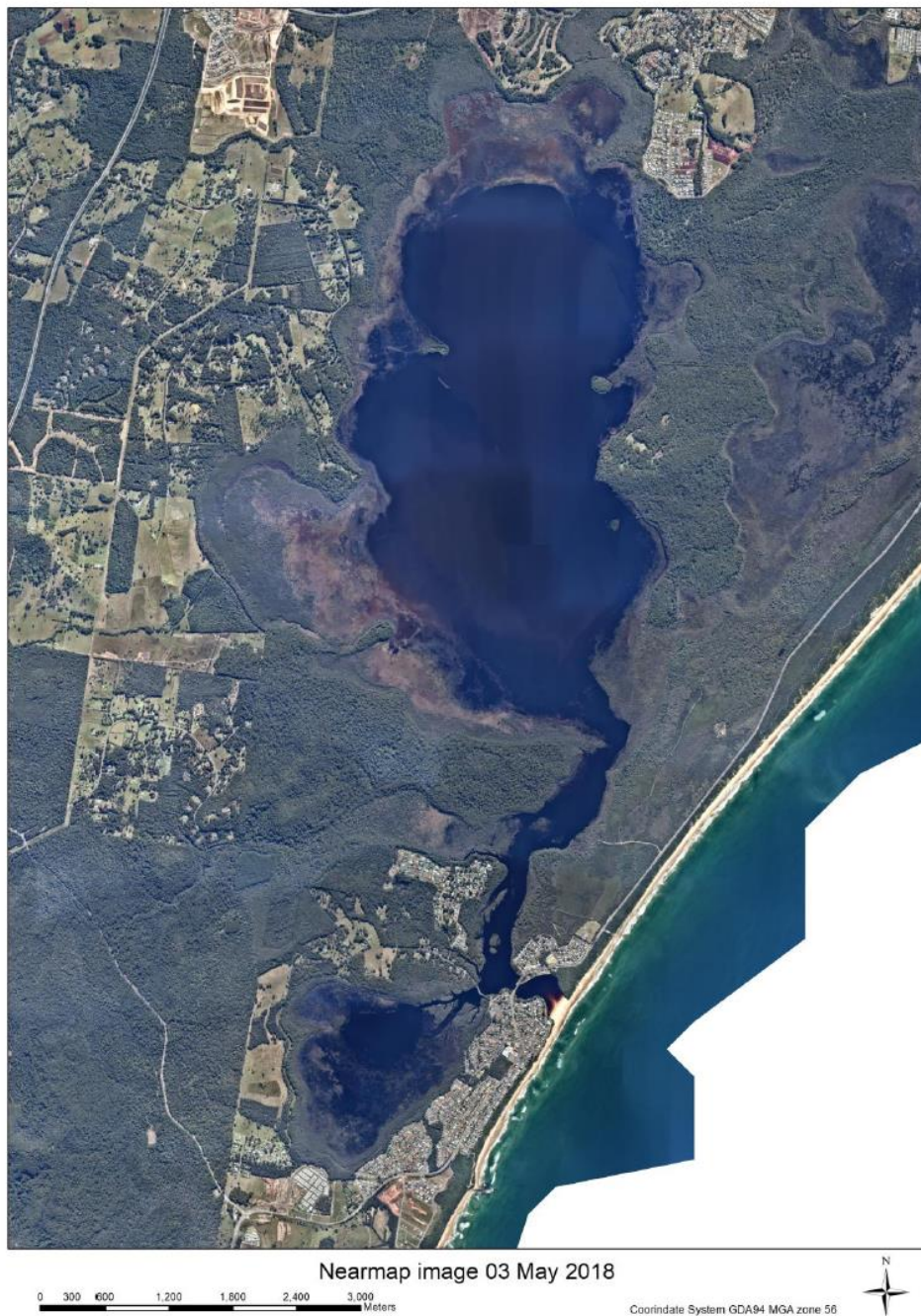


Figure 5: Lake Cathie / Innes during high water levels (1.5m AHD)



## Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment

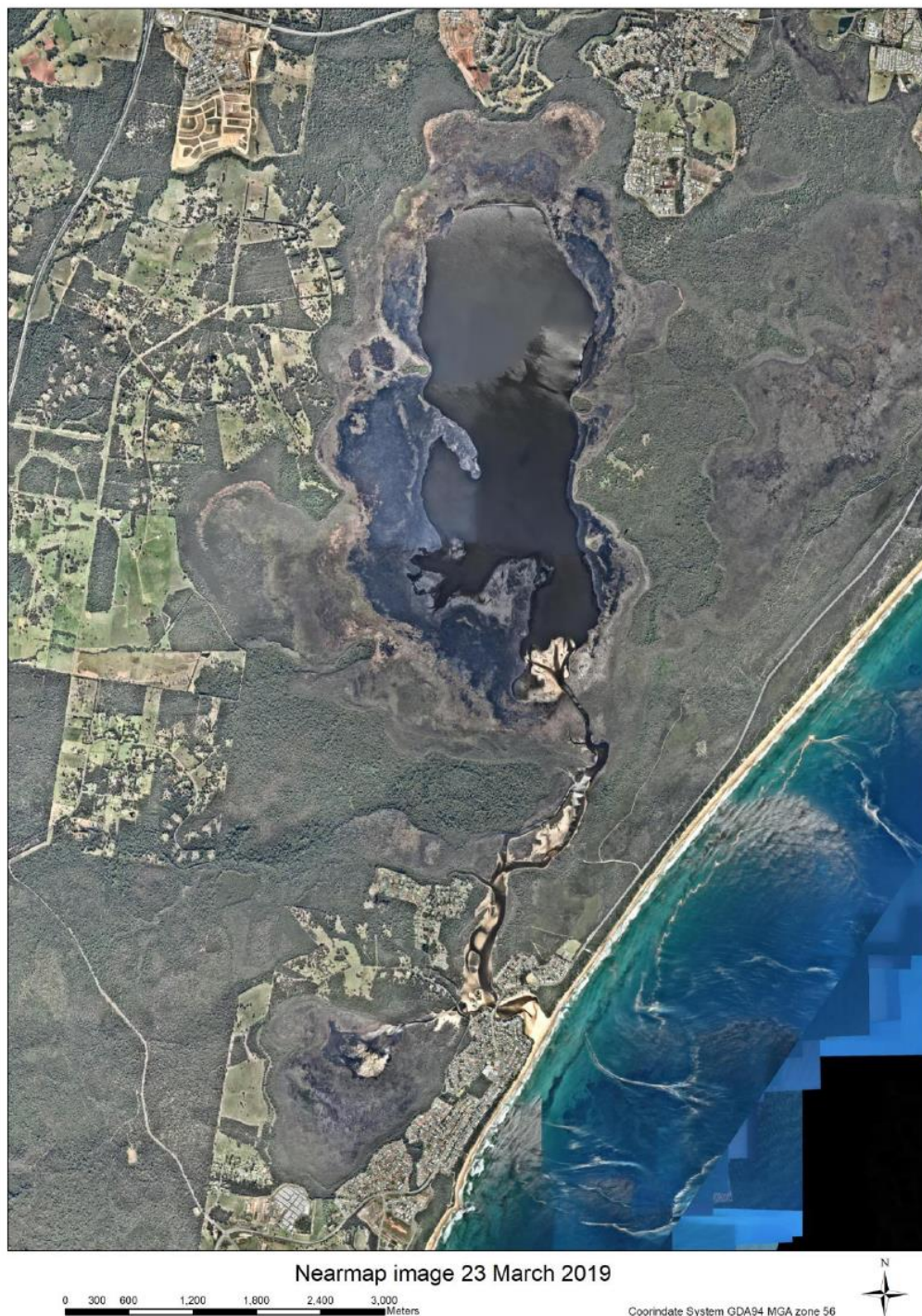


Figure 6: Lake Cathie / Innes during low water levels (-0.1m AHD)



## Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment

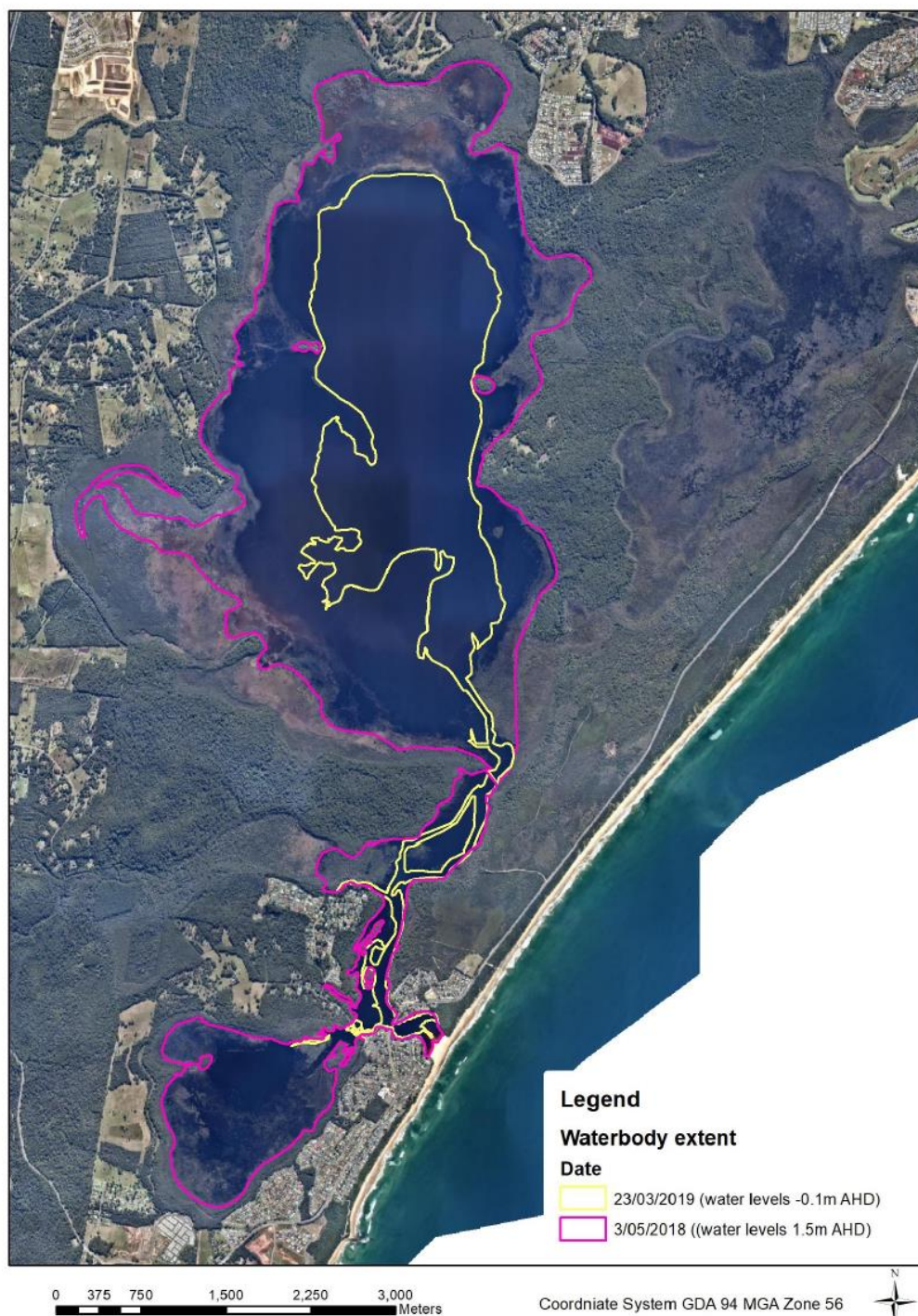


Figure 7: Waterbody extent comparison between 1.5m and -0.1m AHD levels.



## Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment



Figure 8: Oxidation of MBOs in Lake Innes immediately after lake opening, July 2018.



## Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment



Figure 9: Central western margin of Lake Innes detailing iron-rich acid discharge, 2 weeks after lake opening.

---

**Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment**

---

**2. Acid Sulfate Soil Risk Assessment**

The following chapter provides a summary of the methods of sampling, analysis and discussion on the current and future acid sulfate soil risk if lake water levels were to continue to fall to -0.5m AHD. -0.5m AHD was chosen as this level is considered to have a high probability of being reached on the basis that under current drought conditions and the observed trajectory of lake water level lowering.

**2.1. Method**

Soils were sampled from each lake (Lake Innes, 11 sites; Lake Cathie, 4 sites) on the 8<sup>th</sup> and 10<sup>th</sup> of May 2018 as shown in Figure 10. Soil sample locations were selected to provide represented samples of the various landforms observed from aerial imagery and to provide an ability to assess any spatial variability of lake bed sediments. The location of each soil sample site was recorded using a Garmin GPS. Soil and lake bed sediments were sampled using a shovel or a tapered gouge auger to a maximum depth of 0.6m below natural surface levels. Cores were sectioned in 0.1m increments. A representative sample was taken from each layer at each site (with a maximum of three samples per site). Samples were placed in 70ml plastic vials and temporarily stored in an esky with ice bricks. Samples were transferred to a freezer and kept frozen until laboratory analysis was undertaken. Appendix B provides a summary of the field notes taken for each soil sample.

Soil sampling and handling was undertaken in accordance with the National Acid Sulfate Soil Guidance: National Acid Sulfate Soils Sampling and Identification Methods Manual (Sullivan *et. al*, 2018a) with the exception of a reduced spatial frequency of sampling to meet budgetary constraints.

Soil samples were analysed for Acid Sulfate Soil Net Acidity and Acid Volatile Sulfides (AVS) by Southern Cross University Environmental Analysis Laboratory in accordance with the National Acid Sulfate Soils Guidance: Identification and Laboratory Methods Manual (Sullivan *et. al.*, 2018b). Results are provided in Appendix C.

3 water samples from Lake Innes were also collected within the middle of the lake on the 10<sup>th</sup> of May 2019 (Appendix B). Samples were collected in 1L plastic bottles and analysed by PMHC Environmental Laboratory for Alkalinity (to pH 4.5) as per laboratory method METH042.

Photos 1 to 6 in Section 2.2 provide indicative site conditions of both lakes at the time of sampling



## Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment

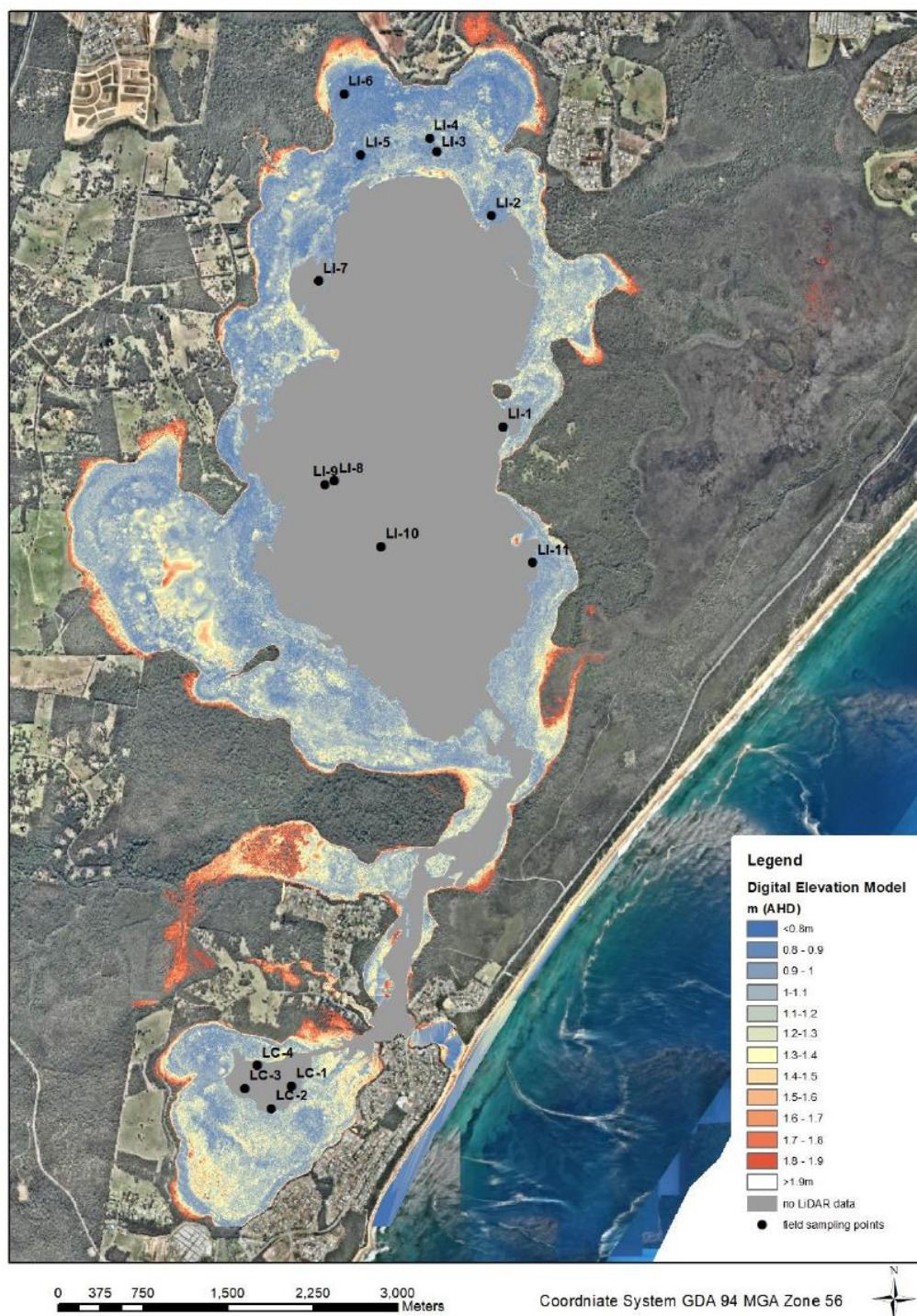


Figure 10: Sampling locations and Digital Elevation Model

Source: DFSI Spatial Services (2012)

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**Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment**

---

**2.2. Results****2.2.1. Actual and potential stores of Acid Sulfate Soil**

There were three forms of ASS identified in the Lake Cathie / Innes system, namely;

- Holocene-aged Actual Acid Sulfate Soils (AASS) clays at depth
- Partially oxidised Potential Acid Sulfate material (PASS) in the form of pyrite-rich decomposed organic matter layers
- Recent surficial deposits of partially oxidised MBOs in Lake Innes, associated with the wetting and drying cycles driven by lake openings.

These stores of acidity behave quite differently during rapid lake level fluctuations and thus represent three distinct acid discharge risk management challenges.

**2.2.2. Holocene-aged Actual Acid Sulfate Soil**

Holocene-aged AASS occurs as traditional ASS clays, formed during the last interglacial sea level rise when the Lake Innes / Cathie system was a connected shallow estuarine embayment. These clays are most likely restricted to the outer margins of the northern and western shorelines of Lake Innes. These ASS clays have already oxidised at depth, producing a highly acidic landscape (pH 3.5 to 4.7) that presents a current risk to the Lake (Photo 1 & 2).



These ASS clays are at least 80cm deep, ranging in elevation estimated at 0.9m to 0m AHD. Interestingly a charcoal layer was observed in sample site LI-6 (northern shoreline of Lake Innes) at 22cm depth (~0.7m AHD), indicating an extreme drying event of Lake Innes, estimated to have occurred during the late Holocene. This charcoal layer may be associated with Aboriginal fire management regimes during this period. During colonial explorations, both Oxley, (1820) and Hodgkinson (1845) document Aboriginal mosaic burning practices in the Hastings Valley.

Photo 1: Highly acidic, iron rich lake bed sediments on the northern margin of Lake Innes, Site LI-6



### Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment



Sullivan (*et. al.*, 2018b) provides a national framework for the management of ASS to assist with identifying and gauging ASS risk. Management action triggers for PASS are set at  $\geq 0.03\%$  Sulfur equivalent (oven dried basis) and for AASS  $\geq 18 \text{ mol H}^+/\text{t}$  titratable acidity (oven dried basis). The titratable actual acidity recorded at the surface and at depth in these AASS clays northern shoreline of Lake Innes (Sites LI6 and LI7) are extreme, up to  $381 \text{ mol H}^+/\text{t}$  (Appendix C). The presence of Jarosite deposits throughout the soil profile at LI-6 (Photo 2) also indicates extreme acidity.

These Holocene-aged AASS represents a significant long-term ASS store and risk to Lake Innes. Whilst these AASS stores have no rapid and direct means of discharging into the lake (such as from artificial drainage), frequent water level oscillations driven by the lake openings provides the significant hydraulic pumping action to recharge and draw down surface and groundwater out of these ASS stores. During field sampling it was observed iron-rich ASS seeps discharging from the northern margins of Lake Innes (Photo 3). Thus these soil represent a significant slow release source of highly acidic groundwater during protracted drought conditions.

Photo 2: Yellow mottling indicating the presence of jarosite in actual acid sulfate soils clays. Site LI-6.



Within these AASS clays, mainly in the deeper profile, there are still stores of unoxidised pyrite (concentrations between  $0.04$  and  $1.25\%$  Sulfur, measured as  $\%S_{\alpha}$ ) that are at levels well above the national trigger value of  $0.03\%$ . Thus these clays have the potential to acidify further and liberate more acid with further lowering of the ground water table.

Photo 3: Iron-rich acid discharge at the northern margin of Lake Innes.

### 2.2.3. Pyrite-rich organic lake bed deposits.

Generally speaking at  $5\text{--}50\text{cm}$  below bed level throughout both lakes, there is a recent deposit of organic rich sediment that has extremely high levels of unoxidised stores of PASS, principally in the form of pyrite and some traces of the more highly volatile Monosulfidic Black Ooze (MBO). Whilst these layers are still currently at or just above groundwater levels at the time of sampling, they still have high moisture contents ( $>70\%$ ). However potential acid stores within these layers are significant, with sulfur concentrations ranging from  $0.450\%$  to  $4.346\%$  for Lake Innes and  $0.261\%$  to  $1.440\%$  at Lake Cathie, measured as  $\%S_{\text{cr}}$ . The prevalence of higher pyrite concentrations in Lake Innes is most likely due to the input of significant quantities of organic matter into the lake during the death of freshwater macrophyte vegetation when the lake was initially drained in 1933. The conversion from a fresh to saline lake and the impacts on the vegetation and bird life is recorded in Albert Dick's Journal 1929

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to 1974 (HDHS, 1973, *in* Creighton, 1983). The presence of preserved coarse fibrous root mats throughout the margins of Lake Innes at depth of 30-50cm (Appendix B) supports this theory.



Lake Cathie, being an ICOLL, with fringing vegetation already adapted to alternating salinity and water levels, would not have suffered the similar ecosystem crash, and thus would not have had the similar input of decaying organic matter from dying vegetating to fuel the formation of pyrite in the sediments, at concentrations to that of Lake Innes.

These pyrite-rich organic lake bed deposits, sitting at or above groundwater levels represent at the time of sampling, the most significant ASS risk to the Lake system if they were to dry out and oxidise. This layer contains the highest concentrations of sulfur and are ubiquitous throughout both lake systems.

Photo 4: Spongy pyrite-rich organic bed sediments, Lake Innes.



Moreover these bed sediments are almost completely made of fine decayed organic matter, which has little to no acid neutralising capacity to buffer any acid produced if they were to dry out (Appendix C).

Being close to the surface and having little structure, if these layers were to dry out, the resultant acidic pore waters would rapidly discharge into the lake after a moderate rainfall event. At water levels of -0.1m AHD, approximately 900ha of these sediments are exposed. If water levels were to drop a further 20-40cm these layers containing the largest stores of acidity, would likely oxidise and generate an unprecedented acid discharge event in both lakes.

At depths of generally >30cm, a layer of coarse preserved fibrous root matter is encountered as show in Photo 5.

This layer most likely represents the lake bed when Lake Innes was freshwater, dominated by macrophyte vegetation. Generally speaking unoxidised sulfur concentrations at ~50cm depth are slightly lower than that encountered in the layer above (0.450 – 2.434 %S<sub>cr</sub>). However these reduced sulfur stores are still at concentrations well above the national guideline of 0.03% S<sub>cr</sub> (Sullivan *et. al.*, 2018b), and represent significant ASS risk if they were to oxidise.

Photo 5: Typical soil profile of lake bed sediments on the eastern and western margins of Lake Innes. Note preserved fibrous root mat encountered at >30cm, ruler is 30cm)



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**2.2.4. Surficial Monosulfidic Black Ooze.**

MBO deposits are formed under anoxic conditions, during periods of high lake water levels. These MBOs represent the third store / source of acid in the Lake Innes / Cathie system. These MBOs are highly volatile and rapidly oxidise and mobilise into the water column during the weeks post opening as depicted in Figure 8 and Figure 9. They represent the first source of acid following the opening of the lake entrance.

During the time of sampling, most of these MBO stores had already oxidised, leaving a thin iron-stained veneer on the surface of exposed lake bed sediments as shown in Photo 6 and Figure 8 & 9. This is reflected in the relatively low levels of Acid Volatile Sulfur (AVS; <0.001 to 0.180 %  $S_{av}$  DW) recorded in the upper surface samples (Appendix C). Sites LI-8 and LI-10 were taken on the margin of the water body in Lake Innes and would give a reasonable indication of the concentrations of MBOs likely to occur throughout the lake bed prior to draining and subsequent oxidation. AVS concentrations at these two sites range between 0.063 and 0.354 %  $S_{av}$  DW (Appendix C). Once again, reduced sulfur concentrations are well above national guidelines (0.03%, Sullivan, *et al.*, 2018b) and have the potential to cause significant acid discharge if exposed from lake opening or drought events. At the time of sampling there were little or no evidence of MBOs within Lake Cathie. The bed of Lake Cathie is higher than Lake Innes (~0.6-0.9m AHD), thus any MBOs present on the surface would have oxidised early on during the lake opening event, preventing the detection during sampling. However due to the presence of marine sands associated with the reworking of the beach berm during lake opening events (reducing the conditions favourable MBO formation) and the lack of evidence of iron staining associated with MBO oxidation, it is considered that Lake Cathie has a much reduced MBO risk to that of Lake Innes.



Photo 6: Recently oxidised surficial layer of MBO, northern margin of Lake Innes.

**2.2.5. Spatial variability of current and potential ASS Risk**

There is no clear spatial trend in the stores of current and potential ASS risk other than acidity, MBOs and pyrite concentrations levels are generally more elevated in Lake Innes than in Lake Cathie. Low surface pH and high titratable acidity in the northern and western shorelines of Lake Innes correspond to the oxidation of Holocene-aged ASS clays and surficial MBOs. Low subsurface pH is restricted to Lake Innes and corresponds to the partial oxidation of Holocene-aged ASS clays and pyrite rich-organic layers.

The measured Net Acidity for each sample as detailed in Appendix C provides an idea of the theoretical ASS risk if all actual and potential acid stores were to oxidise and produce acid. Measured as Net Acidity mol  $H^+$ /t, any inherent acid neutralising capacity within the sediments (such as from carbonates and clay minerals) are measured and accounted for. Figure 12 and Figure 13 provide a summary of these net acidity levels across both lakes, at surface and at depth. Throughout the soil profiles and within both lakes, net acidity levels are extreme, and are up to 2 orders of magnitude above the national trigger value of  $\geq 18$  mol  $H^+$ /t (Sullivan *et al.*, 2018b).

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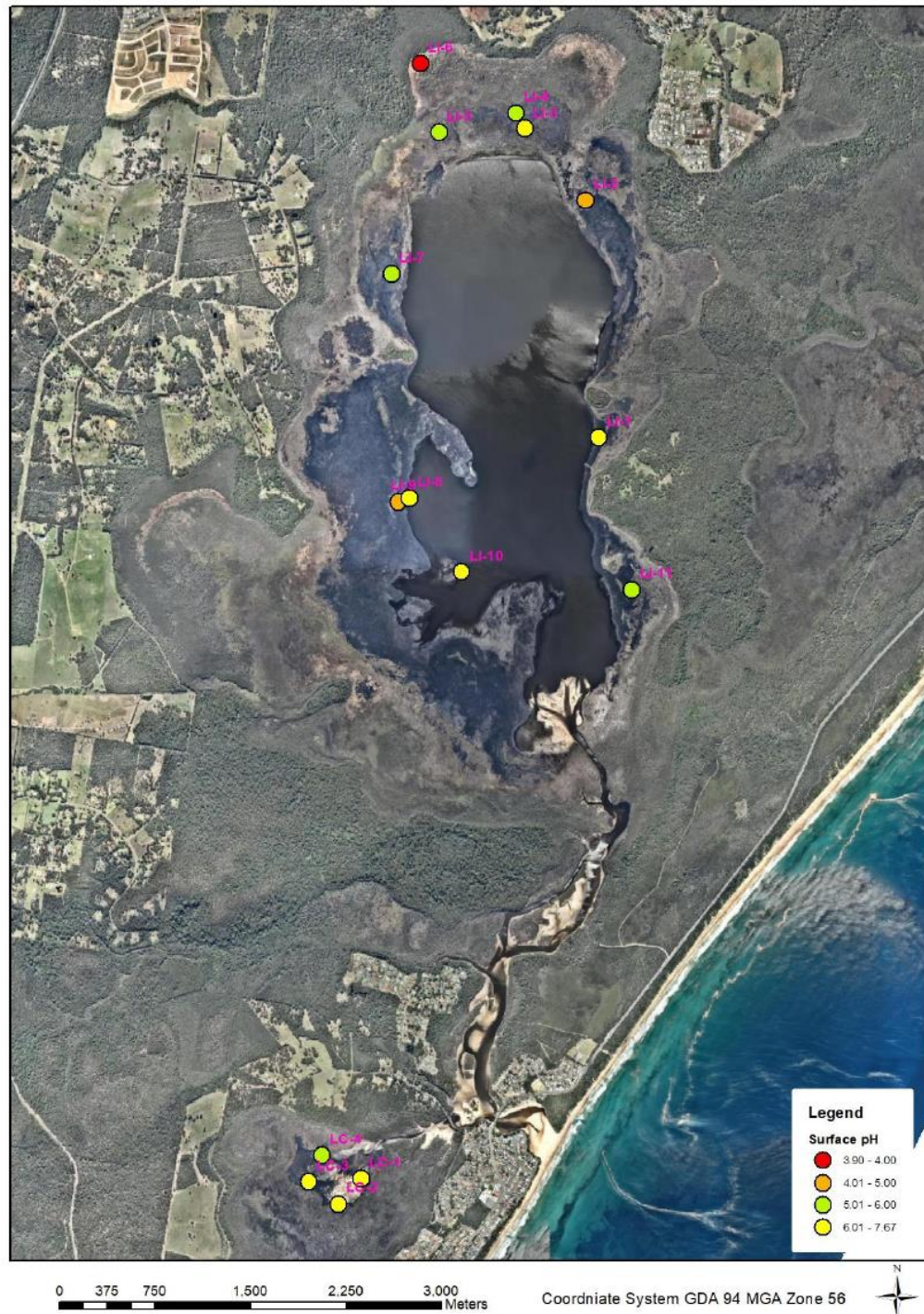


Figure 11: Surface actual acidity (measured as pH)



## Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment

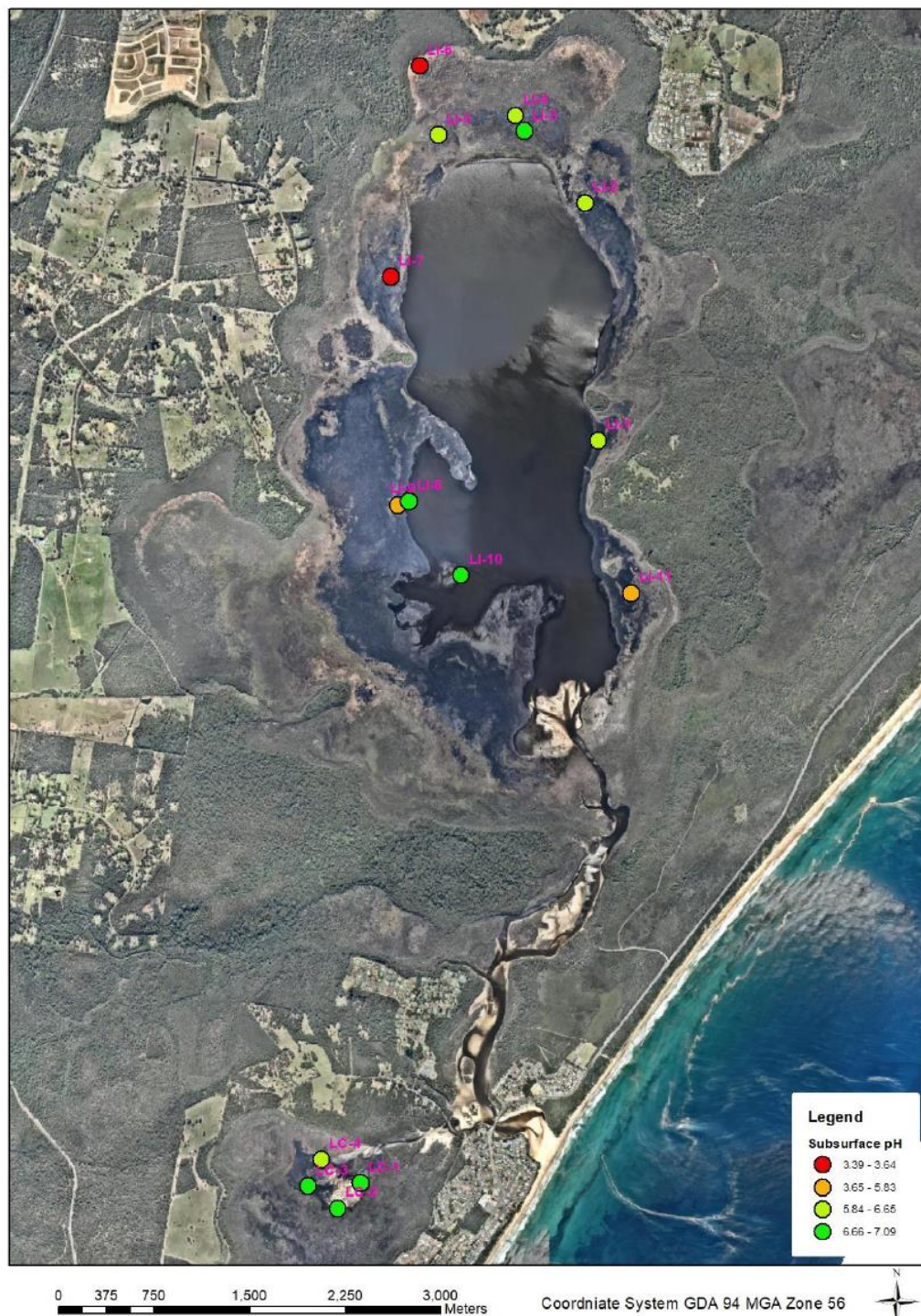


Figure 12: Subsurface actual acidity (measured as pH)



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## Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment

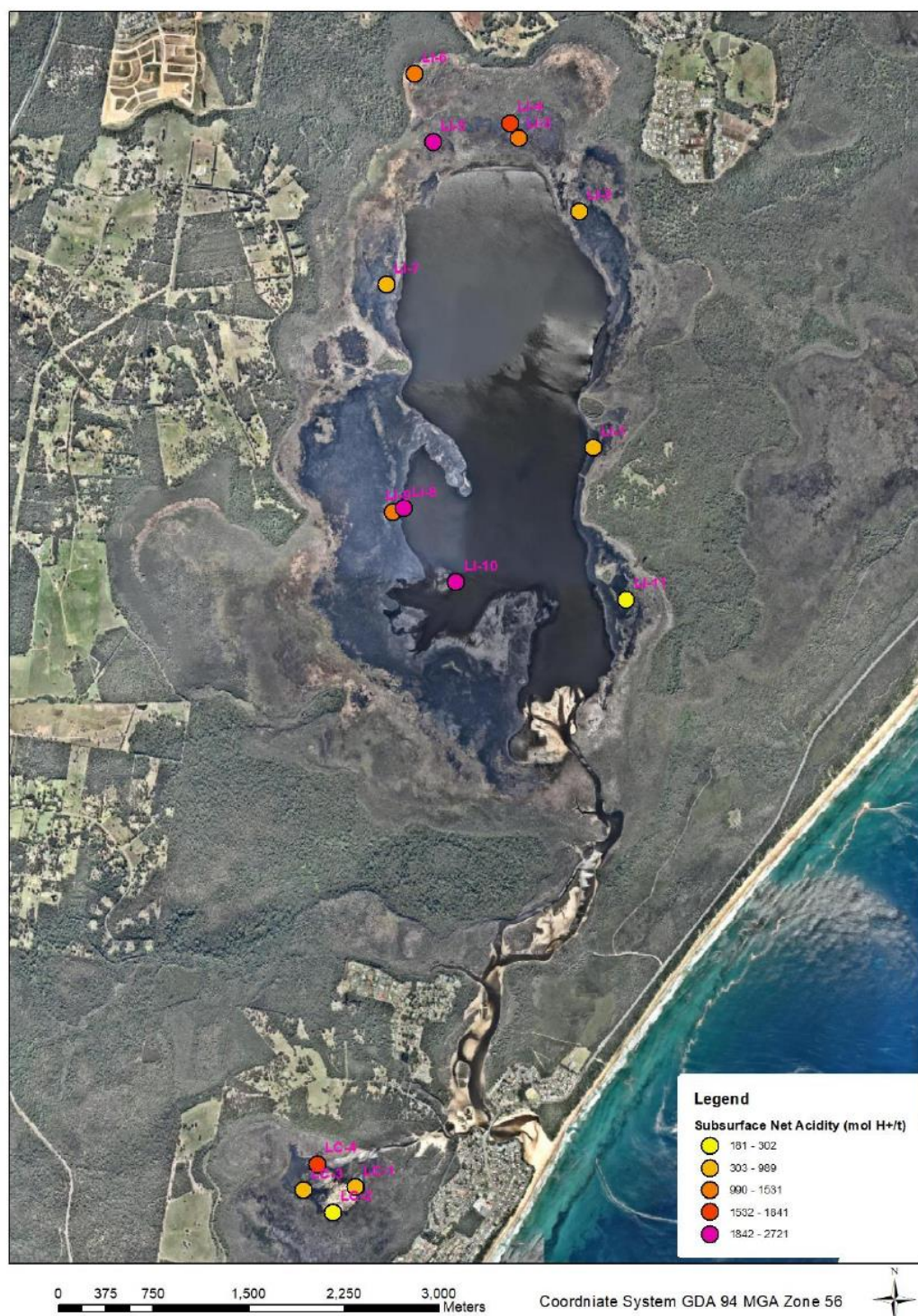


Figure 14: Subsurface ASS Risk (measured as net acidity)

### 3. Discussion

#### 3.1. Impact of current actual acid stores to Lake Innes / Cathie.

The risk of ASS to the Lake Innes / Cathie system is best described when considering the 3 forms of ASS present as they chemically behave differently and their risk varies with varying lake water levels.

MBOs are the most recent deposits laid down as a thin veneer on the lake bed sediments and are the first to acidify as water levels fall. It is suspected that during a normal lake opening and refilling cycle, where water levels gradually restore with follow-up rainfall over weeks to months, the oxidation of MBOs is most likely to be the principle source of acid impacting the lake. This is due to the fact that the pyrite-rich organic deposits occur slightly deeper in the lake bed profiles and seem to retain sufficient pore water to prevent the full oxidation of pyrite for several weeks to months during suppressed water levels down to ~0m AHD. Moreover reduced sulfur in the form of pyrite is slower to oxidise compared to MBOs (Sullivan *et al.*, 2002).

MBO-derived acidity is readily neutralised in the water body as carbonate levels increase with the ingress of seawater on flood tides during lake entrance opening periods. Thus these acid discharge events are likely to be relatively benign, short lived and restricted close to source discharge points. This may be the reason that historical water quality monitoring (MHL, 1995) failed to detect ASS impacts, compared to more recent monitoring programmes with finer temporal sampling fidelity (Ryder *et al.*, 2012; 2017).

Of note, under pH- neutral or alkaline conditions, recorded levels of dissolved aluminium in Lake Innes (Ryder *et al.*, 2012; 2017) are at levels known to affect the development of embryonic oysters, (Wilson and Hyne, 1997). Thus short-term acidification events associated with MBO oxidation immediately after a lake opening event, is likely to have secondary long-lasting effects to the lake aquatic ecosystem, long after pH levels recover.

Whilst the other sources of actual acidity associated with Holocene-aged ASS clays and pyrite-rich organic deposits represent a far larger store of actual acidity within the system, the release of these stores is delayed and tempered by the lack of rapid transport pathways (such as artificial drainage) to the lakes. As such, in their current state, these actual acid stores are more likely to provide a gradual seep of acidic groundwater into the lake during extended periods of consistently low lake water levels at or below 0.0m AHD. The full impact of the actual and potential acid stores would be realised under ongoing protected drought, lowering lake water levels to -0.5m AHD or below.

With the lake bed of Lake Cathie is positioned higher than Lake Innes, one would assume that there is a higher risk of acidification of Lake Cathie to that of Lake Innes during lake opening events or drought. However it would appear the bed sediments in Lake Cathie, west of Kenwood Drive Bridge, are kept moist from a possible perched water table associated with sandy flood tide delta immediately west of Kenwood Drive Bridge. Moreover the immediate surrounding catchment of Lake Cathie is developed with hardened surfaces, increasing the rate and volume of surface runoff as urban stormwater, feeding groundwater of the lake.

#### 3.2. Worst case scenario assessment

The vast majority of ASS stores in the Lake Cathie / Innes system are still in an inert PASS form, either as MBOs on lake bed sediments still underwater, or as reduced pyrite in the partial oxidised ASS clays and organic bed sediments.

If current low rainfall trends continue into the 2019-20 summer, there is a significant chance that lake water levels would continue to fall to or below -0.5m AHD. This is assuming there is insufficient groundwater input into the lake water budget, or that there is little aquifer connectivity to the lake.

At the time of writing, lake water levels were falling at an average rate of 6cm per month (May-June). If dry conditions persist leading up to summer, this rate would increase with increasing evapotranspiration rates. Under this scenario, the largest stores of PASS would oxidise producing vast quantities of acidic groundwater and stored pore water in the lake bed profile.

A series of small rainfall top-up events following this extended drying event would result in the discharge of acidic, aluminium-rich groundwater into the lake. Any inherent acid neutralising capacity within the waterbody would rapidly be exhausted, resulting in the likely formation of an acidic water body, toxic to most, if not all fish and benthic biota.

Under current climate change projections OEH, (2014) predicts the North Coast NSW will experience more variable weather, driven by more extreme flooding and drought events and an overall warming of 0.7 to 2°C by 2080. Such predicted climate is likely to see the 2018-19 drought event to become more common and extreme,



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potentially establishing these worst case scenario conditions for lake water levels to fall well below the current recorded sustained minimum.

### 3.3. Conclusion and recommendations

ASS-driven poor water quality events in the Lake Cathie Innes system are inherently driven by the timing of the lake openings and any subsequent significant rainfall event during periods of extremely low lake levels.

Historically, the combination of lake opening events and weather events have only produced minor acidification events as reported in Ryder *et al.*, (2012, 2017). However if current protracted drought conditions continue, there is a significant chance that current inert PASS will be oxidised. Resulting in a large-scale significant acidification event. Significant acid discharges in estuaries on the NSW north coast are known to cause mass fish kill events (Sammut *et al.*, 1996).

Lake Innes is much more prone to acidification than Lake Cathie due to the larger volume and concentrations of acidity in the system, the relatively poor flushing capacity, and the possible influence of a perched water table in Lake Cathie west of Kenwood Drive Bridge.

With no trends in abating greenhouse gas emissions (IPPC, 2018) the likelihood of more extreme weather and projected droughts on the NSW north coast is high, making the aforementioned worst case scenario much more probable in the near future. Thus preventing further oxidation of potential ASS stores in Lake Innes and Cathie should be considered as a priority.

The findings of this report sheds new light on the ASS risk of the Lake Innes / Lake Cathie system to wetting and drying cycles driven by the Lake Cathie opening strategy, which in hindsight, was underestimated in the Lake Innes Environmental Assessment (Hale, 2013). Furthermore Hale (2013) did not have the benefit of recent research documenting the reformation of pyrite and iron speciation under reduced (anoxic) conditions in re-flooded remediated ASS wetlands, assisting in the recovery of acidified wetlands (Johnston *et al.*, 2014, Karimian *et al.*, 2018).

This would suggest that the current Lake Innes / Cathie opening strategy, continued under projected climate change scenarios, may result in higher ASS risk compared to reverting the Lake Innes to a freshwater system.

The Digital Elevation Model (Figure 10) would suggest if Lake Innes water levels were returned to 1.6m AHD, there is no surface hydraulic connection between Lake Innes and Lake Innes Swamp as assumed by Hale (2013), which would provide support for an engineered sill to be located ~750m south of the artificial cut to maintain high water levels in Lake Innes, without significantly altering the hydrology or ecology of the Innes Swamp (see Figure 15). The location of any engineered sill would require further investigation of the creek bed and consideration of any heritage and environmental values at the proposed location as part of a full review of the Hale (2013) assessment.

### 3.4. Short-term recommendations

In light of these findings of this report the following actions are recommended, in order of priority;

1. Time and funding prevented the modelling the likely behaviour and trajectory of the acidification of Lake Innes and an assessment of recovery potential if reverted to freshwater under a range of scenarios. It is recommended that bulk sampling of lake bed sediments (minimum of 6 locations) be undertaken and subsequently incubated under modelled scenario conditions utilising Council's Tuflow hydrological model to provide additional quantitative predictions to this worst case scenario and assess the likely recovery Lake Innes under freshwater reversion conditions. Modelling costs are estimated at \$75,000 to 150,000 pending on the field sampling and amount of empirical data used as input in the hydrological modelling.
2. Weekly water quality monitoring, measuring total actual acidity, dissolved aluminium and pH of Lake Innes is recommended to quantify the ASS discharge during and after lake opening events. Recommend at these 4 samples be taken roughly on in each quarter of the lake plus additional sampling of any visual points of acid discharge points entering the lake, such as shown in Figure 9 and Photo 3. Monitoring is recommended to continue until lake water levels return and remain at levels  $\geq 0.9\text{m AHD}$ .
3. Survey of the lake margins to AHD to confirm the digital elevation model. Data to be used to confirm AASS and PASS horizons to AHD to allow for accurate future decision making on the management of ASS and the Lake system.

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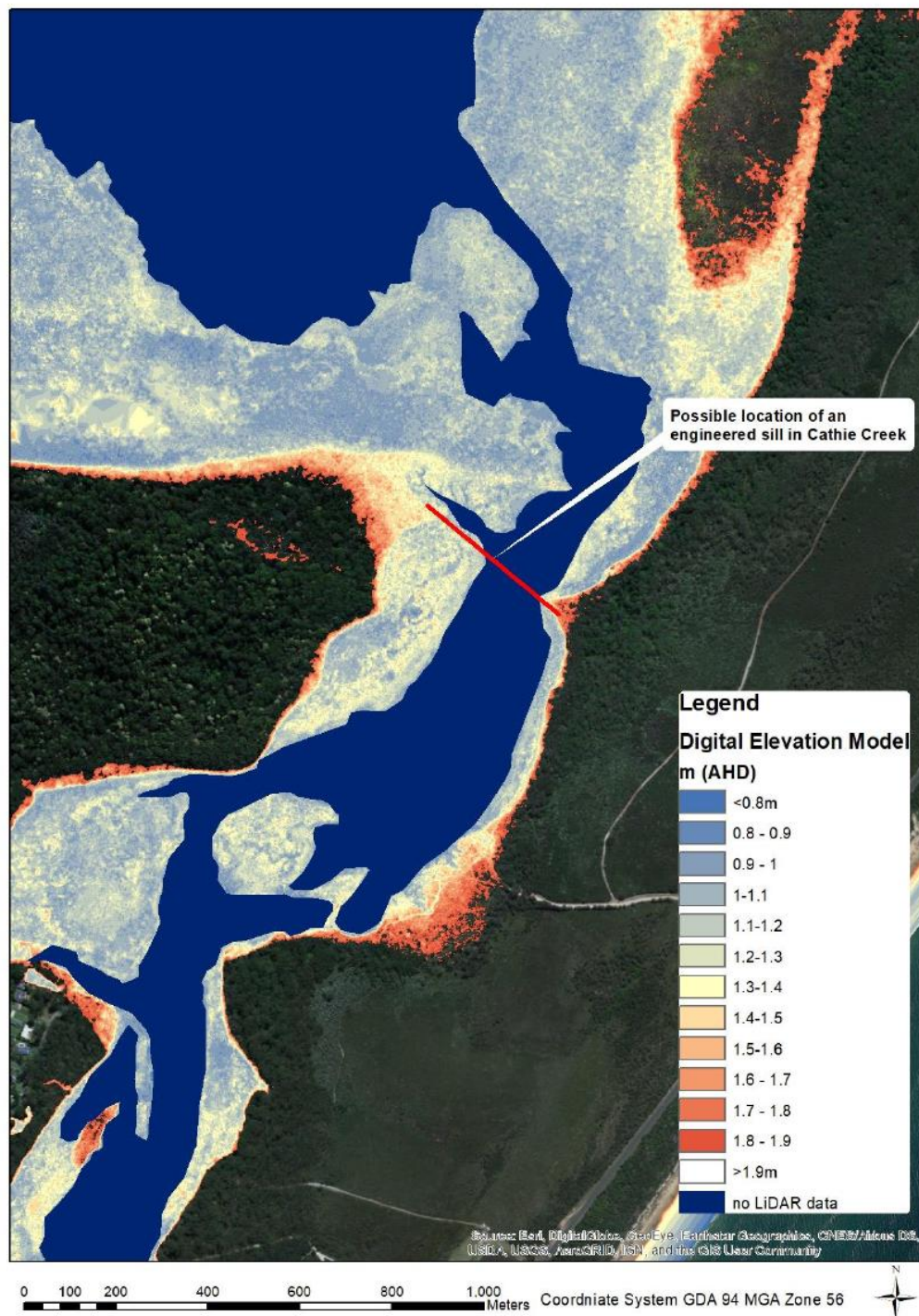


Figure 15: Possible location of an engineered sill in Cathie Creek to isolate Lake Innes



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Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment**3.5. Long-term recommendations**

The following long-term recommendations are provided, in order of priority.

1. In light of these ASS findings, projected climate change and recent ASS research, Council, NSW NPWS and relevant stakeholders review the lake opening strategy and the 2013 Lake Innes Reversion Assessment (Hale, 2013) as part of the development of a Coastal Management Plan under the NSW *Coastal Management Act 2016* for Lake Innes and Lake Cathie.
2. As part of this review, the technical and engineering feasibility of infilling the artificial channel between Lake Innes and Cathie should be also considered in light of recent geotechnical advancements, such as but not limited to the use of sand-filled geotextile containers.
3. Monitor the water quality and presence of MBO formation within Lake Cathie west of Kenwood Drive Bridge to inform future planning and reviews of the lake opening strategy.

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**4. Glossary**

<b>Actual Acidity</b>	The available acidity already present in the soil, often as a consequence of previous oxidation event. It is this acidity that will be most mobilised and discharged following a rainfall event. It is measured in the laboratory using the Titratable Actual Acidity method. It does not aim to include the less soluble acidity (that is Retained Acidity) such as jarosite.
<b>Actual Acid Sulfate Soil</b>	Actual Acid Sulfate Soils (AASS) are soils containing highly acidic soil resulting from the oxidation of soil materials are rich in inorganic sulfur, primarily pyrite. When this oxidation of pyrite produces acidity in excess of the soil material's capacity to neutralise this acidity, the soil material will often acidify to a pH 4 or less, forming an Actual ASS. The recognition of Actual ASS materials can be confirmed by the presence of jarosite in these materials.
<b>The Australian Height Datum</b>	Australian Height Datum (AHD) is the official national vertical datum for Australia and refers to Australian Height Datum 1971. Mean sea level for 1966-1968 was assigned a value of 0.000m.
<b>Acid Neutralising Capacity</b>	Acid Neutralising Capacity (ANC) A measure of a soil or water body's inherent ability to buffer acidity and resist the lowering of the pH.
<b>Holocene</b>	Geological period defining the last 11,000 years to the present.
<b>Jarosite</b>	An acidic, pale yellow (straw- or butter-coloured) iron hydroxysulfate mineral: $\text{KFe}_3(\text{SO}_4)_2(\text{OH})_6$ . Jarosite is a by-product of the ASS oxidation process, forms at $\text{pH} < 3.7$ , and is commonly found precipitated along root channels and other soil surfaces exposed to air. It is an environmentally important store of acidity as it can hydrolyse to release acidity relatively rapidly.
<b>Monosulfides</b>	The term given to highly reactive inorganic sulfur compounds with the approximate cation:sulfur ratio of one. Monosulfides are operationally measured as Acid Volatile Sulfide (AVS).
<b>Monosulfidic Black Ooze</b>	Monosulfidic Black Ooze (MBO) is the term used to describe black, gel-like materials (moisture content $> 70\%$ ), often oily in appearance, greatly enriched in monosulfides (up to 27%), high in organic matter (usually 10% organic carbon) that can form thick ( $> 1.0 \text{ m}$ ) accumulations in waterways (including drains), in ASS wetlands.
<b>Net Acidity</b>	The measure of the acidity hazard of ASS materials. Determined from laboratory analysis, it is the result obtained when the values for various components of soil acidity and Acid Neutralising Capacity are substituted into the Acid Base Accounting equation.

(Modified from Sullivan *et. al.*, 2018b)

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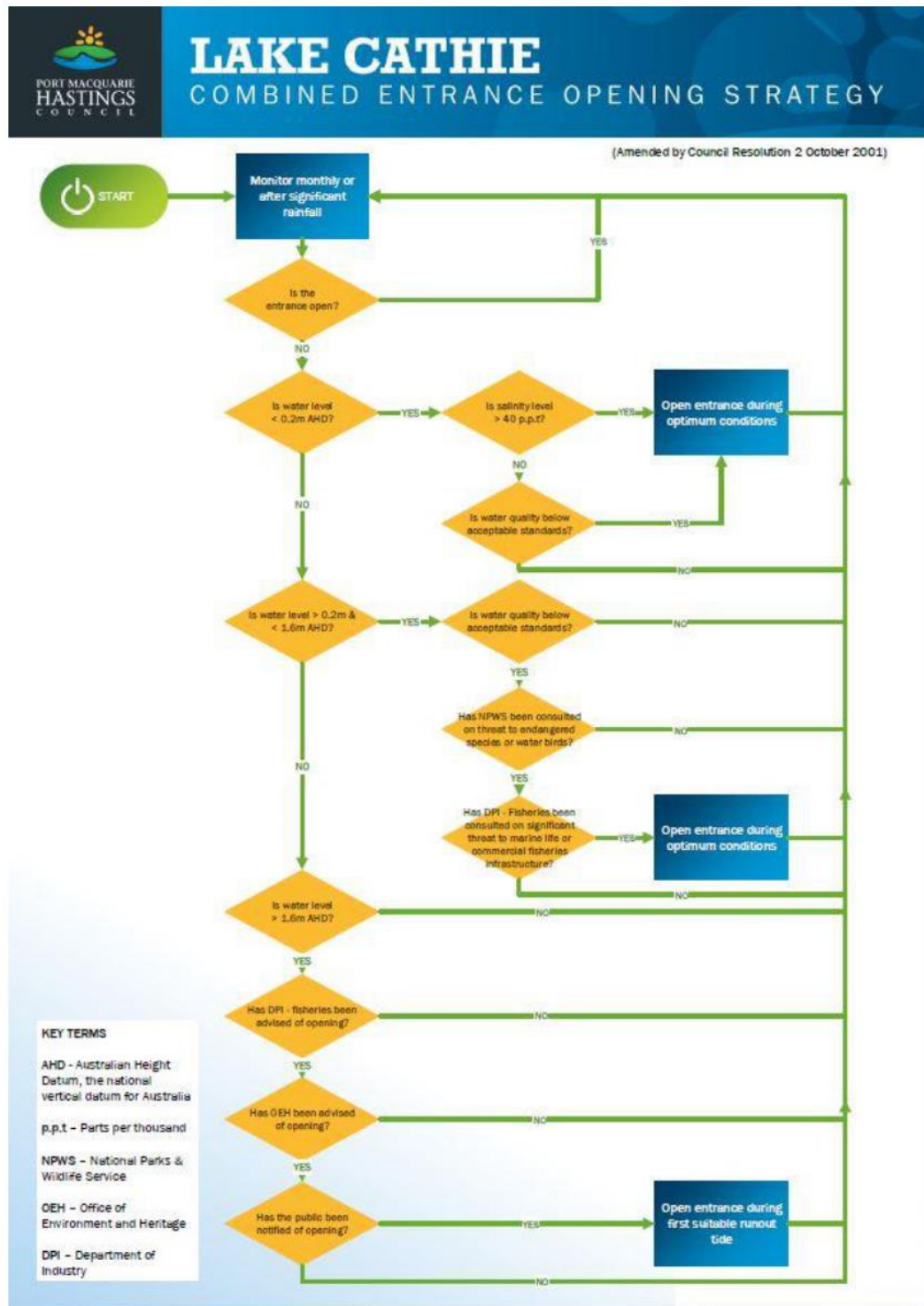
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## 6. Appendix A: Lake Cathie Innes Opening Strategy.



## 7. Appendix B: Field Sampling Records

sample site	LC-1	soil sample depth (cm)	gps waypoint	42
depth (cm) below ns	soil horizon description		depth to wl (cm)	Other comments
0-10	organic rich, sapric, greasy, black lake bed sediments MBO?	10	40	groundwater seepage at 40cm
10-40	organic rich, fibric, greasy, black lake bed sediments MBO?	30		
40-50	organic rich, fibric, greasy, black lake bed sediments MBO?	50		
sample site	LC-2		gps waypoint	43
depth (cm) below ns	soil horizon description	sample depth	depth to wl (cm)	Other comments
0-5	organic rich, sapric, greasy, black lake bed sediments MBO?	5	40	
5-40	organic rich, fine fibric, greasy, black lake bed sediments MBO?	30		
40-60	organic rich, fine fibric, greasy, black lake bed sediments MBO?	50		
sample site	LC-3		gps waypoint	44
depth (cm) below ns	soil horizon description	sample depth	depth to wl (cm)	Other comments
0-10	organic rich, sapric, greasy, black lake bed sediments MBO?	5	>50	
10-40	organic rich, fine fibric, greasy, black lake bed sediments MBO?	30		
40-50	grey clay	50		
sample site	LC-4		gps waypoint	45
depth (cm) below ns	soil horizon description	sample depth	depth to wl (cm)	Other comments
0-10	organic rich, sapric, greasy, black lake bed sediments MBO?	5	>50	
10-40	organic rich, coarse fibric, greasy, black lake bed sediments MBO?	30		preserved coarse fibrous roots , stained red
40-50	grey clay	50		
sample site	LI-1		gps waypoint	36
depth (cm) below ns	soil horizon description	sample depth	depth to wl (cm)	Other comments
0-10	organic rich, sapric, greasy, black lake bed sediments MBO?	10	10	
10-30	organic rich, fibric, greasy, black lake bed sediments MBO?	30		
30-50	organic rich, fibric, greasy, black lake bed sediments MBO?	50		
sample site	LI-2		gps waypoint	37
depth (cm) below ns	soil horizon description	sample depth	depth to wl (cm)	Other comments
0-5	organic rich, sapric, greasy, black lake bed sediments MBO?	5	60	
5-30	organic rich, fibric, greasy, black lake bed sediments MBO?	30		
30-50	clay with fibric root matter	50		

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sample site	soil horizon description	sample depth	gps waypoint depth to wl (cm)	48 Other comments
depth (cm) below ns				
0-5	organic rich, sapric, greasy, black lake bed sediments MBO?	5	20	
5-20	organic rich, fine fibric, greasy, black lake bed sediments MBO?	20		
20-50	organic rich, fine fibric, greasy, black lake bed sediments MBO?	50		preserved coarse fibrous roots, stained red >40cm
sample site			gps waypoint	50
depth (cm) below ns			depth to wl (cm)	
0-5	organic rich, sapric, greasy, black lake bed sediments MBO?	5	20	
5-20	organic rich, fine fibric, greasy, black lake bed sediments MBO?	20		
20-50	organic rich, fine fibric, greasy, black lake bed sediments MBO?	50		
sample site			gps waypoint	50
depth (cm) below ns			depth to wl (cm)	
0-5	organic rich, sapric, greasy, black lake bed sediments MBO?	5	30	
5-30	organic rich, fine fibric, greasy, black lake bed sediments MBO?	30		
30-50	organic rich, fine fibric, greasy, black lake bed sediments MBO?	50		preserved coarse fibrous roots, stained red >40cm



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Lake Cathie and Lake Innes Acid Sulfate Soil Risk Assessment

## 8. Appendix C: Soil Laboratory Results.

See supplied excel spreadsheet

*Environmental Analysis Laboratory data Lake Cathie and Innes Acid Sulfate Soil Risk Assessment - P07937-01 -  
Port Macquarie Hastings Council*

## 9. Appendix D: Water Sampling Results

**PORT MACQUARIE HASTINGS ENVIRONMENTAL LABORATORY**  
 (PO Box 84)  
 Enquiries: Marie Smith  
 7 Major Innes Rd  
 Port Macquarie NSW 2444  
 Telephone: (02) 6581 1810  
 ASB 11 236 901 601



**Analytical Report:** H19 0998

**Issue Date:** 21 May 2019

**Customer:** Gordon Cameron  
 Port Macquarie Hastings - Environmental Services  
 PO Box 84  
 Port Macquarie NSW 2444



**Project Description:** Water Investigation - Lake Innes  
**Date/Time Samples Received:** 10/05/2019, 12:35  
**Sample Temperature:** Room Temp.  
**Date Laboratory Analysis Commenced:** 15/05/2019

**Comments:**

This report supersedes all previous reports. Results relate to the samples as received. The responsibility for sampling rests with the customer.

M. Smith  
Laboratory Manager

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 Page 1 of 3

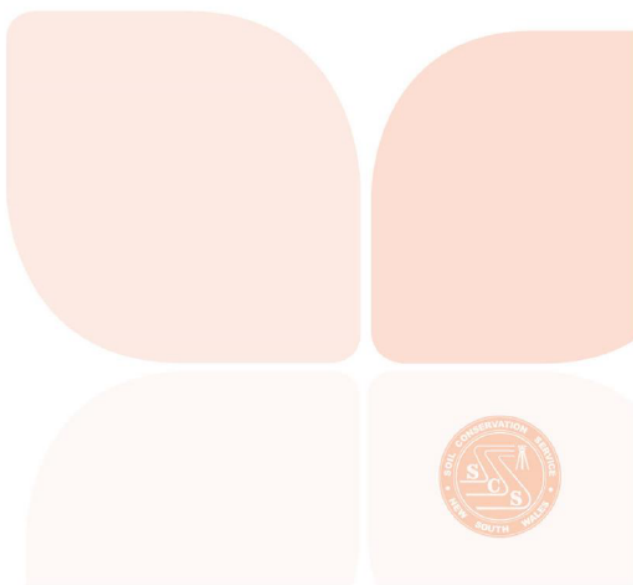
Analytical Report: H19 0998

ANALYSIS	UNITS	METHOD	Sample Description Sampled By Time Sampled Date Sampled	H190998-1 LI 1 - Lake Innes T. Aaso 10:00 10/05/2019	H190998-2 LI 2 - Lake Innes T. Aaso 10:00 10/05/2019	H190998-3 LI 3 - Lake Innes T. Aaso 10:00 10/05/2019
Alkalinity to pH 4.5	mg CaCO <sub>3</sub> L <sup>-1</sup>	MET042		121	122	123

Analytical Report: H19 0998

**Key:**  
Ø NATA Accreditation does not cover the performance of this analysis.  
-- Analysis not required.  
MET 014 pH analysis performed outside APHA (2017) recommended holding time (15 mins).  
Where a result is required to meet a compliance limit or specification the associated uncertainty must be considered.  
Uncertainty estimates are available from the laboratory for all accredited test results.

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PORT MACQUARIE-HASTINGS  
COUNCIL

# Coastal Management

## in the Port Macquarie-Hastings



[pmhc.nsw.gov.au/lake-cathie](http://pmhc.nsw.gov.au/lake-cathie)

For enquiries please contact Council on (02) 6581 8787 or email [council@pmhc.nsw.gov.au](mailto:council@pmhc.nsw.gov.au).

## Introduction

**I**n 2016 the NSW government repealed the *Coastal Protection Act 1979* and replaced it with the *Coastal Management Act 2016* (CM Act). In 2018 the *Coastal Management State Environmental Planning Policy 2018* (SEPP) was introduced.

The purpose of the CM Act is to manage the use and development of the coastal environment in an ecologically sustainable way, for the social, cultural and economic well-being of the people of New South Wales.

In accordance with the CM Act, a local council within a coastal zone may determine to prepare a Coastal Management Program (CMP) for delivering the objectives of the CM Act.

Coastal management programs (CMPs) set the long-term strategy for the coordinated management of the coast, with a focus on achieving the objects and objectives of the *Coastal Management Act 2016* (CM Act). They identify coastal management issues and the actions required to address these issues in a strategic and integrated way by detailing how and when those actions are to be implemented, their costs and proposed cost-sharing arrangements and other viable funding mechanisms.

Some of the key sections in a CMP include:

- > a snapshot of management issues
- > actions to be implemented by the council
- > actions to be implemented by adjoining councils or public authorities
- > a business plan
- > a coastal zone emergency action sub plan
- > maps showing the area covered by the CMP and the relevant coastal management areas

Prior to 2016 PMHC had a Coastal Zone Management Plan (CZMP) that was developed and endorsed by the minister under the former *Coastal Protection Act 1979* (now repealed).

This plan identified works that Council would undertake in accordance with the Act.

In 2013 Council developed a CZMP specifically for Lake Cathie which aimed to:

- > Protect and restore natural areas through stormwater and foreshore management.
- > Provide community access and opportunities to enjoy the natural environment through reserve improvements, continuing public access and beach nourishment.
- > Plan and take action to minimise the impact of natural events and climate change through further investigations, contingency measure and construction of a revetment wall to protect private development in Illaroo Rd.
- > Manage development outcomes to minimise the impact on the natural environment through development controls.

The specific actions were the subject of extensive community and stakeholder engagement and were endorsed by the PMHC Coast, Estuary and Floodplain sub-committee, Council and the NSW Government.

The CZMP expires in 2021.

Council has now commenced developing a Coastal Management Program under the *Coastal Management Act 2016*.

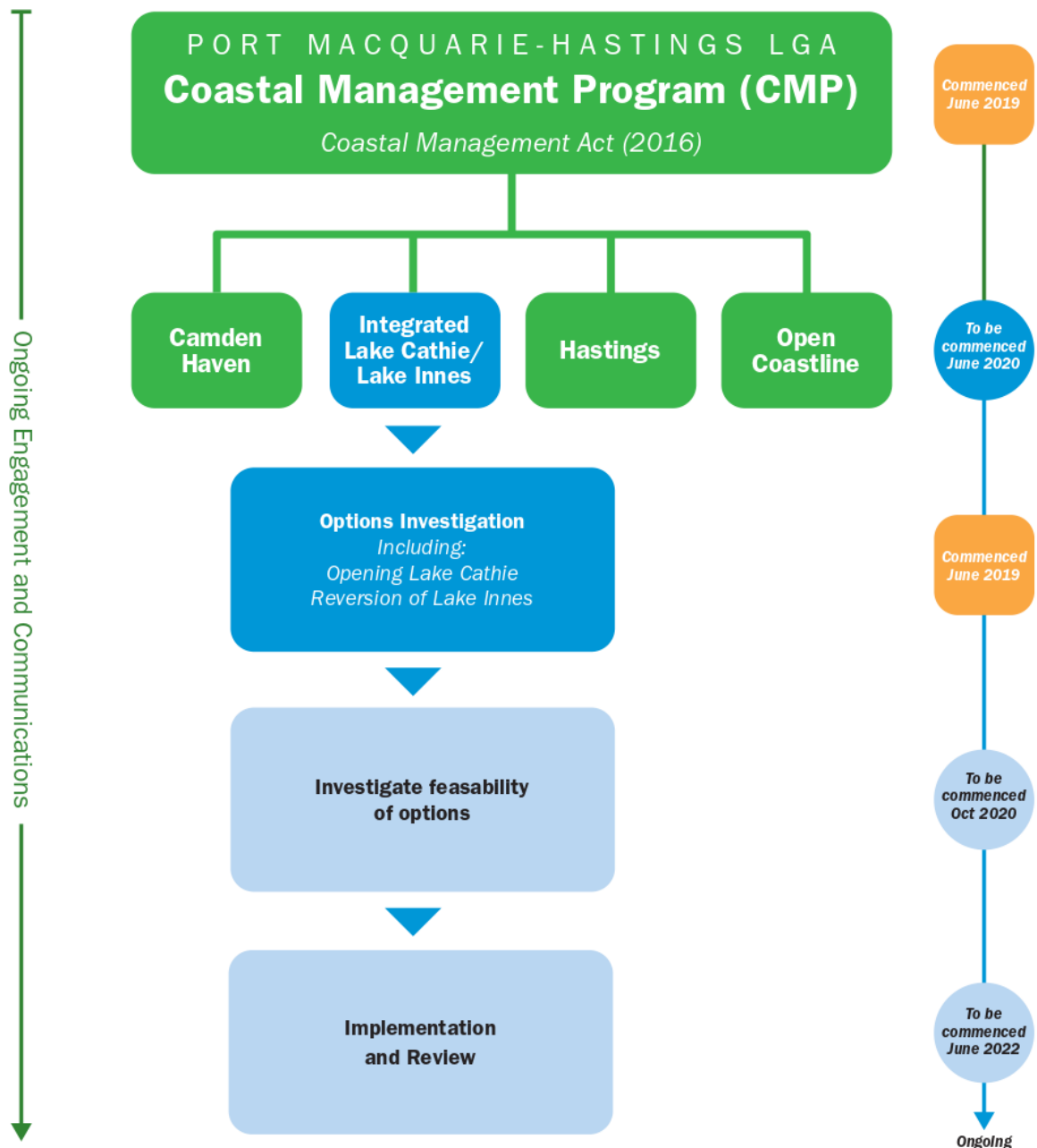
**[pmhc.nsw.gov.au/lake-cathie](http://pmhc.nsw.gov.au/lake-cathie)**

For enquiries please contact Council on (02) 6581 8787 or email [council@pmhc.nsw.gov.au](mailto:council@pmhc.nsw.gov.au).



# Coastal Management Program for the Port Macquarie-Hastings

**I**n June 2019 Council began work on the scoping of a PMHC wide Coastal Management Program. This scoping document is estimated to be completed by June 2020. Following on from the PMHC Coastal Management Program, Council will continue to work on investigating options for management of the Lake Cathie/Lake Innes catchment area and integrated open coastline.



\*The timeframes are indicative only and depend upon Council working closely with the community and all levels of government to secure support and funding.



## Options - Lake Cathie/Lake Innes Coastal Management Program

The management of the Lake Cathie/Lake Innes estuarine system is complicated. The NSW State Government has primary responsibility over the nature reserve (National Parks & Wildlife Service), the water (DPI Water), the fish (DPI Fisheries), and the lakebed (Crown Lands). Council is Crown Land trustee manager of Cathie Lagoon (but needs a licence from Crown Lands before it can undertake any works in this area), Foreshore Reserve & Aqua Reserve. Council is also responsible for undertaking the physical works to open the entrance, however this cannot occur without the advice and input from the NSW State Government Agencies and a short term license from Crown.

In the past Council has opened Lake Cathie during potential flood events, however artificial opening of the Lake has not been undertaken in the last 25 years for a low water event.

The current climatic conditions of prolonged drought, the additional information Council is aware of regarding Acid Sulphate Soils<sup>3</sup> and the change in ecology over the last 25 years has prompted the need for an updated environmental assessment to be completed before an artificial lake opening may occur in the current climatic situation. A full explanation of what steps are to be taken and how long it will take are included in the attached flow charts.

Council acknowledges the desire of the community to open Cathie Lagoon to the ocean and is working to determine options that would enable this to occur. There are three options that Council is currently investigating for opening the Lake, ahead of completing the CMP for Lake Cathie. These options are defined by the purpose of the works and how that purpose is defined under various pieces of legislation.

The likely development<sup>1</sup> pathways for Lake Cathie are one or more of the following:

1. **Integrated development** is development under Part 4 of the Environmental Planning and Assessment Act 1979, that in order for it to be carried out, requires development consent and one or more approvals from a NSW State Government Agency. The aim of Integrated Development is to promote a unified, whole of government approach to the assessment of development in New South Wales

This type of development consent would be required if the opening works at Lake Cathie were for recreational purposes. The reason for integrated development is because agencies such as Fisheries must provide comment to the proposal before works commence. **(Refer to Flow chart 1)**

2. **Designated Development** refers to developments that are high-impact developments (e.g. likely to generate pollution) or are located in or near an environmentally sensitive area.

This type of development consent would be required if works were undertaken in the area mapped as Coastal SEPP<sup>2</sup>. This would not be initiated by the lake opening works but rather if work was undertaken to temporarily or permanently barrier the Lake Cathie and Lake Innes systems from one another. **(Refer to Flow chart 2)**

3. **Review of Environmental Factors** refers to the environmental assessment for activities that are undertaken by a Public Authority under Part 5 of the EP&A Act.

This type of development consent would be undertaken if the main driver for opening of the Lake was for ecological purposes. Licensing from agencies such as Fisheries and Crown Lands would still be required upon determination of the REF. **(Refer to Flow chart 3)**

A common factor for all of the pathways is that Council must first, regardless of pathway, determine the current and potential Acid Sulphate Soil (ASS) risk of the Lake Cathie and Innes Lake system under a scenario of protracted drought or potential inundation either from artificial opening or significant rainfall. Council has found a suitable contractor to undertake this work and resolved to allocate 50% (\$147,500) of the total cost of works but is awaiting confirmation of funding for the other 50% from DPIE under the Coast Estuary Grant funding program. This work will take place between February/March 2020 to October 2020.





The ASS risk information will be used as part of the greater environmental impact assessment that will need to be undertaken for each scenario. Depending on the pathway the environmental assessment may take on one of the following forms:

- a. Review of Environmental Factors (REF) - environmental assessment for activities that are undertaken by a Public Authority under Part 5 of the EP&A Act.
- b. State of Environmental effects (SoEE) a report that recognises and explains the likely environmental impacts associated with proposed works and the method to minimise these. This report refers to the assessment of all issues applicable to a development under Part 4 of the Environmental Planning and Assessment Act 1979.
- c. Environmental Impact Statement (EIS) a report that in greater detail than a SoEE explains the current environment, as well as the project's potential impact on the local environment including direct, indirect and cumulative effects that are due to the construction, commissioning, operation, and decommissioning of your project.
- d. Species Impact Statement (SIS) a report is required for developments that are to take place on land which contains a critical habitat, or will impact on the life of endangered species or their populations

Each of these reports including the Acid Sulphate Soils study may take between 6 to 8 months to complete. Please refer to Flowcharts for more information.

## Glossary

**1. Development** - as defined in the Environmental Planning and Assessment Act, 1979 includes the use of land, the carrying out of works or any other act, matter or thing that may be controlled by an Environmental Planning instrument (e.g. Local Environmental Plan or State Environmental Planning Policy).

Categories of development may include:

- > Exempt development (development that is exempt from the assessment and consent or approval requirements of the EP&A Act).
- > Development requiring development consent under Part 4 of the EP&A Act including the following:
  - i. Complying development.
  - ii. Development that requires consent by a Council or other public authority specified as the consent authority.
  - iii. Regionally significant development (development that requires consent by a Sydney district or regional planning panel.
  - iv. State significant development (development that requires consent by the Independent Planning Commission or Minister.
  - v. Designated development (requires an Environmental Impact Statement (EIS).
  - vi. Integrated development also requires approvals under other legislation.
  - vii. Development that is an activity requiring environmental assessment under Division 5.1 (Part 5) of the Act before it can be carried out by a public authority gives approval for the activity.
  - viii. State Significant Infrastructure requiring approval of the Minister.

**2. Coastal SEPP** - The State Environmental Planning Policy (Coastal Management) 2018 (CM SEPP) identifies and maps the coastal zone according to definitions in the CM Act. The CM SEPP streamlines coastal development assessment requirements.

The CM SEPP identifies development controls for consent authorities to apply to each coastal management area to achieve the objectives of the CM Act.

The CM SEPP establishes the approval pathway for coastal protection works.

Statewide mapping is available for:

- > coastal wetlands and littoral rainforest area
- > coastal environment area
- > coastal use area.

**3. Acid Sulphate Soils** - Acid sulphate soils are natural sediments that contain iron sulfides. They are common along the NSW coast. When disturbed or exposed to air these soils can release acid, damaging built structures and harming or killing animals and plants.

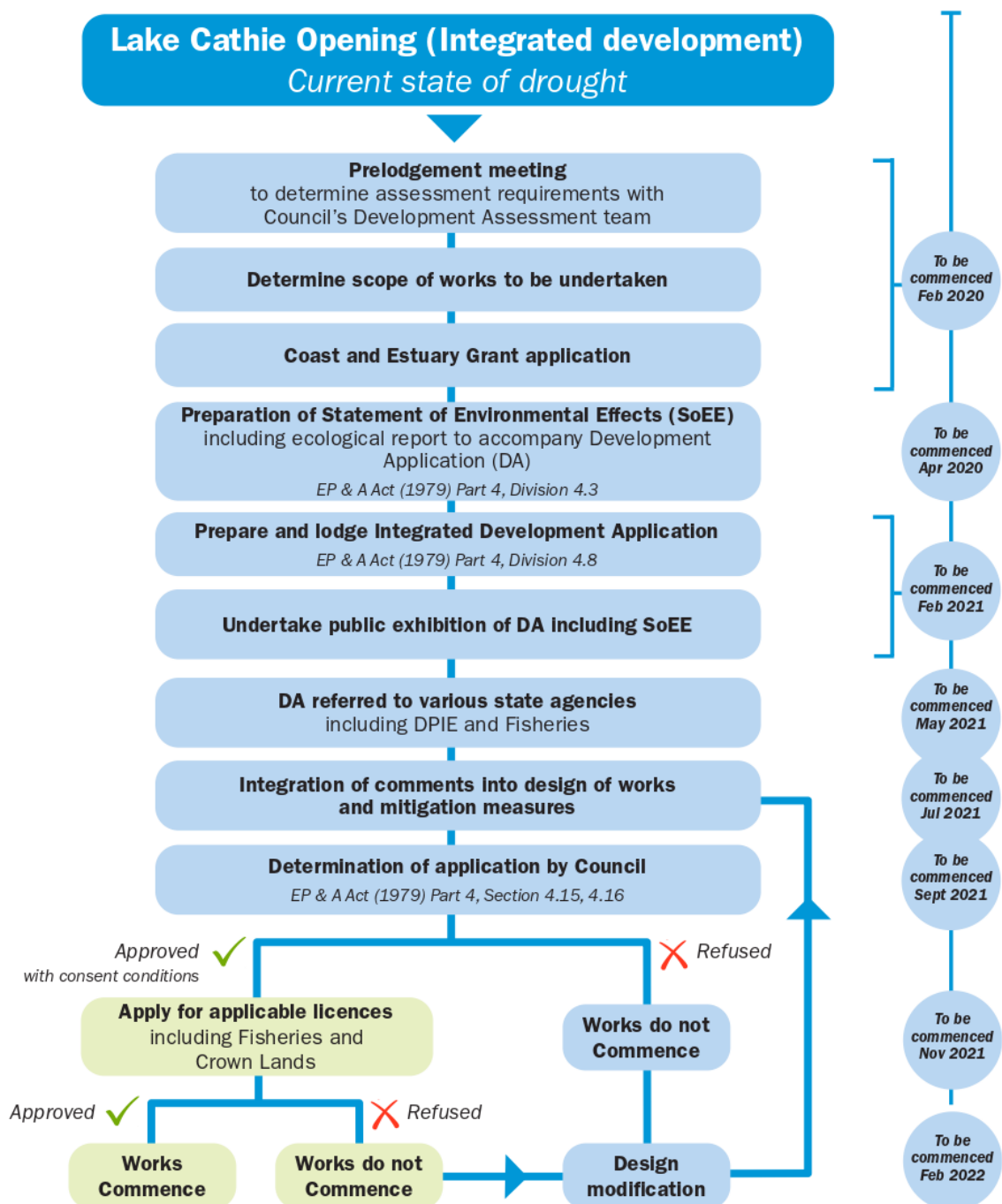
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## Option 1 - Opening the Estuarine system to the ocean for recreational purpose during drought

DA for Earthworks ancillary to a recreational area (Integrated development)

\* Scope and location of works would be defined as outside of land identified as "coastal wetlands" or "littoral rainforest"



\*The timeframes are indicative only and depend upon Council working closely with the community and all levels of government to secure support and funding.

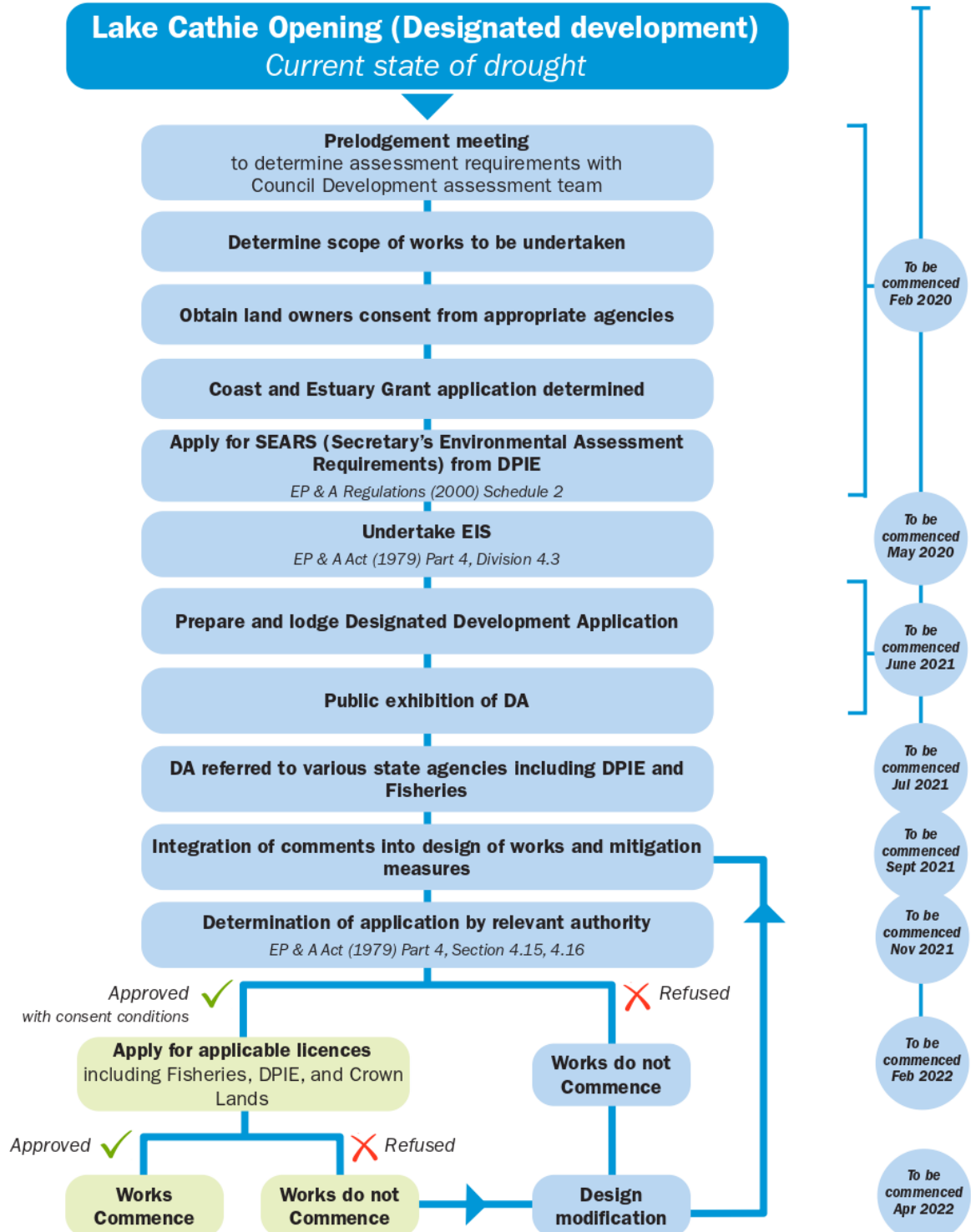
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## Option 2 - Works upstream of Ocean Dr bridge i.e. temporary weir works during current drought conditions

DA for Earthworks ancillary to a recreational area in mapped Coastal SEPP area

\* Scope and location of works would be defined as outside of land identified as "coastal wetlands" or "littoral rainforest"



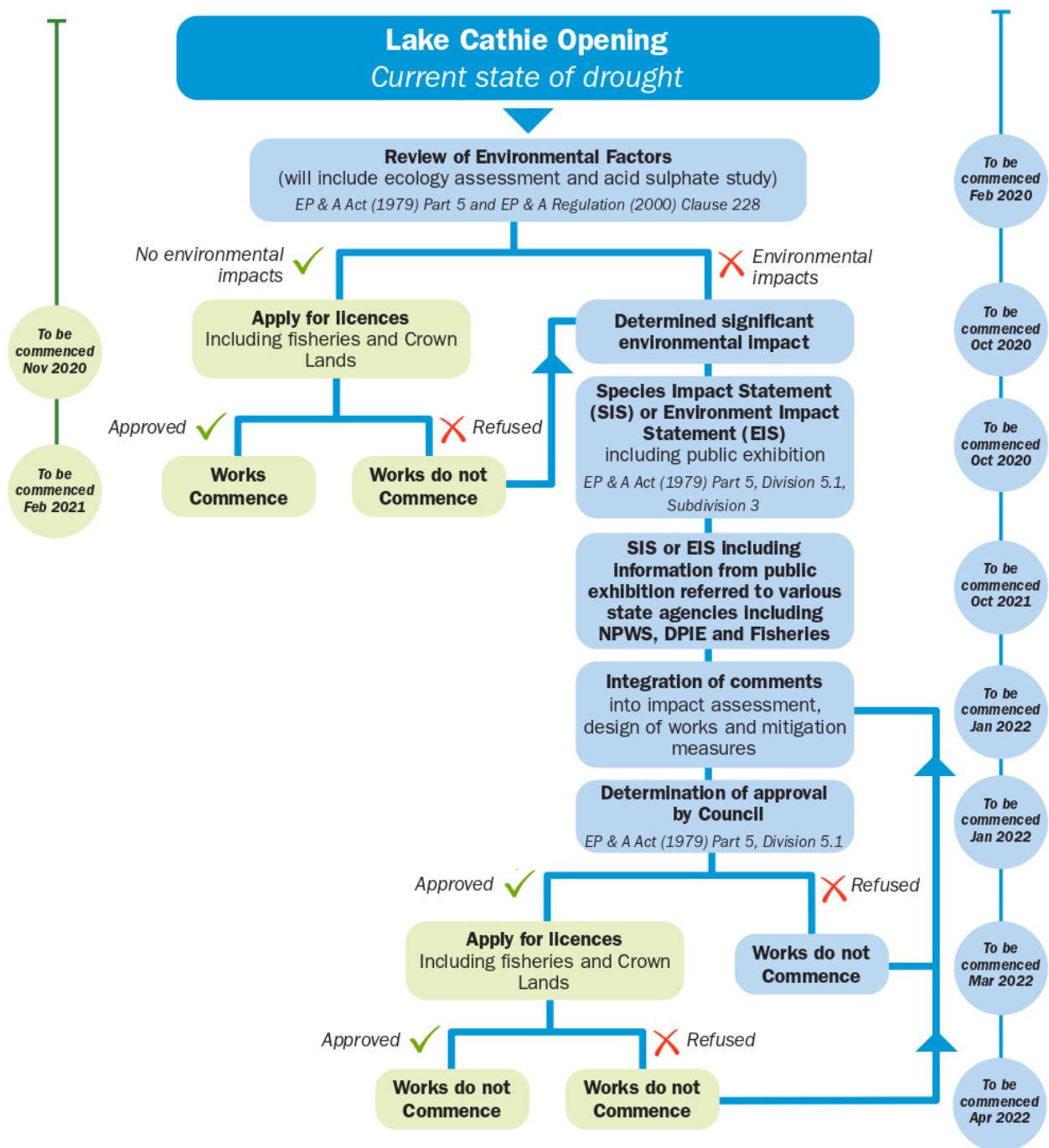
\*The timeframes are indicative only and depend upon Council working closely with the community and all levels of government to secure support and funding.



## Option 3 - Opening estuarine system to the ocean for ecological purpose during current drought conditions

REF - waterway or foreshore management activity

\*Scope and location of works would be defined as outside of land identified as "coastal wetlands" or "littoral rainforest"



\*The timeframes are indicative only and depend upon Council working closely with the community and all levels of government to secure support and funding.



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**Item: 11**

**Subject: PASSING OF PATRICK MCENTEE AND LAURIE LARDNER**

**Presented by: Development and Environment, Melissa Watkins**

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## **RECOMMENDATION**

**That the Committee:**

- 1. Acknowledge the important contribution of the late Mr Patrick McEntee and the late Mr Laurie Lardner to the Coast, Estuary and Floodplain advisory subcommittee.**
- 2. Request Council write to the families of Mr McEntee and Mr Lardner to express the appreciation of the committee for their contribution.**

## **Discussion**

Two long standing members of the Coast, Estuary and Floodplain advisory subcommittee, Mr Patric McEntee and Mr Laurie Lardner sadly passed away in 2019.

Both Patrick and Laurie's contribution to the Coast, Estuary and Floodplain advisory subcommittee have been significant. The passing of Patrick and Laurie will be a loss for both the committee and the community as a whole.

Patrick and Laurie were long standing members of the committee and provided significant value to the environment and oyster industry during their many years on the Coast and Estuary and Floodplain committees.

The time, efforts, knowledge and passion of Patrick and Laurie while serving on this committee over the past two decades needs to be acknowledged and it is recommended that Council write to the McEntee and Lardner families to express our appreciation and respect for these two former long serving members.

## **Attachments**

Nil

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**Item: 12**

**Subject: PROPOSED COAST, ESTUARY & FLOODPLAIN ADVISORY SUB-  
COMMITTEE MEETING DATES FOR ENDORSEMENT**

**Presented by: Development and Environment, Melissa Watkins**

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### **RECOMMENDATION**

**That the Committee endorse the proposed Coast, Estuary and Floodplain  
Advisory Sub-Committee meeting dates for 2020.**

### **Discussion**

The following dates are proposed for the Coast, Estuary and Floodplain Advisory Sub-Committee to meet this calendar year.

- Thursday 28 May 2020, Function Room, 2.00 - 4.00pm Reports prepared by 14 May, Distribution of Agenda 21st May.
- Thursday 31 August 2020, Function Room, 2.00 - 4.00pm Reports prepared by 17 August, Distribution of Agenda 24th August.
- Thursday 26 November 2020, Function Room, 2.00 - 4.00pm Reports prepared by 12 November, Distribution of Agenda 19th November.

### **Attachments**

Nil