



NORTHERN LAKES FLOODPLAIN RISK MANAGEMENT STUDY AND PLAN PLAN IN RESPONSE TO OVERLAND FLOODING – VOLUME 2 OF 2 – APPENDICES PART 1 OF 3

Report MHL2571
September 2021

Prepared for:



Cover Photograph: Photograph of road flooding at San Remo in December 2011 provided by F. Blume

Appendices – Northern Lakes Floodplain Risk Management Study and Plan

Appendix A – Community newsletter and questionnaire

Appendix B – Ground-truthing

Appendix C – Flood mapping

Appendix D – Hydraulic category and hazards

Appendix E – Flood emergency response classifications

Appendix F – Flood planning area

Appendix G – Road closure

Appendix H – Damage assessment and stage damage data

Appendix I – Damage assessment results

Appendix J – Pipe capacity

Appendix K – Detailed management option assessment

Appendix L – Climate change impact assessment

Appendix A – Community newsletter and questionnaire

15 ##### Street
LONG ##### 2261



Dear #####,

Northern Lakes Floodplain Risk Management Study & Plan - Community Questionnaire

With the support of the NSW Government Floodplain Management Program, Central Coast Council is preparing a floodplain risk management study and plan for the Northern Lakes Catchments. Council is seeking information from the community to better inform the selection of flood reduction measures.

Understanding how and where past flood events have impacted the community would help identify flooding "trouble spots" and allow for a targeted assessment of where flood risk reduction measures would be best implemented.

In contrast to the 2014 Tuggerah Lake Floodplain Risk Management Plan which examined elevated water levels of the Lake, this study seeks to address the impacts of stormwater inundating properties adjacent to nearby creeks and drainage channels.

Council has engaged consultants Manly Hydraulics Laboratory to prepare this study and plan. The feedback from the attached community questionnaire will assist in preparing a range of potential flood risk reduction measures that will be evaluated and presented back to the community during subsequent stages of the project.

Please complete the hardcopy questionnaire and return it by **Friday 14 September 2018** using the enclosed reply-paid envelope (no postage stamp required) or through the website at www.yourvoiceourcoast.com/Northern-Lakes-Floodplain-Risk-Management.

To stay informed and contribute to future developments of this study, please provide your details on the questionnaire provided. Should you wish to obtain further information on the study, please contact Central Coast Council's Robert Baker on (02) 4304 7087 or email FloodManagement@centralcoast.nsw.gov.au.

Alternatively visit the consultant's study website: <http://www.mhl.nsw.gov.au/users/NorthernLakes/>

Yours sincerely,

A handwritten signature in black ink, appearing to read "P Sheath".

Peter Sheath
Section Manager Waterways



Wyong Office: 2 Hely St / PO Box 20 Wyong NSW 2259 | P 02 4350 5555
Gosford Office: 49 Mann St / PO Box 21 Gosford NSW 2250 | P 02 4325 8222
E ask@centralcoast.nsw.gov.au | W www.centralcoast.nsw.gov.au | ABN 73 149 644 003

[illegible]

How important is it that the flood management option...	1	2	3	4	5
... improves community access and recreational use					
...reduces flood damages to the community					
... requires minimal ongoing council expenditure after implementation					
... initial costs (i.e. design / construction) require minimal council expenditure					
... does not cause water quality issues					
... does not threaten local plants and animals and their habitat					
... raises community awareness and understanding of the local flood risk					
... provides safety to the community during flooding					
...does not disadvantage individual members of the community					
...does not cause negative flood impacts to other areas (both upstream and downstream)					

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE



10 February 2021
[Name/Position_Title]
[Business/Company_Name]
[address_1]
[ADDRESS_2]

Dear [Name]

**Public Exhibition: Draft Northern Lakes Catchments Floodplain Risk Management Study and Plan
(Plan in Response to Overland Flooding)**

The Draft *Northern Lakes Catchments Floodplain Risk Management Study and Plan* will be placed on public exhibition for a period of four weeks commencing 15 February until 12 March 2021 (inclusive). Council invites you to review the draft study and plan and provide feedback.

The Study considers several flood risk management options to reduce risk to life and damage to property. These options were identified in consultation with the Northern Lakes Catchments community in the first round of consultation held during winter 2018. The options have been assessed against a range of criteria: economic, environmental and social. The best options from the Study will form the recommendations and strategic program presented in the Draft Plan.

The Draft Study and Plan have been prepared in accordance with the New South Wales Government's Floodplain Management Process with financial assistance from the NSW Government through its Floodplain Management Program.

The Draft Study and Plan and supporting documents can be viewed online on Council's Your Voice Our Coast (YVOC) webpage yourvoiceourcoast.com/floodplain or at Toukley Library (corner of Main Rd and Victoria Ave, TOUKLEY). Further information about the public exhibition, the draft documents, ways to get involved and how to make a submission on the website.

Should you wish to discuss the Draft Study and Plan in person with Council's Project Officer, please attend one of our face-to-face, COVID-19 safe, information sessions at:

- Blue Haven Community Centre Main Hall (1 Apsley Court, Blue Haven): Tuesday 2 March 2021, 4pm-7pm or;
- Halekulani Community Hall (Halekulani Oval, 107 Scenic Drive, Budgewoi): Wednesday 3 March 2021, 4pm-7pm

Please note that information sessions may be cancelled at any time due to the changing COVID situation. Please visit yourvoiceourcoast.com/floodplain for any updates prior to attending the public exhibition.

Alternatively, you can make a phone call or register to have a one-on-one online video meeting with one of our project officers – all you need to do is book in/register via the YVOC webpage.



Wyong Office: 2 Hely St / PO Box 20 Wyong NSW 2259
Gosford Office: 49 Mann St / PO Box 21 Gosford NSW 2250
P 1300 463 954 | E ask@centralcoast.nsw.gov.au | W centralcoast.nsw.gov.au | ABN 73 149 644 003

Page 2 of 2

All the comments and submissions received during the exhibition period will be analysed and, where relevant, incorporated into the Final Study and Plan which will be considered for adoption by Council later this year. If you require further information or have any questions about the public exhibition, please contact Council's floodplain management staff below:

James Henderson (Environmental Engineer Water)
Mobile phone: 0407 373 680
James.Henderson@centralcoast.nsw.gov.au

Kind Regards,

Peter Sheath
Section Manager – Flood Strategy and Planning



Wyong Office: 2 Hely St / PO Box 20 Wyong NSW 2259
Gosford Office: 49 Mann St / PO Box 21 Gosford NSW 2250
P 1300 463 954 | E ask@centralcoast.nsw.gov.au | W centralcoast.nsw.gov.au | ABN 73 149 644 003

Appendix B – Ground-truthing

ID	Pit Depth (m)		Difference in Depth (%)	Pipe Diameters (m)				Difference in Pipe Diameter (%)	
				Measured		Modelled			
	Measured	Modelled		U/S	D/S	U/S	D/S	U/S	D/S
BL107.AZ.PIT.1.0	1	1	0.0						
BL107.AZ.PIT.2.0	0.75	0.8	-0.1						
BL107.BA.PIT.1.0	1.2	1.08327	0.1						
BL107.BA.PIT.2.0	0.85	0.7988	0.1						
BL107.BA.PIT.3.0	0.8	0.71882	0.1						
BL107.S.PIT.1.0	1.6	1.075	0.5						
BL107.S.PIT.2.0	1.65	1.075	0.6						
BL107.U.PIT.1.0	1.5	1.075	0.4						
BL107.U.PIT.3.0	1.65	1.075	0.6						
BL108.AJ.PIT.3.0	0	0	0.0		0.5		0.525		5%
BL108.AK.PIT.1.0	1.1	1.1	0.0						
BL108.AK.PIT.2.0	0.9	1	-0.1						
BL108.AK.PIT.3.0	0.8	0.8	0.0						
BL108.AK.PIT.4.0	0.85	1	-0.2						
BL79.BE.PIT.4.0	2.15	2.2	-0.1						
BL79.BJ.PIT.1.0	2.1	2.1782	-0.1						
BL79.BJ.PIT.2.0	1.65	1.8	-0.2						
BL81.L.PIT.1.0	0.85	0.53231	0.3						
BL81.L.PIT.2.0	0.95	0.53761	0.4						
BL81.P.PIT.2.0	1.55	1.6	-0.1						
BL81.P.PIT.3.0	1.2	1.3	-0.1	0.9		0.9		0%	
BL81.Q.PIT.1.0	1.75	1.8	-0.1						
BL82.K.PIT.2.0	0.4	0.7716	-0.4						
BL82.L.PIT.2.0	0.7	0.7	0.0						
BL82.L.PIT.3.0	0.7	0.7	0.0	0.375		0.45		20%	
BL82.L.PIT.4.0	0.7	0.8	-0.1		0.375		0.45		20%
BL82.L.PIT.5.0	0.4	0.6	-0.2						
BL82.ZB.PIT.1.0	0.9	1.2	-0.3						
BL83.BD.PIT.1.0	0.9	0.574859	0.3						
BL83.BD.PIT.2.0	0.95	0.56476	0.4						
BL83.BD.PIT.3.0	0.85	0.49341	0.4						
BL83.BE.PIT.2.0	0.95	1.075	-0.1						
BL83.BF.PIT.1.0	0.4	1.075	-0.7						
BL83.F.PIT.2.0	1	1.1048	-0.1						
BL83.F.PIT.4.0	0.65	0.6	0.1						
BL83.OA.PIT.3.0	0.95	0.90637	0.0						
BL83.U.PIT.3.0	1.6	1.8	-0.2						
BL83.V.PIT.1.0	0.4	1.269	-0.9						
BL83.W.PIT.1.0	0.6	1.248	-0.6						
BL83.X.PIT.1.0	0.4	0.7	-0.3						
BL83.X.PIT.2.0	0.4	0.6	-0.2						
BL83.Z.PIT.1.0	0.6	1.006	-0.4						
BL84.AR.PIT.3.0	1.1	1	0.1						
BL84.AR.PIT.4.0	1	1.5	-0.5	0.75	0.75	0.75	0.75	0%	0%
BL84.AR.PIT.5.0	0.8	0.634	0.2	0.6	0.75	0.6	0.75	0%	0%
BL84.AR.PIT.6.0	0.75	0.8	-0.1	0.6	0.6	0.6	0.6	0%	0%
BL84.DF.PIT.2.0	1	1	0.0	0.375		0.375		0%	

ID	Pit Depth (m)		Difference in Depth (%)	Pipe Diameters (m)				Difference in Pipe Diameter (%)	
				Measured		Modelled			
	Measured	Modelled		U/S	D/S	U/S	D/S	U/S	D/S
BL84.DF.PIT.3.0	0.9	0.9	0.0	0.375	0.375	0.375	0.375	0%	0%
BL84.DF.PIT.4.0	1.1	1.1	0.0	0.375		0.375		0%	
BL84.DF.PIT.5.0	1.1	1.1	0.0						
BL84.M.PIT.2.0	0.9	0.8	0.1						
BL85.J.PIT.3.0	0.45	0.454	0.0		0.45		0.45		0%
BL86.AS.PIT.1.0	0.9	0.732	0.2						
BL86.AS.PIT.2.0	0.75	1.075	-0.3						
BL86.AS.PIT.3.0	0.9	1.075	-0.2						
BL86.S.PIT.6.0	1	0.462	0.5						
BL86.S.PIT.7.0	1.1	1.3	-0.2		0.6		0.6		0%
BL86.S.PIT.8.0	0.6	1.225	-0.6		0.6		0.525		13%
BL87.EA.PIT.5.0	1.3	1.064	0.2						
BL87.EB.PIT.1.0	1.4	0.847	0.6						
BL87.EB.PIT.2.0	1	0.690	0.3						
BL87.EC.PIT.1.0	1.2	0.861	0.3						
BL87.EC.PIT.2.0	1	0.692	0.3						
BL87.EF.PIT.1.0	1.3	0.704	0.6						
BL87.EF.PIT.2.0	1.1	0.607	0.5						
BL87.EG.PIT.1.0	1.5	1.022	0.5						
BL87.EG.PIT.2.0	1.4	1.111	0.3						
BL87.EL.PIT.4.0	1.85	1.075	0.8						
ML121.AL.PIT.2.0	1.1	1.220	-0.1						
ML121.AL.PIT.3.0	0.65	1.099	-0.4						
ML121.BJ.PIT.1.0	1	1.2	-0.2						
ML121.H.PIT.2.0	1.1	1.4	-0.3						
ML121.H.PIT.3.0	0.85	1.2	-0.4						
ML121.H.PIT.4.0	0.9	1.2	-0.3						
ML121.H.PIT.5.0	1	1.195	-0.2						
ML121.H.PIT.6.0	1.1	1.1886	-0.1						
ML121.H.PIT.7.0	1.1	1.1	0.0						
ML121.I.PIT.2.0	0.8	0.8	0.0						
ML121.I.PIT.3.0	0.85	1.055	-0.2						
ML123.A.PIT.2.0	0.7	0.800	-0.1						
ML123.A.PIT.3.0	0.9	1	-0.1						
ML123.B.PIT.1.0	0.7	0.8	-0.1						
ML123.C.PIT.2.0	0.85	1	-0.2						
ML123.D.PIT.1.0	0.55	0.9	-0.4						
ML125.E.PIT.3.0	0.45	1.088	-0.6						
ML125.E.PIT.4.0	0.55	1.006	-0.5						
ML125.E.PIT.5.0	0.55	1.084	-0.5						
ML125.E.PIT.6.0	0.5	0.972	-0.5						
ML125.E.PIT.7.0	0.8	1.234	-0.4						
ML125.E.PIT.9.0	0.35	0.373	0.0						
O2.L.PIT.2.0	Vegetation	1.4	N/A						
O2.L.PIT.2A.0	0.75	1.4	-0.7						
O2.L.PIT.3.0	0.9	0.8	0.1						
O2.O.PIT.1.0	0.85	0.9	-0.1						

ID	Pit Depth (m)		Difference in Depth (%)	Pipe Diameters (m)				Difference in Pipe Diameter (%)	
				Measured		Modelled			
	Measured	Modelled		U/S	D/S	U/S	D/S	U/S	D/S
O2.O.PIT.2.0	1.1	1	0.1						
O2.Q.PIT.1.0	0.8	0.8	0.0						
O2.R.PIT.1.0	0.85	0.7	0.2						
O2.R.PIT.2.0	0.65	0.498	0.2						
TL65.AH.PIT.3.0	1.7	1.7	0.0						
TL65.AP.PIT.1.0	1.45	1.4	0.1						
TL65.CD.PIT.1.0	1.6	1.6	0.0						
TL65.CD.PIT.2.0	1.5	1.45	0.1	0.75	0.75	0.75	0.75	0%	0%
TL65.CD.PIT.3.0	1.7	1.45	0.3	0.75		0.75		0%	
TL65.CE.PIT.1.0	1.2	1.3	-0.1	0.45	0.6	0.45	0.6	0%	0%
TL65.CE.PIT.2.0	1	1.45	-0.5		0.45		0.45		0%
TL65.CF.PIT.1.0	1.1	1	0.1						
TL65.H.PIT.2.0	0.3	0.4	-0.1						
TL65.H.PIT.5.0	0.5	0.603	-0.1						
TL65.H.PIT.6.0	0.5	0.400	0.1						
TL65.H.PIT.7.0	0.3	0.456	-0.2						
TL65.HA.PIT.1.0	0.1	0.3	-0.2						
TL65.I.PIT.1.0	0.1	0.4	-0.3						
TL70.A.PIT.5.0	1.2	1.15	0.1		0.45		0.45		0%
TL70.A.PIT.6.0	1.9	1.104	0.8						
TL70.M.PIT.1.0	1.15	1.15	0.0						
TL70.M.PIT.2.0	0.9	0.9	0.0		0.6		0.45		25%
TL70.M.PIT.3.0	0.8	0.8	0.0	0.375	0.375	0.375	0.375	0%	0%
TL70.M.PIT.4.0	0.9	1.075	-0.2						
TL70.N.PIT.1.0	0.75	1.075	-0.3						
TL70.N.PIT.2.0	1.1	1	0.1						
TL70.O.PIT.1.0	0.5	0.5	0.0		0.375		0.375		0%
TL70.T.PIT.1.0	0.95	1.075	-0.1						
TL70.T.PIT.2.0	0.9	1.075	-0.2	0.375	0.45	0.375	0.375	0%	17%
TL70.T.PIT.3.0	0.85	0.85	0.0		0.375		0.375		0%
TL70.U.PIT.1.0	2.4	2.4	0.0						
TL71.AF.PIT.1.0	1.1	1.1	0.0	0.375		0.375		0%	
TL71.AF.PIT.2.0	1.1	1.1	0.0	0.375	0.375	0.375	0.375	0%	0%
TL71.AF.PIT.3.0	1.1	1.1	0.0	0.375	0.375	0.375	0.375	0%	0%
TL71.AF.PIT.4.0	1.1	1.1	0.0	0.375		0.375		0%	
TL71.AF.PIT.5.0	1	1	0.0	0.375	0.375	0.375	0.375	0%	0%
TL71.AF.PIT.6.0	1	1	0.0						
TL71.AL.PIT.1.0	1.7	1.7	0.0						

ID	Pit Depth (m)		Difference in Depth (%)	Pipe Diameters (m)				Difference in Pipe Diameter (%)	
				Measured		Modelled			
	Measured	Modelled		U/S	D/S	U/S	D/S	U/S	D/S
TL71.AL.PIT.2.0	1.5	1.5	0.0	0.375		0.375		0%	
TL71.AL.PIT.3.0	1.5	1.5	0.0						
TL71.AL.PIT.4.0	1.2	1.2	0.0		0.375		0.375		0%
TL71.ALA.PIT.1.0	0.8	0.8	0.0		0.375		0.375		0%
TL71.I.PIT.8.0	0.7	0.7	0.0	0.45	0.45	0.375	0.525	17%	17%
TL71.IA.PIT.1.0	0.7	0.598	0.1		0.45		0.375		17%
TL71.T.PIT.8.0	1	0.9	0.1	0.6		0.6		0%	
TL71.U.PIT.1.0	1	0.705	0.3						
TL72.AB.PIT.1.0	1.1	1.1	0.0						
TL72.AC.PIT.2.0	0.8	1	-0.2						
TL72.AD.PIT.1.0	0.75	0.826	-0.1						
TL72.AD.PIT.2.0	0.6	0.750	-0.2						
TL72.Z.PIT.1.0	1.6	1.366	0.2						
TL72.Z.PIT.2.0	1	1.122	-0.1						
TL72.Z.PIT.3.0	1	0.643	0.4						
TL72.ZA.PIT.1.0	0.9	1.286	-0.4	0.45		0.45		0%	
TL74.BD.PIT.9.0	1	1.157	-0.2	0.45	0.45	0.45	0.375	0%	17%
TL74.BH.PIT.3.0	0.5	0.5	0.0						
TL74.BH.PIT.4.0	0.5	0.4	0.1						
TL74.BI.PIT.1.0	Blocked	0.506	N/A						
TL74.BI.PIT.2.0	0.6	0.468	0.1						
TL74.BM.PIT.2.0	N/A	0.5	N/A		0.375		0.375		0%
TL74.BM.PIT.4.0	N/A	0.546	N/A		0.45		0.45		0%
TL74.CA.PIT.3.0	0.6	0.723	-0.1						
TL74.CA.PIT.4.0	0.5	0.5	0.0						
TL74.CB.PIT.1.0	0.45	0.5	-0.1						
TL74.CB.PIT.2.0	0.5	0.438	0.1						
TL74.CB.PIT.3.0	0.55	0.449	0.1						
TL74.CC.PIT.1.0	0.4	0.4	0.0						
TL74.CD.PIT.1.0	0.45	0.746	-0.3						
TL74.N.PIT.1.0	0.65	0.7	0.0						
TL74.N.PIT.2.0	0.7	0.7	0.0						
TL74.N.PIT.3.0	0.7	0.7	0.0						
TL74.N.PIT.4.0	0.55	0.8	-0.3						
TL74.O.PIT.1.0	0.55	0.6	0.0						
TL75.AC.PIT.6.0	N/A	1.740	N/A		0.9		0.9		0%
TL75.E.PIT.1.0	0.2	0.6	-0.4						
TL75.F.PIT.2.0	Blocked	0.9	N/A						

Appendix C – Flood mapping

Figure C.0	Overall Map Grid Configuration
Figure C.1	20% AEP Flood Depth
Figure C.2	5% AEP Flood Depth
Figure C.3	1% AEP Flood Depth
Figure C.4	Probable Maximum Flood Depth
Figure C.5	20% AEP Flood Level
Figure C.6	5% AEP Flood Level
Figure C.7	1% AEP Flood Level
Figure C.8	Probable Maximum Flood Level
Figure C.9	20% AEP Flood Velocity
Figure C.10	5% AEP Flood Velocity
Figure C.11	1% AEP Flood Velocity
Figure C.12	Probable Maximum Flood Velocity

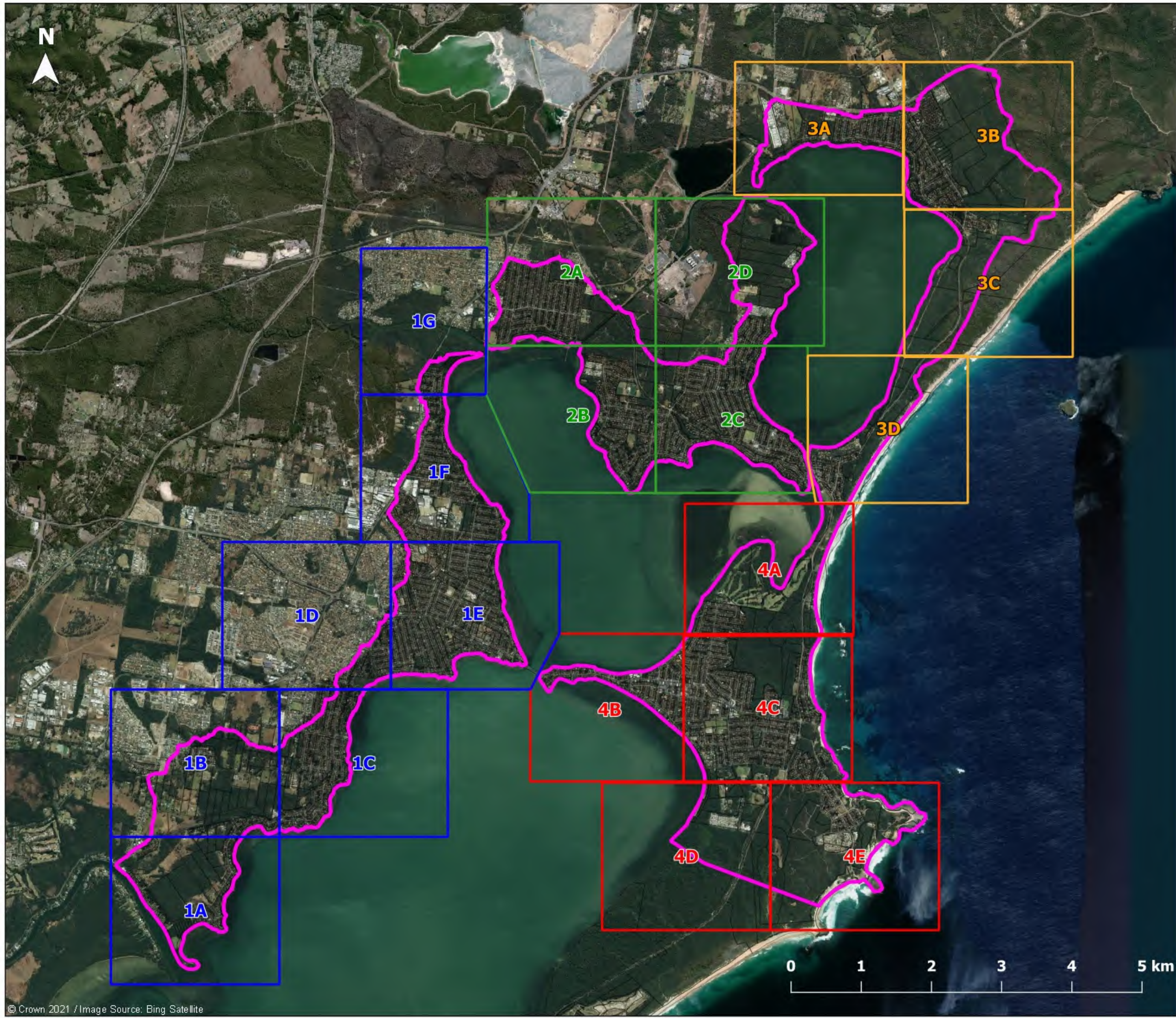


Figure C0

Overall Map Grid Configuration

Legend

-  Catchment area
-  Cadastre

Sub-Maps

-  Maps Catchment 1
-  Maps Catchment 2
-  Maps Catchment 3
-  Maps Catchment 4

Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C1.1

20% AEP Flood Depth

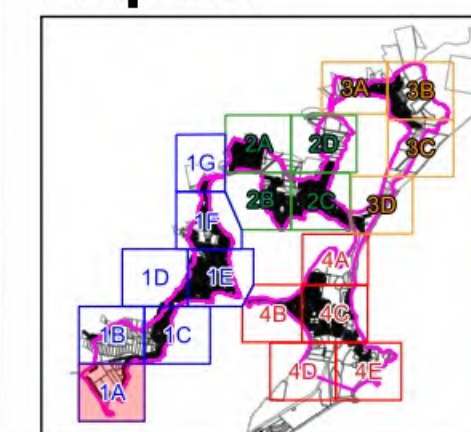
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

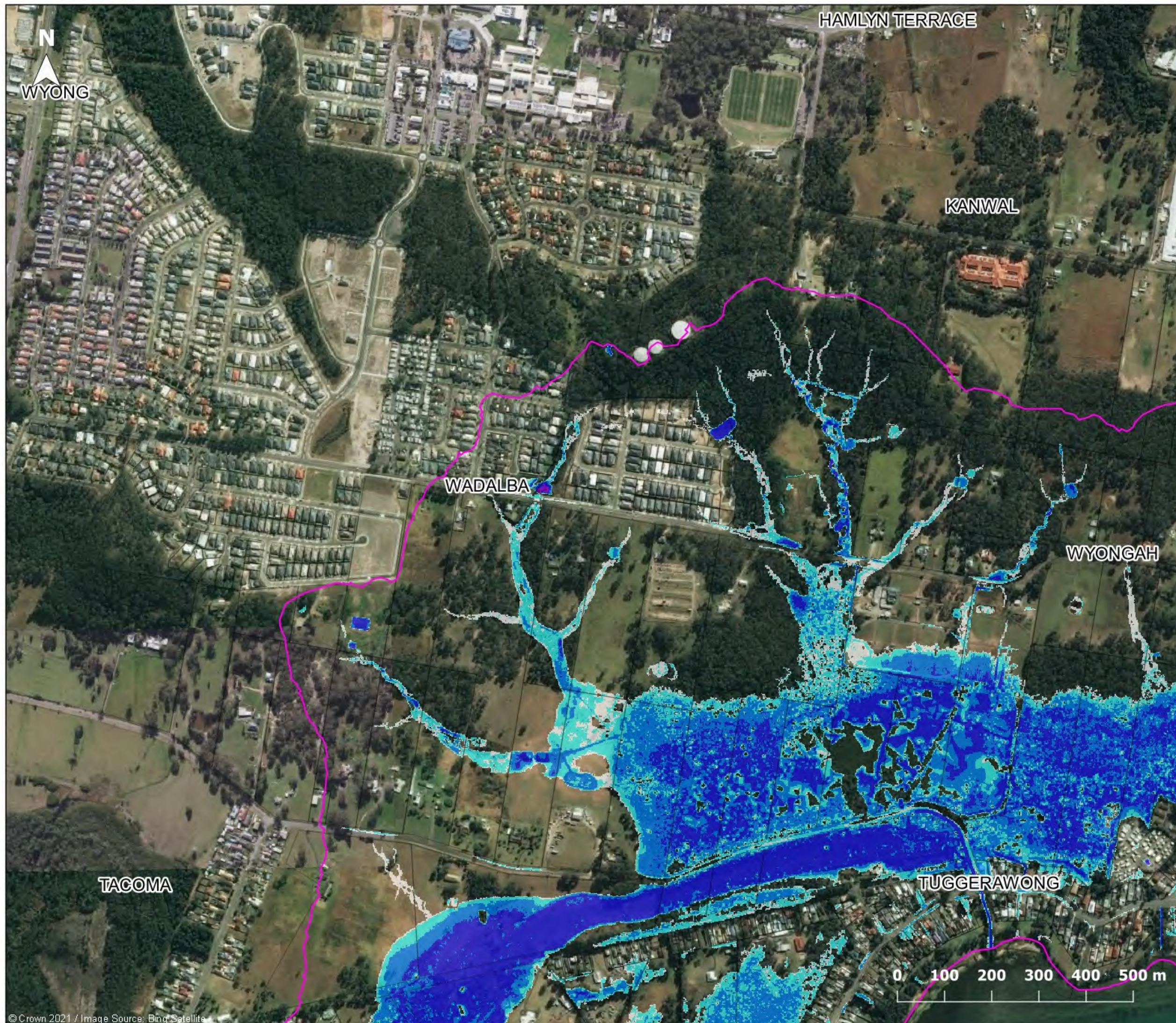


Figure C1.2

20% AEP Flood Depth

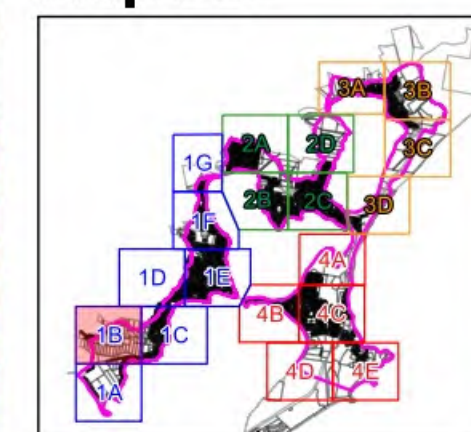
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C1.3

20% AEP Flood Depth

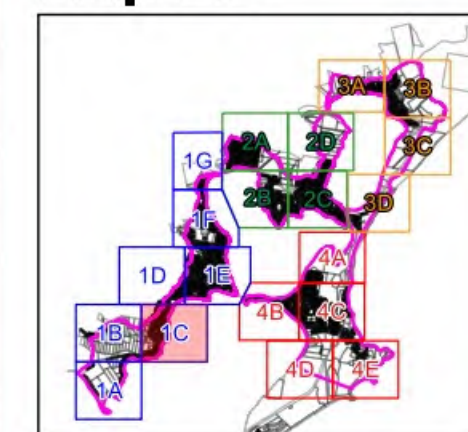
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



© Crown 2021 / Image Source: Bing Satellite

Figure C1.4

20% AEP Flood Depth

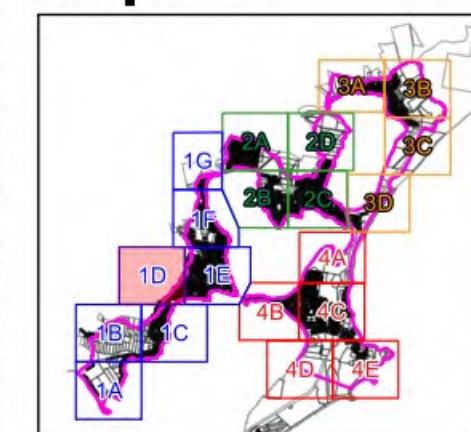
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

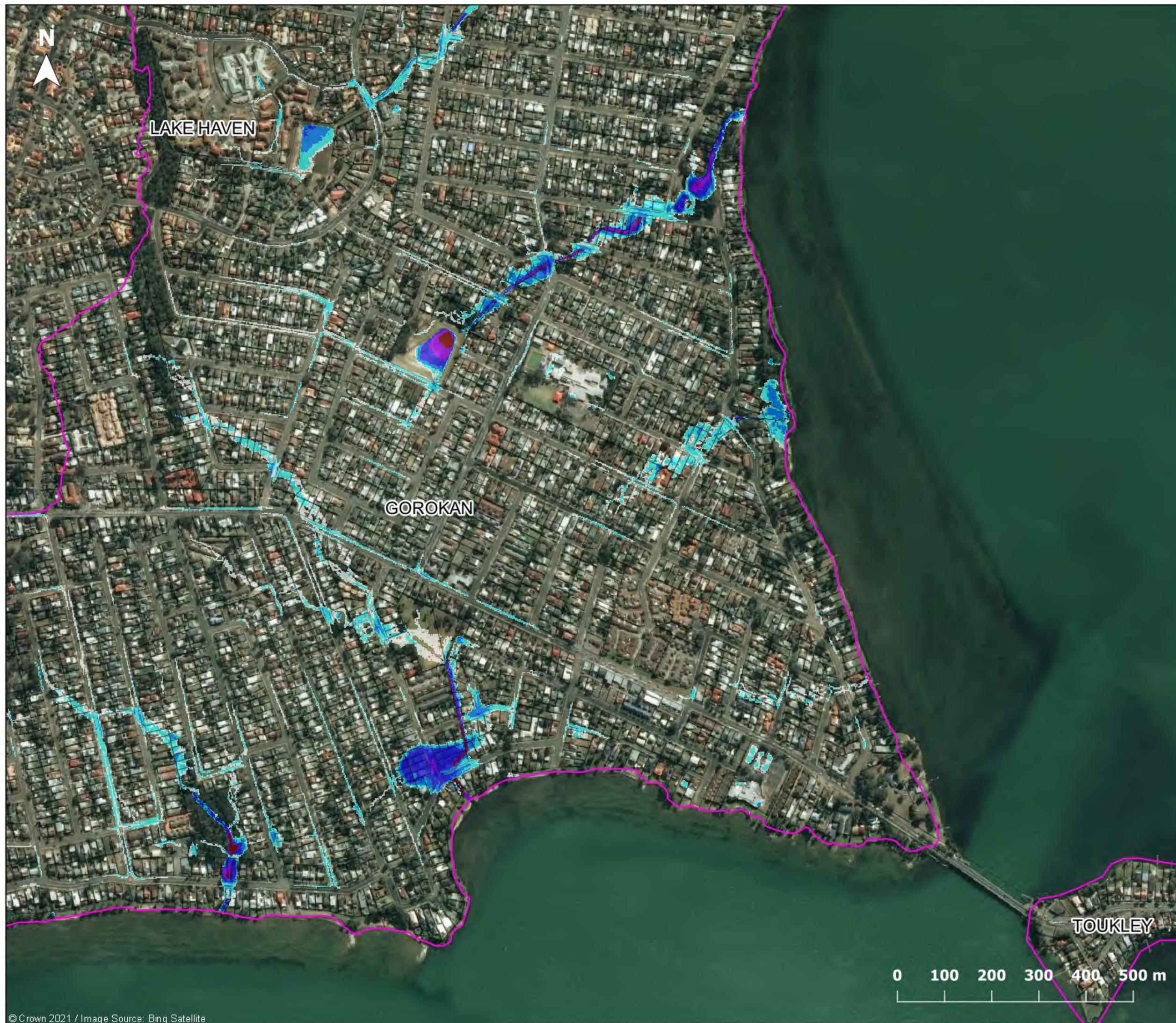


Figure C1.5

20% AEP Flood Depth

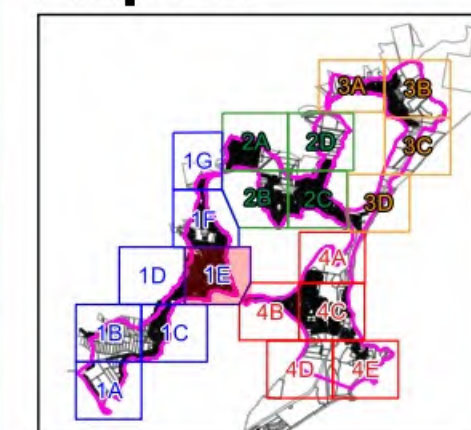
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

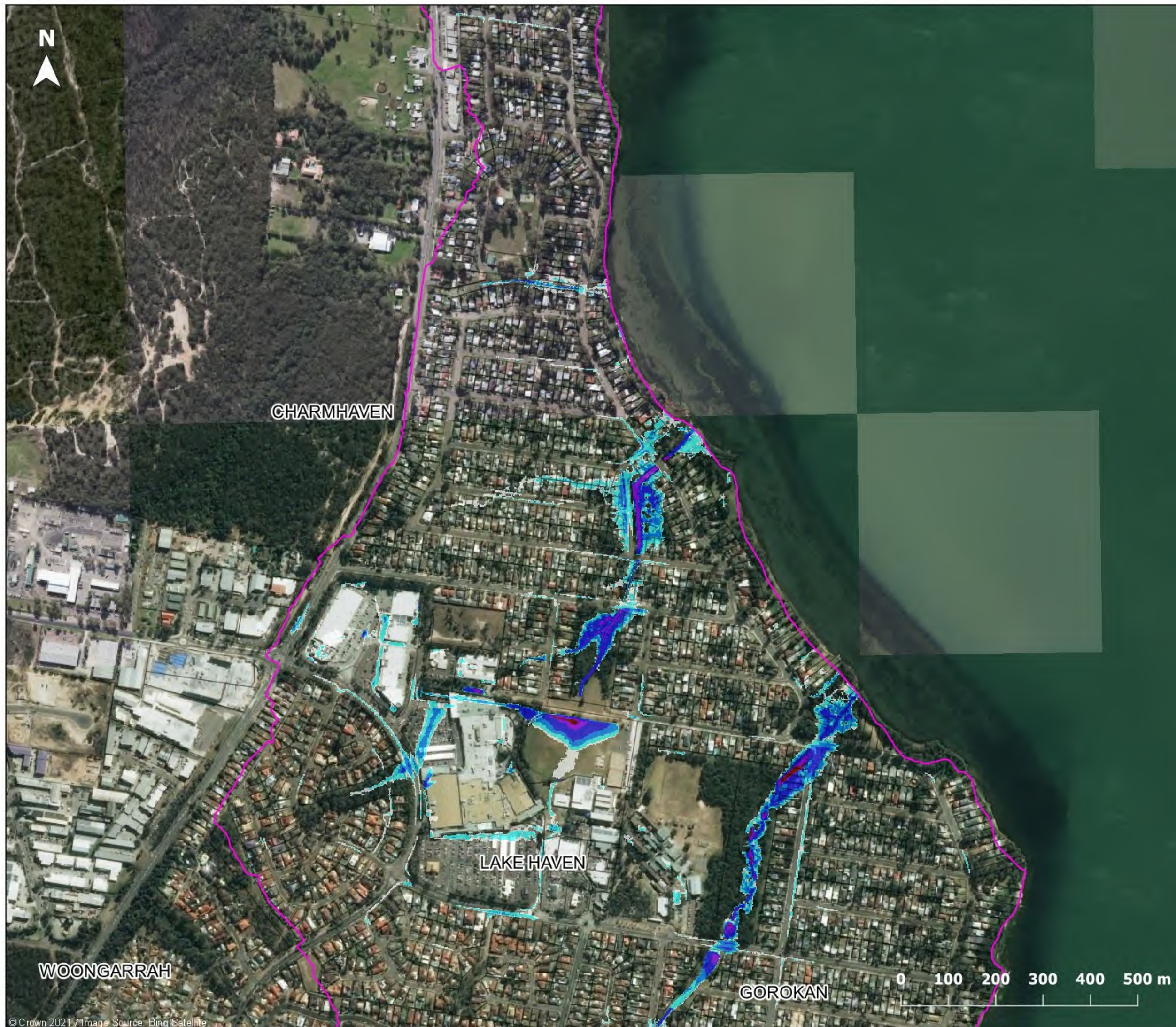


Figure C1.6

20% AEP Flood Depth

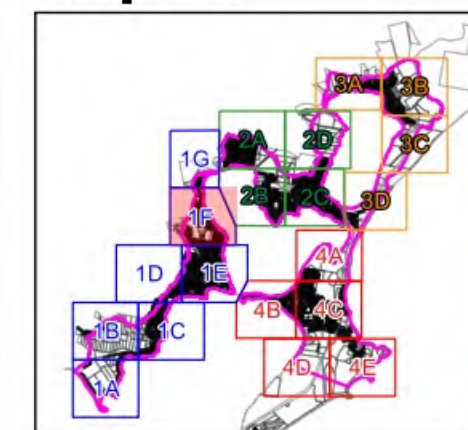
Legend

-  Catchment area
-  Cadastre

Depth (m)

-  0.05-0.15
-  0.15-0.30
-  0.30-0.50
-  0.50-1.00
-  1.00-1.50
-  > 1.50

Map 1F



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C1.7

20% AEP Flood Depth

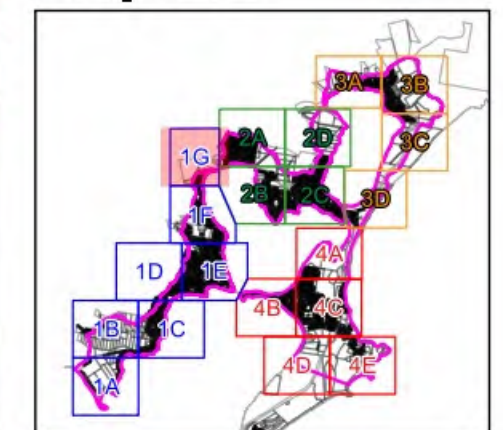
Legend

-  Catchment area
-  Cadastre

Depth (m)

-  0.05-0.15
-  0.15-0.30
-  0.30-0.50
-  0.50-1.00
-  1.00-1.50
-  > 1.50

Map 1G



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C1.8

**20% AEP
Flood Depth**

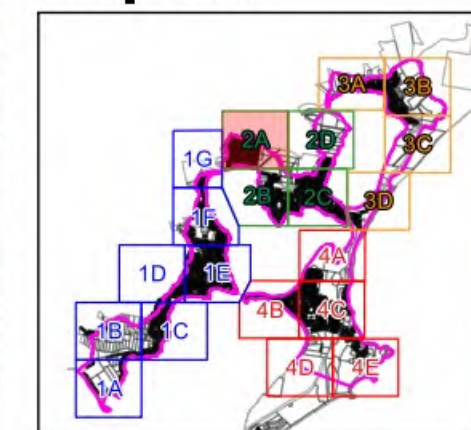
Legend

-  Catchment area
-  Cadastre

Depth (m)

-  0.05-0.15
-  0.15-0.30
-  0.30-0.50
-  0.50-1.00
-  1.00-1.50
-  > 1.50

Map 2A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

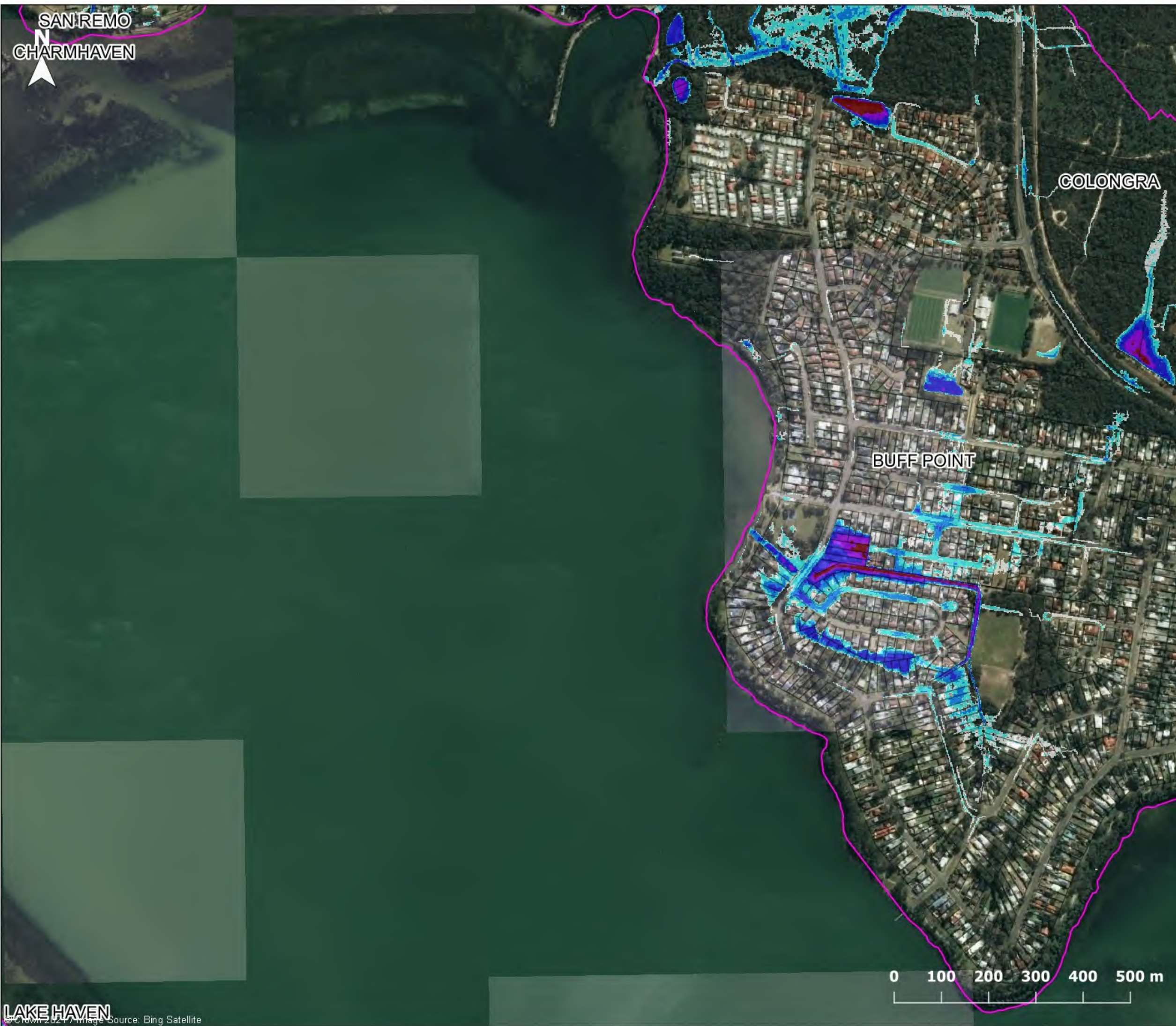


Figure C1.9

20% AEP Flood Depth

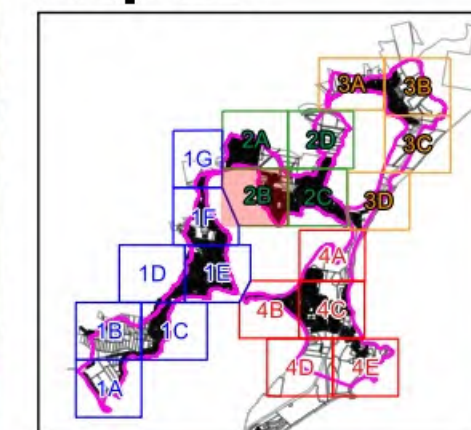
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 2B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

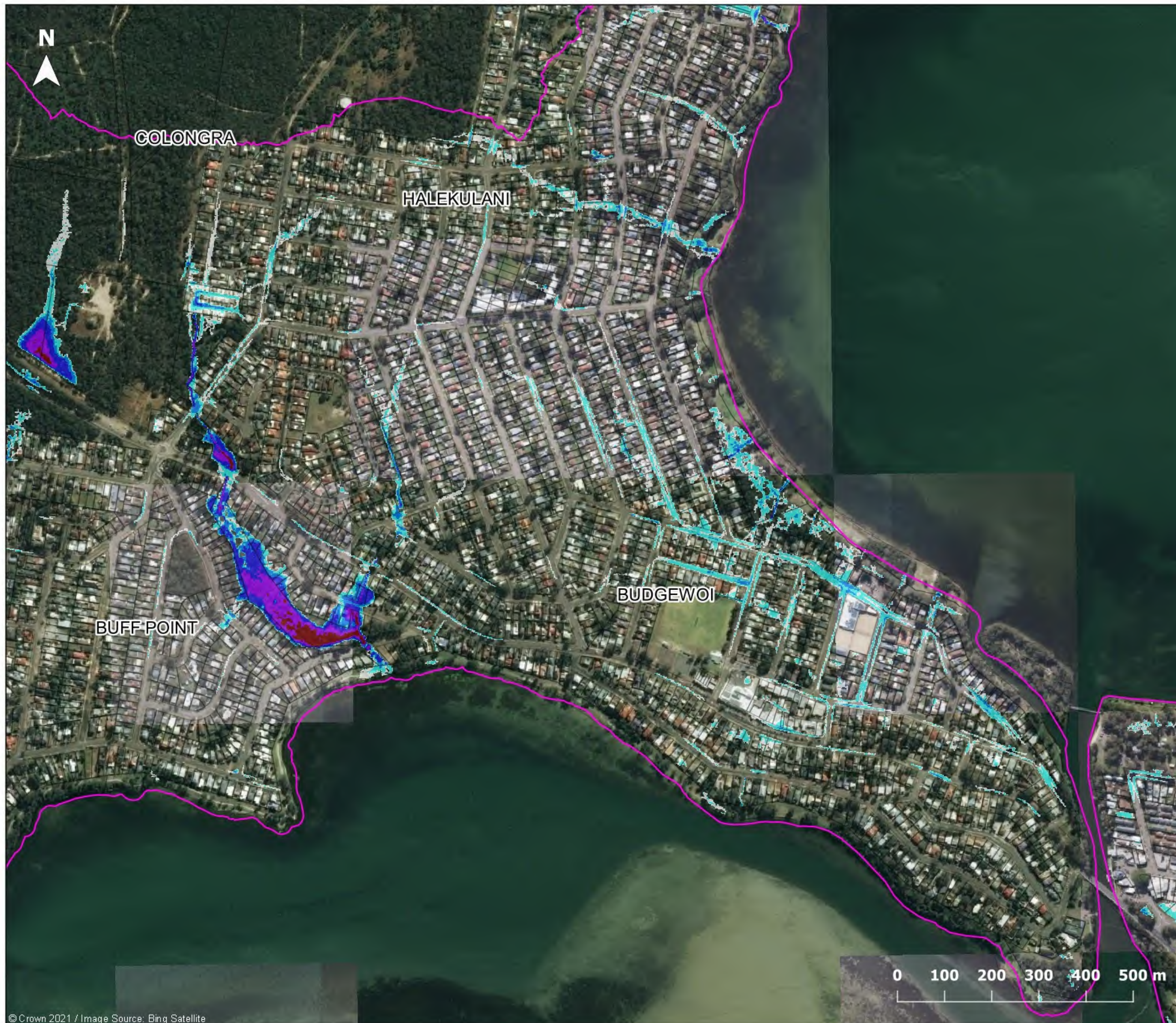


Figure C1.10

20% AEP Flood Depth

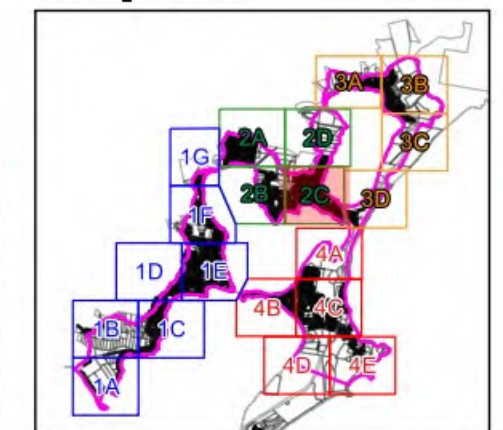
Legend

-  Catchment area
-  Cadastre

Depth (m)

-  0.05-0.15
-  0.15-0.30
-  0.30-0.50
-  0.50-1.00
-  1.00-1.50
-  > 1.50

Map 2C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

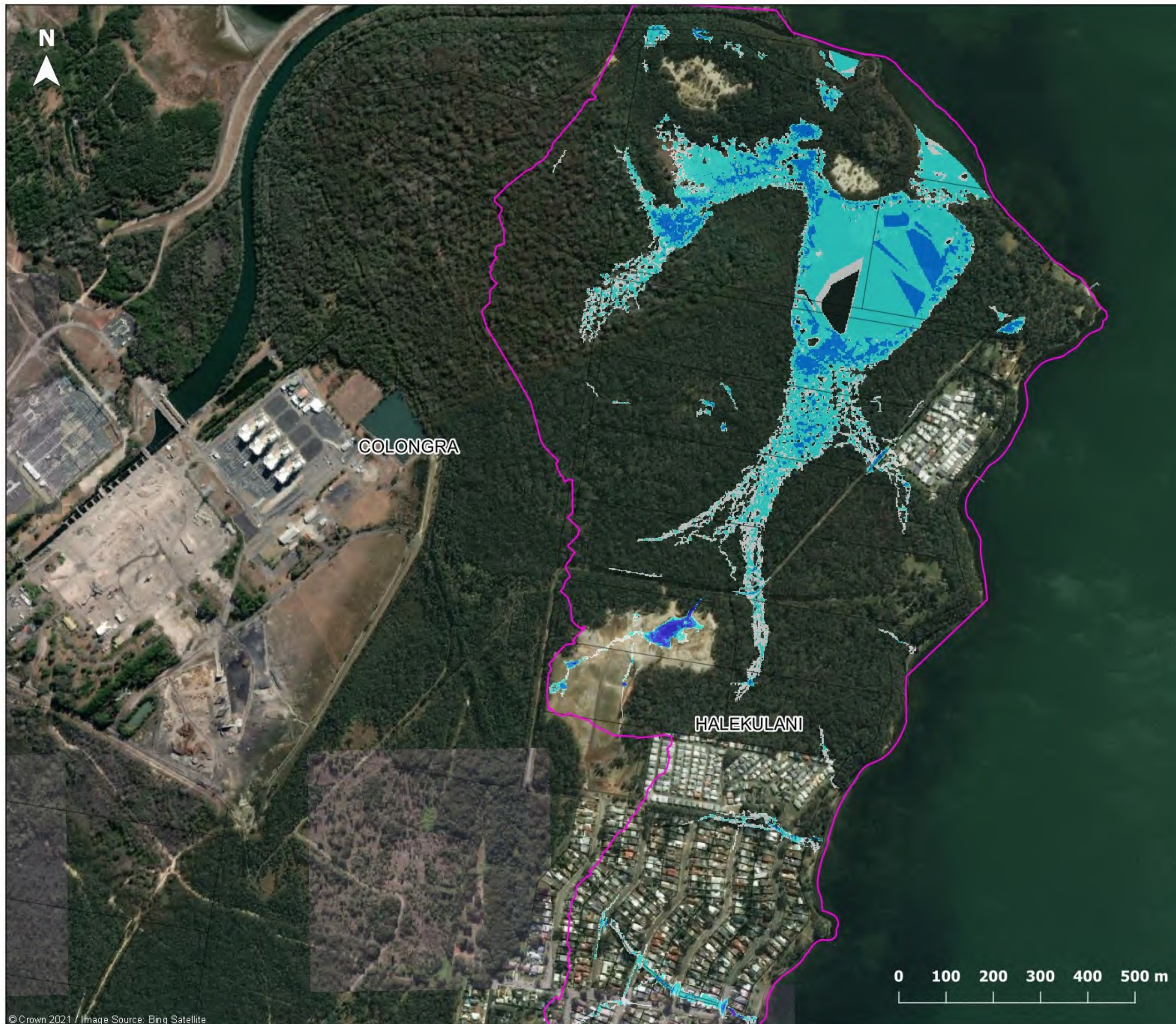


Figure C1.11

20% AEP Flood Depth

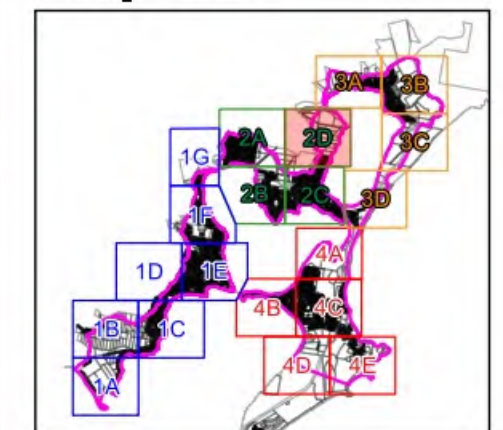
Legend

-  Catchment area
-  Cadastre

Depth (m)

-  0.05-0.15
-  0.15-0.30
-  0.30-0.50
-  0.50-1.00
-  1.00-1.50
-  > 1.50

Map 2D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

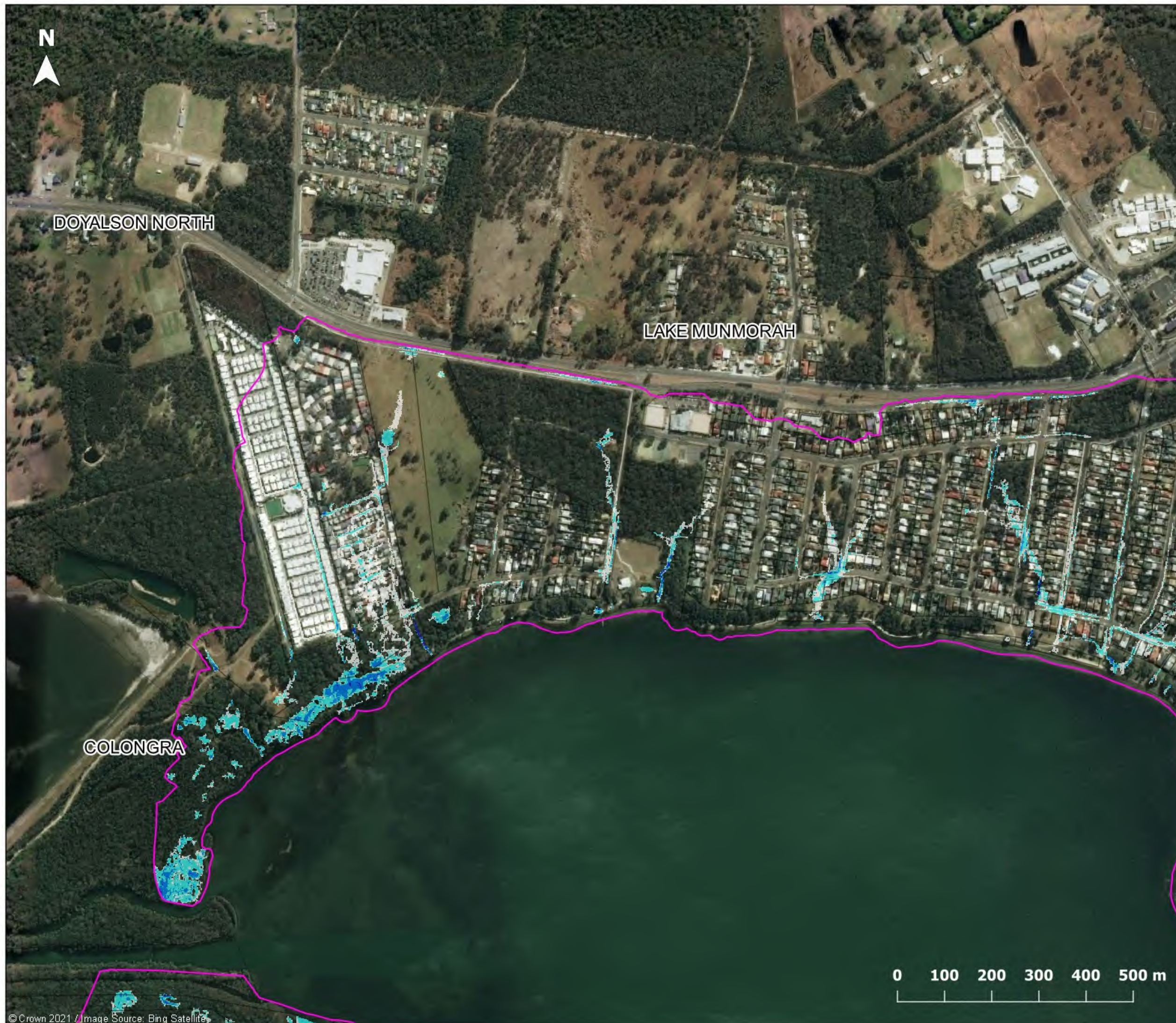


Figure C1.12

**20% AEP
Flood Depth**

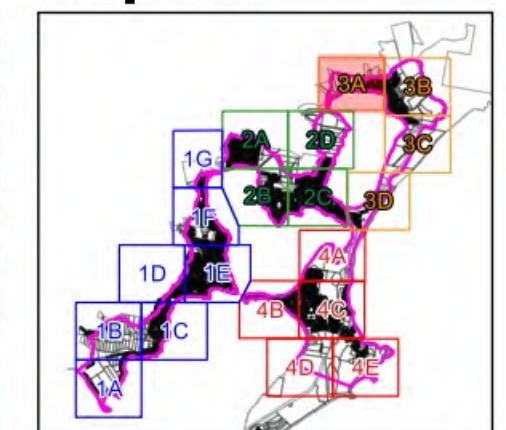
Legend

- Catchment area
- Cadastre

Depth (m)

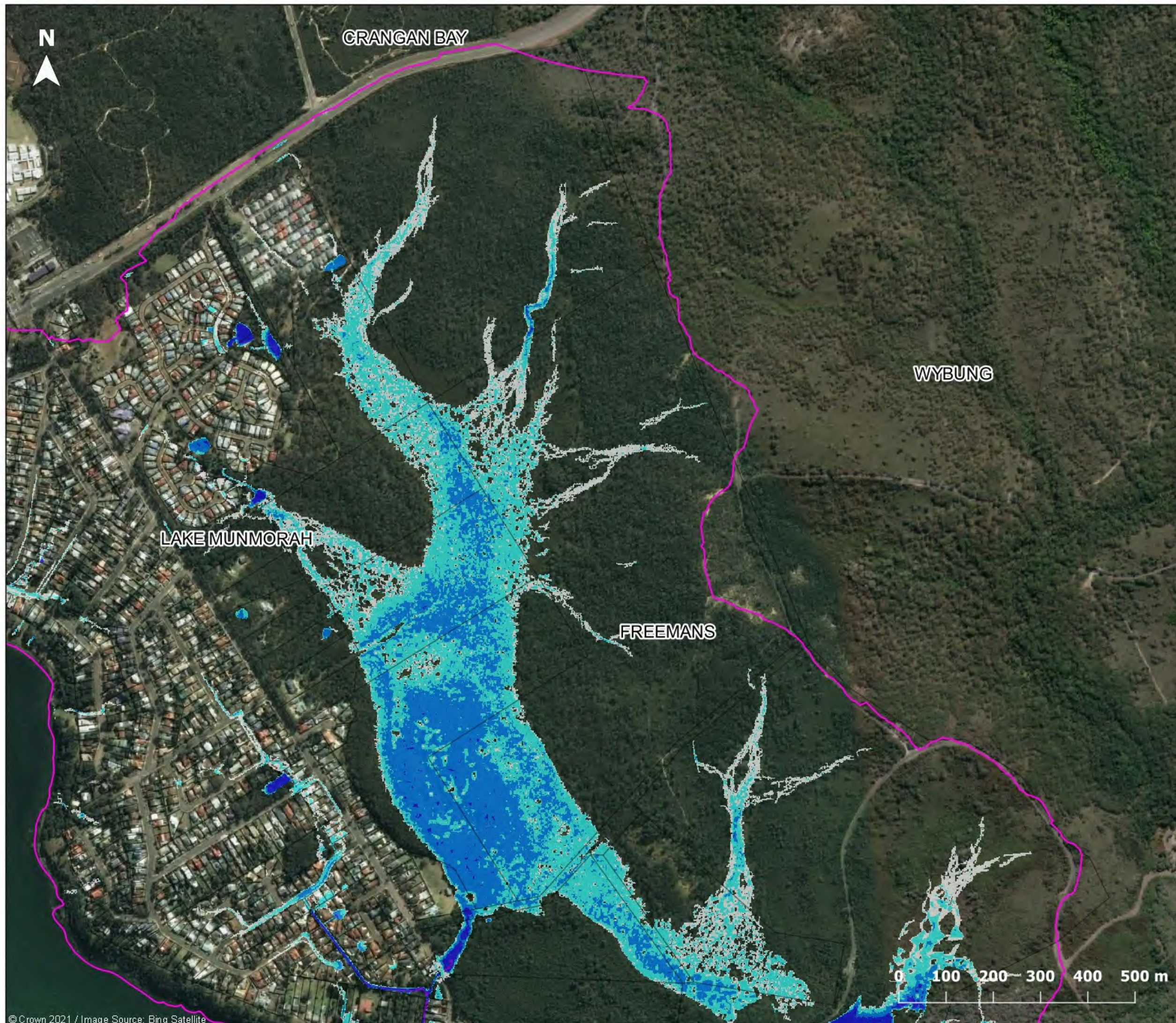
- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 3A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



© Crown 2021 / Image Source: Bing Satellite

Figure C1.13

20% AEP Flood Depth

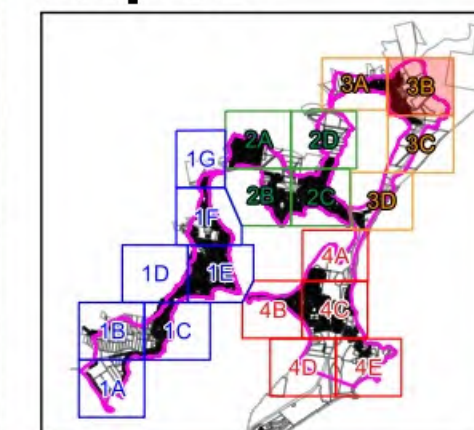
Legend

-  Catchment area
-  Cadastre

Depth (m)

-  0.05-0.15
-  0.15-0.30
-  0.30-0.50
-  0.50-1.00
-  1.00-1.50
-  > 1.50

Map 3B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C1.14

20% AEP Flood Depth

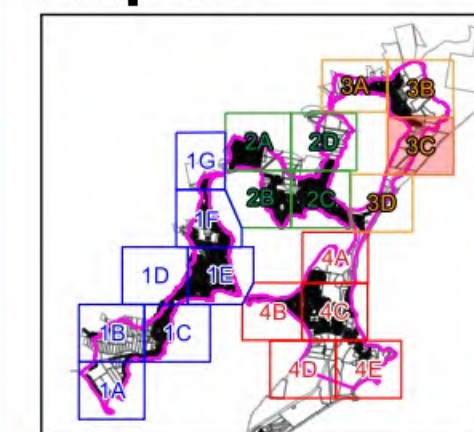
Legend

- Catchment area
- Cadaastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 3C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

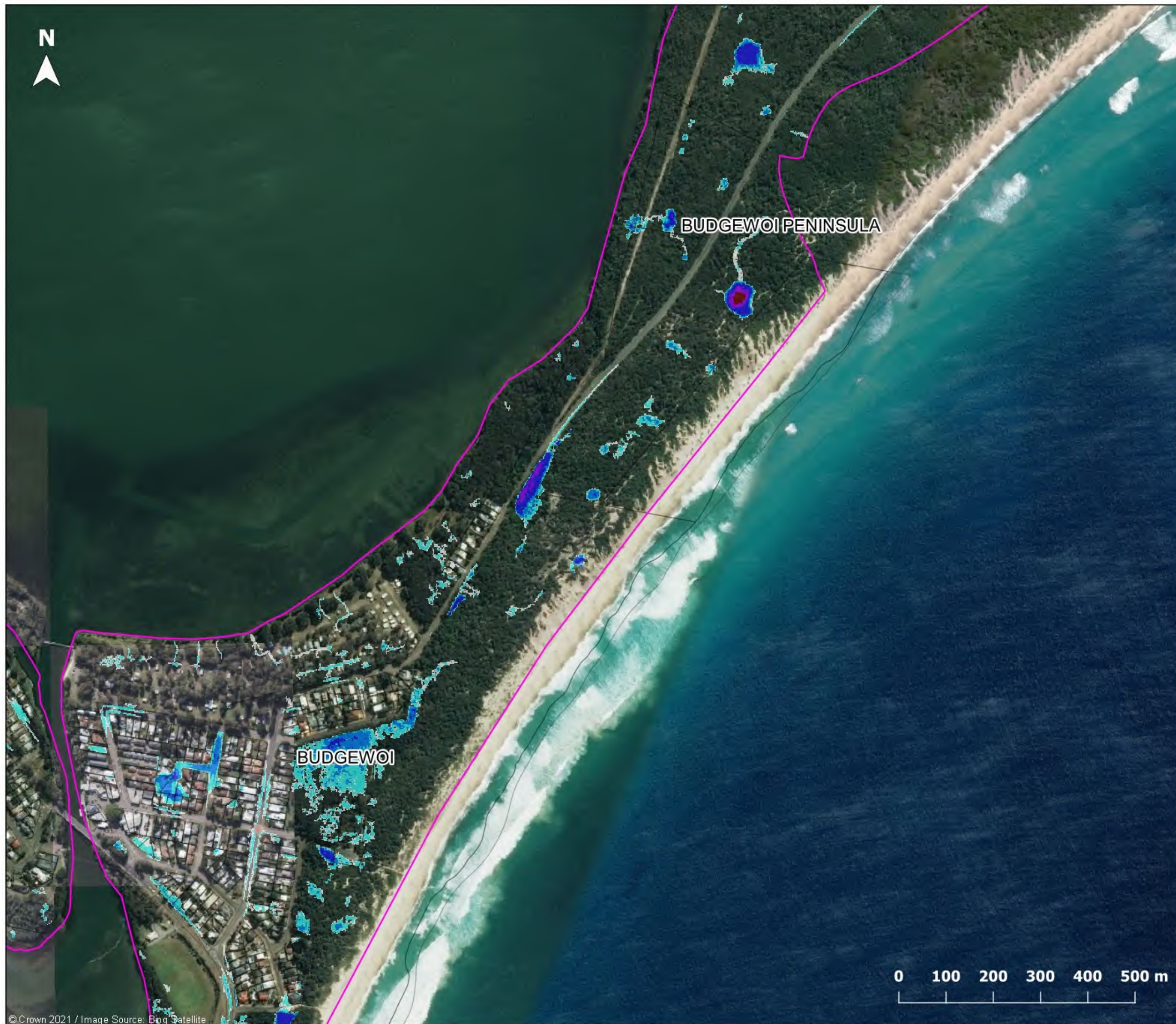


Figure C1.15

20% AEP Flood Depth

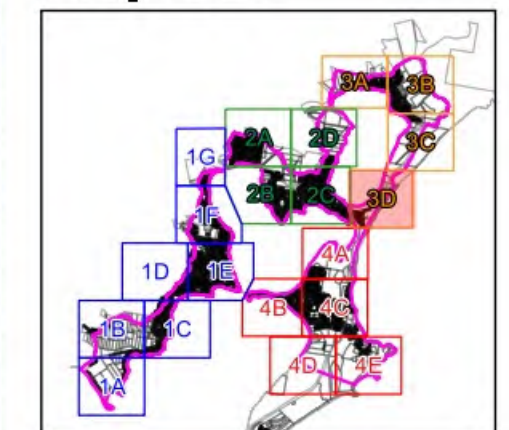
Legend

- Catchment area
- Cadastral

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 3D



Report MHL2571

Northern Lakes Floodplain Risk Management Study & Plan



Manly
Hydraulics
Laboratory

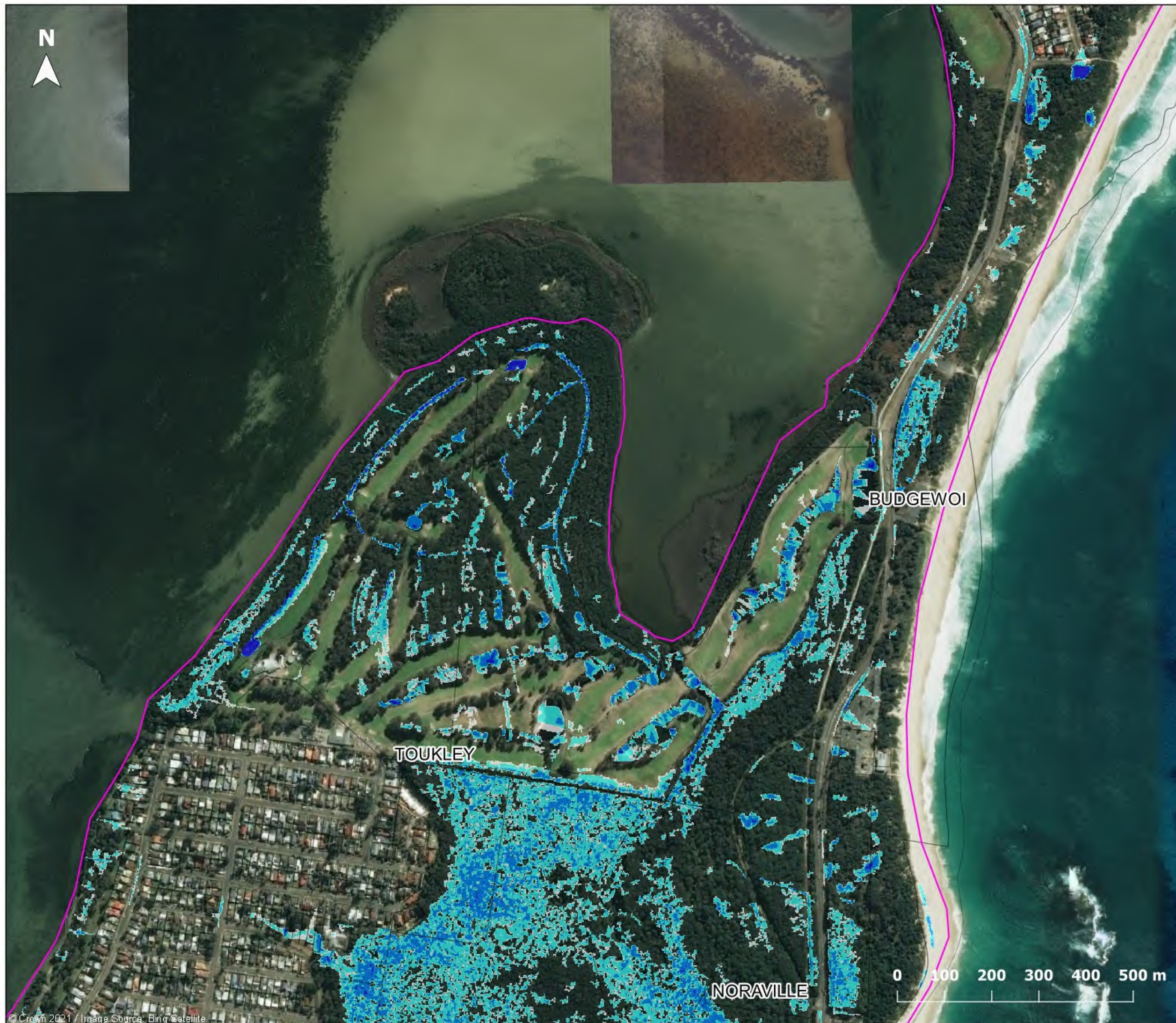


Figure C1.16

20% AEP Flood Depth

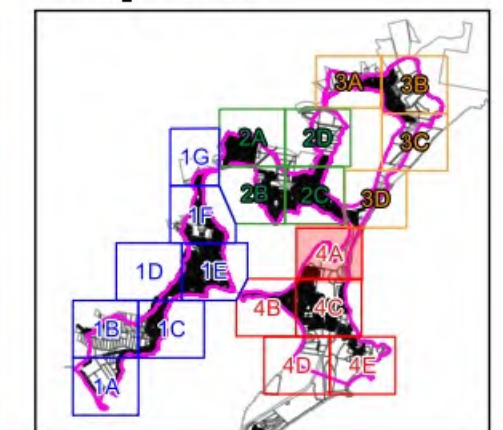
Legend

-  Catchment area
-  Cadastre

Depth (m)

-  0.05-0.15
-  0.15-0.30
-  0.30-0.50
-  0.50-1.00
-  1.00-1.50
-  > 1.50

Map 4A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

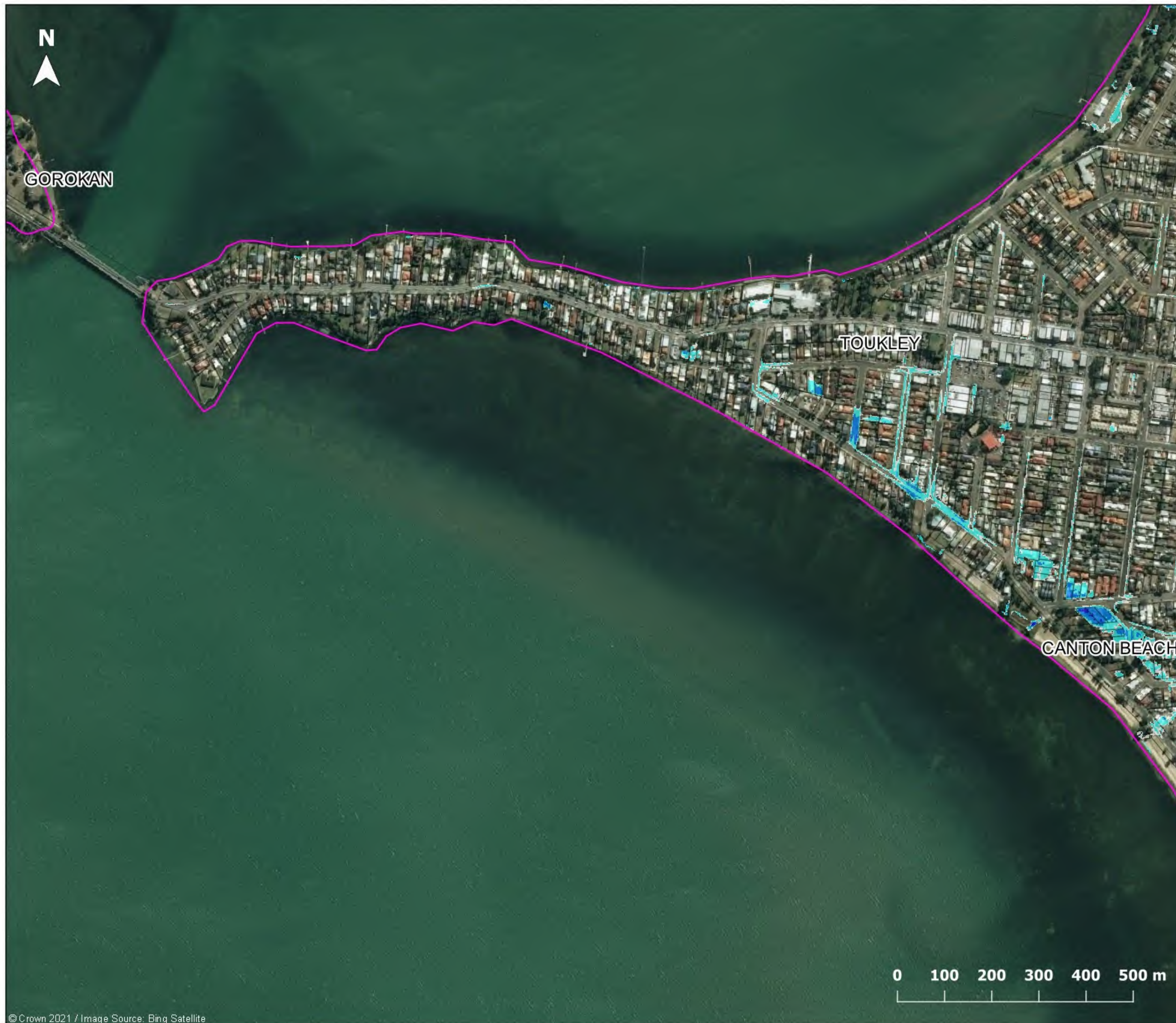


Figure C1.17

20% AEP Flood Depth

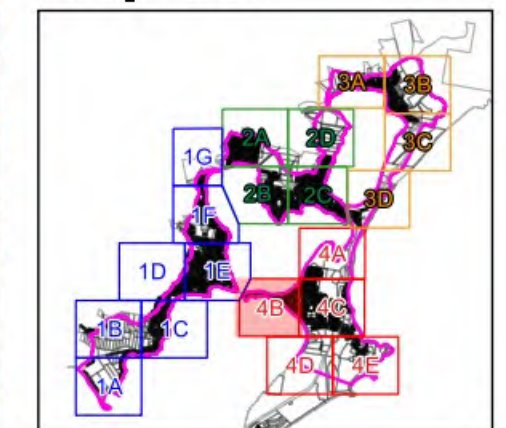
Legend

-  Catchment area
-  Cadastre

Depth (m)

-  0.05-0.15
-  0.15-0.30
-  0.30-0.50
-  0.50-1.00
-  1.00-1.50
-  > 1.50

Map 4B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan

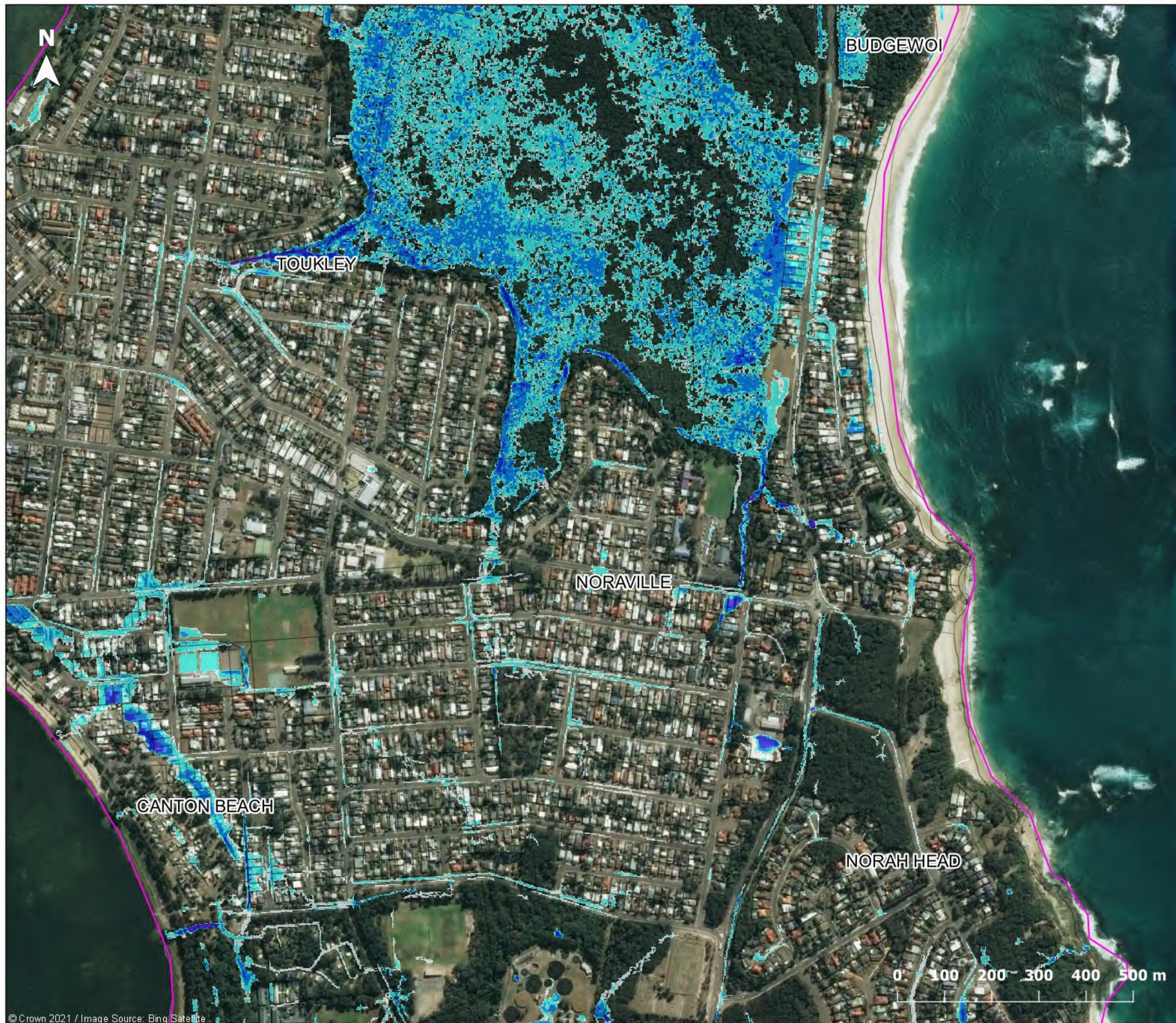


Figure C1.18

20% AEP Flood Depth

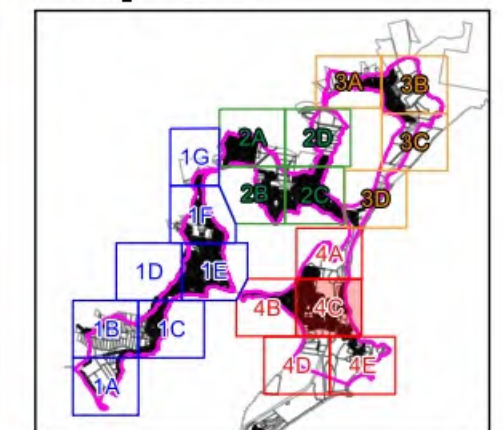
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 4C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C1.19

**20% AEP
Flood Depth**

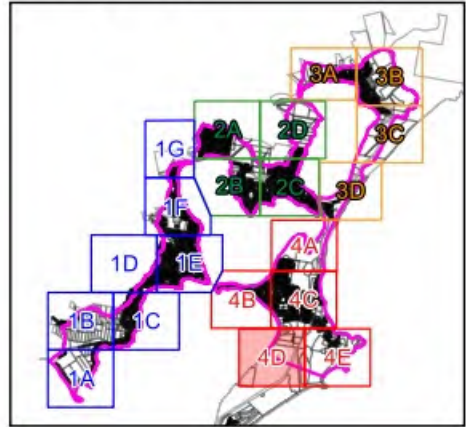
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 4D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C1.20

20% AEP Flood Depth

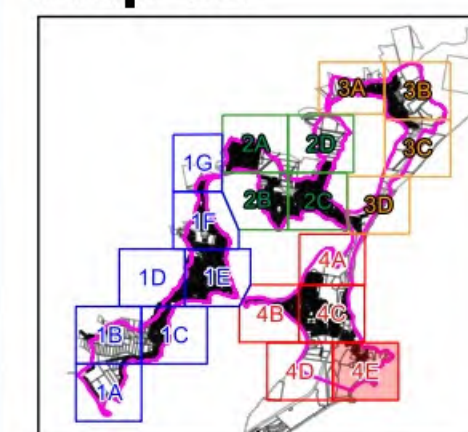
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 4E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C2.1

5% AEP Flood Depth

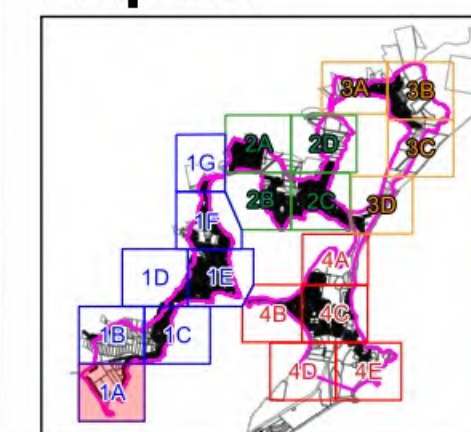
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

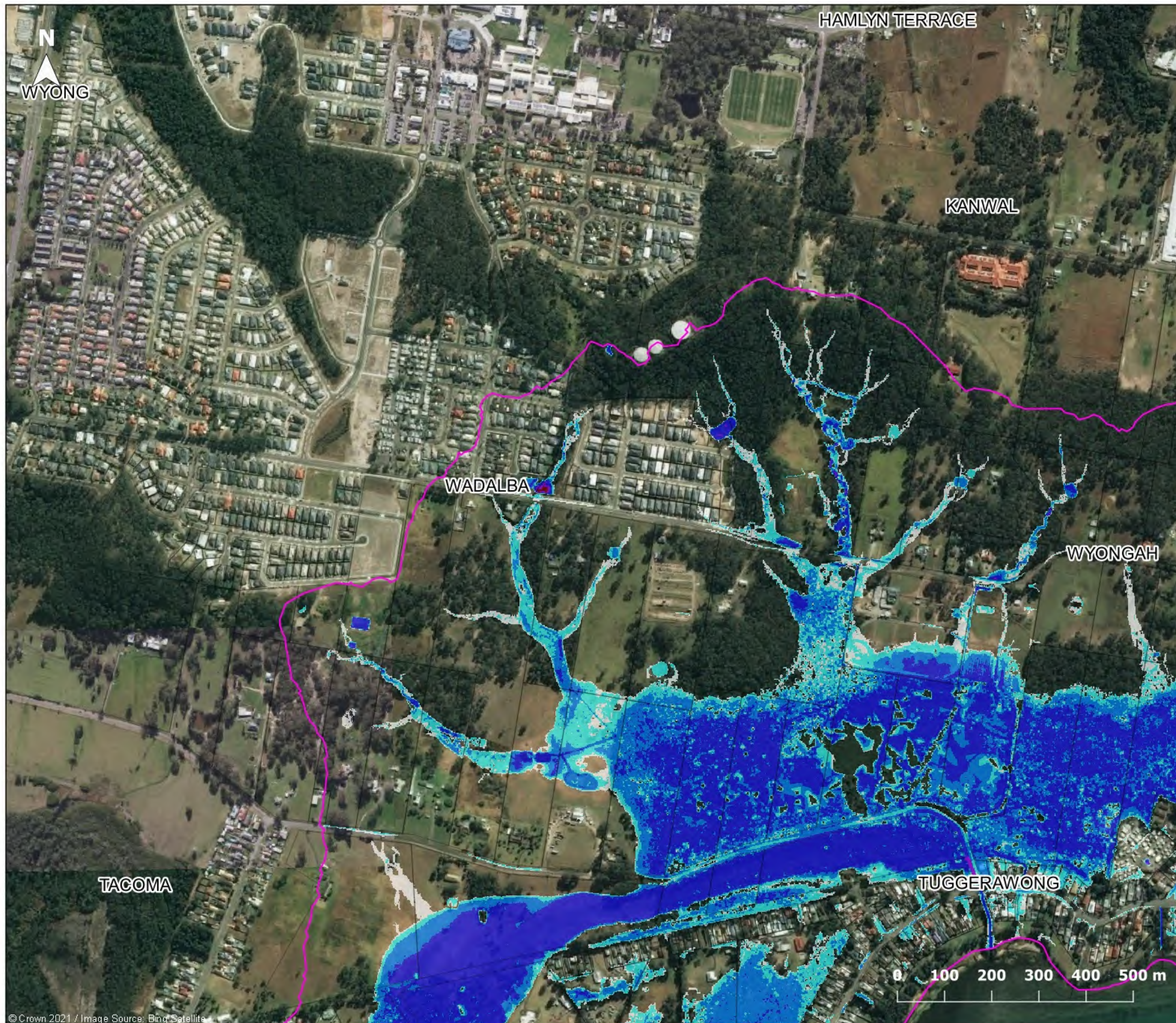


Figure C2.2

5% AEP Flood Depth

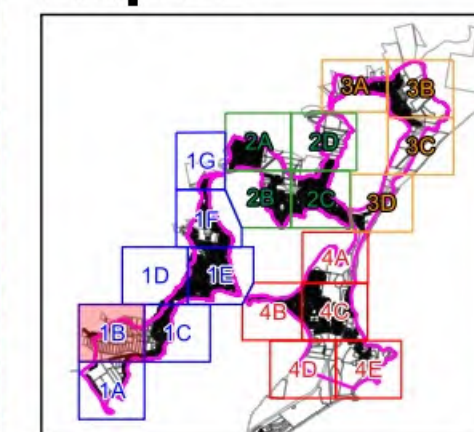
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C2.3

5% AEP Flood Depth

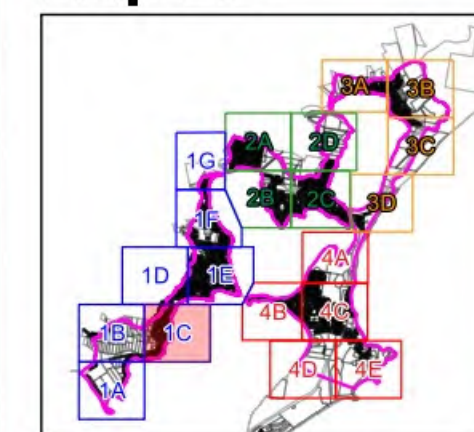
Legend

- Catchment area
- Cadaastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1C



Report MHL2571

Northern Lakes Floodplain Risk Management Study & Plan



Manly
Hydraulics
Laboratory



Figure C2.4

5% AEP Flood Depth

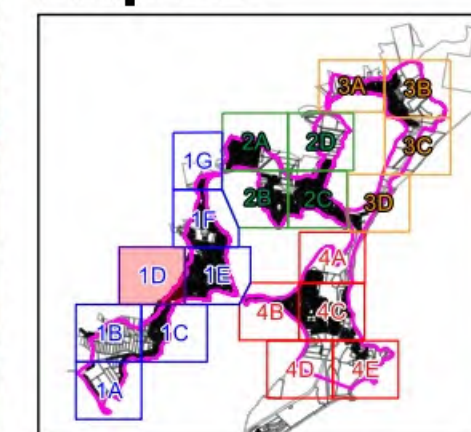
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

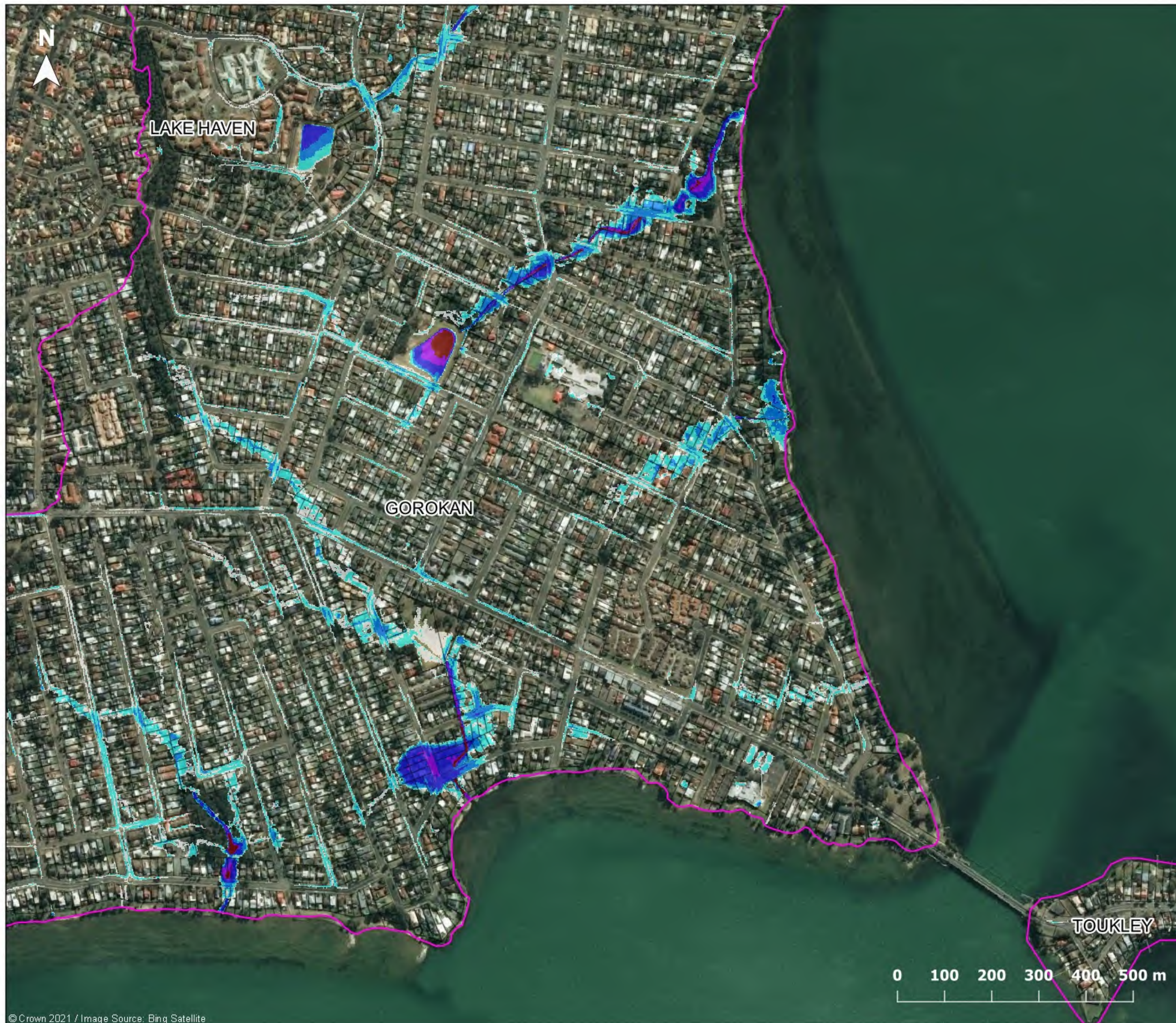


Figure C2.5

5% AEP Flood Depth

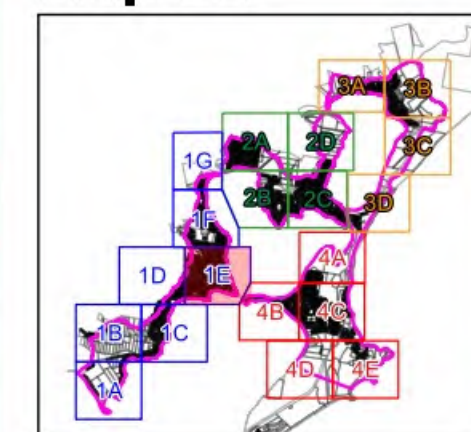
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

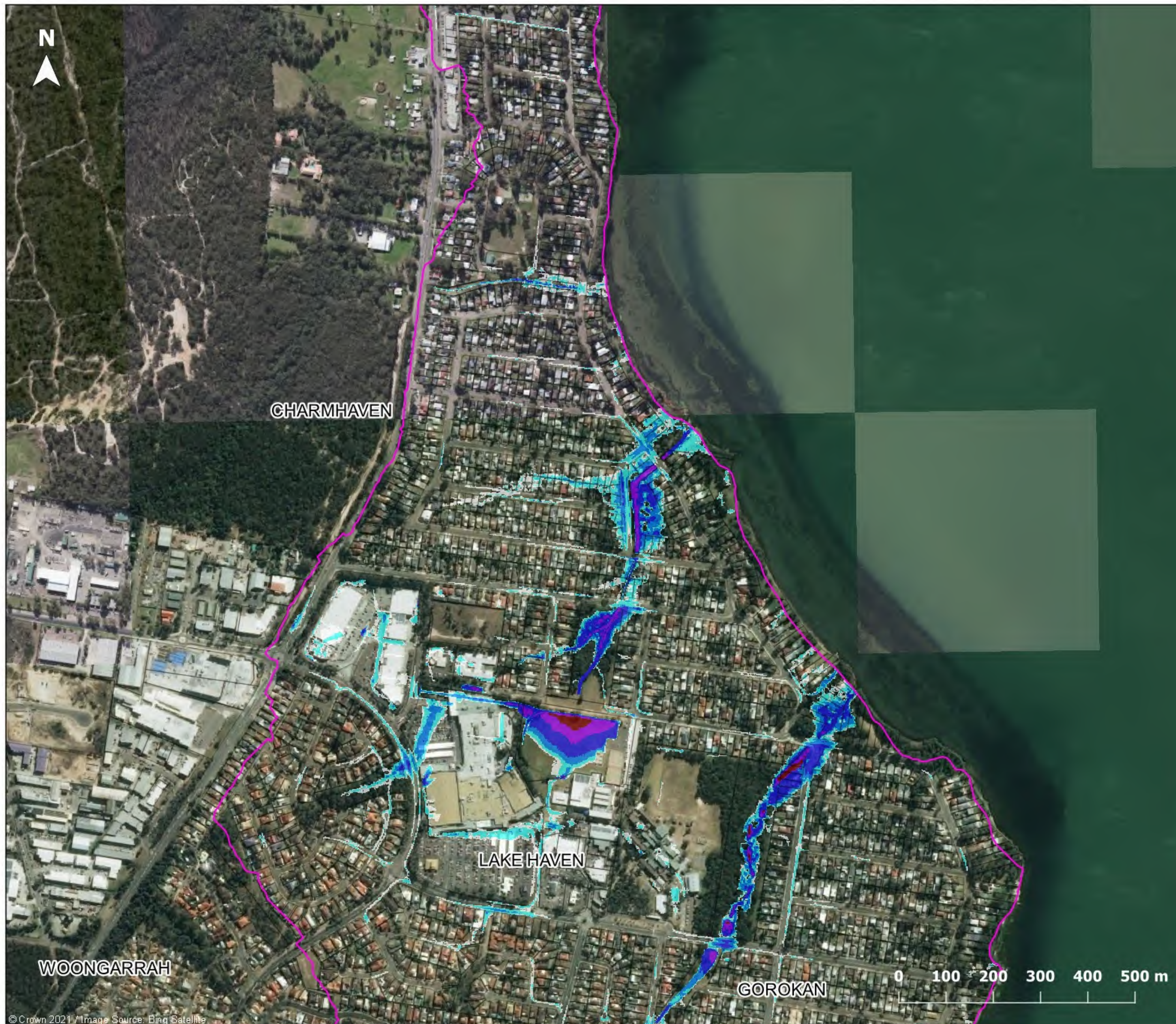


Figure C2.6

5% AEP Flood Depth

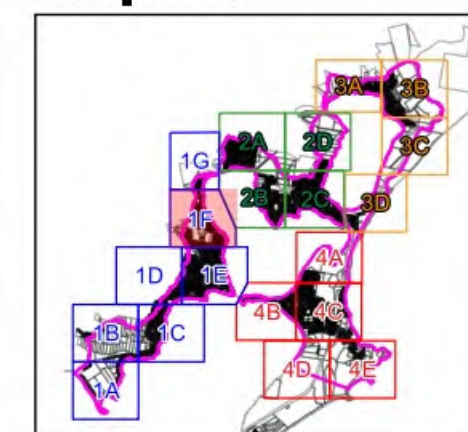
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1F



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C2.7

5% AEP Flood Depth

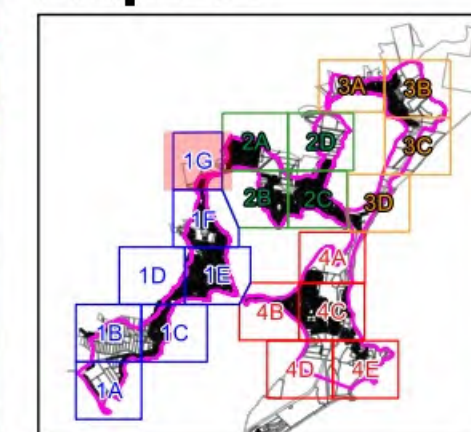
Legend

- Catchment area
- Cadastral

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1G



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Figure C2.8

5% AEP Flood Depth

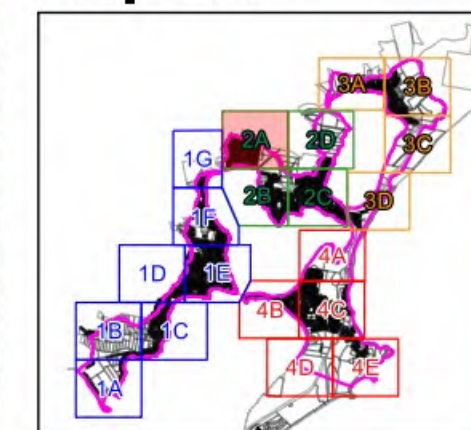
Legend

- Catchment area
- Cadastral

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 2A



Report MHL2571

Northern Lakes Floodplain Risk Management Study & Plan



Manly
Hydraulics
Laboratory

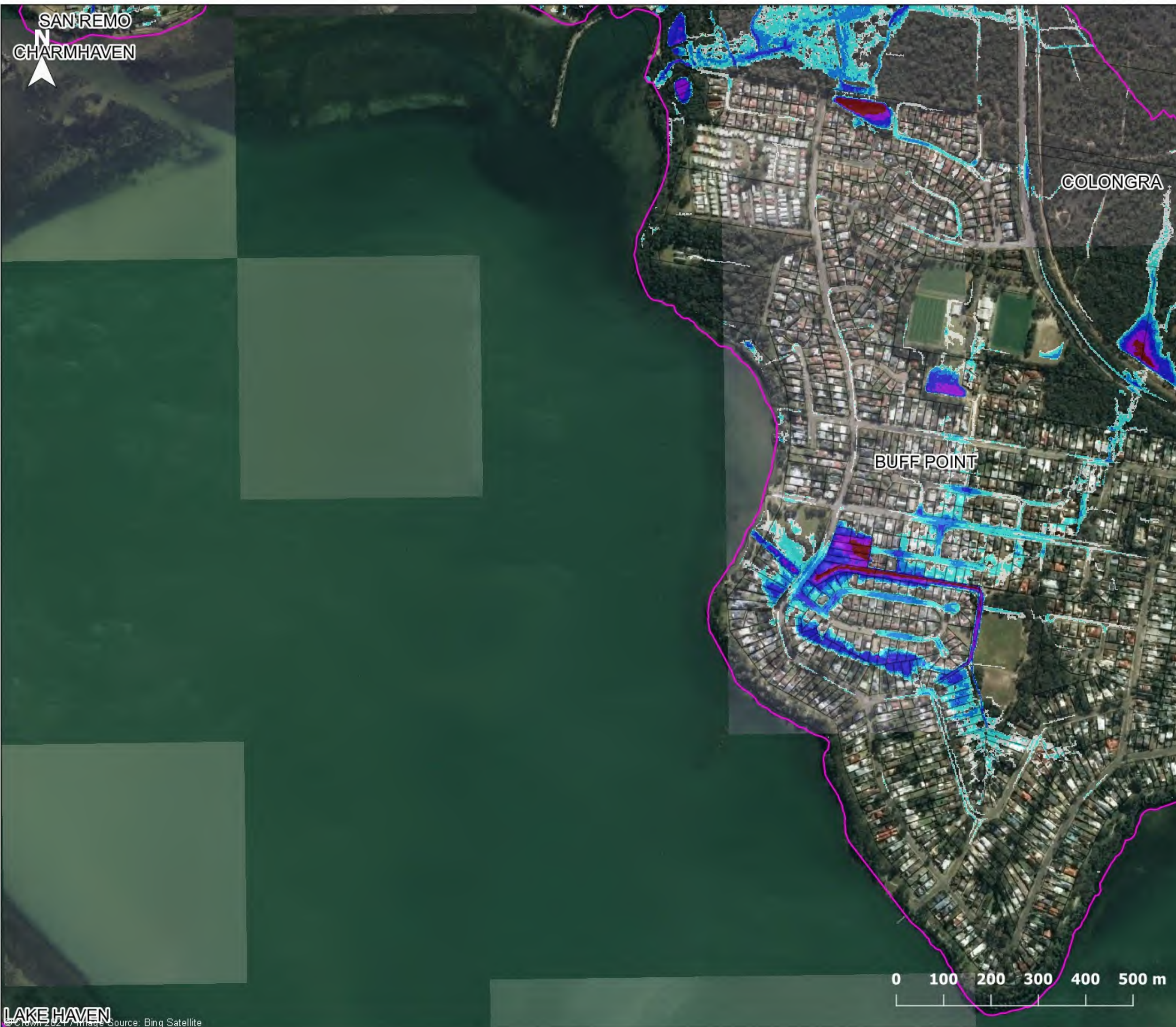


Figure C2.9

5% AEP Flood Depth

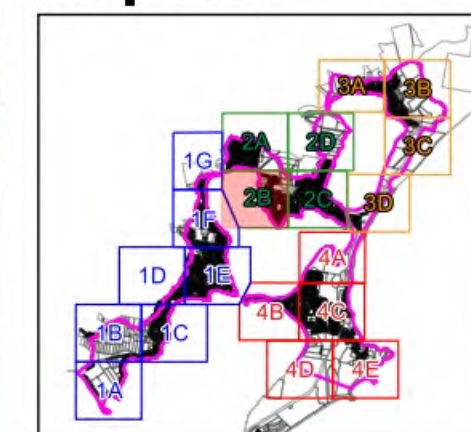
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 2B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

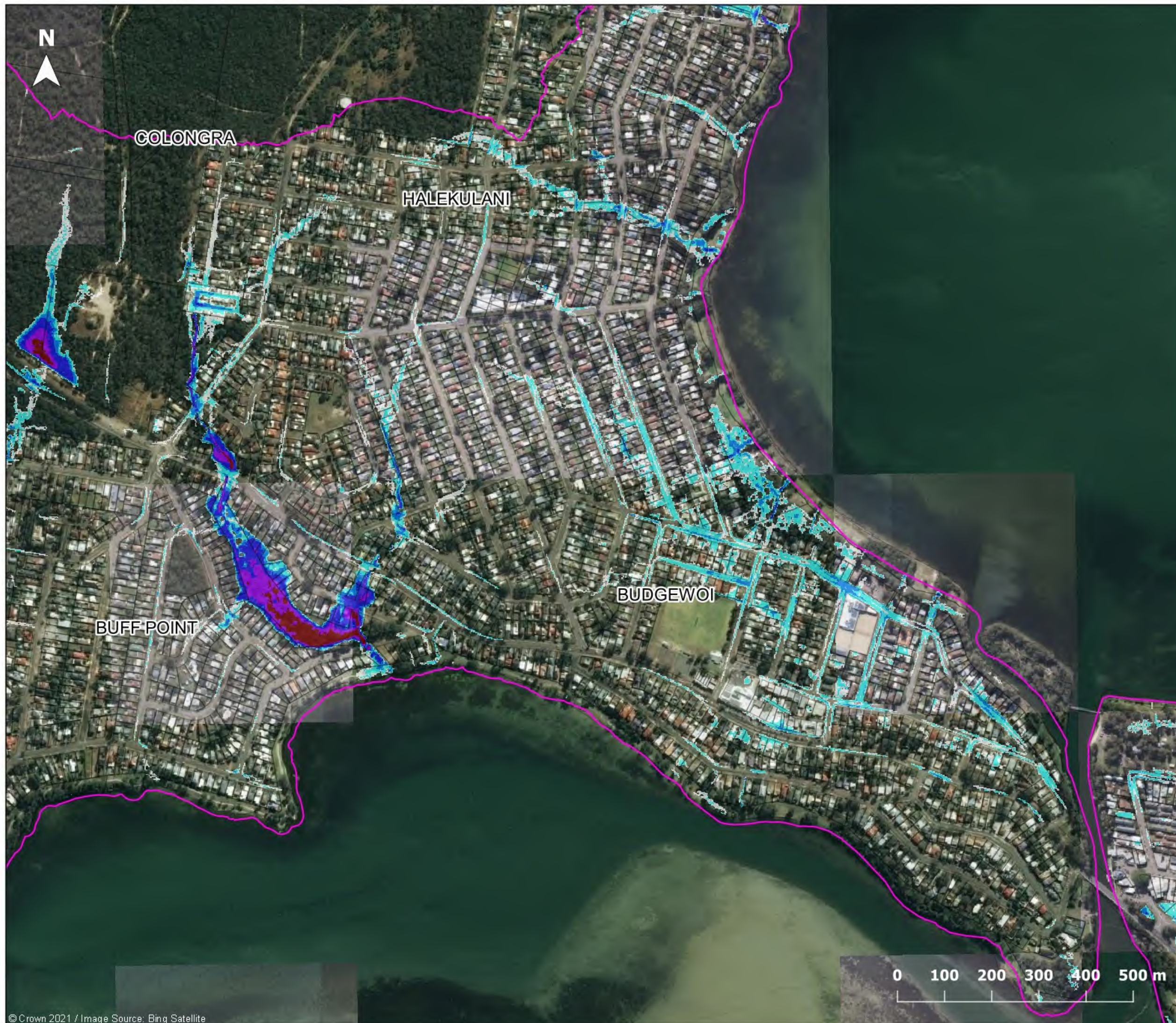


Figure C2.10

5% AEP Flood Depth

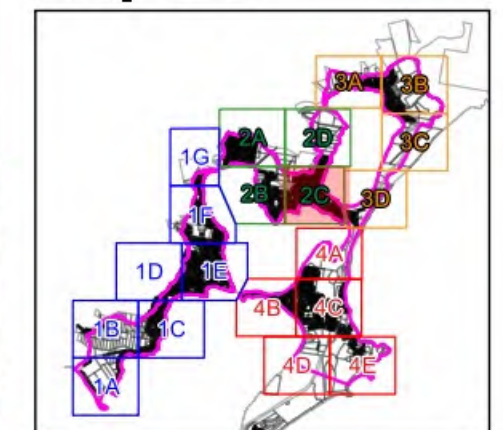
Legend

-  Catchment area
-  Cadastre

Depth (m)

-  0.05-0.15
-  0.15-0.30
-  0.30-0.50
-  0.50-1.00
-  1.00-1.50
-  > 1.50

Map 2C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

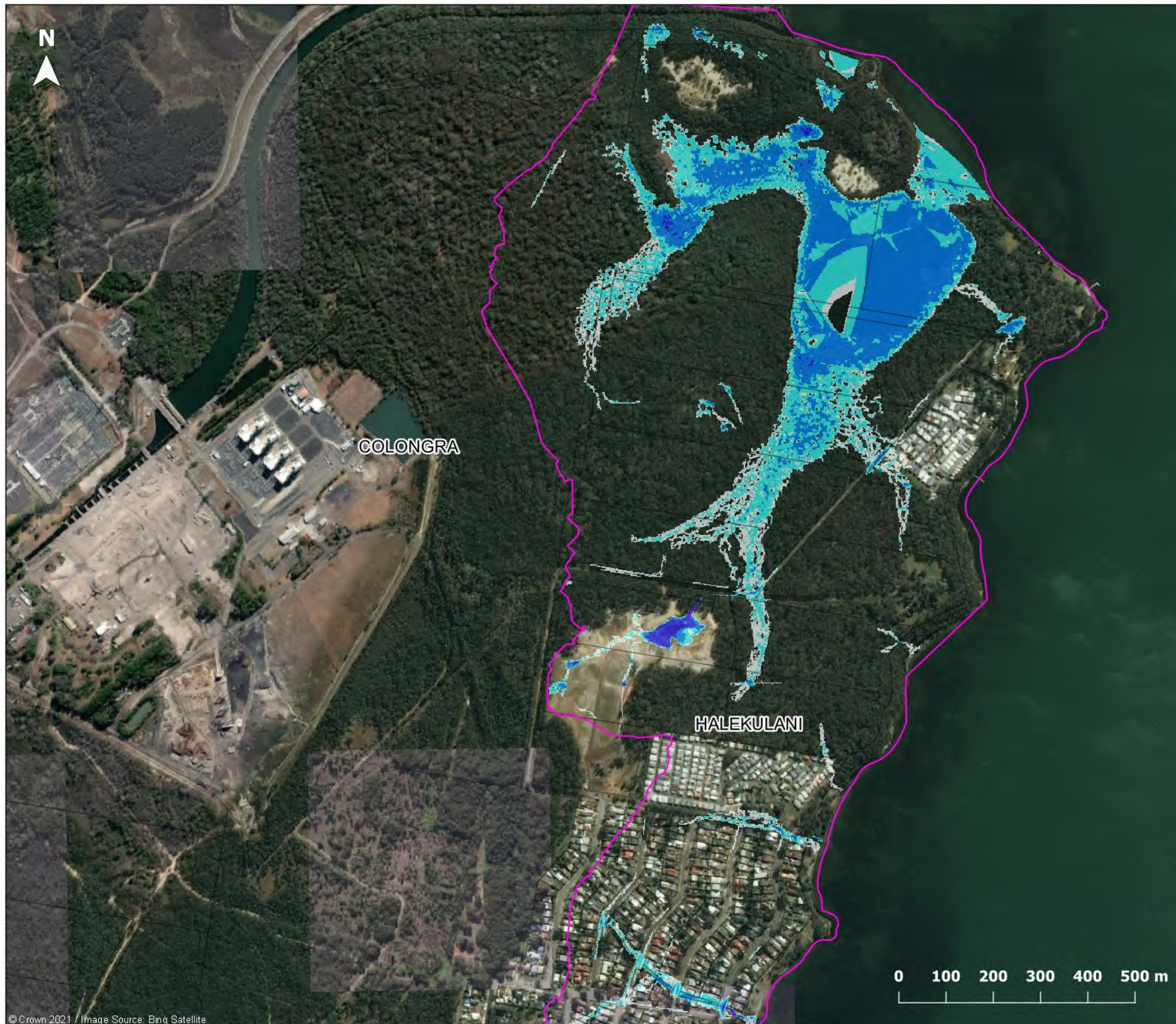


Figure C2.11

5% AEP Flood Depth

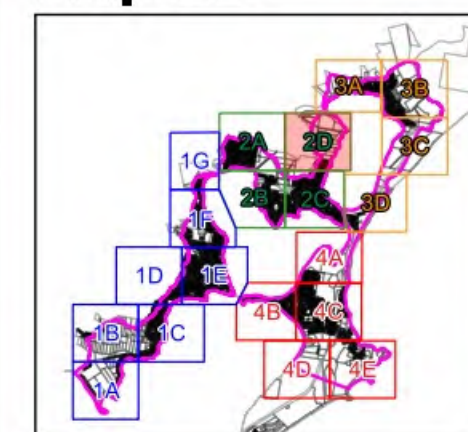
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 2D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

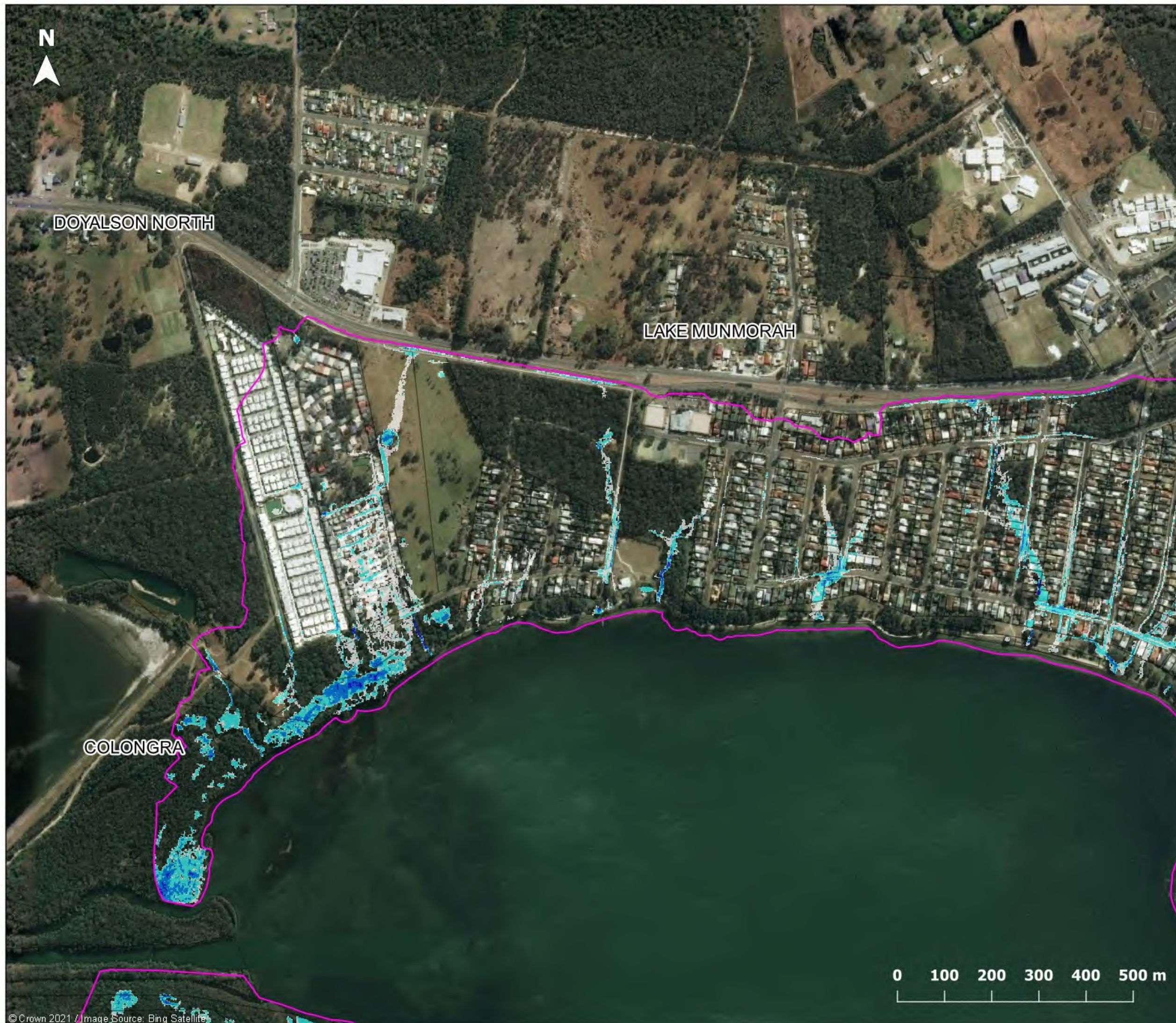


Figure C2.12

5% AEP Flood Depth

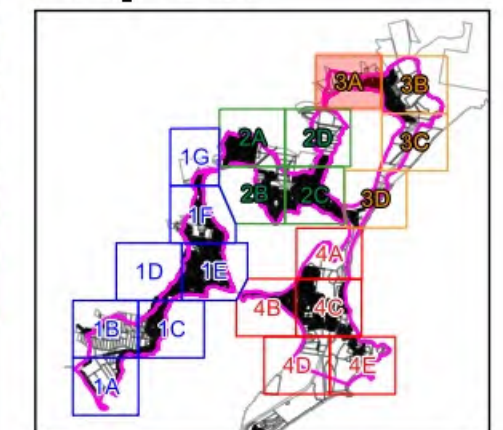
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 3A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

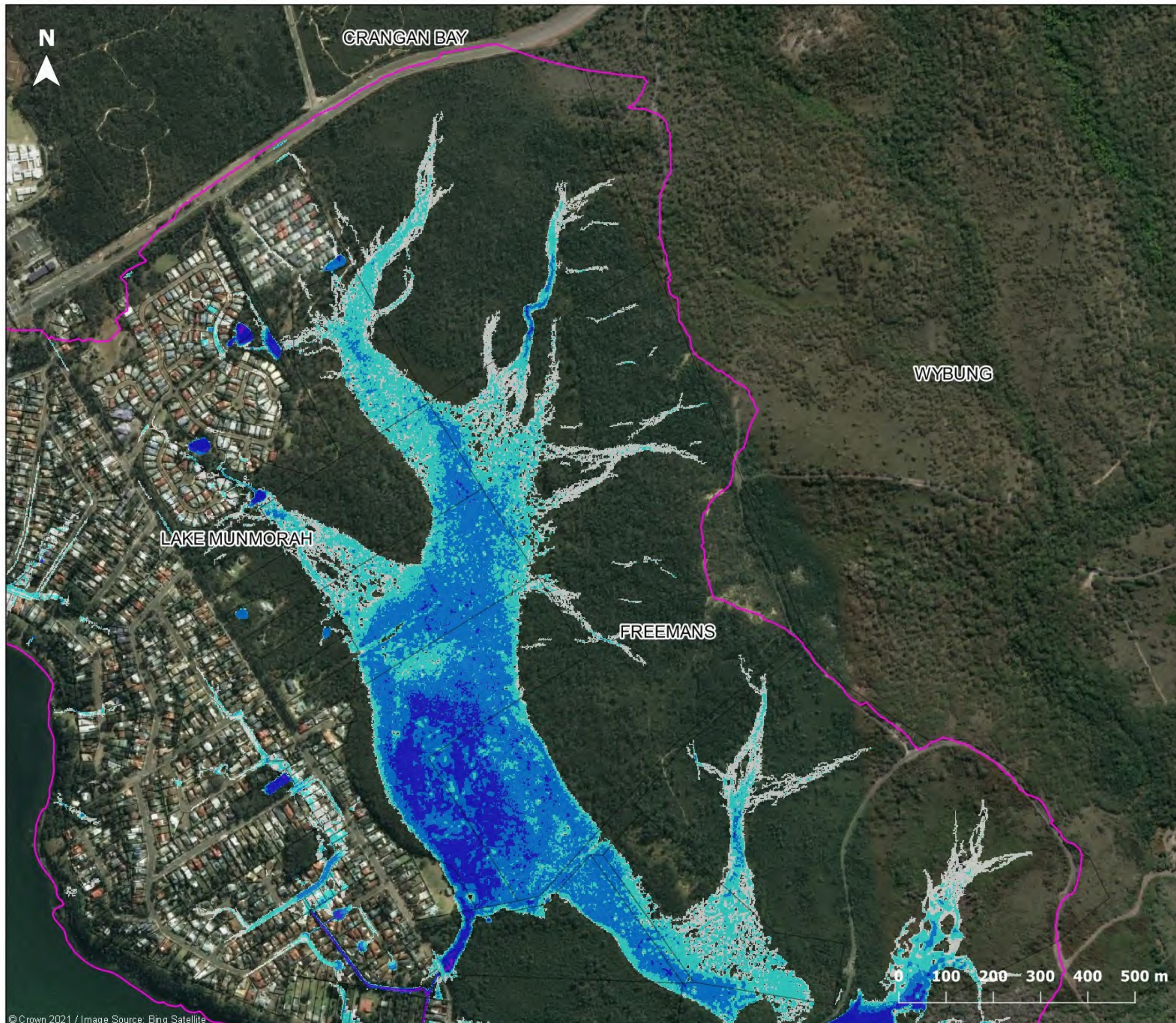


Figure C2.13

5% AEP Flood Depth

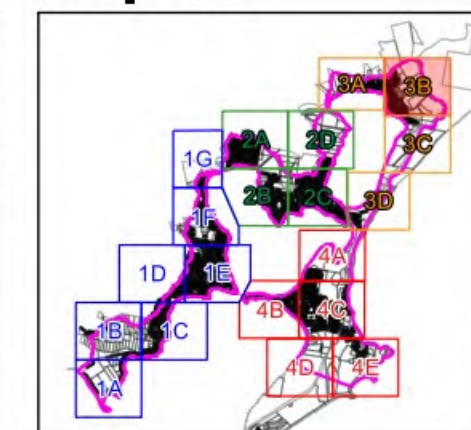
Legend

-  Catchment area
-  Cadastre

Depth (m)

-  0.05-0.15
-  0.15-0.30
-  0.30-0.50
-  0.50-1.00
-  1.00-1.50
-  > 1.50

Map 3B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C2.14

5% AEP Flood Depth

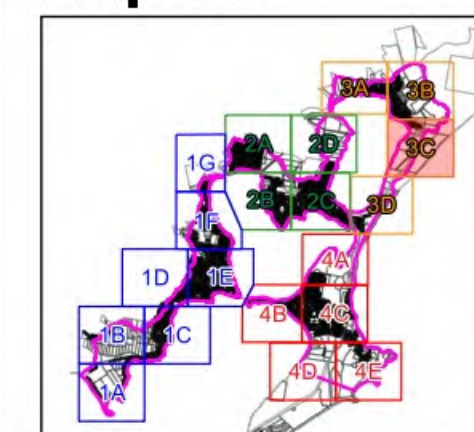
Legend

- Catchment area
- Cadastral

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 3C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

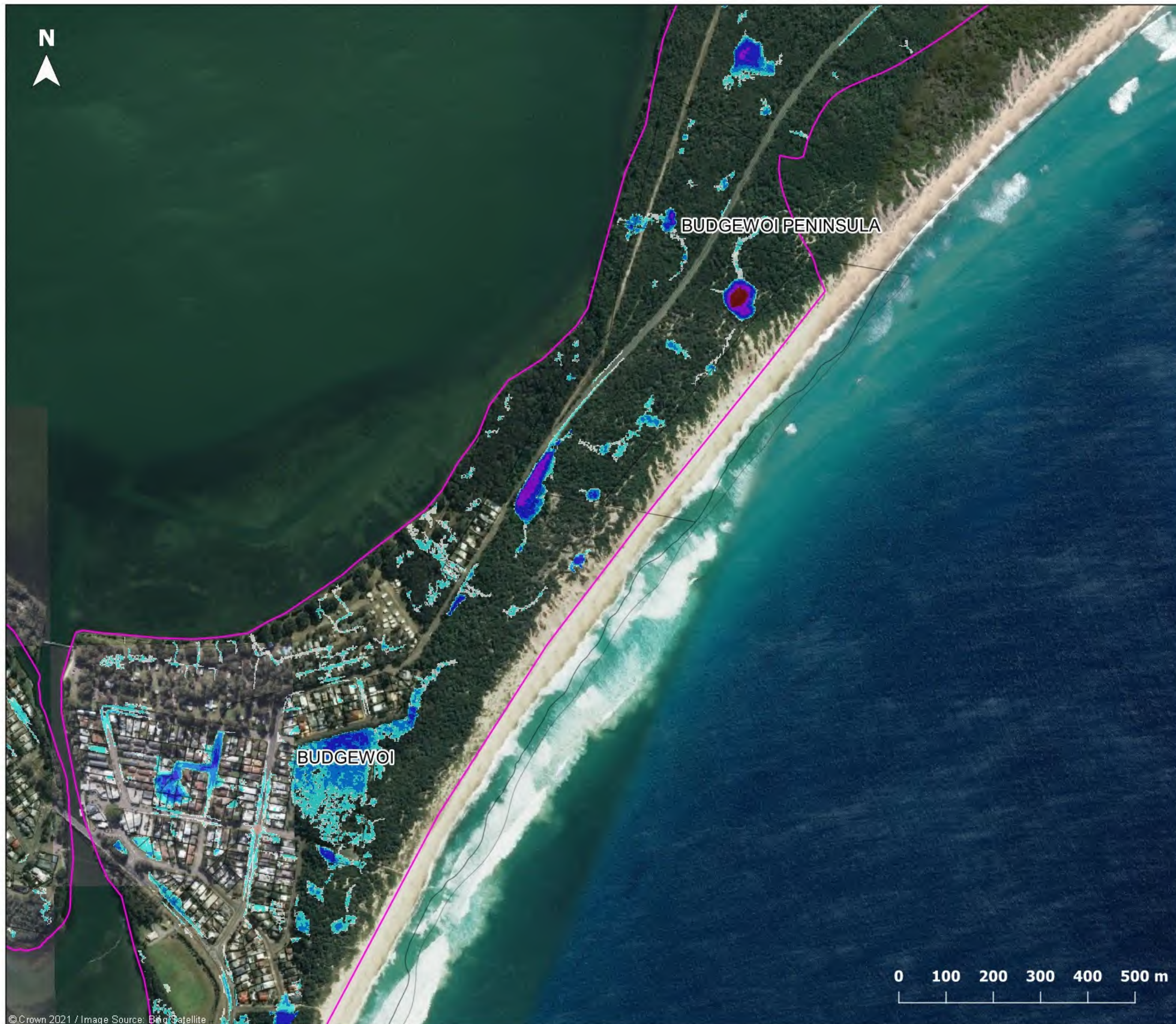


Figure C2.15

5% AEP Flood Depth

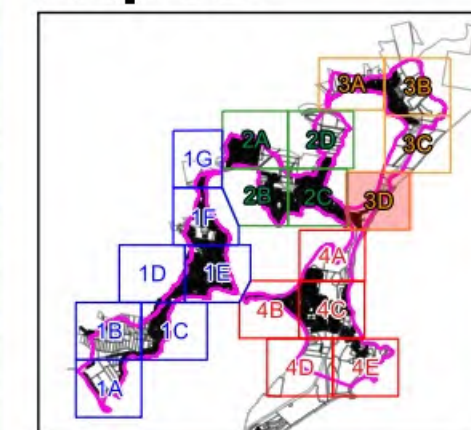
Legend

- Catchment area
- Cadaastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 3D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C2.16

5% AEP Flood Depth

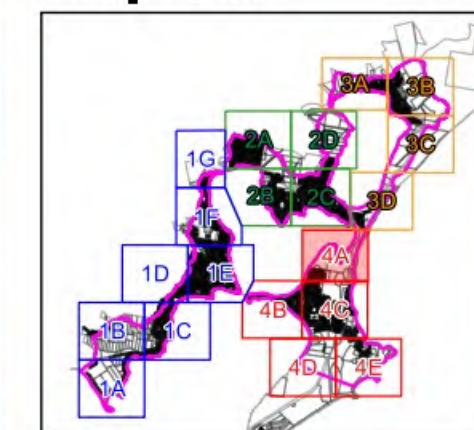
Legend

- Catchment area
- Cadaastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 4A



Report MHL2571

Northern Lakes Floodplain Risk Management Study & Plan



Manly
Hydraulics
Laboratory

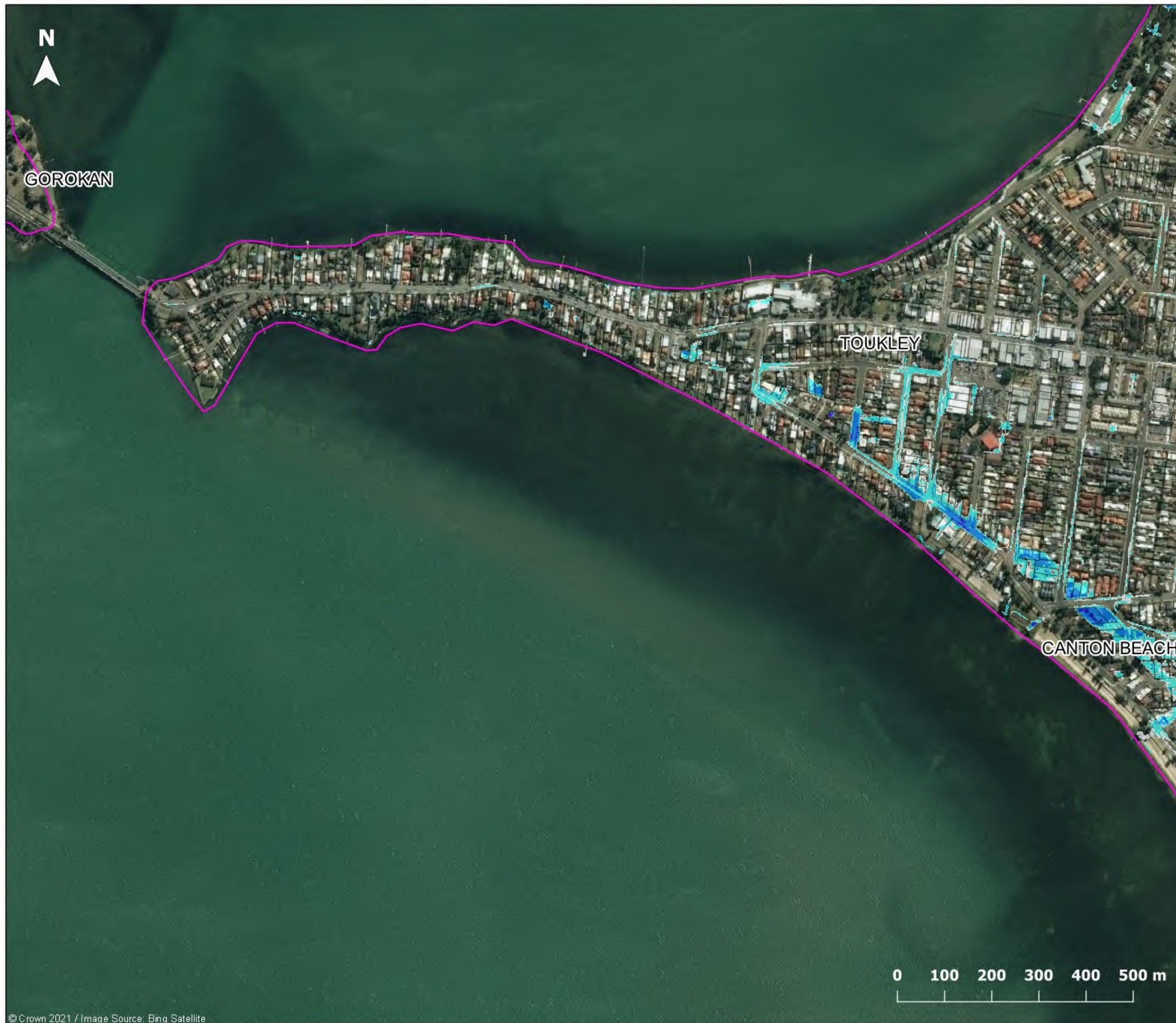


Figure C2.17

5% AEP Flood Depth

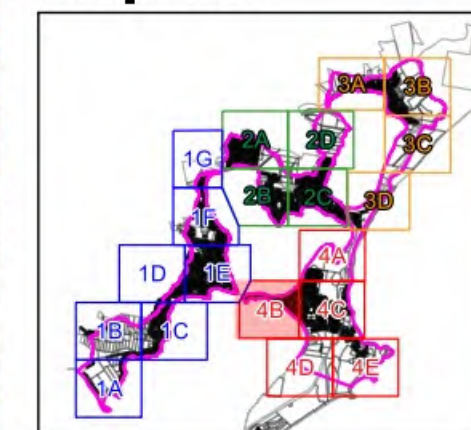
Legend

- Catchment area
- Cadastral

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 4B

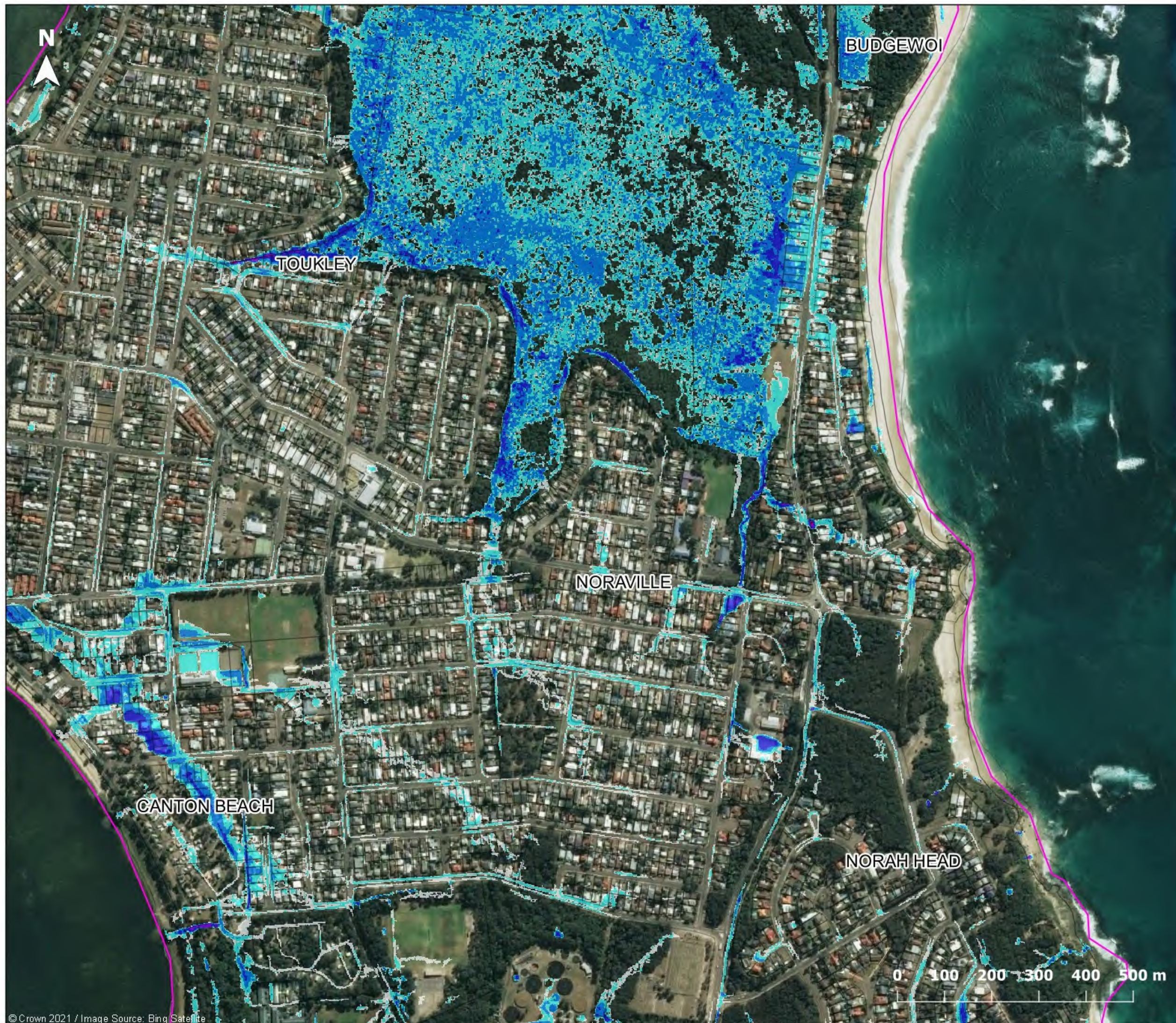


Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



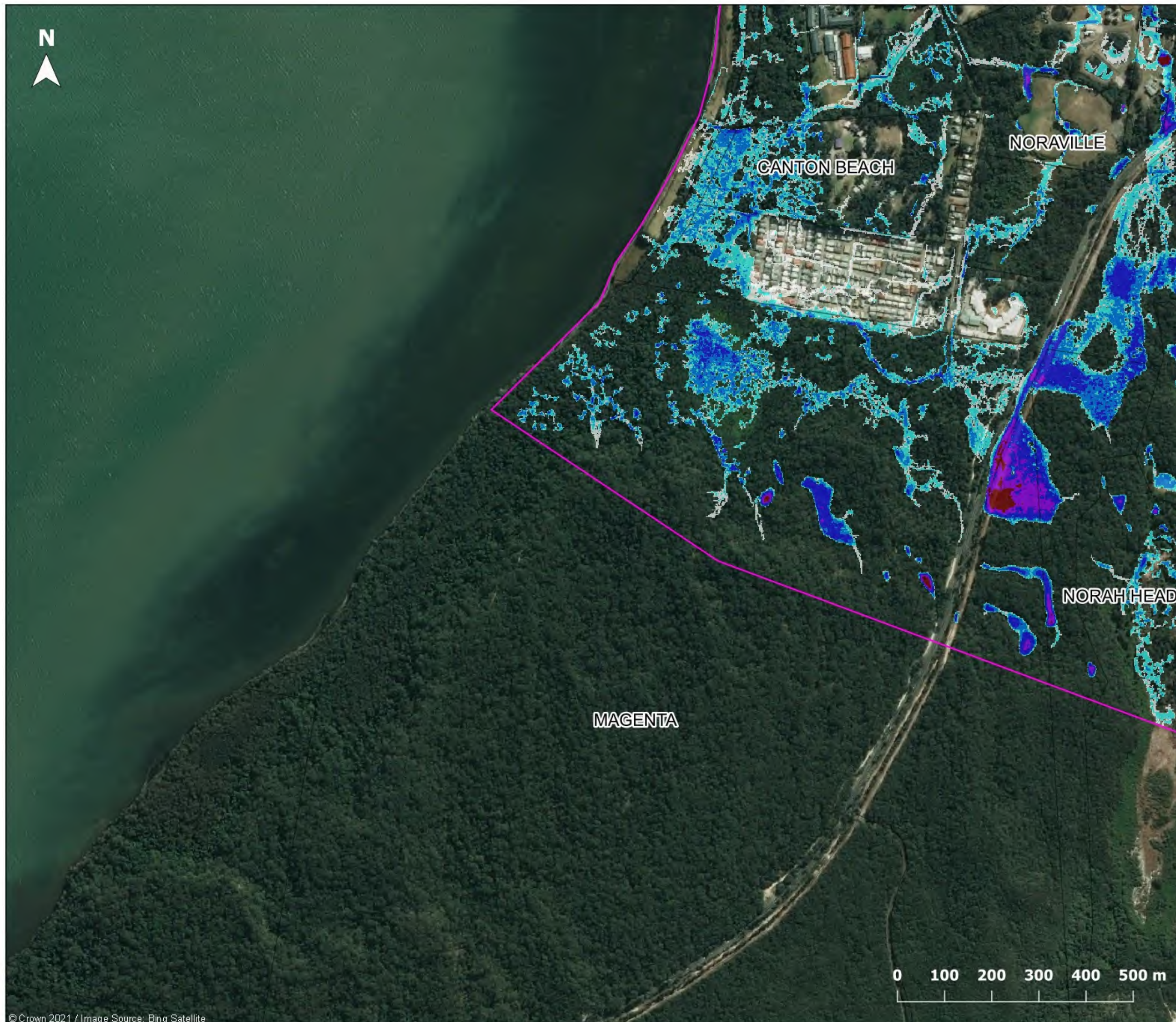


Figure C2.19

5% AEP Flood Depth

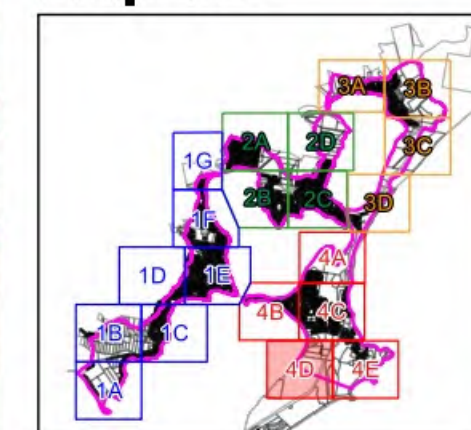
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 4D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C2.20

5% AEP Flood Depth

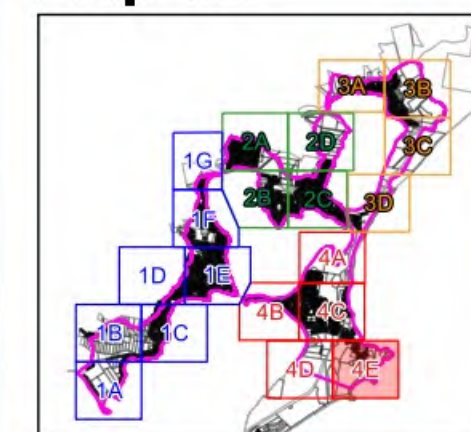
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 4E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C3.1

1% AEP Flood Depth

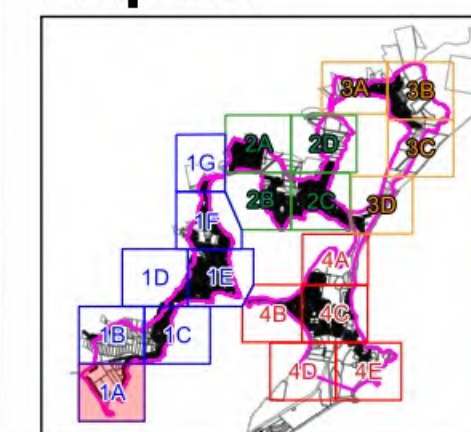
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C3.2

1% AEP Flood Depth

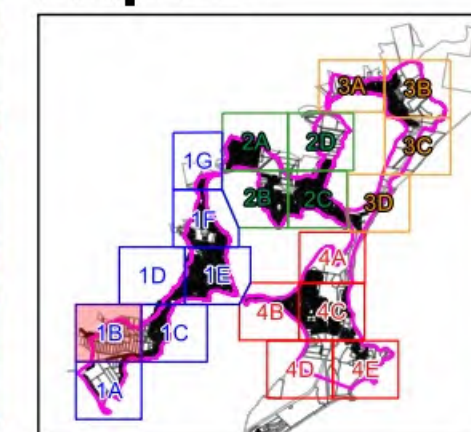
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C3.3

**1% AEP
Flood Depth**

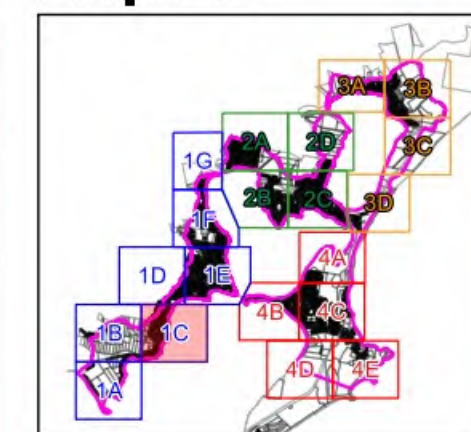
Legend

- Catchment area
- Cadaastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Figure C3.4

1% AEP Flood Depth

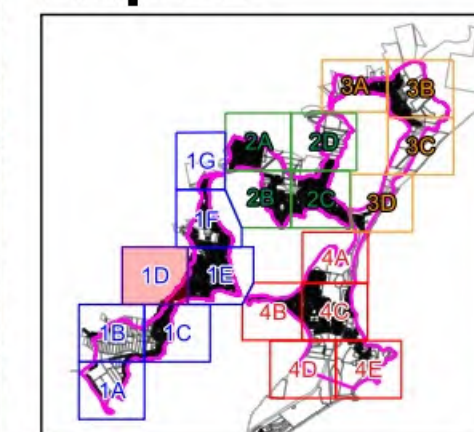
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

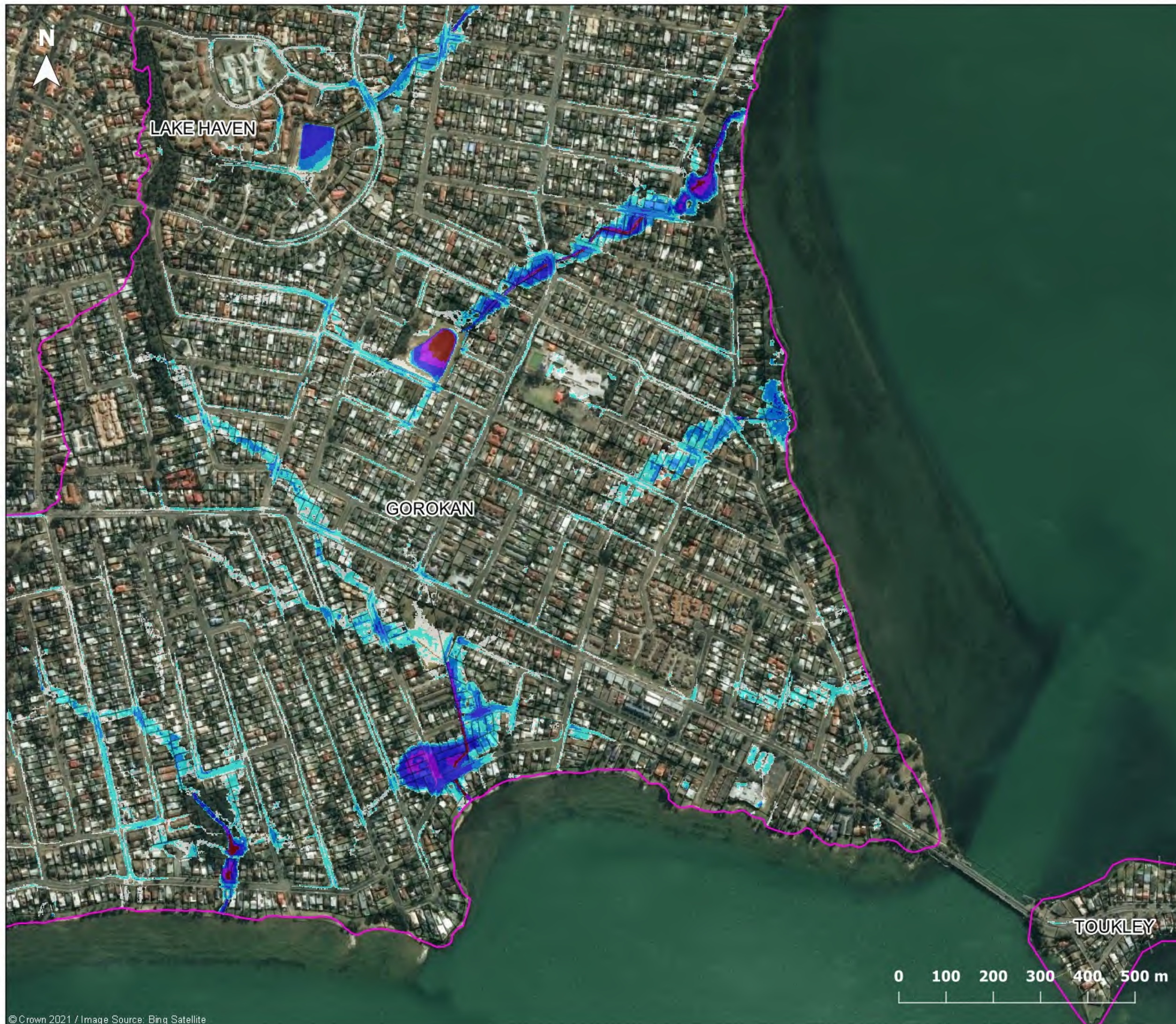


Figure C3.5

1% AEP Flood Depth

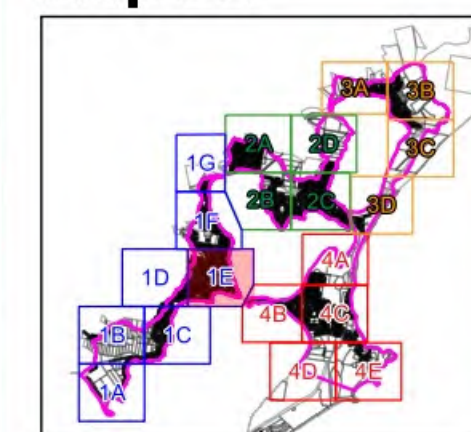
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

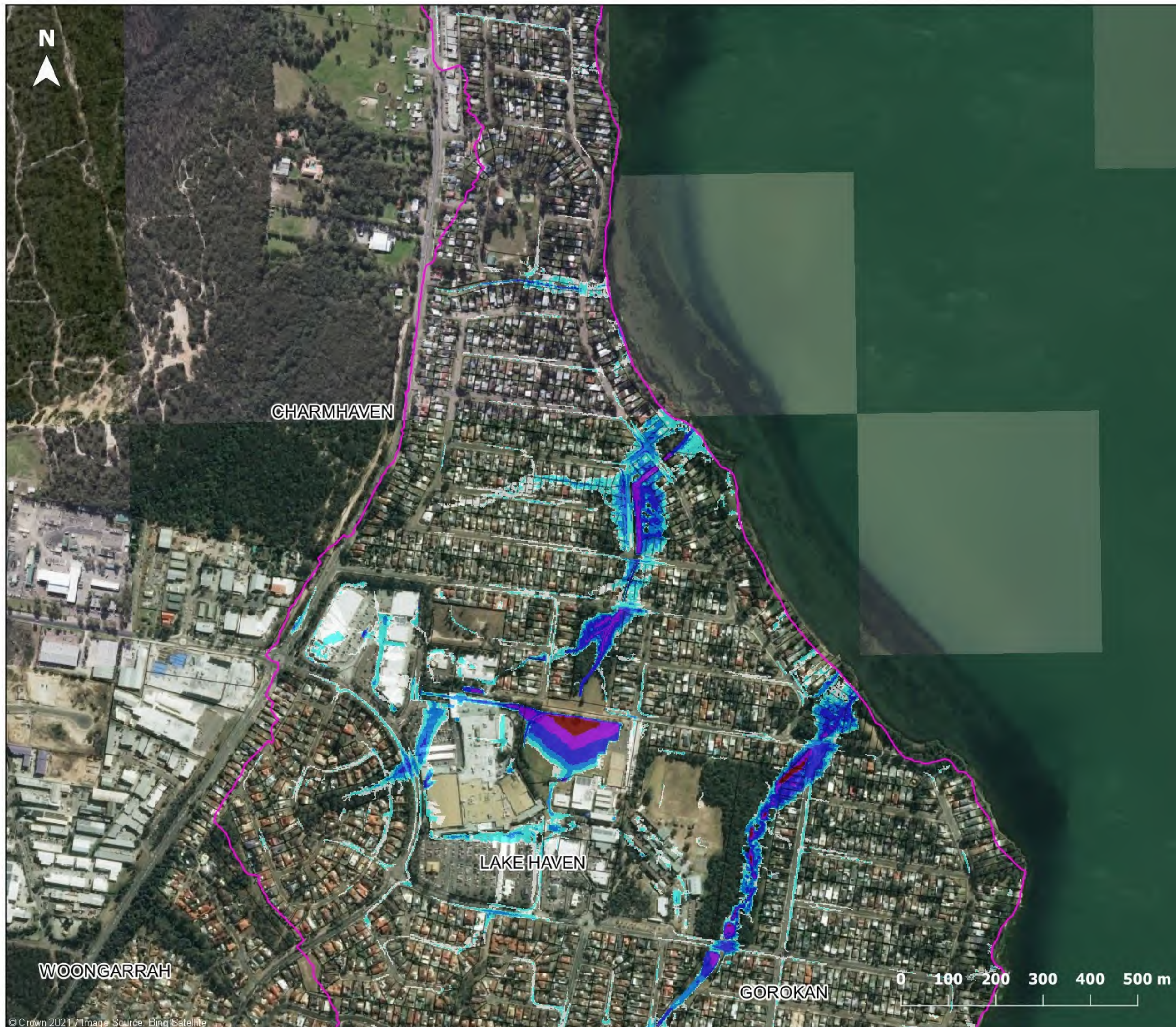


Figure C3.6

1% AEP Flood Depth

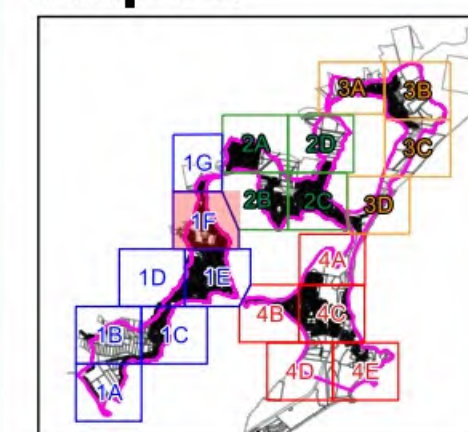
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1F



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C3.7

1% AEP Flood Depth

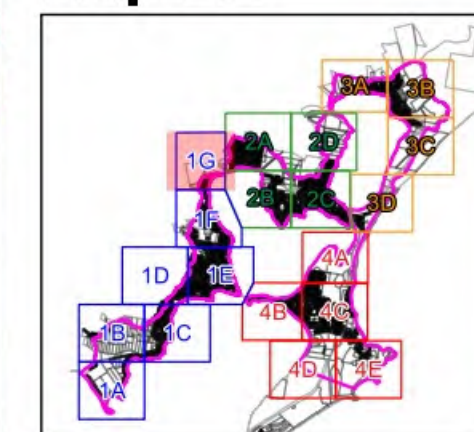
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1G



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C3.8

**1% AEP
Flood Depth**

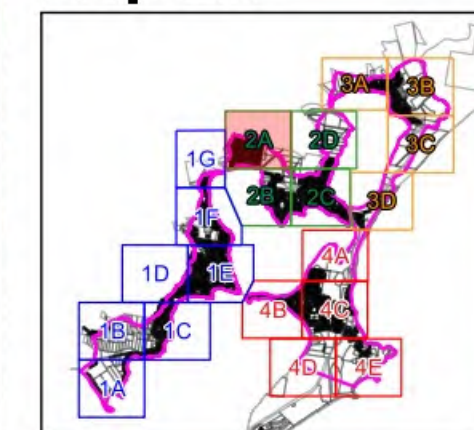
Legend

-  Catchment area
-  Cadastre

Depth (m)

-  0.05-0.15
-  0.15-0.30
-  0.30-0.50
-  0.50-1.00
-  1.00-1.50
-  > 1.50

Map 2A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

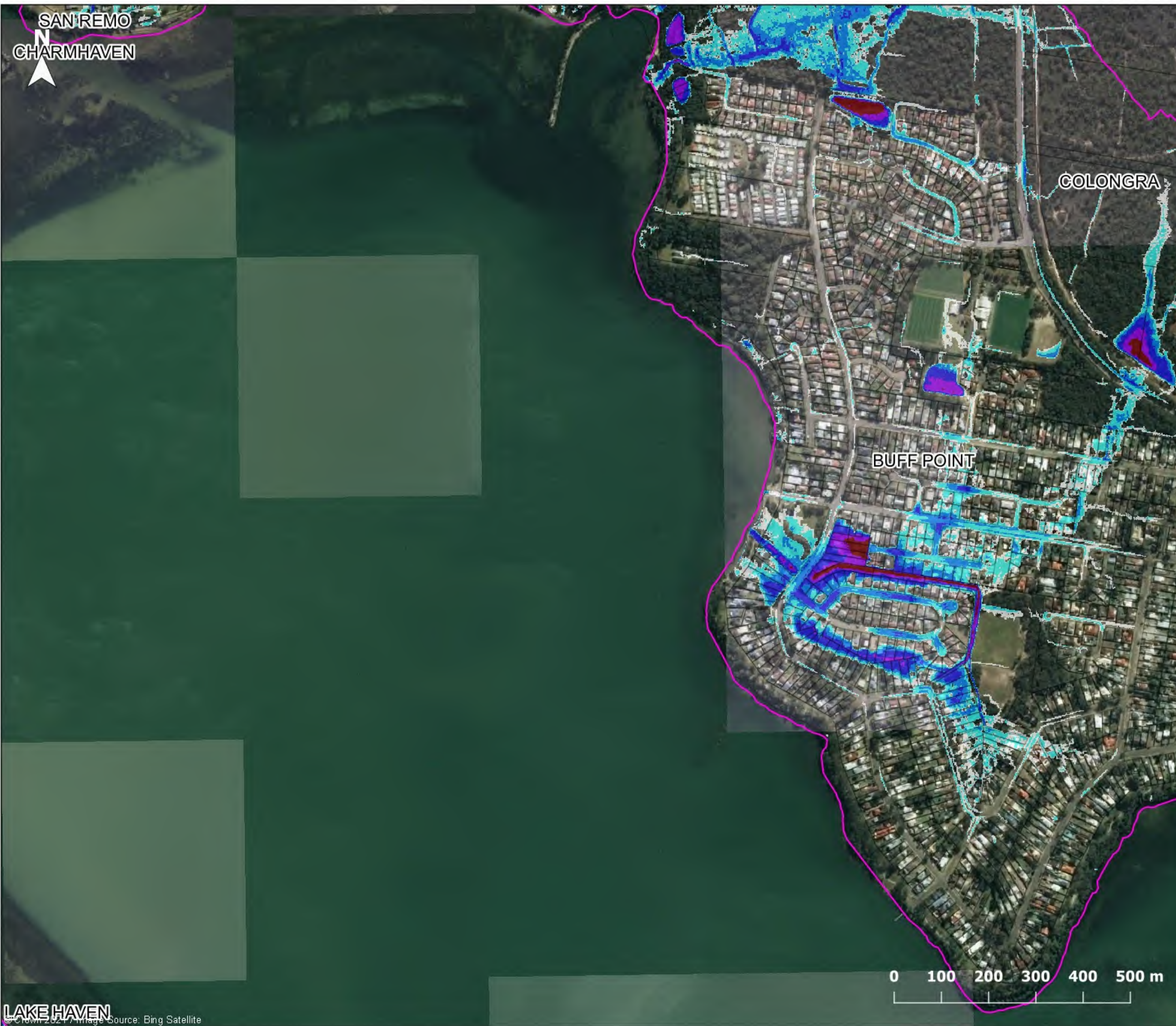


Figure C3.9

1% AEP Flood Depth

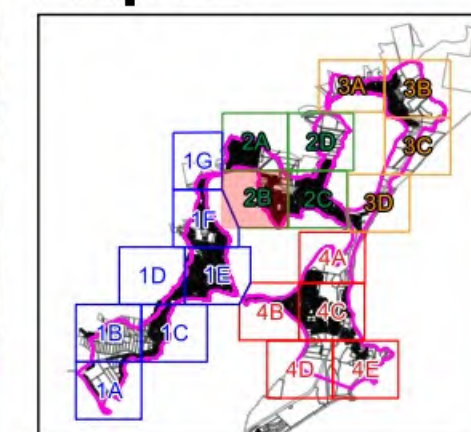
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 2B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

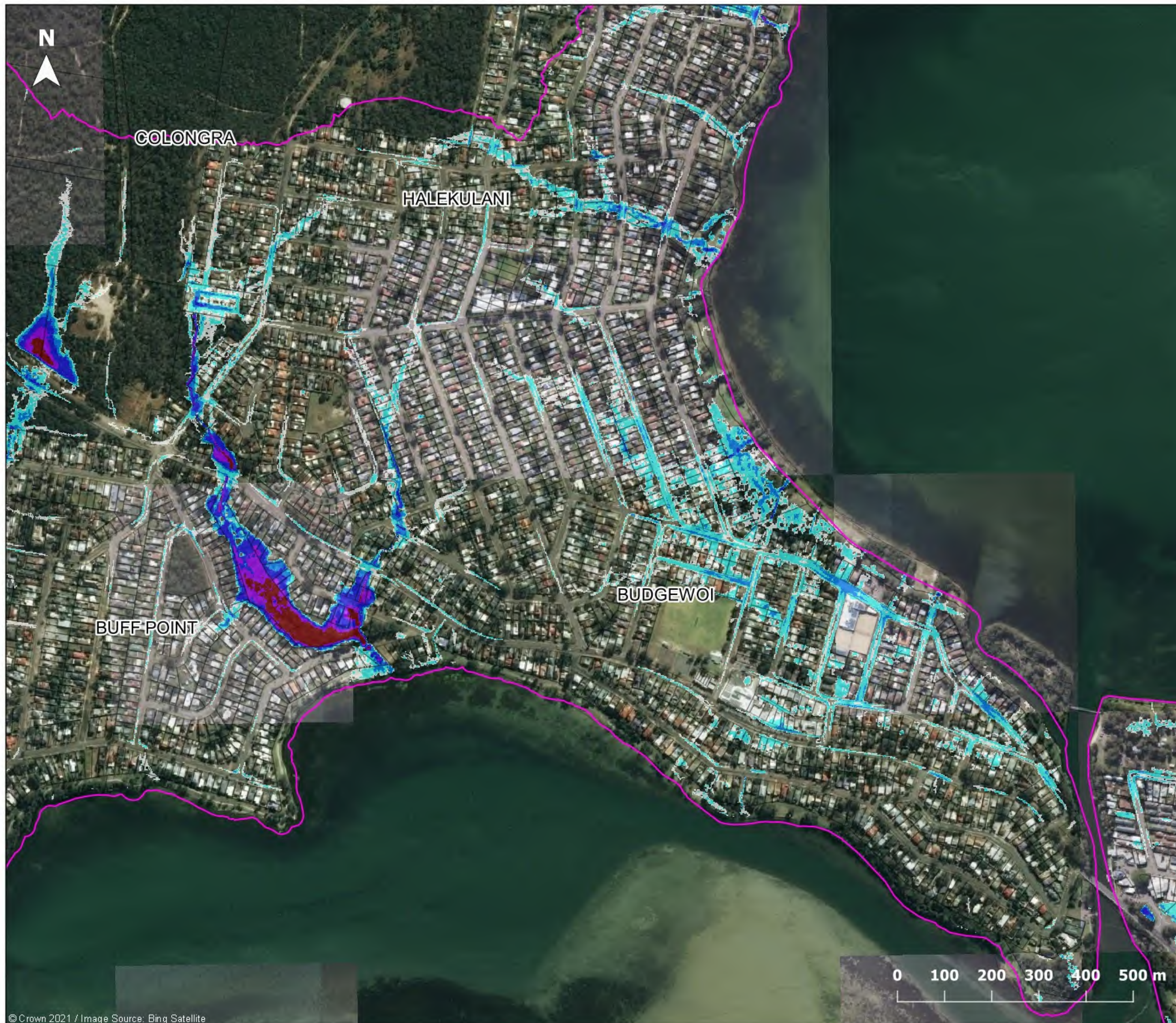


Figure C3.10

1% AEP Flood Depth

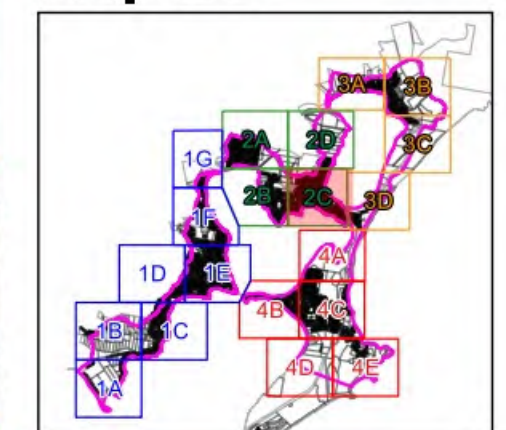
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 2C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

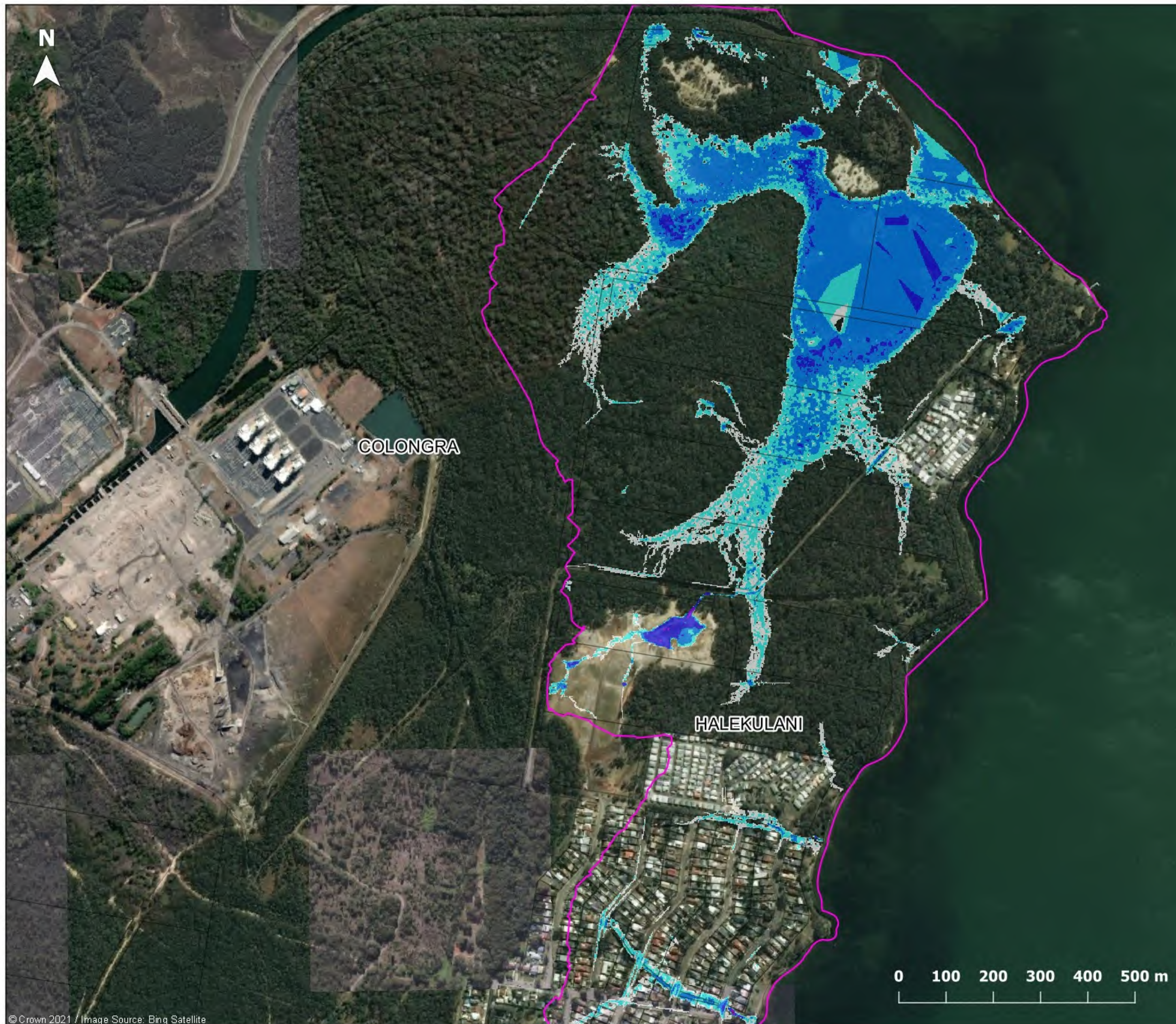


Figure C3.11

1% AEP Flood Depth

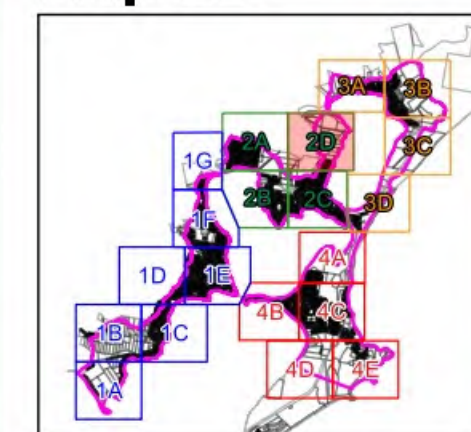
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 2D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C3.12

1% AEP Flood Depth

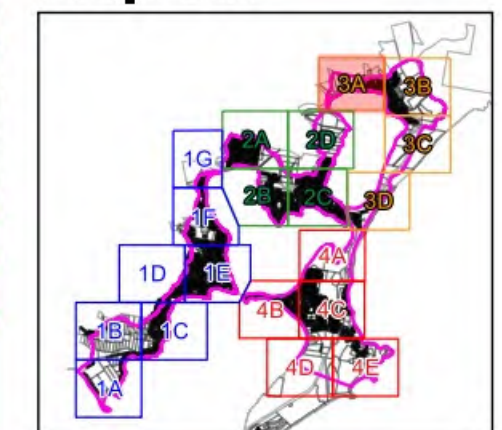
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 3A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

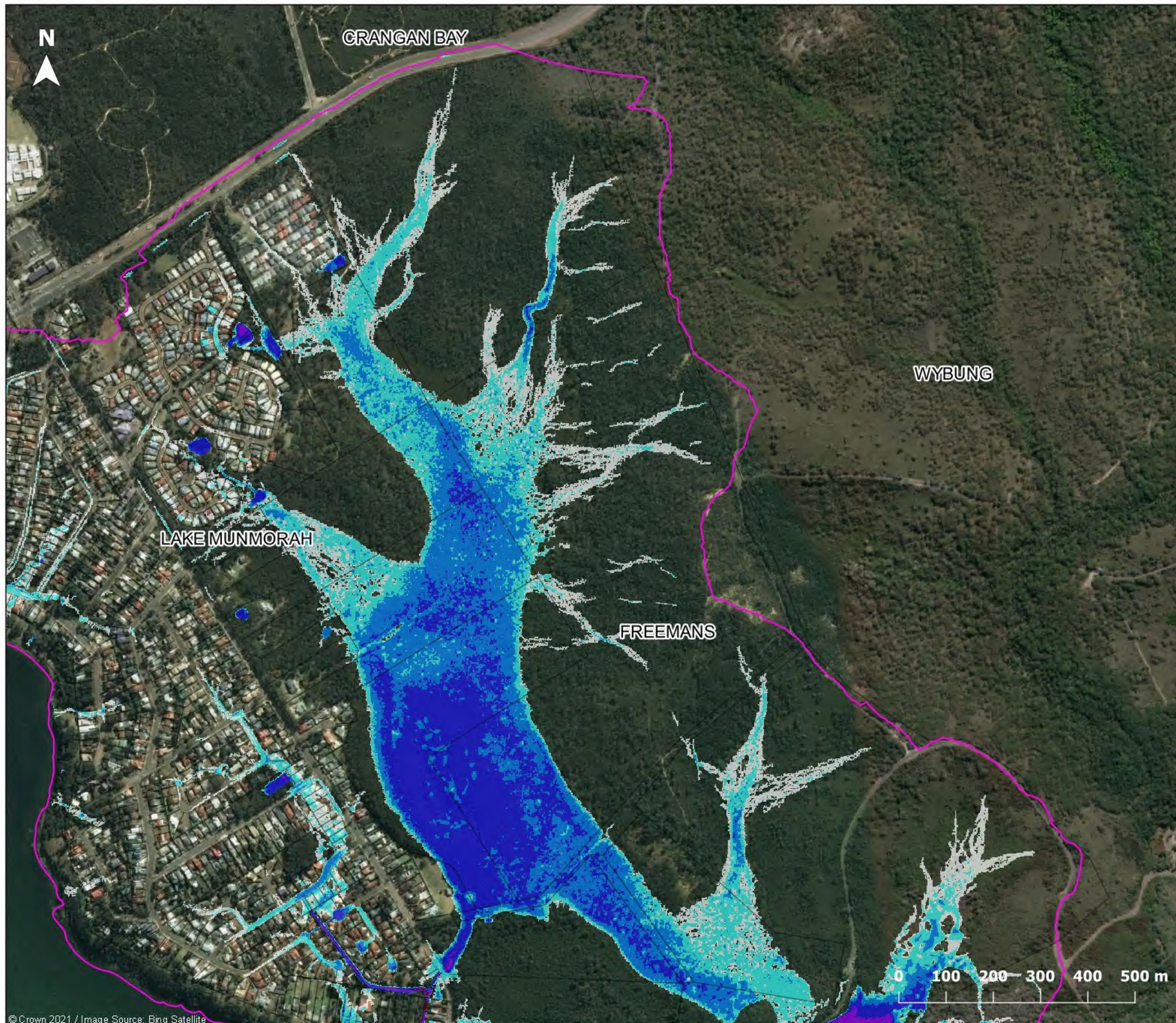


Figure C3.13

**1% AEP
Flood Depth**

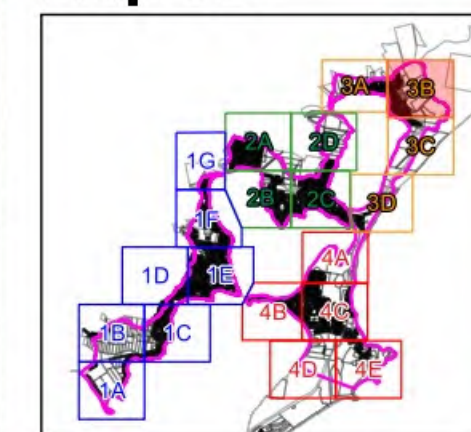
Legend

- Catchment area
- Cadastral

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 3B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C3.14

1% AEP Flood Depth

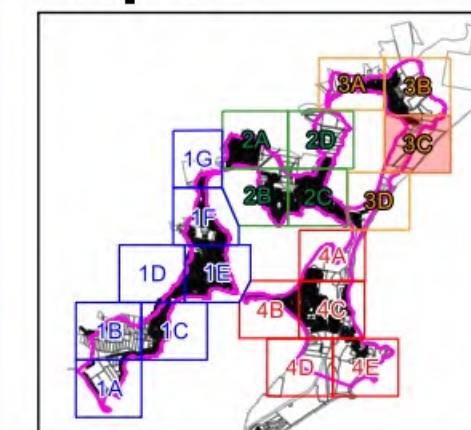
Legend

- Catchment area
- Cadastral

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 3C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

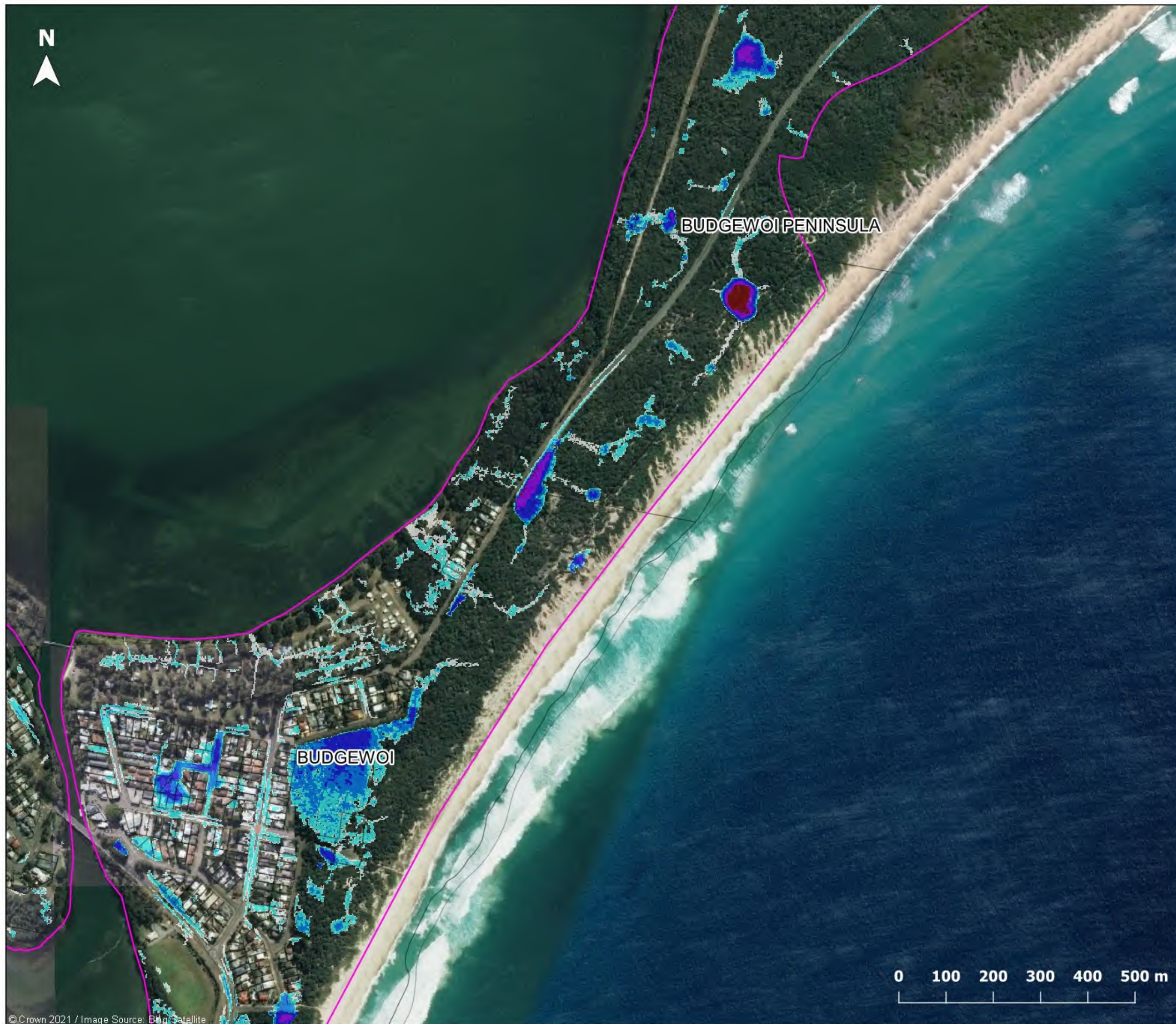


Figure C3.15

1% AEP Flood Depth

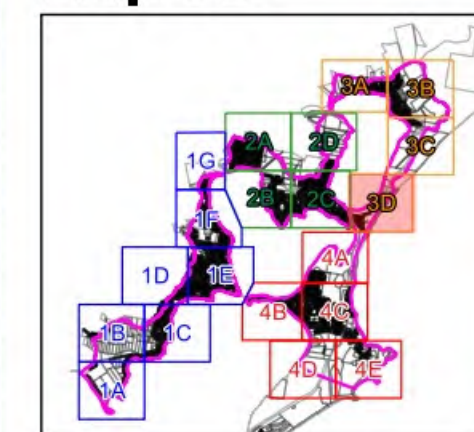
Legend

- Catchment area
- Cadastral

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 3D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C3.16

1% AEP Flood Depth

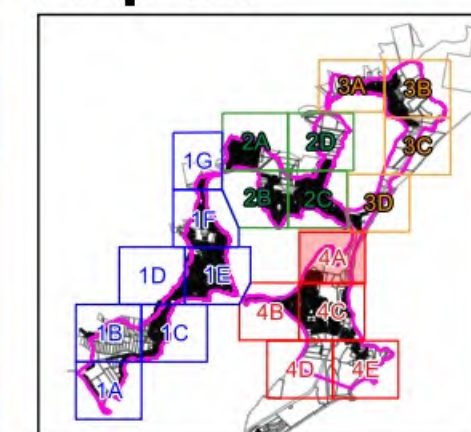
Legend

-  Catchment area
-  Cadastre

Depth (m)

-  0.05-0.15
-  0.15-0.30
-  0.30-0.50
-  0.50-1.00
-  1.00-1.50
-  > 1.50

Map 4A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

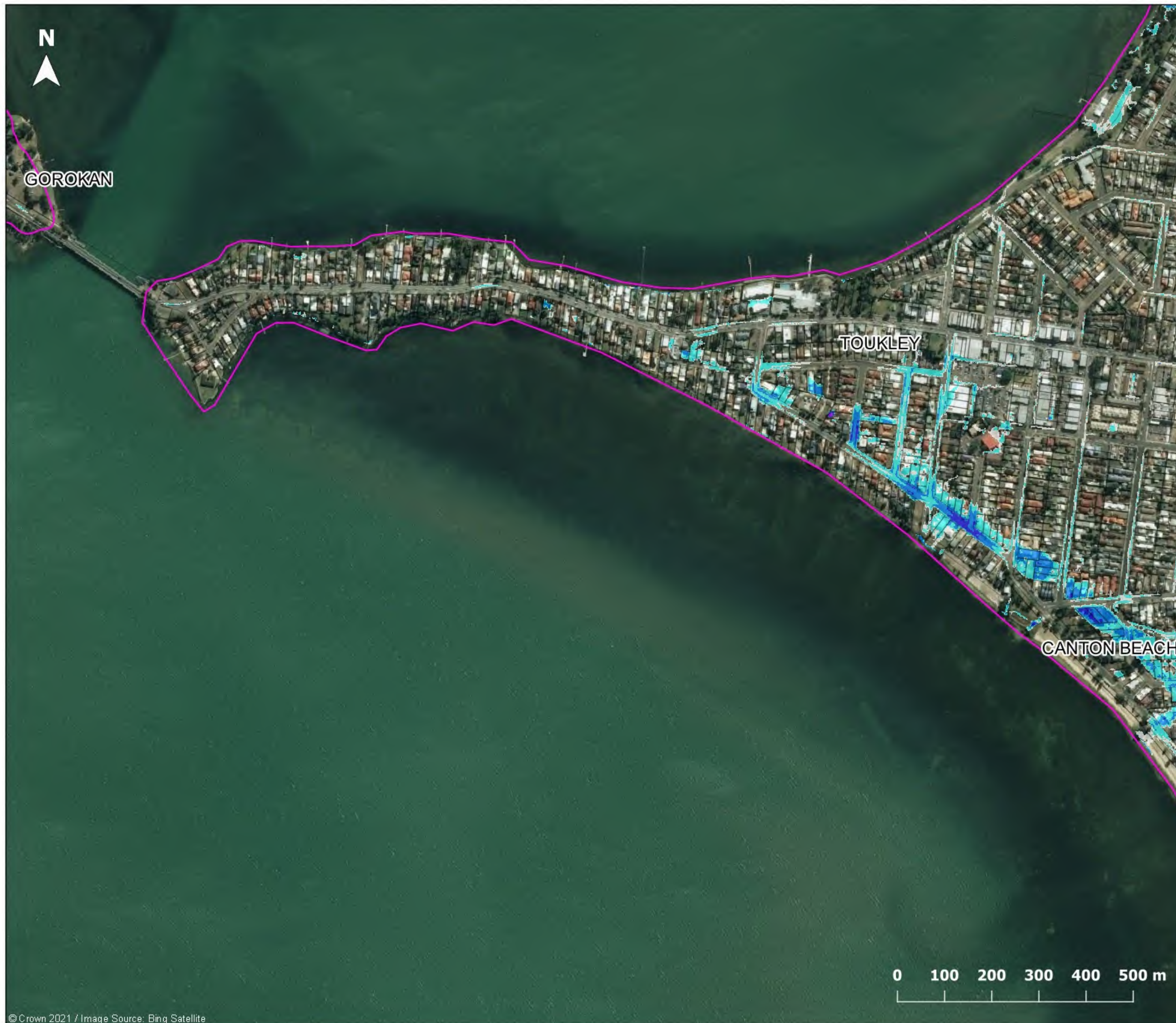


Figure C3.17

**1% AEP
Flood Depth**

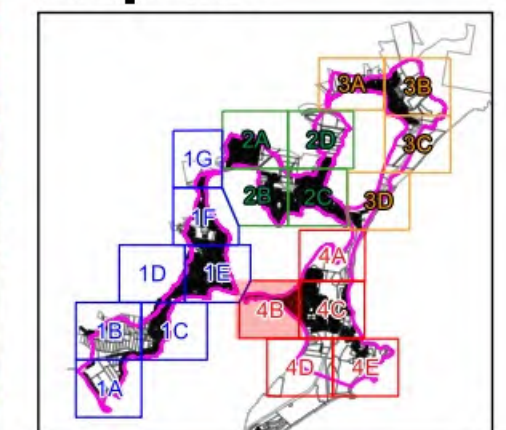
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 4B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan

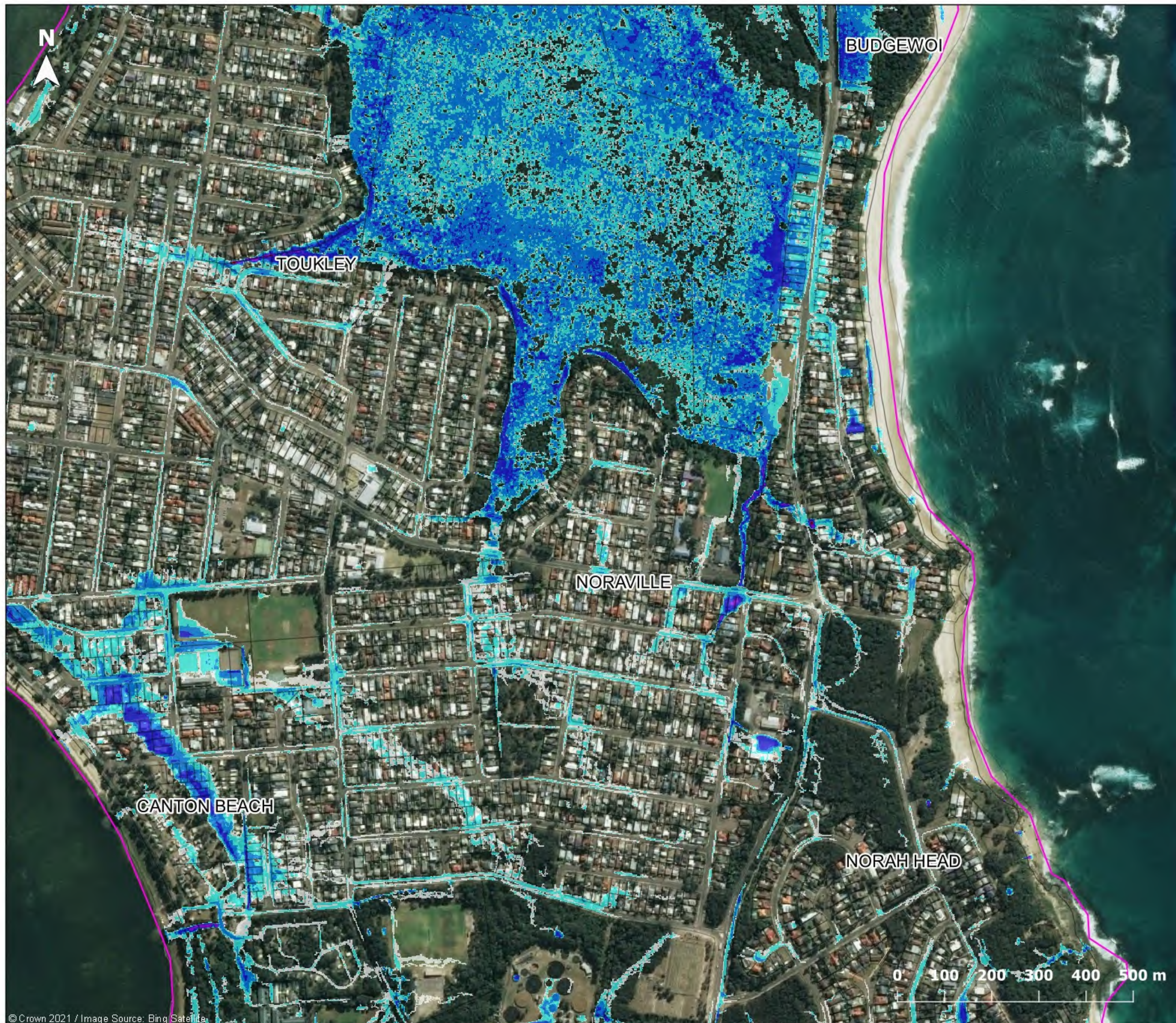


Figure C3.18

1% AEP Flood Depth

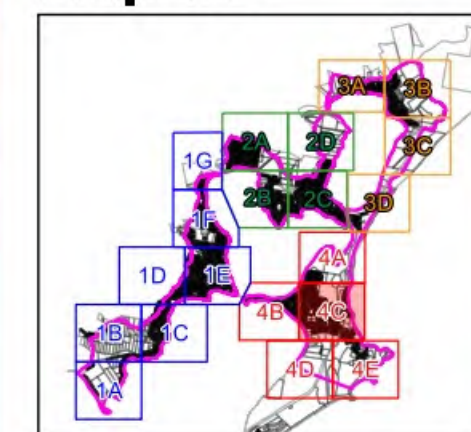
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 4C



Report MHL2571

Northern Lakes Floodplain Risk Management Study & Plan



Figure C3.19

**1% AEP
Flood Depth**

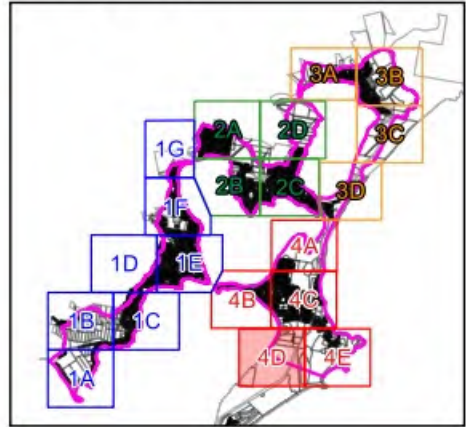
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 4D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

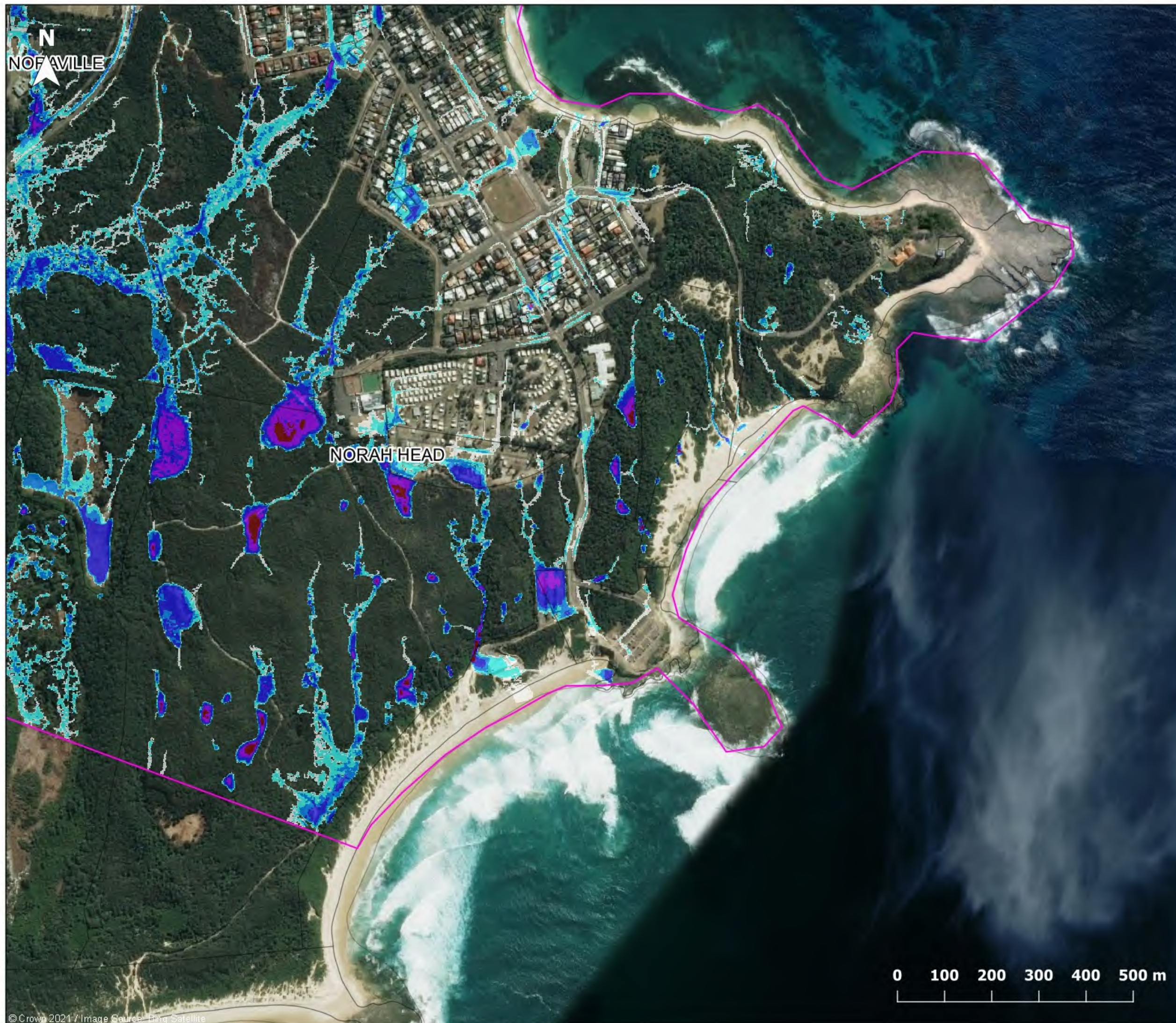


Figure C3.20

1% AEP Flood Depth

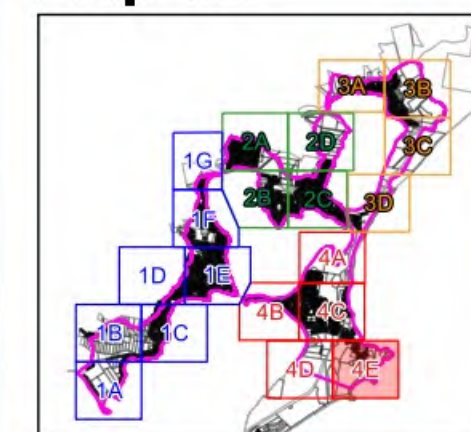
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 4E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C4.1

Probable Maximum Flood Depth

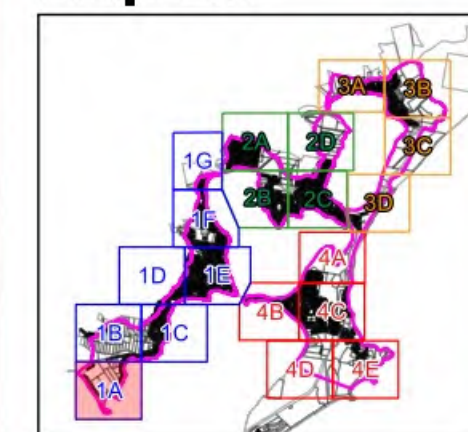
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan

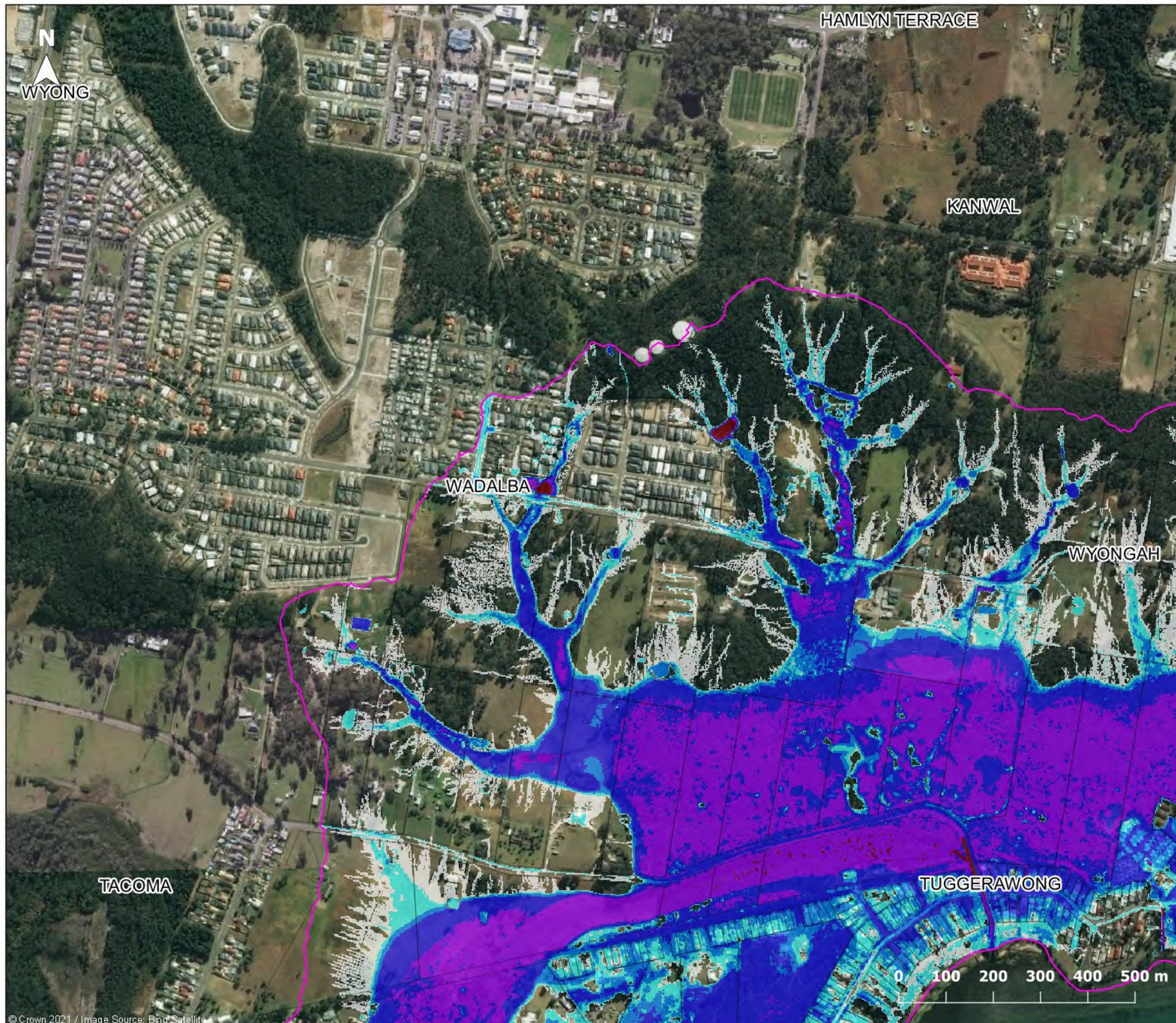


Figure C4.2

Probable Maximum Flood Depth

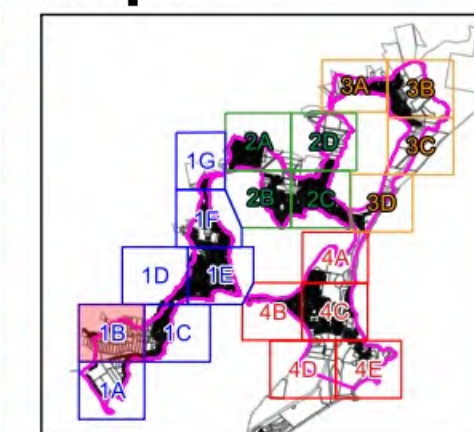
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C4.3

Probable Maximum Flood Depth

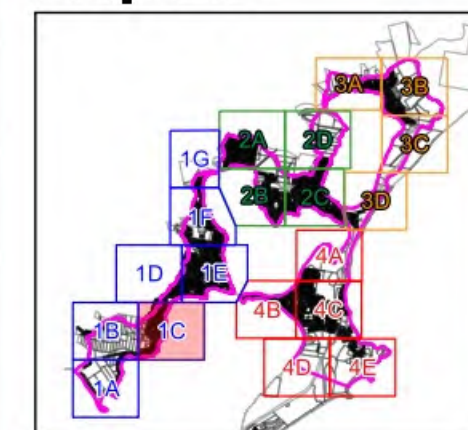
Legend

-  Catchment area
-  Cadastre

Depth (m)

-  0.05-0.15
-  0.15-0.30
-  0.30-0.50
-  0.50-1.00
-  1.00-1.50
-  > 1.50

Map 1C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C4.4

Probable Maximum Flood Depth

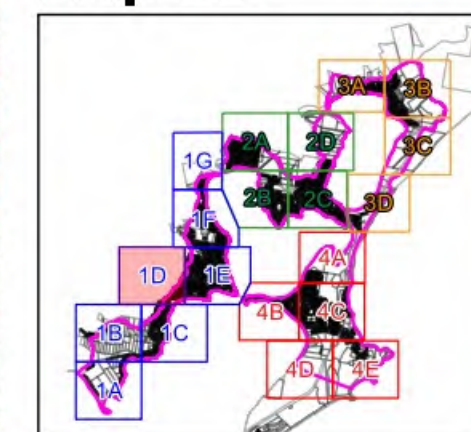
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C4.5

Probable Maximum Flood Depth

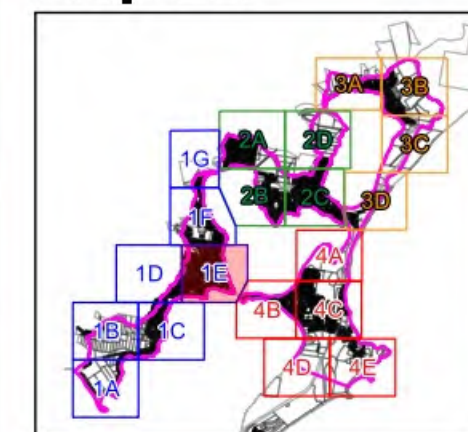
Legend

- Catchment area
- Cadaastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

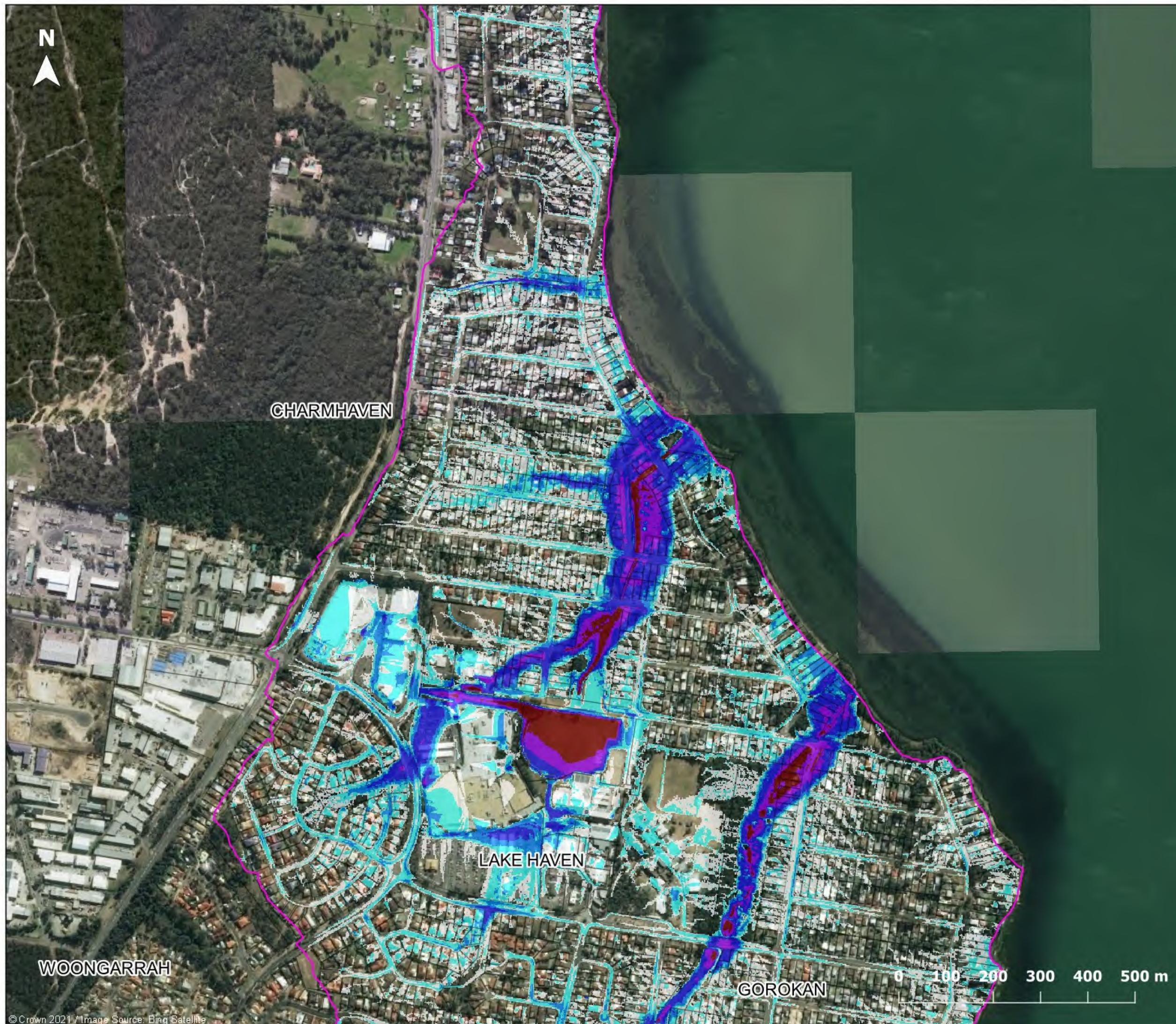


Figure C4.6

Probable Maximum Flood Depth

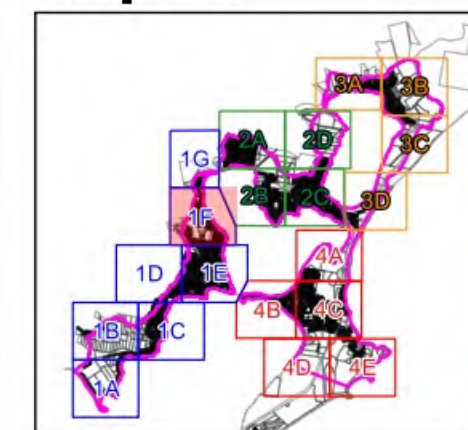
Legend

-  Catchment area
-  Cadastre

Depth (m)

-  0.05-0.15
-  0.15-0.30
-  0.30-0.50
-  0.50-1.00
-  1.00-1.50
-  > 1.50

Map 1F



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C4.7

Probable Maximum Flood Depth

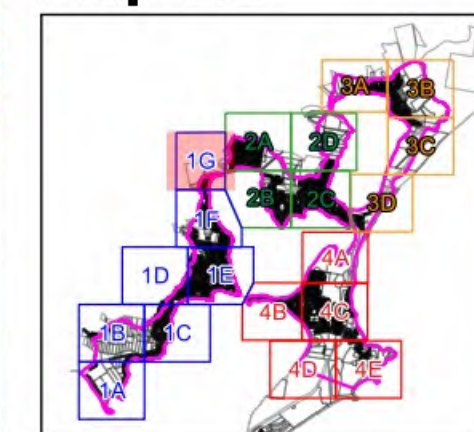
Legend

- Catchment area
- Cadastral

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 1G



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

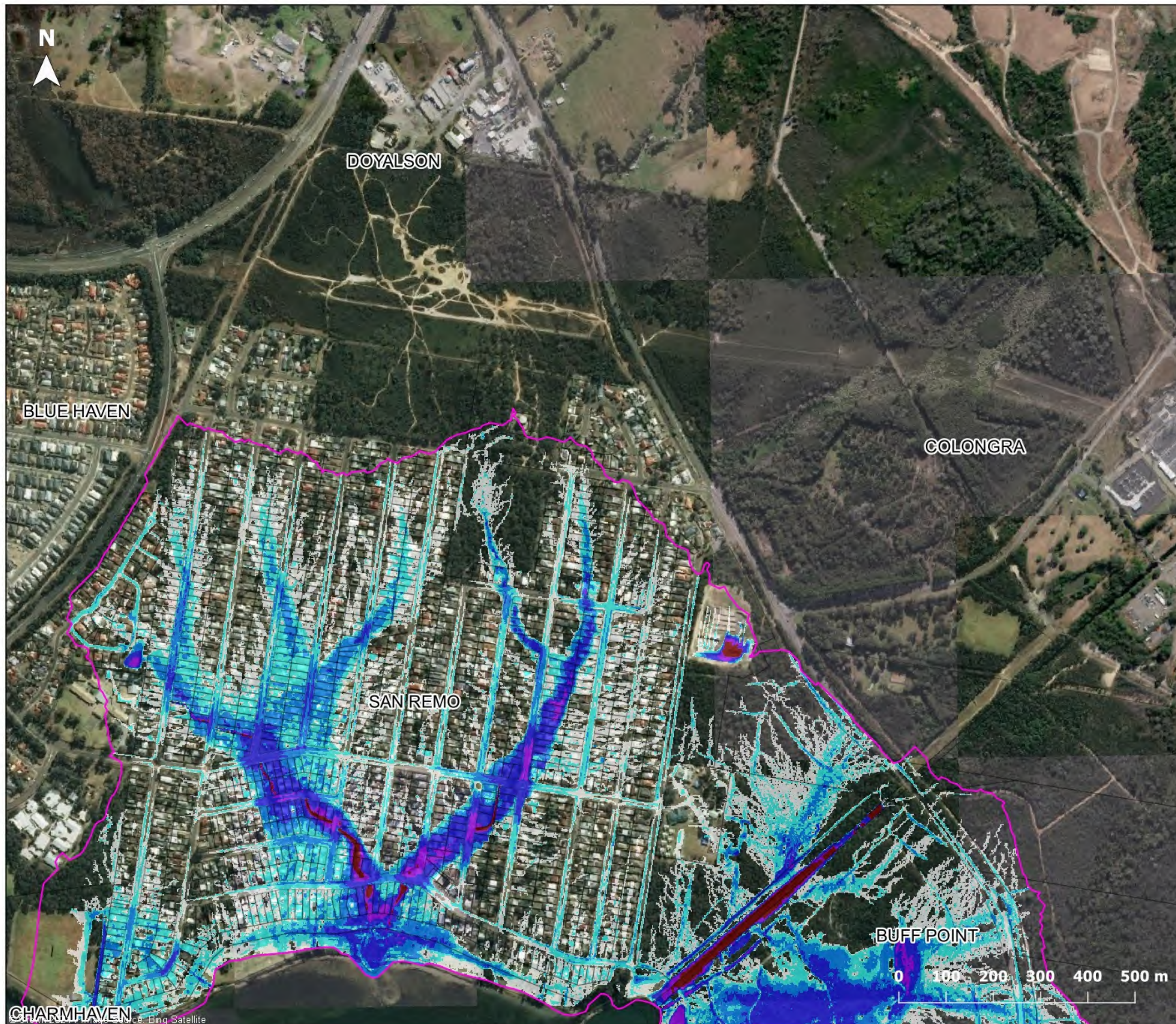


Figure C4.8

Probable Maximum Flood Depth

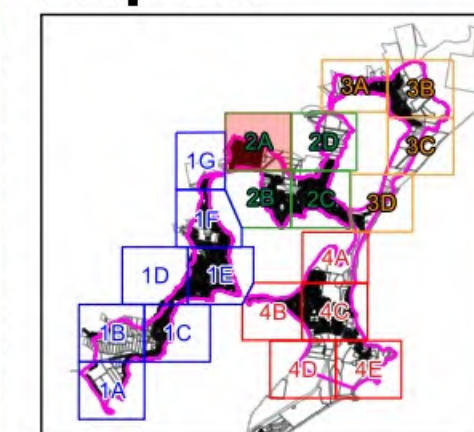
Legend

-  Catchment area
-  Cadastre

Depth (m)

-  0.05-0.15
-  0.15-0.30
-  0.30-0.50
-  0.50-1.00
-  1.00-1.50
-  > 1.50

Map 2A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C4.9

Probable Maximum Flood Depth

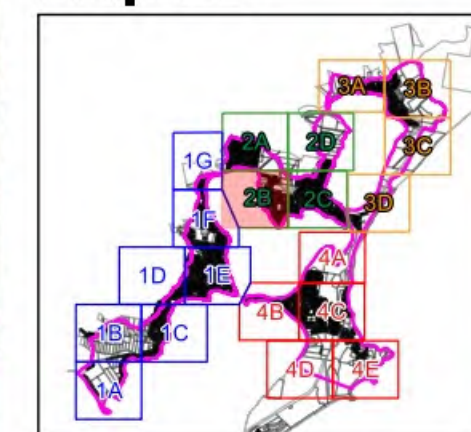
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 2B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C4.10

Probable Maximum Flood Depth

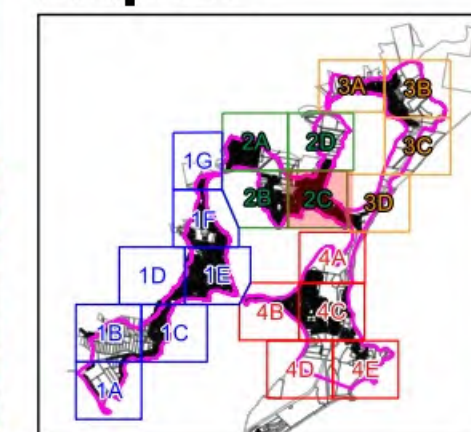
Legend

- Catchment area
- Cadastral

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 2C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

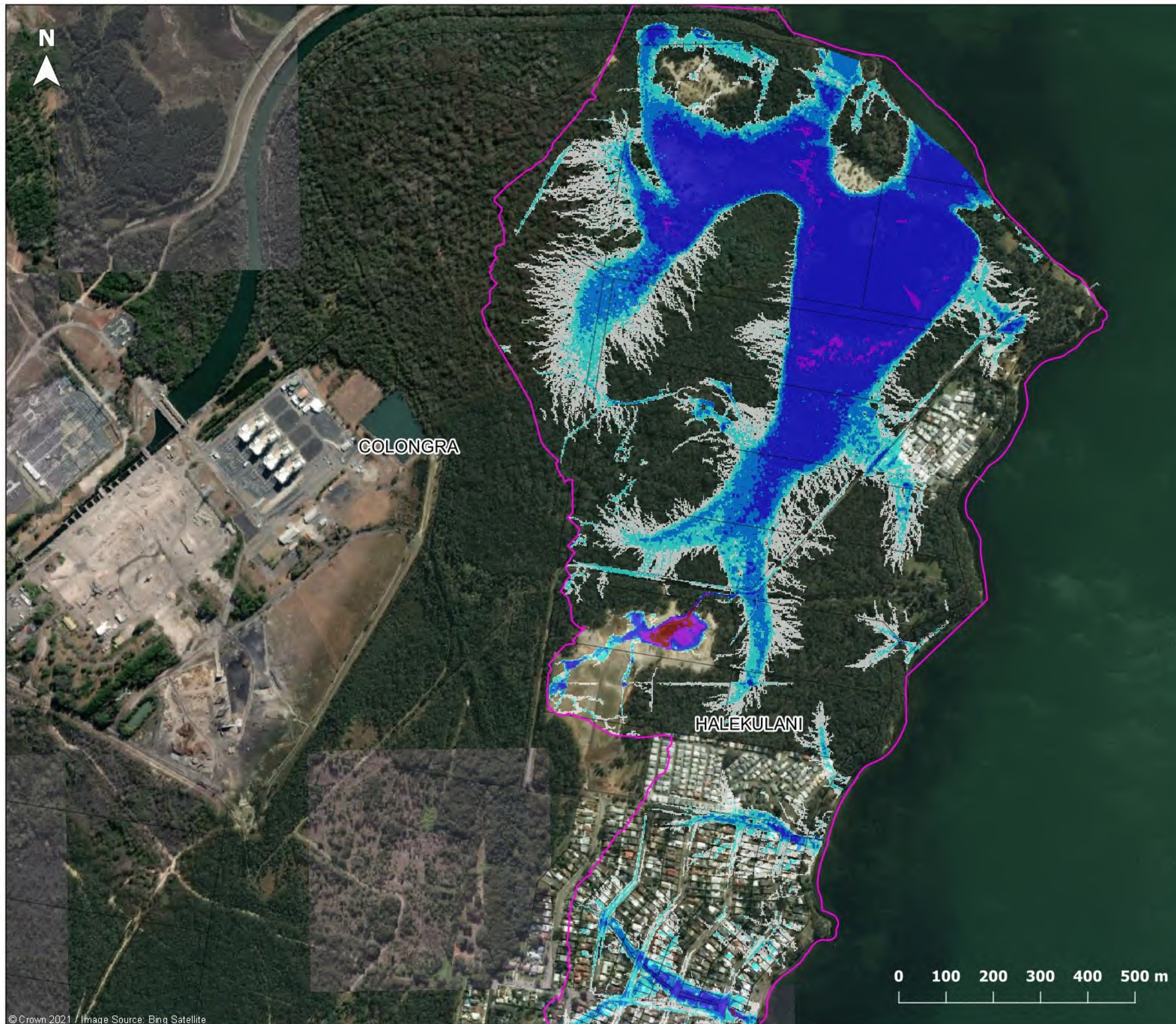


Figure C4.11

Probable Maximum Flood Depth

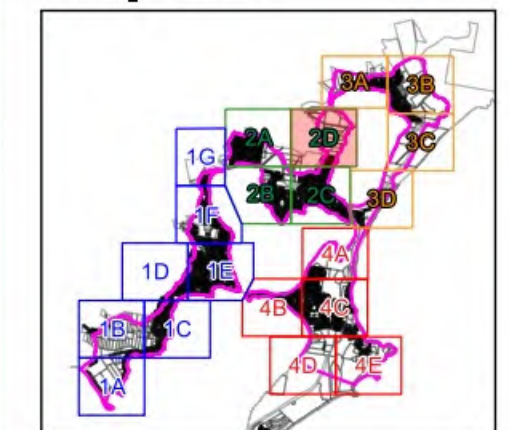
Legend

- Catchment area
- Cadaastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 2D



Report MHL2571

Northern Lakes Floodplain Risk Management Study & Plan



Manly
Hydraulics
Laboratory



Figure C4.12

Probable Maximum Flood Depth

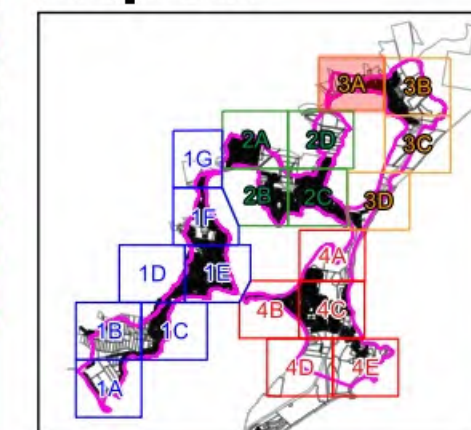
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 3A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

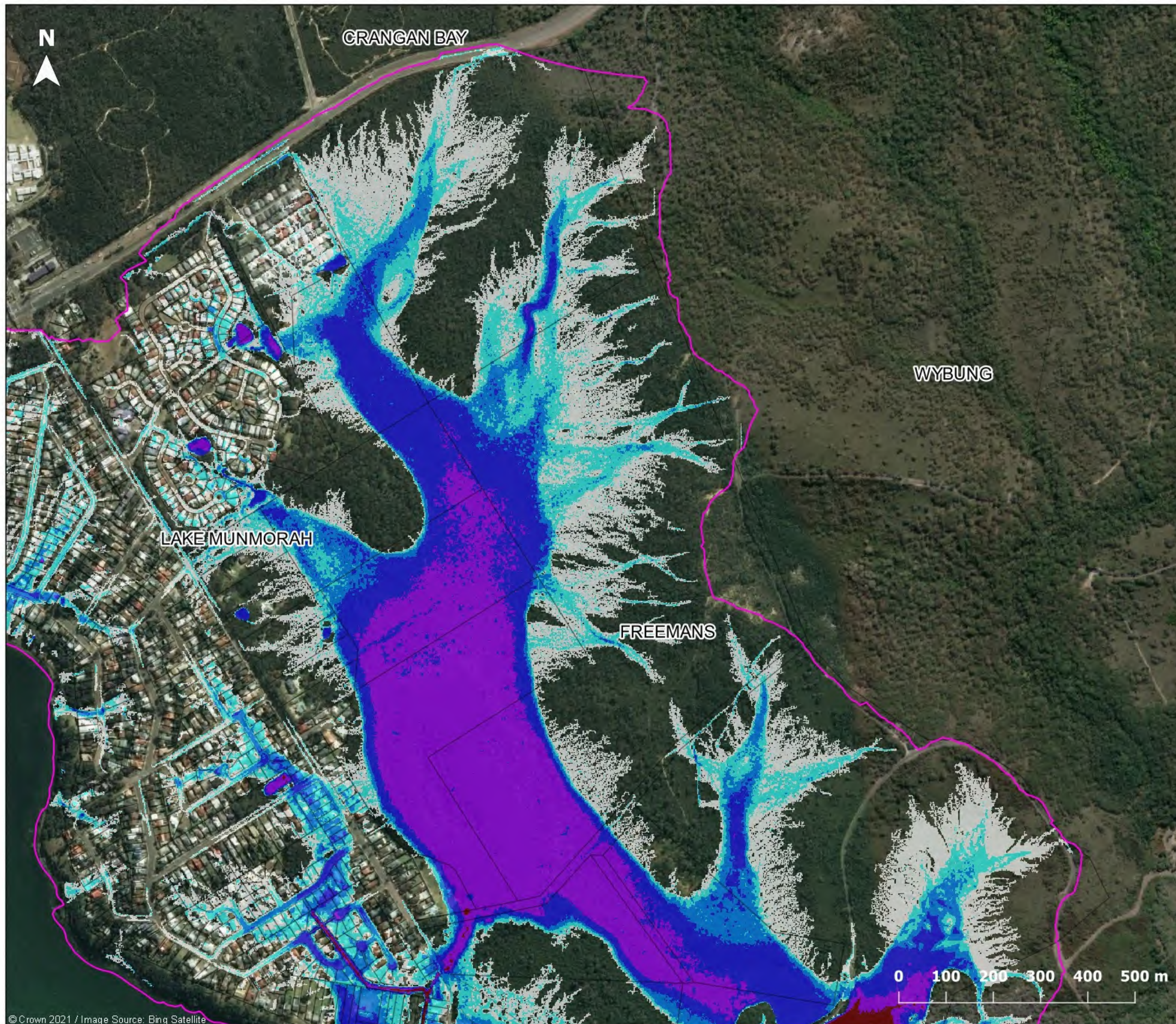


Figure C4.13

Probable Maximum Flood Depth

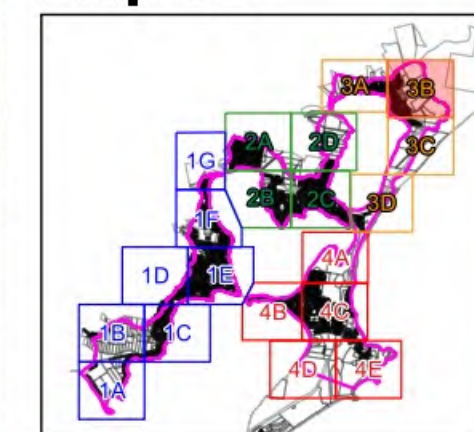
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 3B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

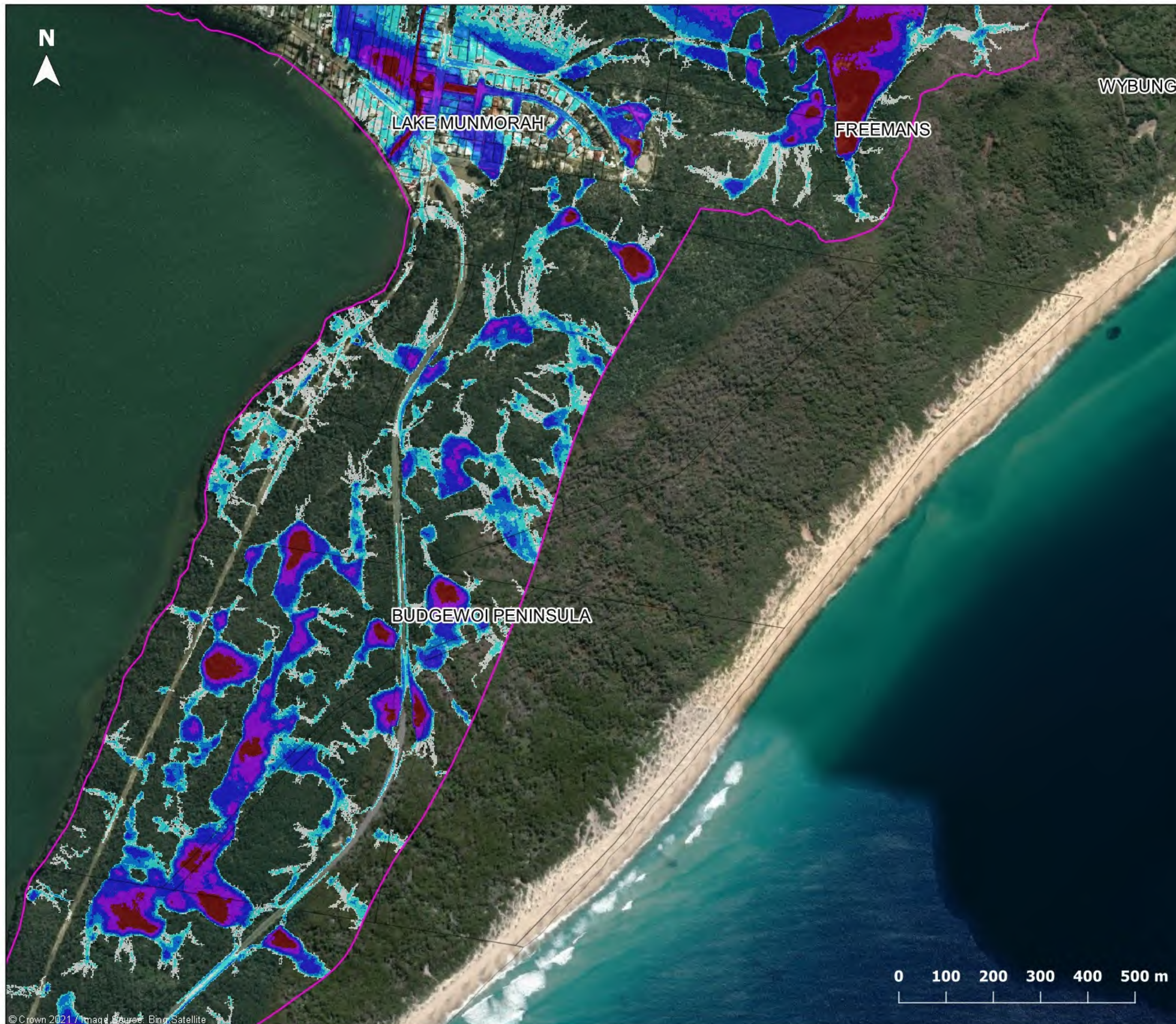


Figure C4.14

Probable Maximum Flood Depth

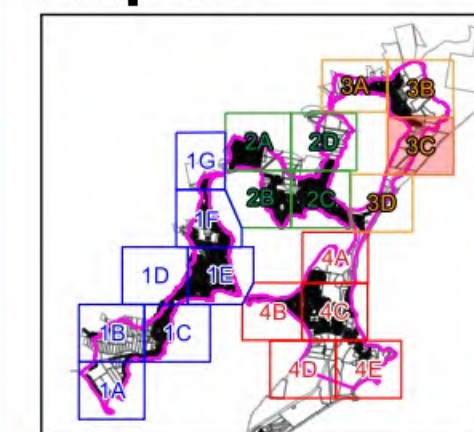
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 3C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**





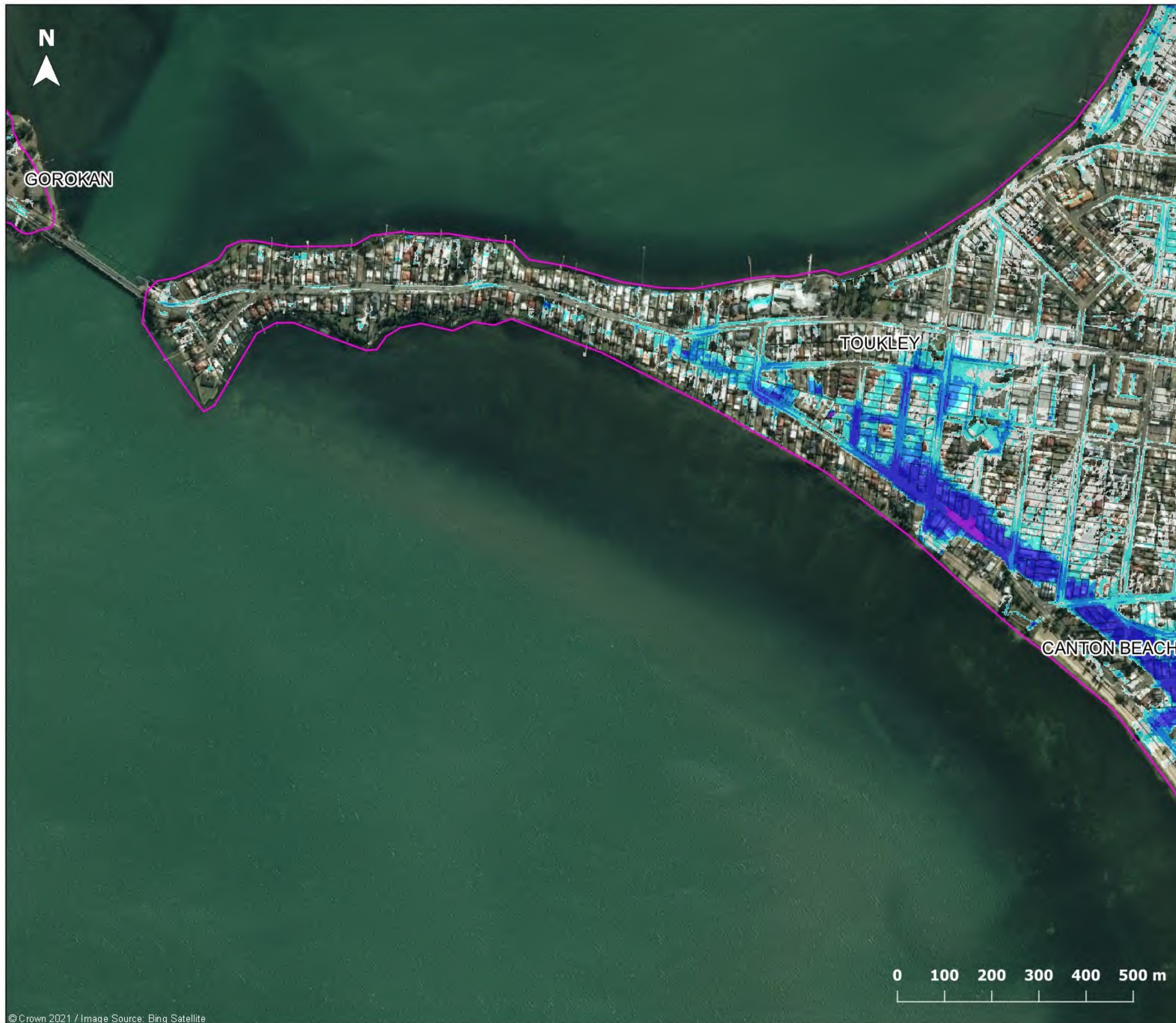


Figure C4.17

Probable Maximum Flood Depth

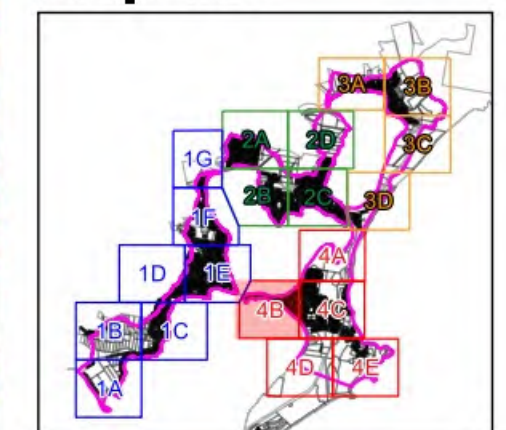
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 4B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

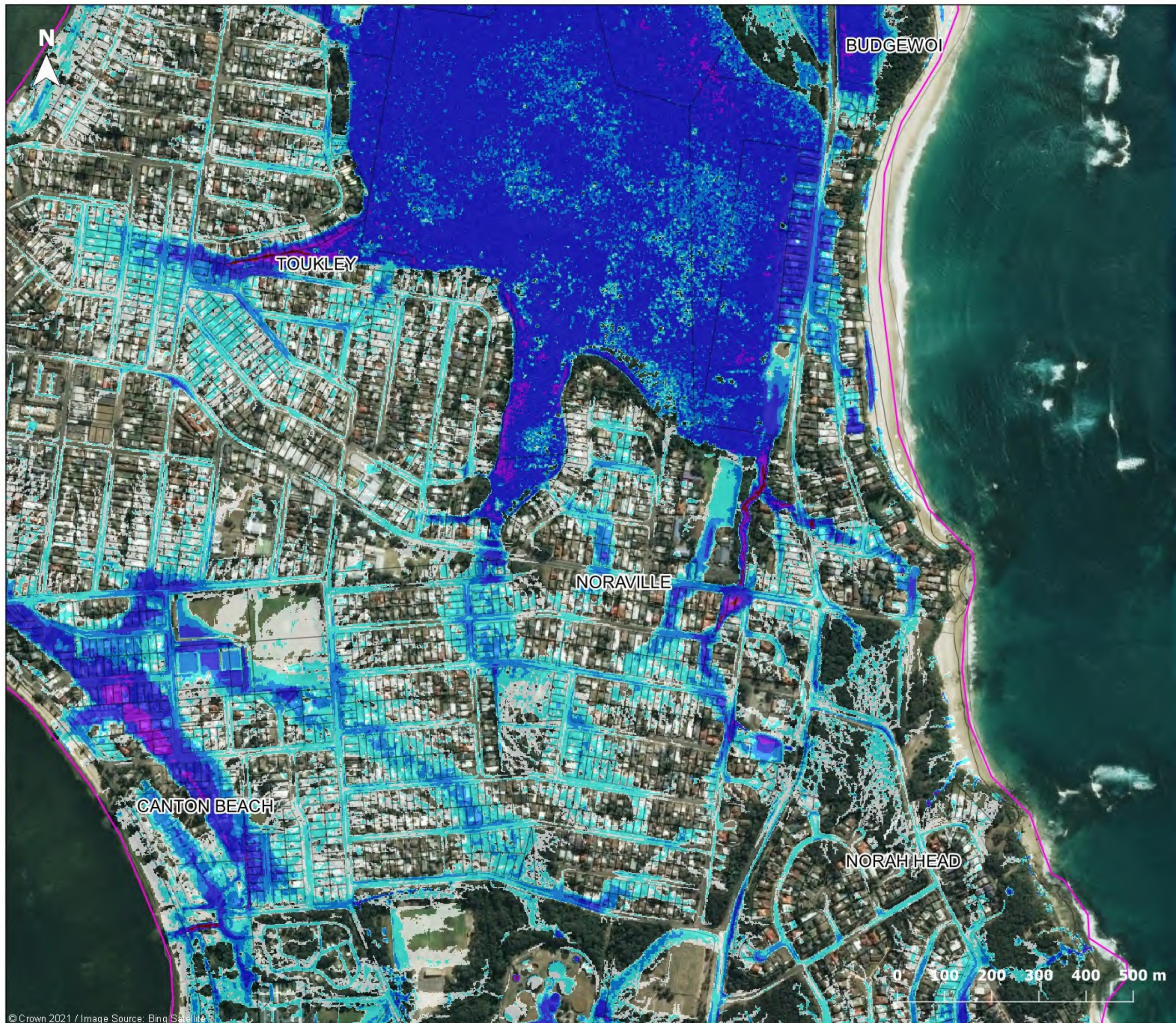


Figure C4.18

Probable Maximum Flood Depth

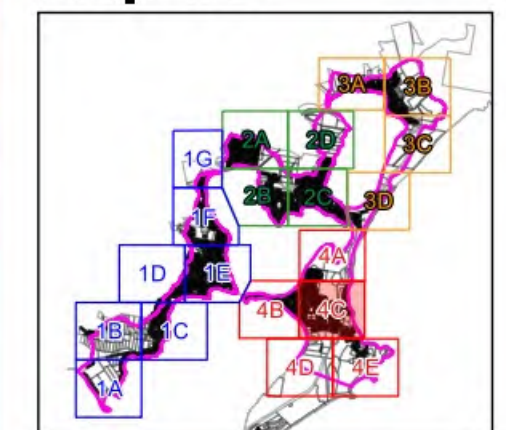
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 4C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C4.19

Probable Maximum Flood Depth

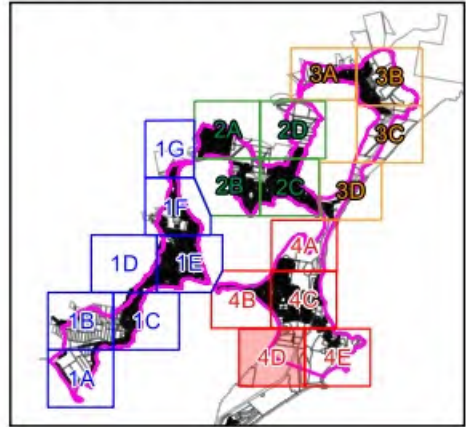
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 4D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

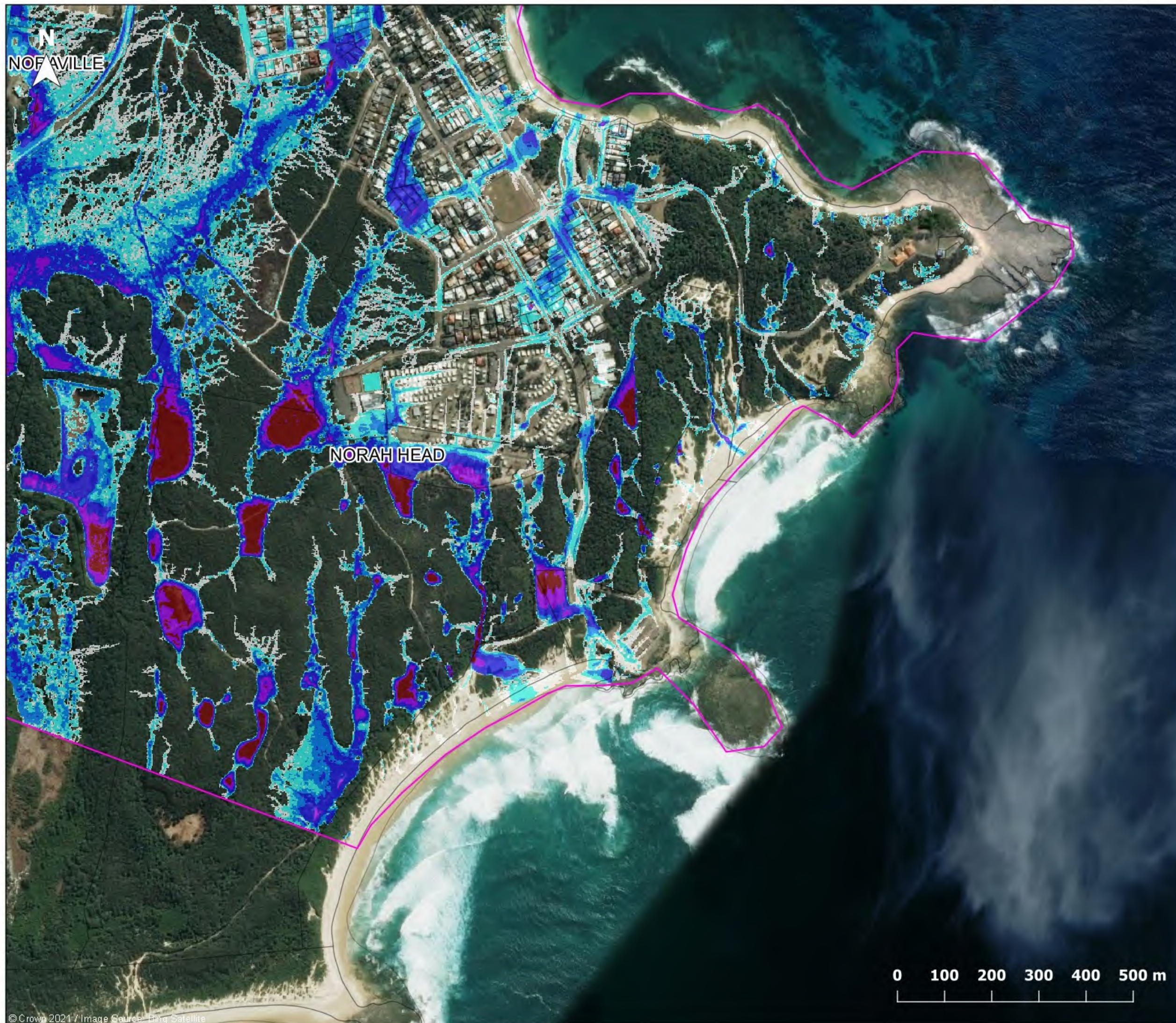


Figure C4.20

Probable Maximum Flood Depth

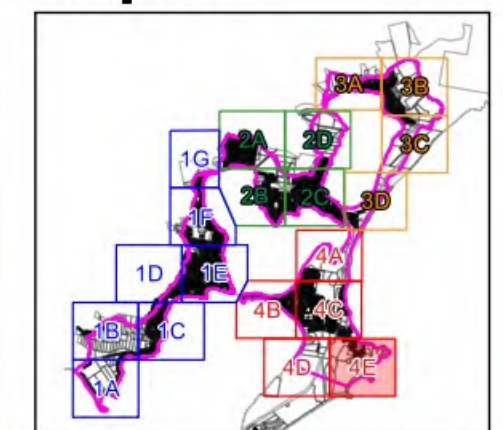
Legend

- Catchment area
- Cadastre

Depth (m)

- 0.05-0.15
- 0.15-0.30
- 0.30-0.50
- 0.50-1.00
- 1.00-1.50
- > 1.50

Map 4E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

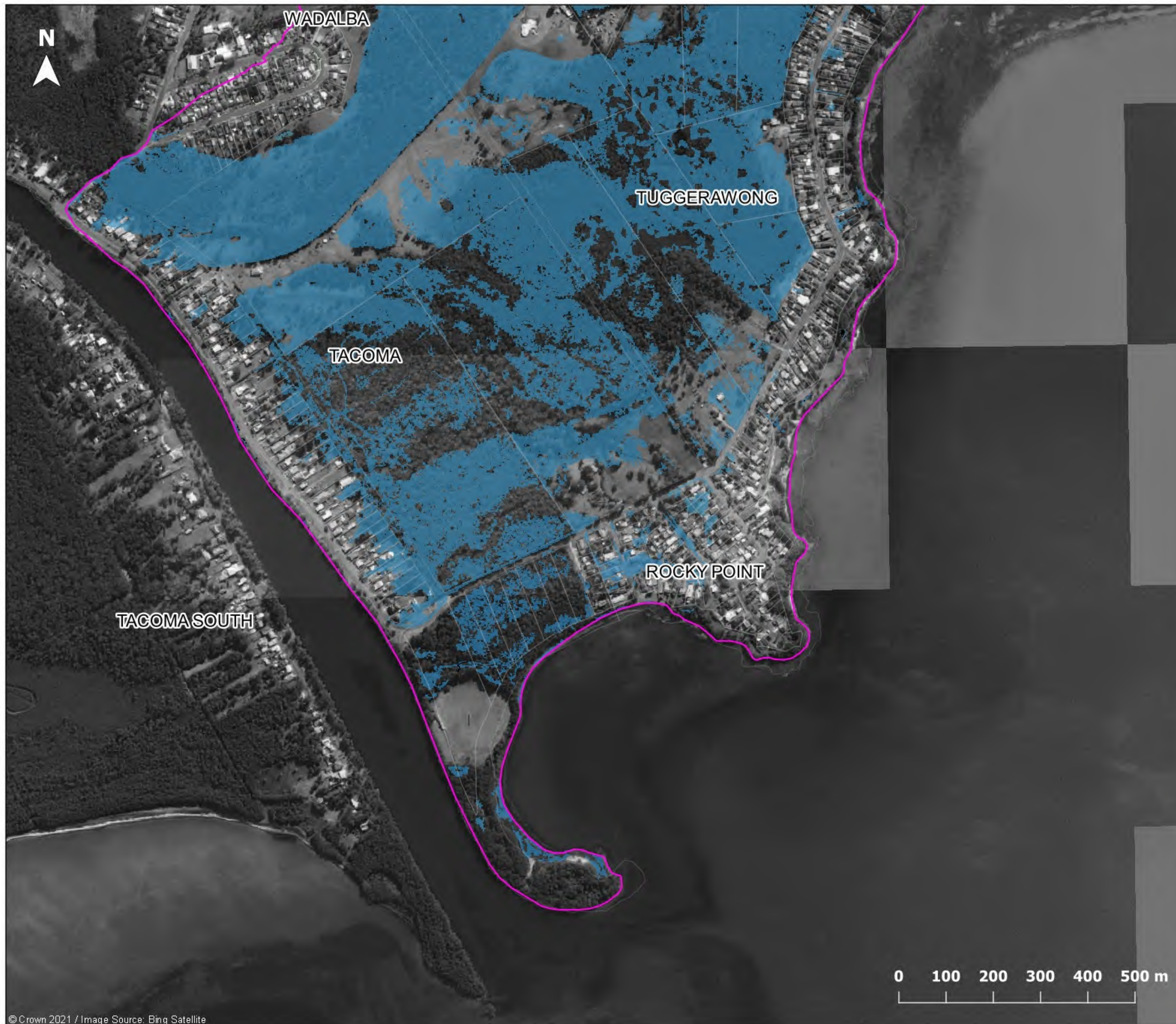


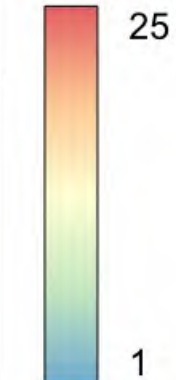
Figure C5.1

**20% AEP
Flood Level**

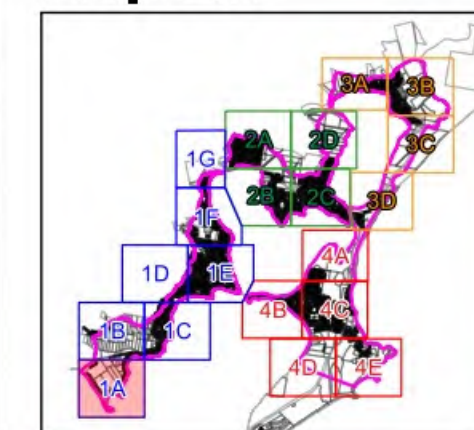
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



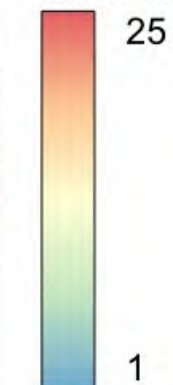
Figure C5.2

20% AEP Flood Level

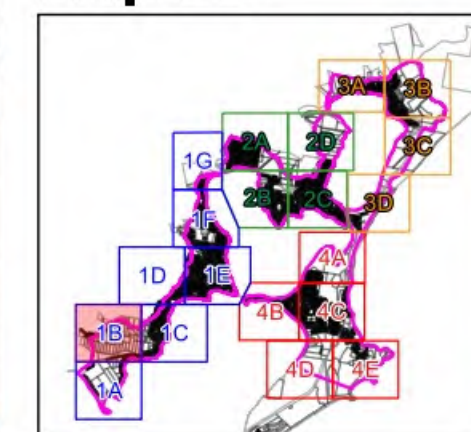
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



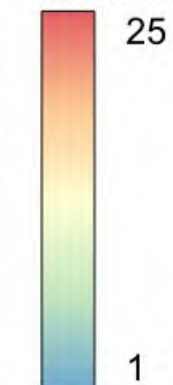
Figure C5.3

**20% AEP
Flood Level**

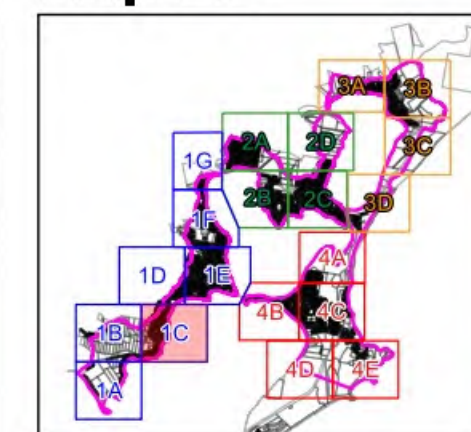
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



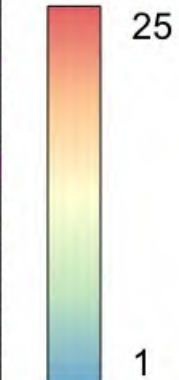
Figure C5.4

**20% AEP
Flood Level**

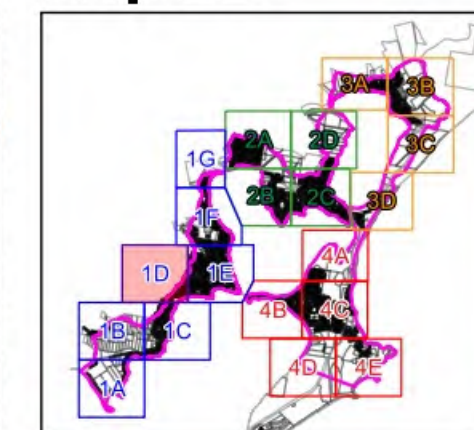
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



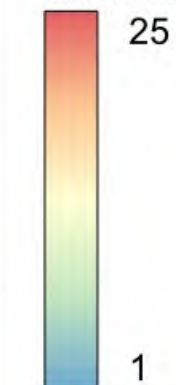
Figure C5.5

**20% AEP
Flood Level**

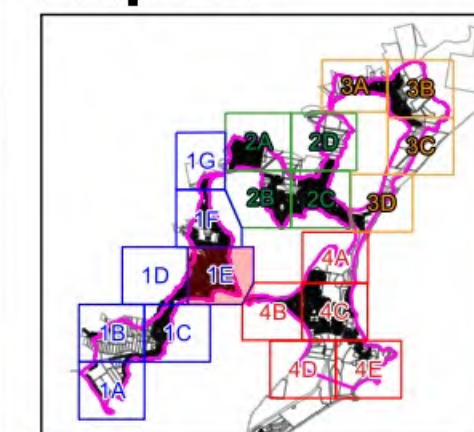
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



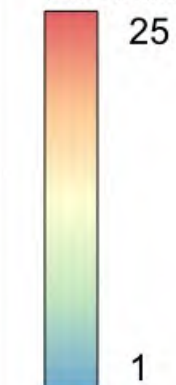
Figure C5.6

**20% AEP
Flood Level**

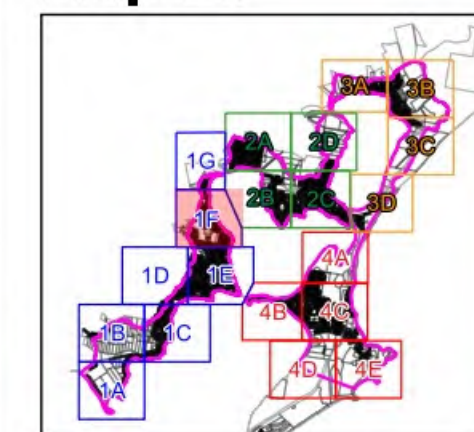
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1F



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



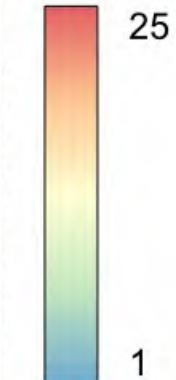
Figure C5.7

**20% AEP
Flood Level**

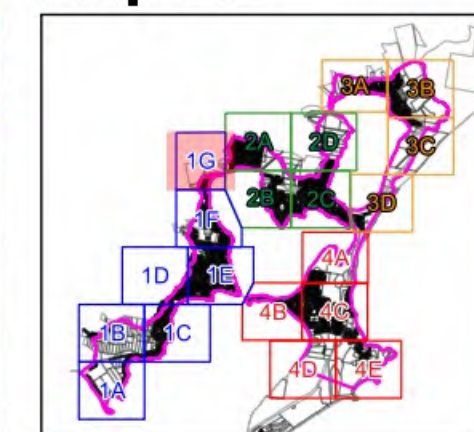
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1G



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



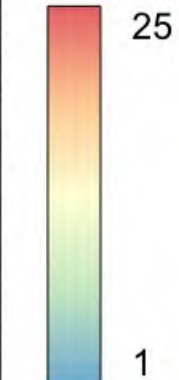
Figure C5.8

**20% AEP
Flood Level**

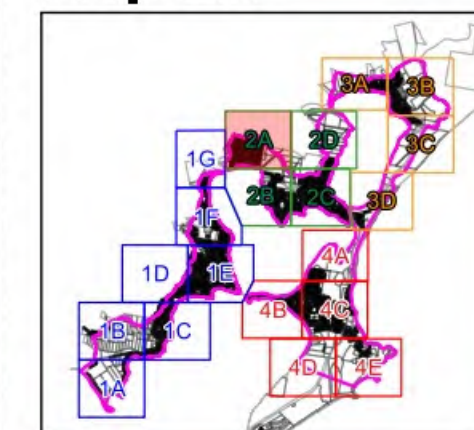
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

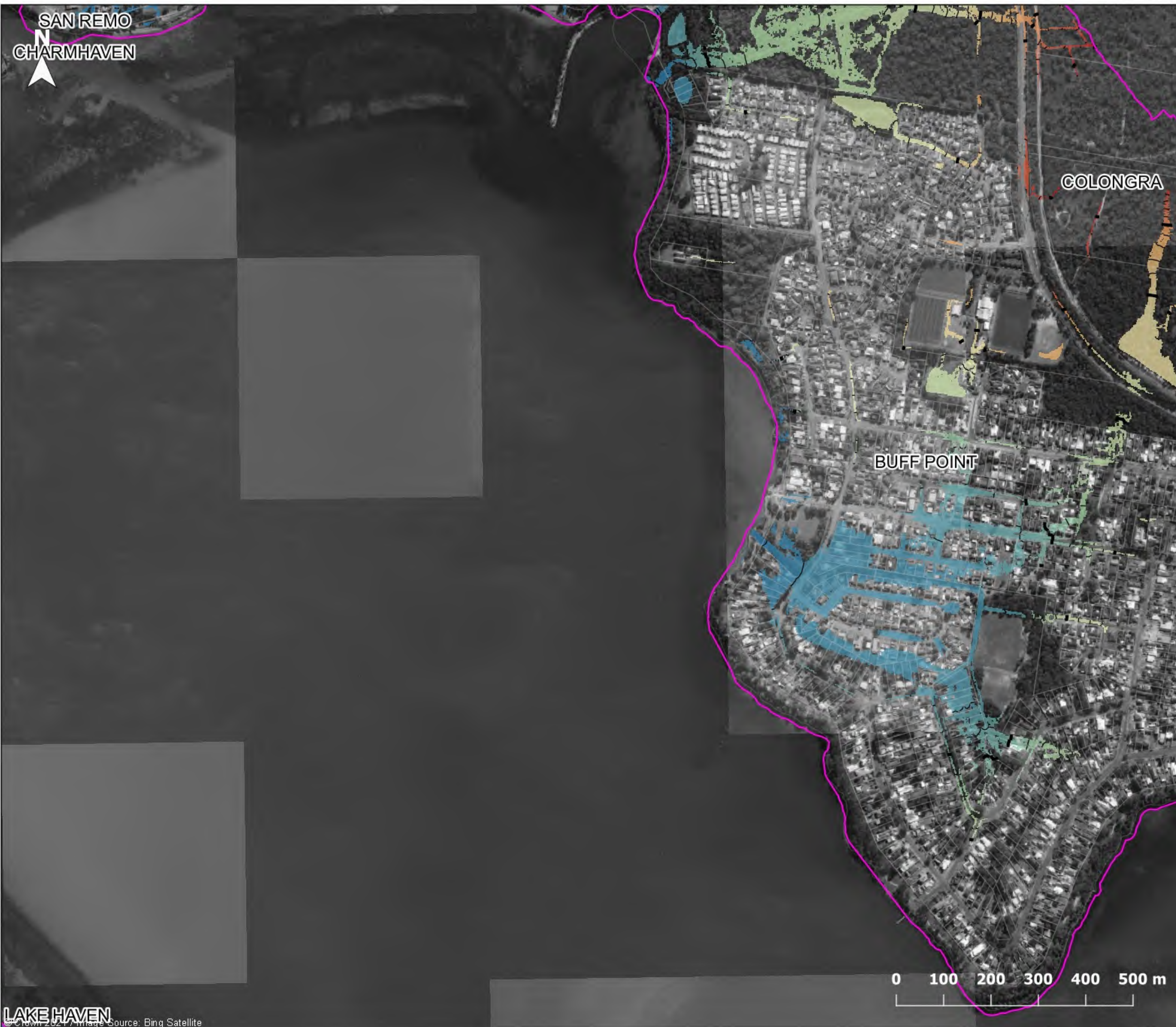


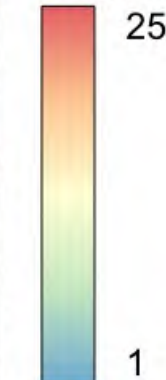
Figure C5.9

**20% AEP
Flood Level**

Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2B

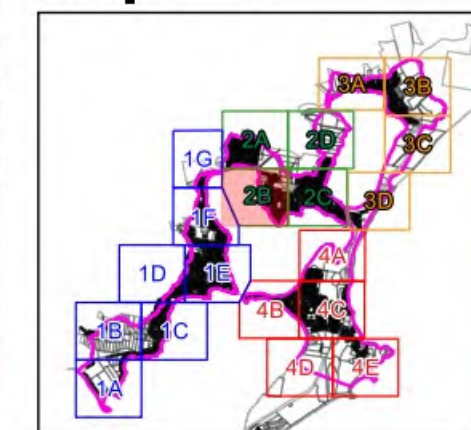




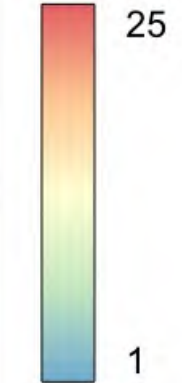
Figure C5.10

**20% AEP
Flood Level**

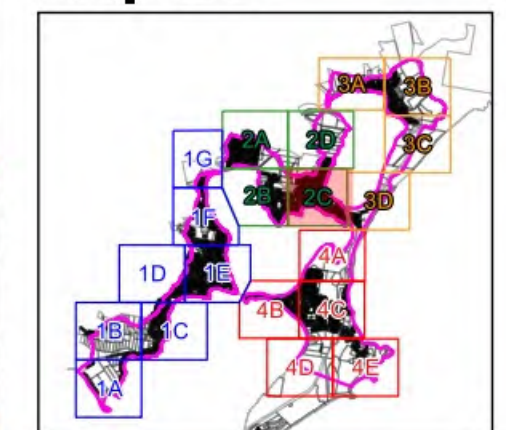
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C5.11

20% AEP
Flood Level

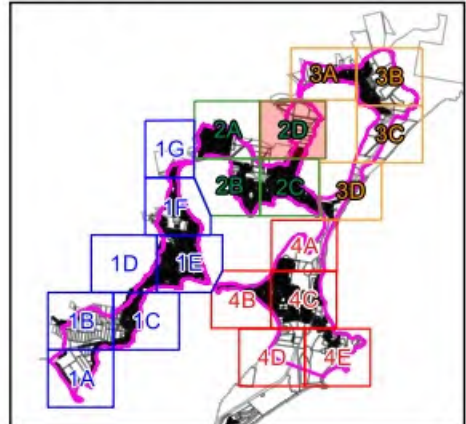
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



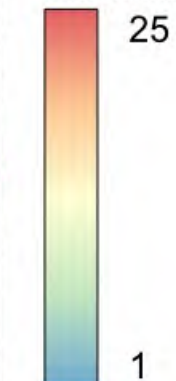
Figure C5.12

20% AEP Flood Level

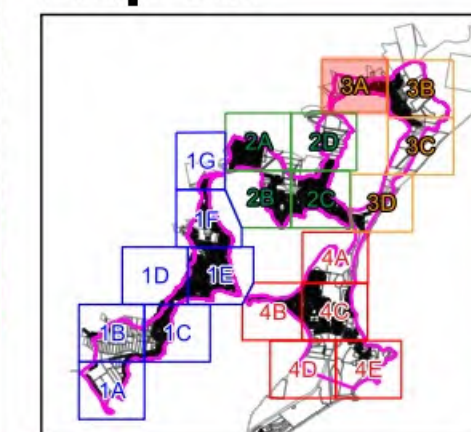
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

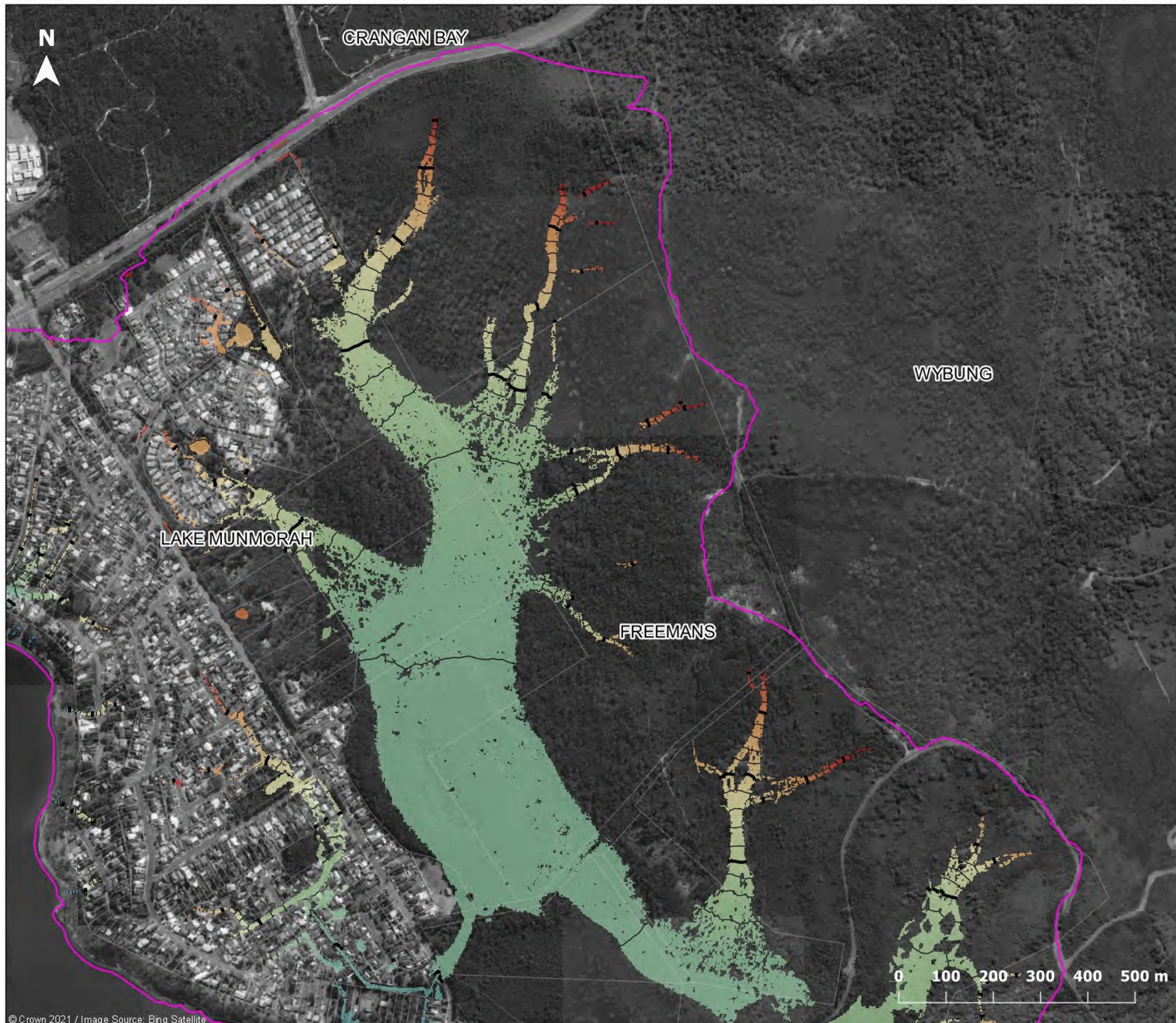


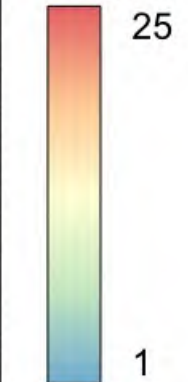
Figure C5.13

20% AEP Flood Level

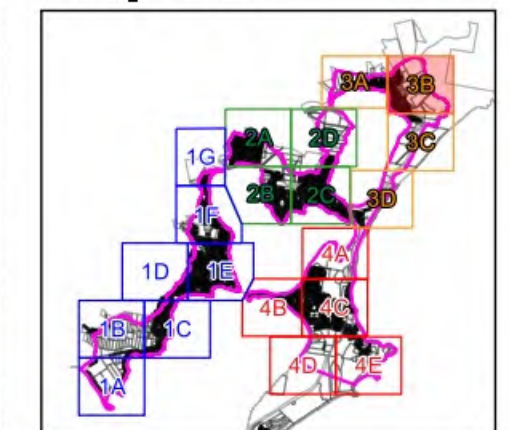
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

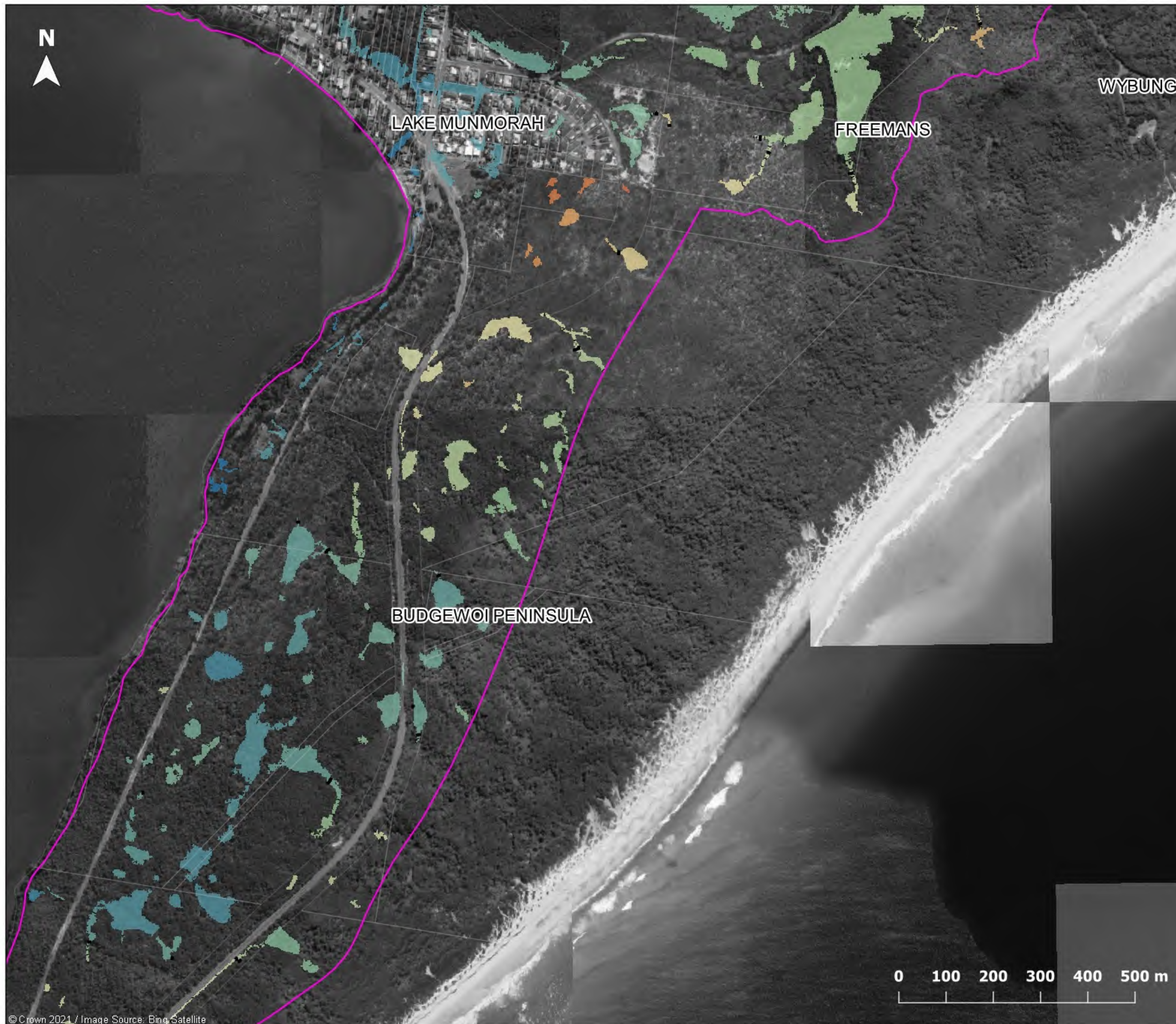


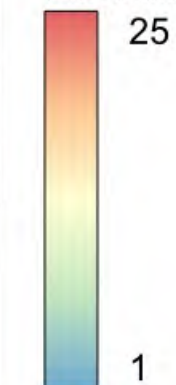
Figure C5.14

20% AEP Flood Level

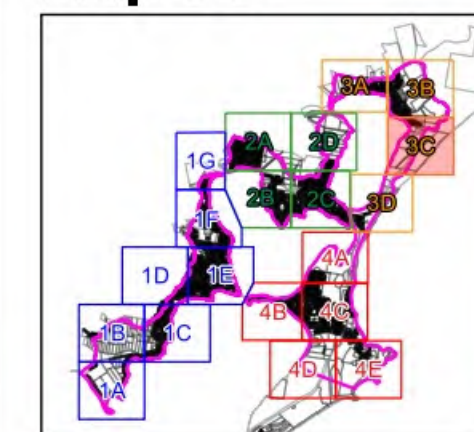
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

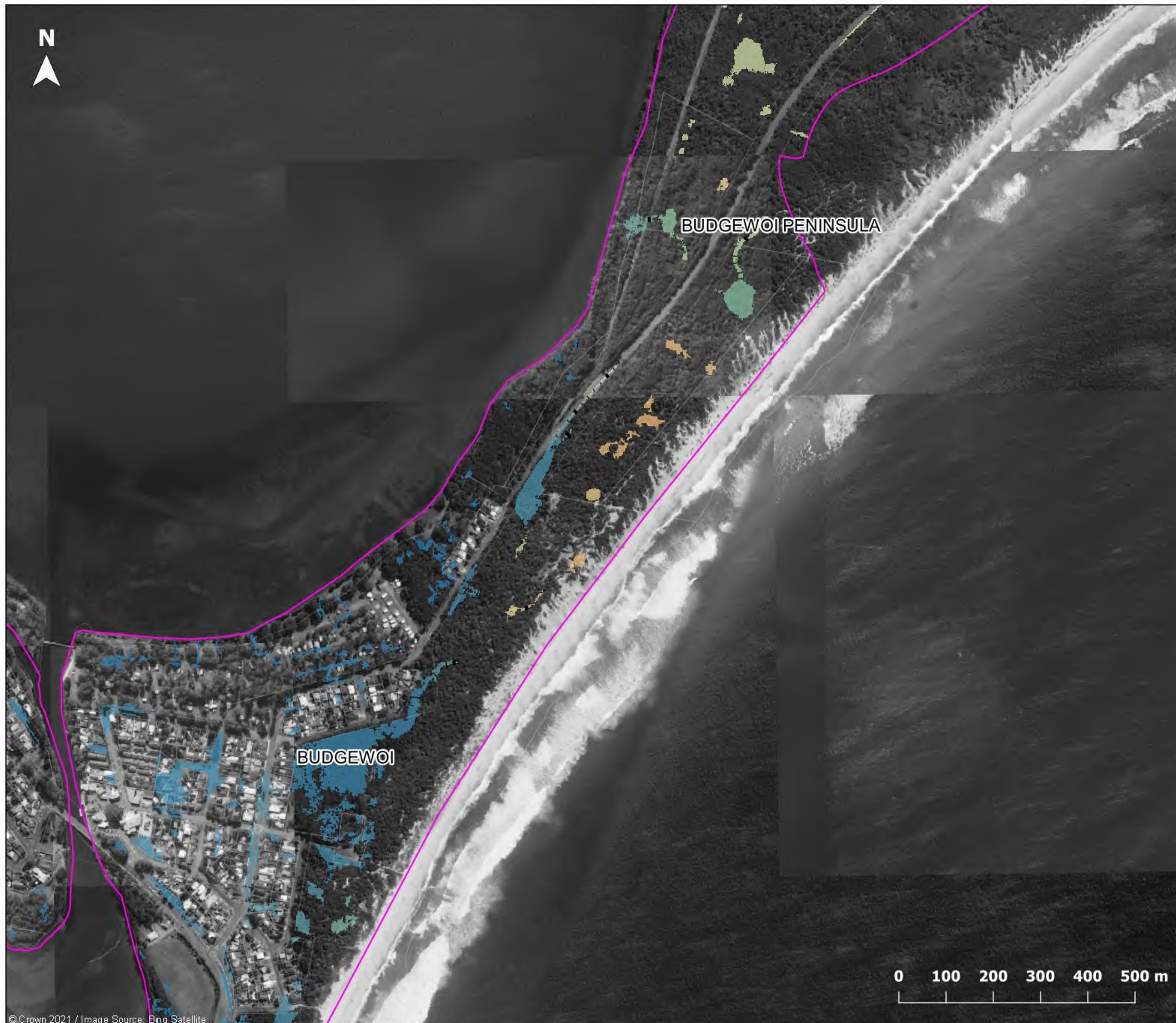


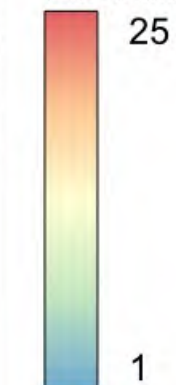
Figure C5.15

20% AEP Flood Level

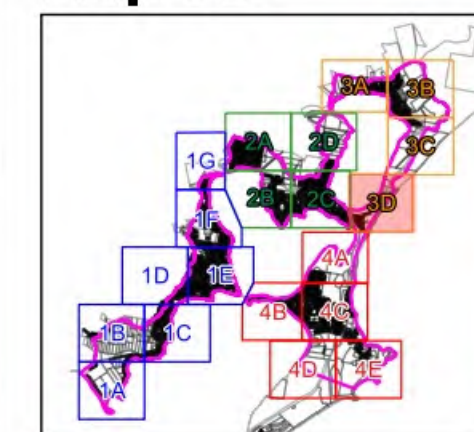
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

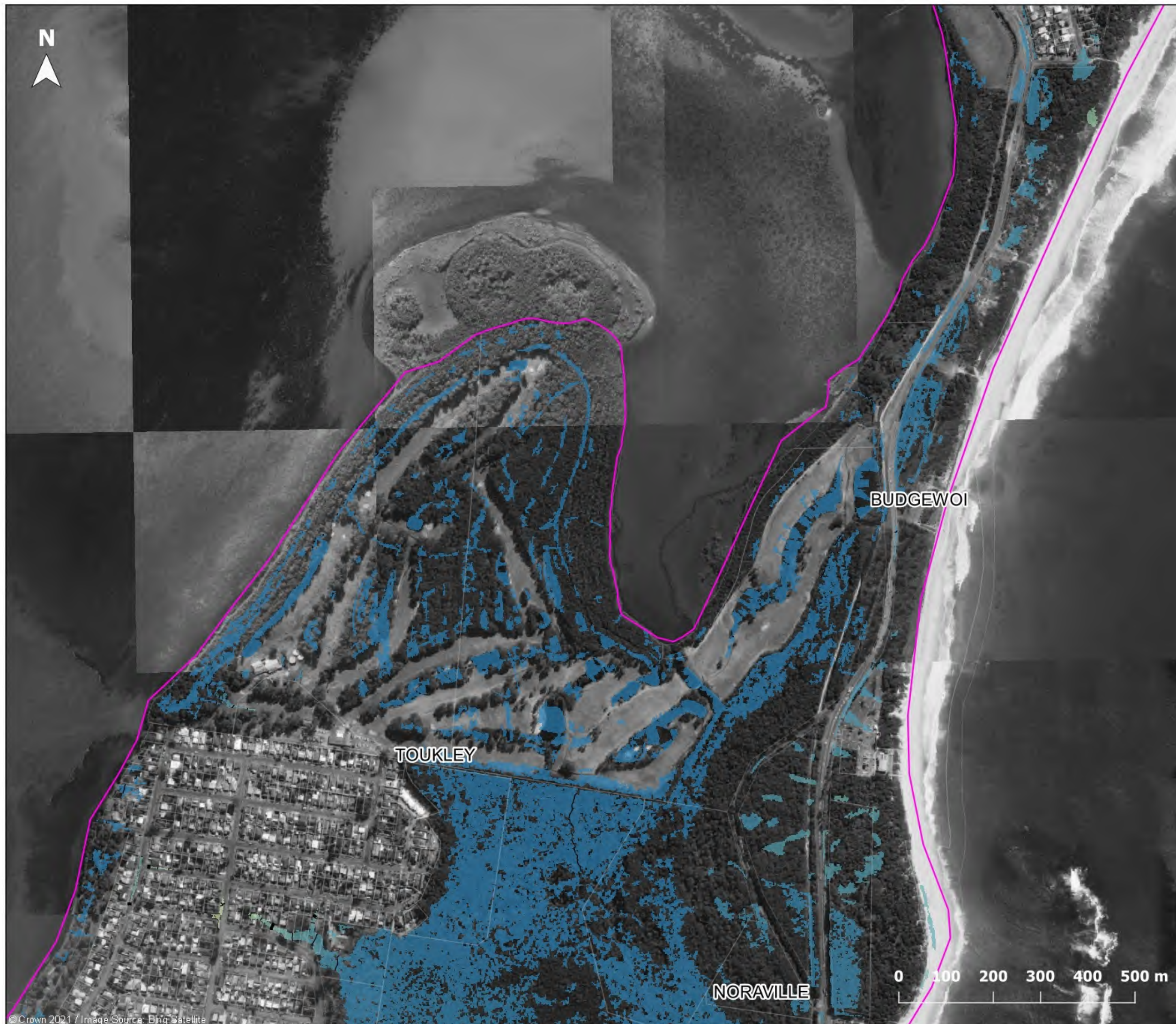


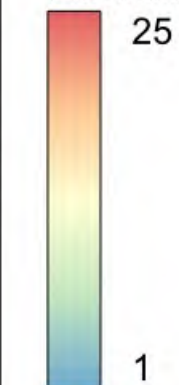
Figure C5.16

20% AEP Flood Level

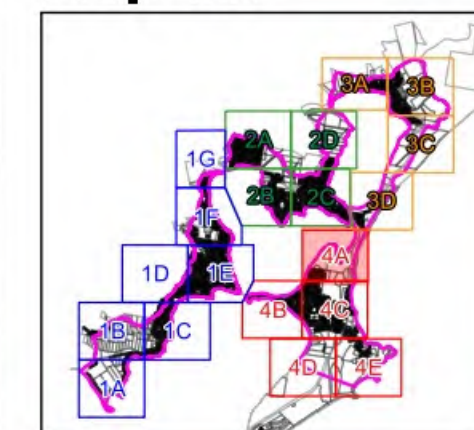
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



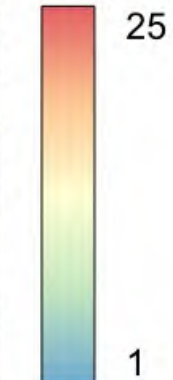
Figure C5.17

**20% AEP
Flood Level**

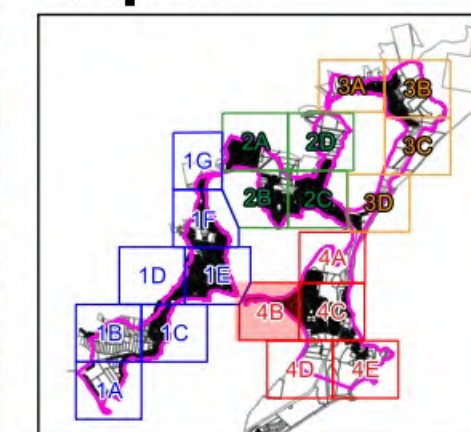
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



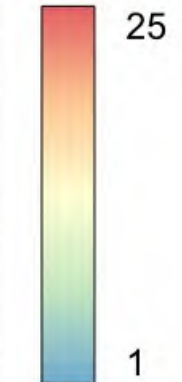
Figure C5.18

**20% AEP
Flood Level**

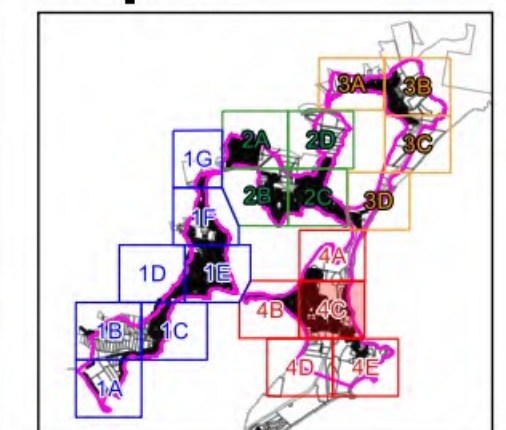
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

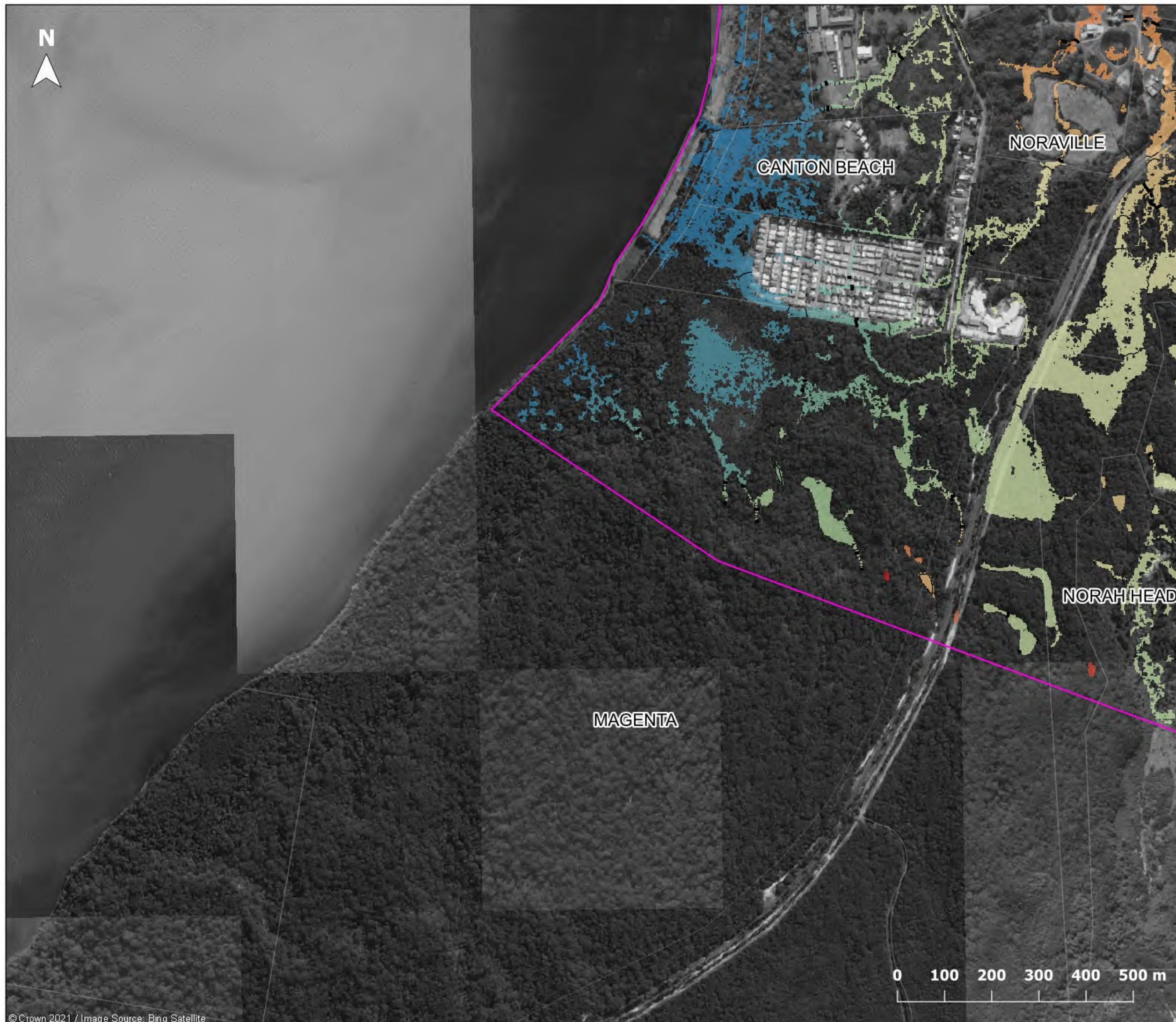


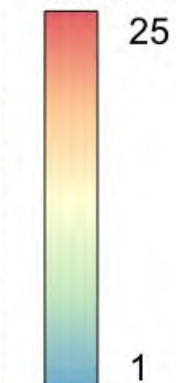
Figure C5.19

20% AEP Flood Level

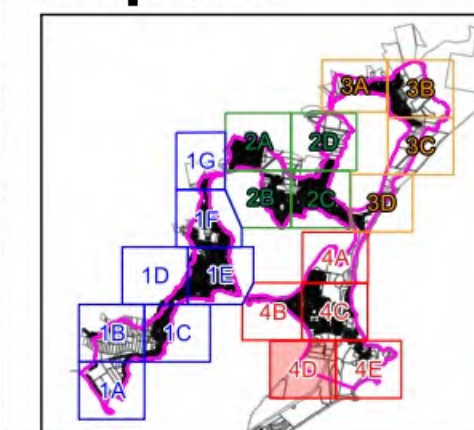
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

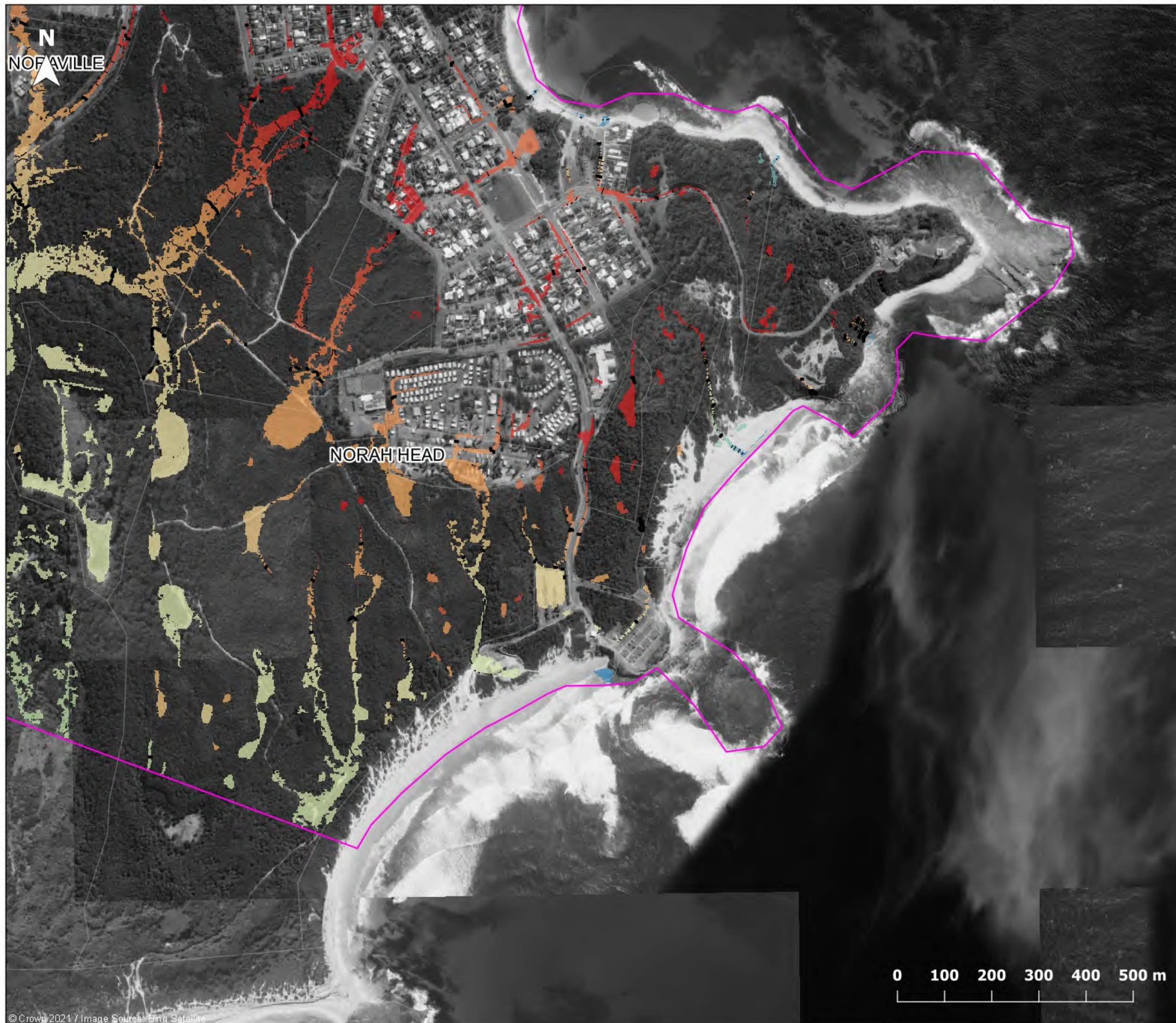


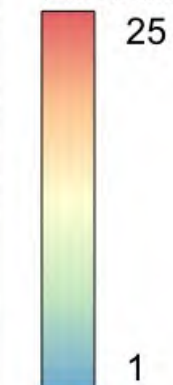
Figure C5.20

20% AEP Flood Level

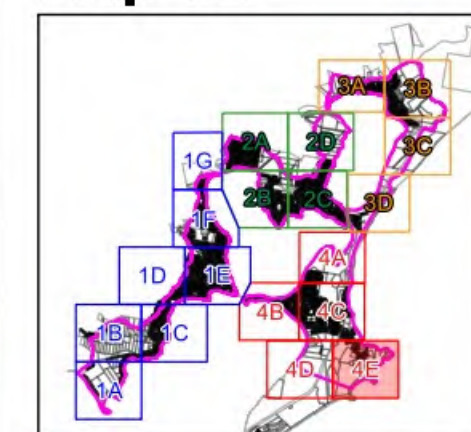
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



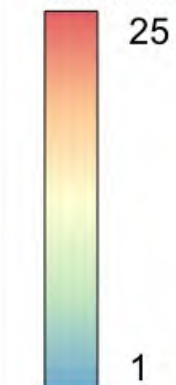
Figure C6.1

**5% AEP
Flood Level**

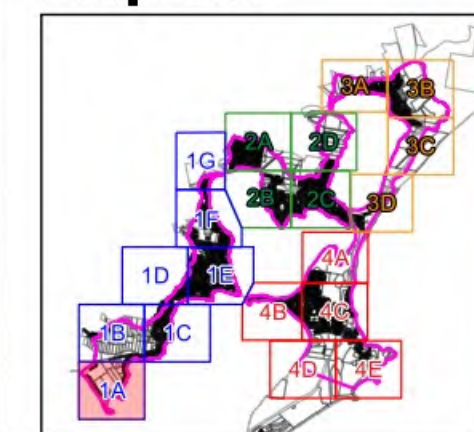
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan

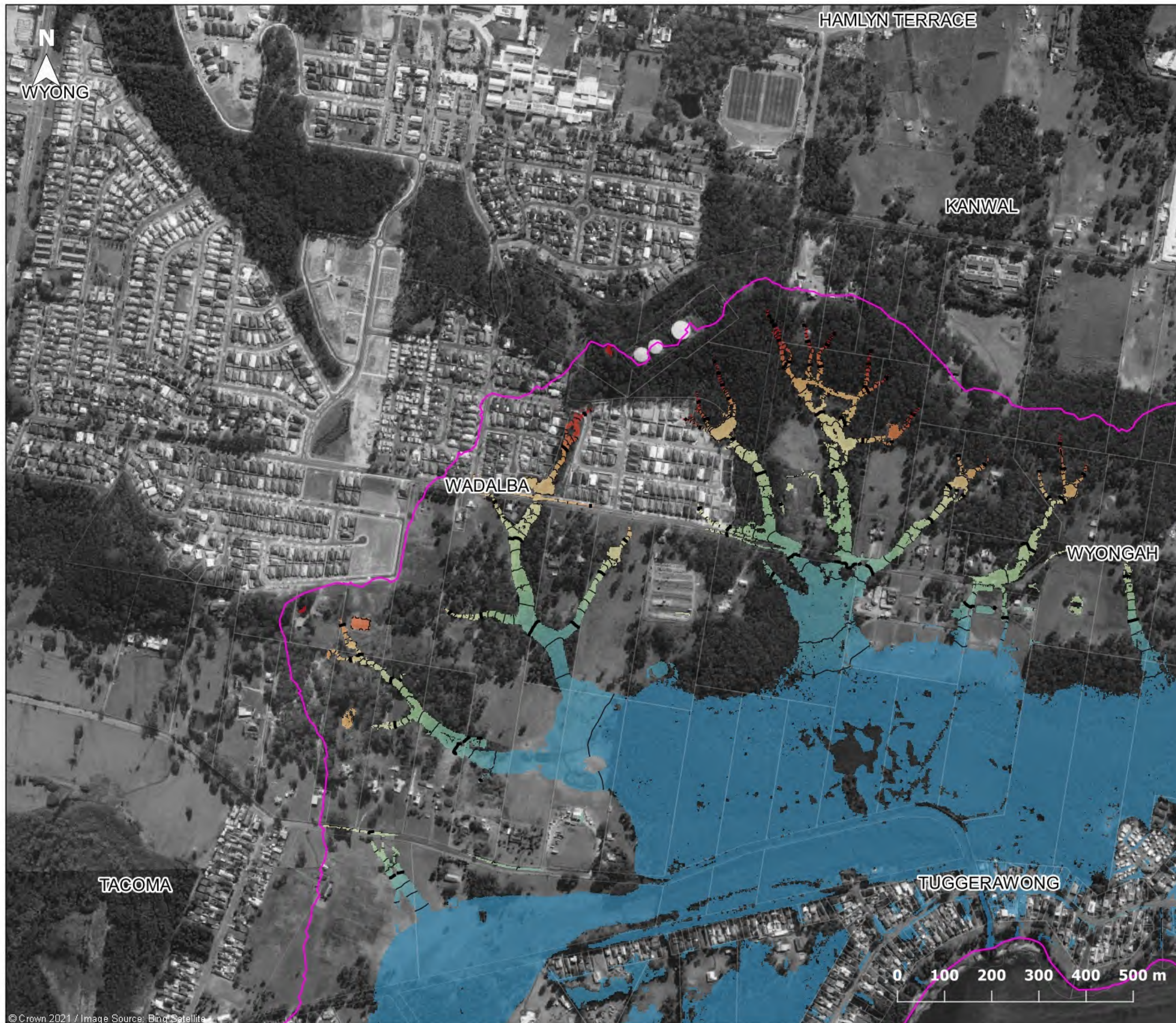


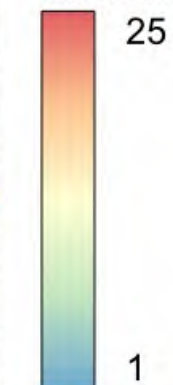
Figure C6.2

5% AEP Flood Level

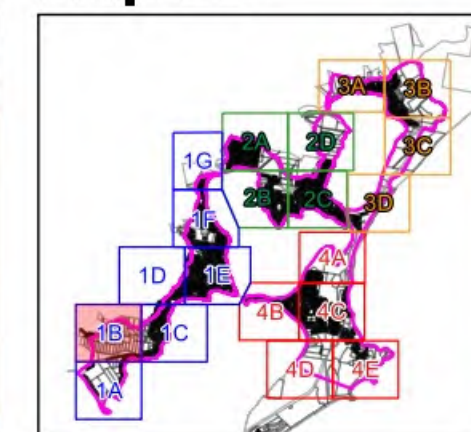
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



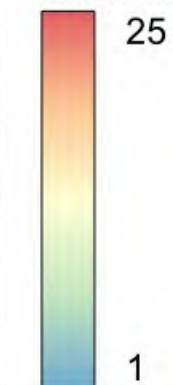
Figure C6.3

5% AEP Flood Level

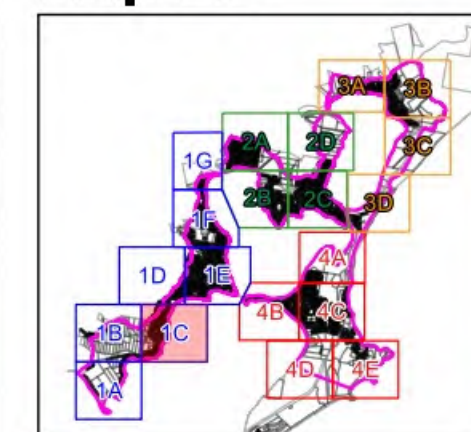
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



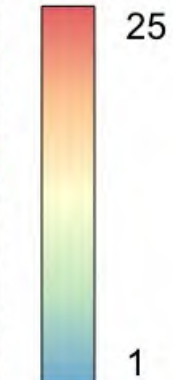
Figure C6.4

**5% AEP
Flood Level**

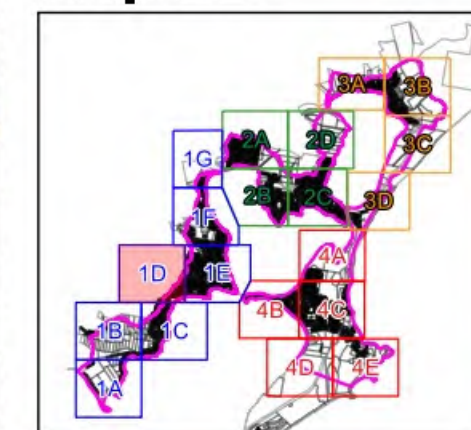
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



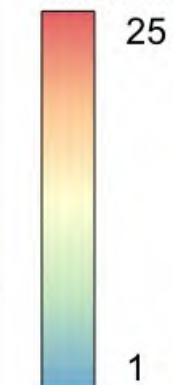
Figure C6.5

5% AEP Flood Level

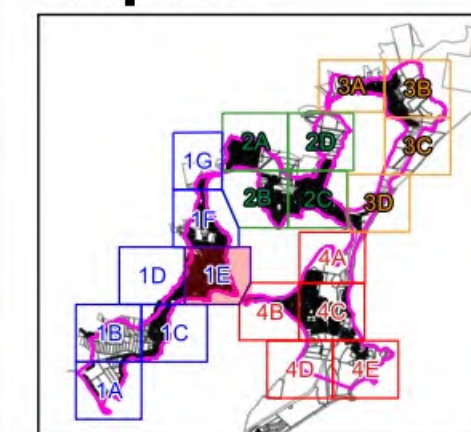
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



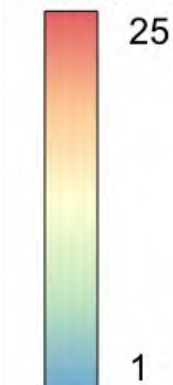
Figure C6.6

**5% AEP
Flood Level**

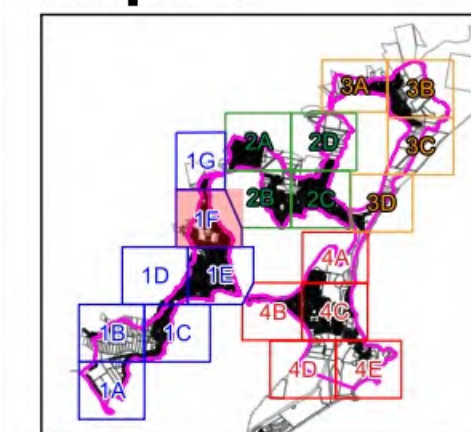
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1F



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

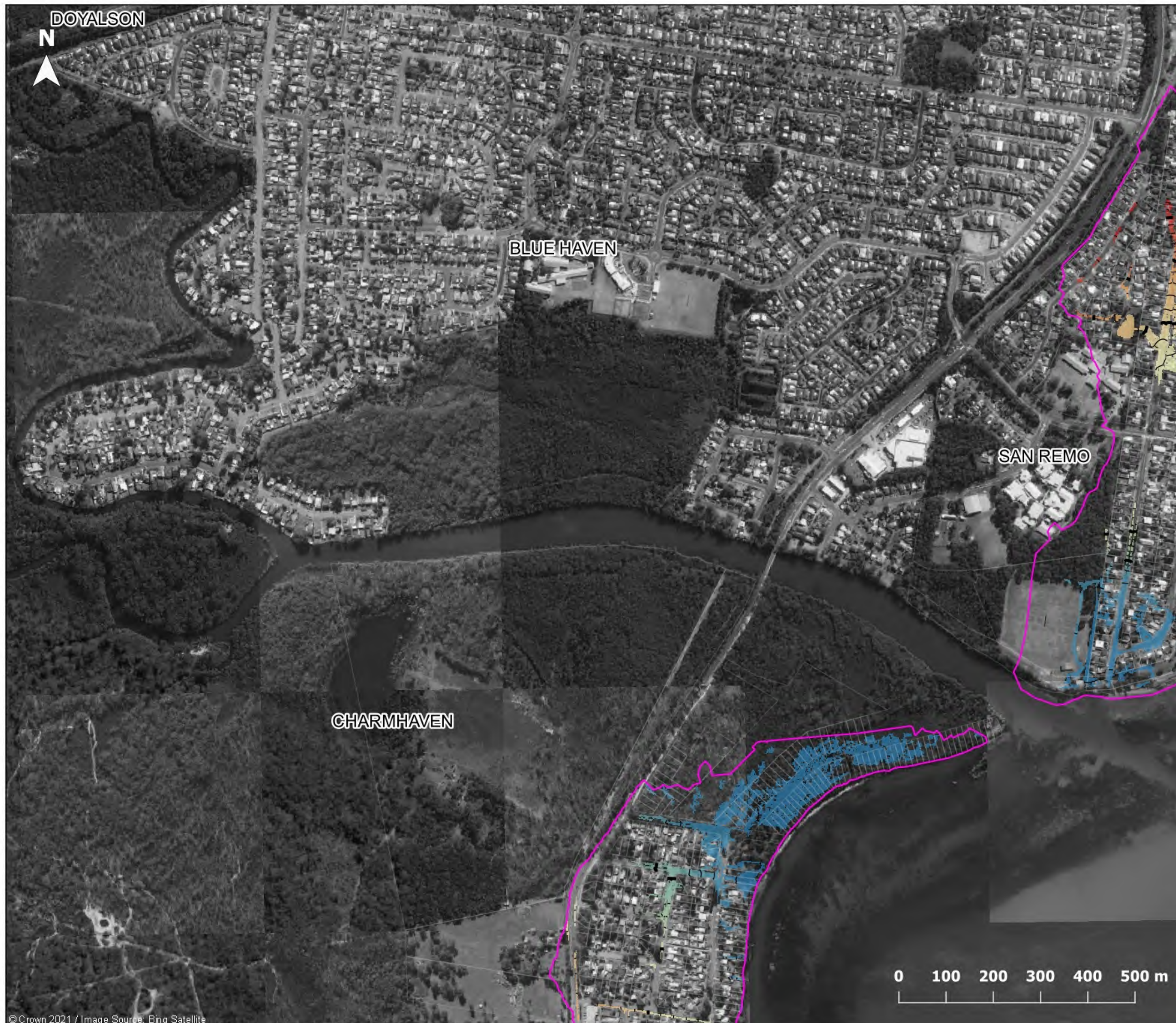


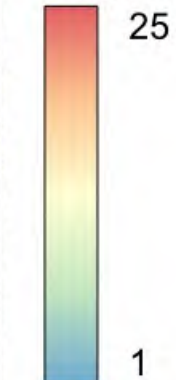
Figure C6.7

**5% AEP
Flood Level**

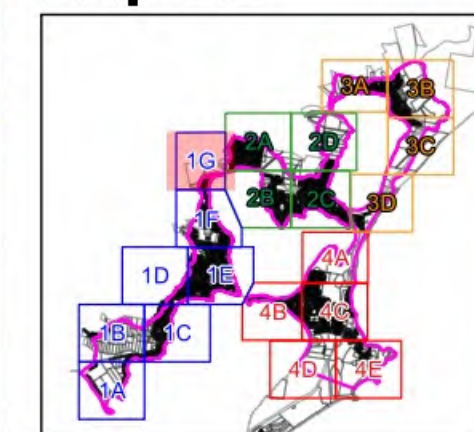
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1G



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



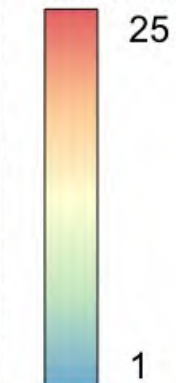
Figure C6.8

5% AEP Flood Level

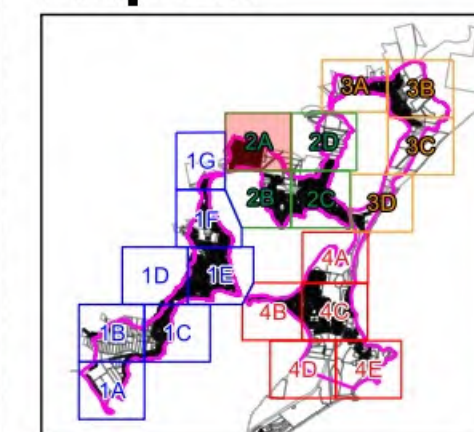
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



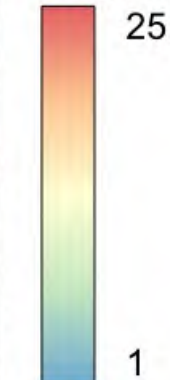
Figure C6.9

**5% AEP
Flood Level**

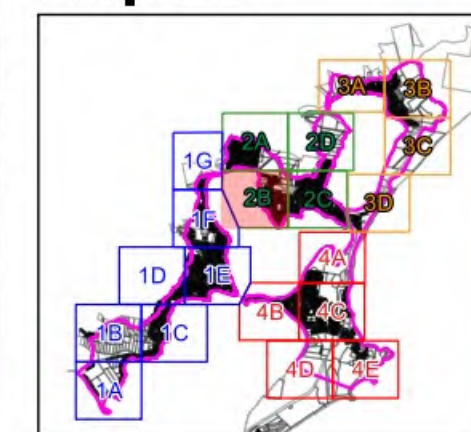
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



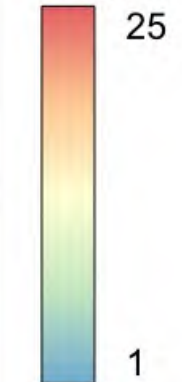
Figure C6.10

5% AEP Flood Level

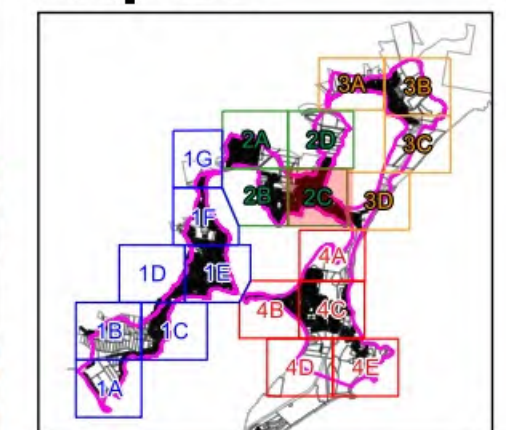
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



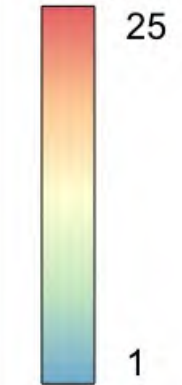
Figure C6.11

5% AEP Flood Level

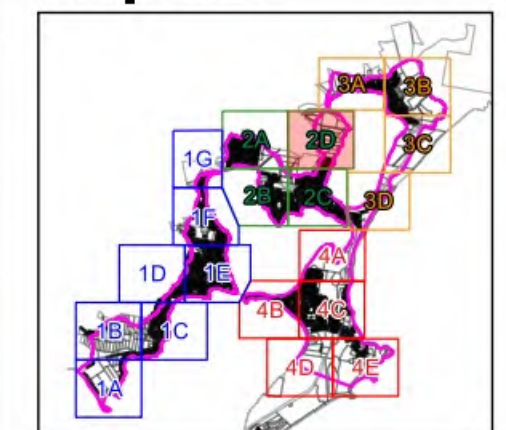
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



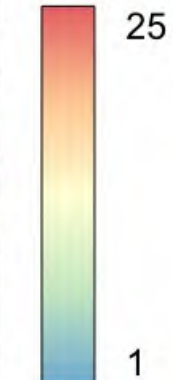
Figure C6.12

**5% AEP
Flood Level**

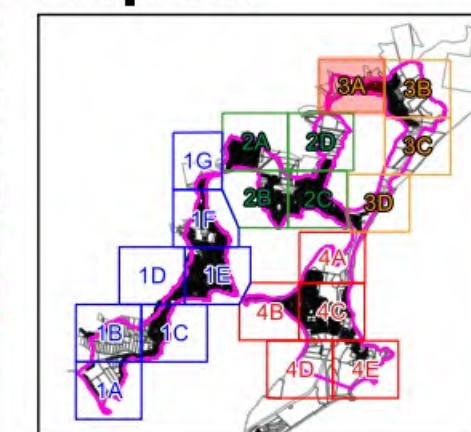
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

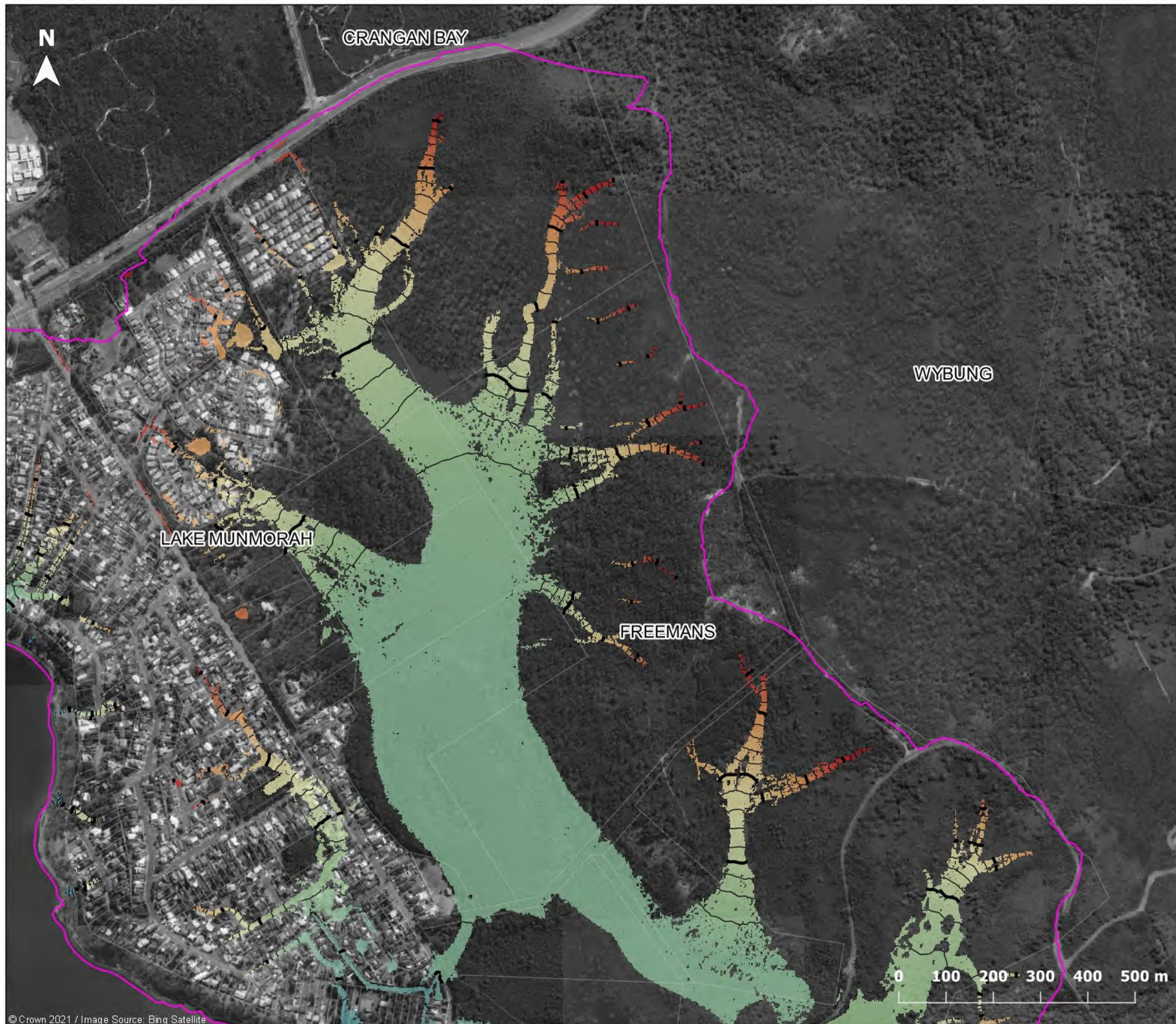


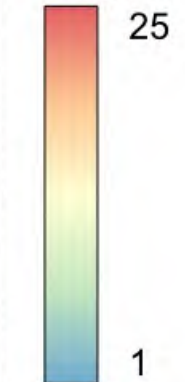
Figure C6.13

**5% AEP
Flood Level**

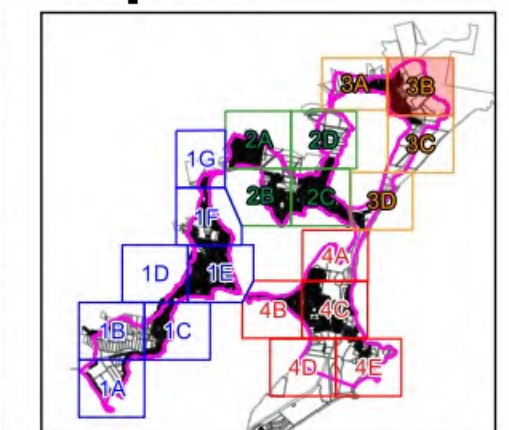
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

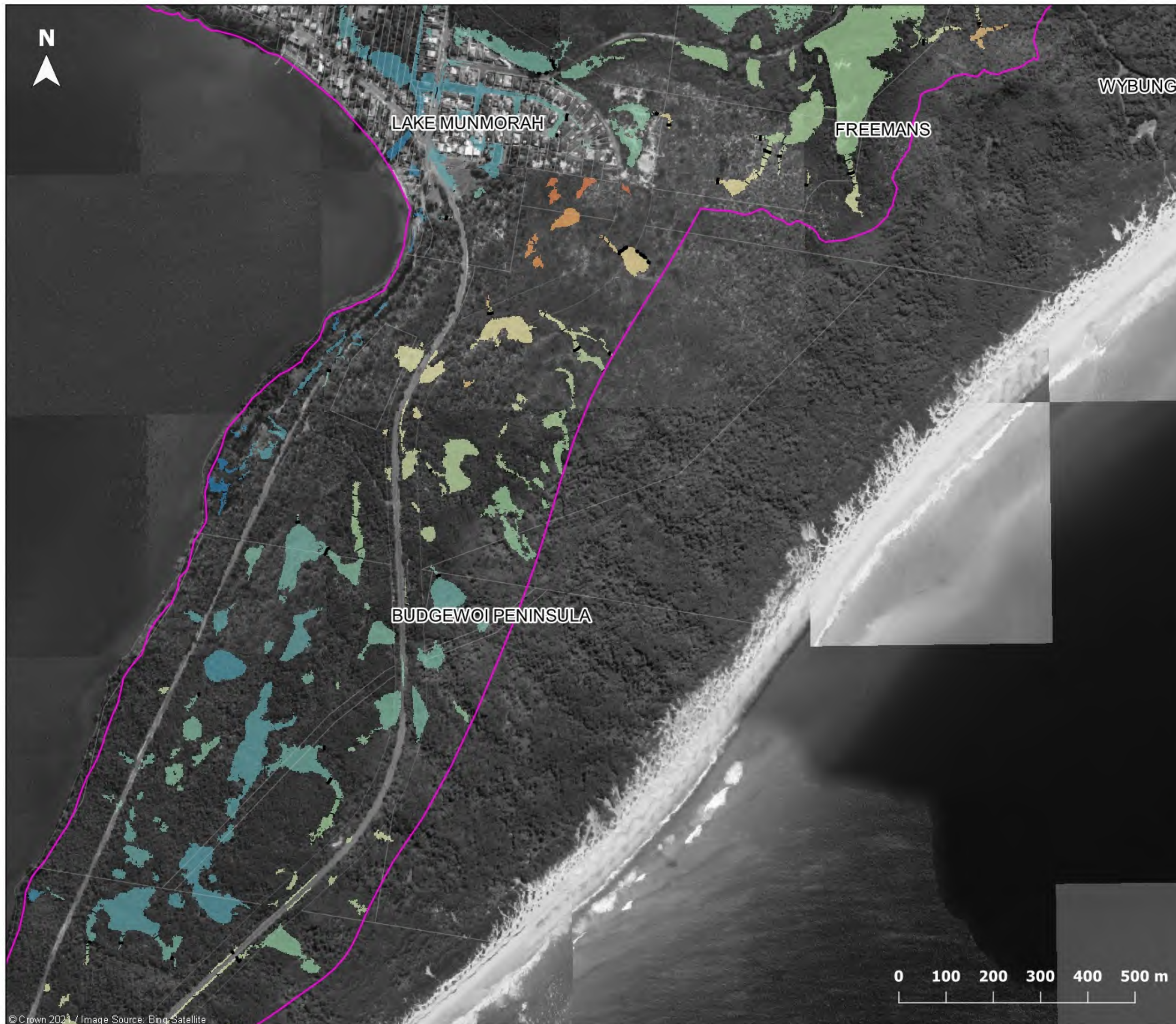


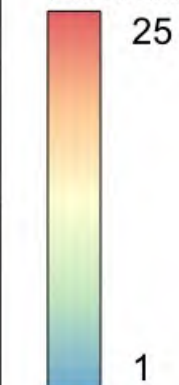
Figure C6.14

5% AEP Flood Level

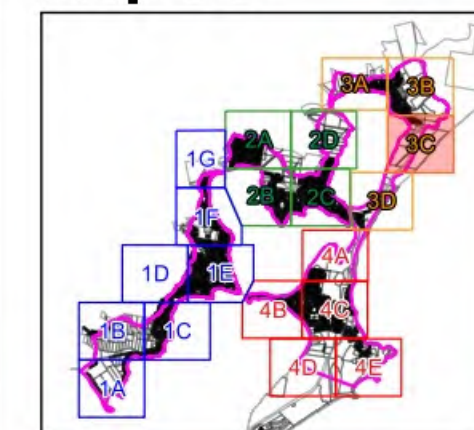
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3C



Report MHL2571

Northern Lakes Floodplain Risk Management Study & Plan



Manly
Hydraulics
Laboratory

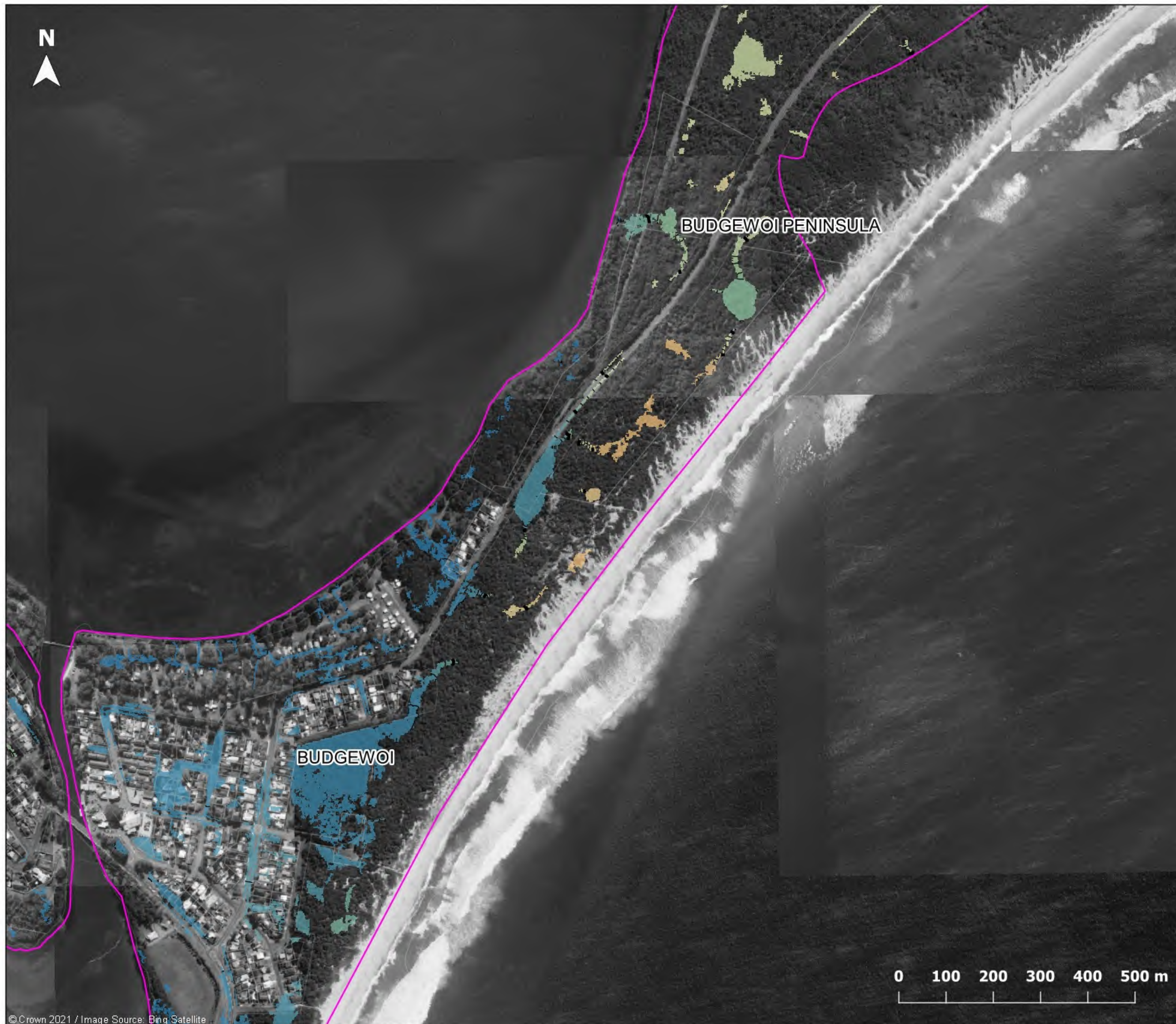


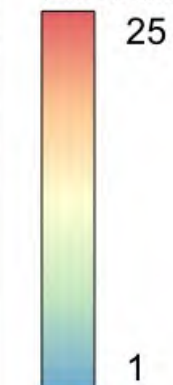
Figure C6.15

**5% AEP
Flood Level**

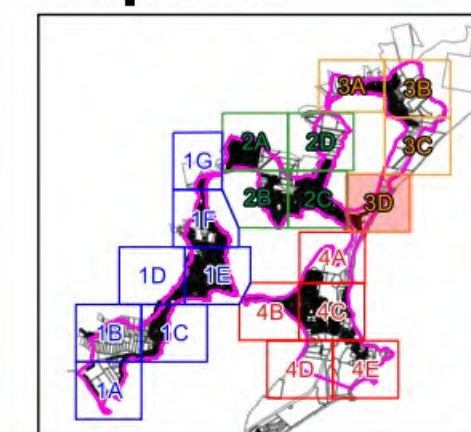
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

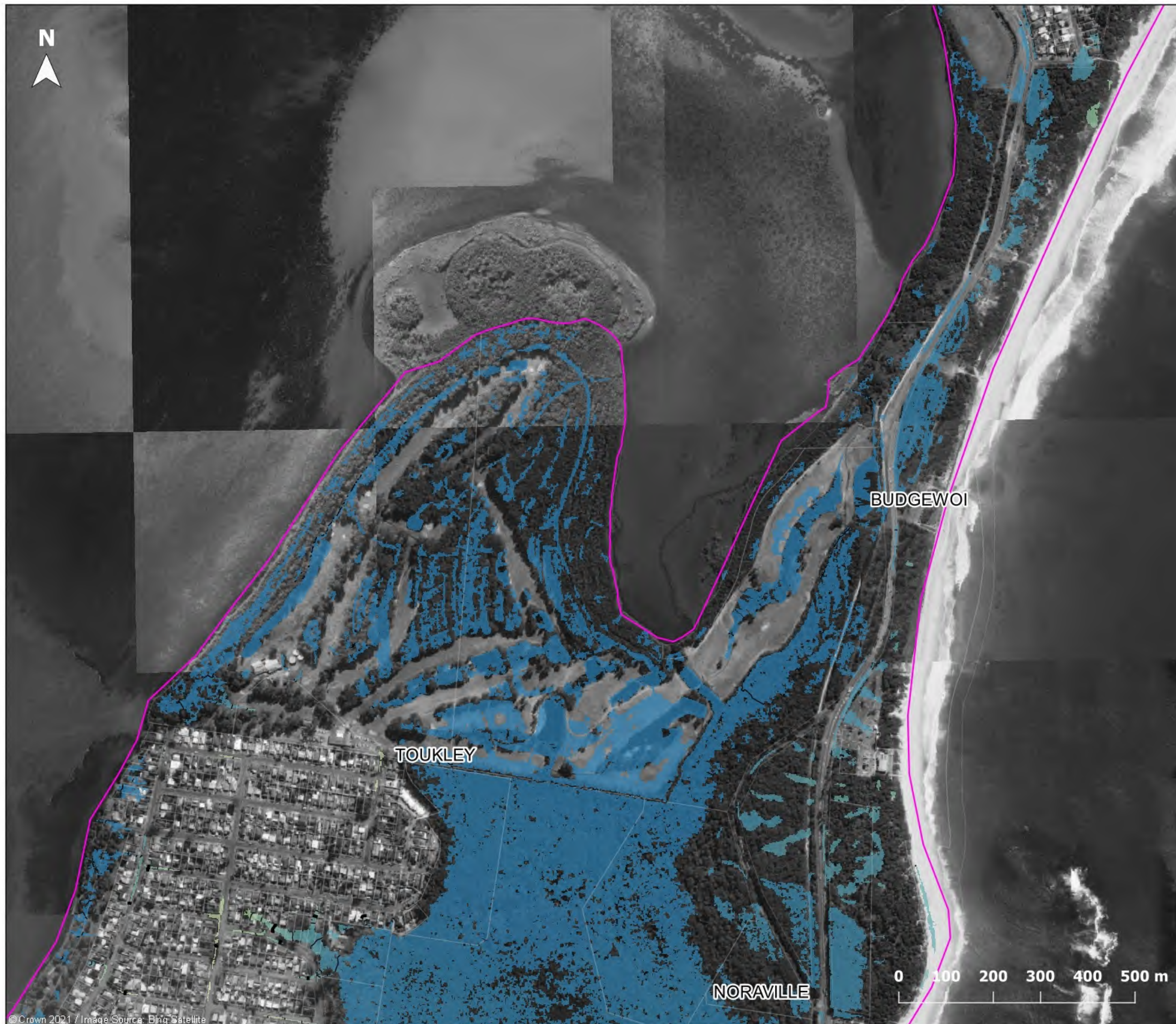


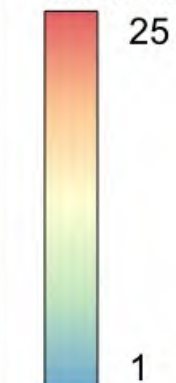
Figure C6.16

5% AEP Flood Level

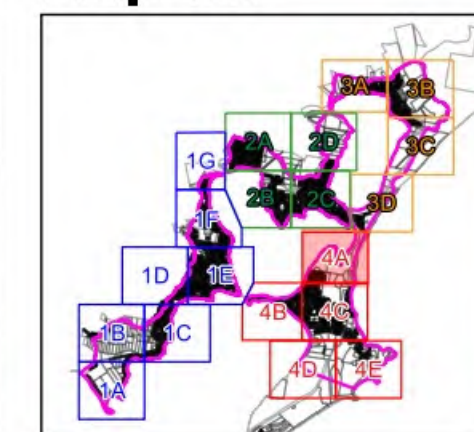
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



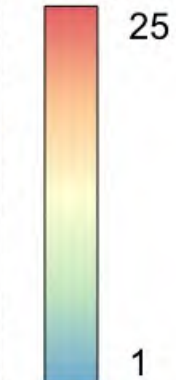
Figure C6.17

**5% AEP
Flood Level**

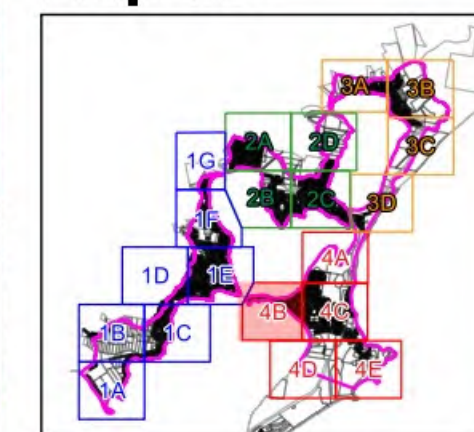
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



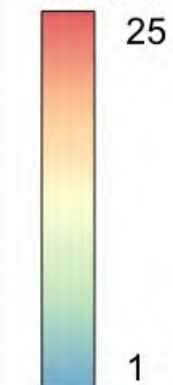
Figure C6.18

5% AEP Flood Level

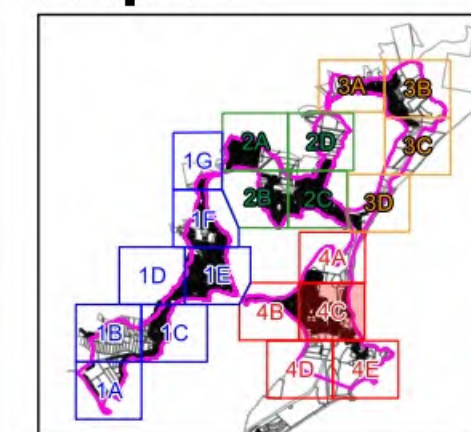
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

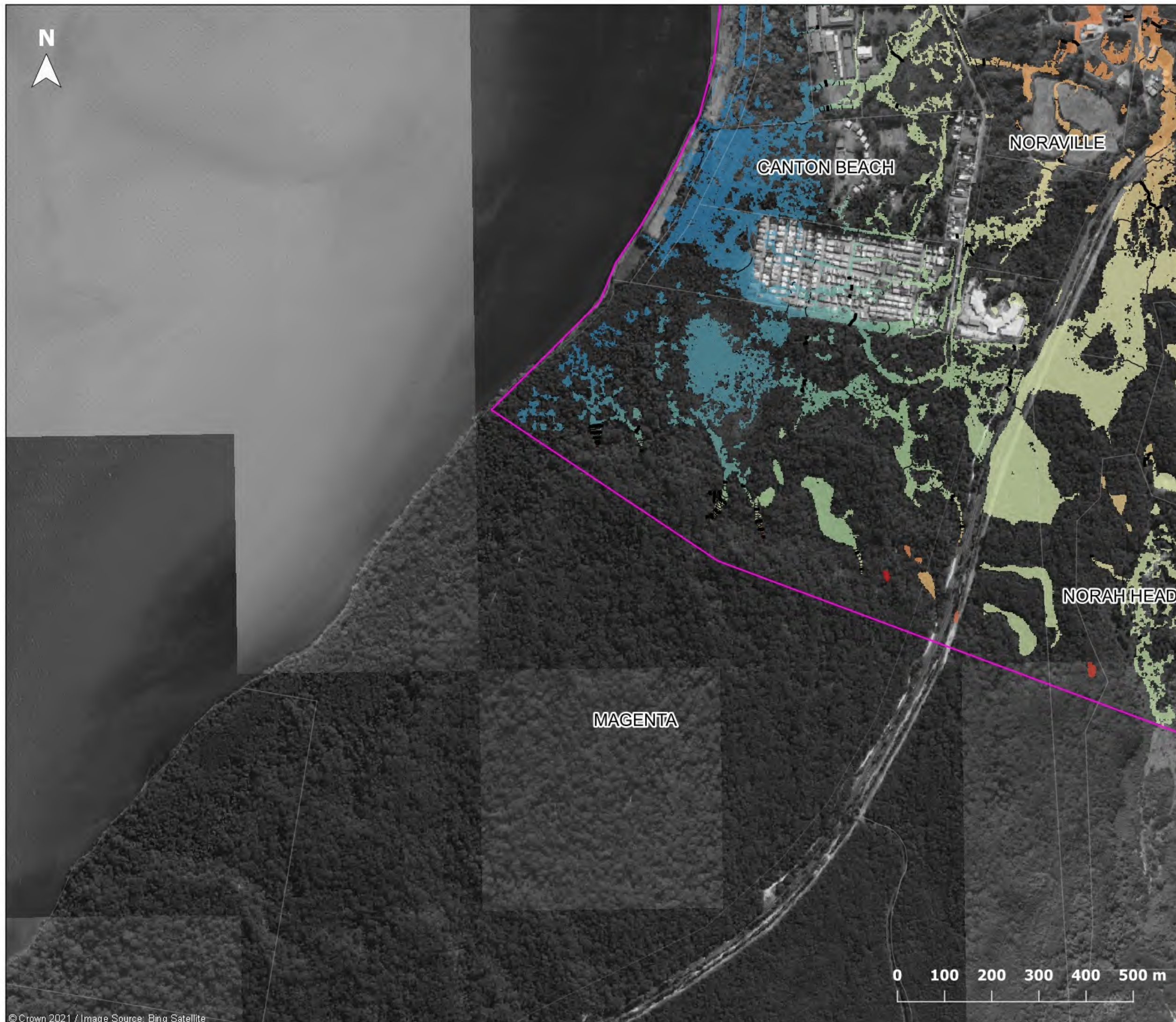


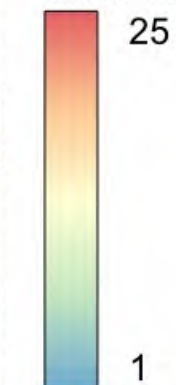
Figure C6.19

5% AEP Flood Level

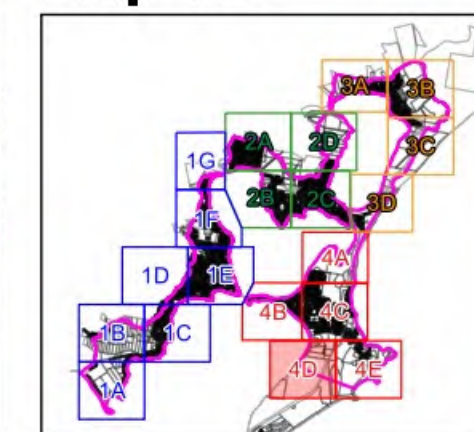
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4D

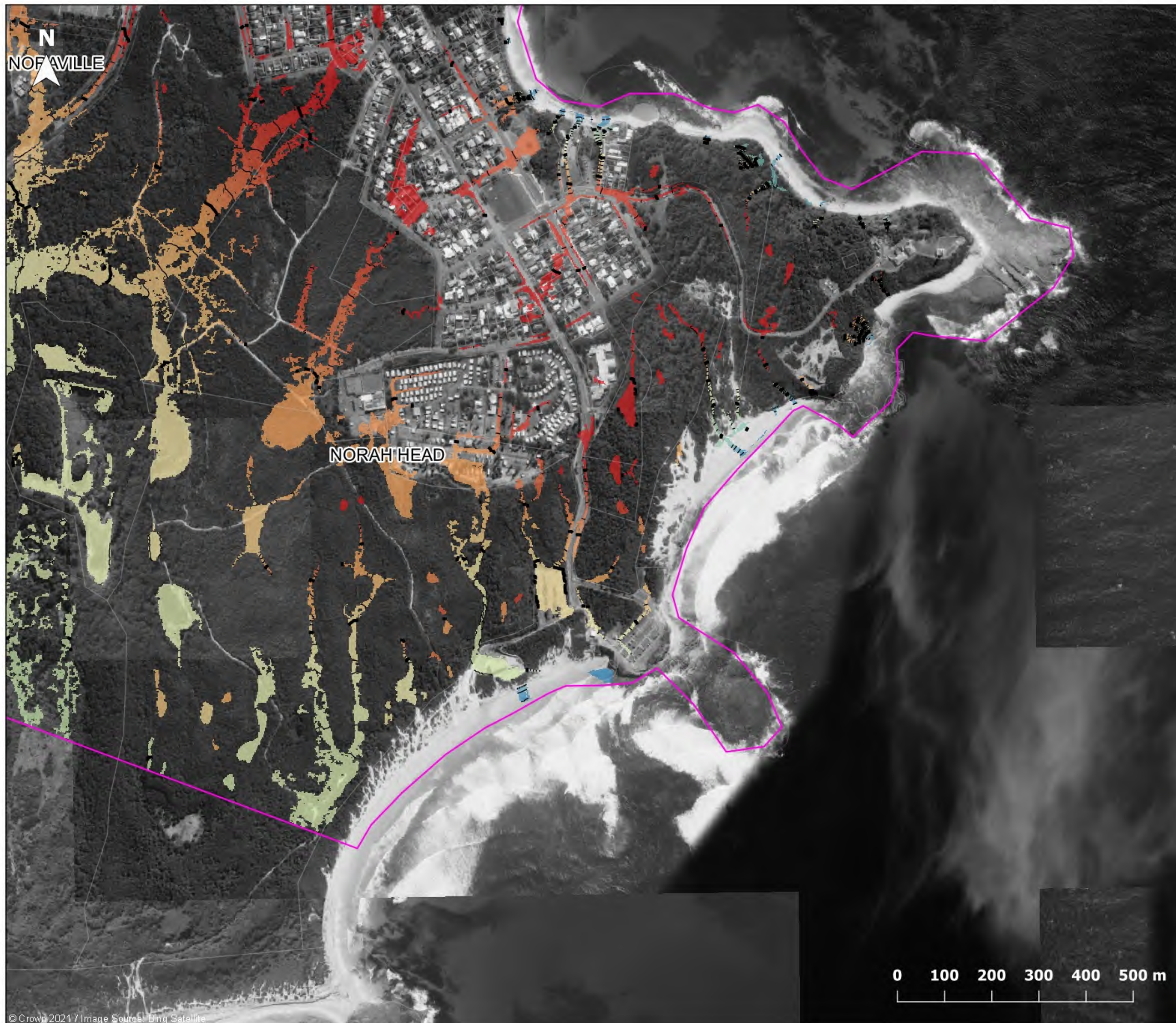


Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



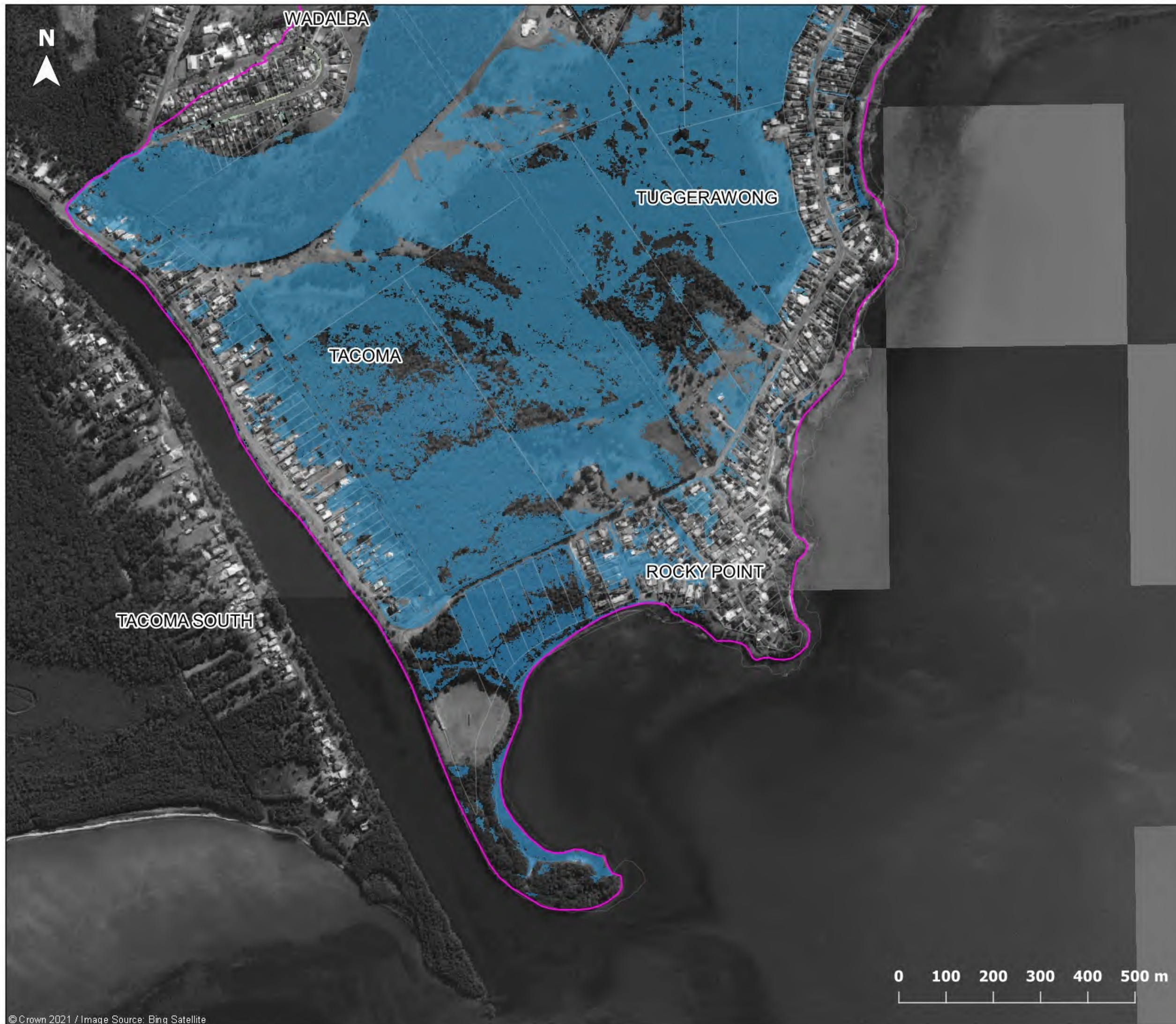


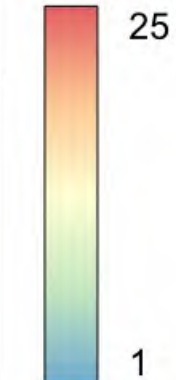
Figure C7.1

**1% AEP
Flood Level**

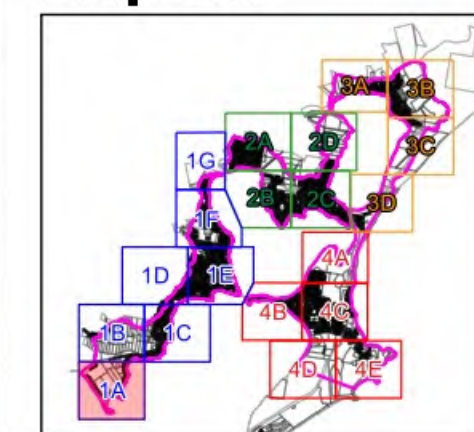
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

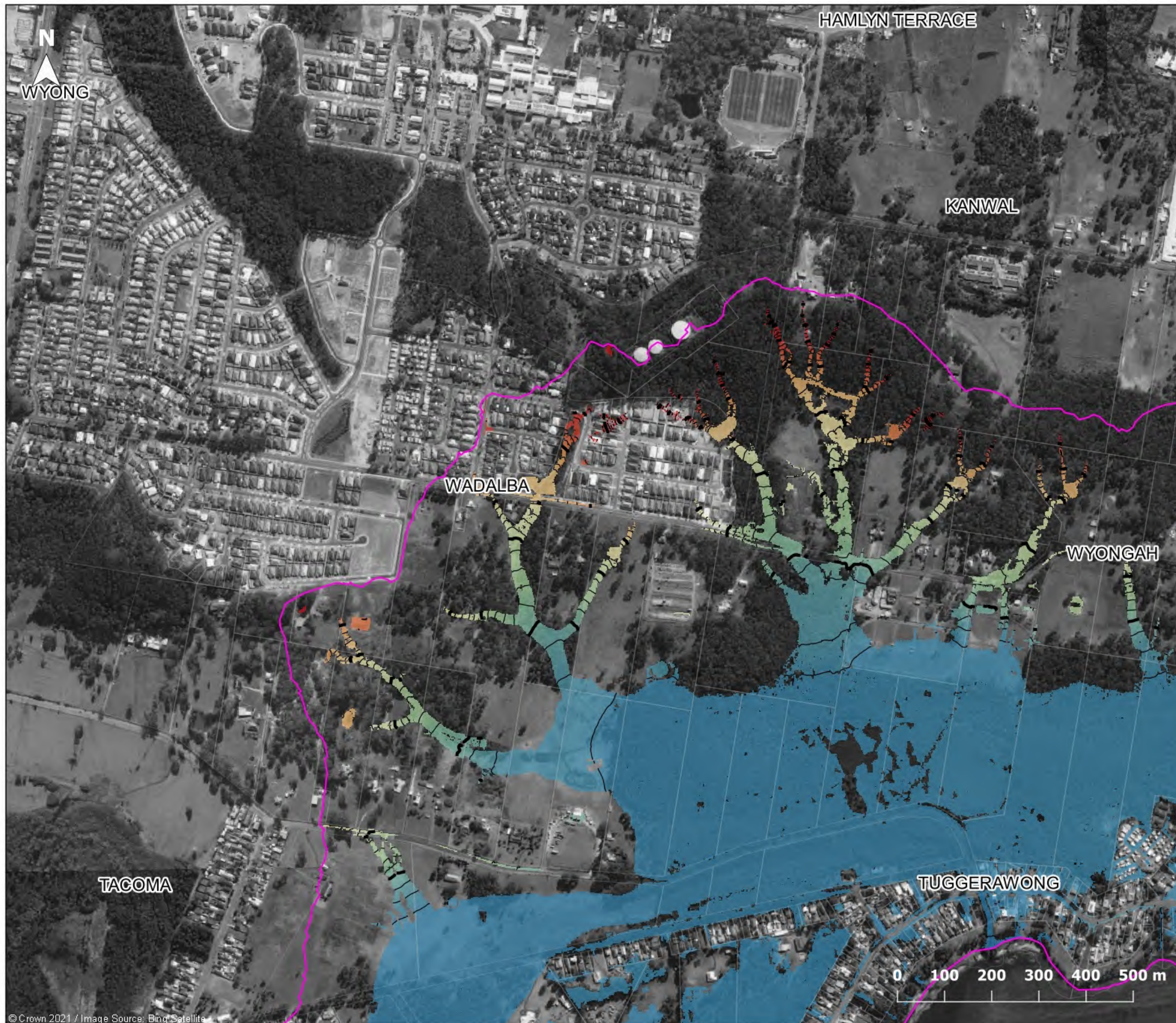


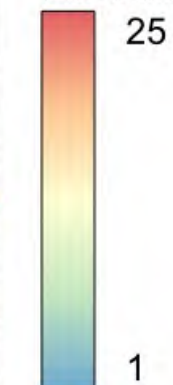
Figure C7.2

1% AEP Flood Level

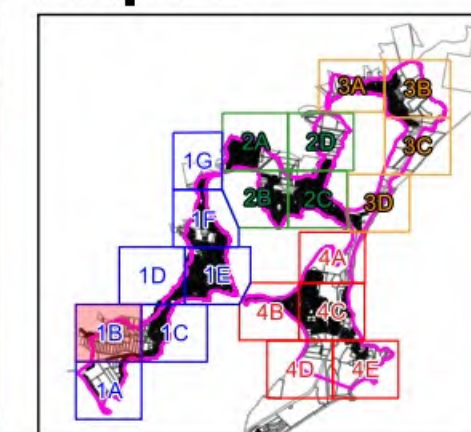
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

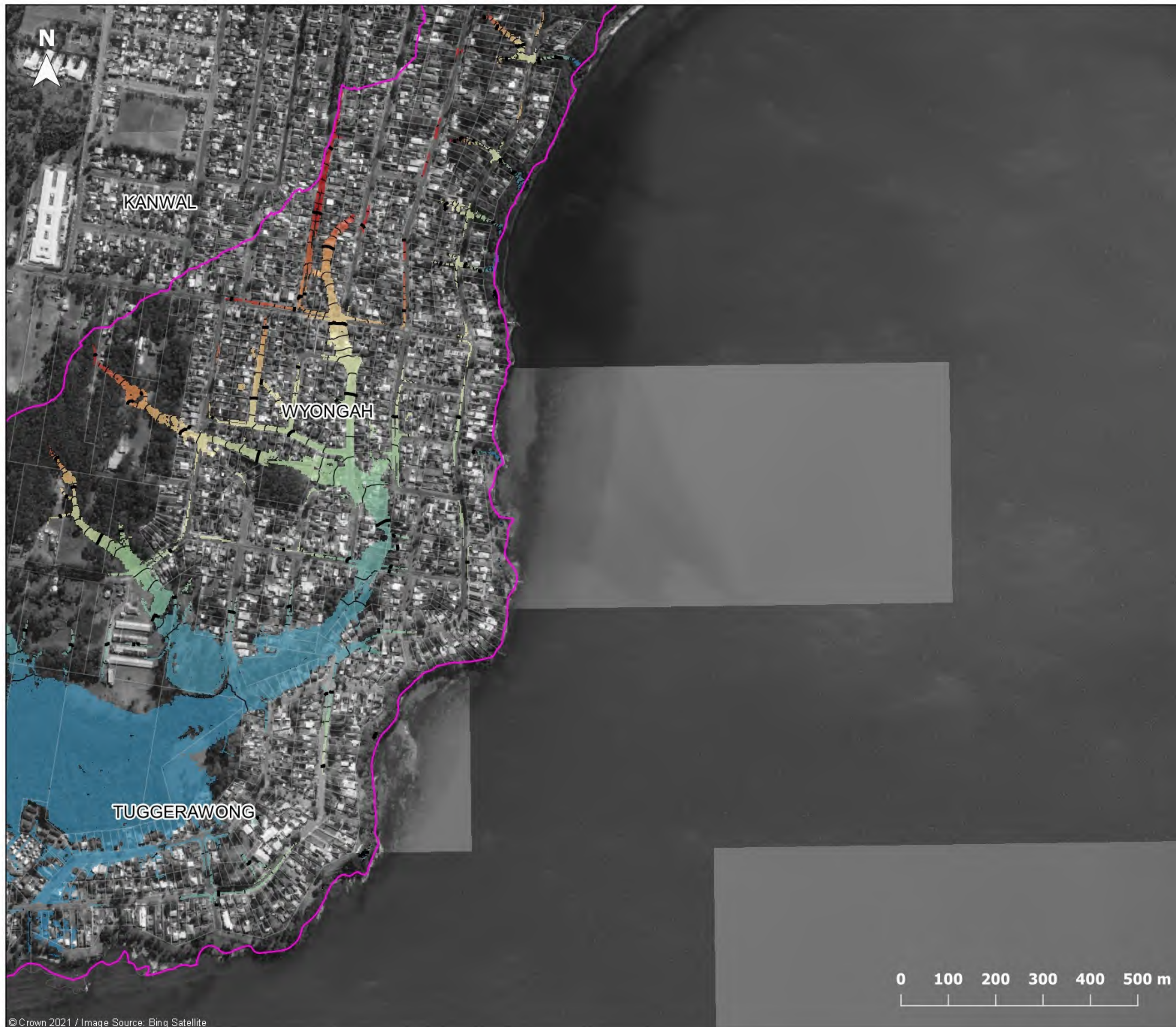


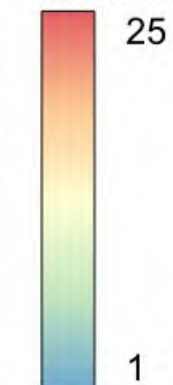
Figure C7.3

**1% AEP
Flood Level**

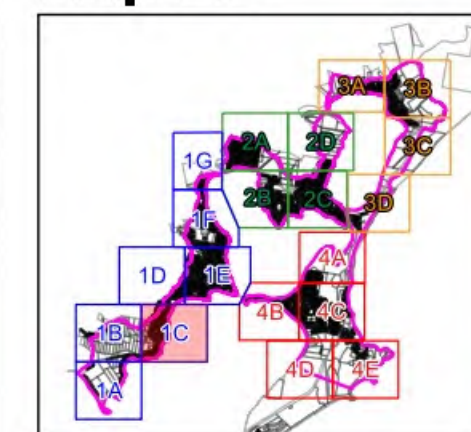
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



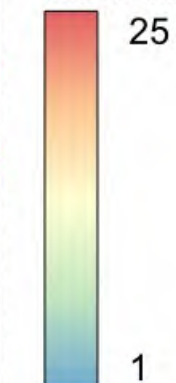
Figure C7.4

**1% AEP
Flood Level**

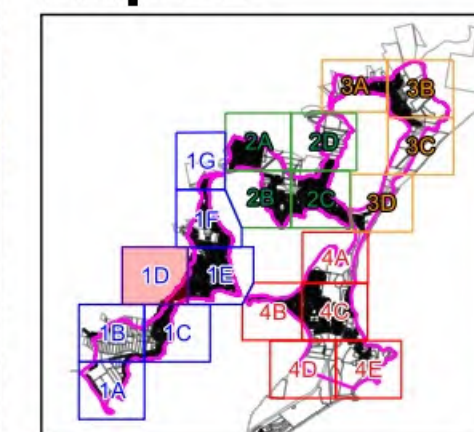
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



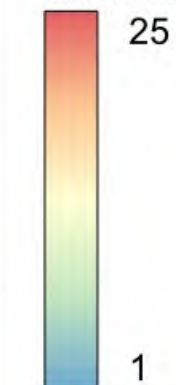
Figure C7.5

**1% AEP
Flood Level**

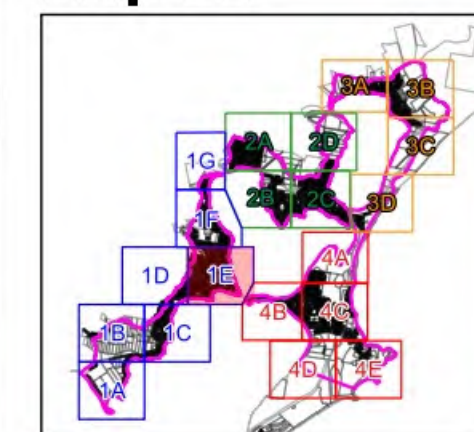
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



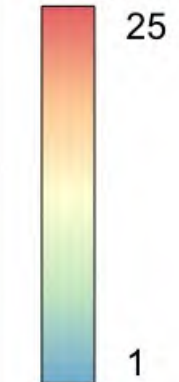
Figure C7.6

**1% AEP
Flood Level**

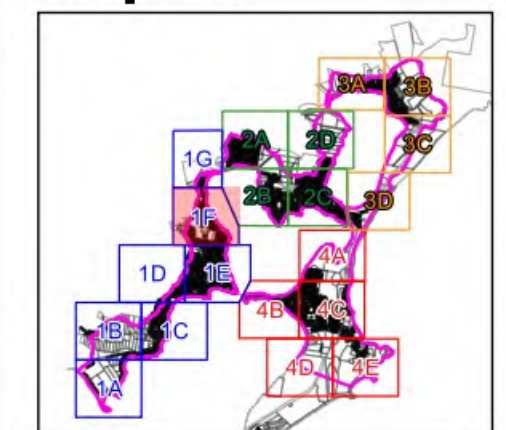
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1F



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

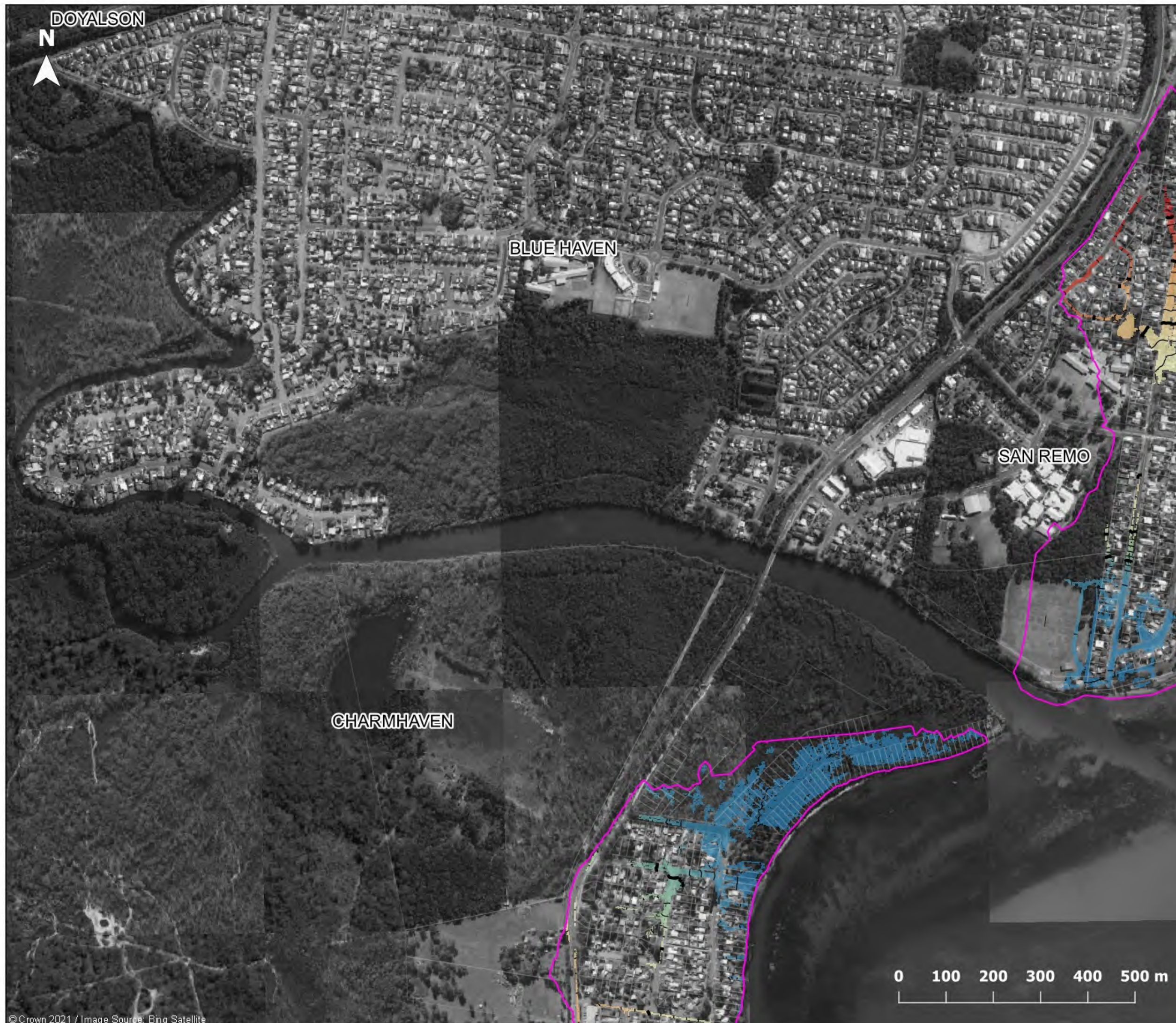


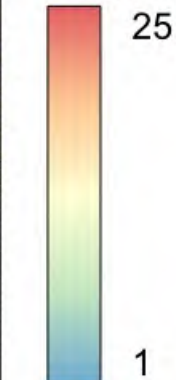
Figure C7.7

**1% AEP
Flood Level**

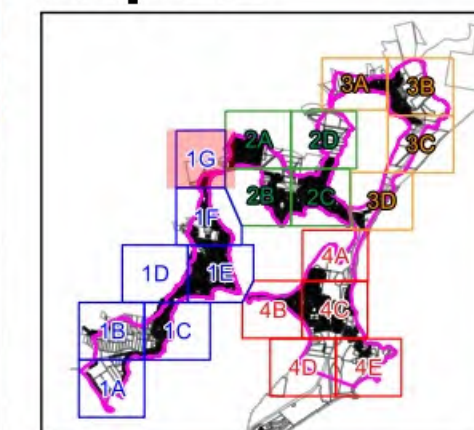
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1G



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

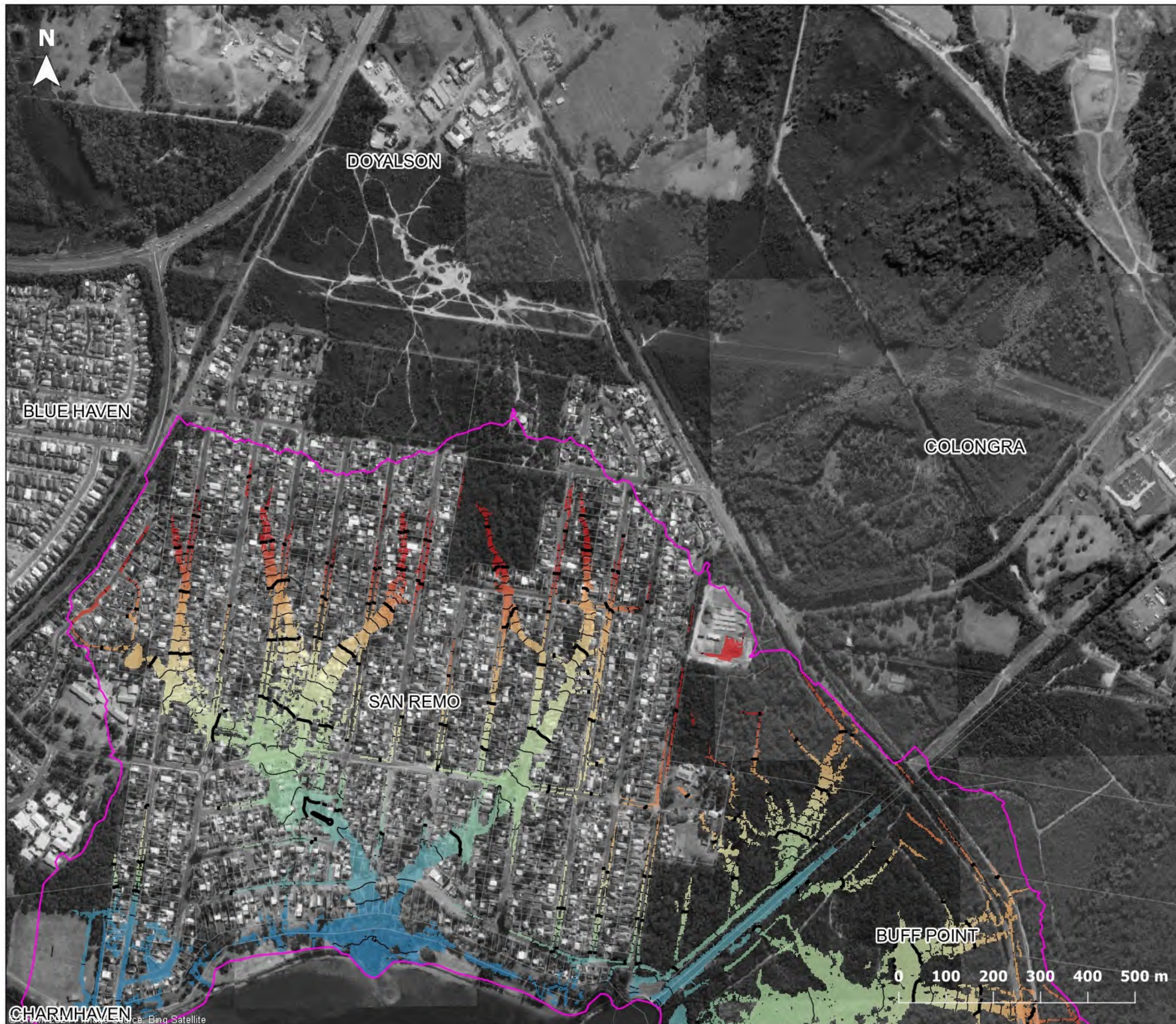


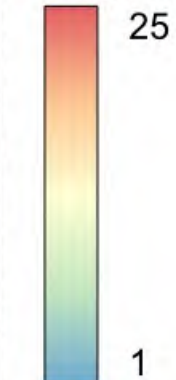
Figure C7.8

**1% AEP
Flood Level**

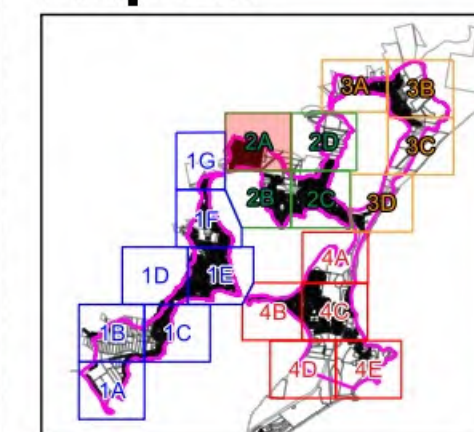
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



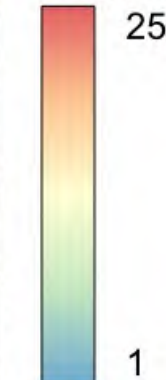
Figure C7.9

**1% AEP
Flood Level**

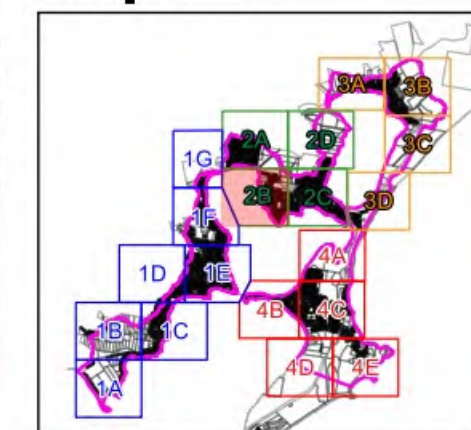
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



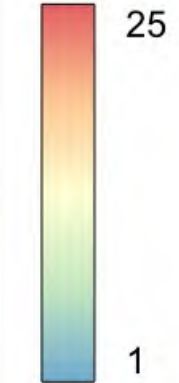
Figure C7.10

**1% AEP
Flood Level**

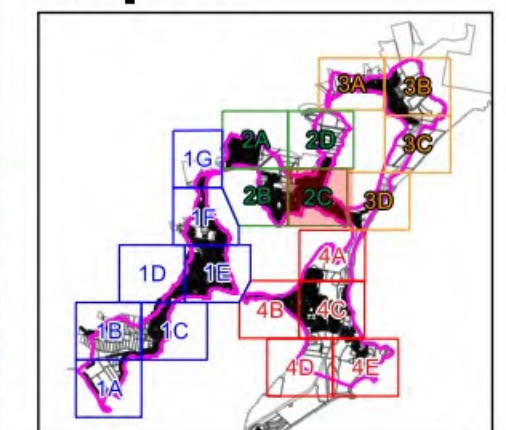
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



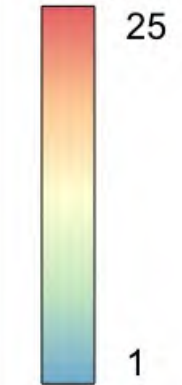
Figure C7.11

**1% AEP
Flood Level**

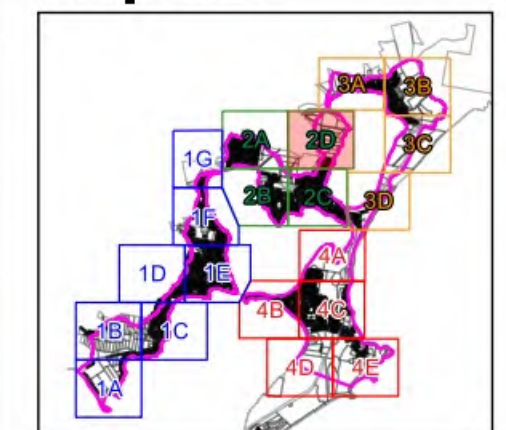
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



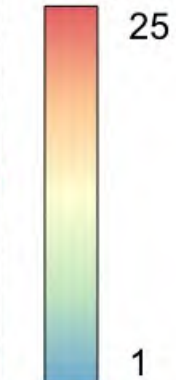
Figure C7.12

**1% AEP
Flood Level**

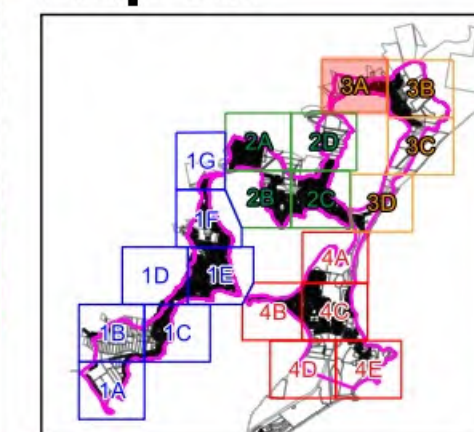
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan

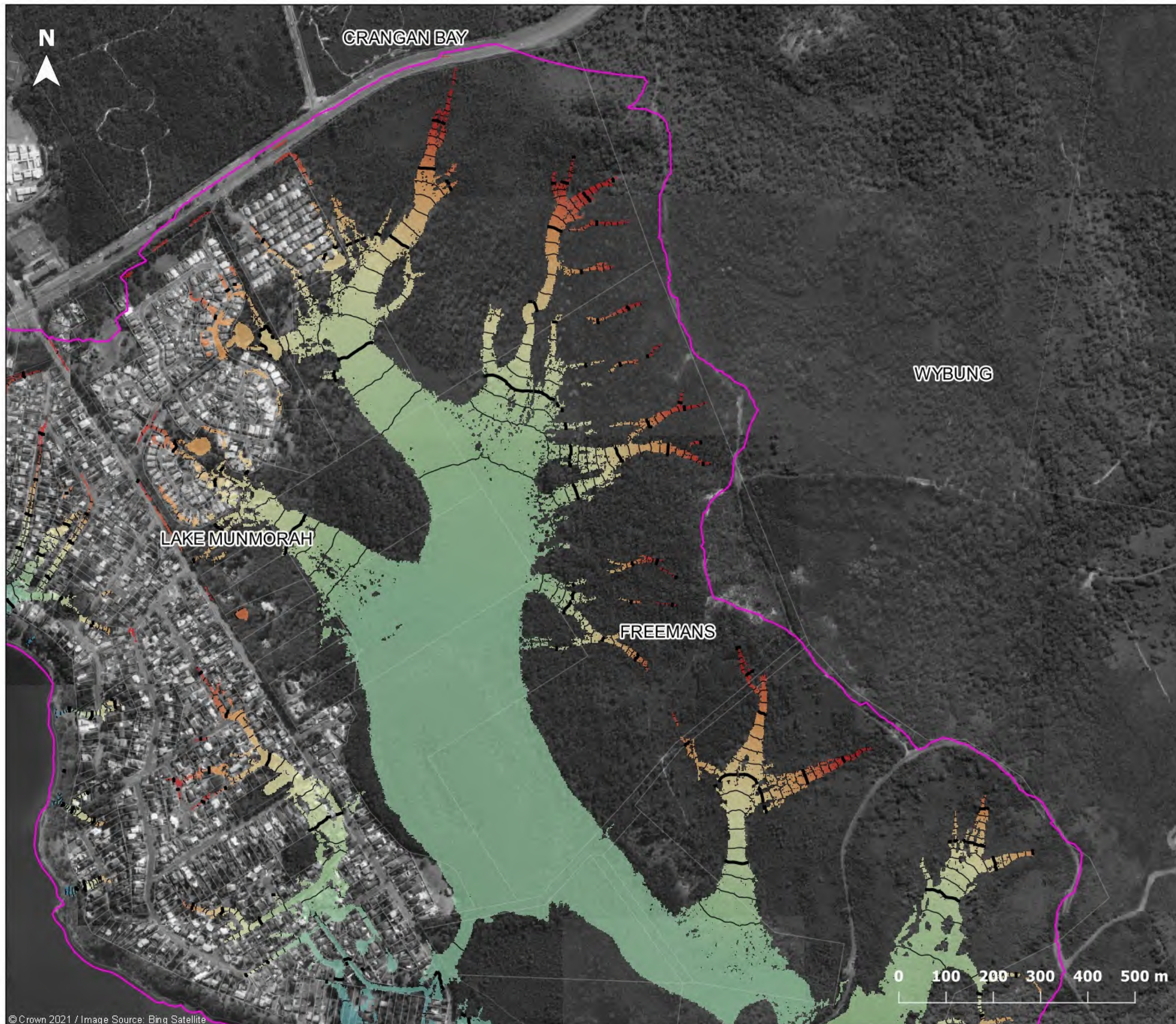


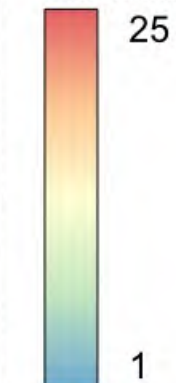
Figure C7.13

**1% AEP
Flood Level**

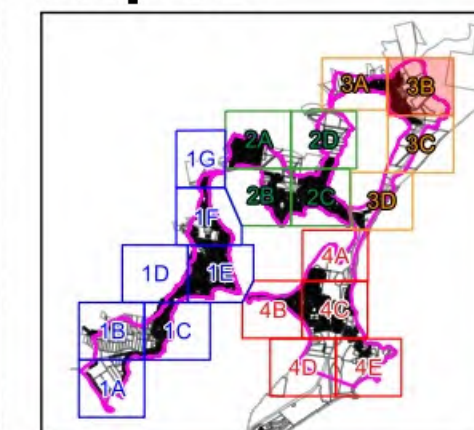
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

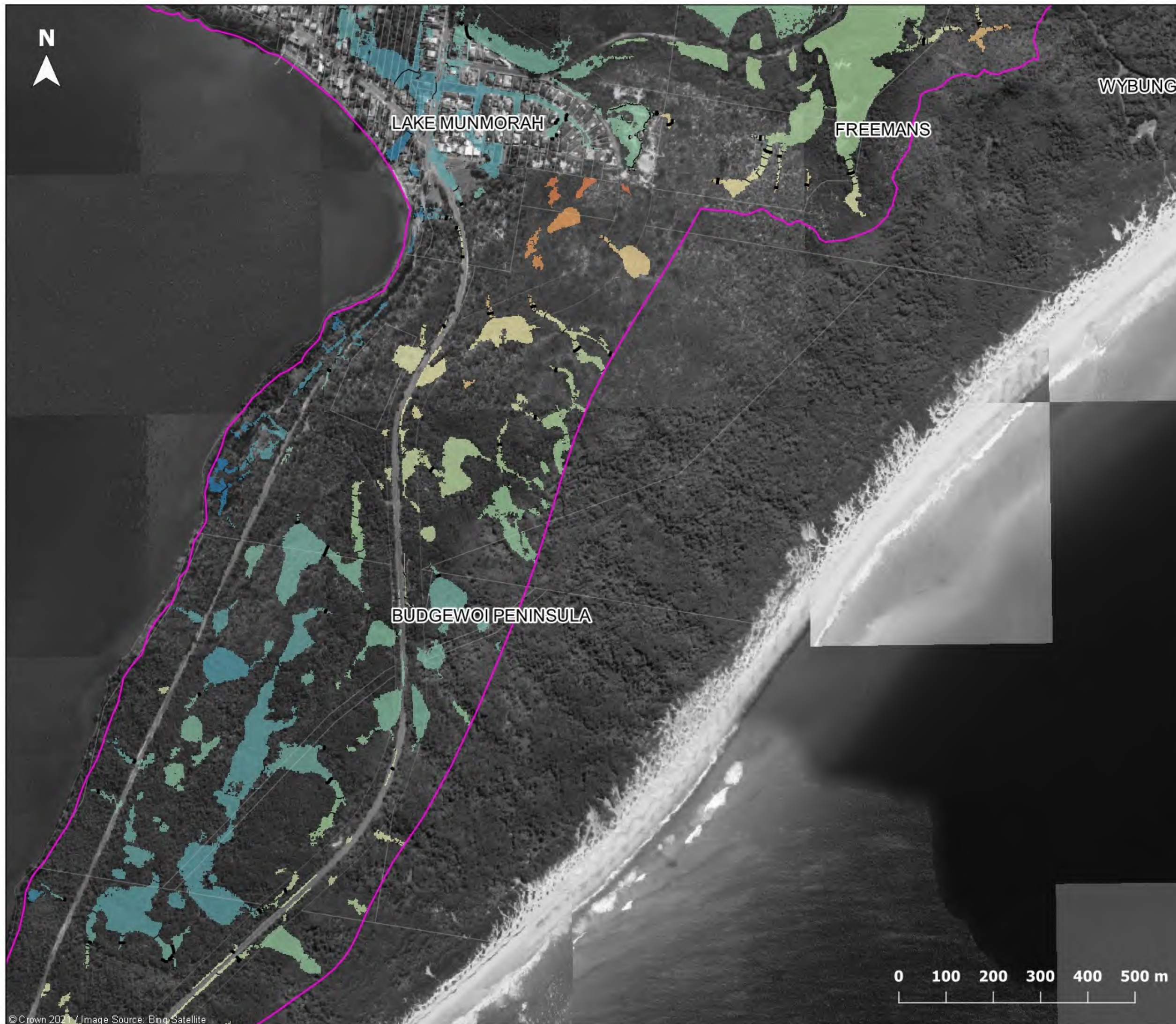


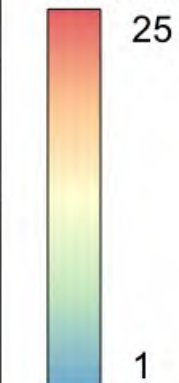
Figure C7.14

**1% AEP
Flood Level**

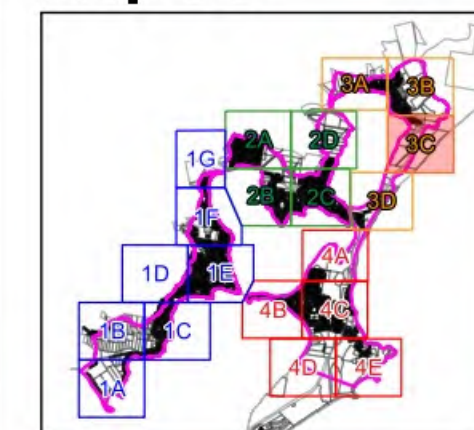
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

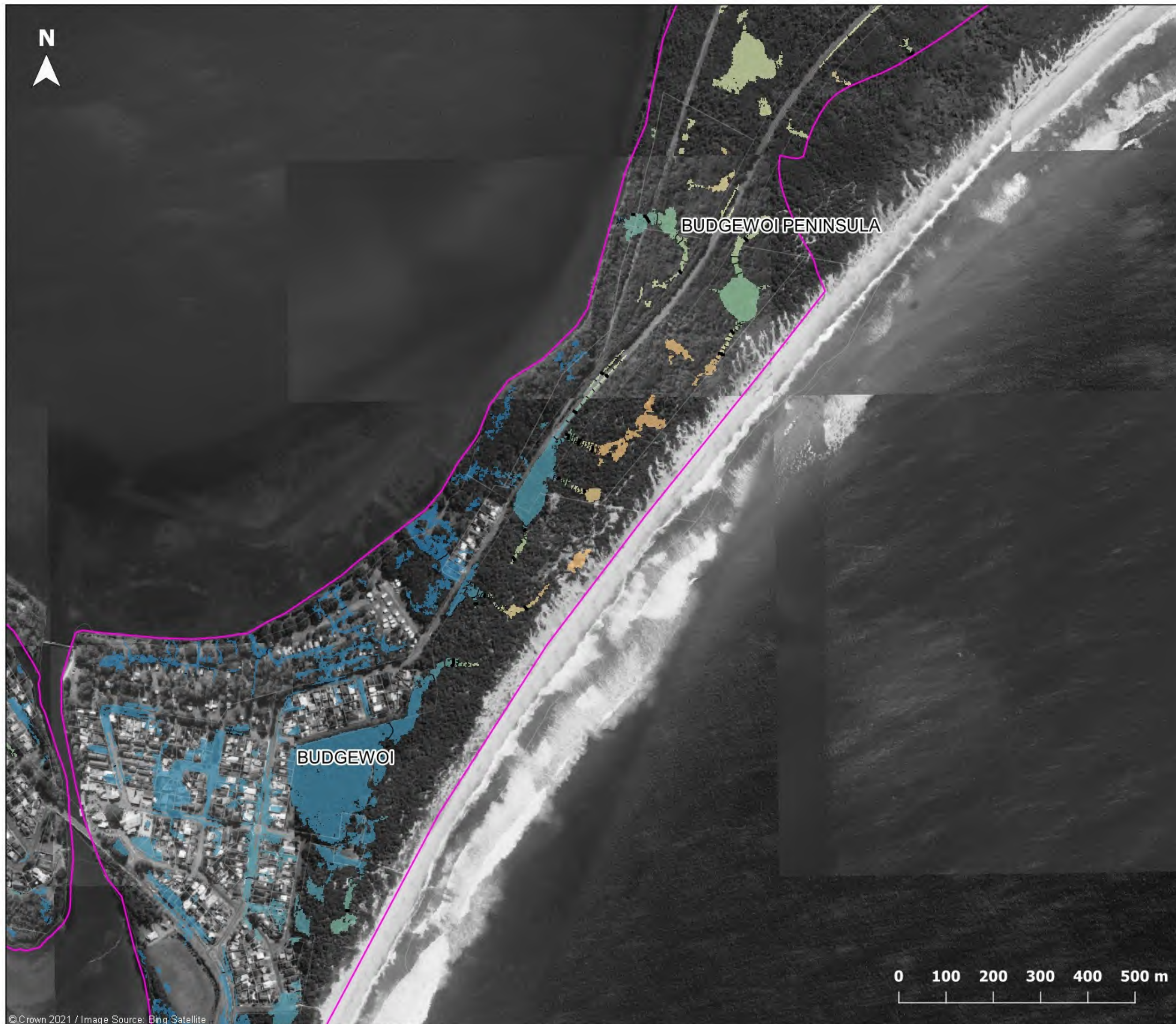


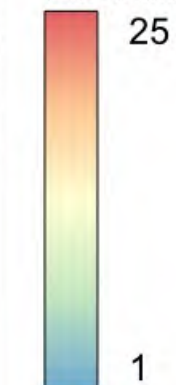
Figure C7.15

**1% AEP
Flood Level**

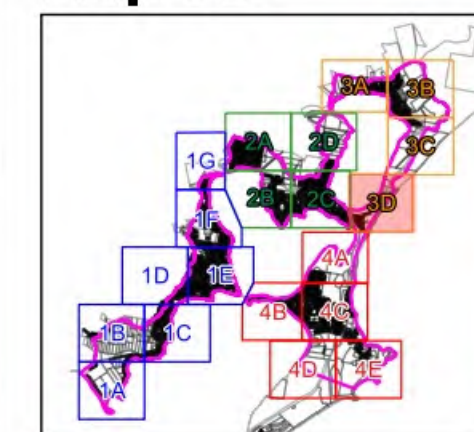
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

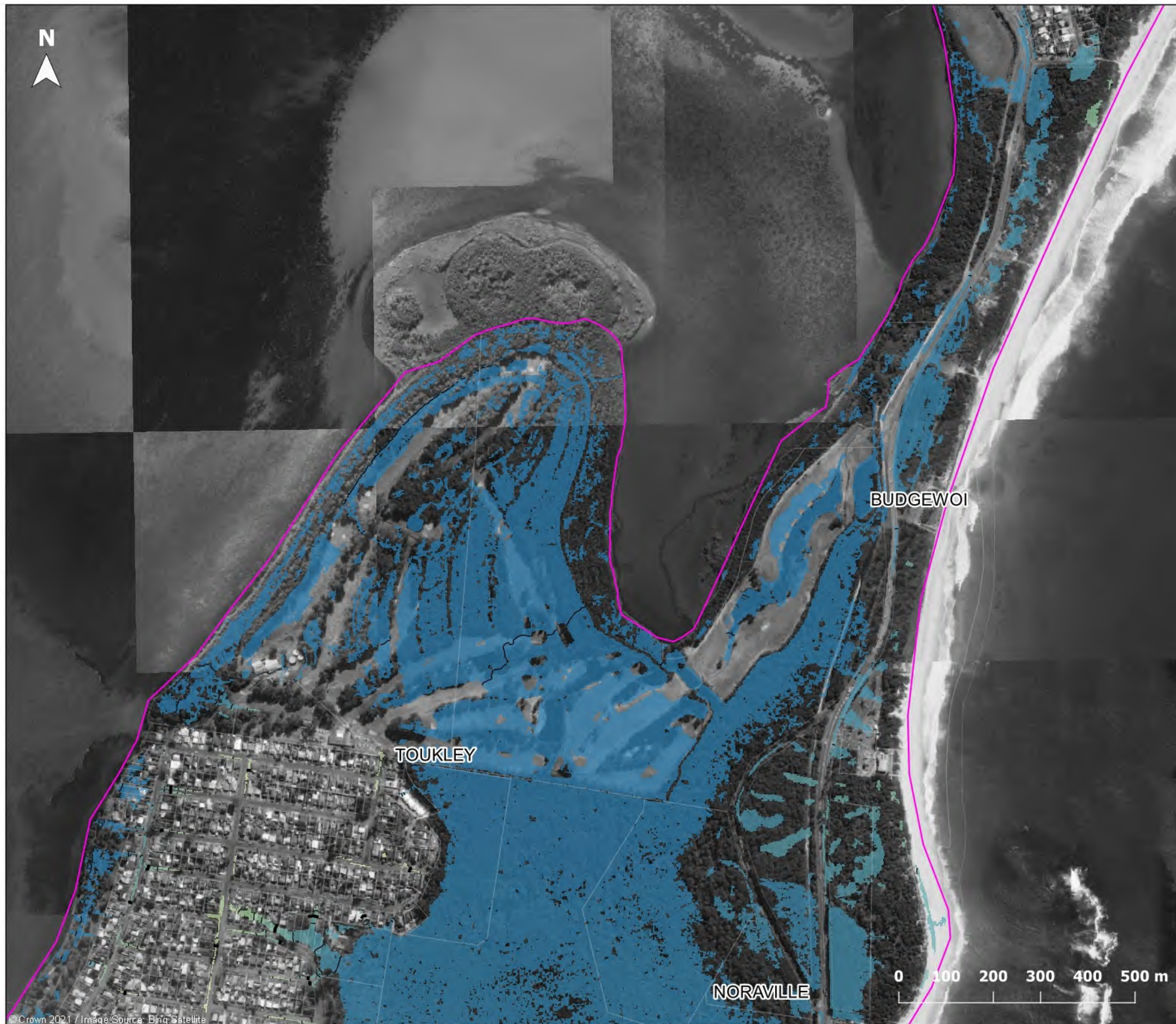


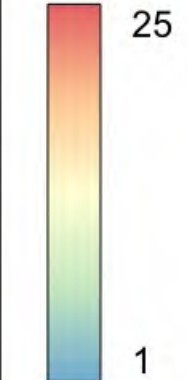
Figure C7.16

**1% AEP
Flood Level**

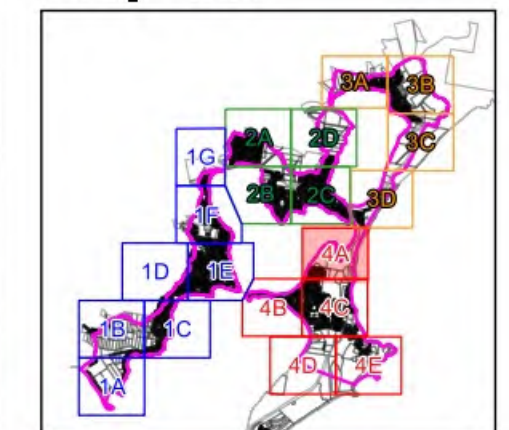
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



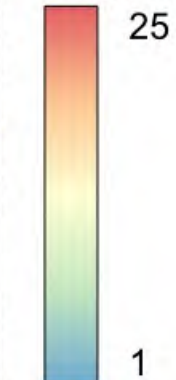
Figure C7.17

1% AEP Flood Level

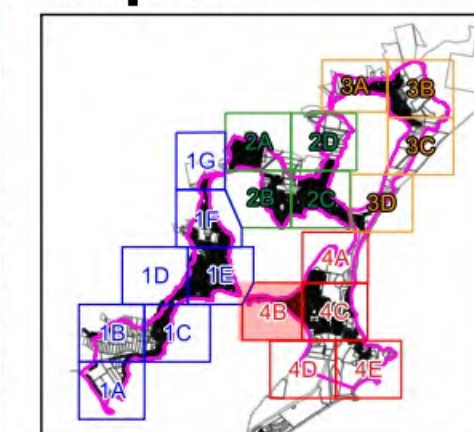
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



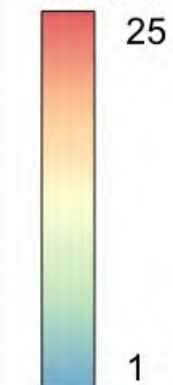
Figure C7.18

1% AEP Flood Level

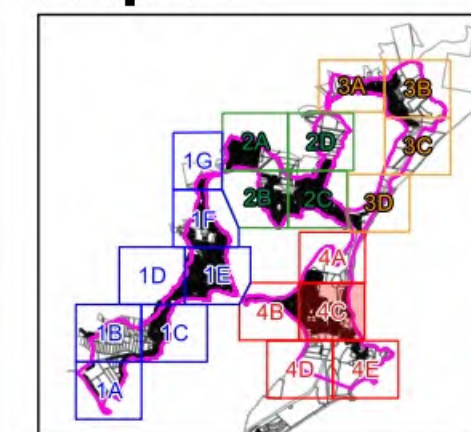
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

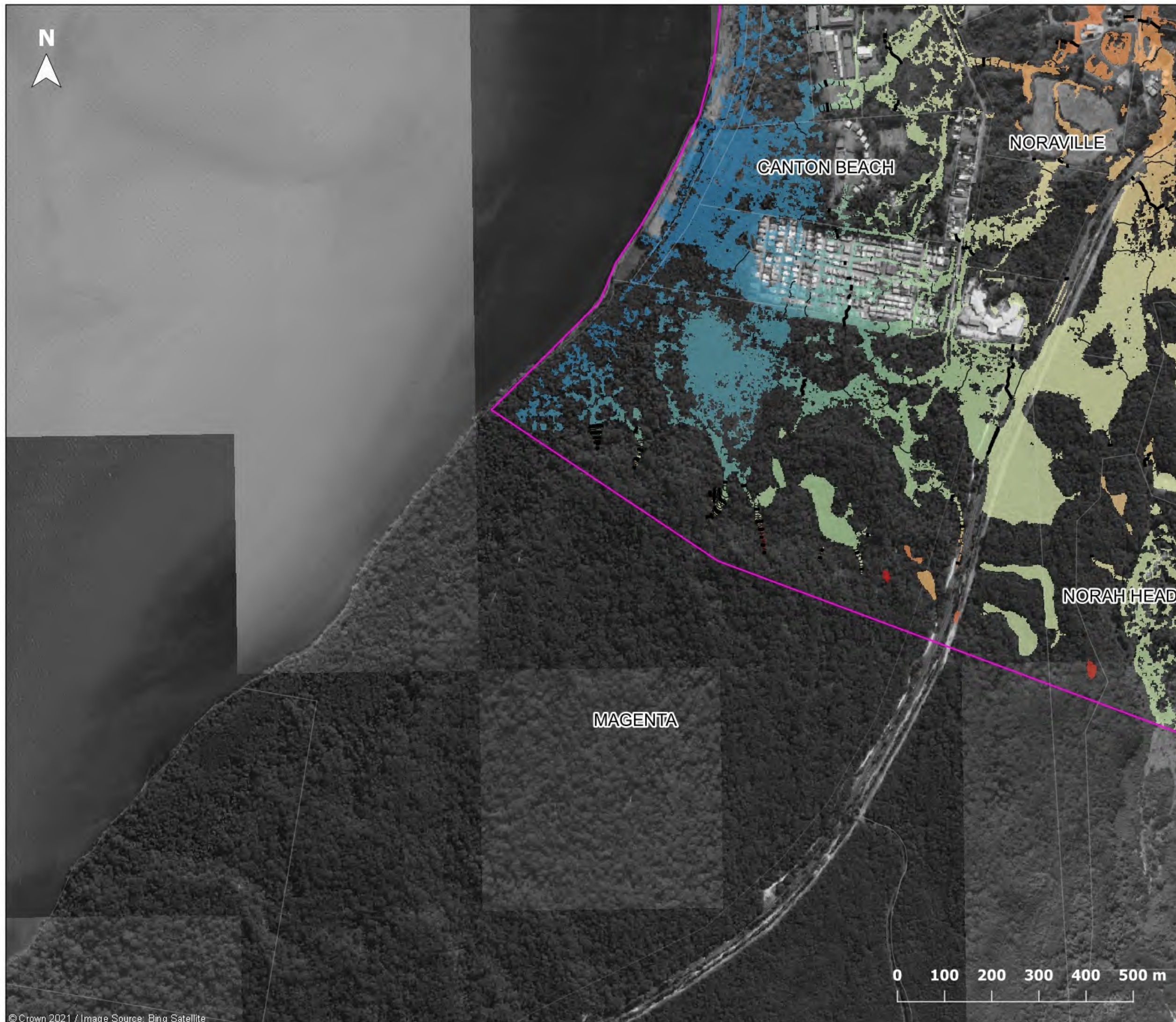


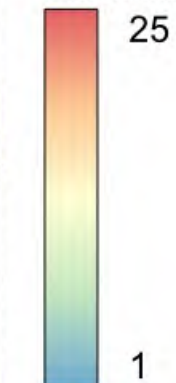
Figure C7.19

**1% AEP
Flood Level**

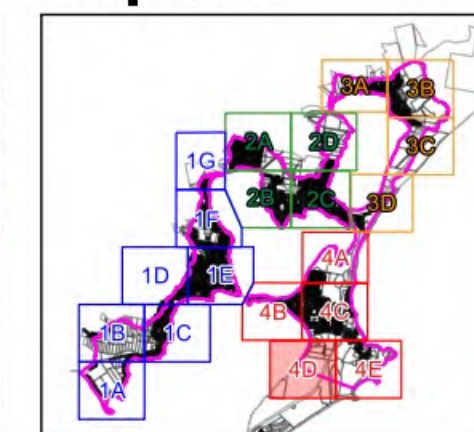
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

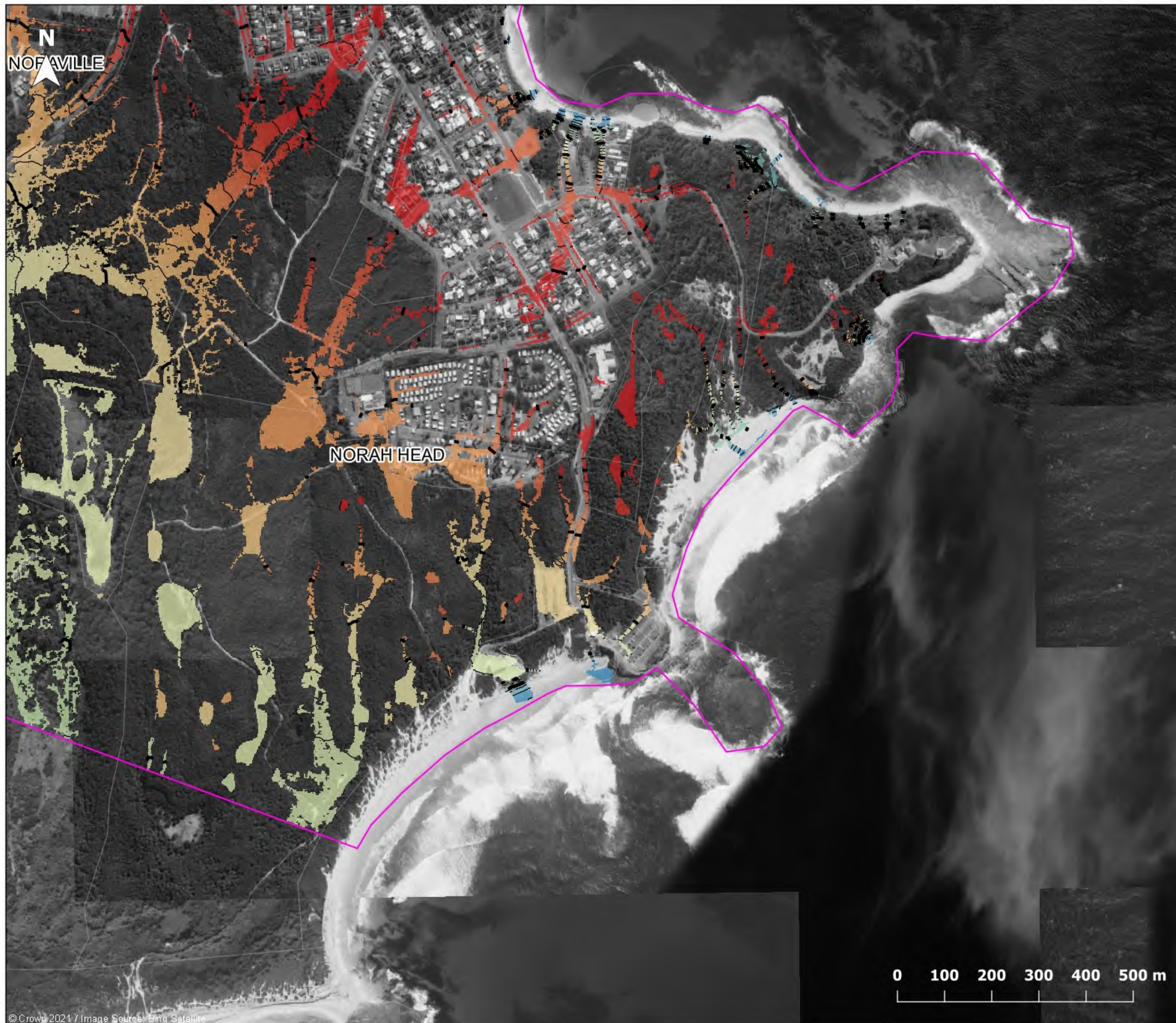


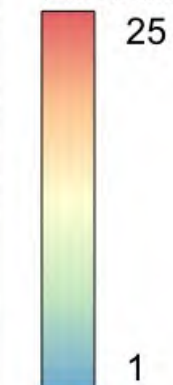
Figure C7.20

1% AEP Flood Level

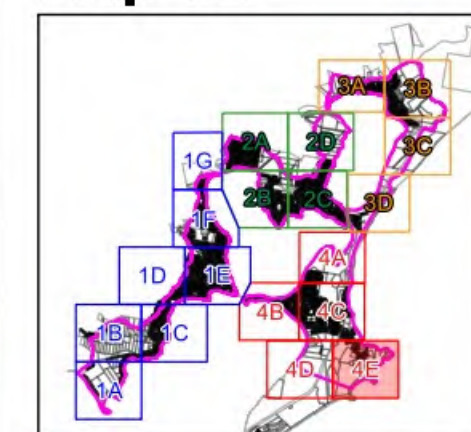
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

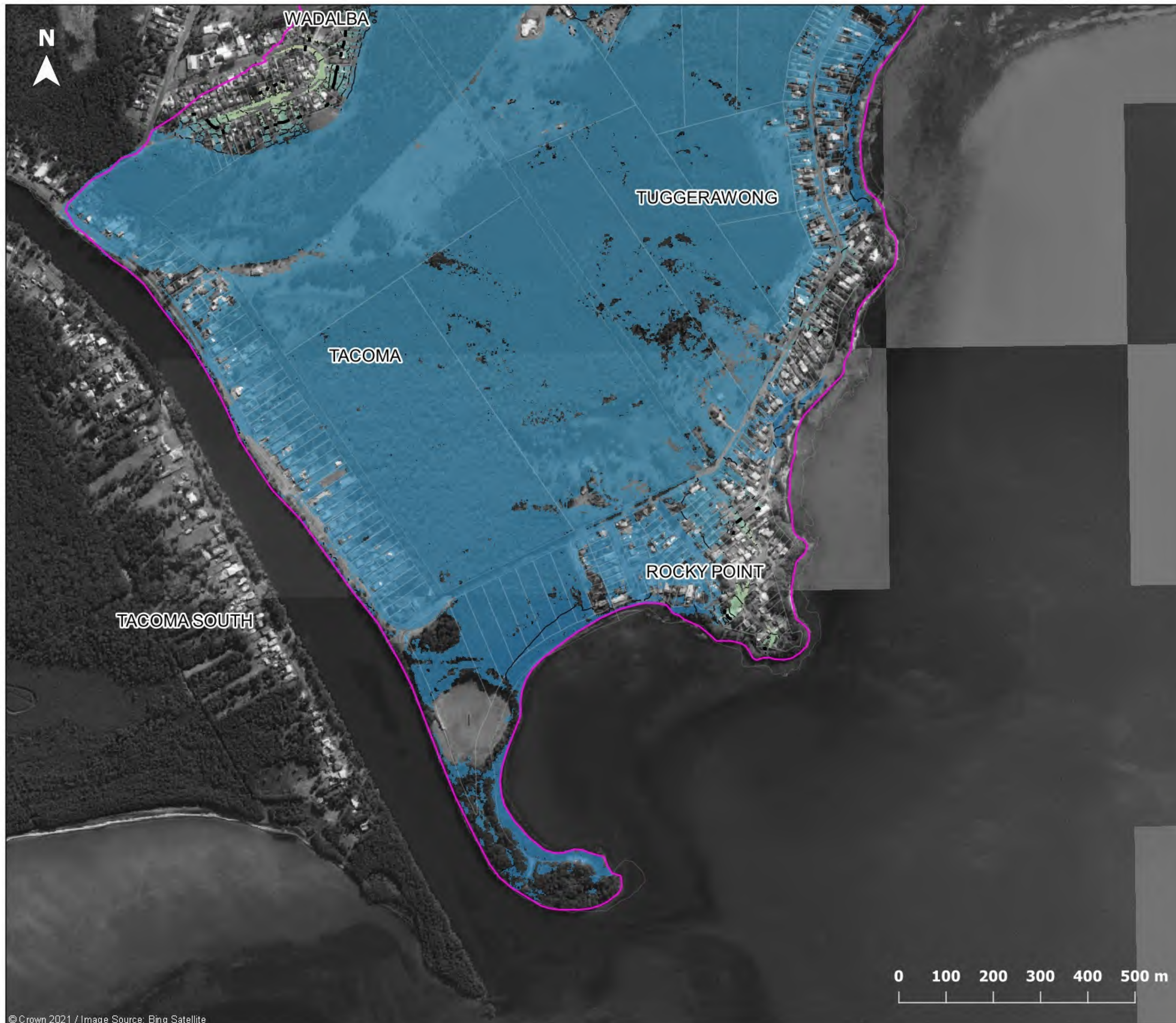


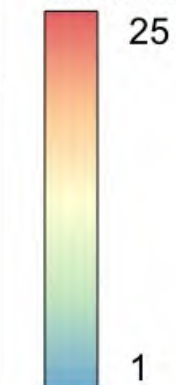
Figure C8.1

Probable Maximum Flood Level

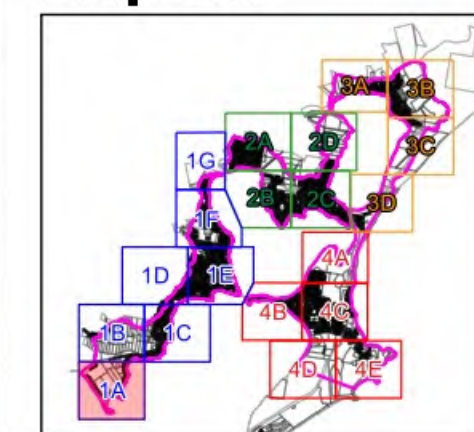
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

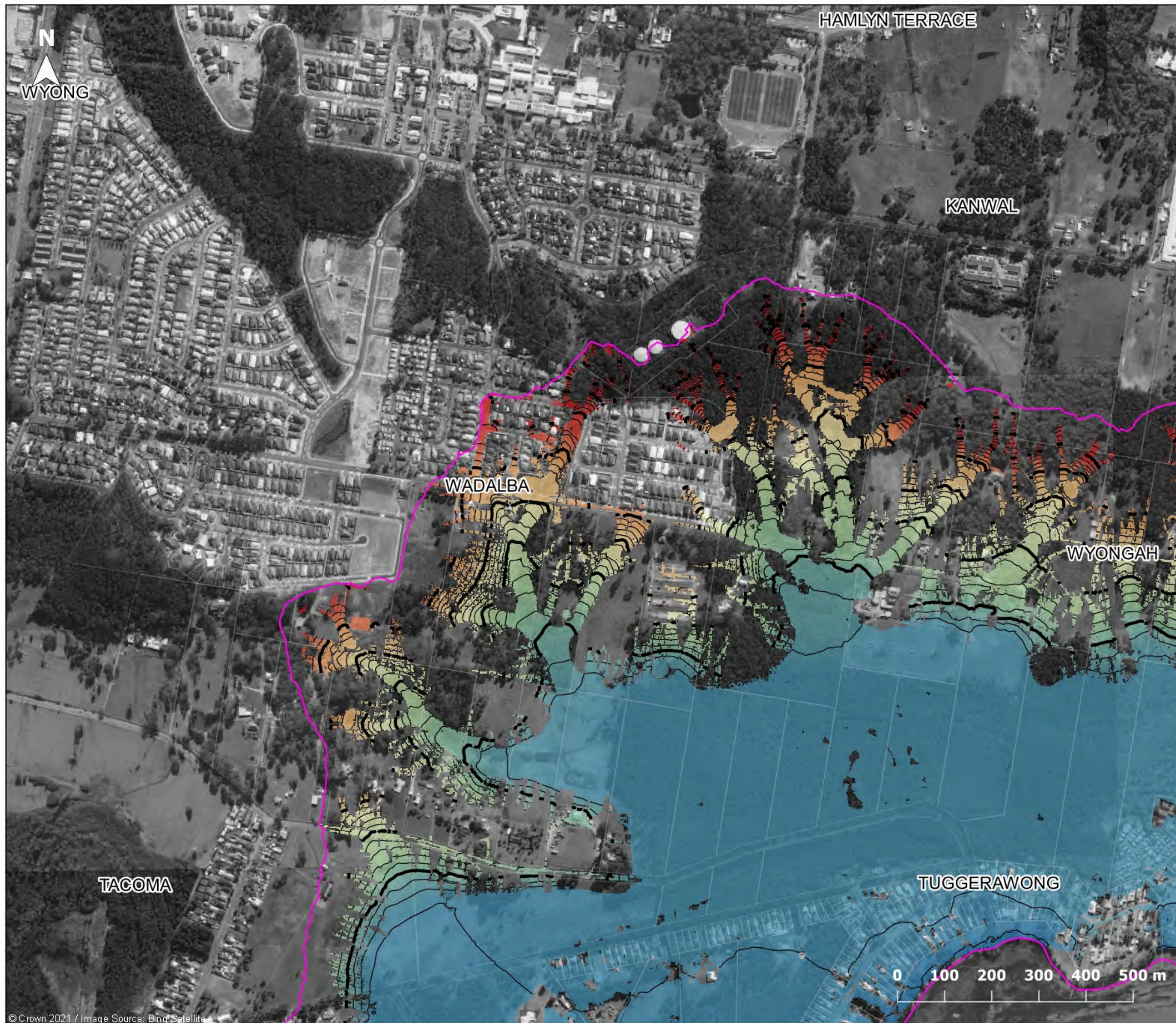


Figure C8.2

Probable Maximum Flood Level

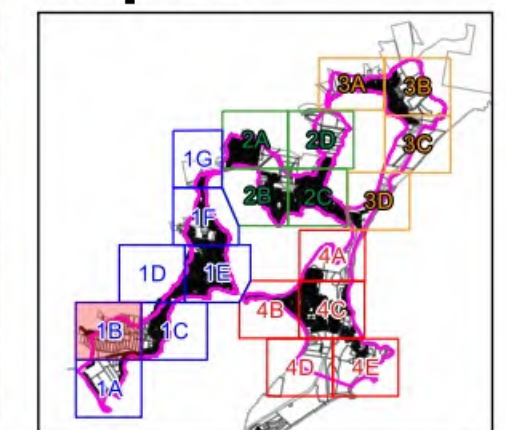
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

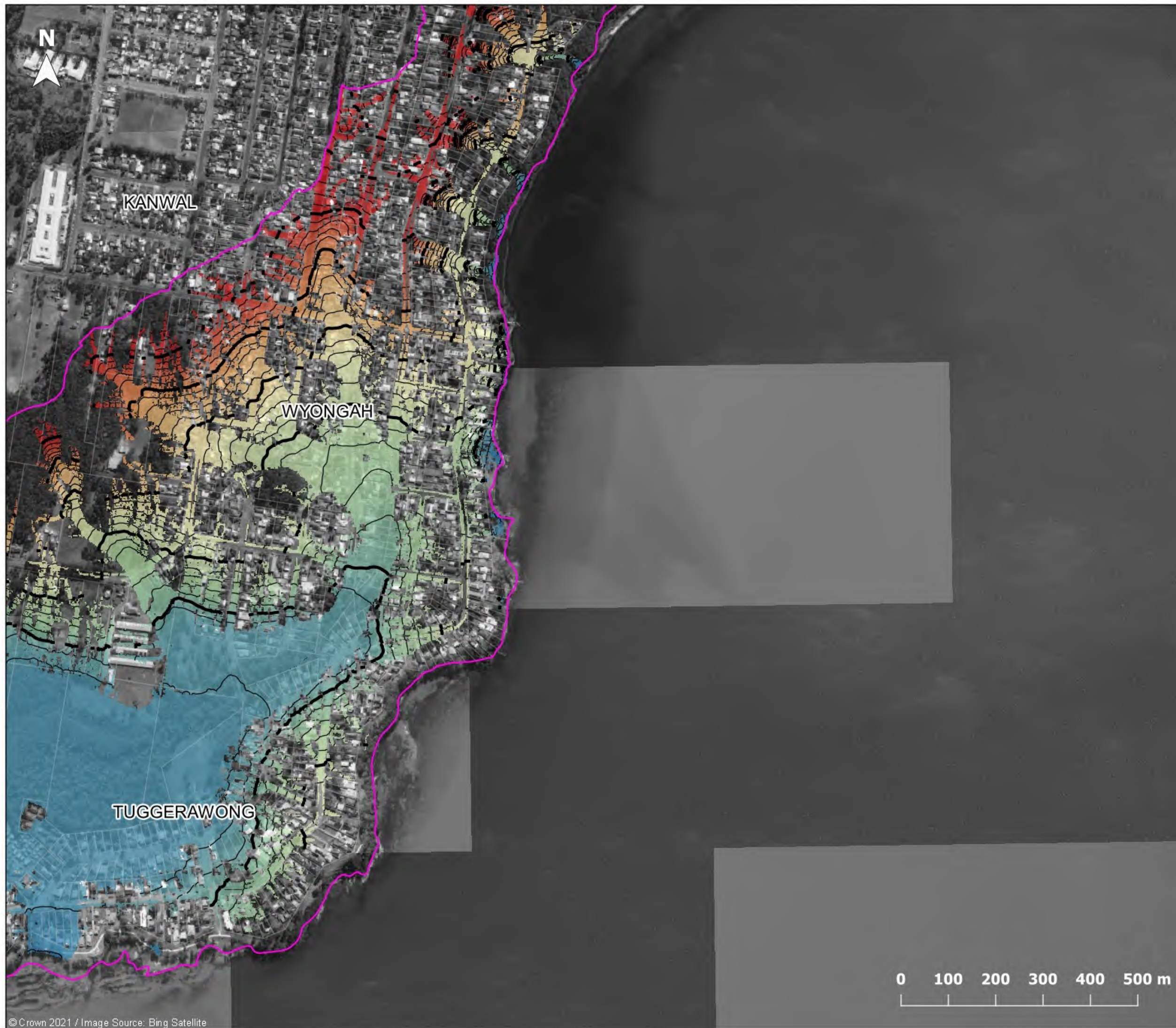


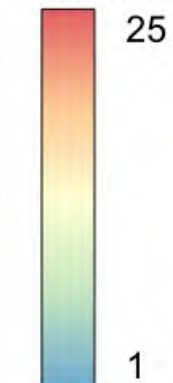
Figure C8.3

Probable Maximum Flood Level

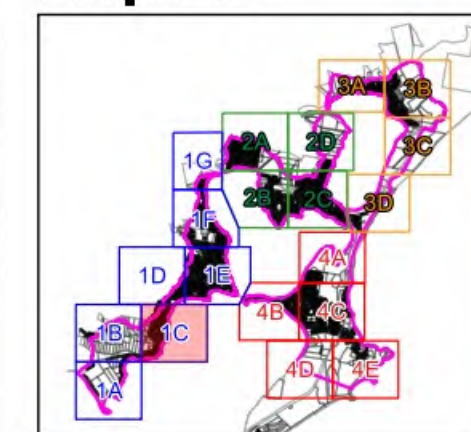
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

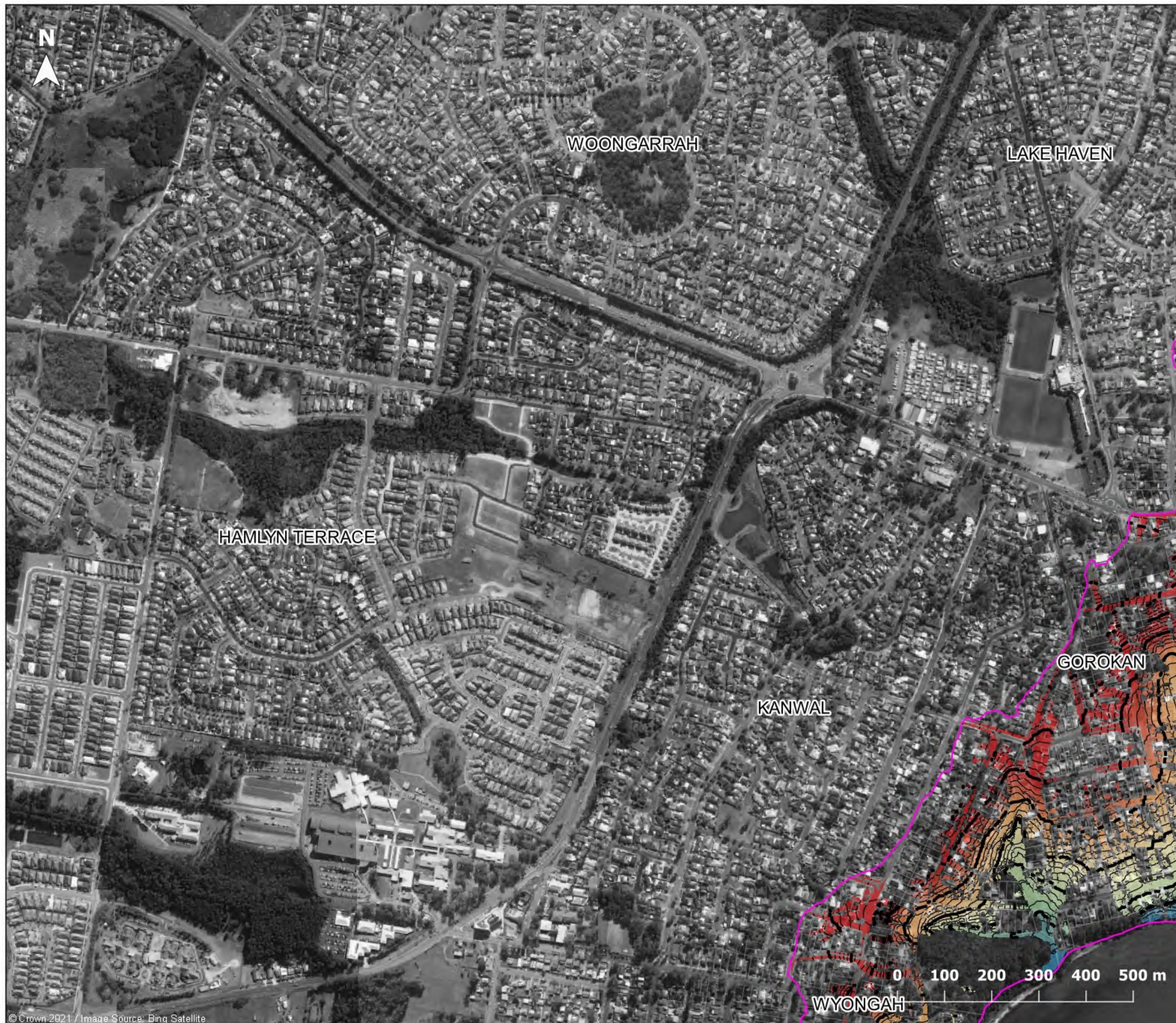


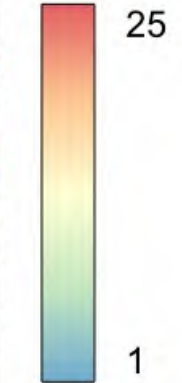
Figure C8.4

Probable Maximum Flood Level

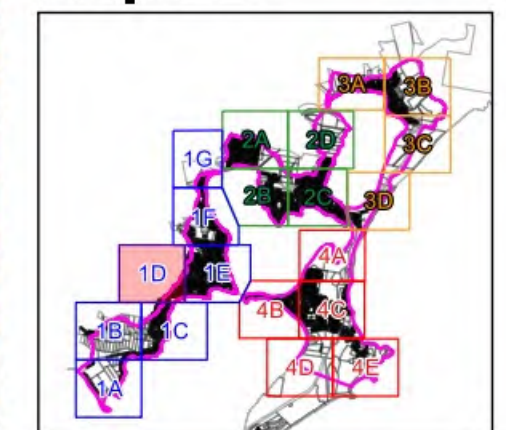
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



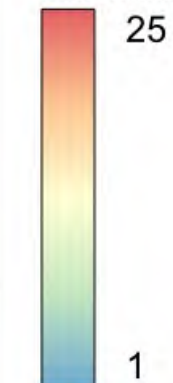
Figure C8.5

Probable Maximum Flood Level

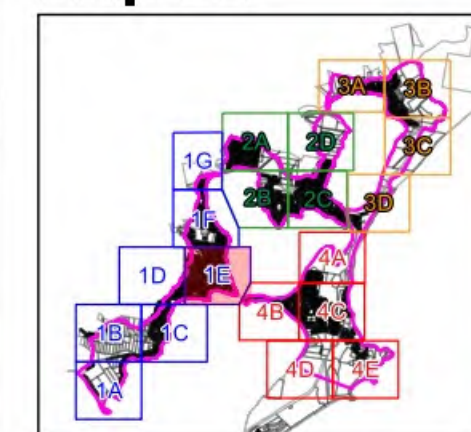
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

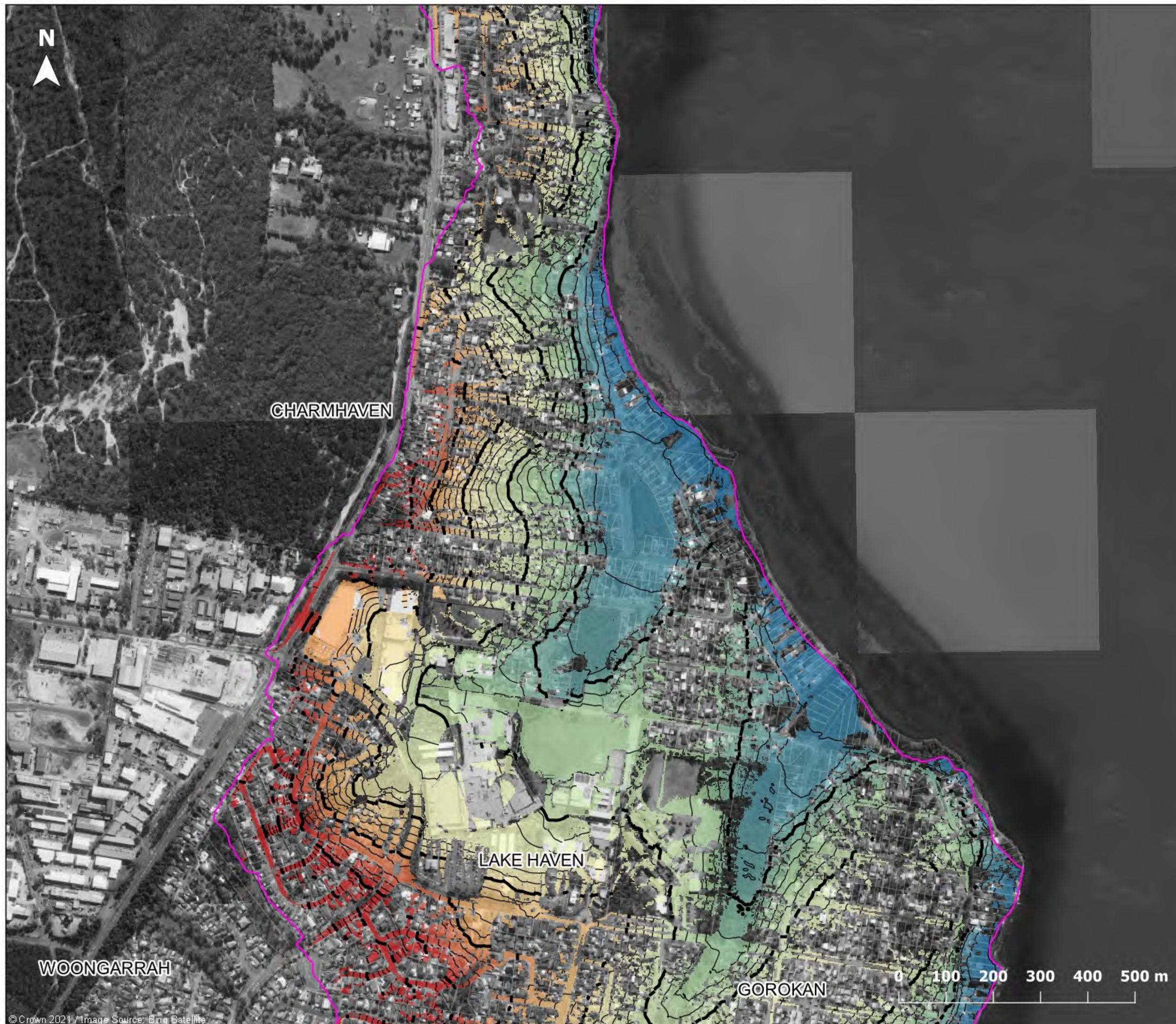


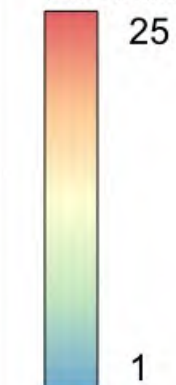
Figure C8.6

Probable Maximum Flood Level

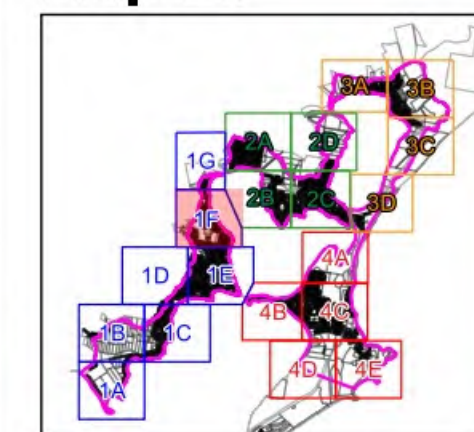
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1F



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

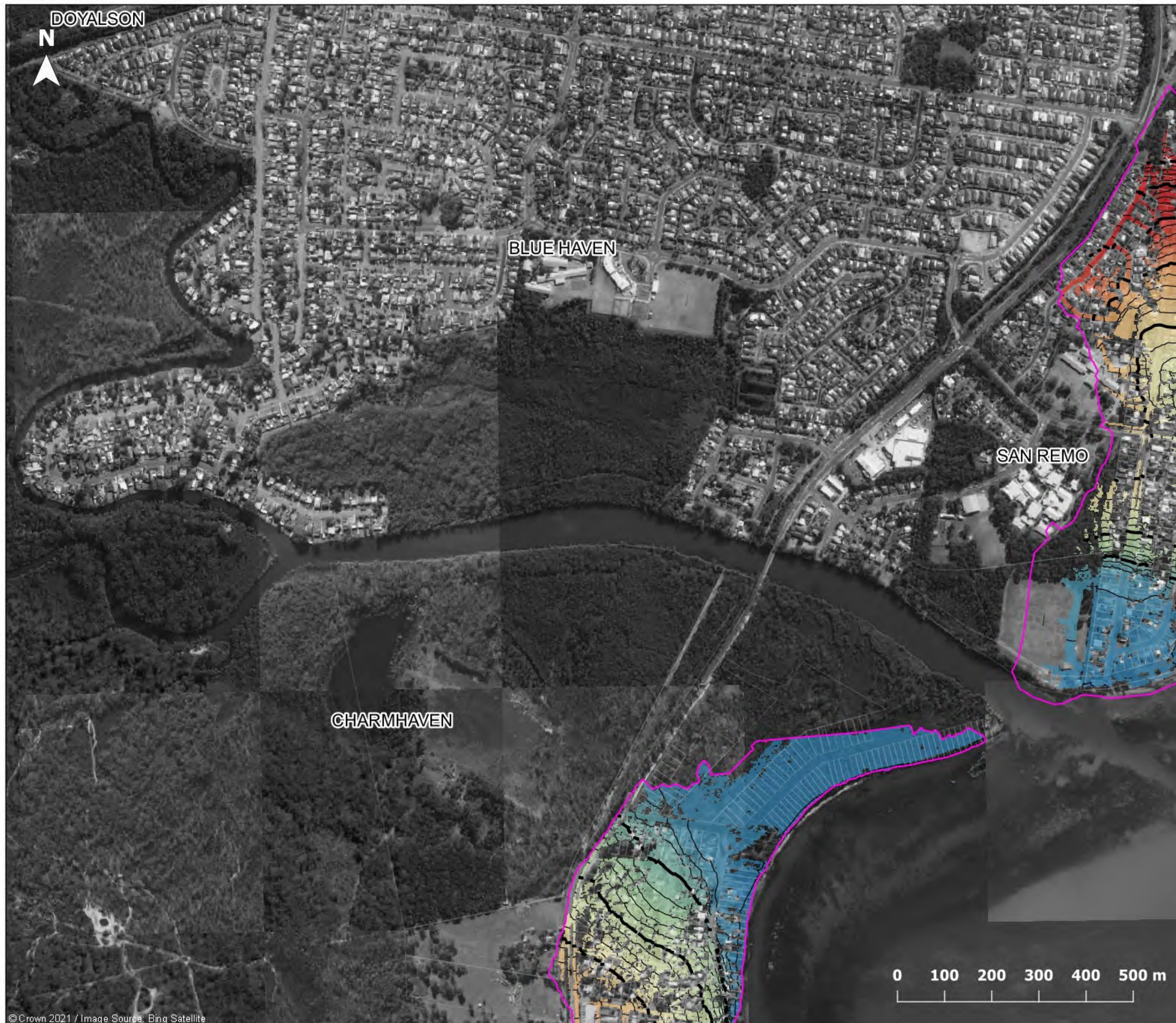


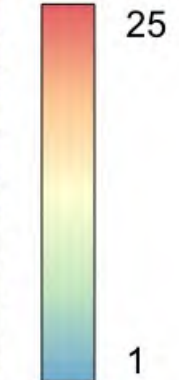
Figure C8.7

Probable Maximum Flood Level

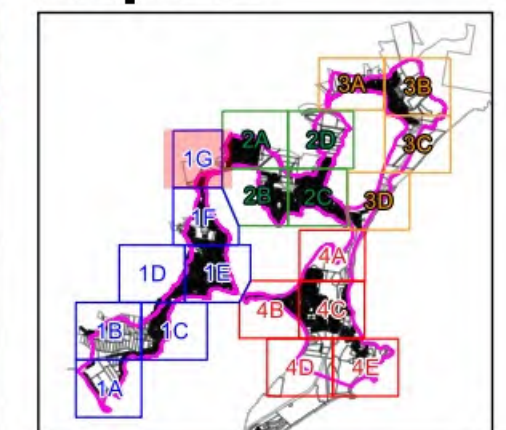
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 1G



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



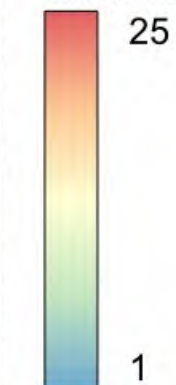
Figure C8.8

Probable Maximum Flood Level

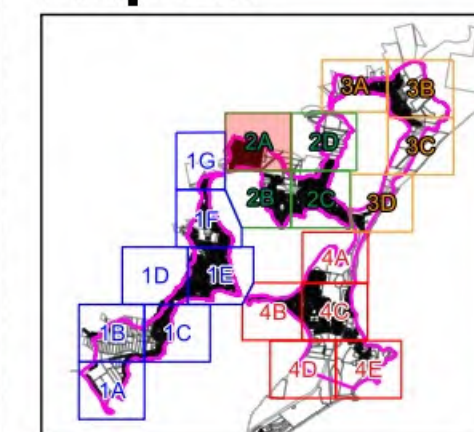
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

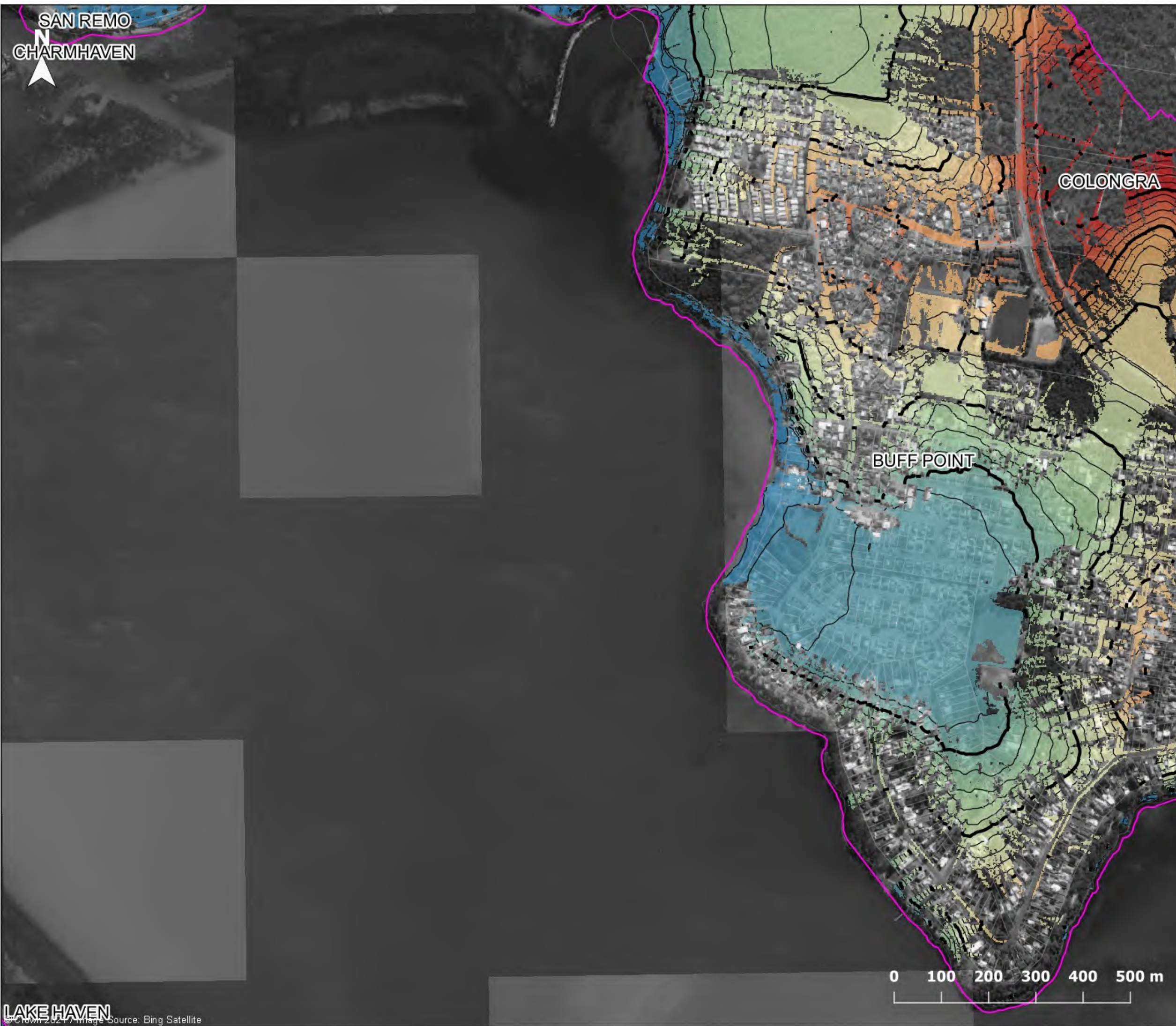


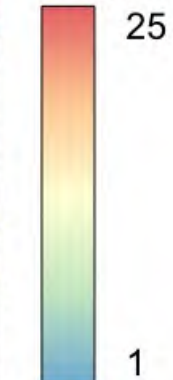
Figure C8.9

Probable Maximum Flood Level

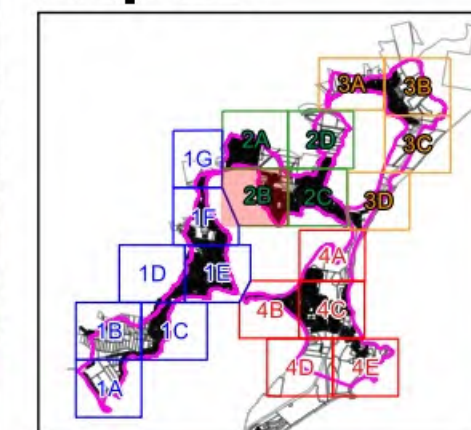
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

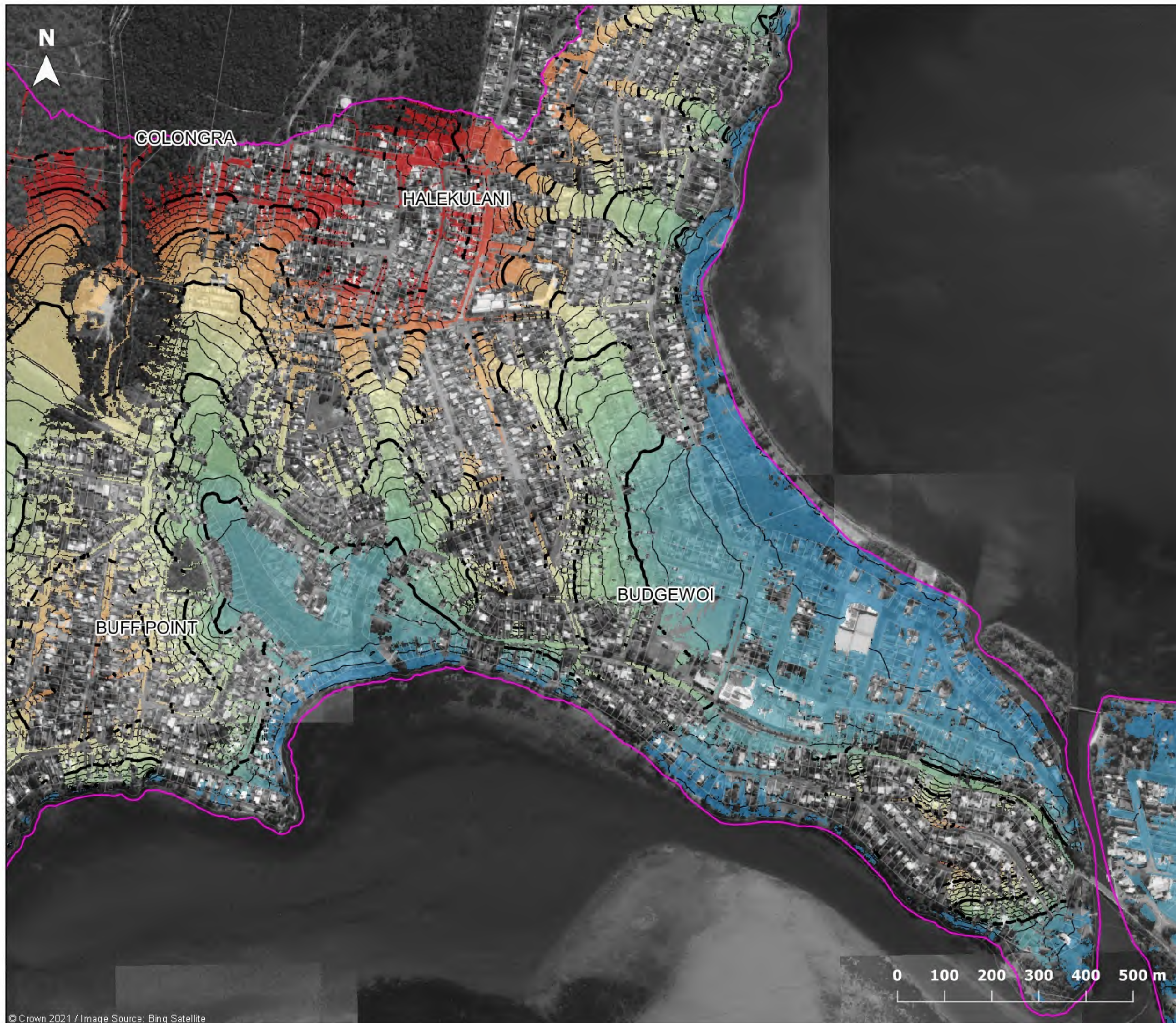


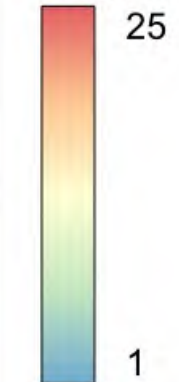
Figure C8.10

Probable Maximum Flood Level

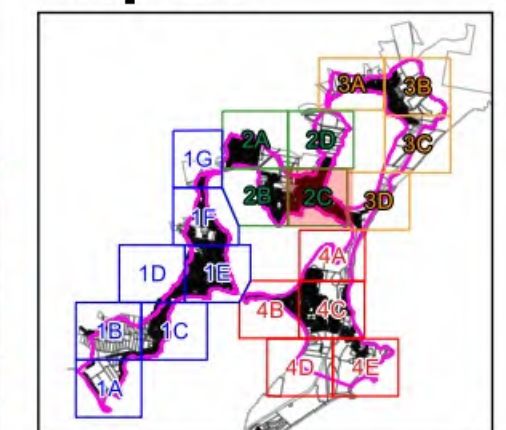
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



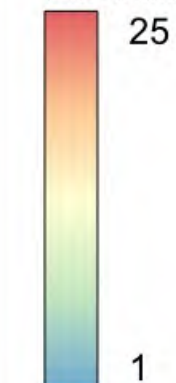
Figure C8.11

Probable Maximum Flood Level

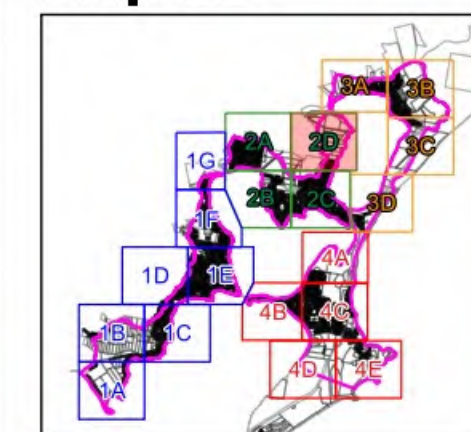
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 2D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



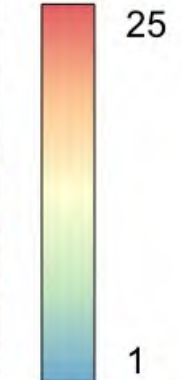
Figure C8.12

Probable Maximum Flood Level

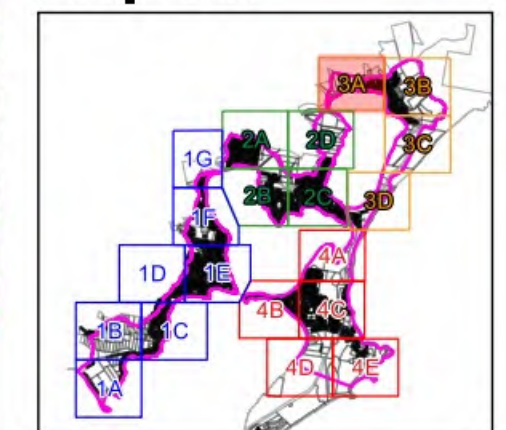
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

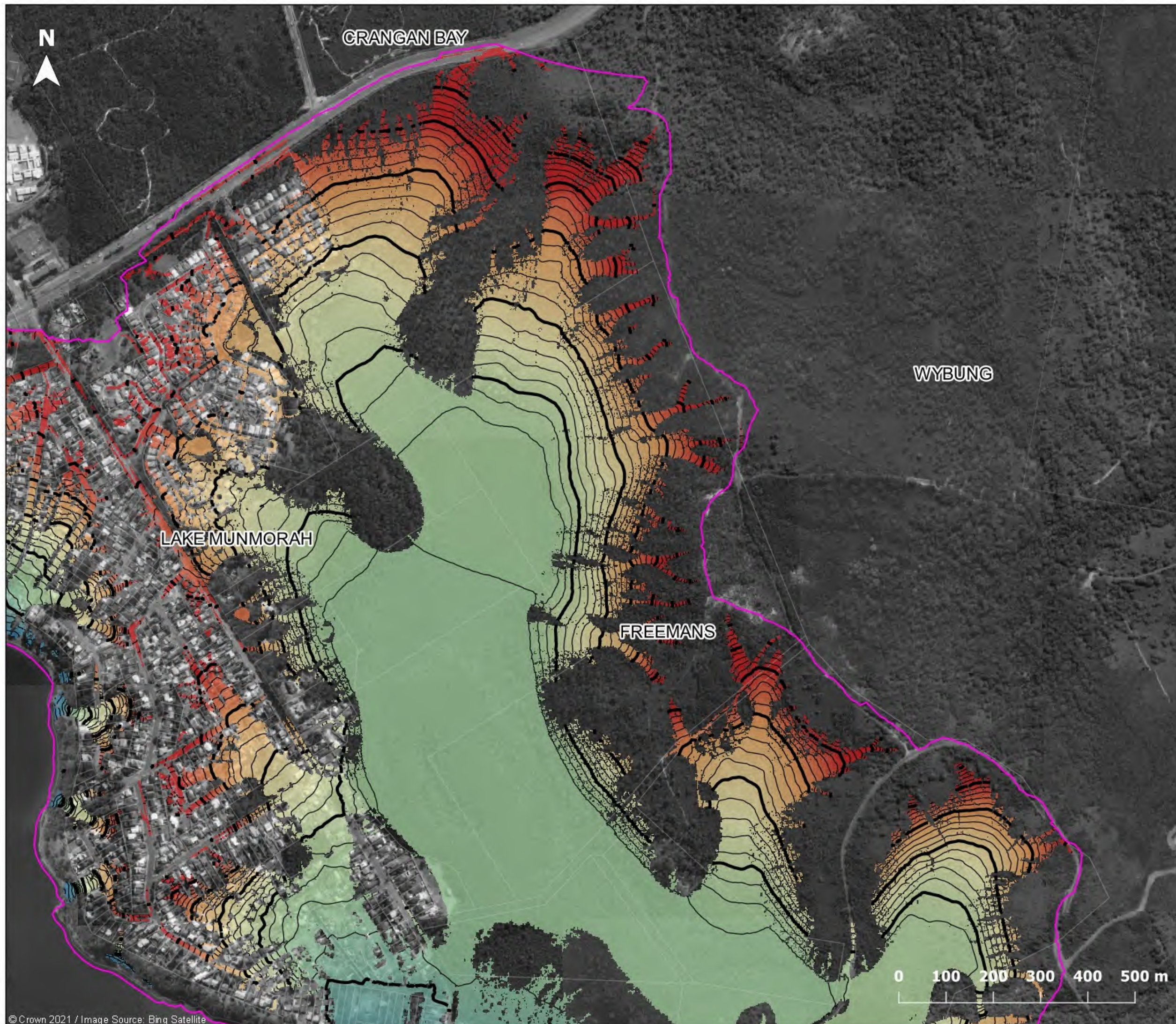


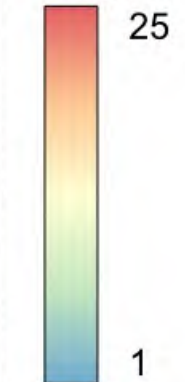
Figure C8.13

Probable Maximum Flood Level

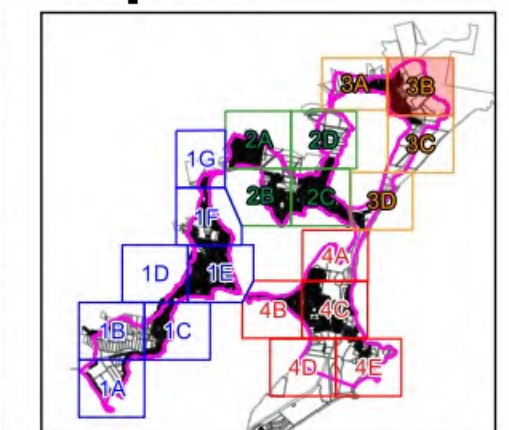
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

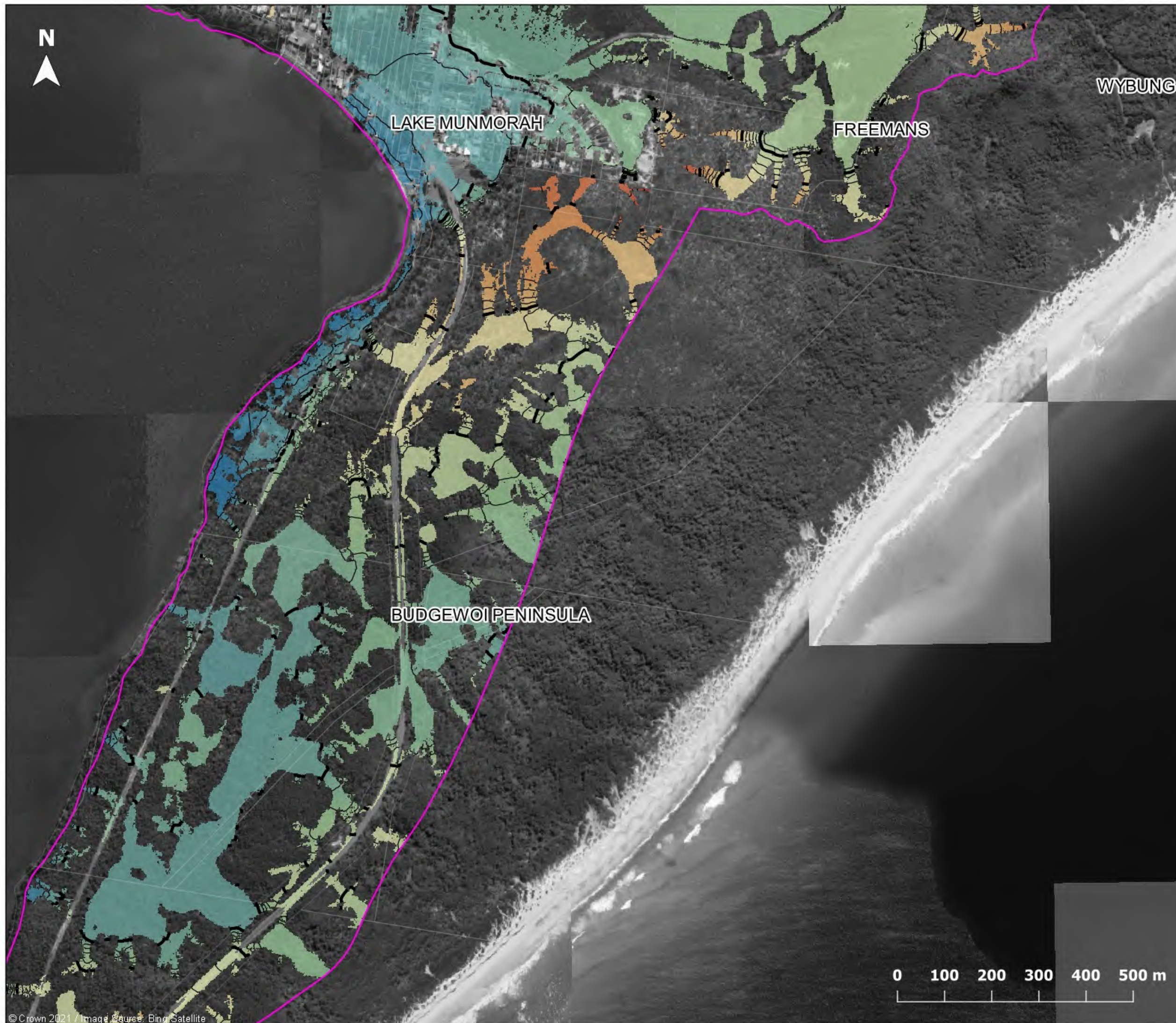


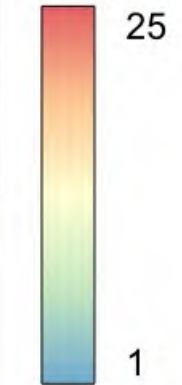
Figure C8.14

Probable Maximum Flood Level

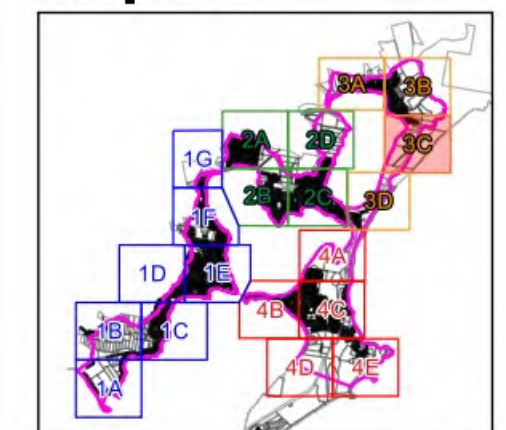
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

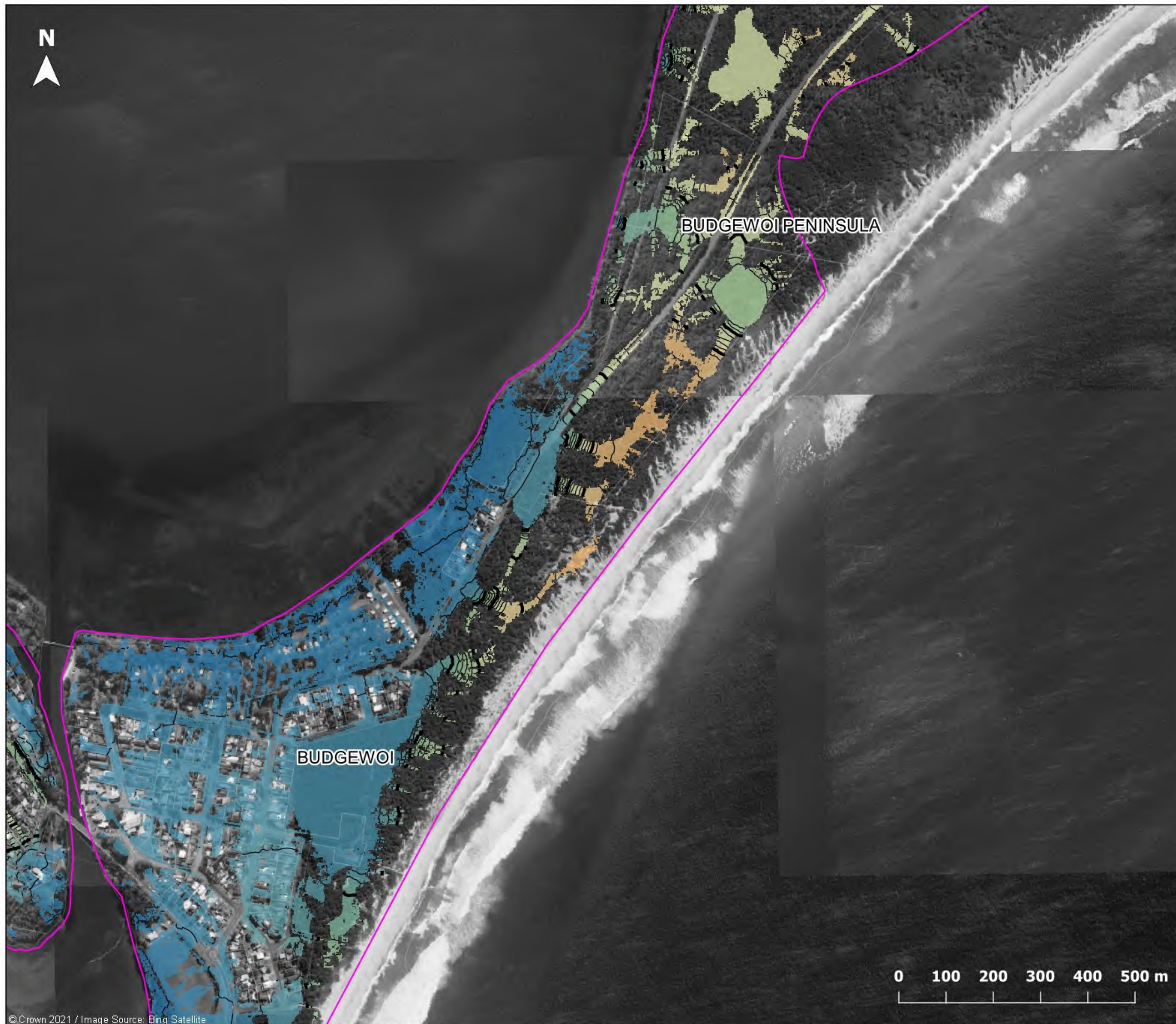


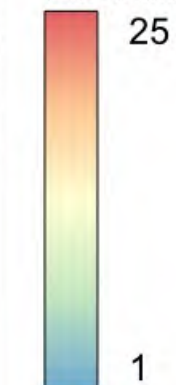
Figure C8.15

Probable Maximum Flood Level

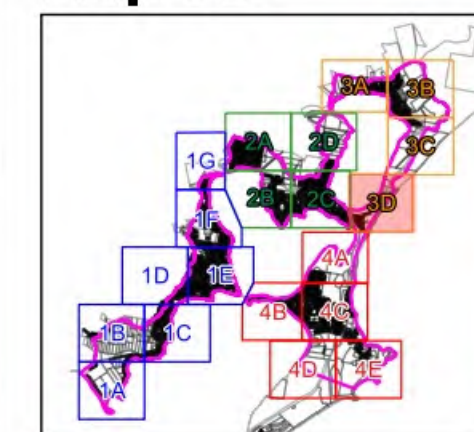
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 3D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

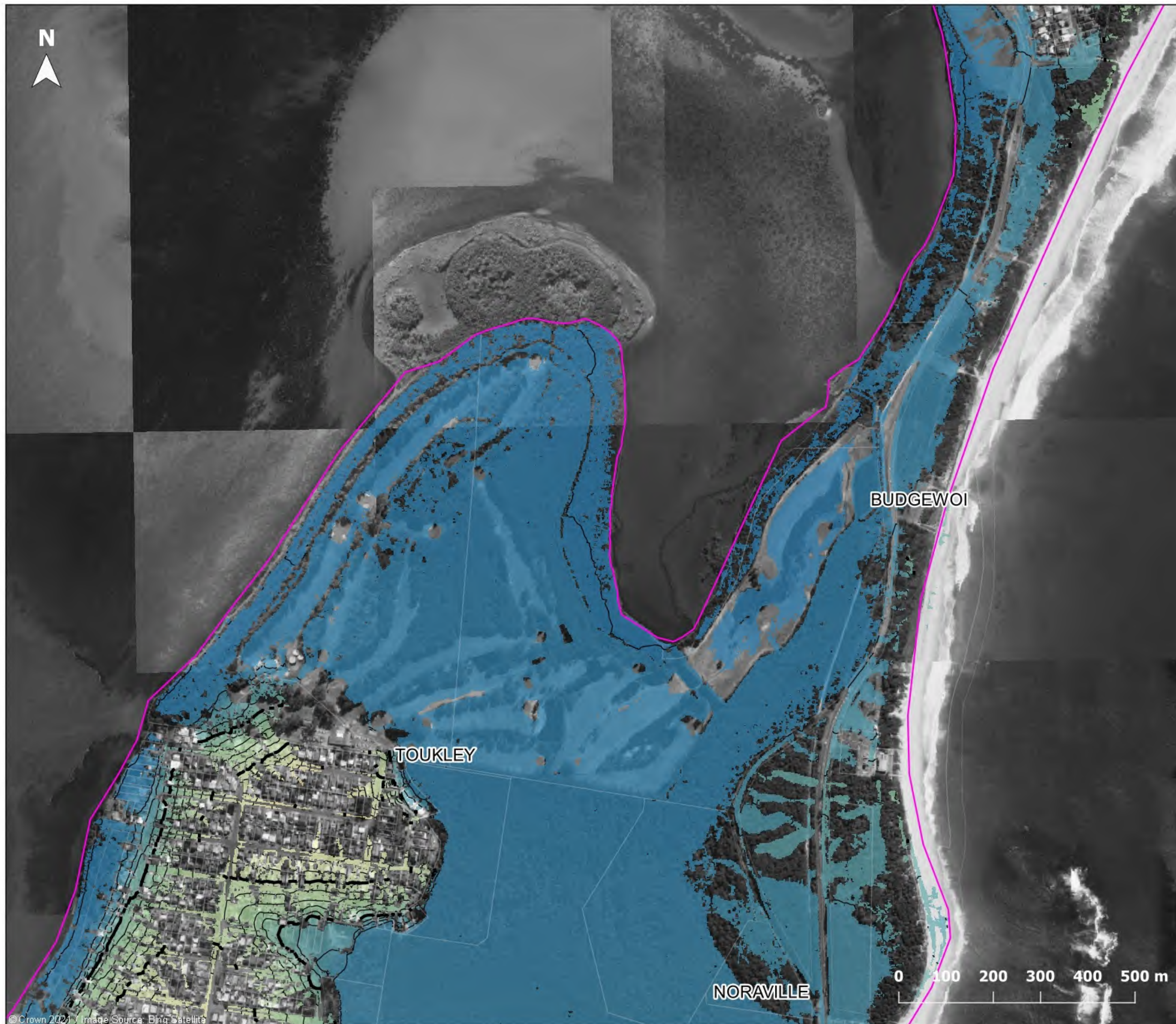


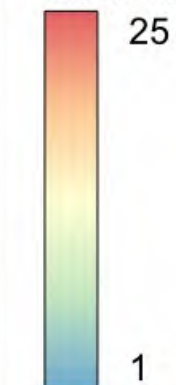
Figure C8.16

Probable Maximum Flood Level

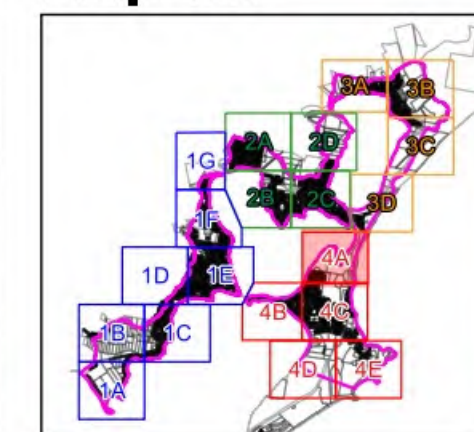
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



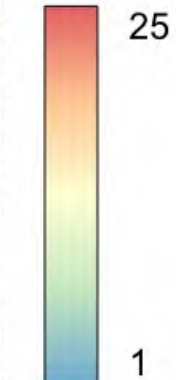
Figure C8.17

Probable Maximum Flood Level

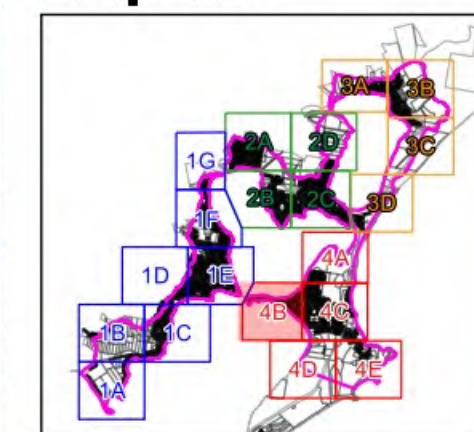
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

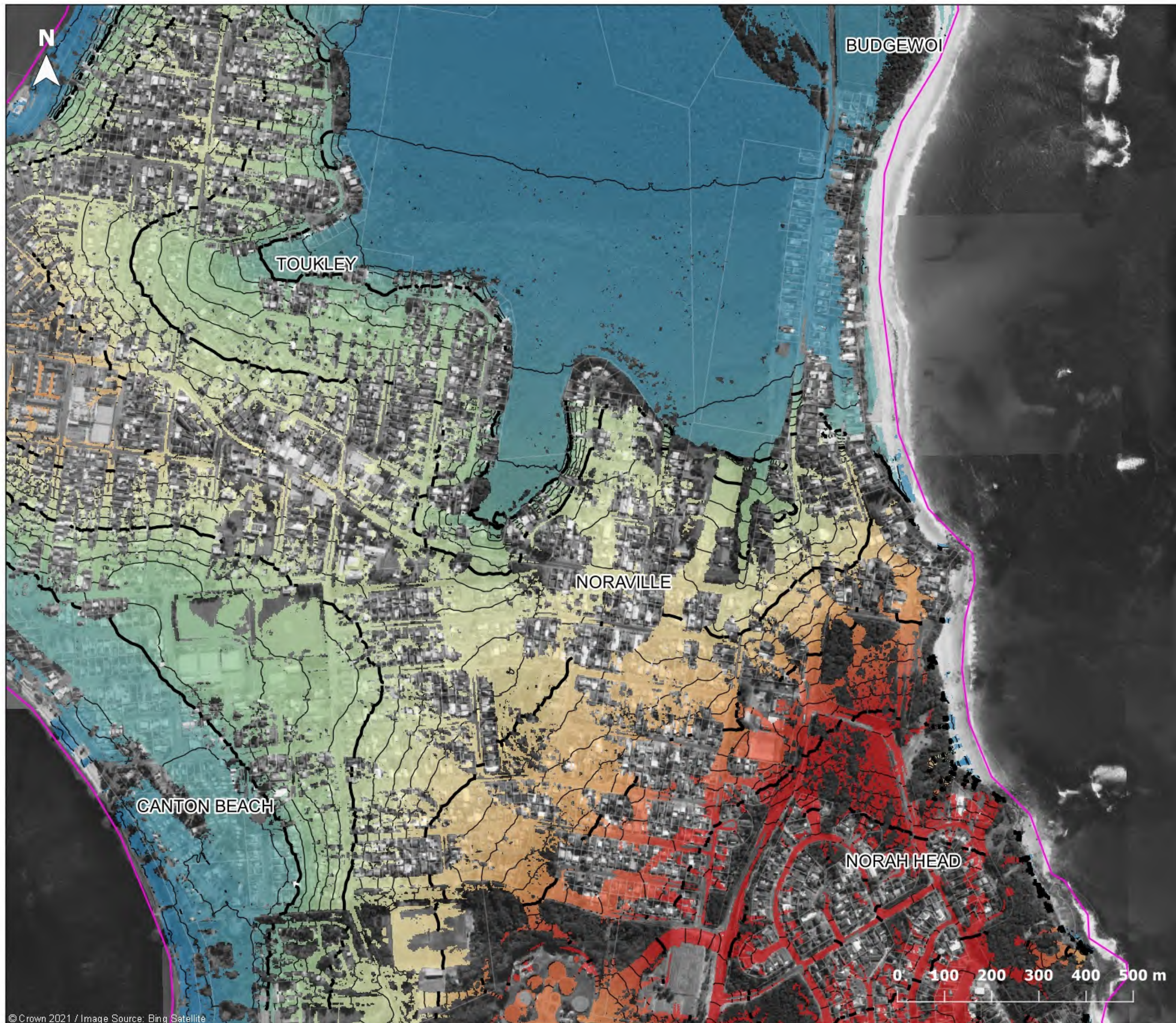


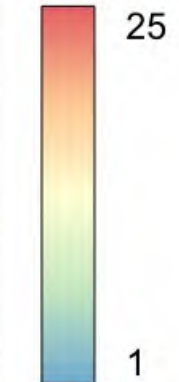
Figure C8.18

Probable Maximum Flood Level

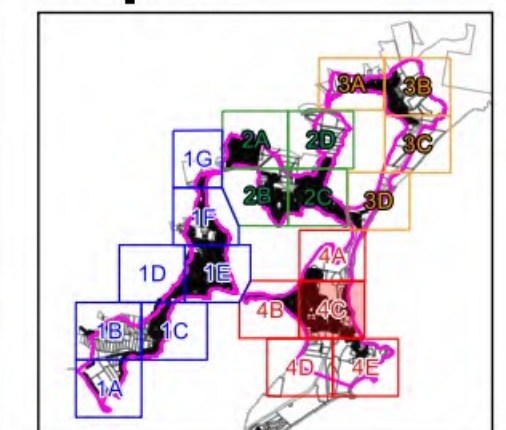
Legend

- Catchment area
- Cadastral
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

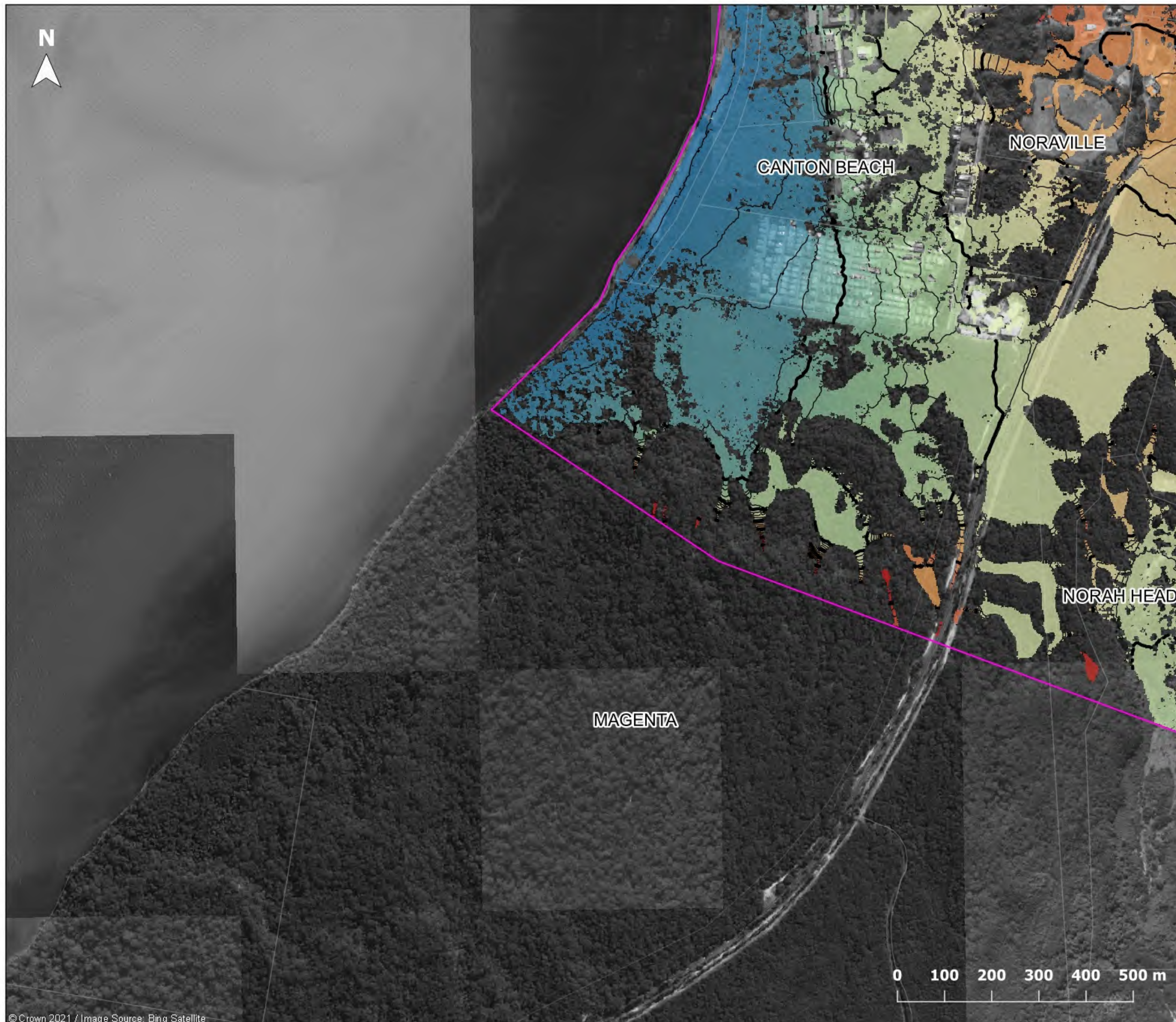


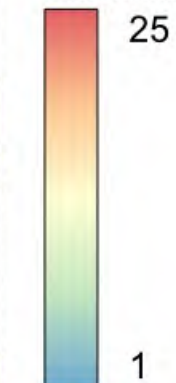
Figure C8.19

Probable Maximum Flood Level

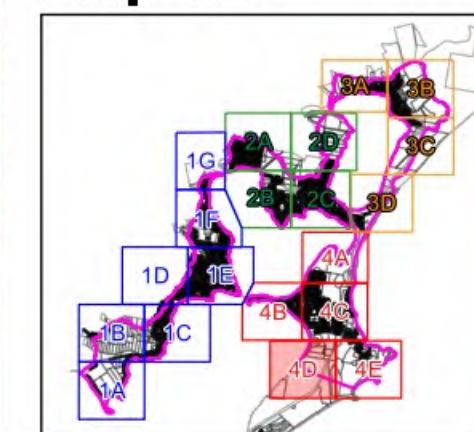
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4D



Report MHL2571

Northern Lakes Floodplain Risk Management Study & Plan



Manly
Hydraulics
Laboratory

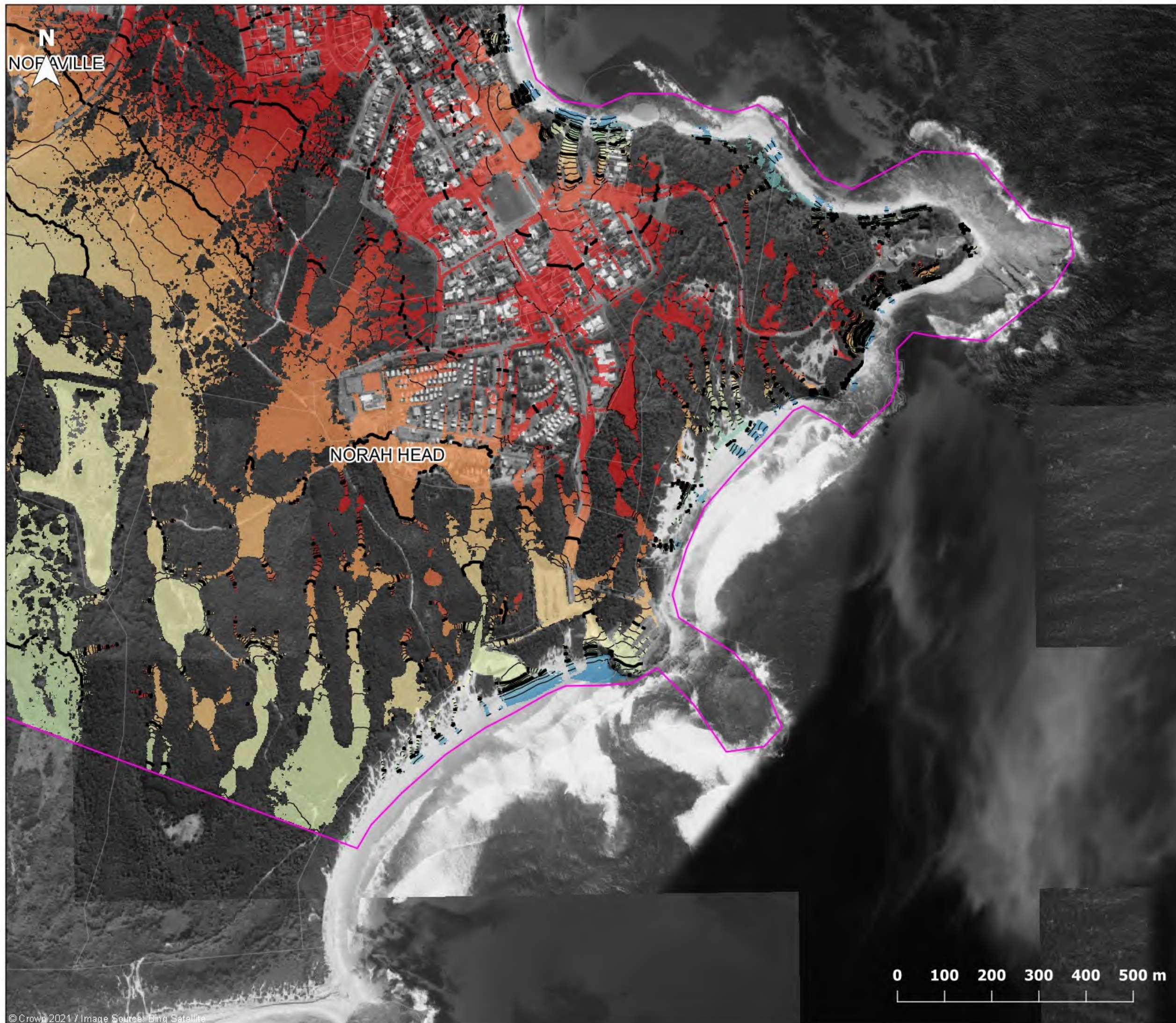


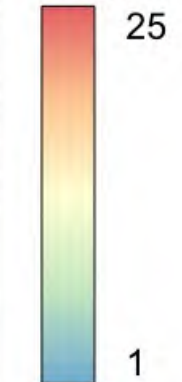
Figure C8.20

Probable Maximum Flood Level

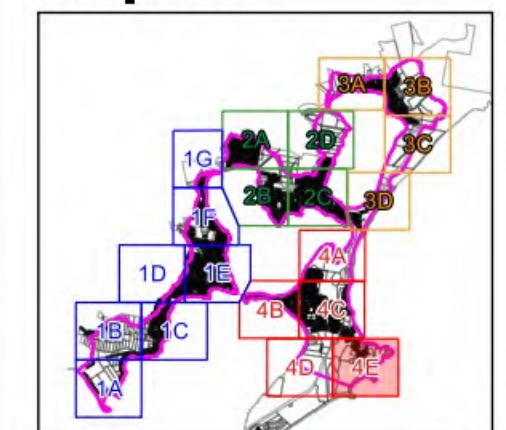
Legend

- Catchment area
- Cadastre
- 1m Contour
- 5m Contour

Elevation (m AHD)



Map 4E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

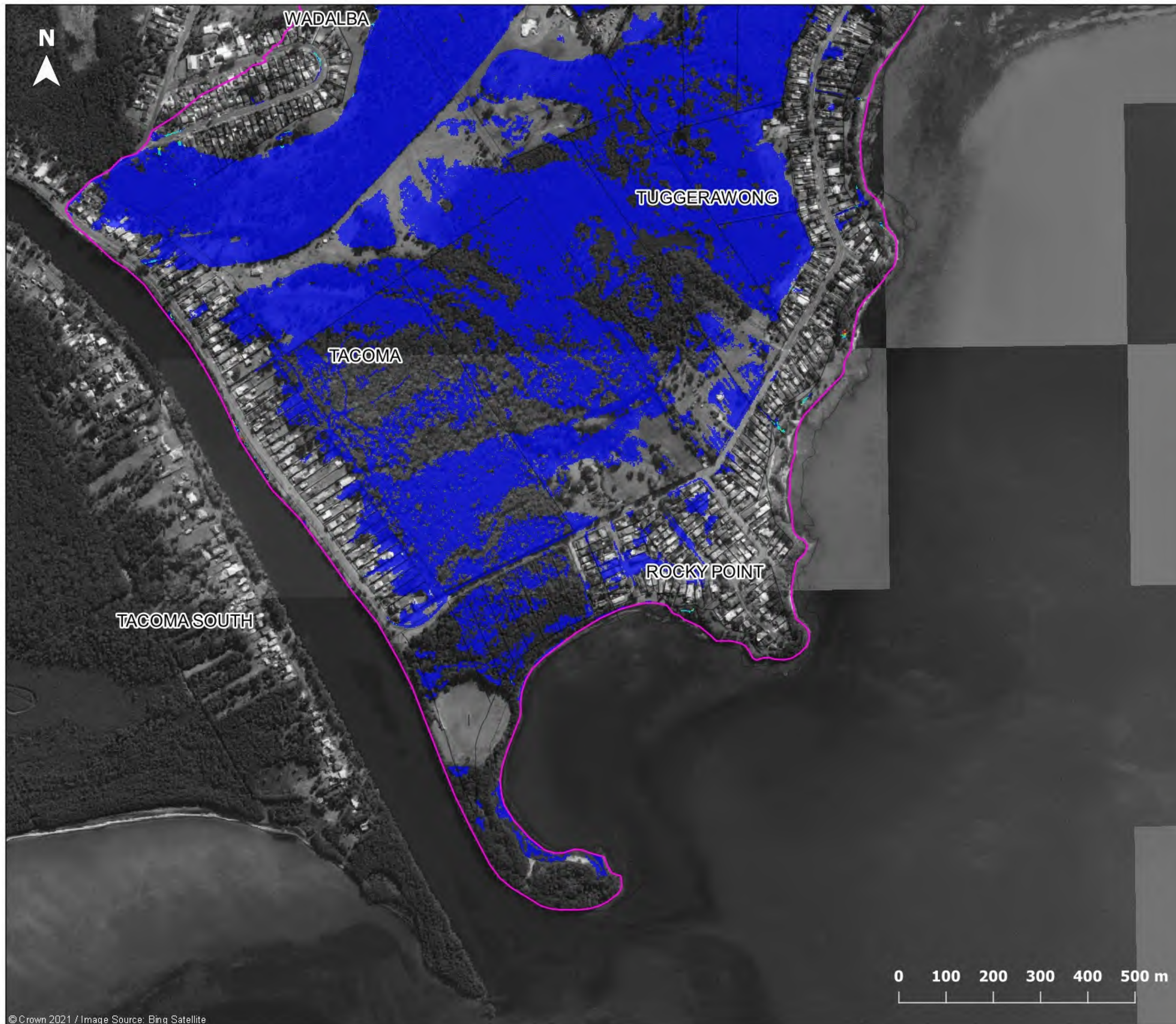


Figure C9.1

20% AEP Flood Velocity

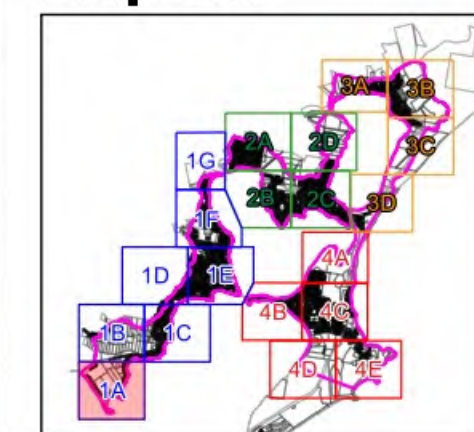
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 1A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

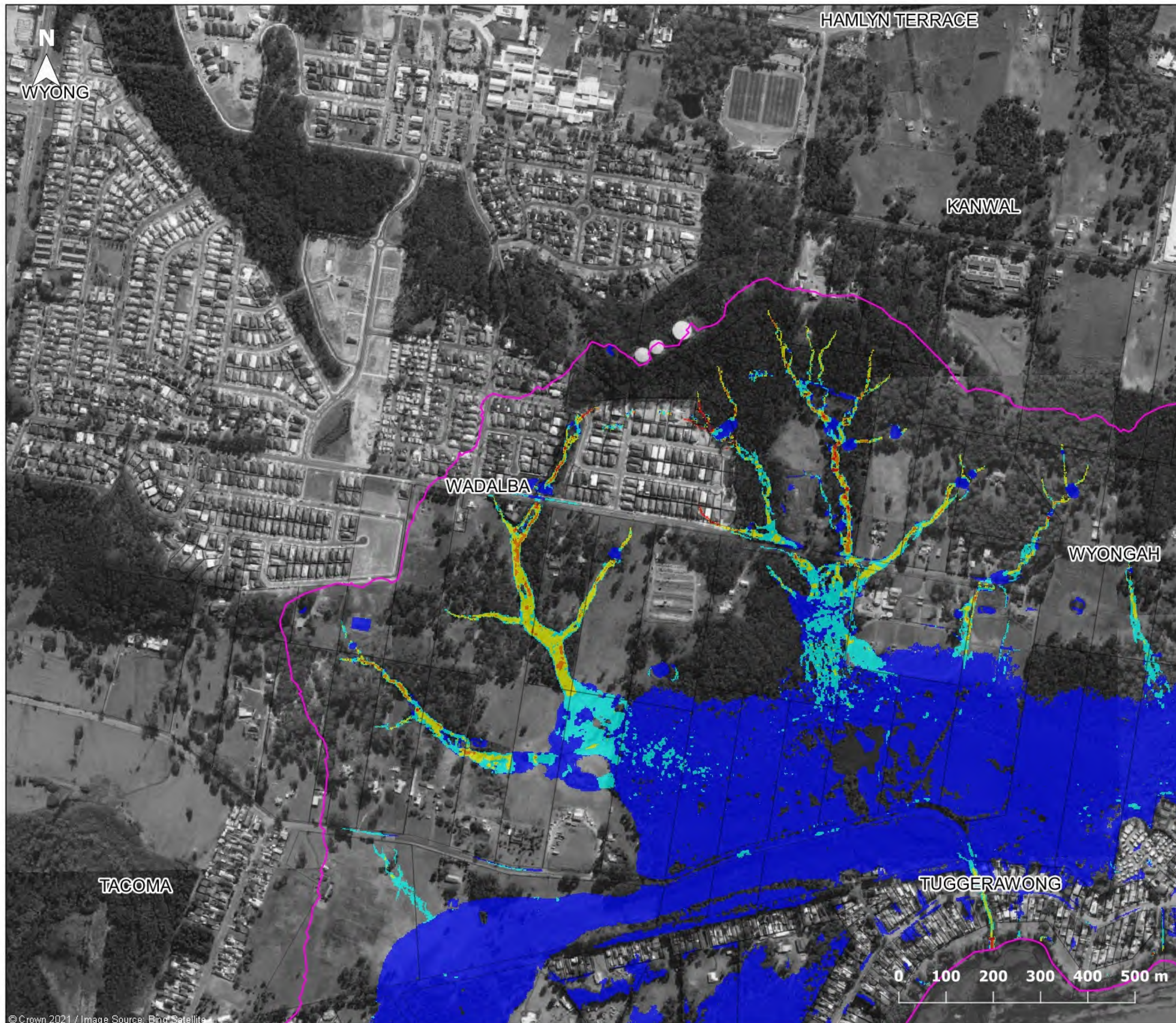
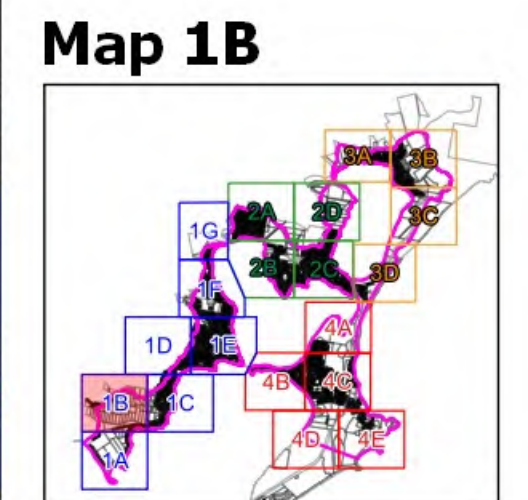
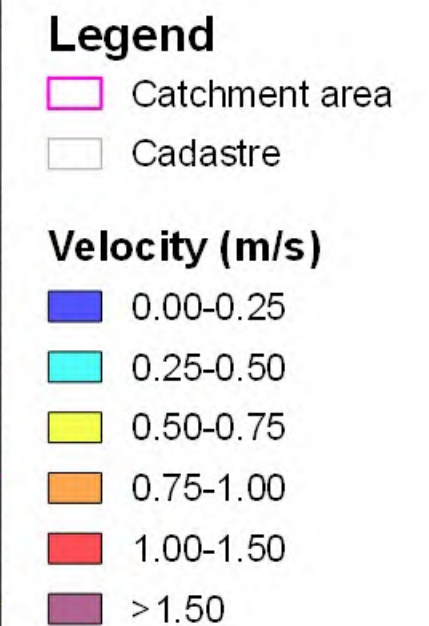


Figure C9.2

20% AEP Flood Velocity



Report MHL2571

Northern Lakes Floodplain Risk Management Study & Plan

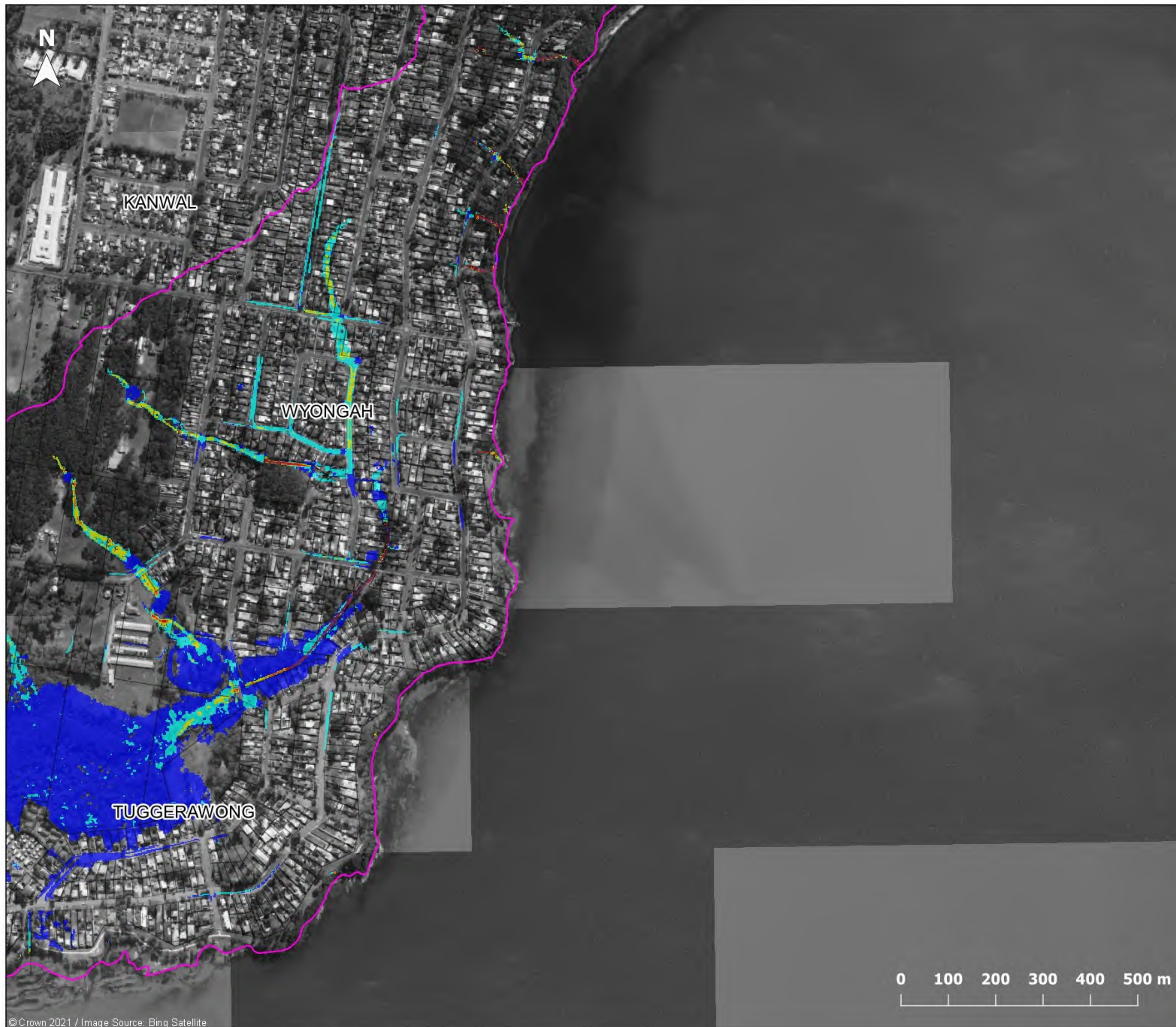


Figure C9.3

20% AEP Flood Velocity

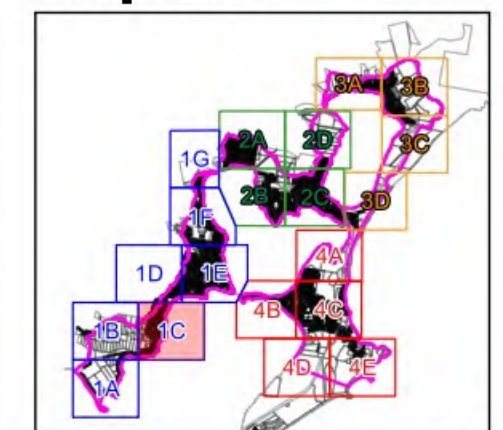
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- >1.50

Map 1C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

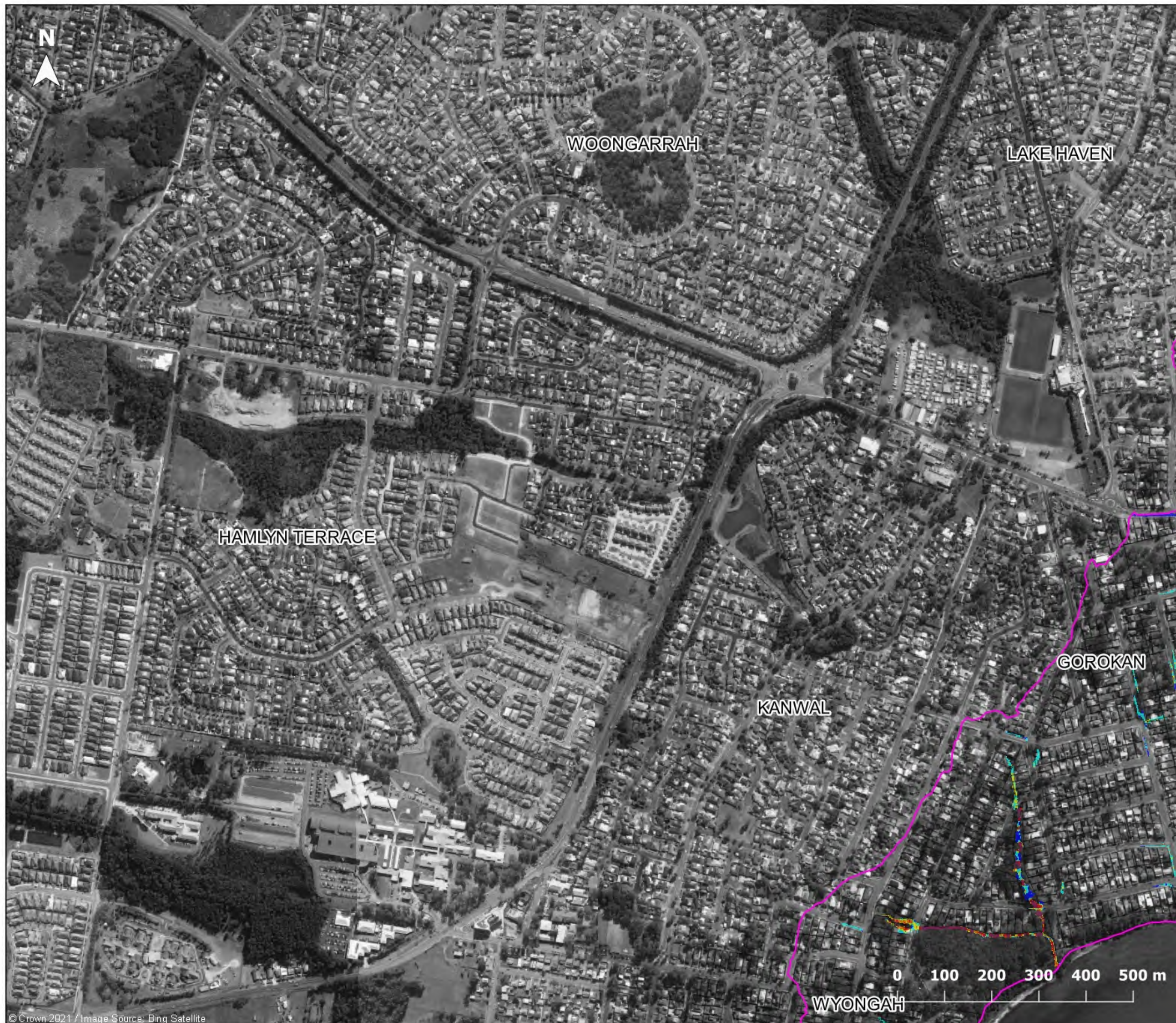


Figure C9.4

**20% AEP
Flood Velocity**

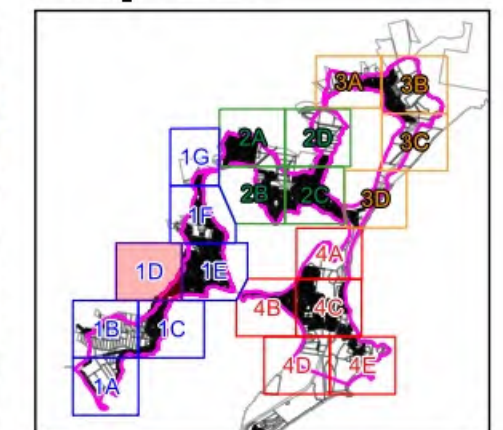
Legend

-  Catchment area
-  Cadastre

Velocity (m/s)

-  0.00-0.25
-  0.25-0.50
-  0.50-0.75
-  0.75-1.00
-  1.00-1.50
-  > 1.50

Map 1D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C9.5

**20% AEP
Flood Velocity**

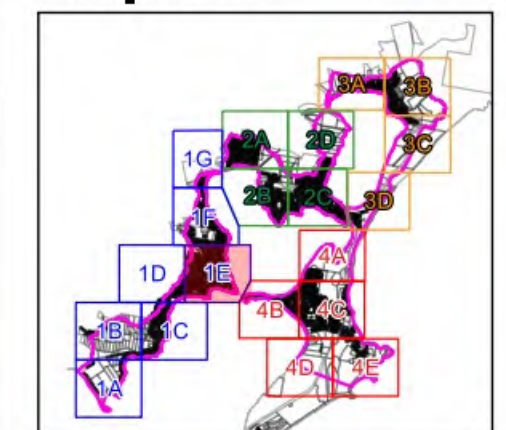
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- >1.50

Map 1E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

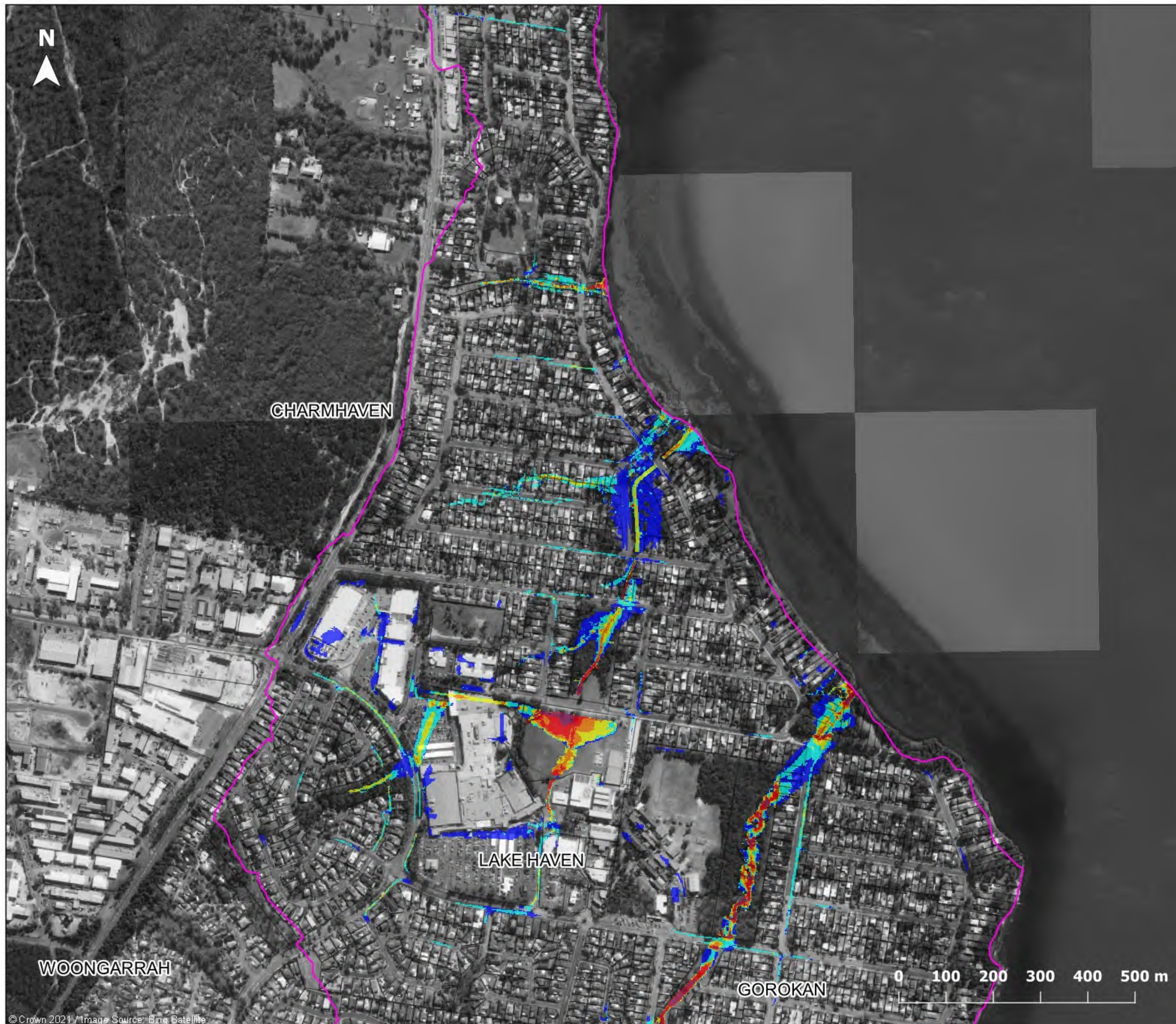


Figure C9.6

20% AEP Flood Velocity

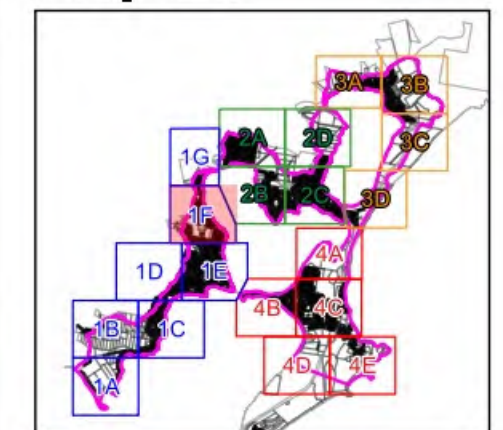
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 1F



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C9.7

20% AEP Flood Velocity

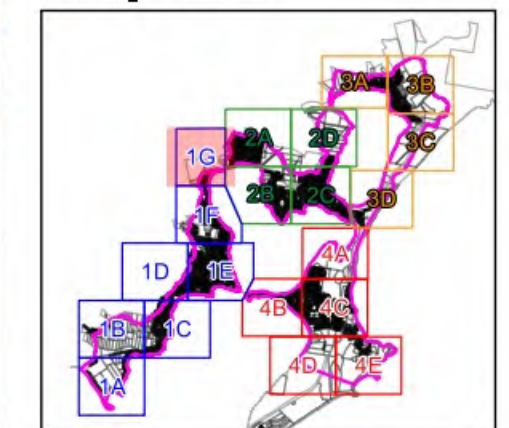
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 1G



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

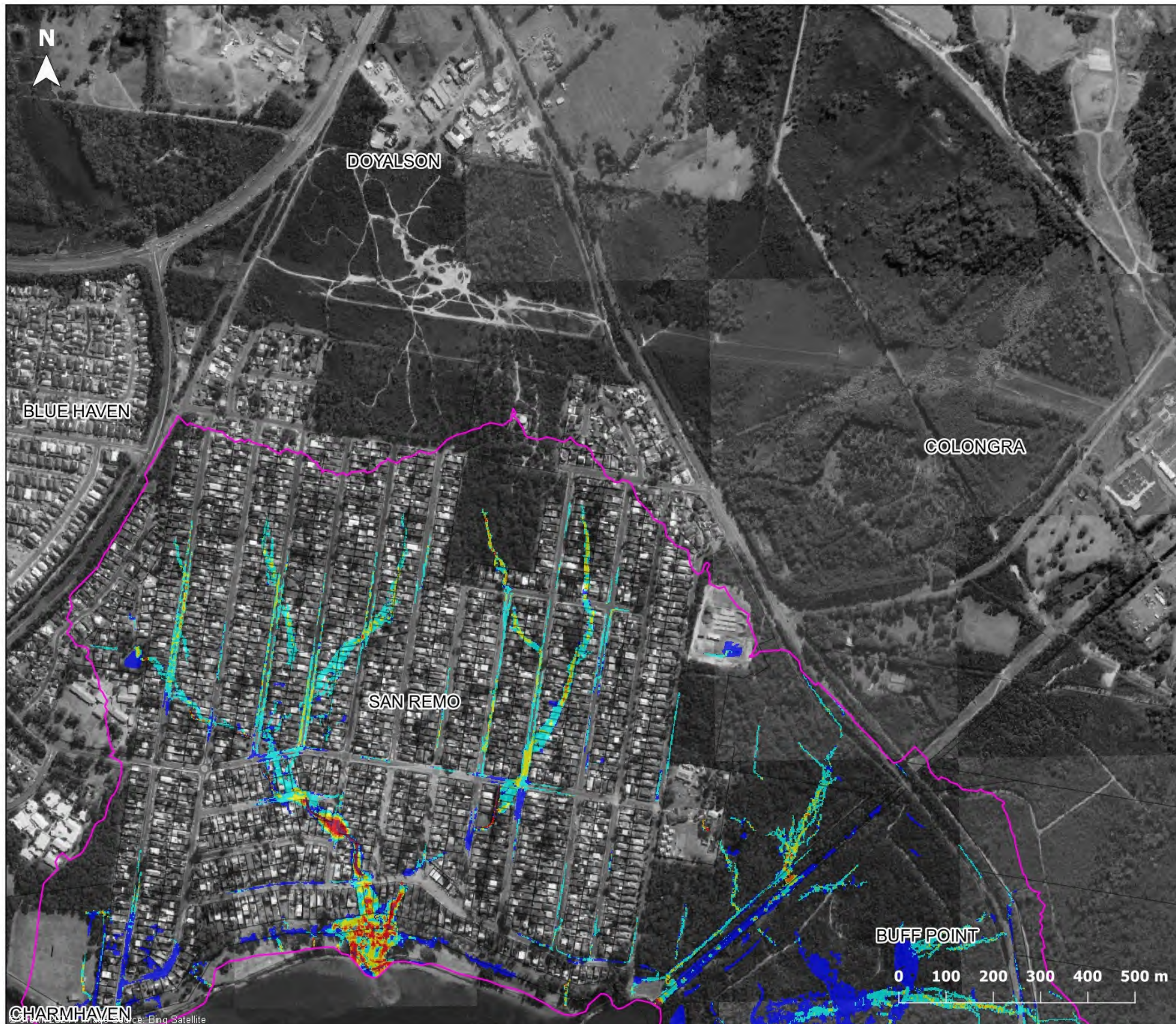


Figure C9.8

**20% AEP
Flood Velocity**

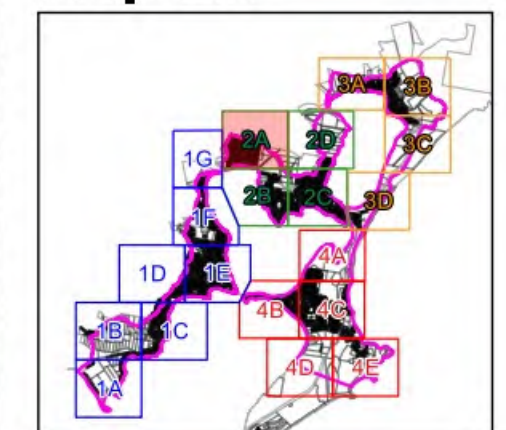
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 2A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

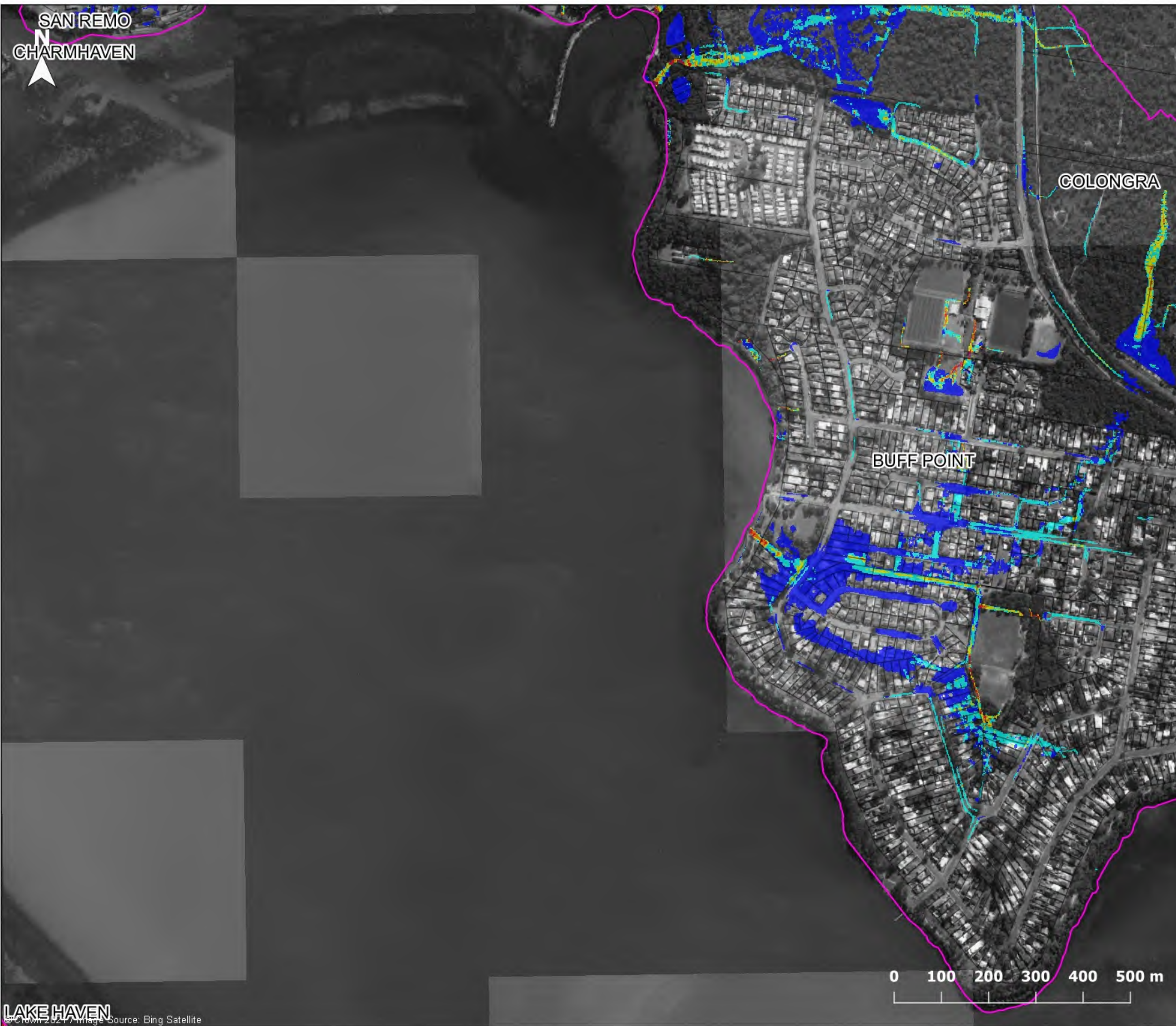


Figure C9.9

20% AEP Flood Velocity

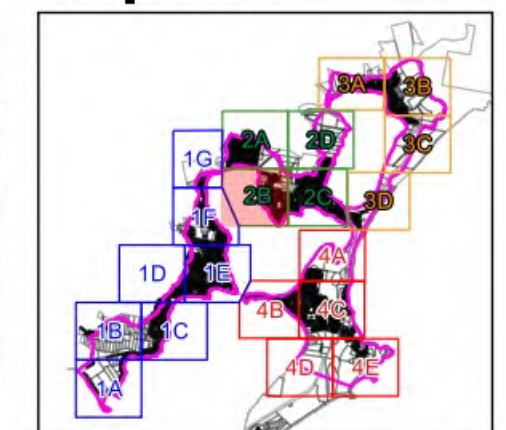
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 2B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C9.10

20% AEP Flood Velocity

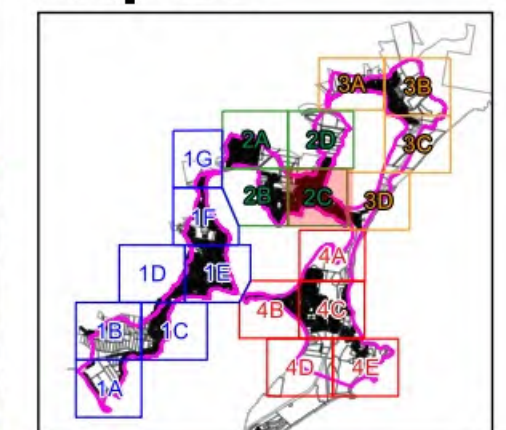
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- >1.50

Map 2C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

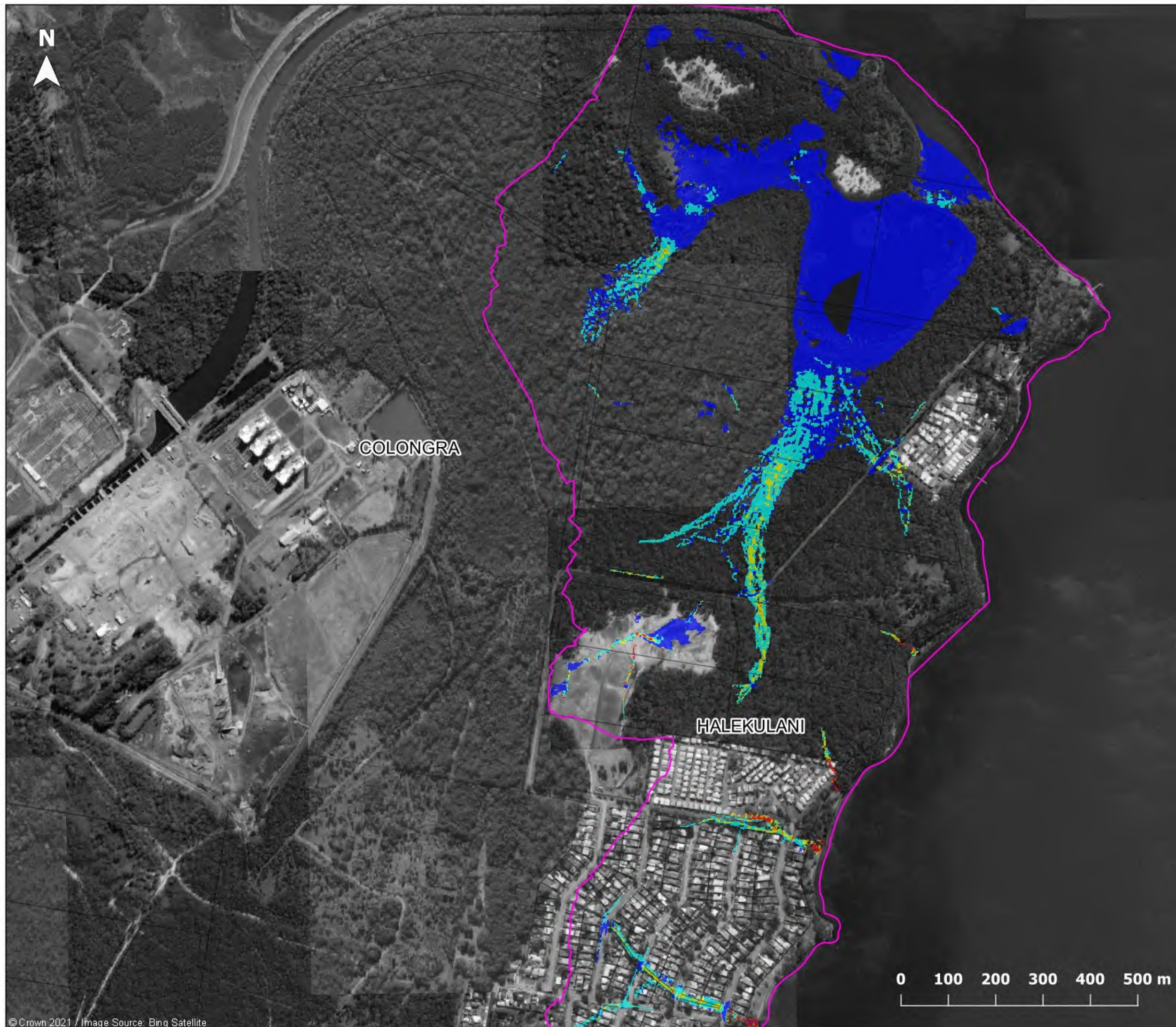


Figure C9.11

20% AEP Flood Velocity

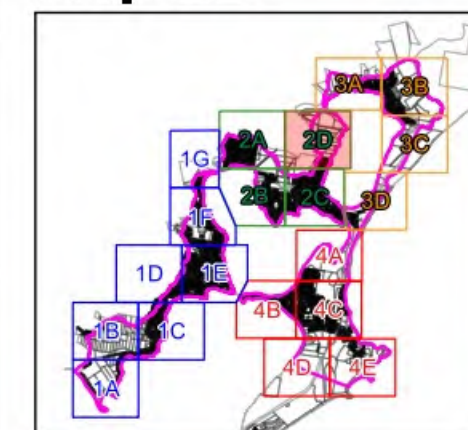
Legend

-  Catchment area
-  Cadastre

Velocity (m/s)

-  0.00-0.25
-  0.25-0.50
-  0.50-0.75
-  0.75-1.00
-  1.00-1.50
-  > 1.50

Map 2D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C9.12

**20% AEP
Flood Velocity**

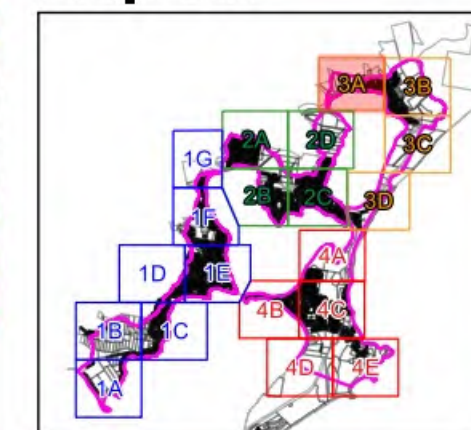
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- >1.50

Map 3A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

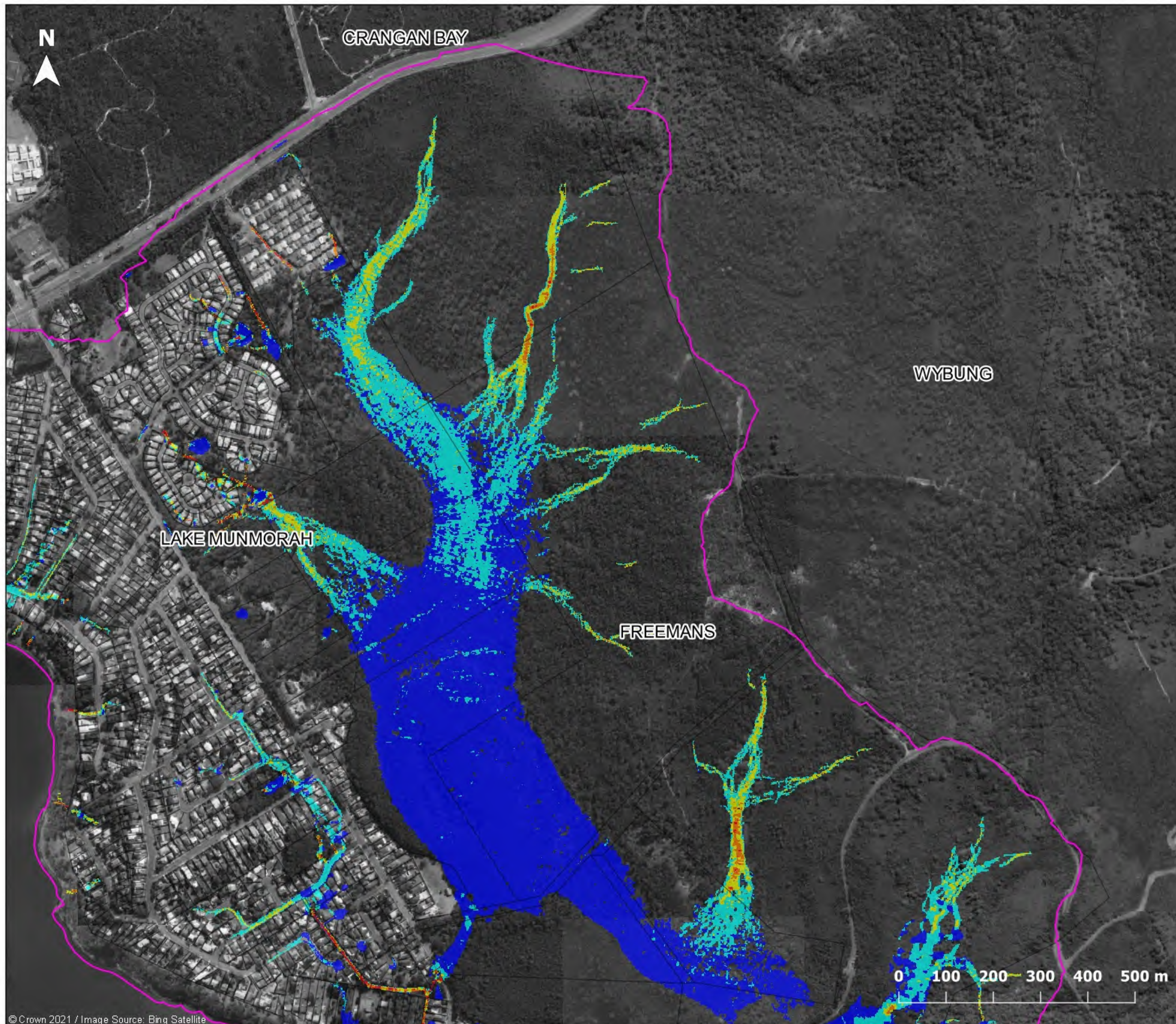


Figure C9.13

**20% AEP
Flood Velocity**

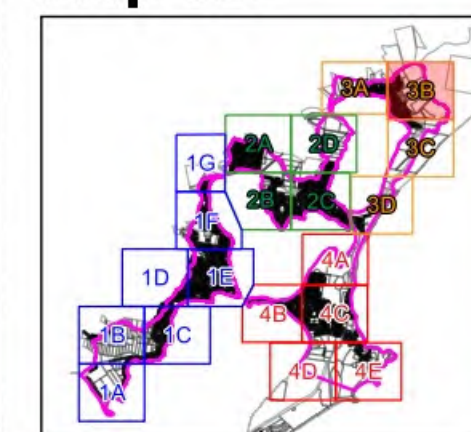
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 3B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan

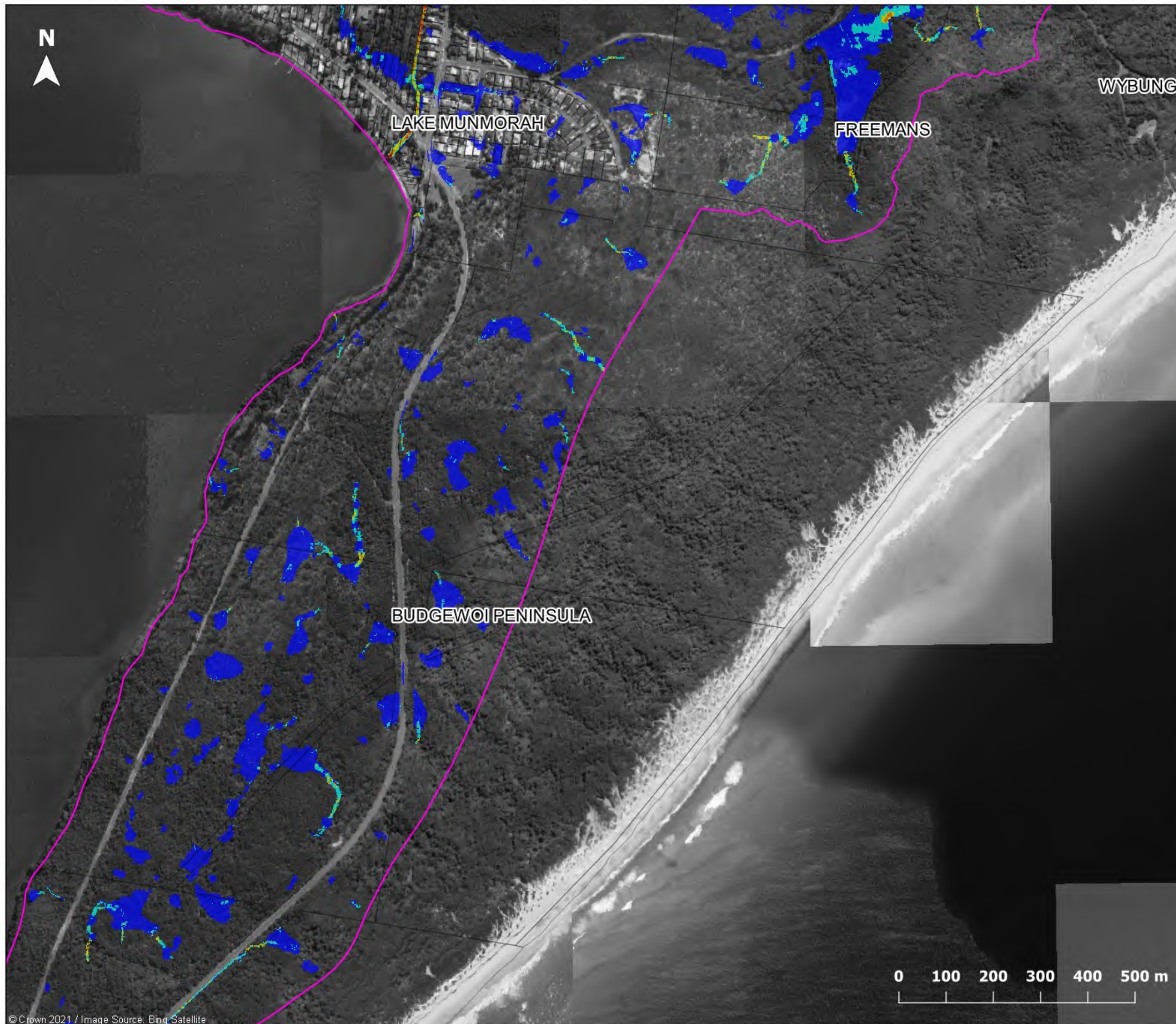


Figure C9.14

20% AEP Flood Velocity

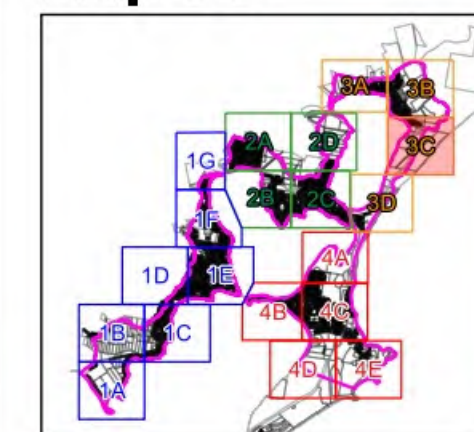
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 3C



Report MHL2571

Northern Lakes Floodplain Risk Management Study & Plan



Manly
Hydraulics
Laboratory



Figure C9.15

20% AEP Flood Velocity

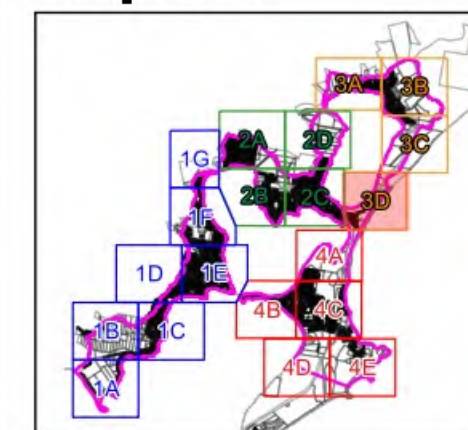
Legend

-  Catchment area
-  Cadastre

Velocity (m/s)

-  0.00-0.25
-  0.25-0.50
-  0.50-0.75
-  0.75-1.00
-  1.00-1.50
-  > 1.50

Map 3D



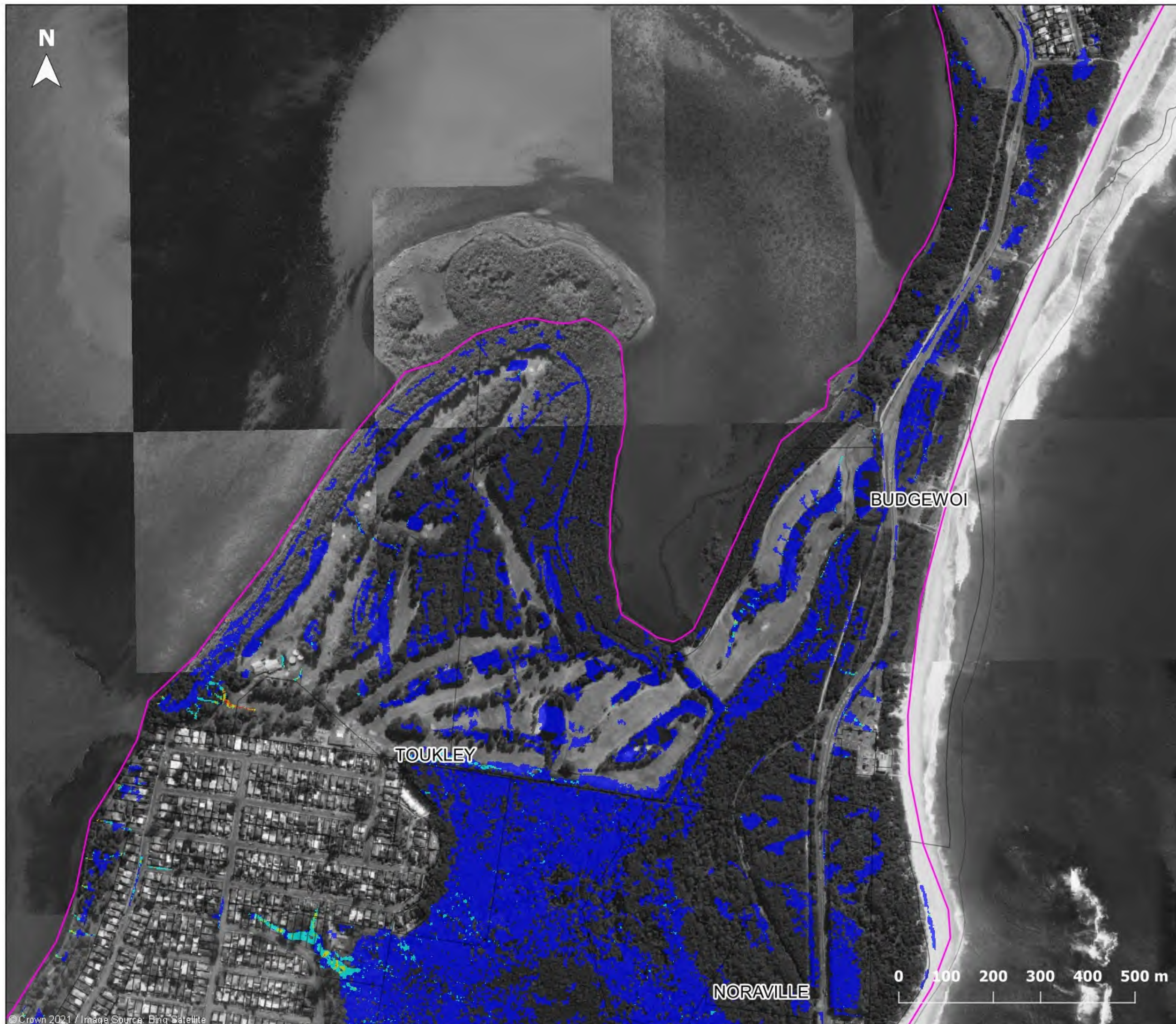
Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

0 100 200 300 400 500 m



© Crown 2021 / Image Source: Bing Satellite

Figure C9.16

20% AEP Flood Velocity

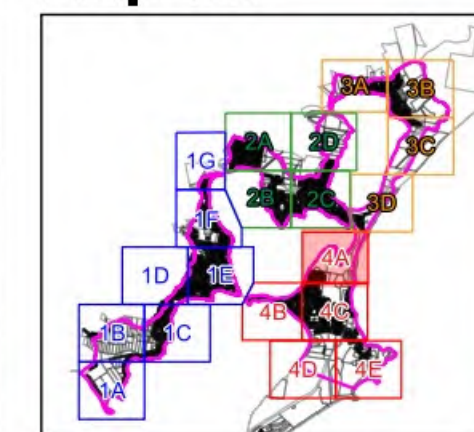
Legend

-  Catchment area
-  Cadastre

Velocity (m/s)

-  0.00-0.25
-  0.25-0.50
-  0.50-0.75
-  0.75-1.00
-  1.00-1.50
-  > 1.50

Map 4A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C9.17

**20% AEP
Flood Velocity**

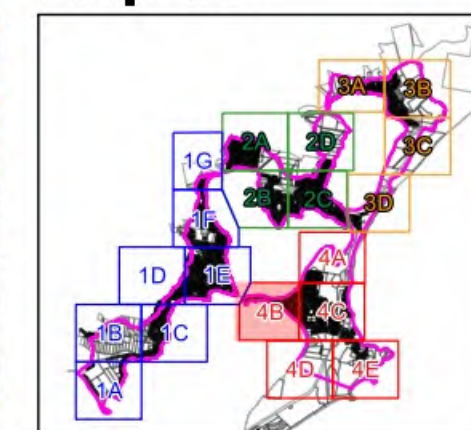
Legend

-  Catchment area
-  Cadastre

Velocity (m/s)

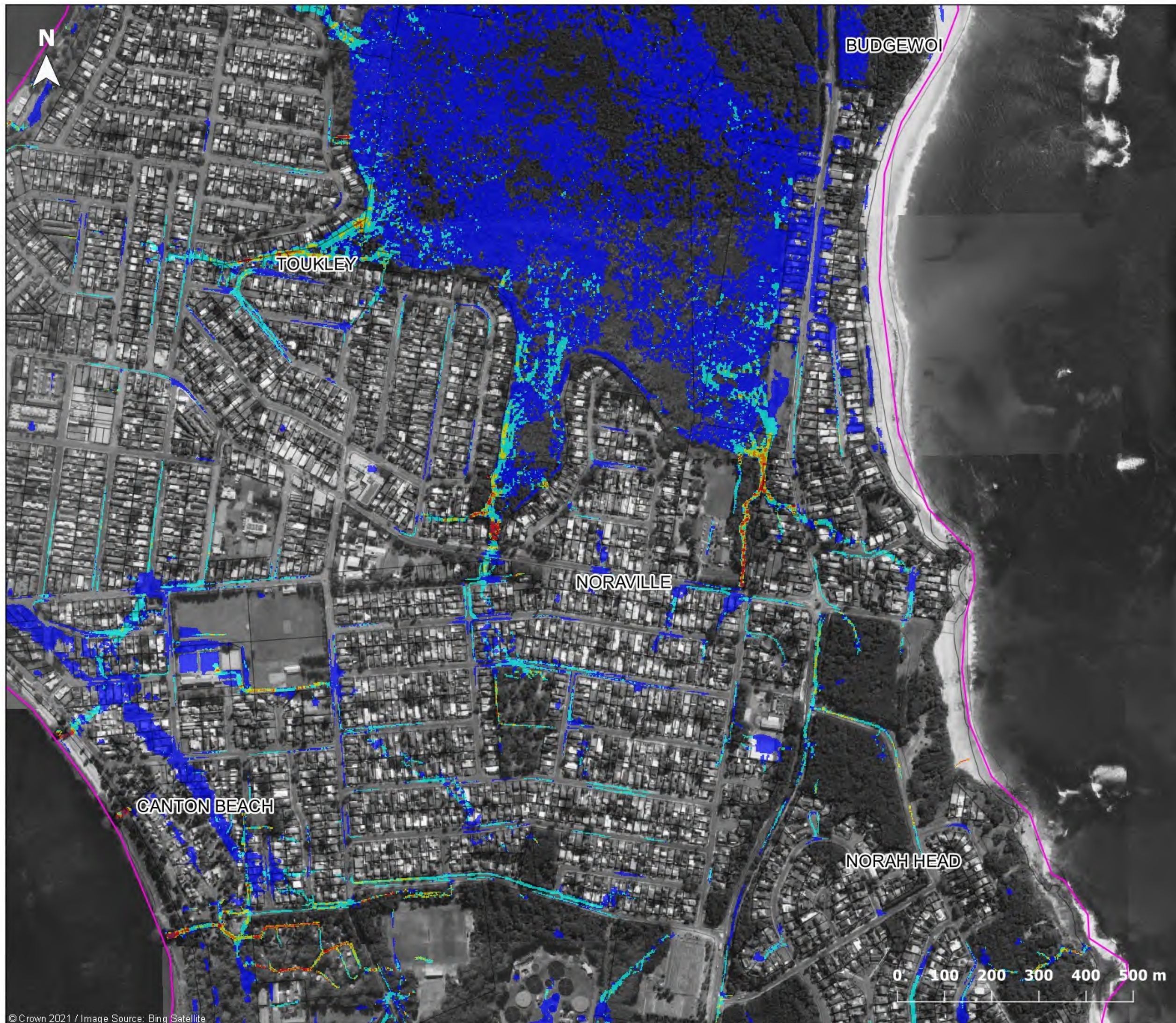
-  0.00-0.25
-  0.25-0.50
-  0.50-0.75
-  0.75-1.00
-  1.00-1.50
-  > 1.50

Map 4B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



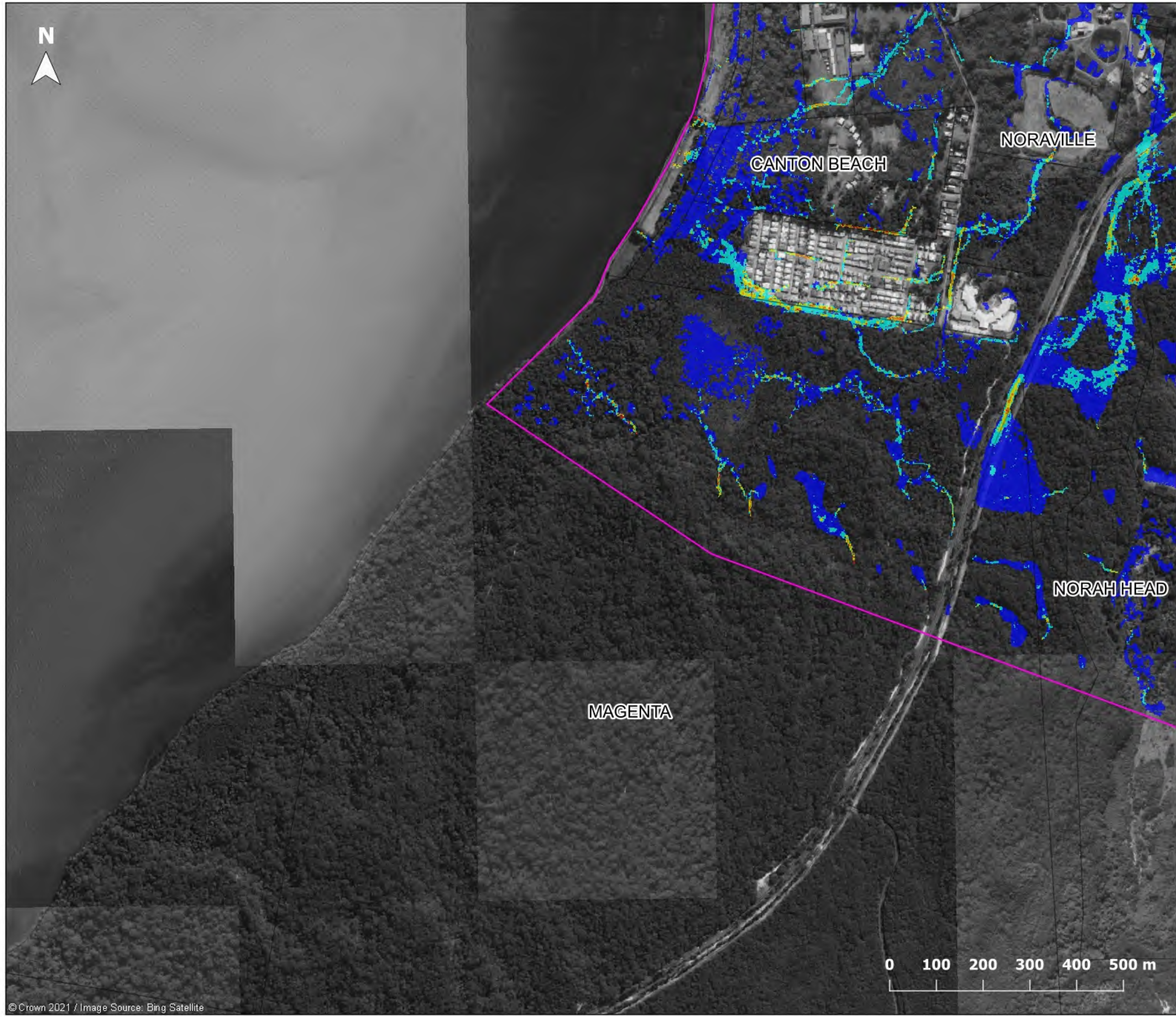
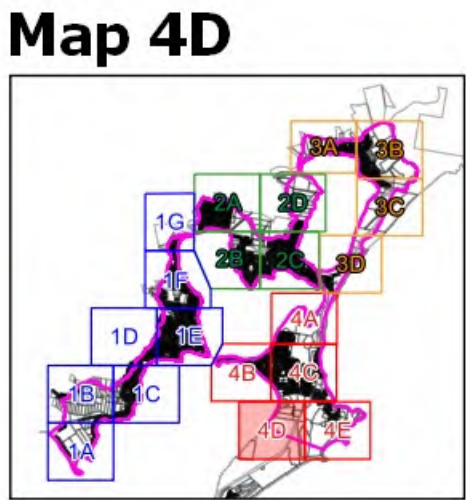


Figure C9.19

**20% AEP
Flood Velocity**

- Legend**
- Catchment area
 - Cadastre

- Velocity (m/s)**
- 0.00-0.25
 - 0.25-0.50
 - 0.50-0.75
 - 0.75-1.00
 - 1.00-1.50
 - >1.50



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



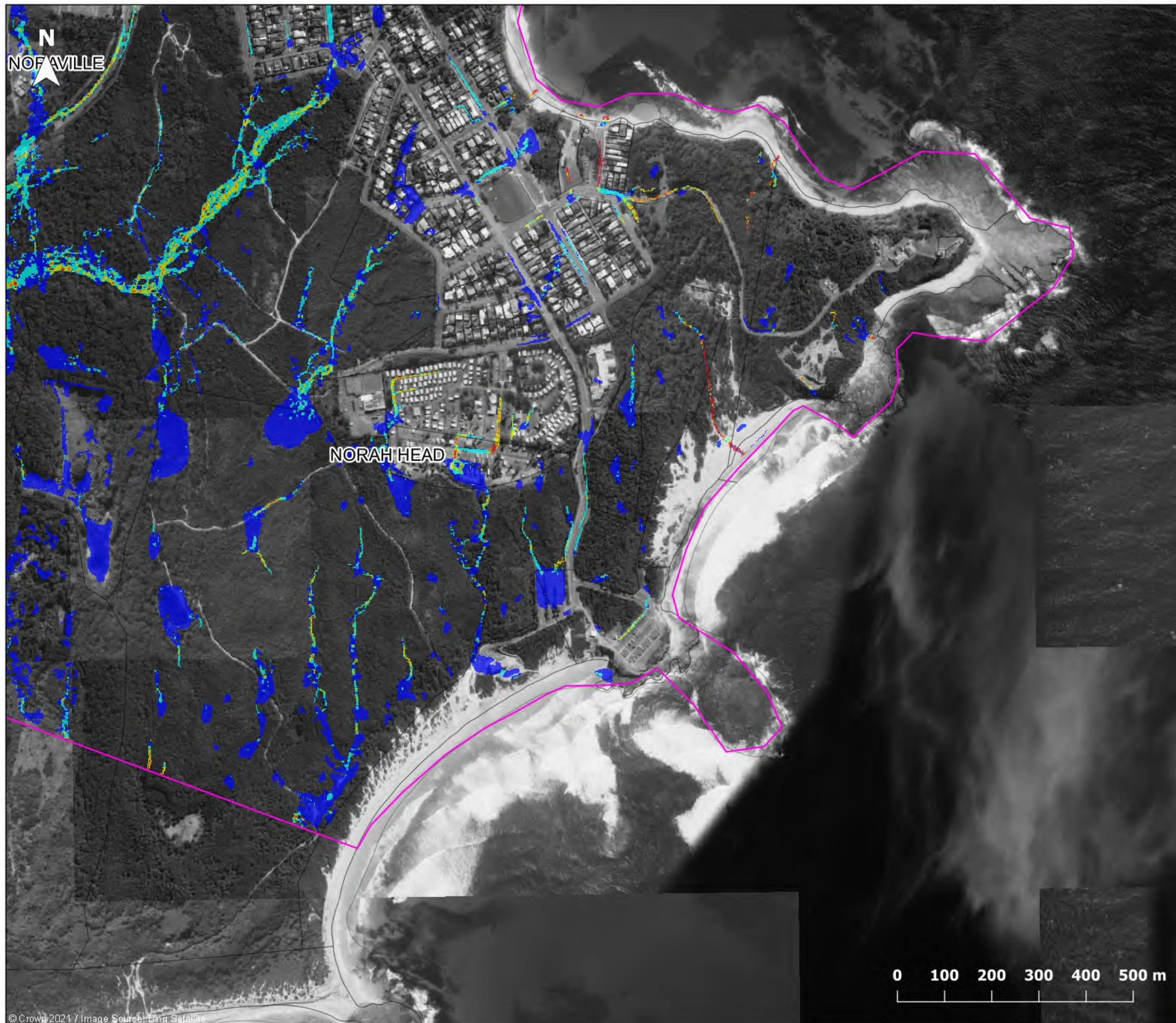


Figure C9.20

20% AEP Flood Velocity

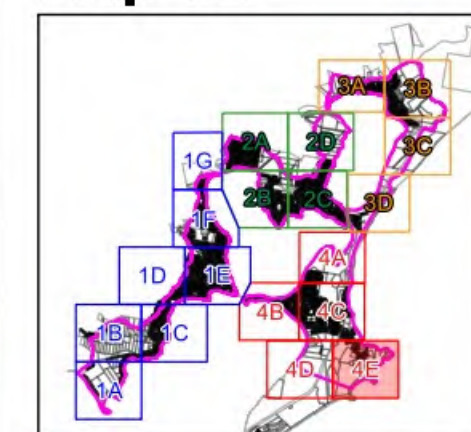
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 4E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

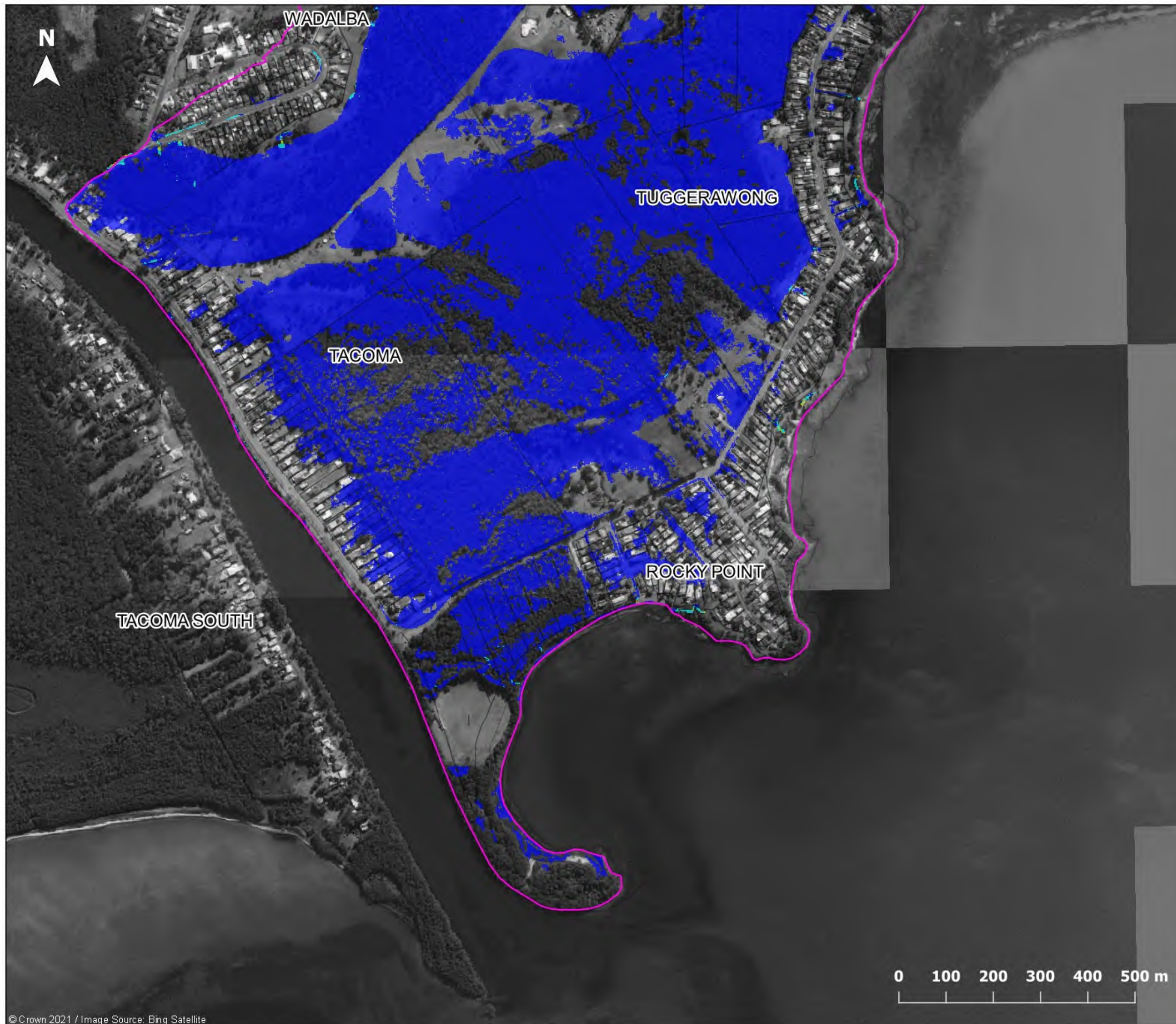


Figure C10.1

5% AEP Flood Velocity

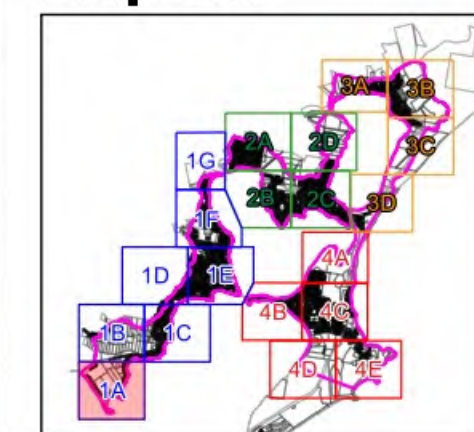
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 1A

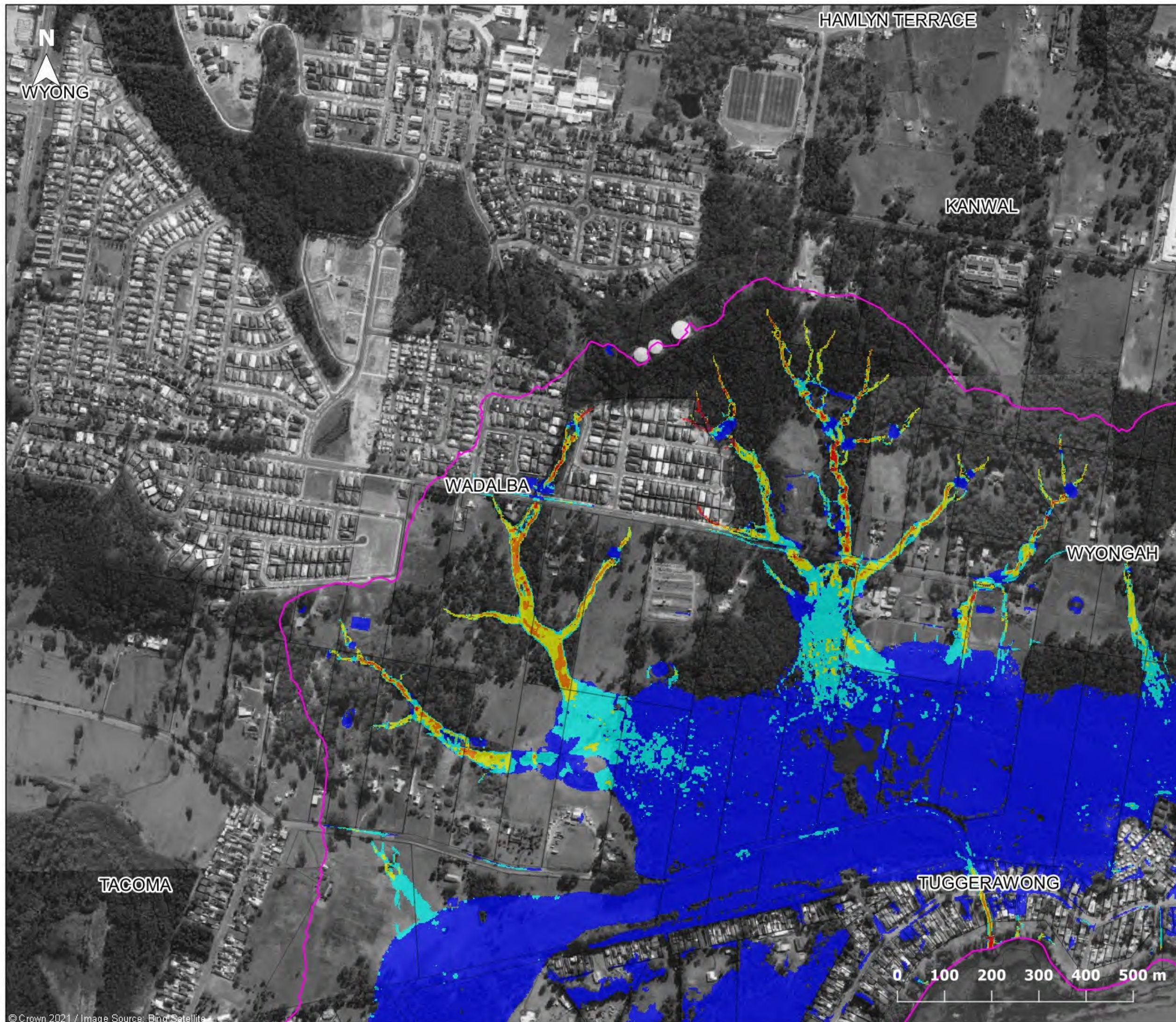


Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



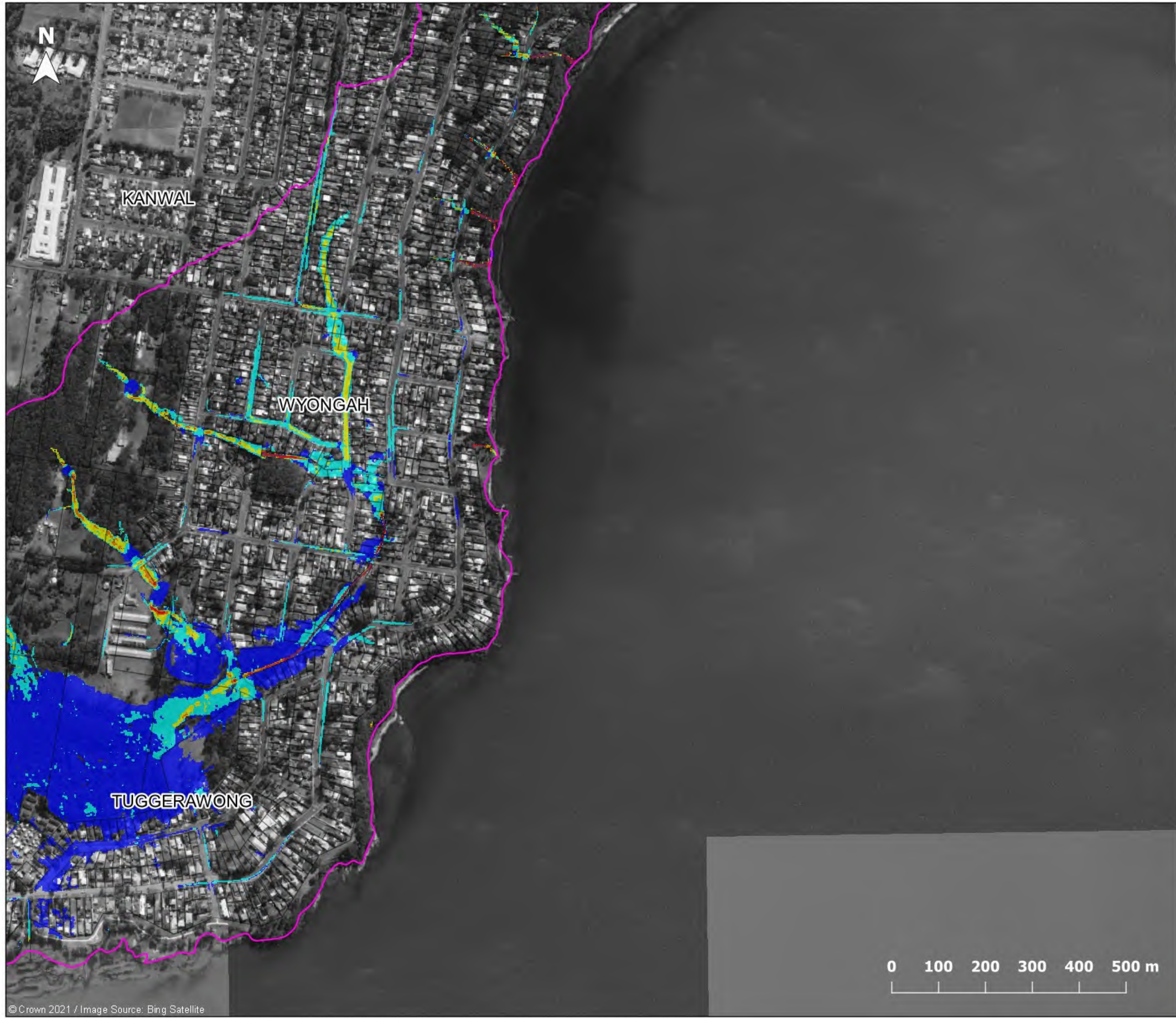


Figure C10.3

**5% AEP
Flood Velocity**

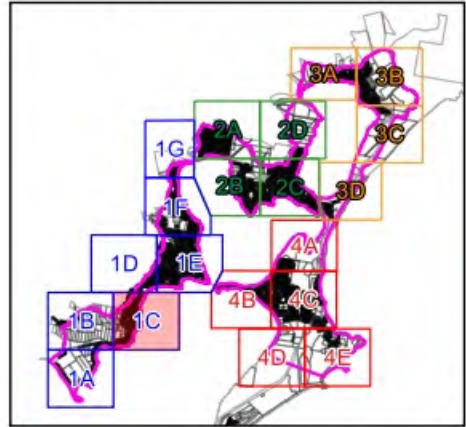
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- >1.50

Map 1C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan

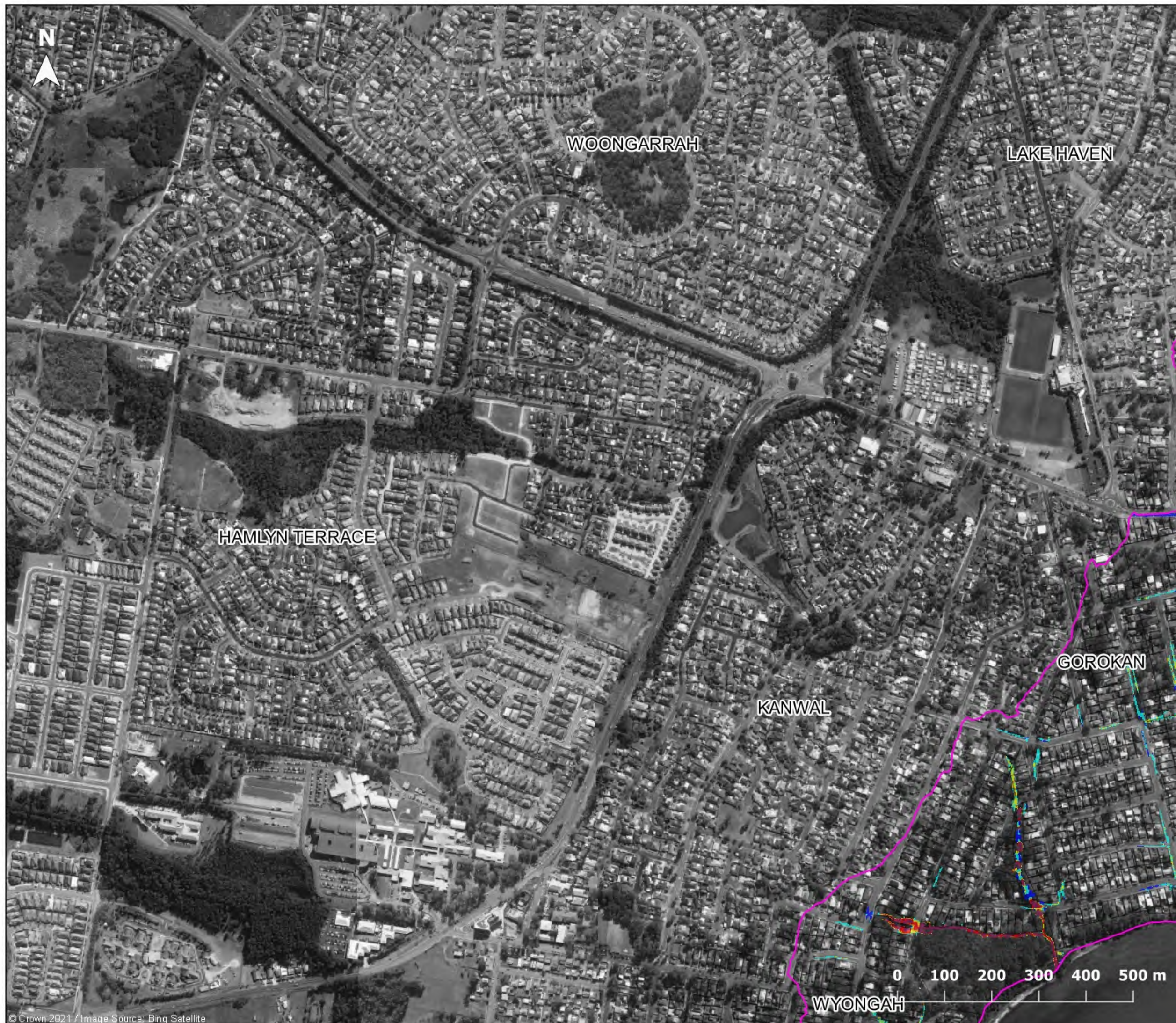


Figure C10.4

5% AEP Flood Velocity

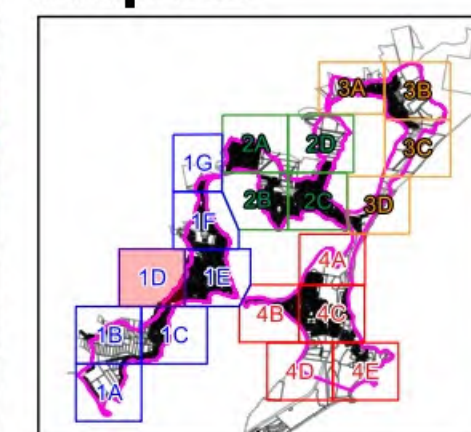
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 1D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Figure C10.5

5% AEP Flood Velocity

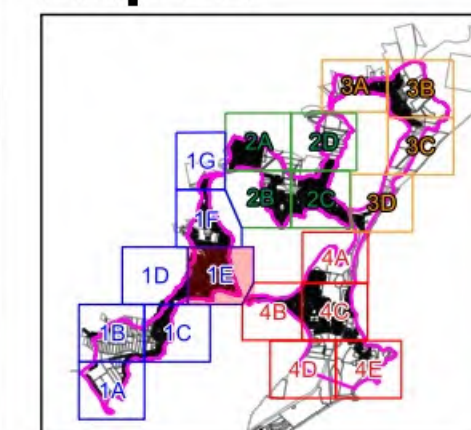
Legend

- Catchment area
- Cadaastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 1E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

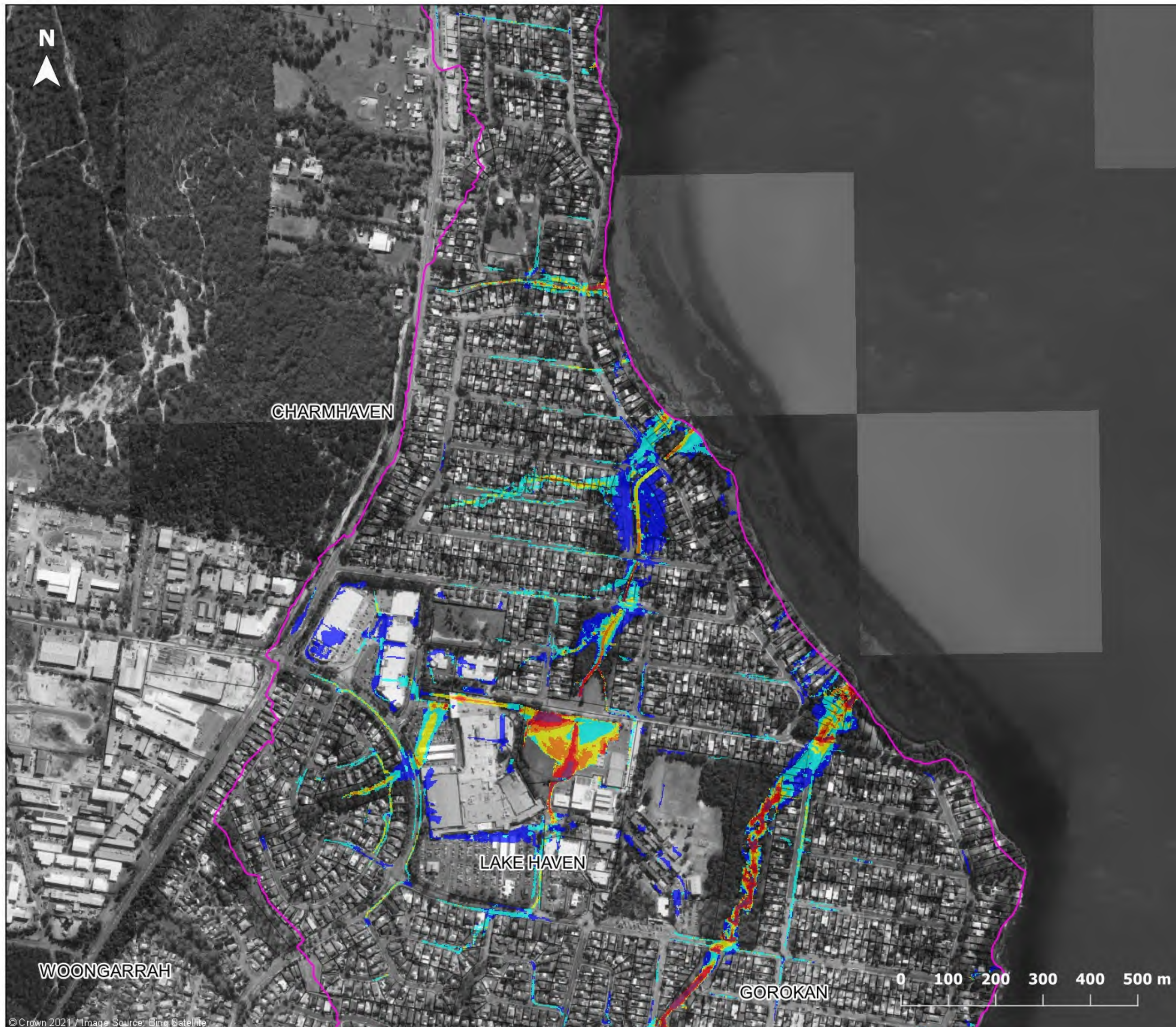


Figure C10.6

5% AEP Flood Velocity

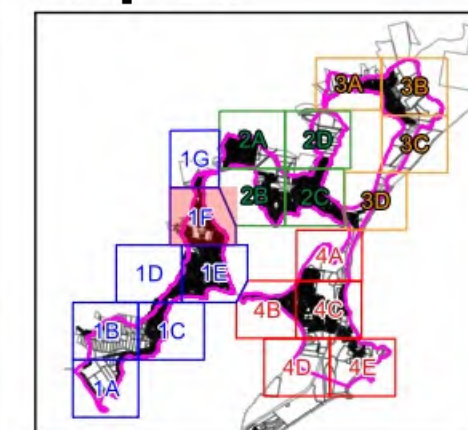
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 1F



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

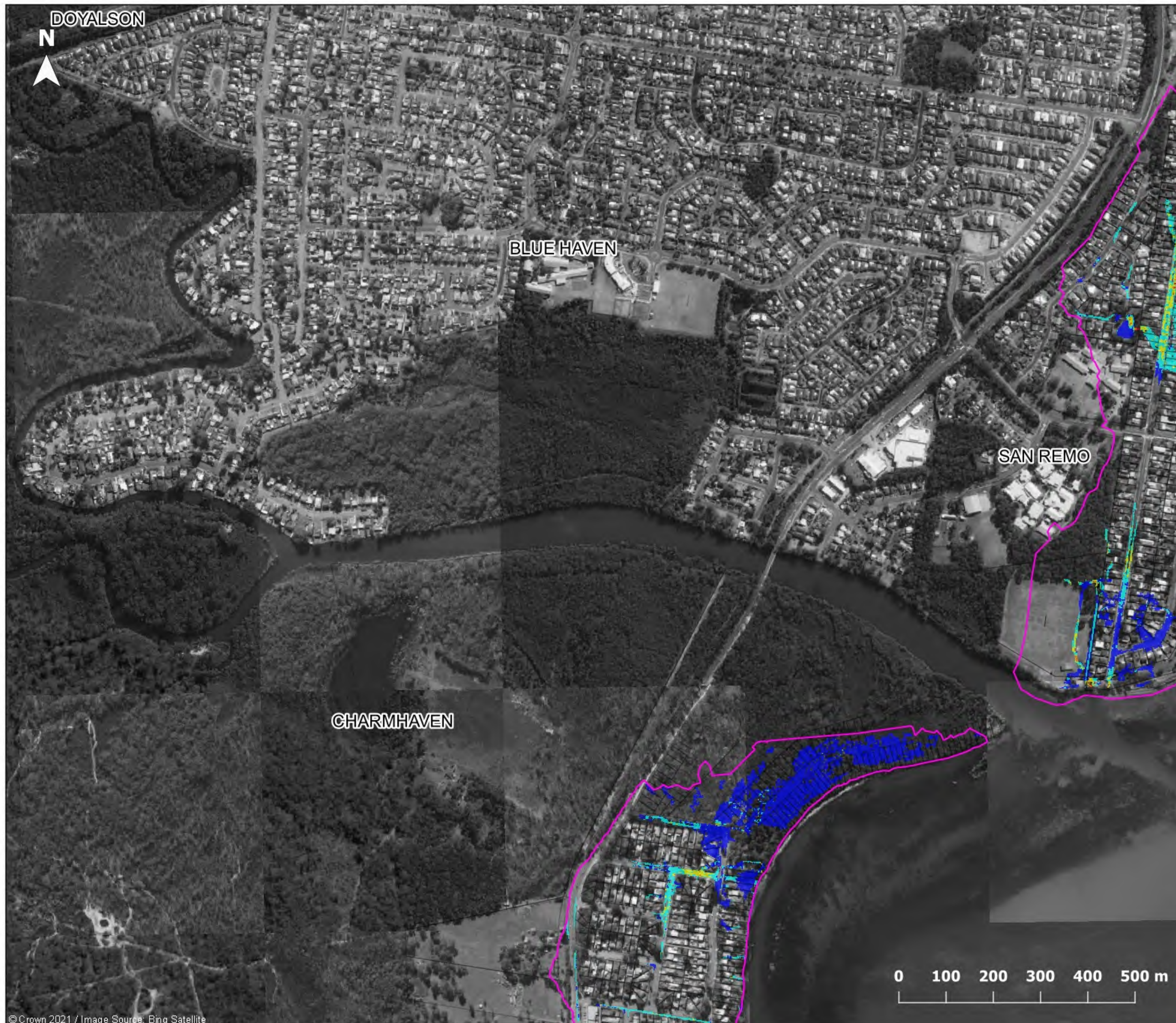


Figure C10.7

**5% AEP
Flood Velocity**

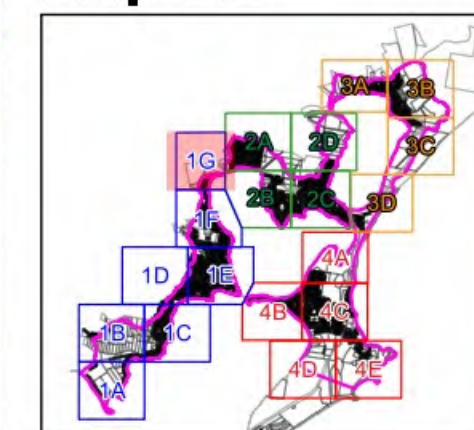
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 1G



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan

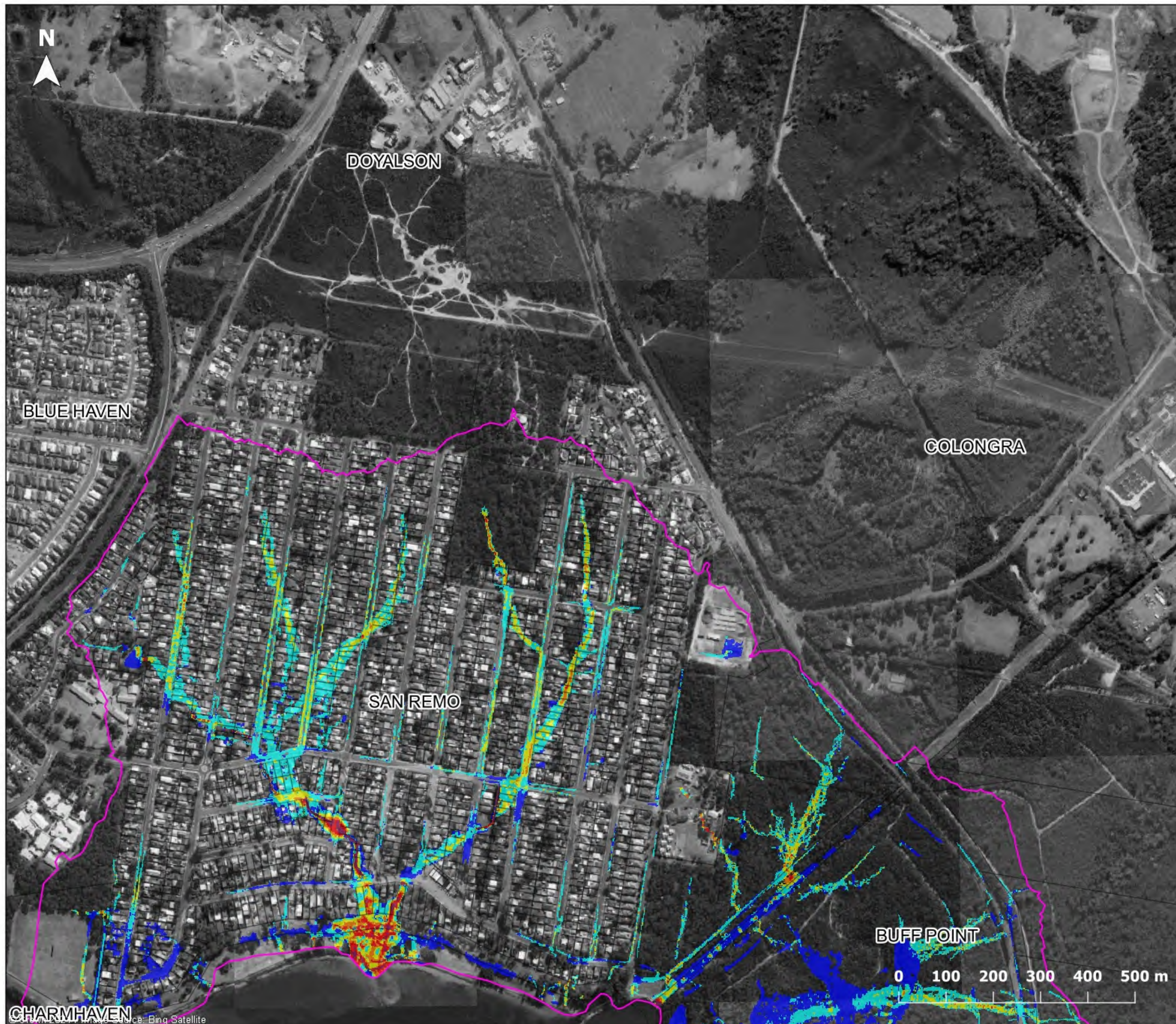


Figure C10.8

**5% AEP
Flood Velocity**

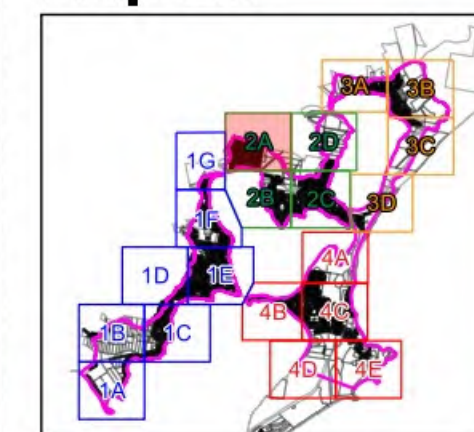
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 2A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

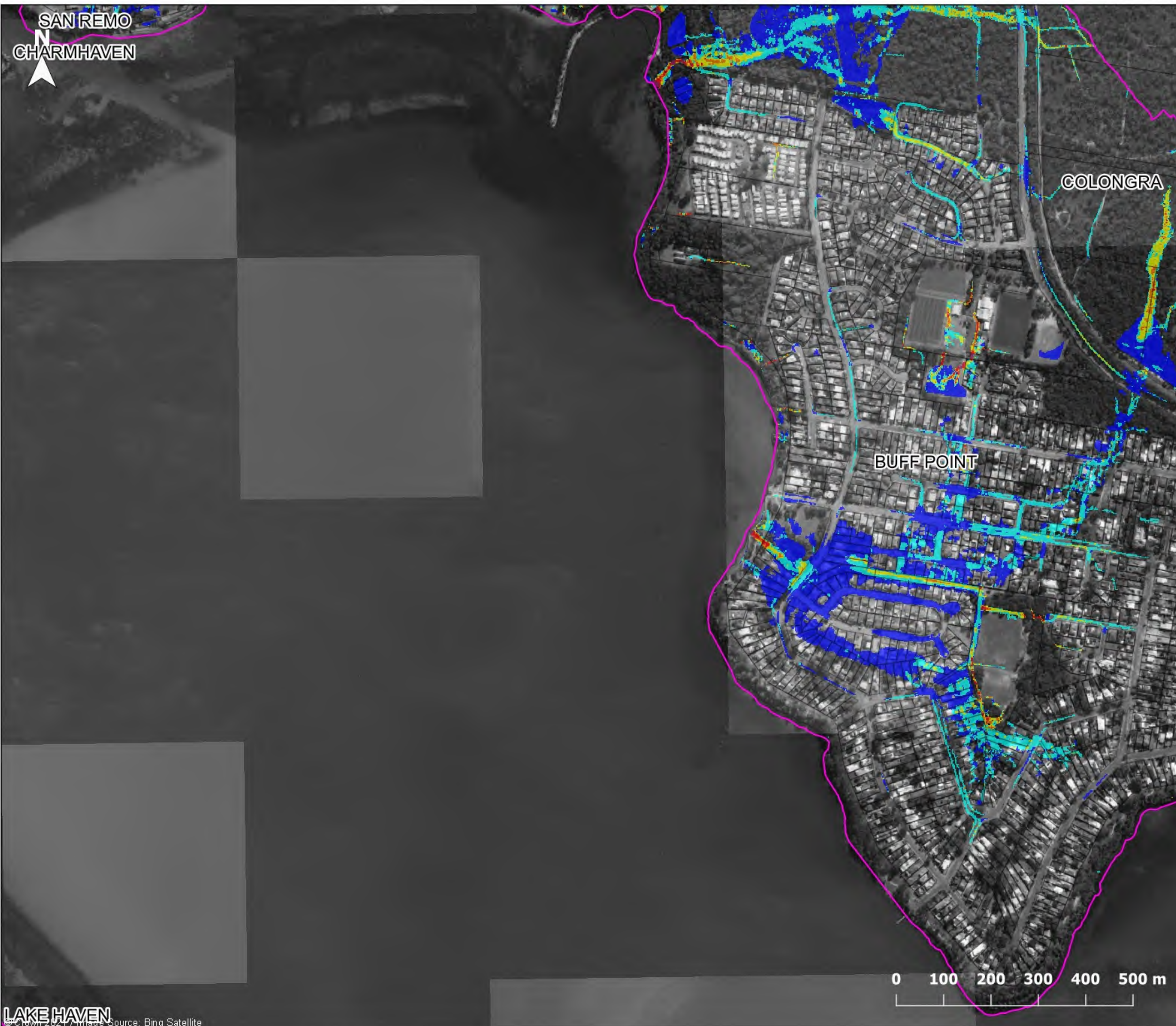


Figure C10.9

5% AEP Flood Velocity

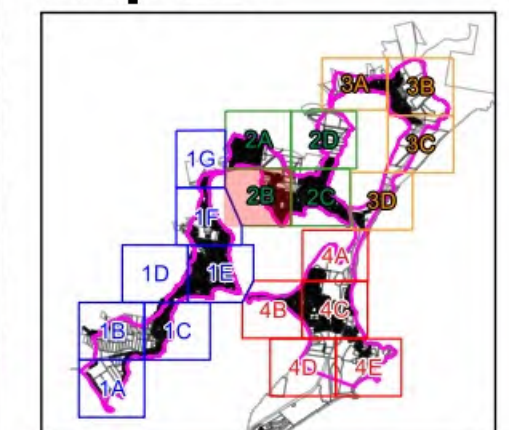
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 2B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C10.10

5% AEP Flood Velocity

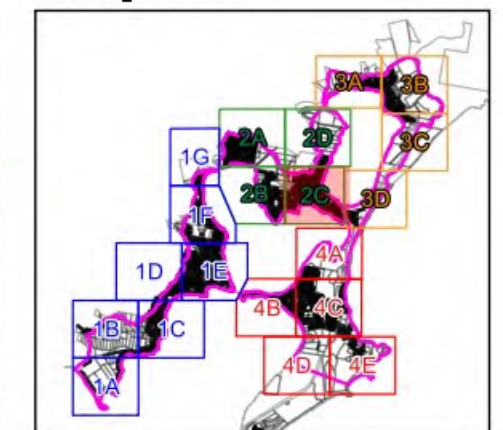
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 2C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

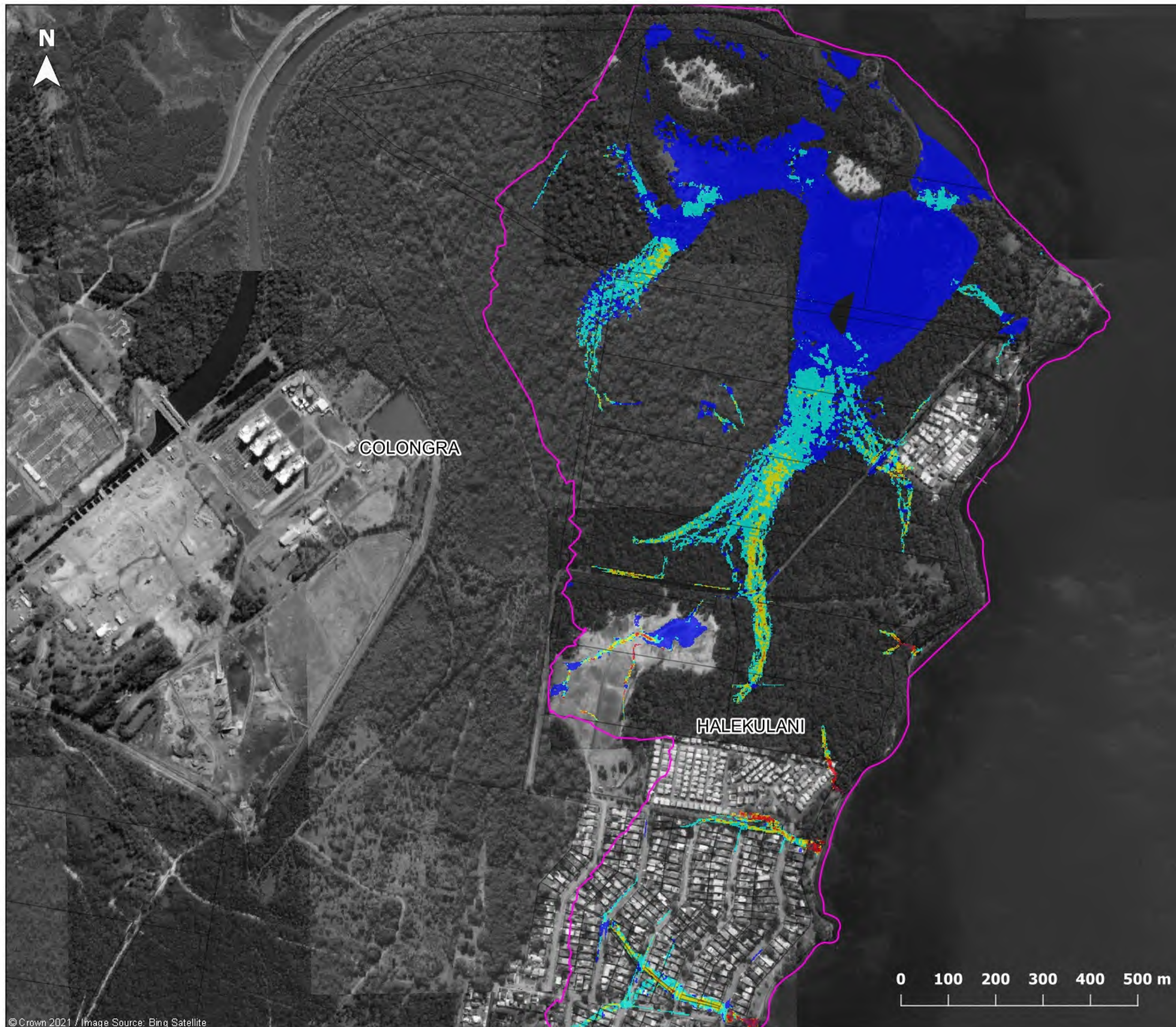


Figure C10.11

5% AEP Flood Velocity

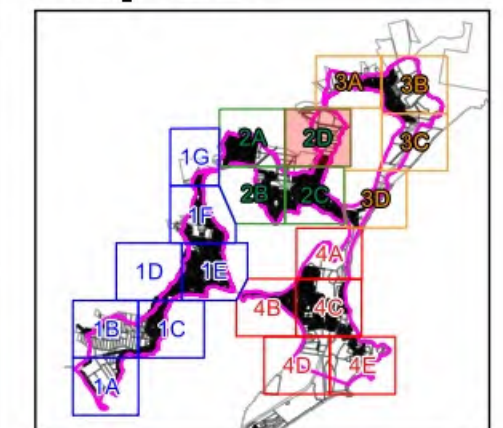
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 2D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C10.12

5% AEP Flood Velocity

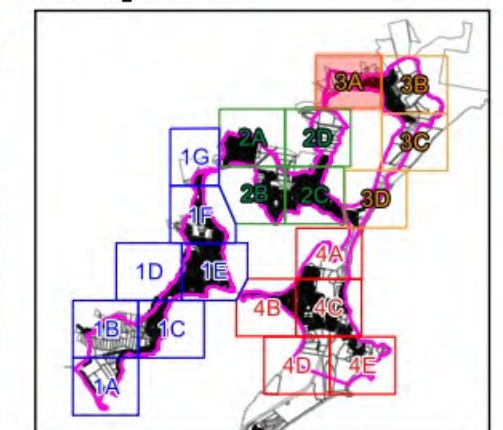
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- >1.50

Map 3A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

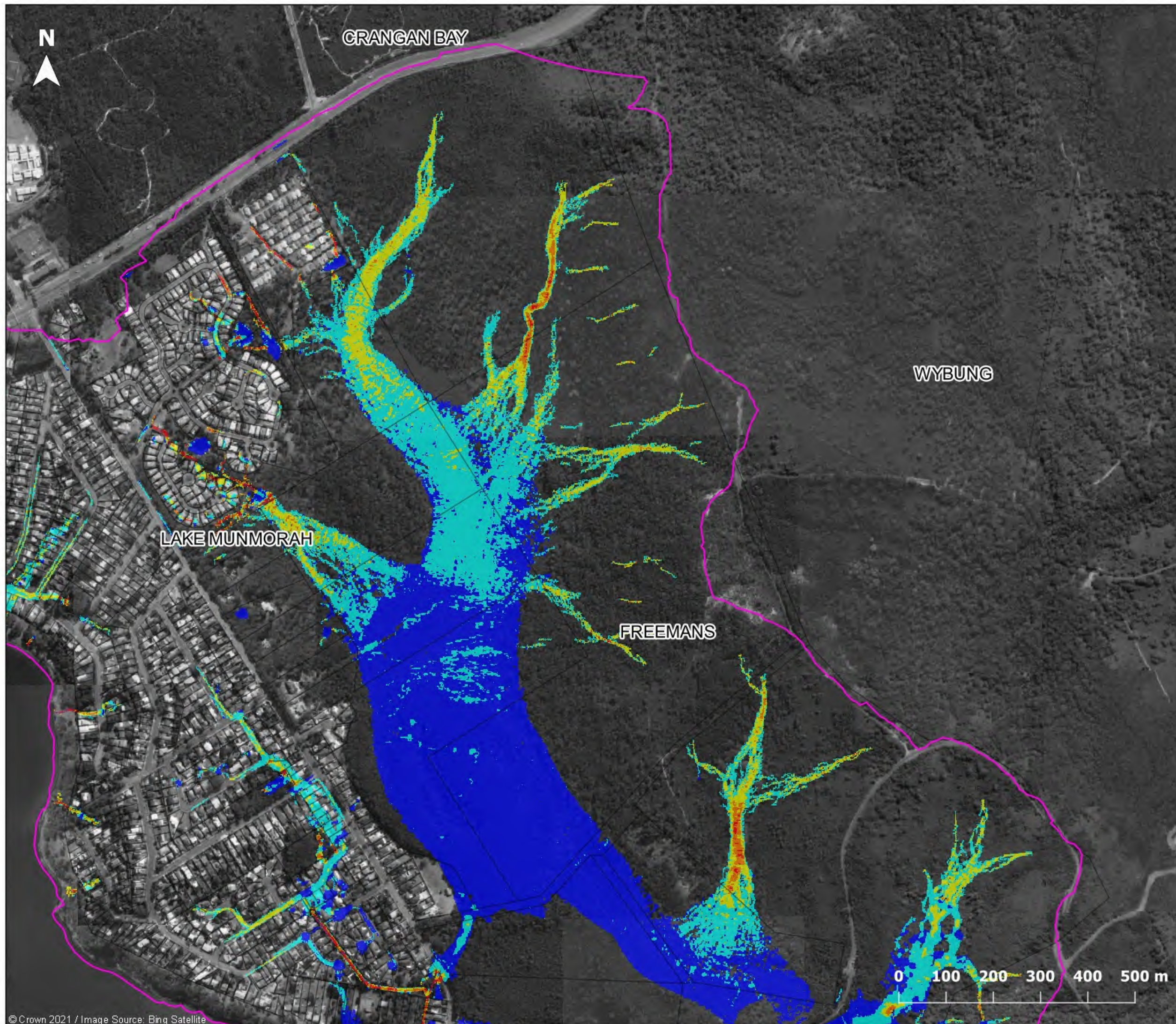


Figure C10.13

5% AEP Flood Velocity

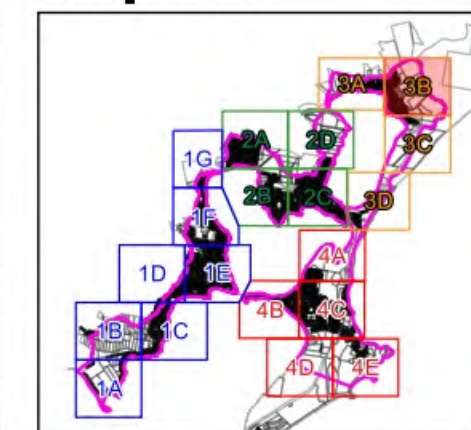
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 3B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

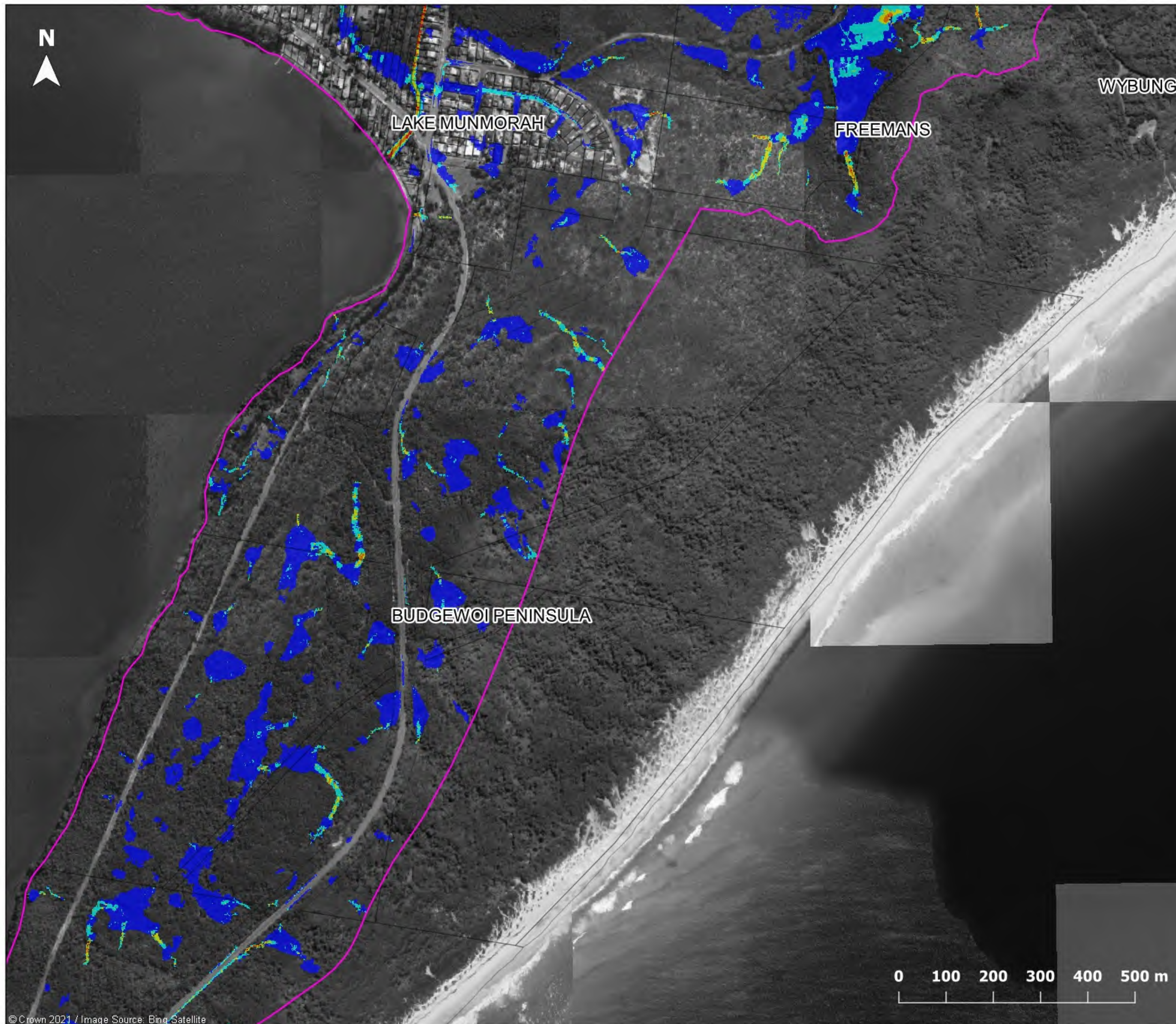


Figure C10.14

5% AEP Flood Velocity

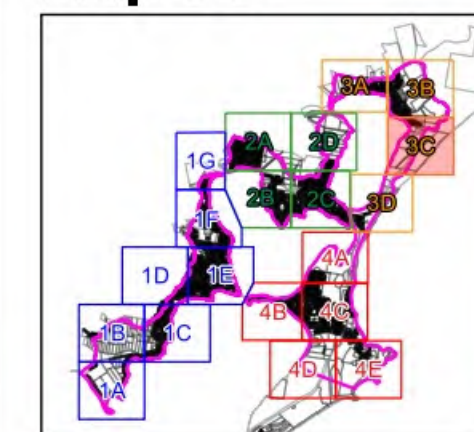
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 3C



Report MHL2571

Northern Lakes Floodplain Risk Management Study & Plan



Manly
Hydraulics
Laboratory

N



BUDGEWOI PENINSULA

BUDGEWOI

Figure C10.15

5% AEP Flood Velocity

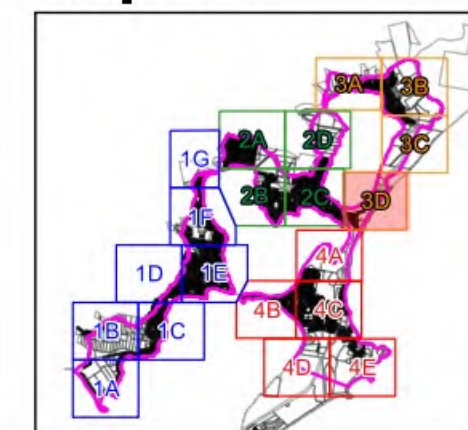
Legend

-  Catchment area
-  Cadastre

Velocity (m/s)

-  0.00-0.25
-  0.25-0.50
-  0.50-0.75
-  0.75-1.00
-  1.00-1.50
-  > 1.50

Map 3D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

0 100 200 300 400 500 m

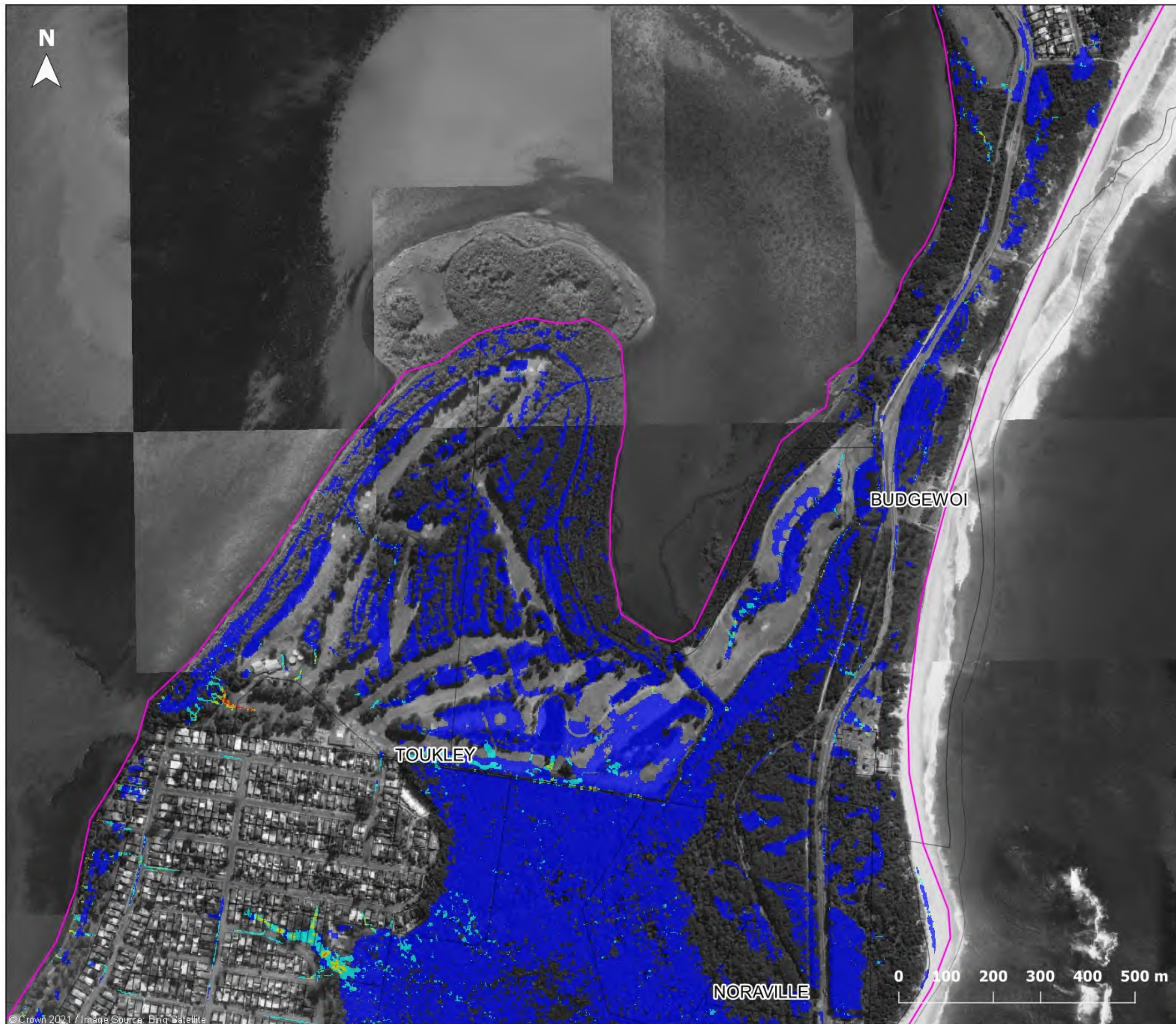


Figure C10.16

5% AEP Flood Velocity

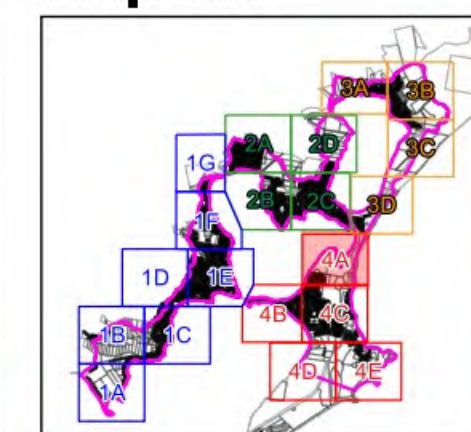
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 4A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Figure C10.17

5% AEP Flood Velocity

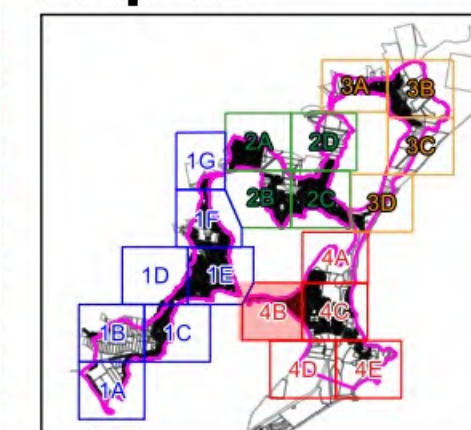
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 4B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

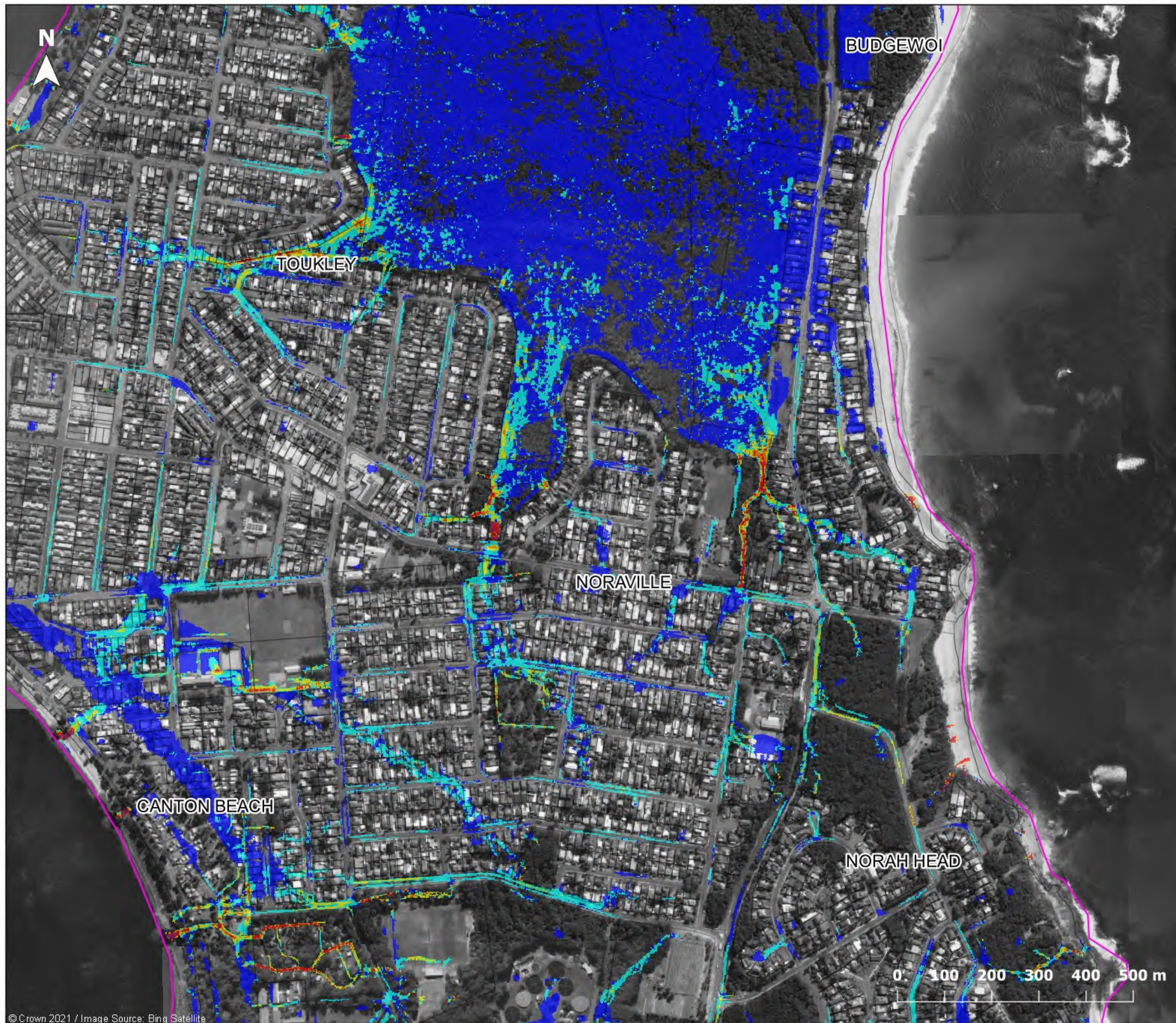


Figure C10.18

5% AEP Flood Velocity

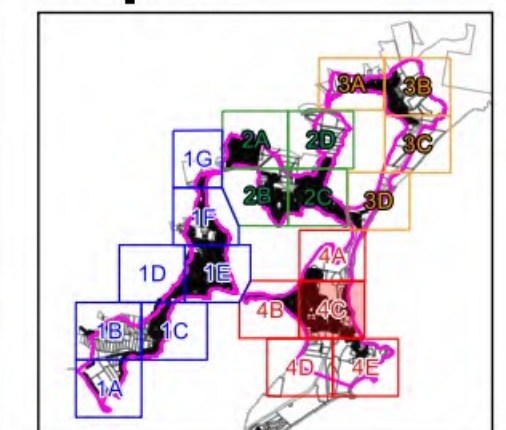
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 4C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

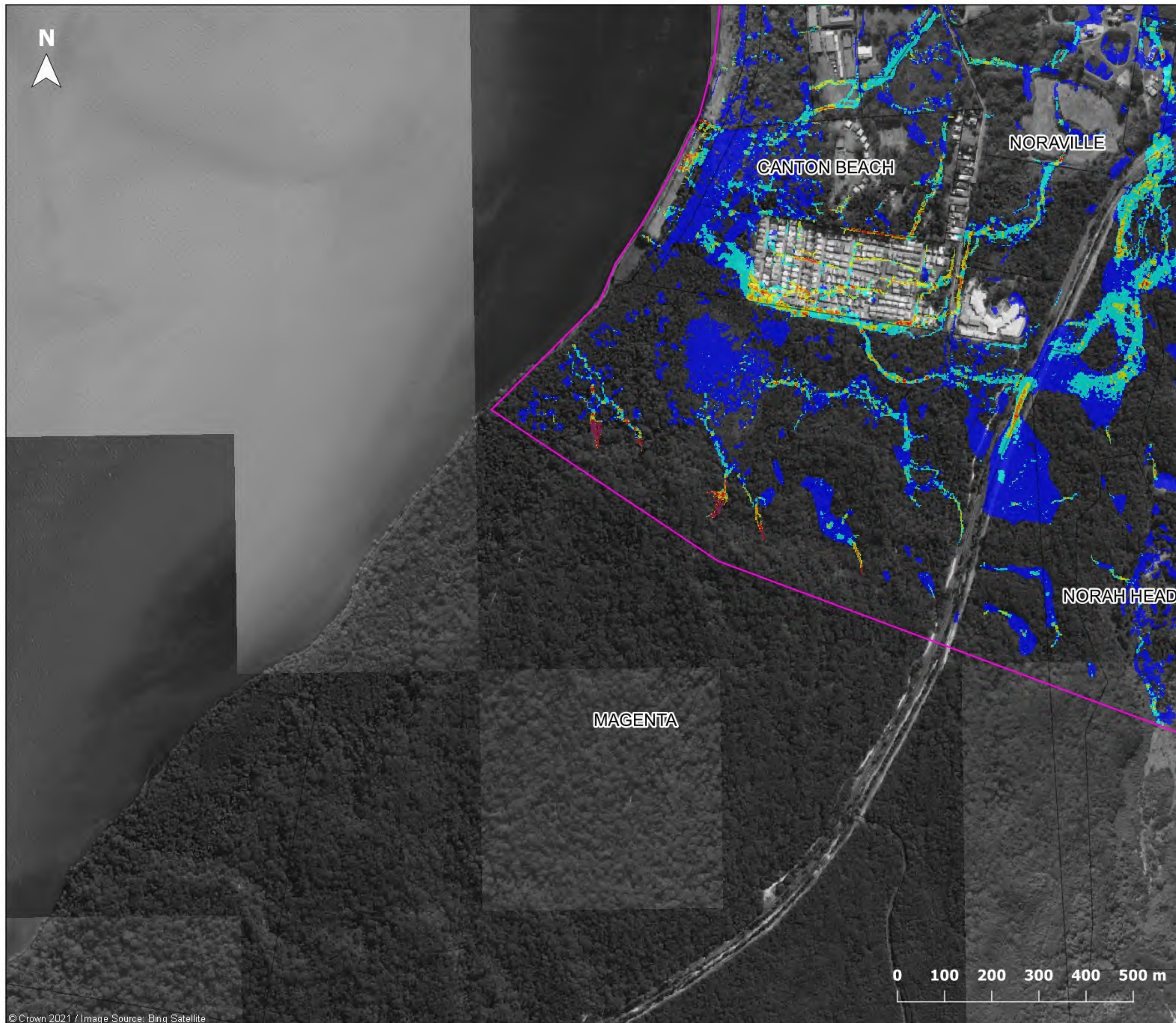


Figure C10.19

5% AEP Flood Velocity

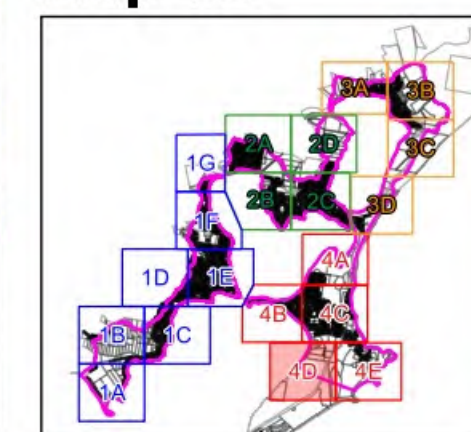
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 4D



Report MHL2571

Northern Lakes Floodplain Risk Management Study & Plan

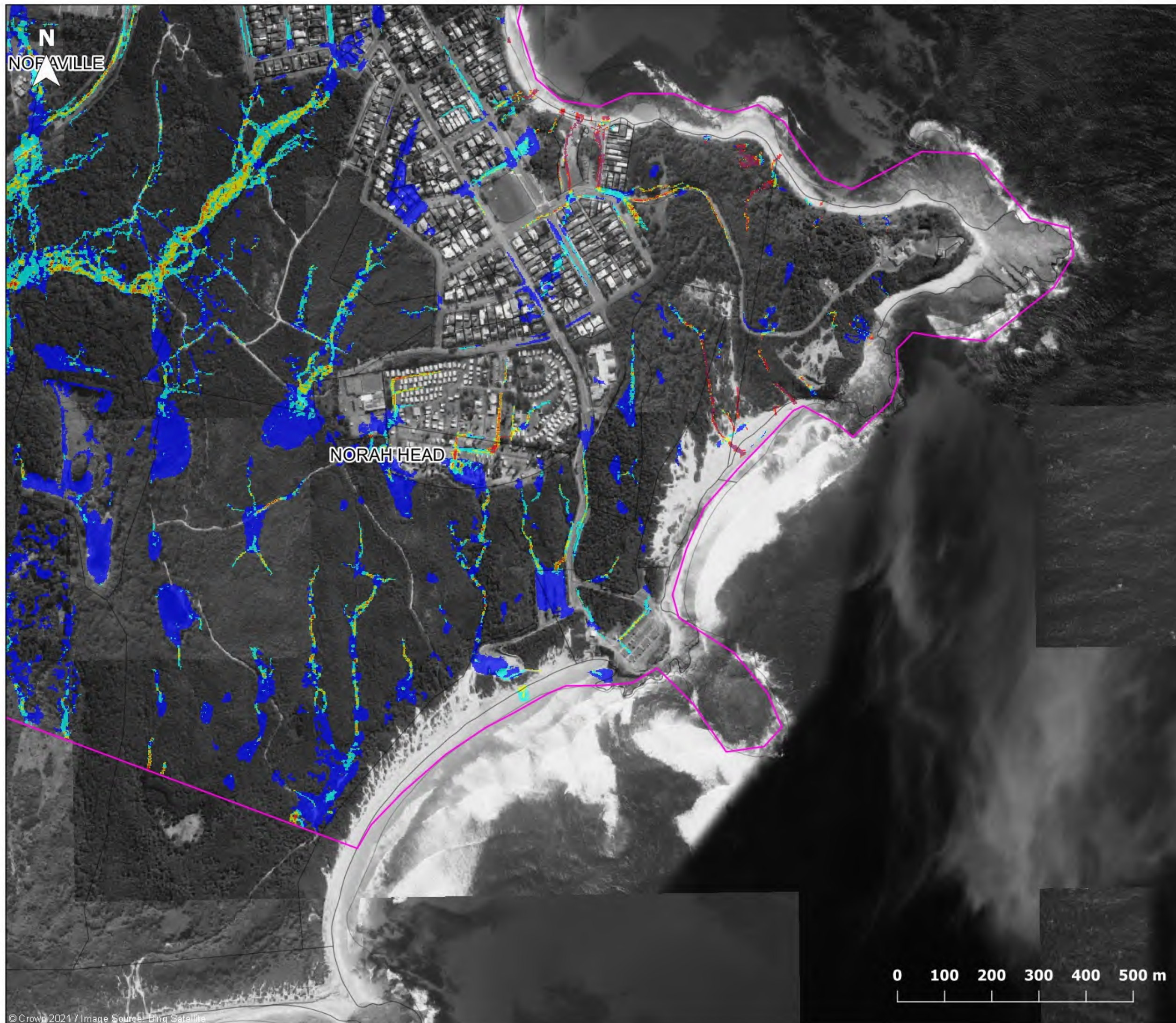


Figure C10.20

5% AEP Flood Velocity

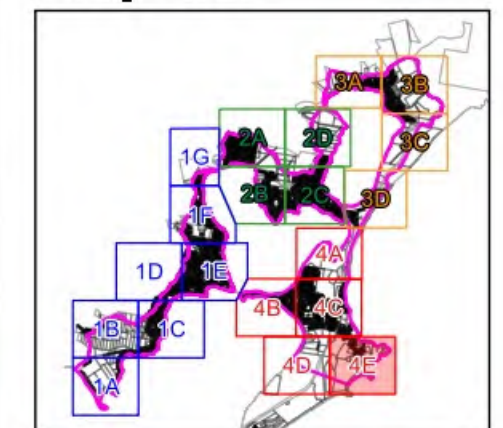
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 4E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

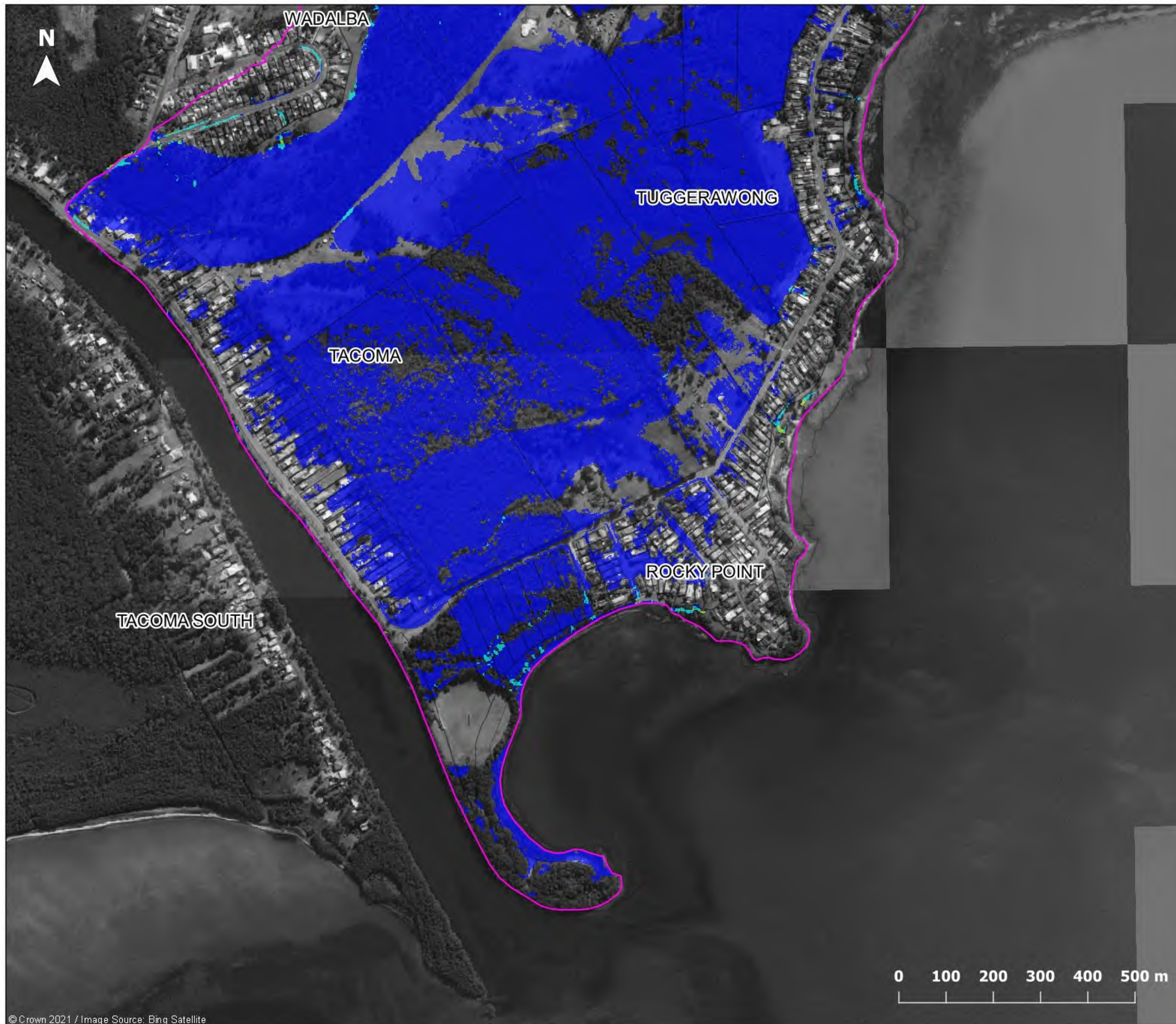


Figure C11.1

1% AEP Flood Velocity

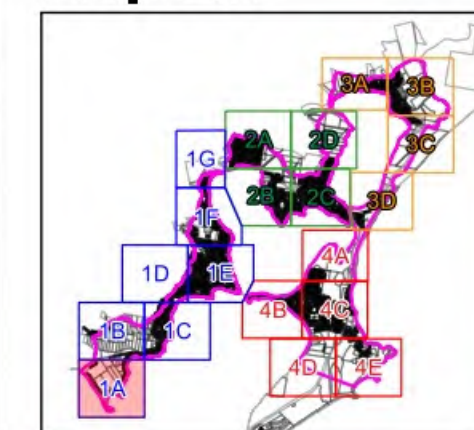
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- >1.50

Map 1A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan

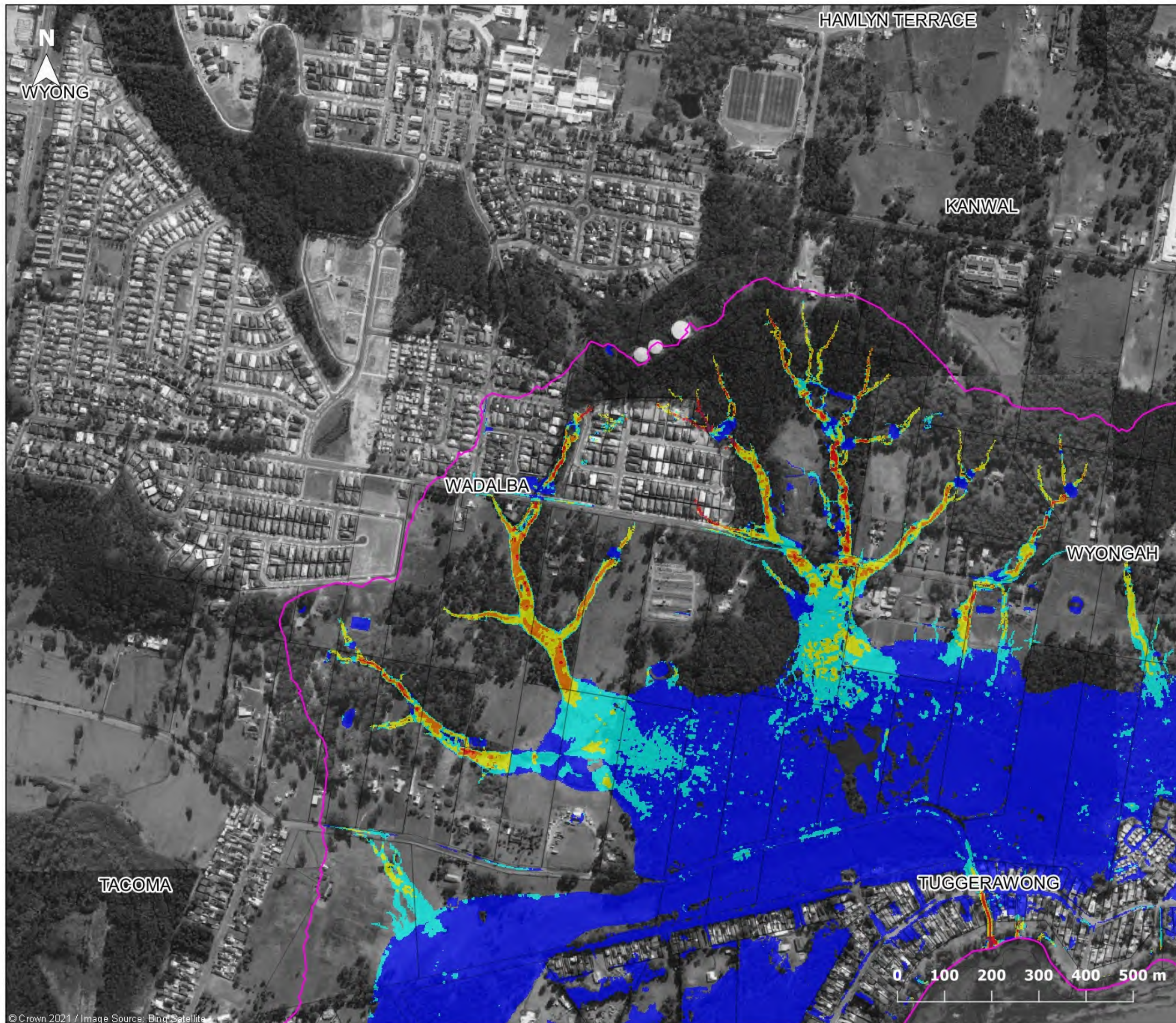


Figure C11.2

**1% AEP
Flood Velocity**

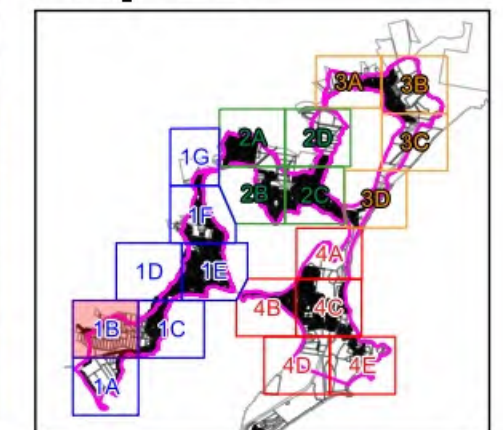
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 1B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

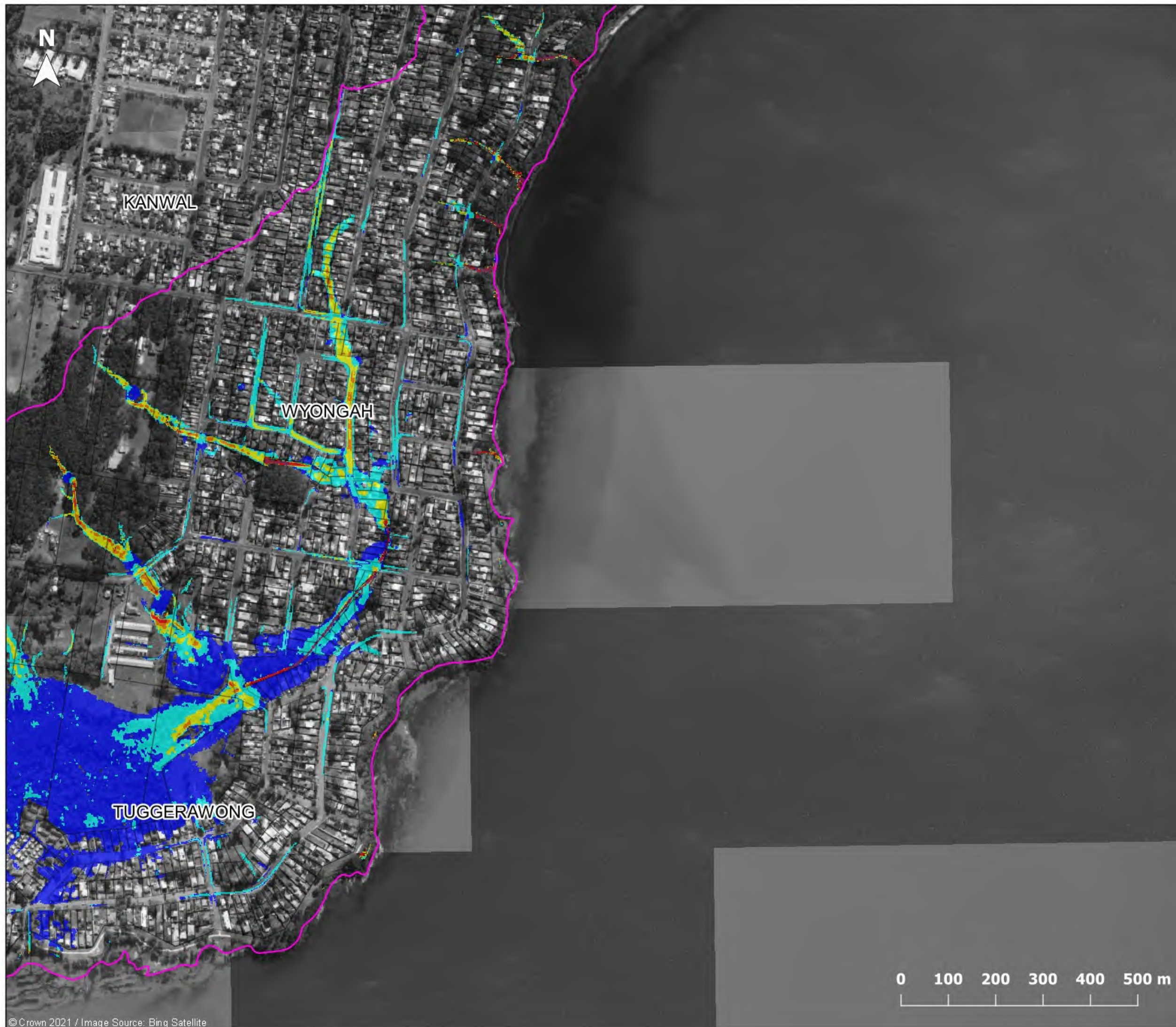


Figure C11.3

1% AEP Flood Velocity

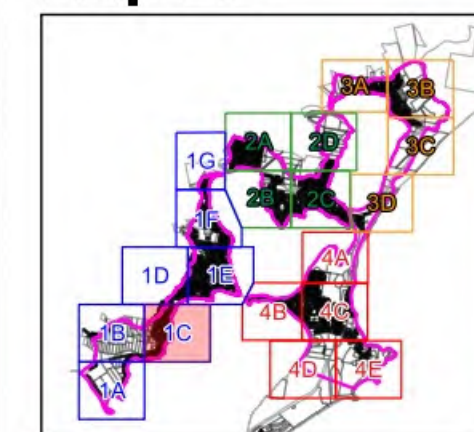
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 1C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

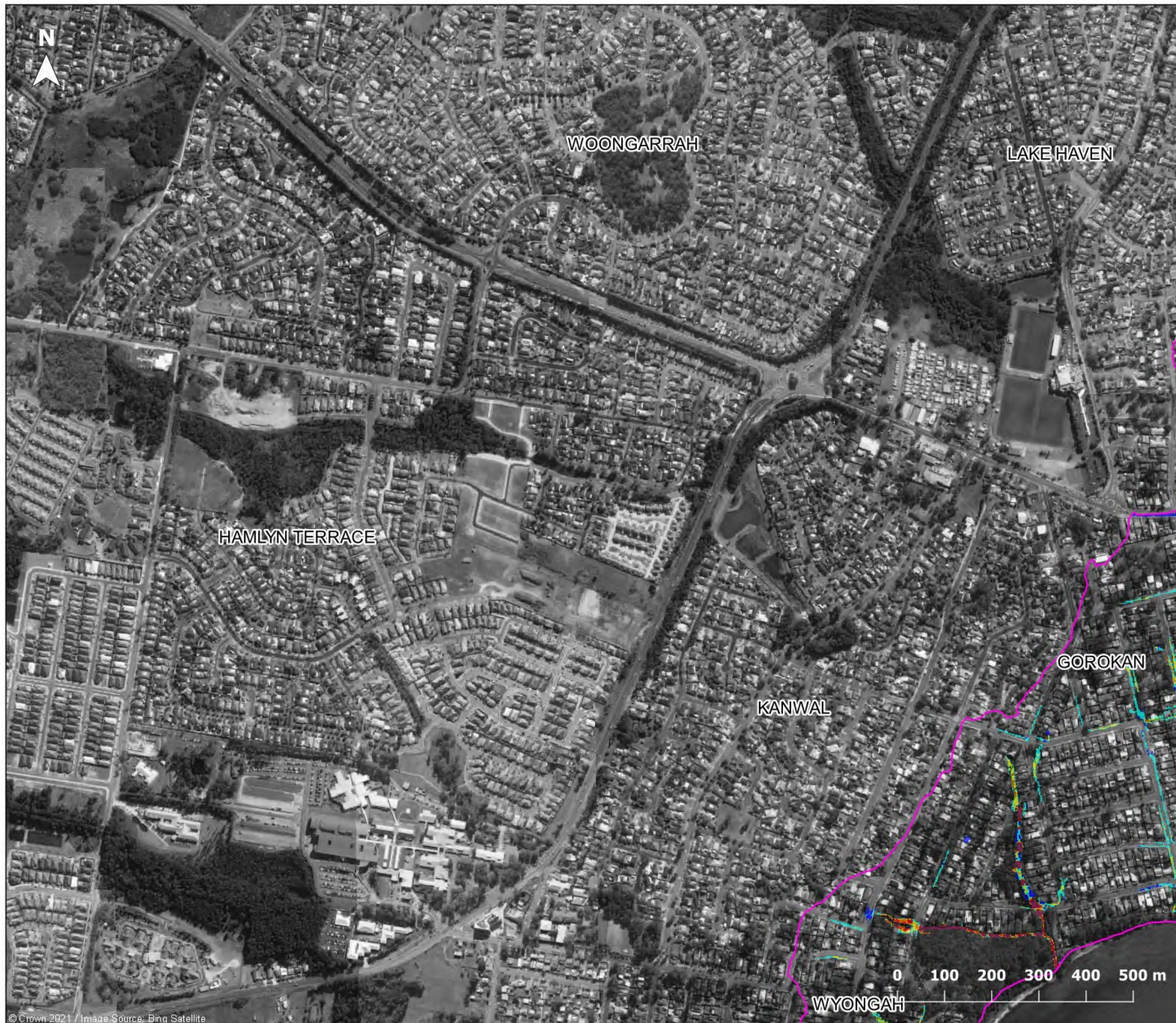


Figure C11.4

1% AEP Flood Velocity

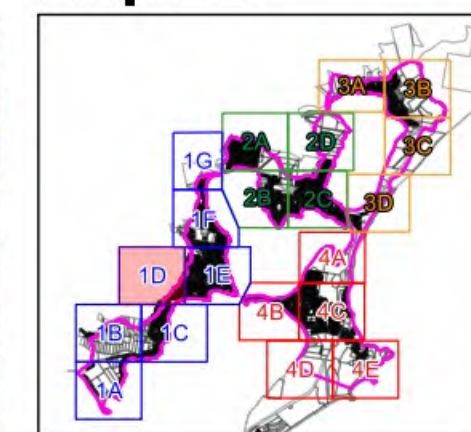
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 1D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C11.5

**1% AEP
Flood Velocity**

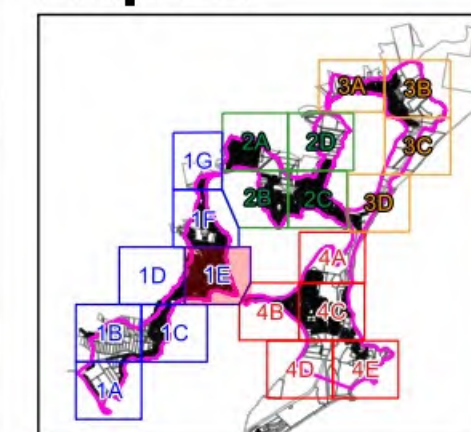
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 1E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

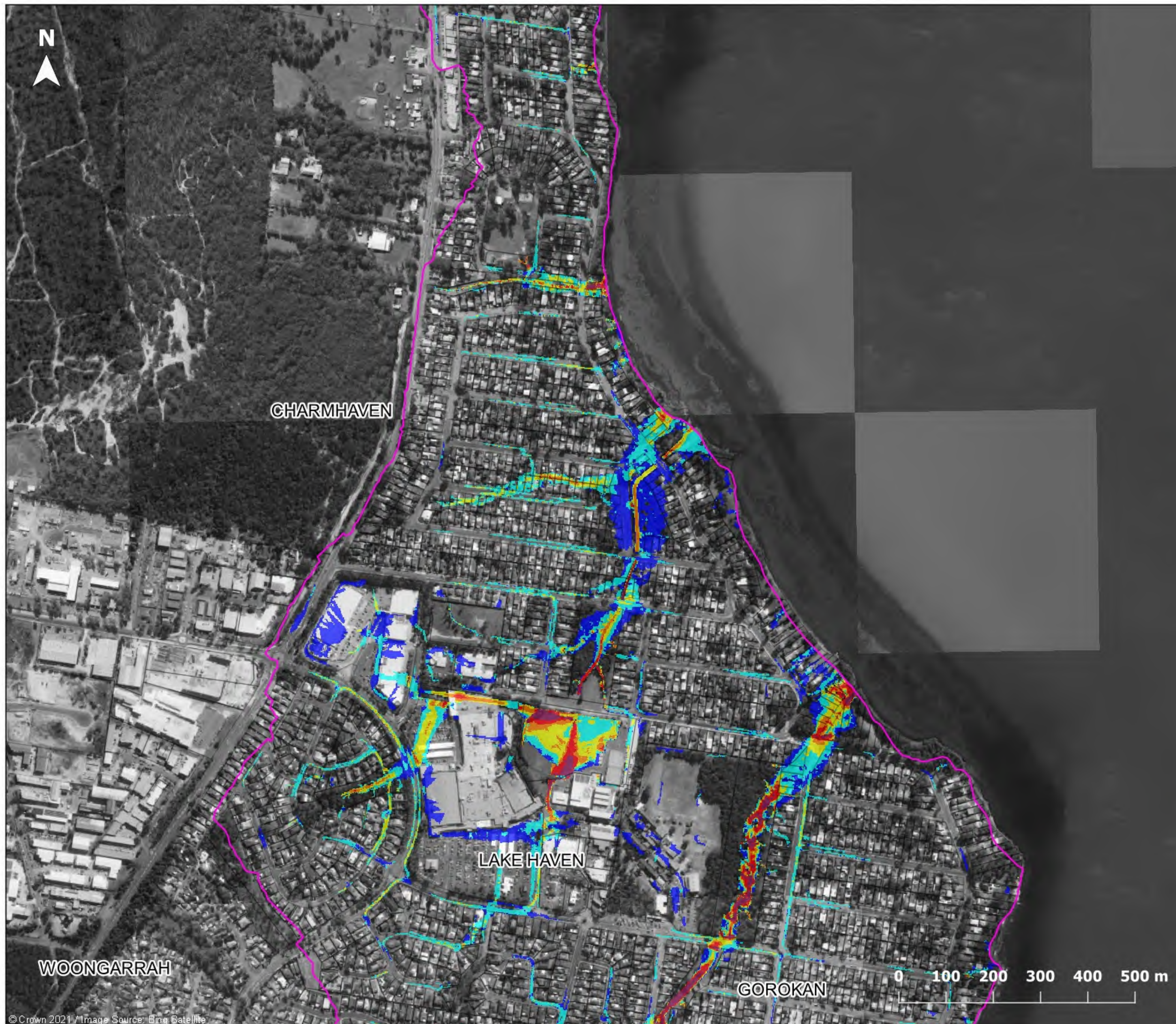


Figure C11.6

**1% AEP
Flood Velocity**

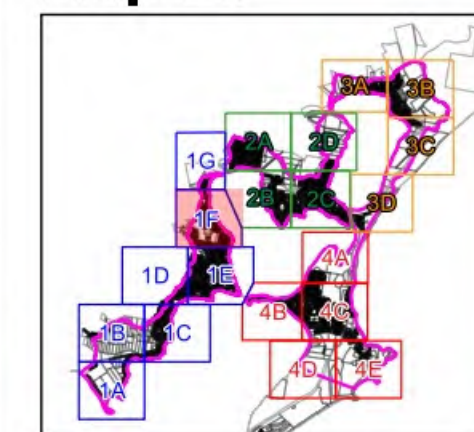
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 1F



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan

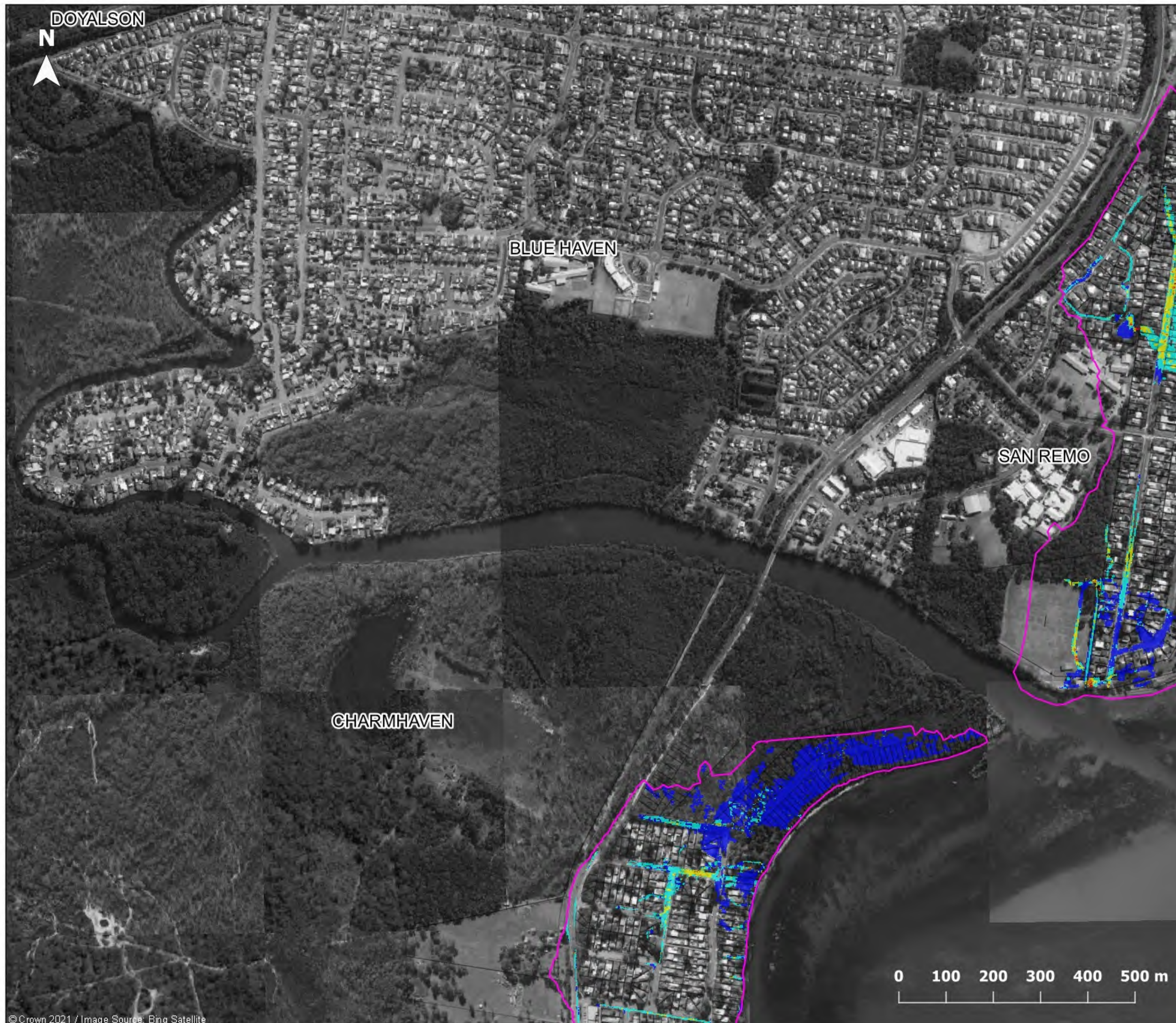


Figure C11.7

**1% AEP
Flood Velocity**

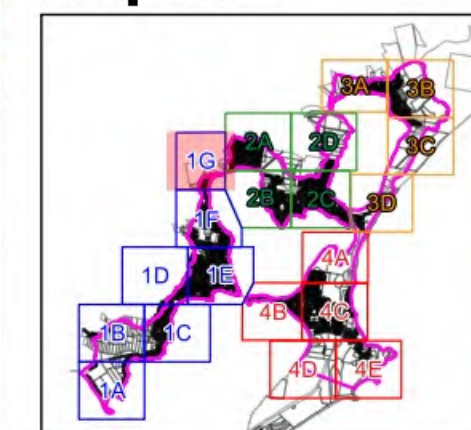
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- >1.50

Map 1G



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan

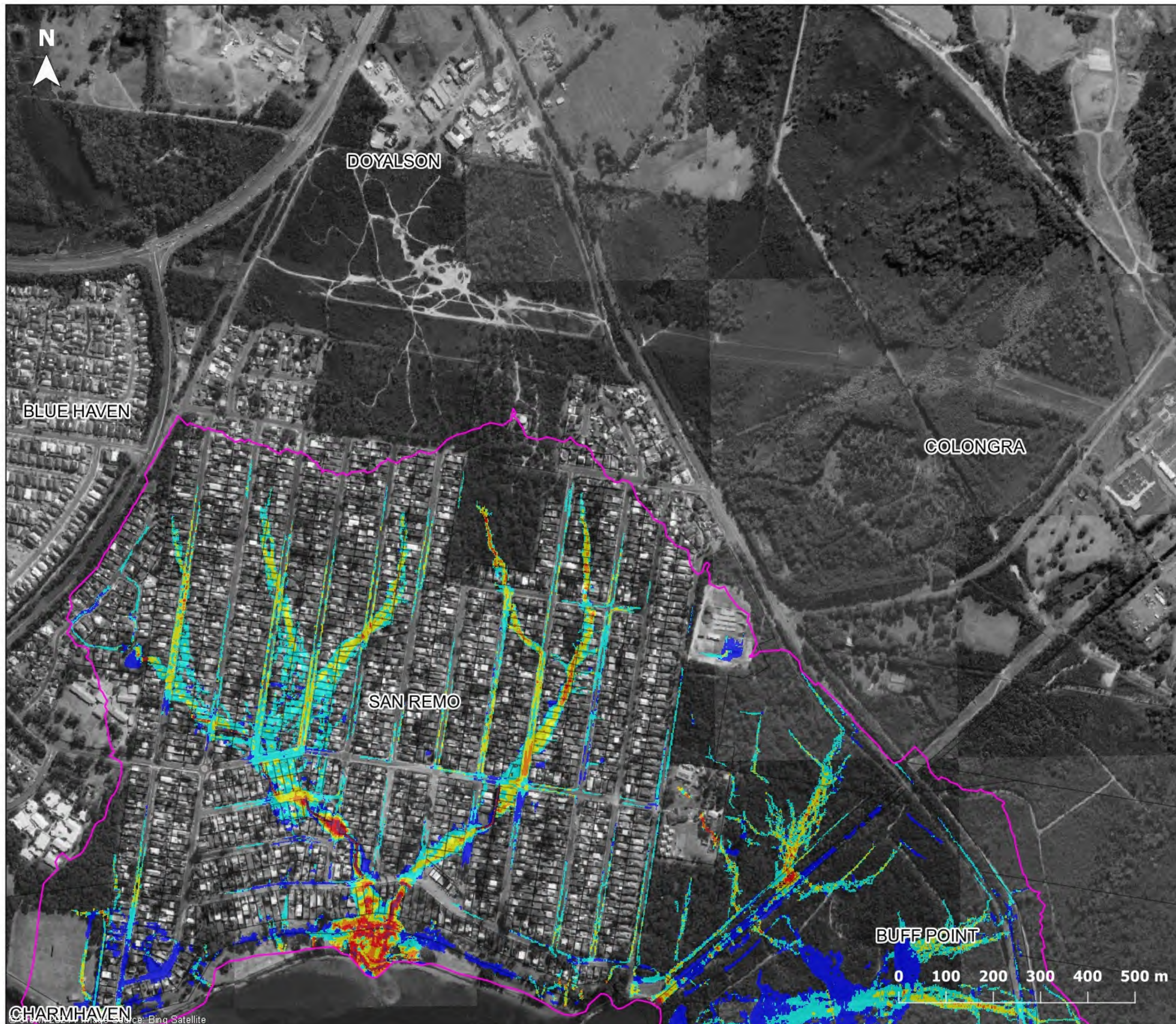


Figure C11.8

**1% AEP
Flood Velocity**

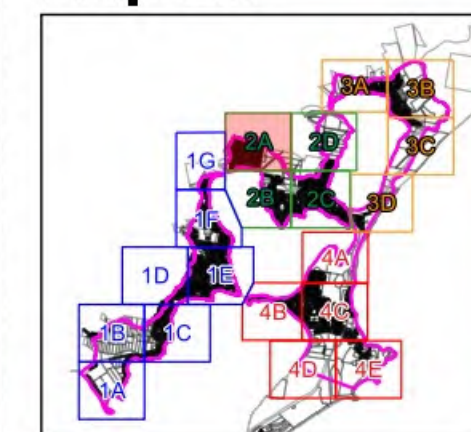
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 2A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

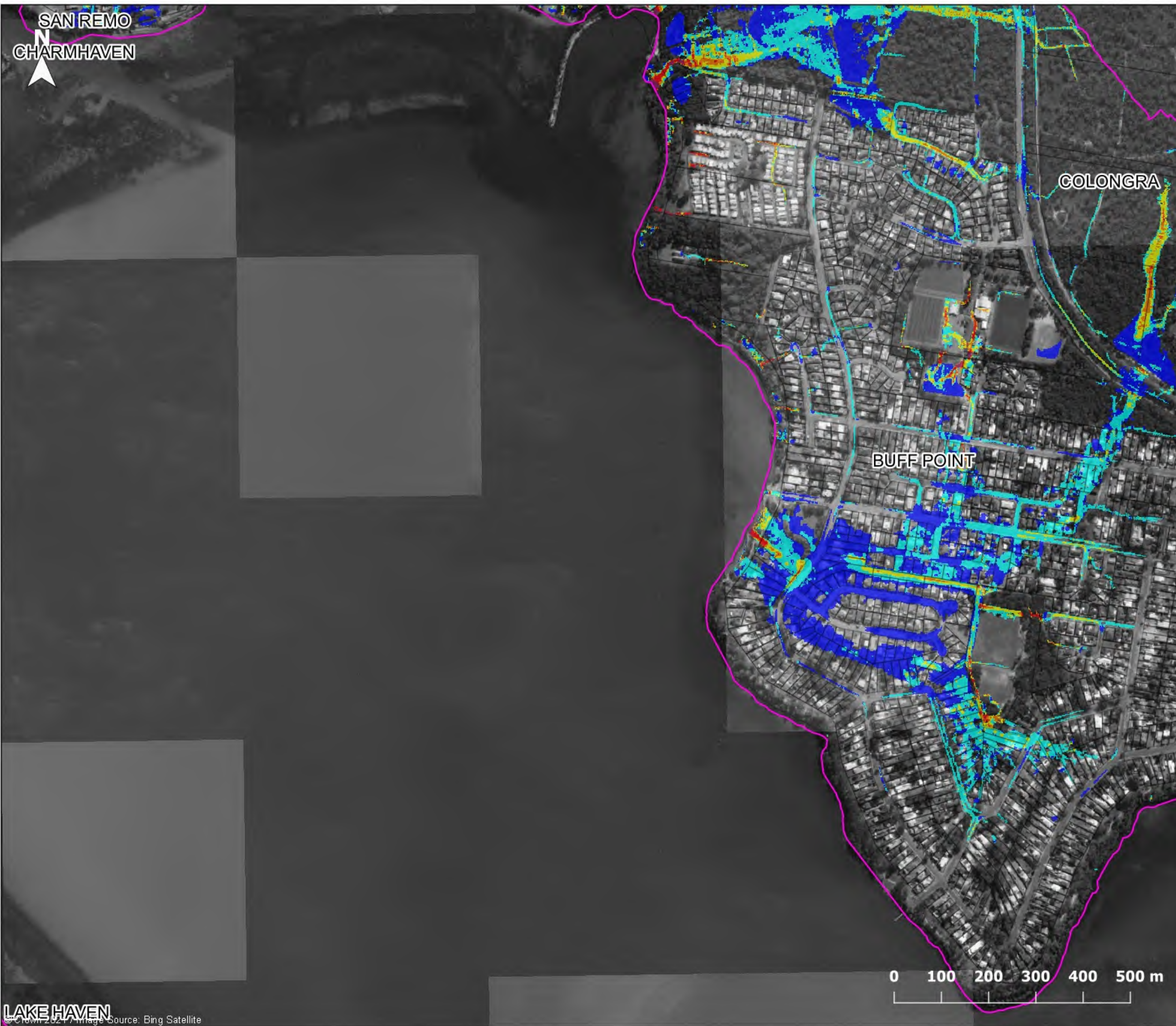


Figure C11.9

**1% AEP
Flood Velocity**

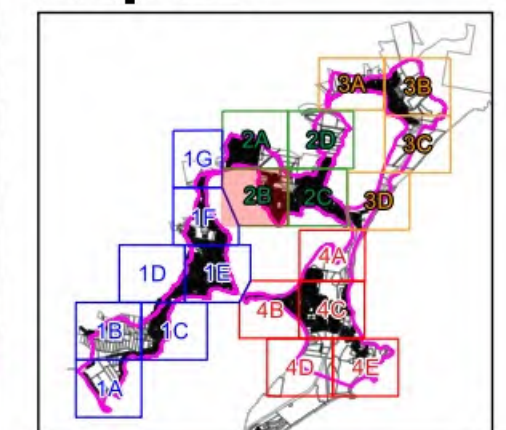
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 2B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Figure C11.10

**1% AEP
Flood Velocity**

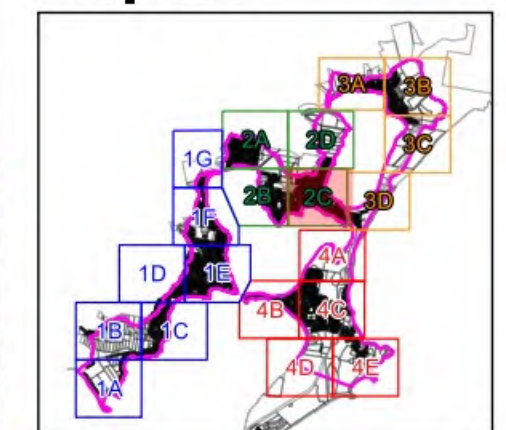
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 2C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

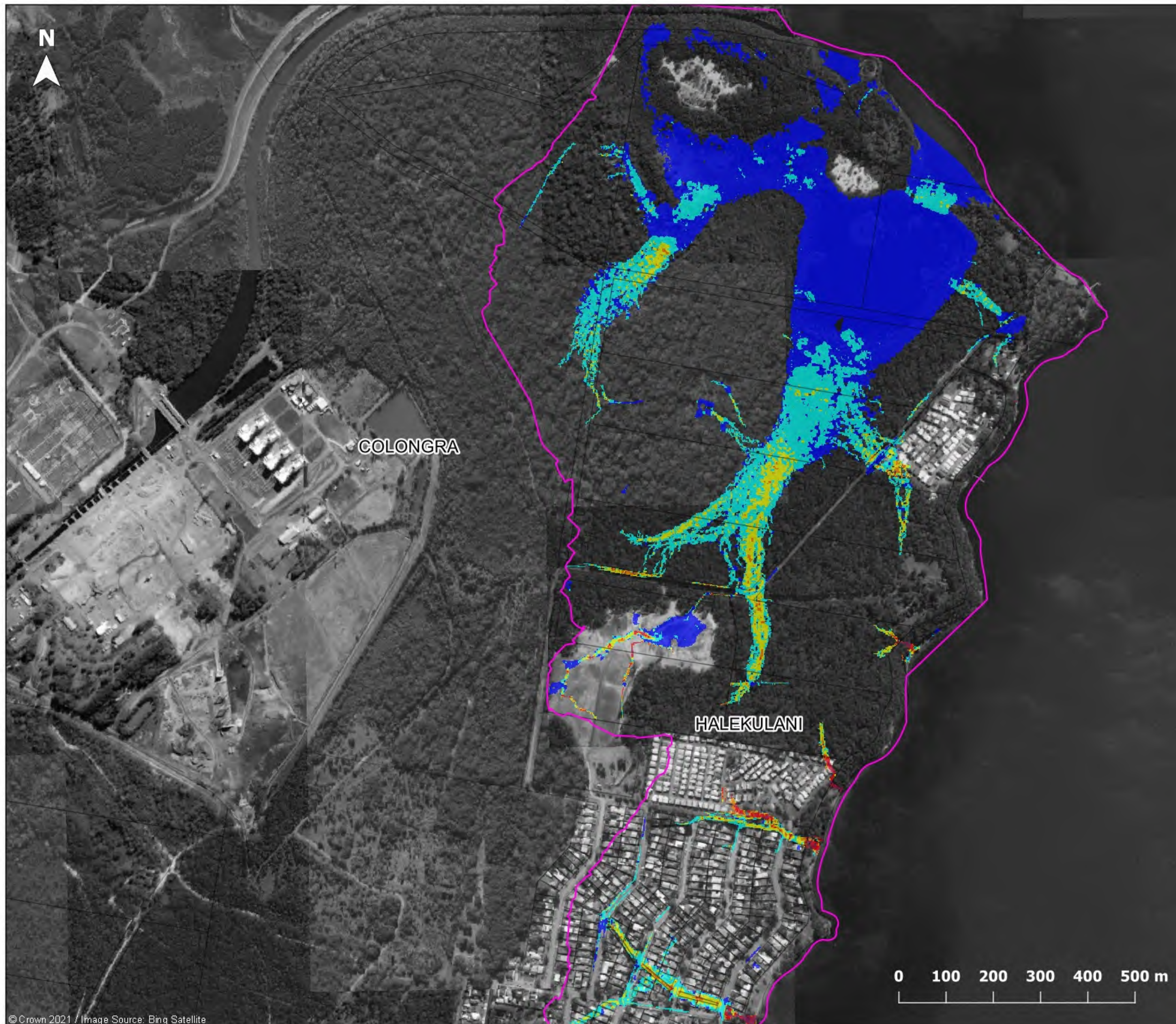


Figure C11.11

1% AEP Flood Velocity

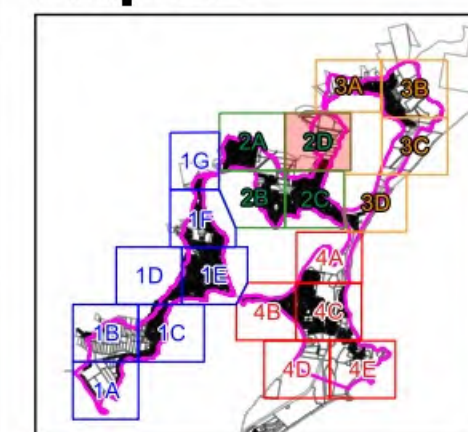
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 2D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C11.12

1% AEP Flood Velocity

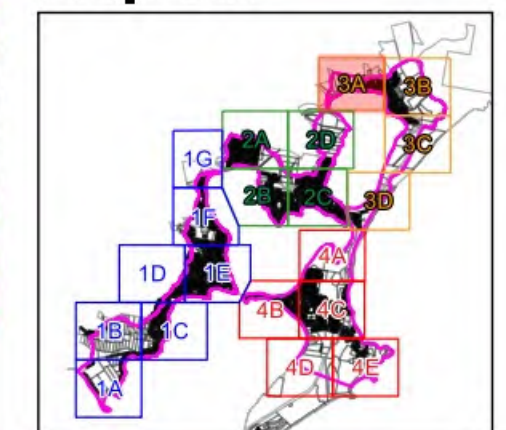
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- >1.50

Map 3A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan

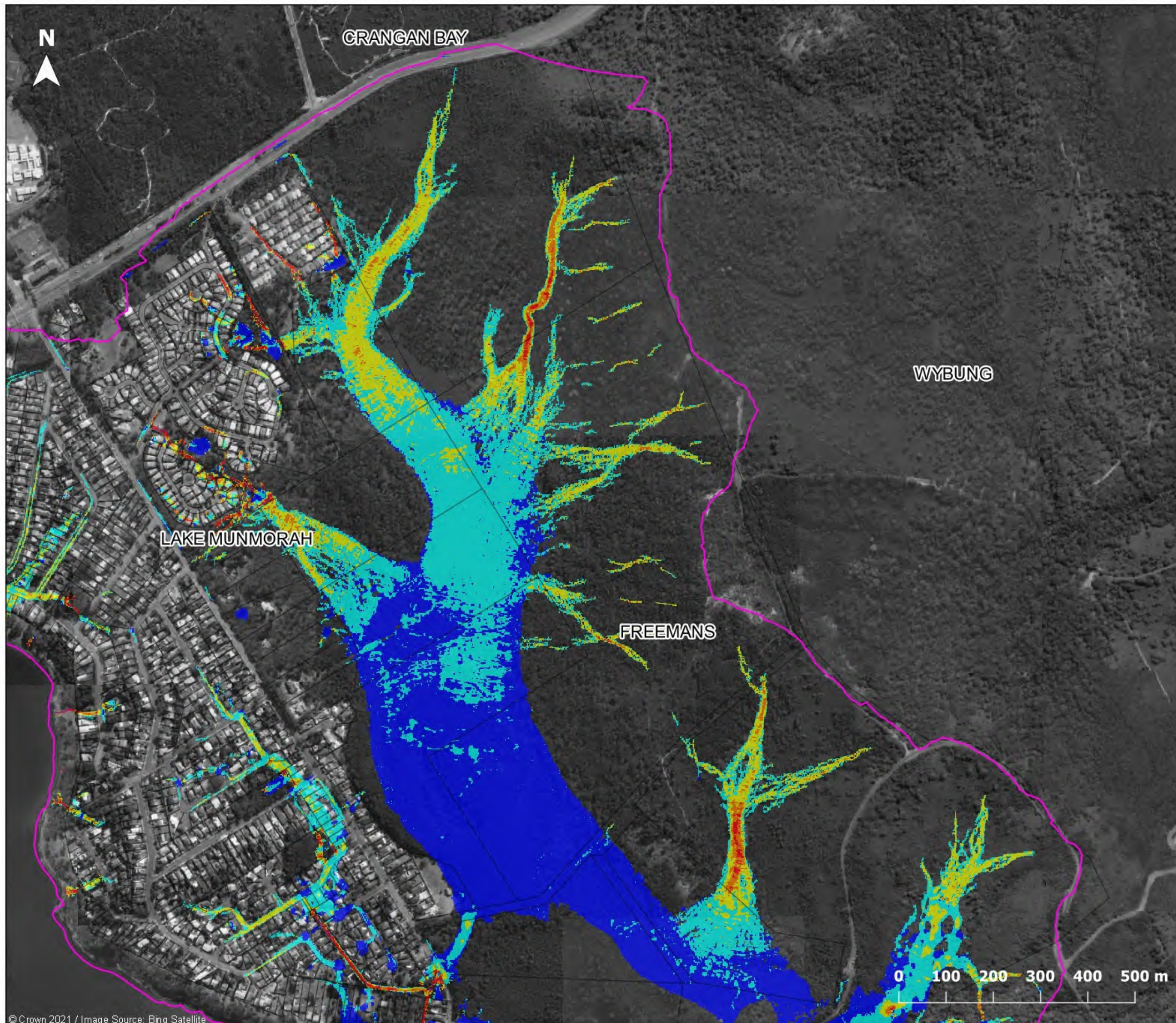


Figure C11.13

1% AEP Flood Velocity

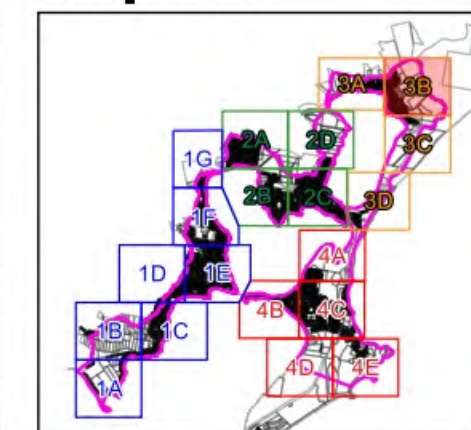
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 3B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

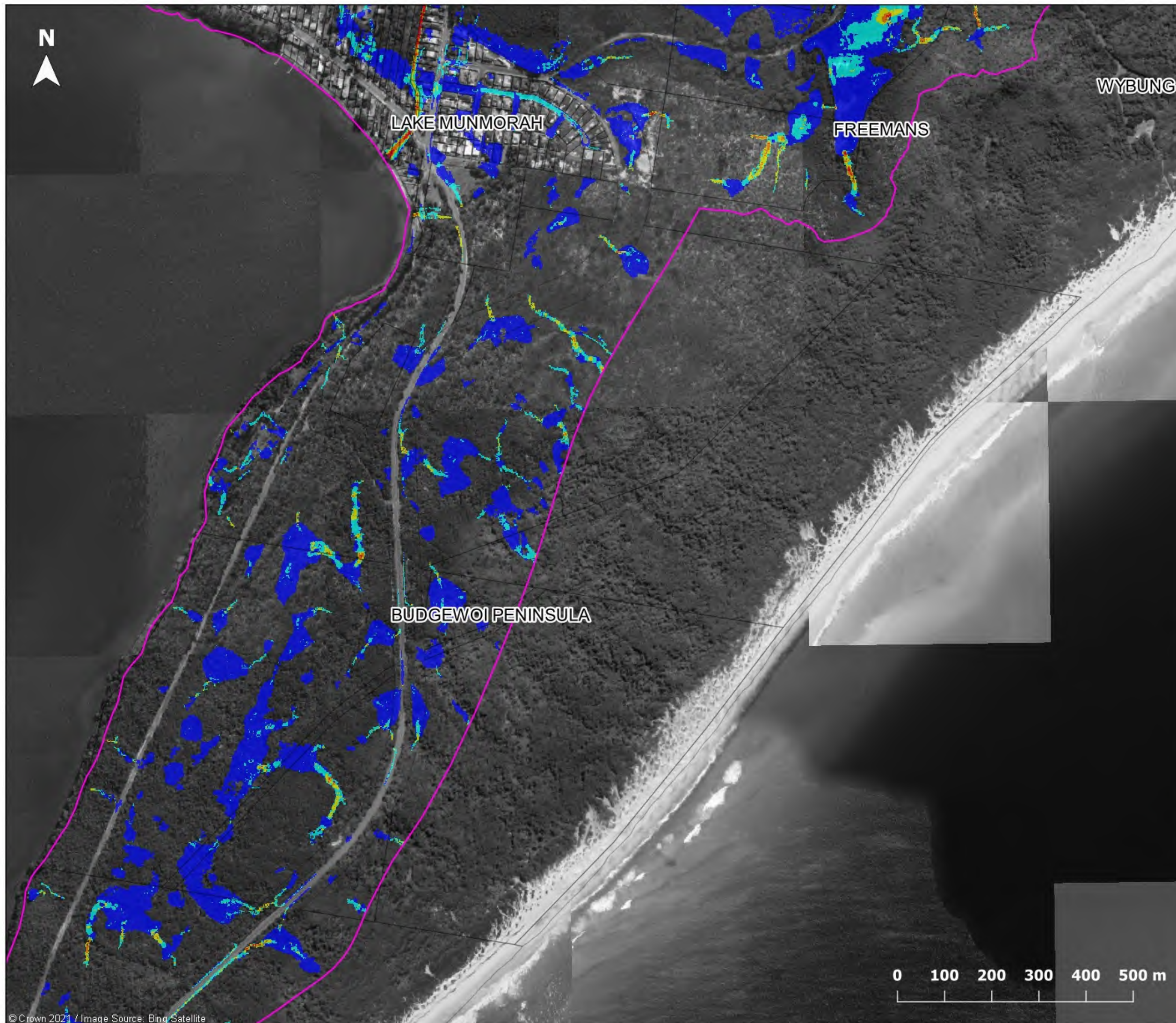


Figure C11.14

**1% AEP
Flood Velocity**

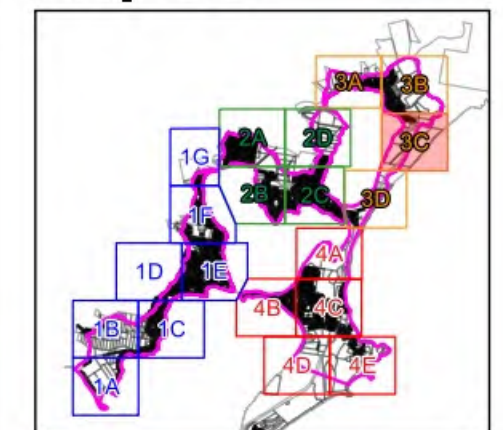
Legend

-  Catchment area
-  Cadastre

Velocity (m/s)

-  0.00-0.25
-  0.25-0.50
-  0.50-0.75
-  0.75-1.00
-  1.00-1.50
-  > 1.50

Map 3C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



Figure C11.15

**1% AEP
Flood Velocity**

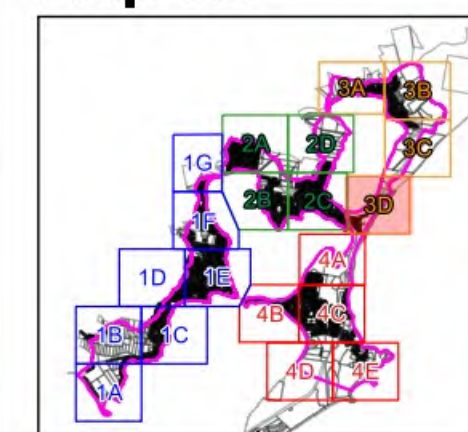
Legend

-  Catchment area
-  Cadastre

Velocity (m/s)

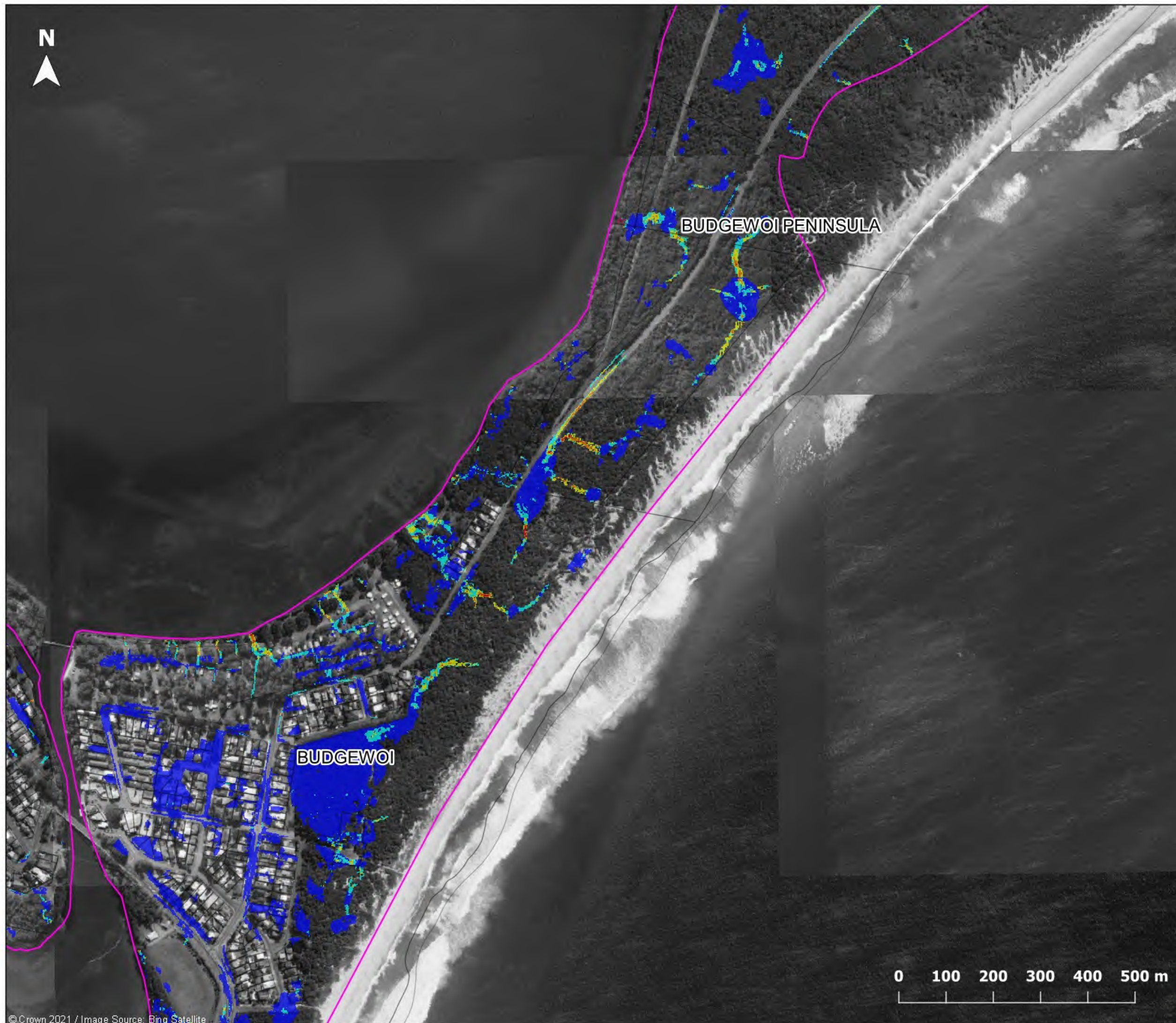
-  0.00-0.25
-  0.25-0.50
-  0.50-0.75
-  0.75-1.00
-  1.00-1.50
-  > 1.50

Map 3D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



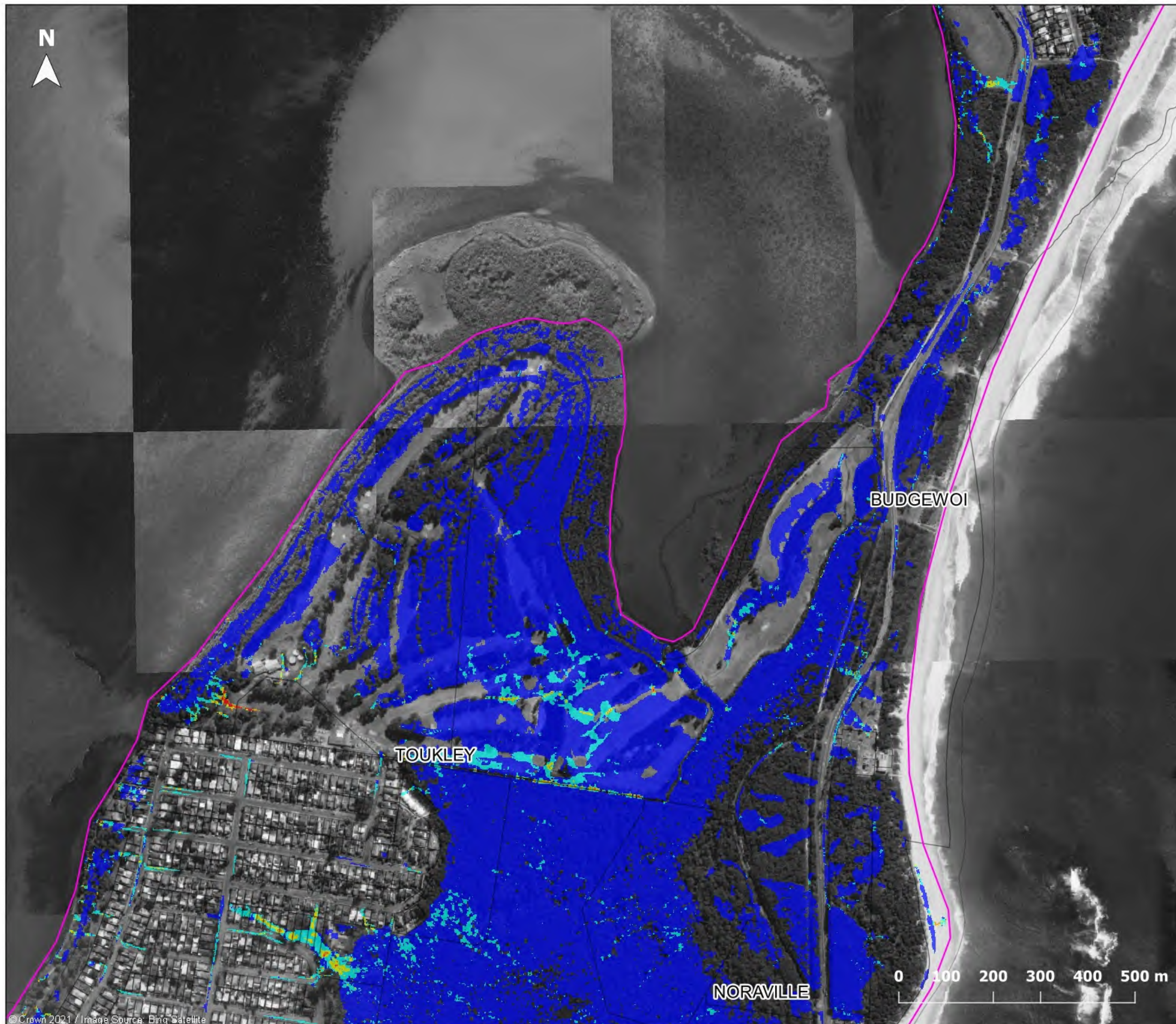


Figure C11.16

1% AEP Flood Velocity

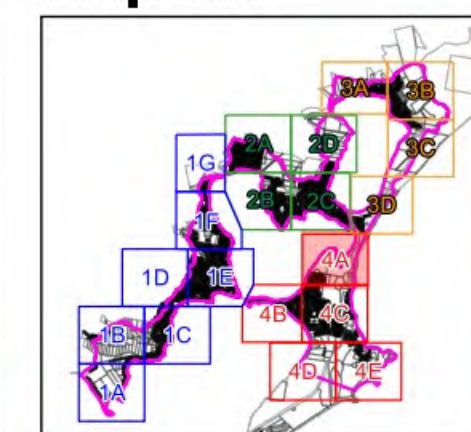
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 4A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C11.17

**1% AEP
Flood Velocity**

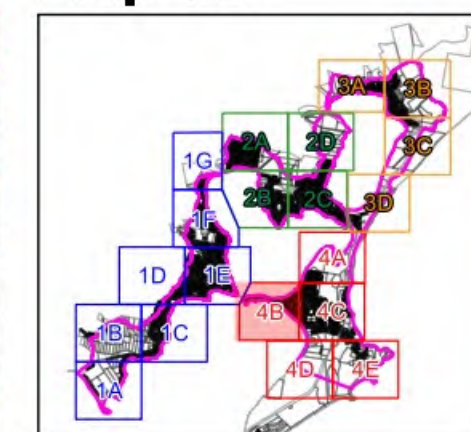
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- >1.50

Map 4B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

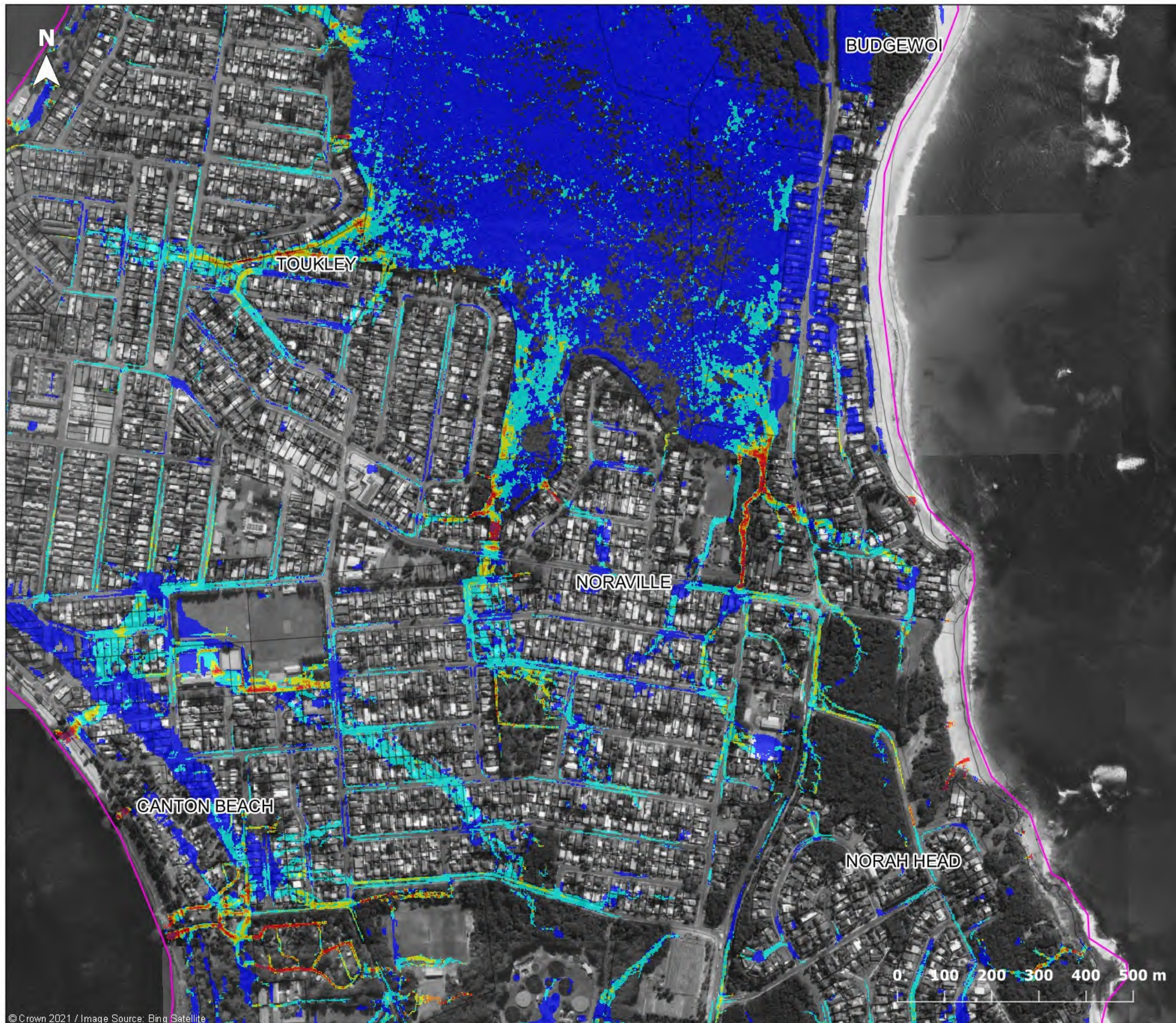


Figure C11.18

1% AEP Flood Velocity

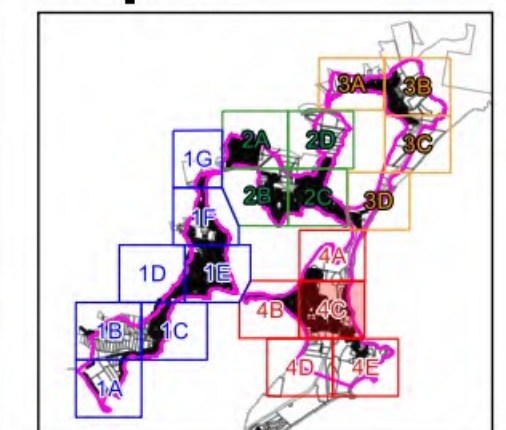
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 4C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

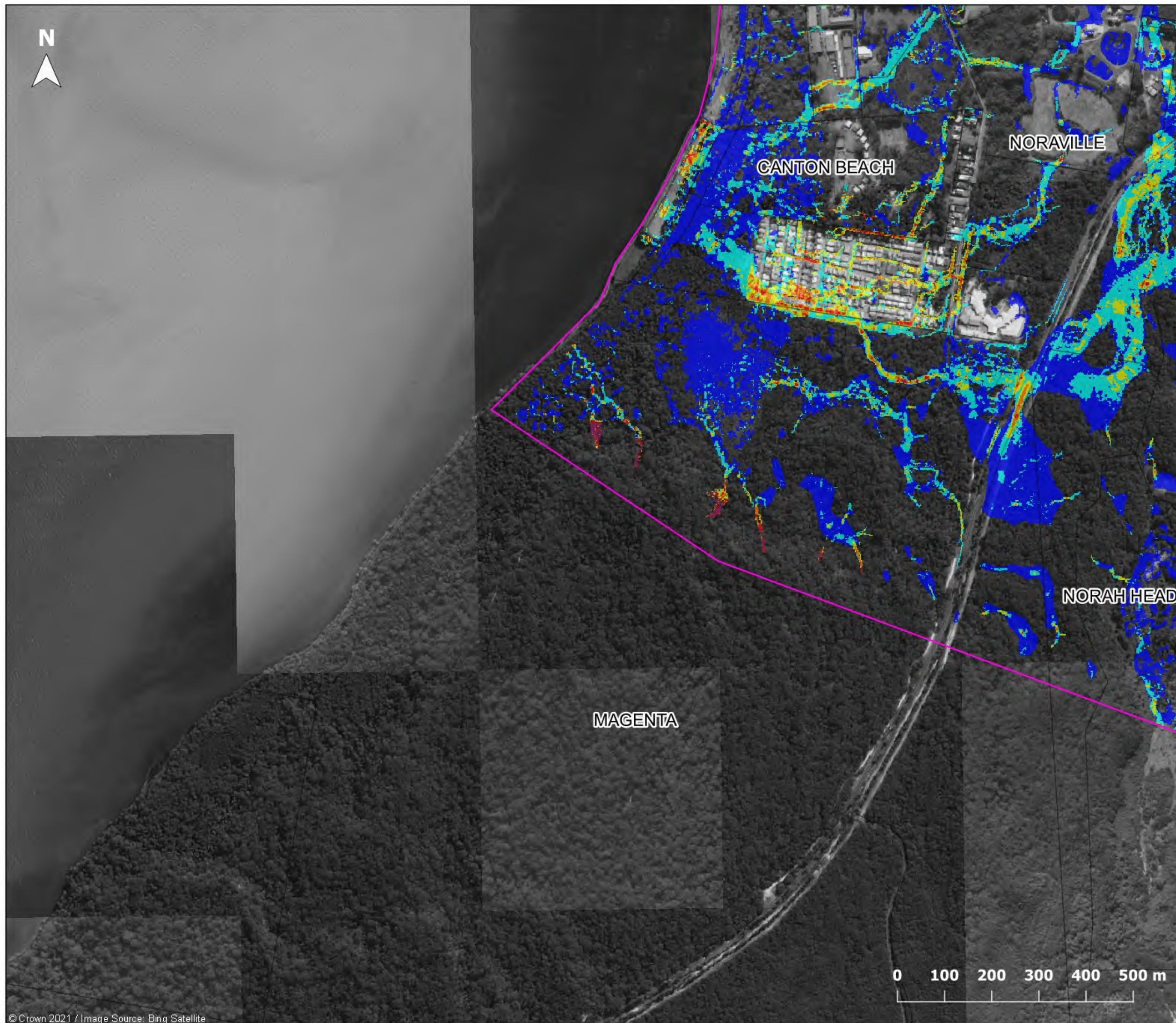


Figure C11.19

**1% AEP
Flood Velocity**

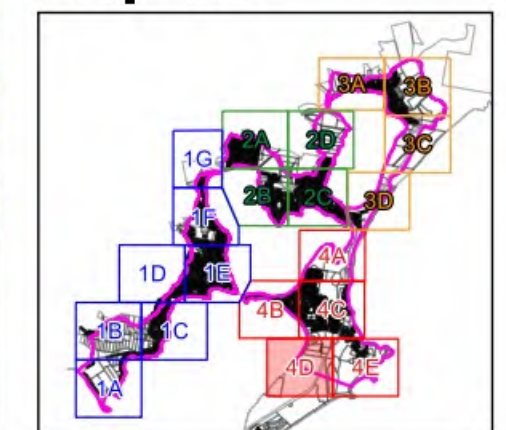
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- >1.50

Map 4D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

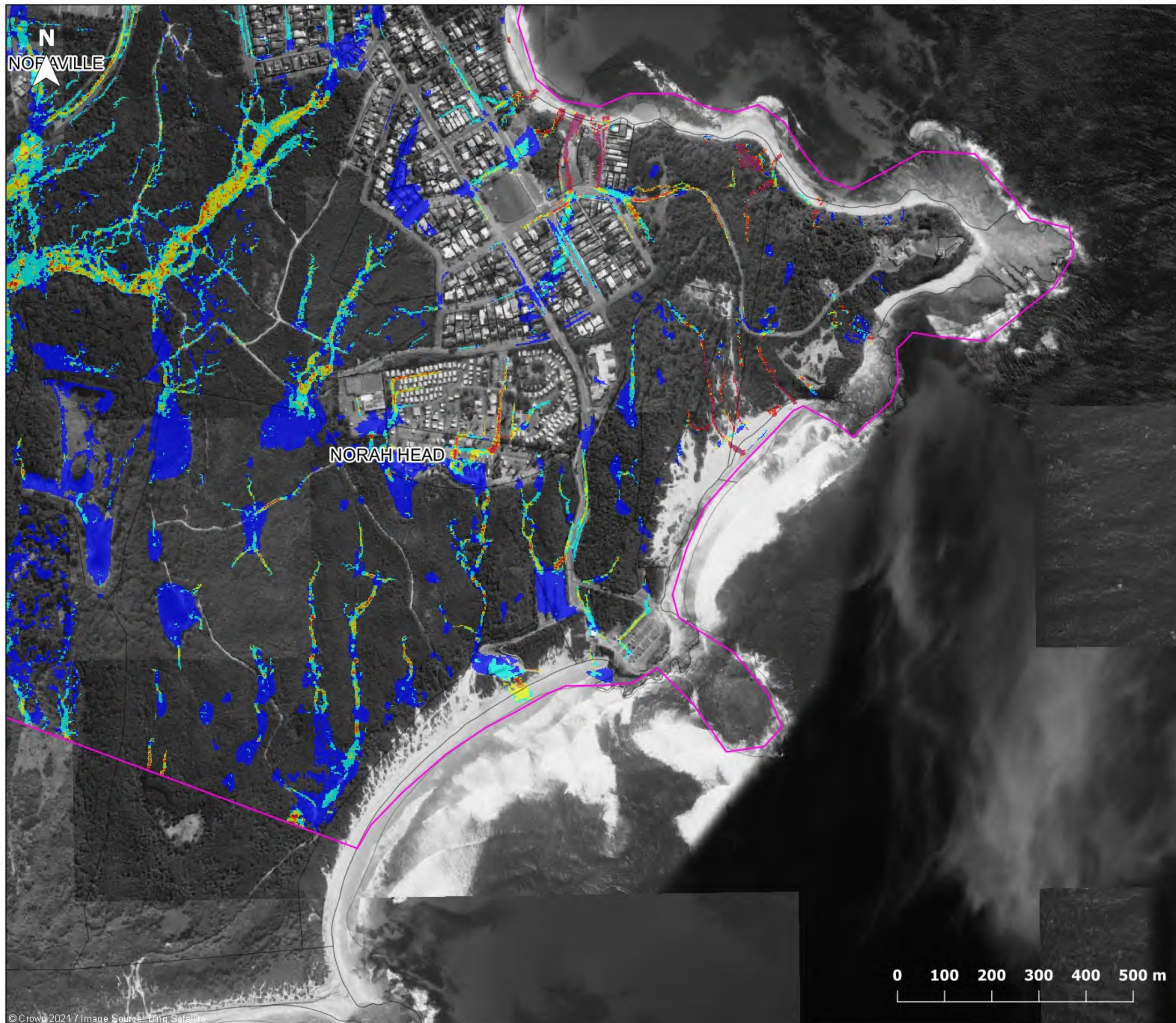


Figure C11.20

1% AEP Flood Velocity

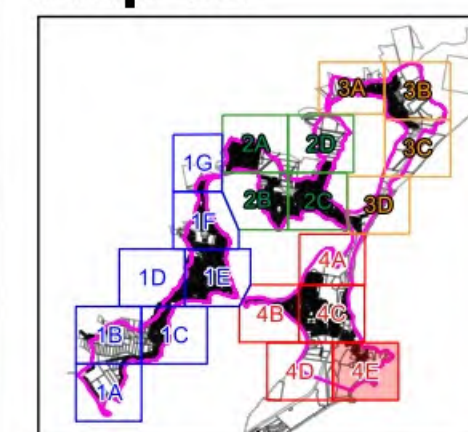
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 4E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**

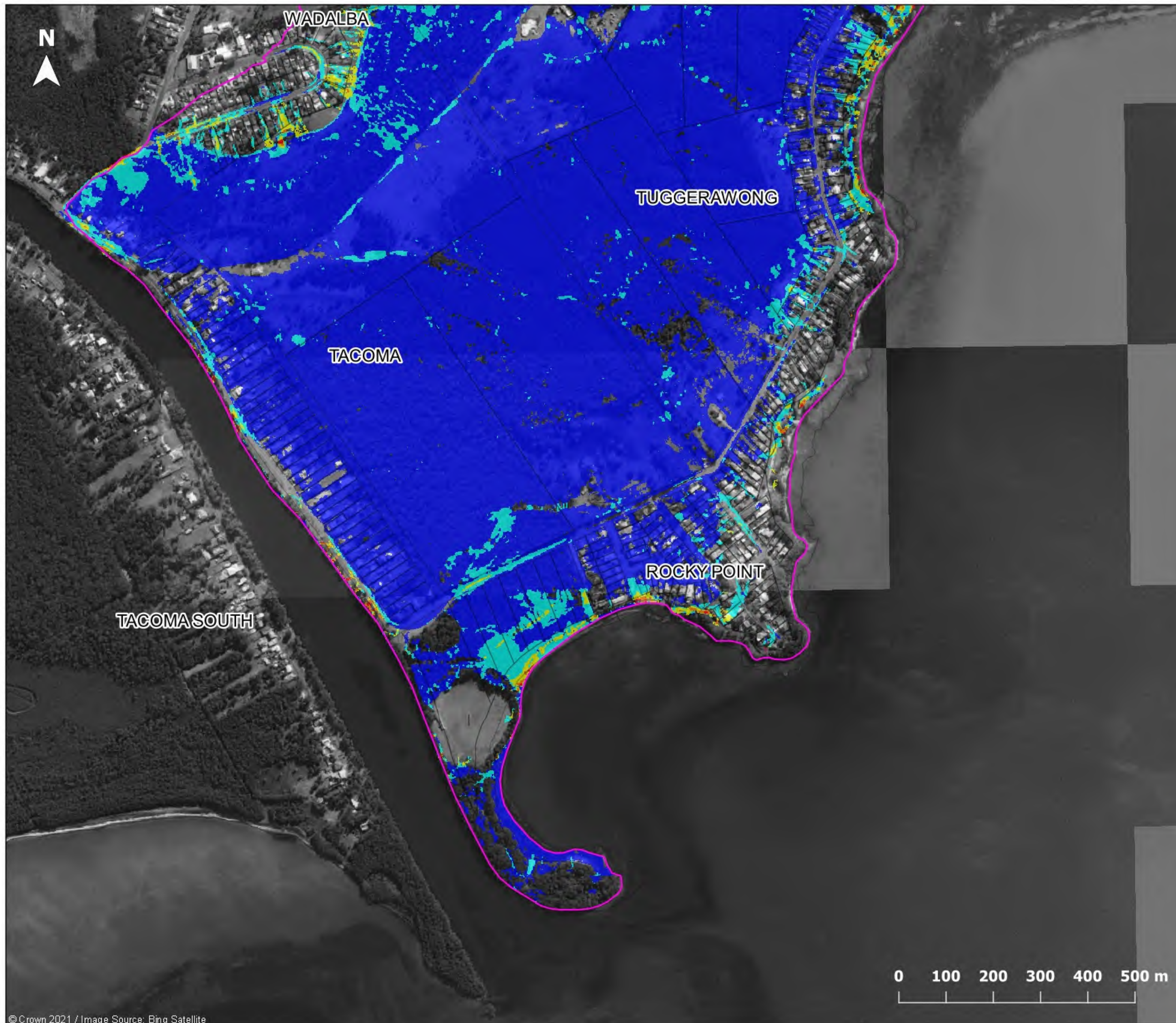


Figure C12.1

Probable Maximum Flood Velocity

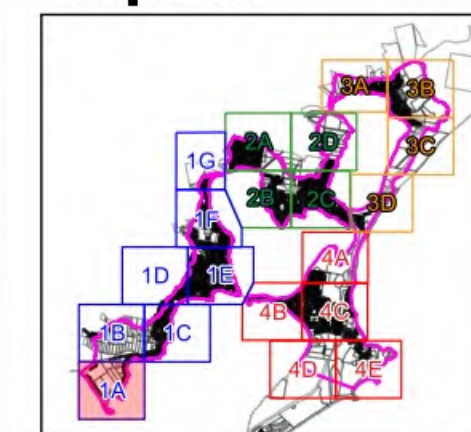
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- >1.50

Map 1A

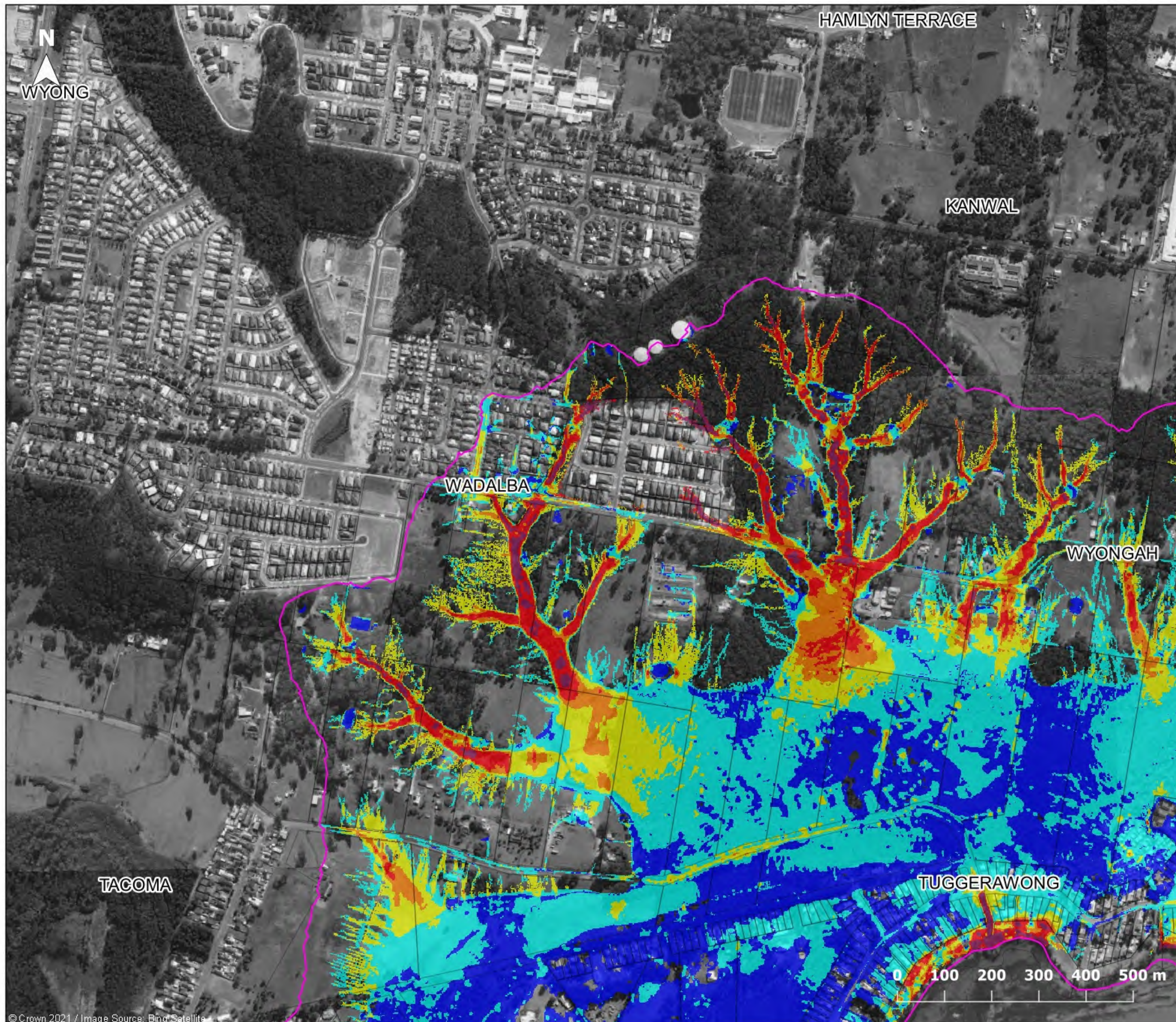


Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



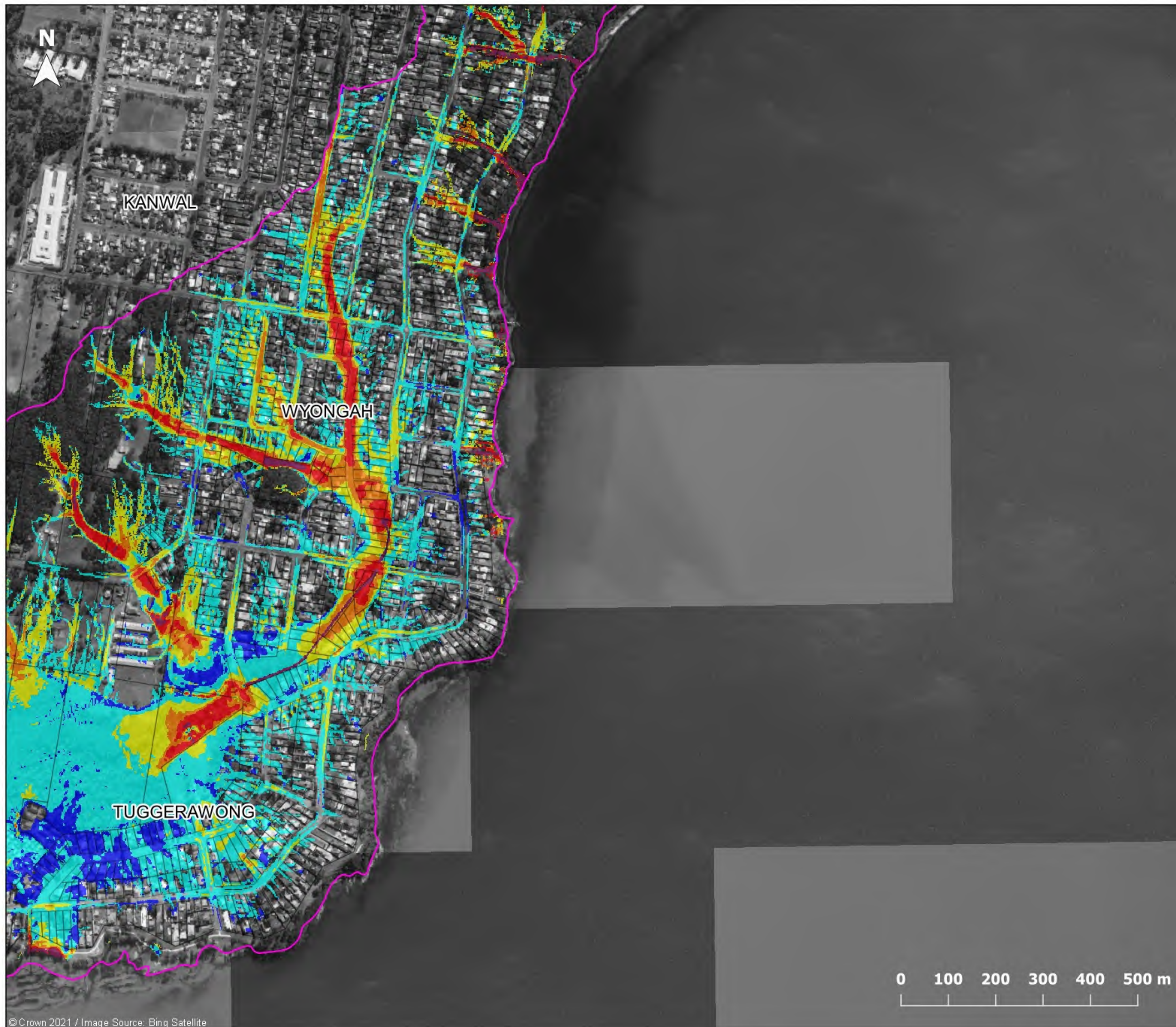


Figure C12.3

Probable Maximum Flood Velocity

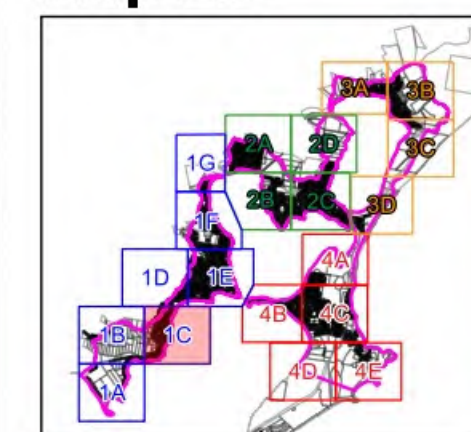
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 1C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan

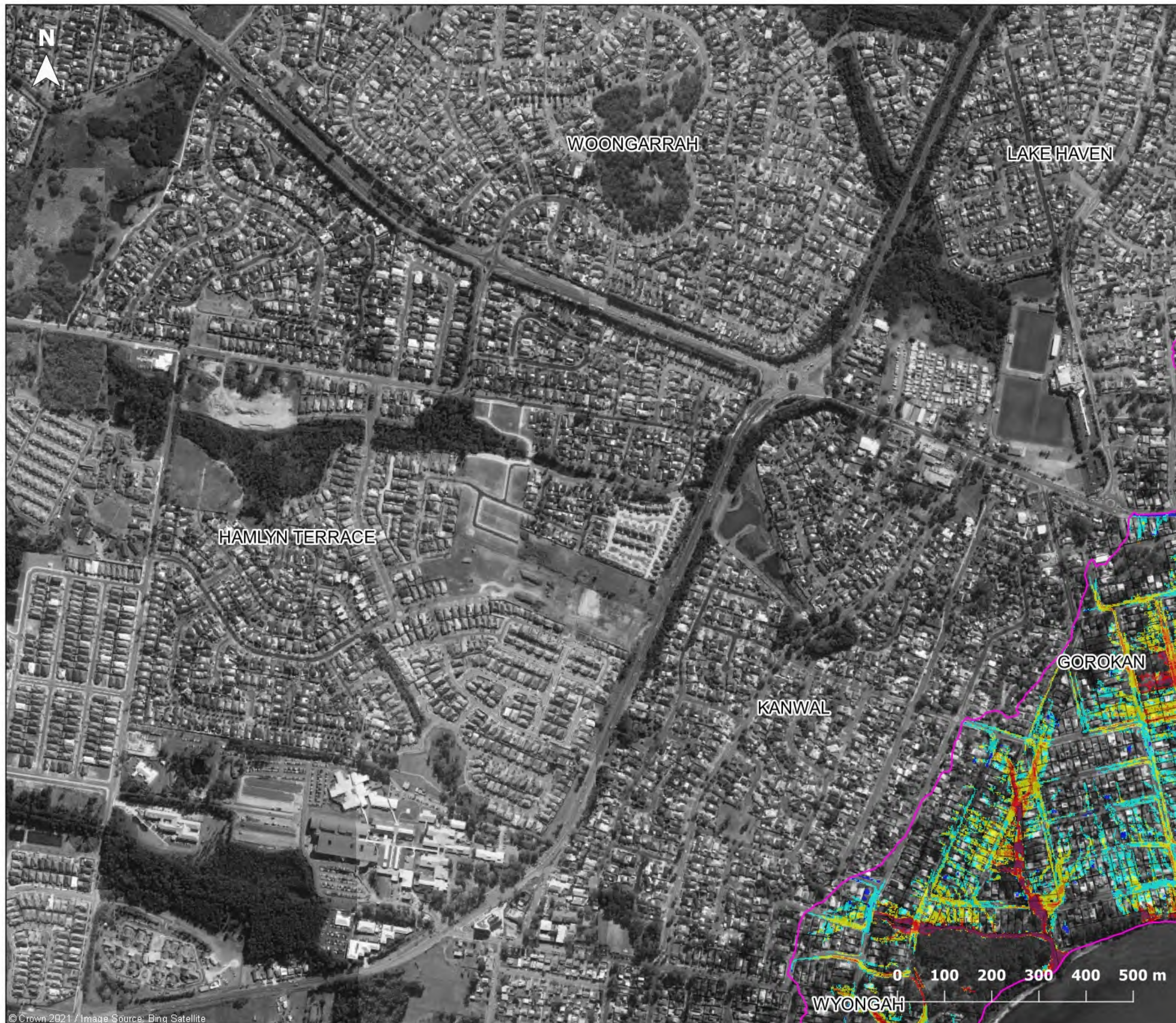


Figure C12.4

Probable Maximum Flood Velocity

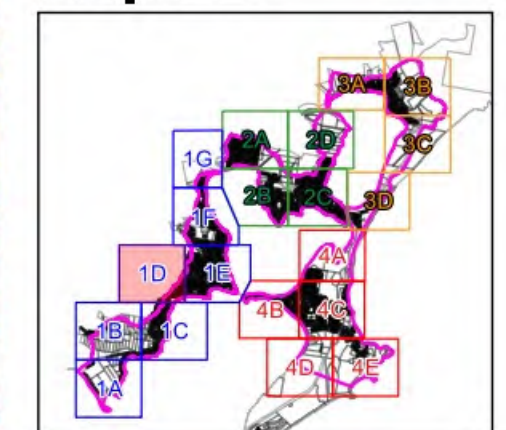
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 1D

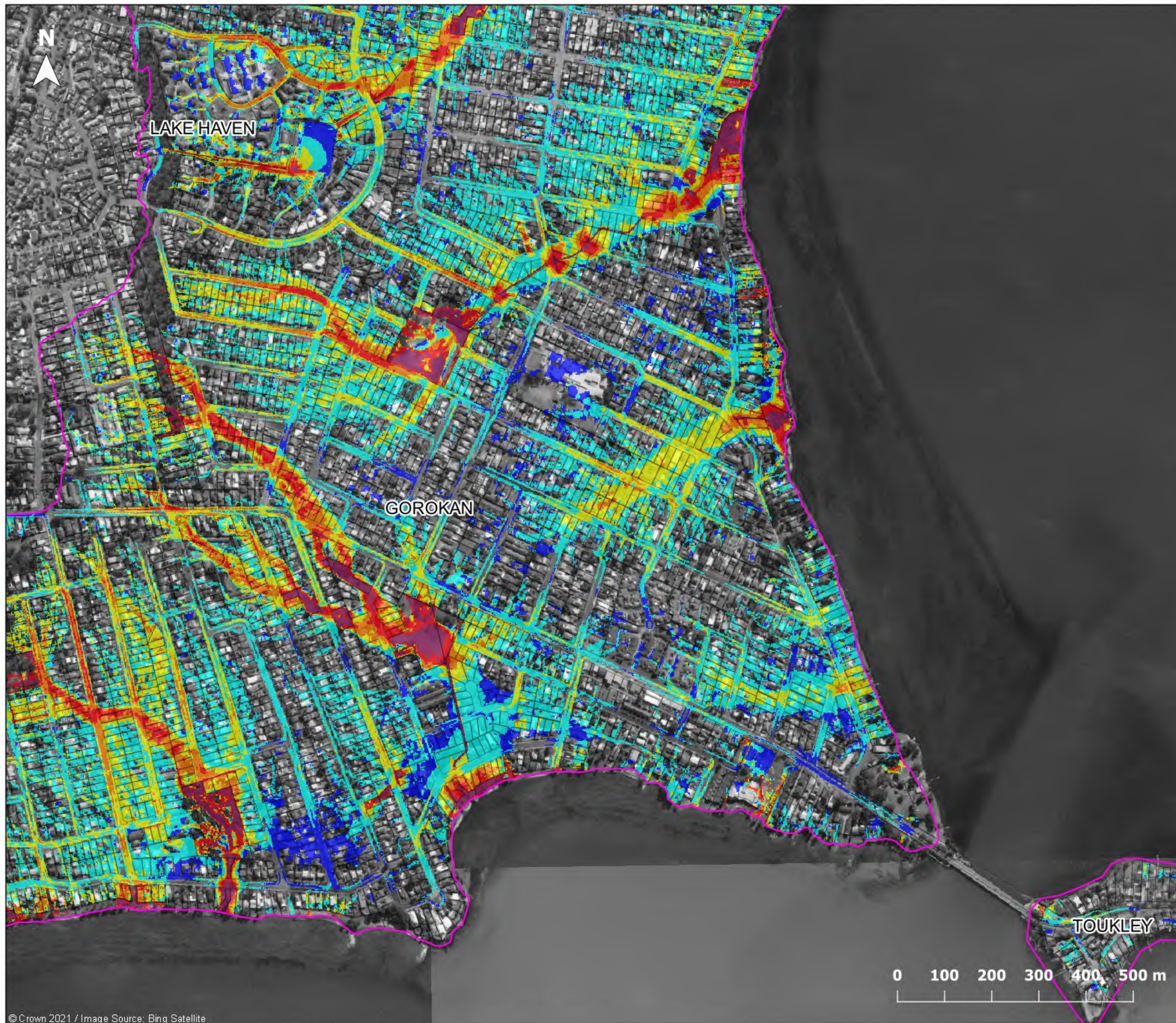


Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**



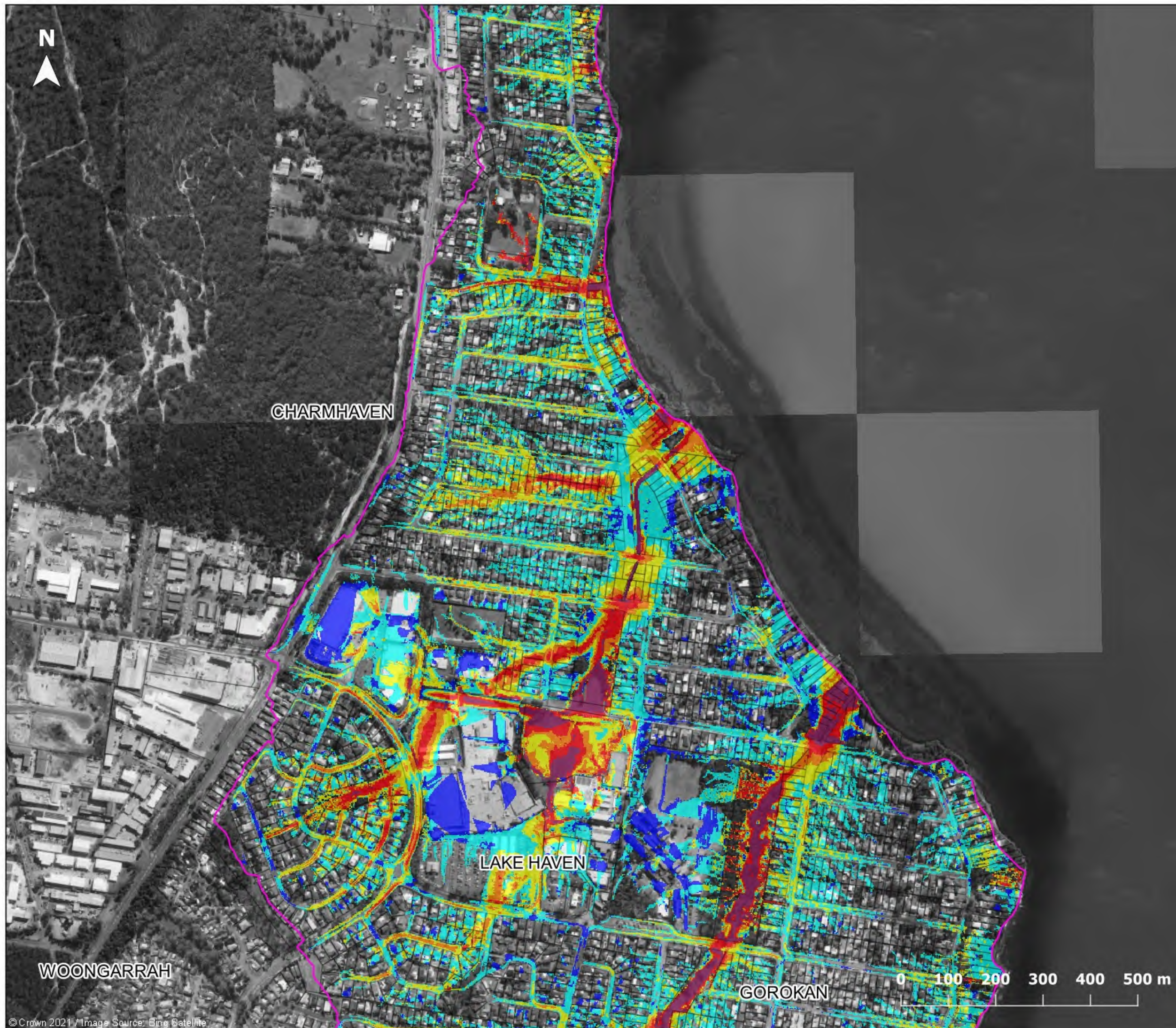


Figure C12.6

Probable Maximum Flood Velocity

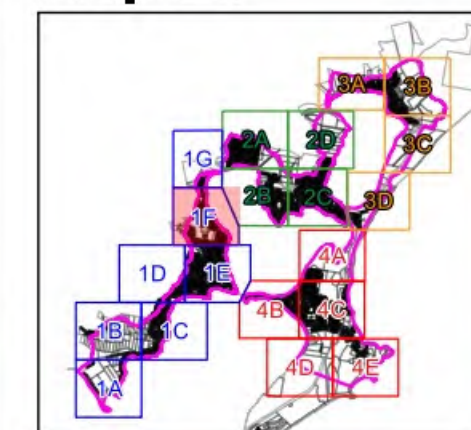
Legend

-  Catchment area
-  Cadastre

Velocity (m/s)

-  0.00-0.25
-  0.25-0.50
-  0.50-0.75
-  0.75-1.00
-  1.00-1.50
-  >1.50

Map 1F



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

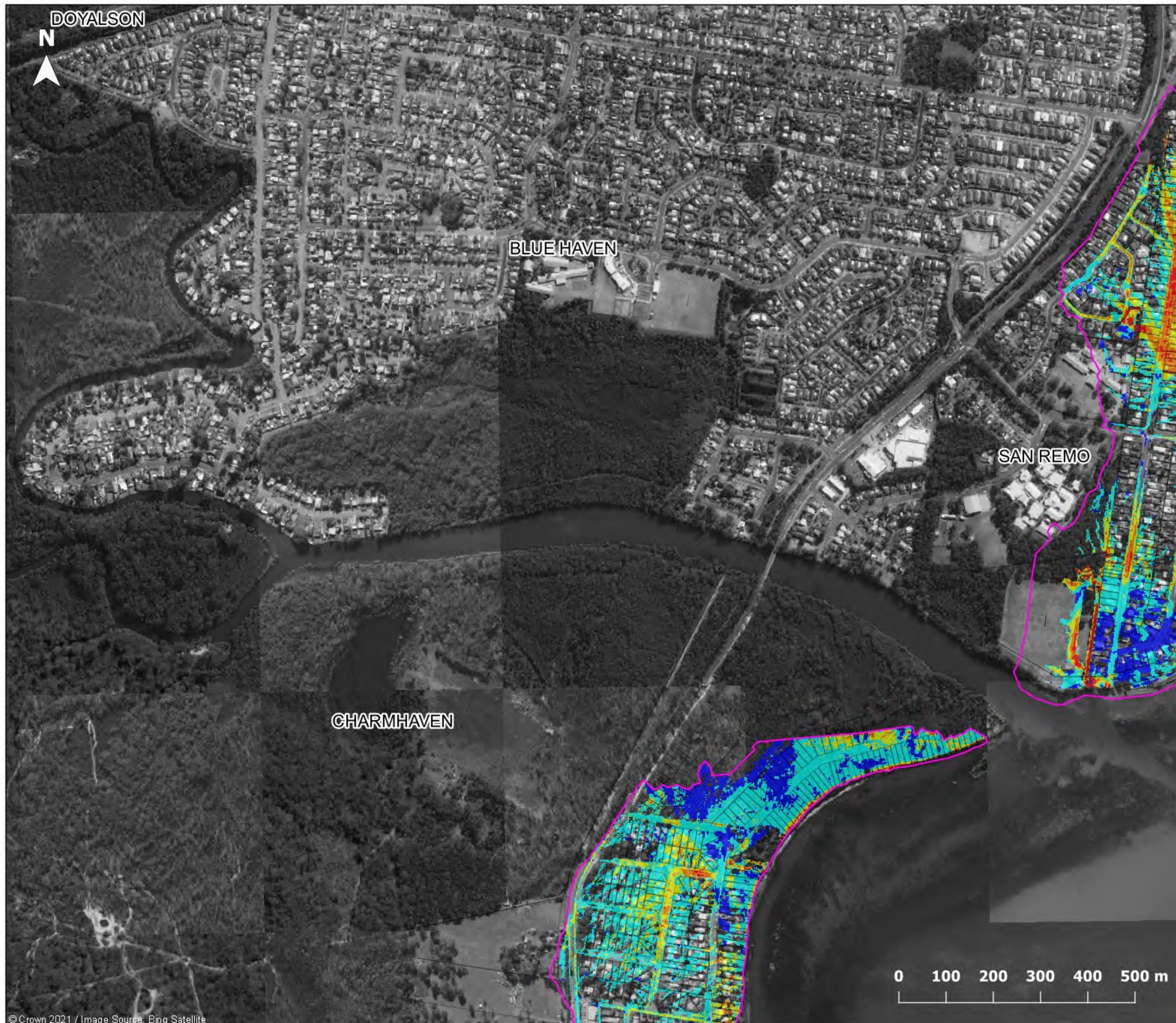


Figure C12.7

Probable Maximum Flood Velocity

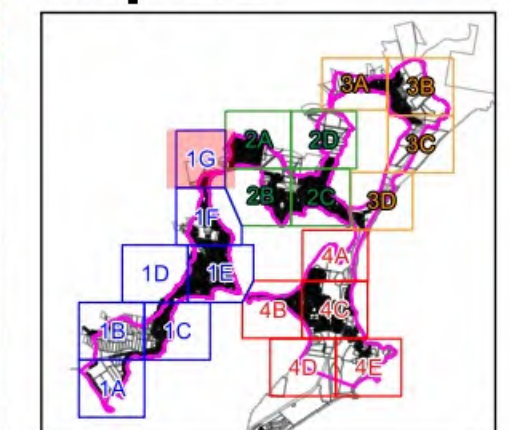
Legend

-  Catchment area
-  Cadastre

Velocity (m/s)

-  0.00-0.25
-  0.25-0.50
-  0.50-0.75
-  0.75-1.00
-  1.00-1.50
-  > 1.50

Map 1G



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

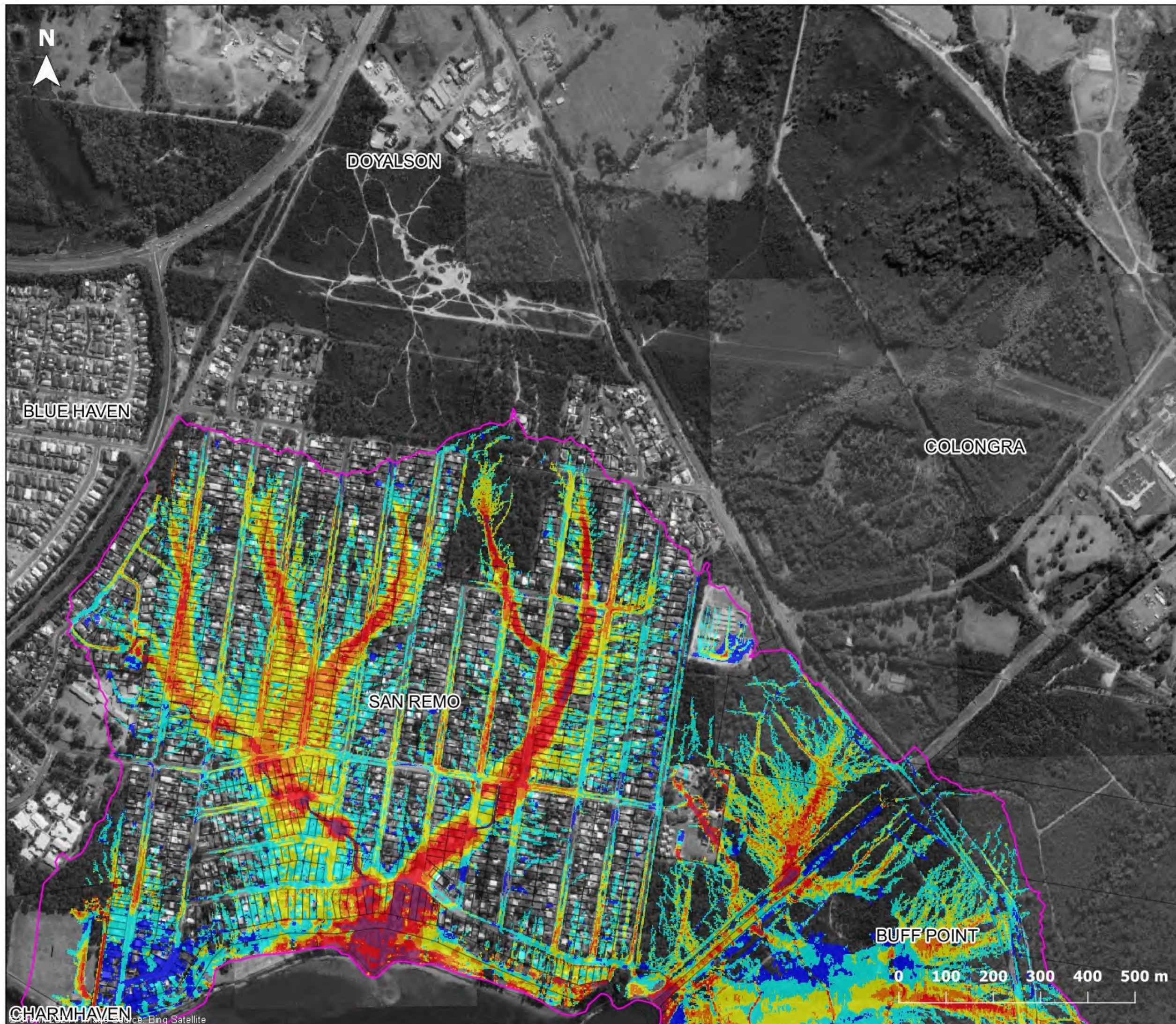


Figure C12.8

Probable Maximum Flood Velocity

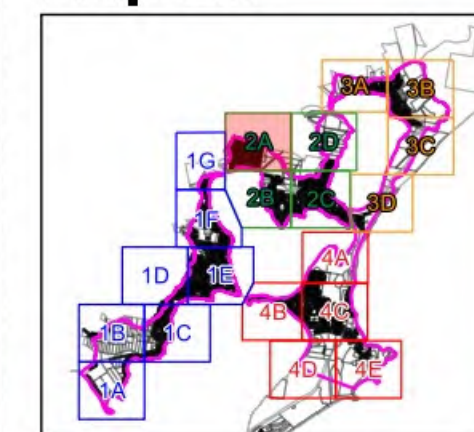
Legend

- Catchment area
- Cadastral

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 2A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

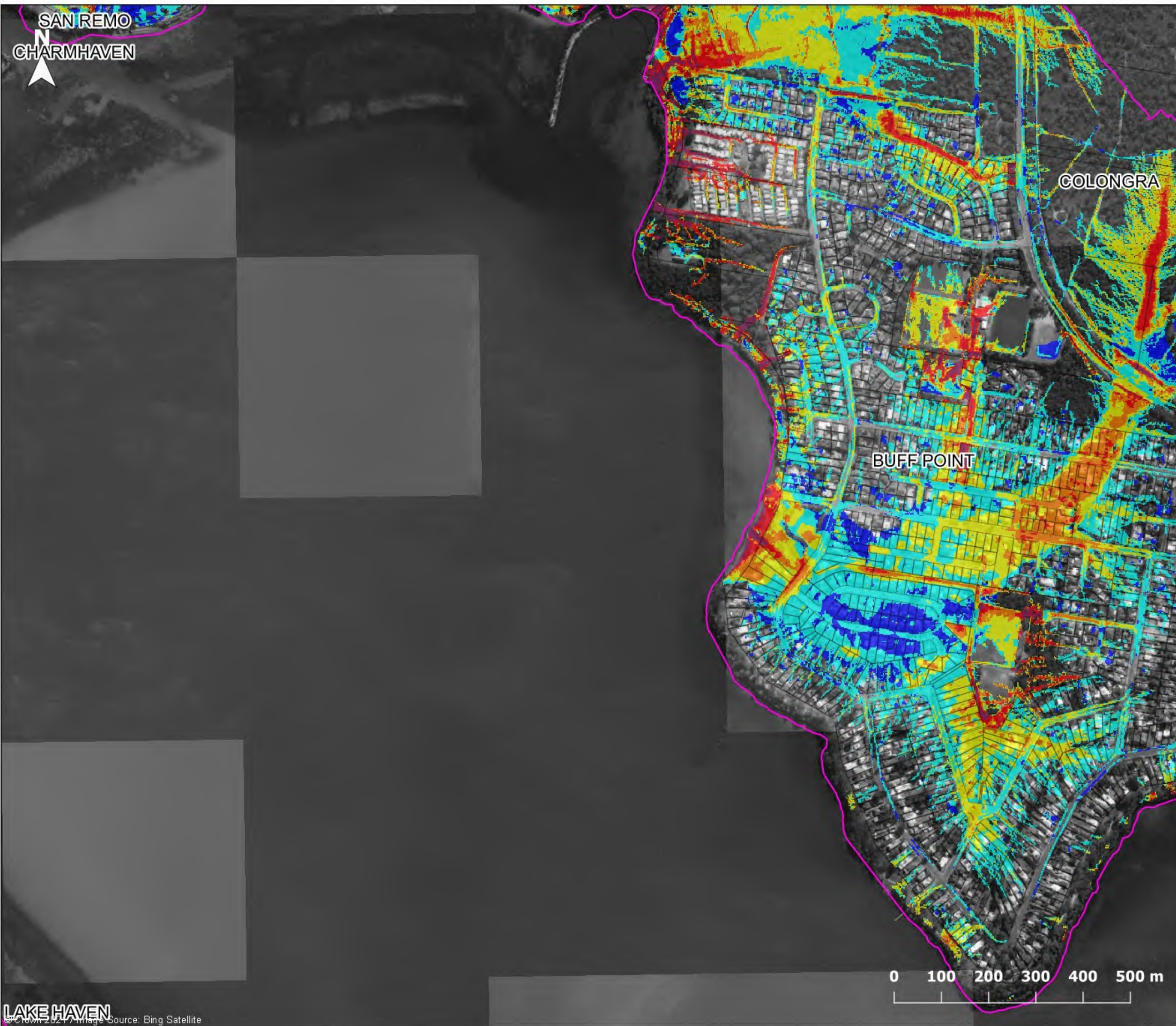


Figure C12.9

Probable Maximum Flood Velocity

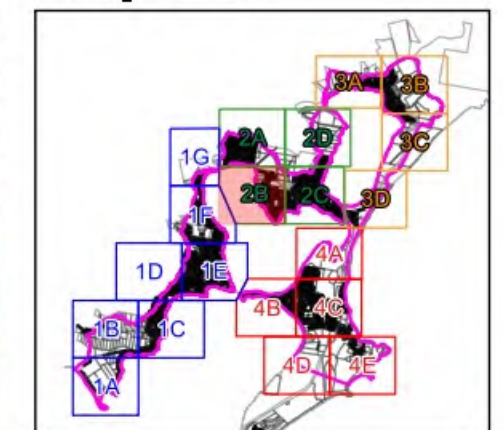
Legend

-  Catchment area
-  Cadastre

Velocity (m/s)

-  0.00-0.25
-  0.25-0.50
-  0.50-0.75
-  0.75-1.00
-  1.00-1.50
-  > 1.50

Map 2B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

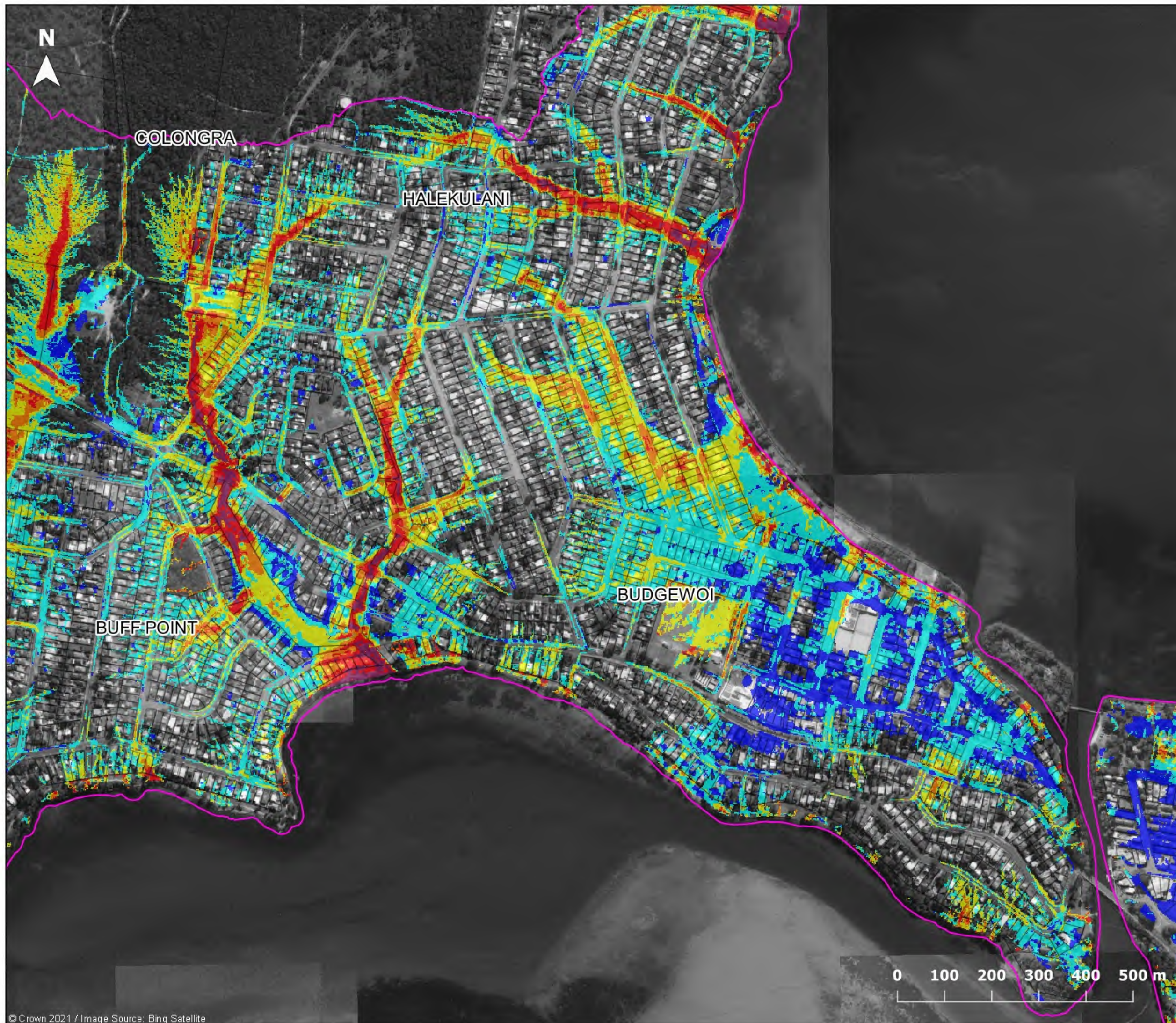


Figure C12.10

Probable Maximum Flood Velocity

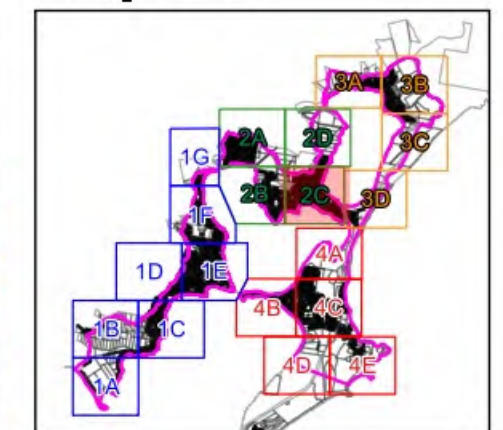
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- >1.50

Map 2C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

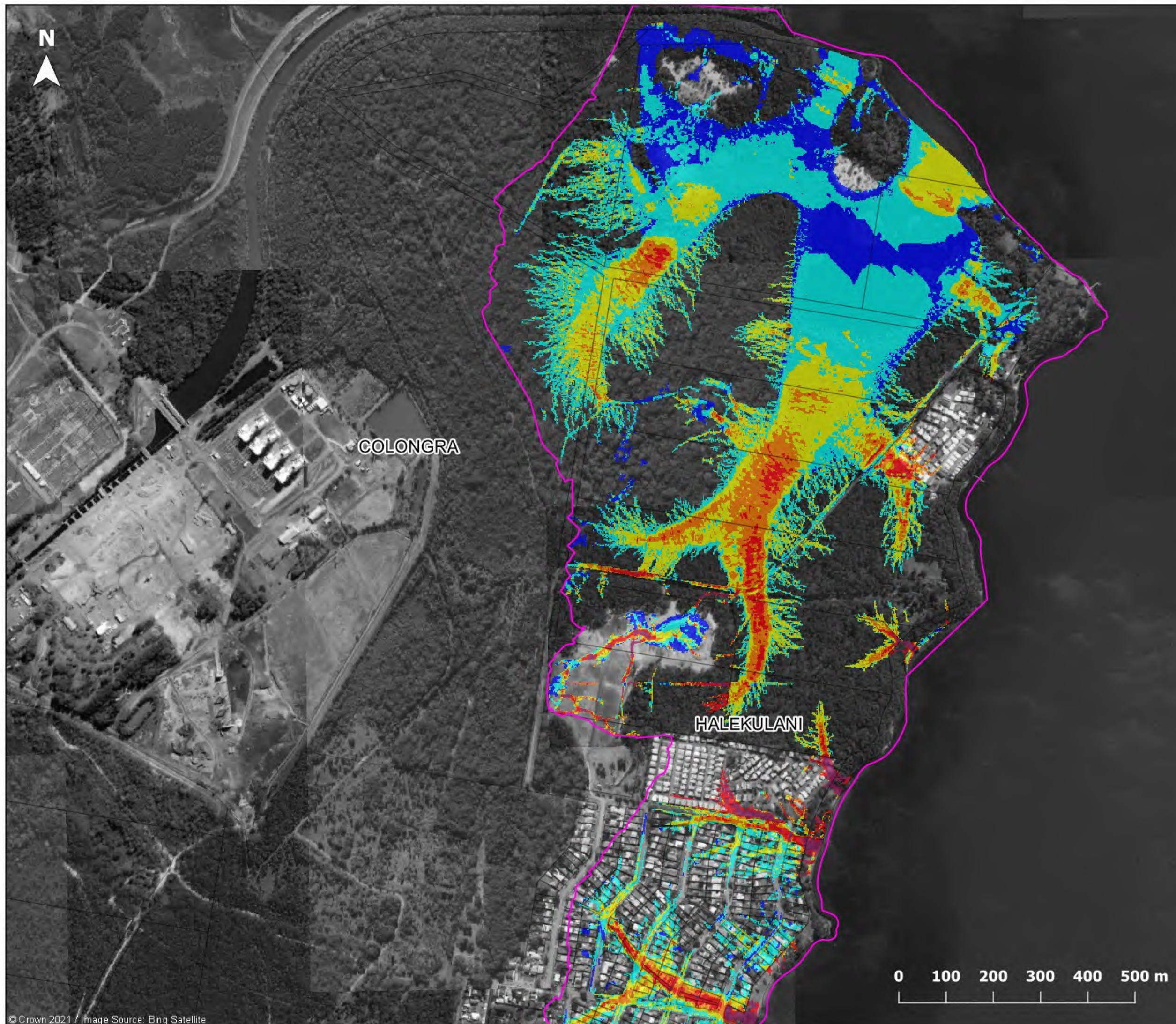


Figure C12.11

Probable Maximum Flood Velocity

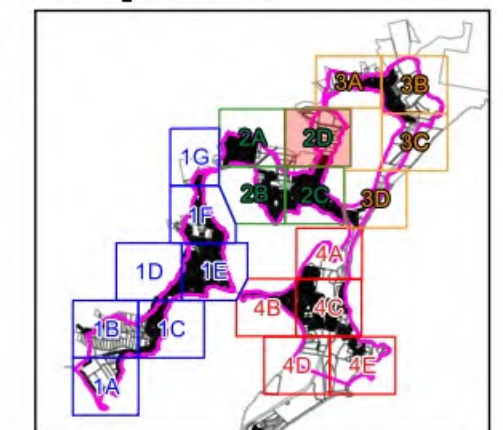
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 2D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

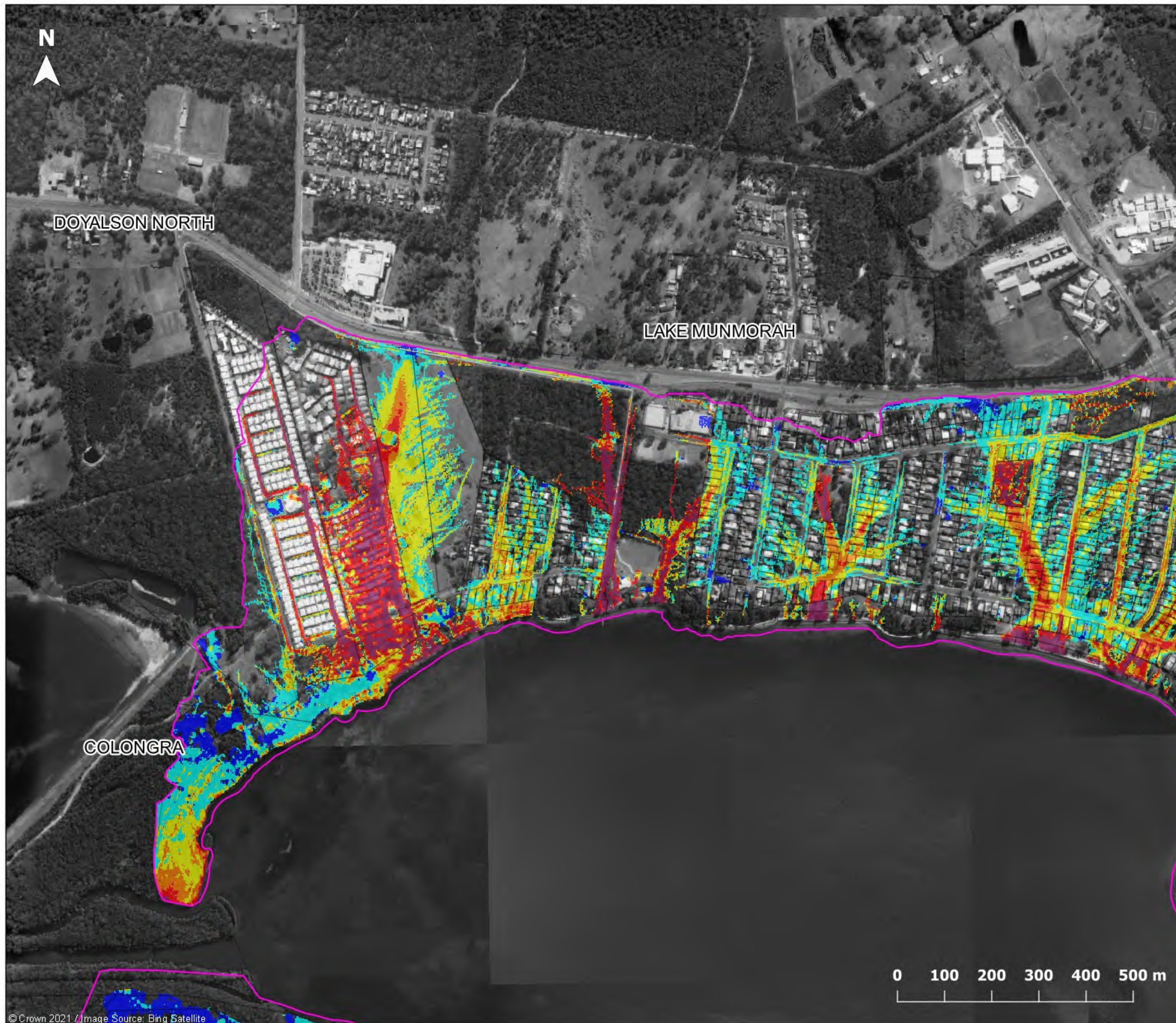


Figure C12.12

Probable Maximum Flood Velocity

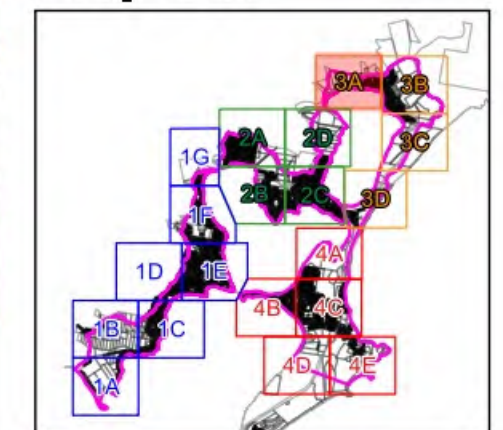
Legend

-  Catchment area
-  Cadastre

Velocity (m/s)

-  0.00-0.25
-  0.25-0.50
-  0.50-0.75
-  0.75-1.00
-  1.00-1.50
-  > 1.50

Map 3A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

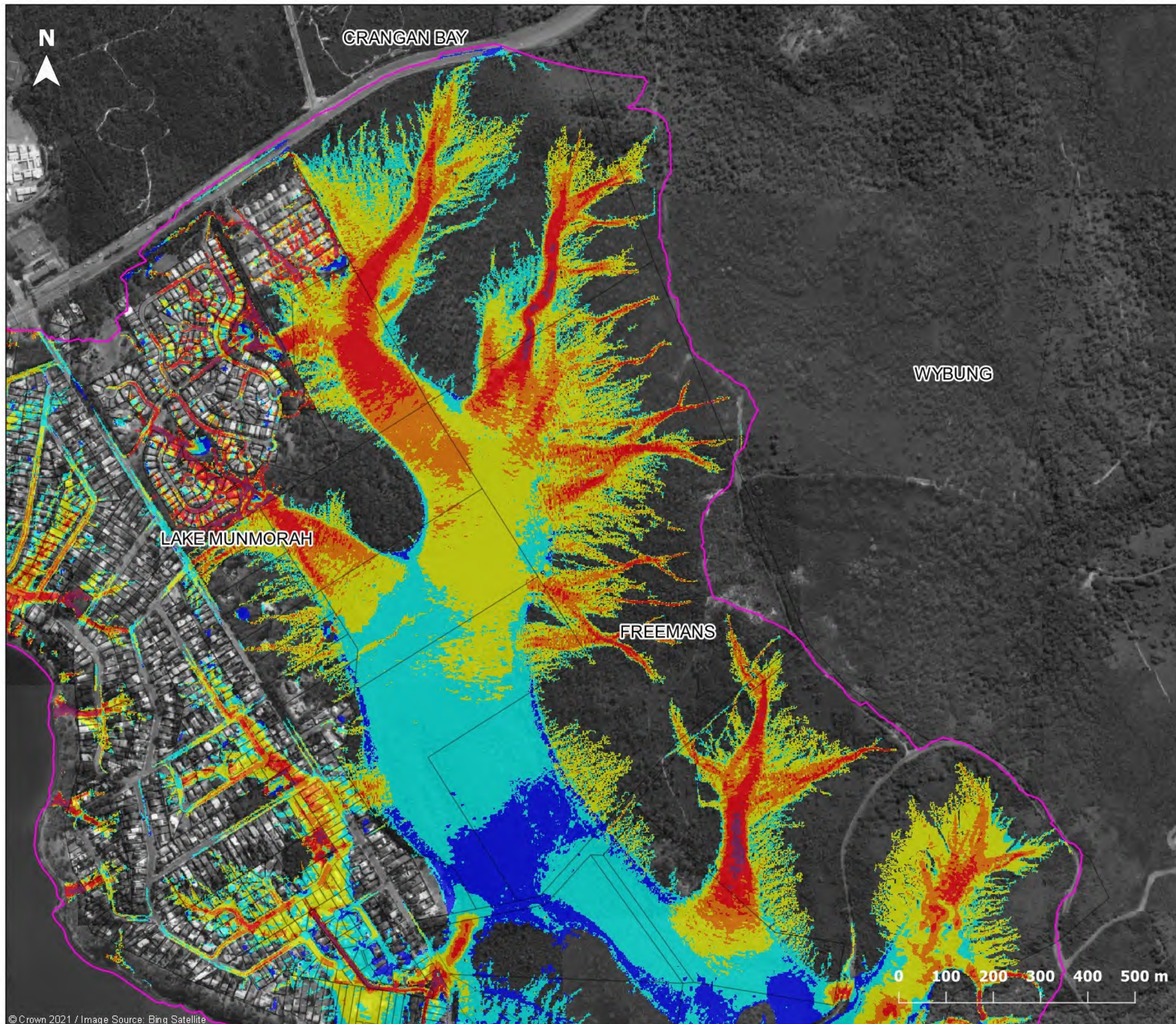


Figure C12.13

Probable Maximum Flood Velocity

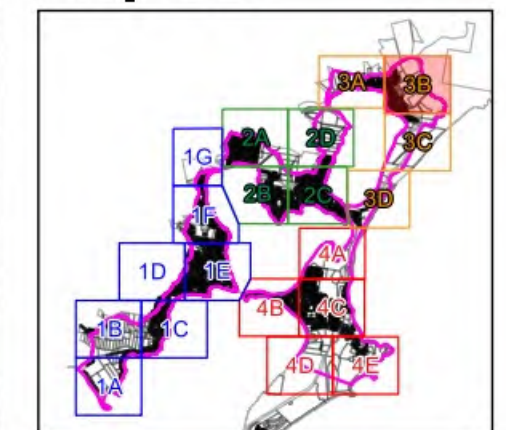
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- >1.50

Map 3B

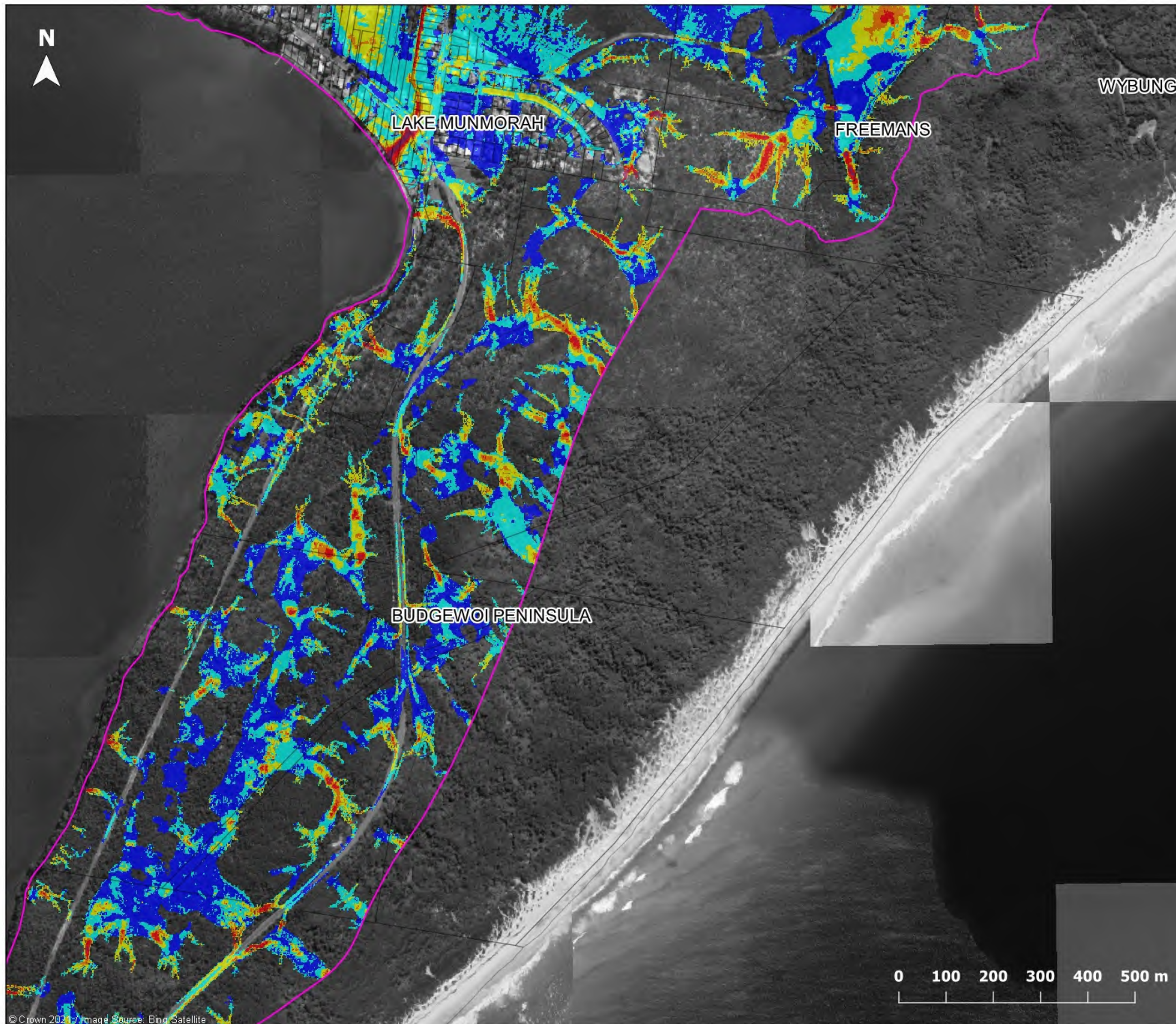


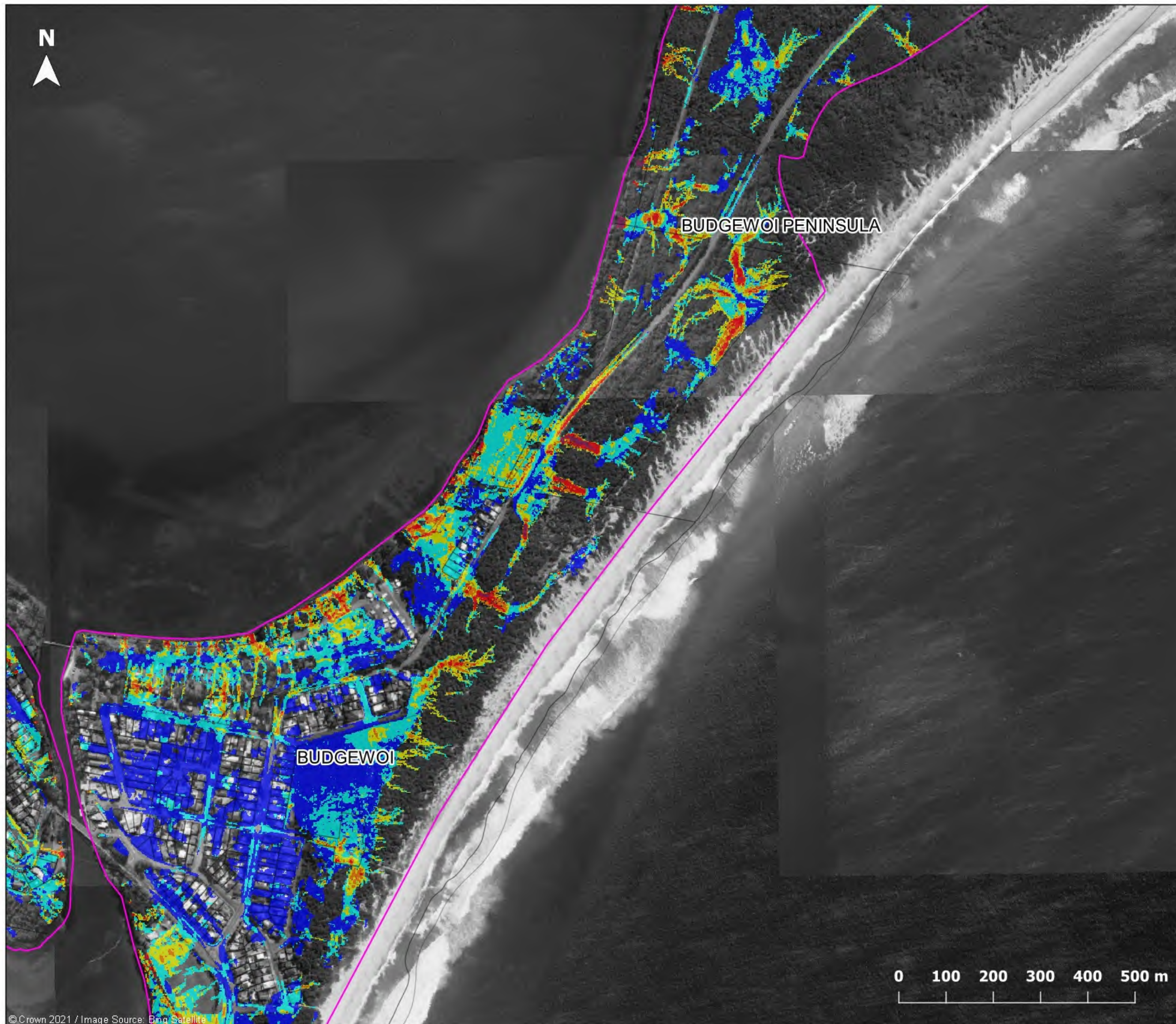
Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



**Manly
Hydraulics
Laboratory**





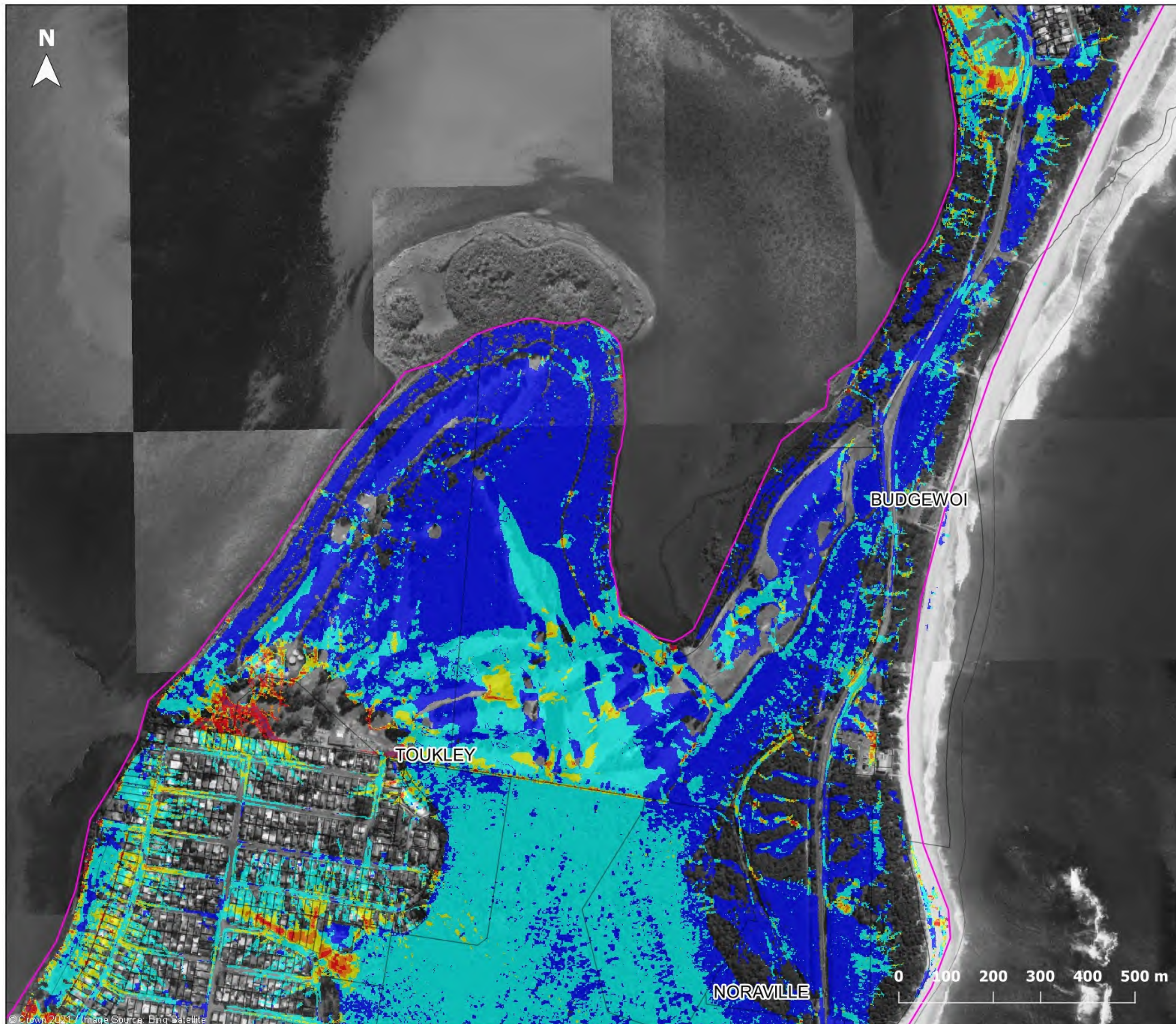


Figure C12.16

Probable Maximum Flood Velocity

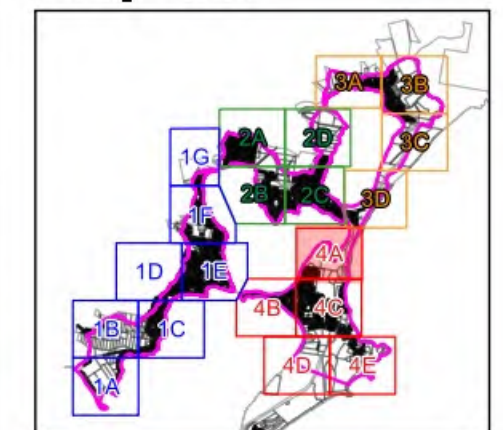
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- >1.50

Map 4A



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory



Figure C12.17

Probable Maximum Flood Velocity

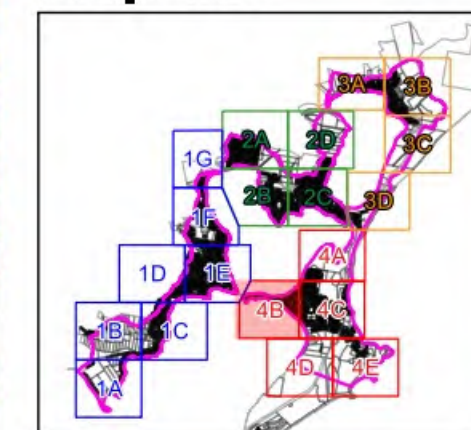
Legend

-  Catchment area
-  Cadastre

Velocity (m/s)

-  0.00-0.25
-  0.25-0.50
-  0.50-0.75
-  0.75-1.00
-  1.00-1.50
-  >1.50

Map 4B



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

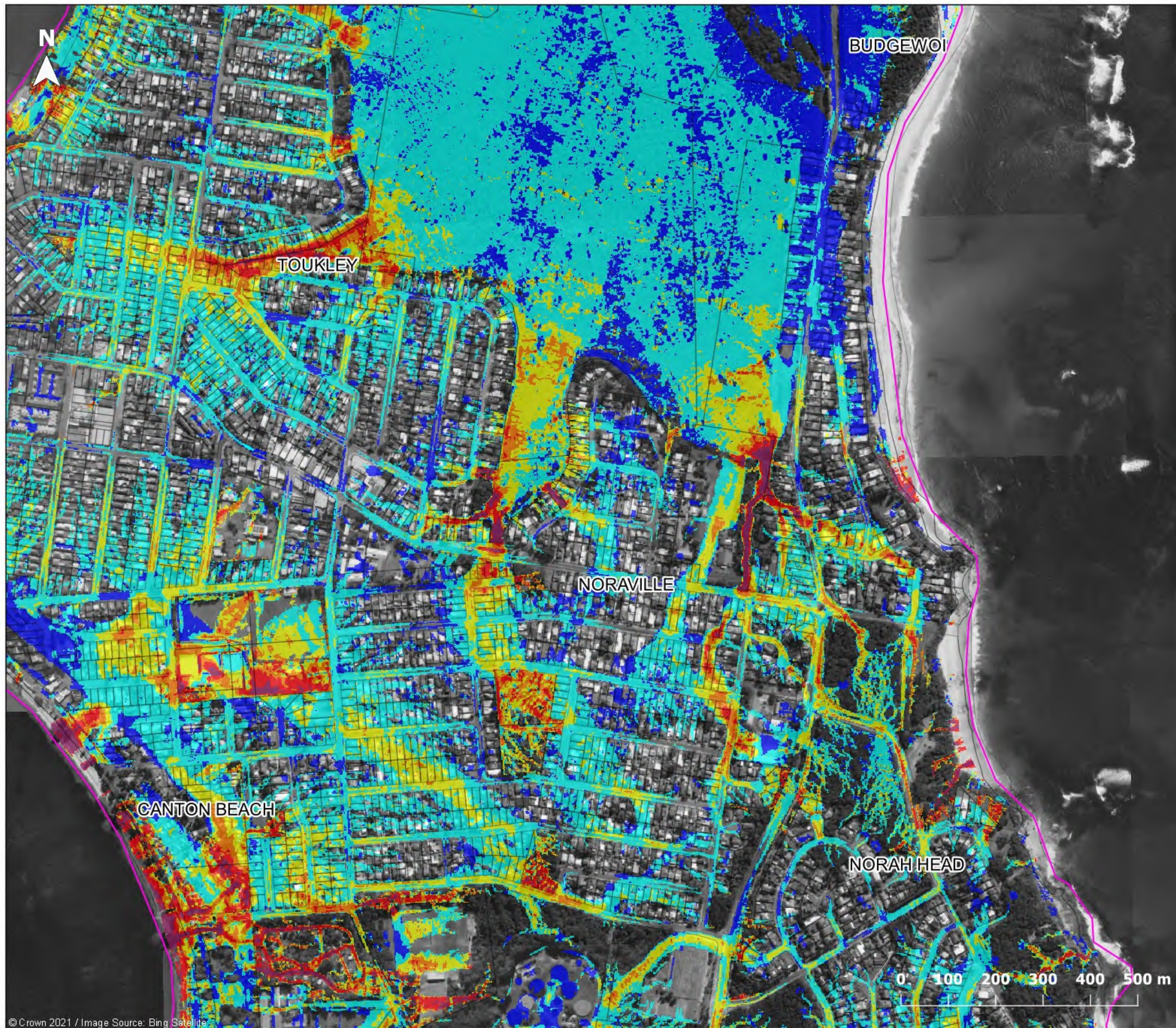


Figure C12.18

Probable Maximum Flood Velocity

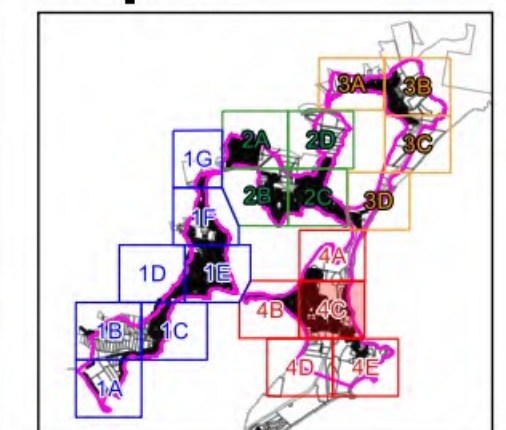
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 4C



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

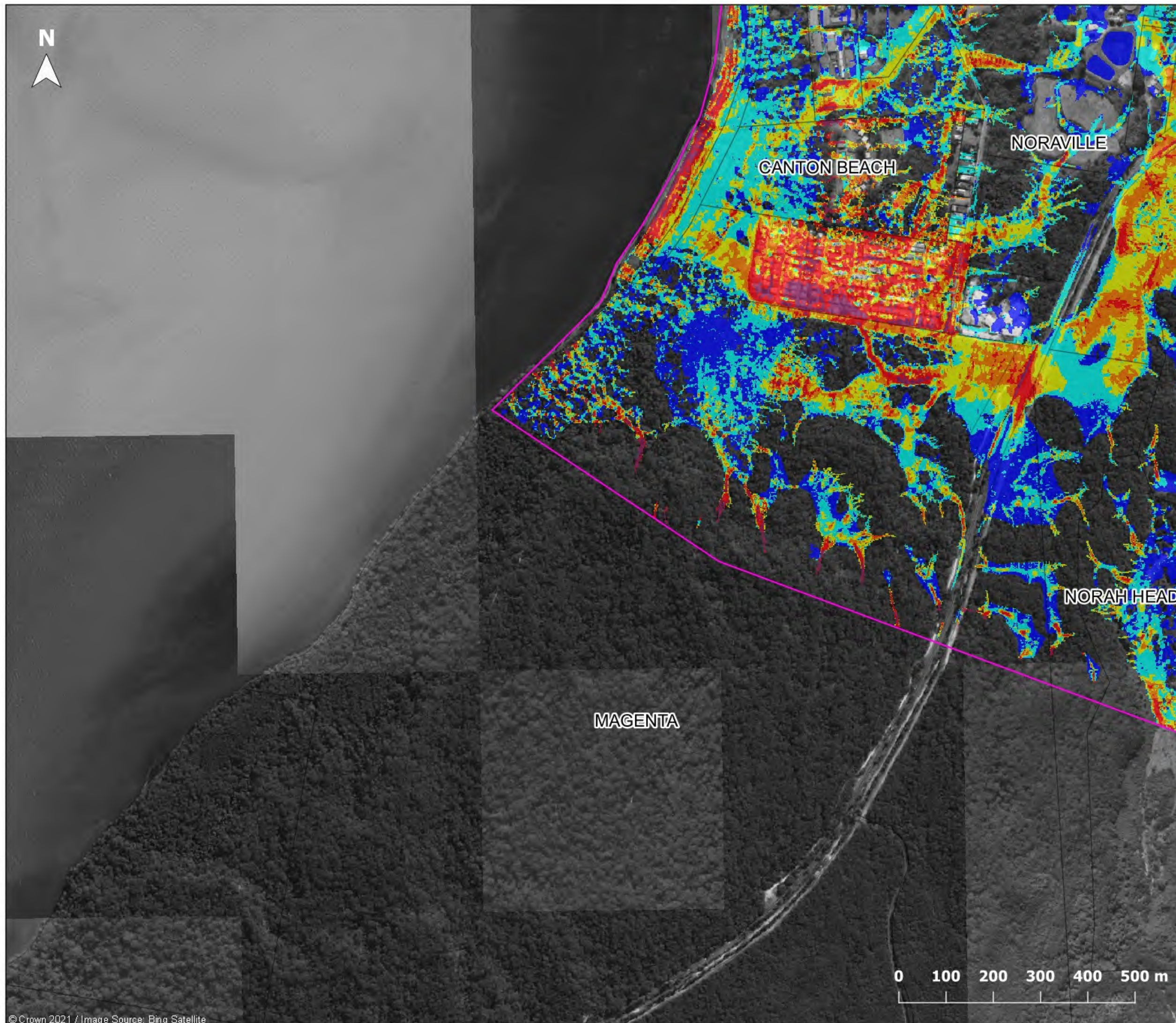


Figure C12.19

Probable Maximum Flood Velocity

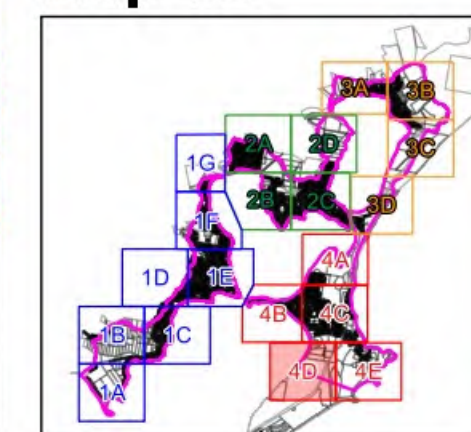
Legend

-  Catchment area
-  Cadastre

Velocity (m/s)

-  0.00-0.25
-  0.25-0.50
-  0.50-0.75
-  0.75-1.00
-  1.00-1.50
-  >1.50

Map 4D



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



Manly
Hydraulics
Laboratory

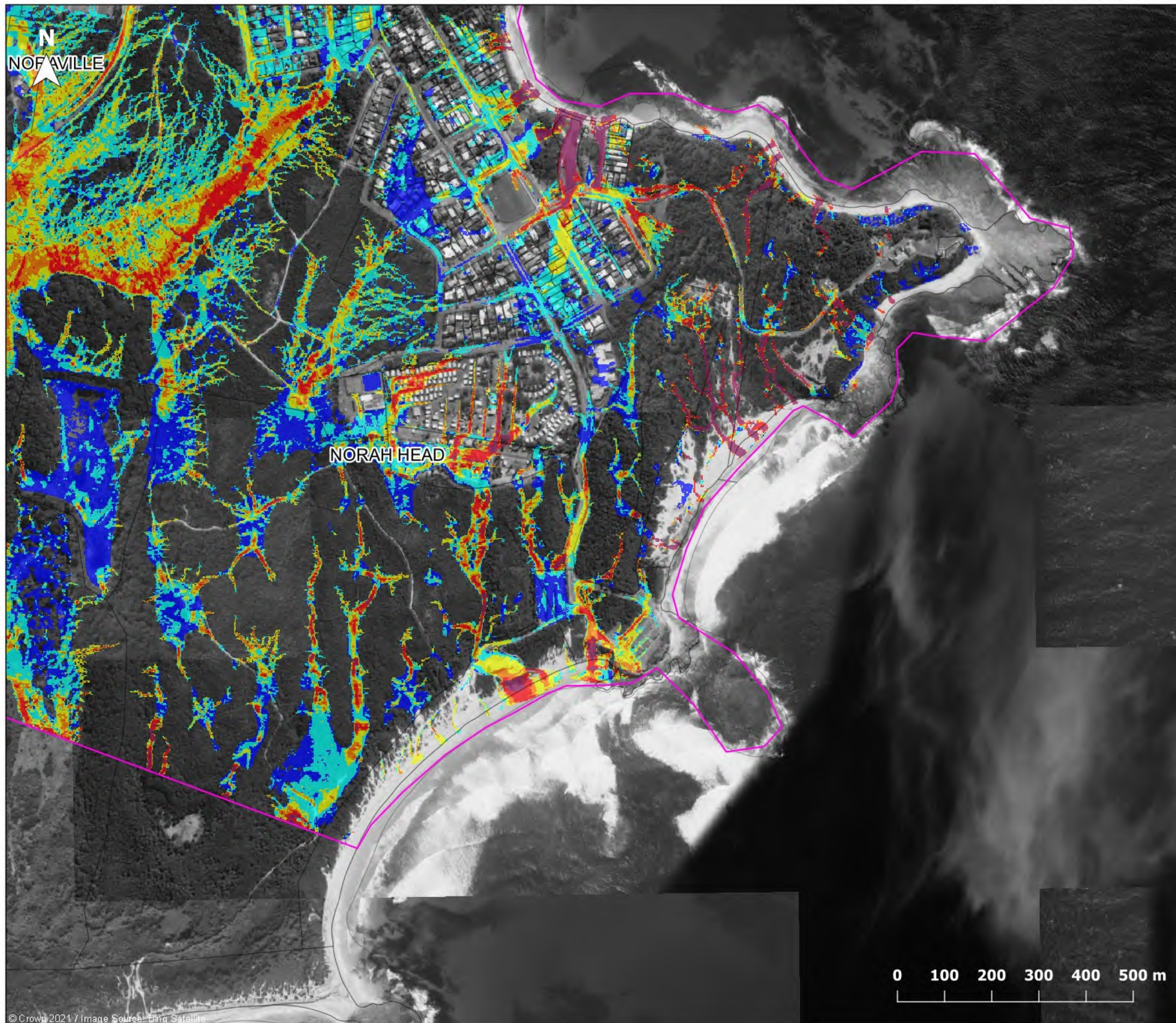


Figure C12.20

Probable Maximum Flood Velocity

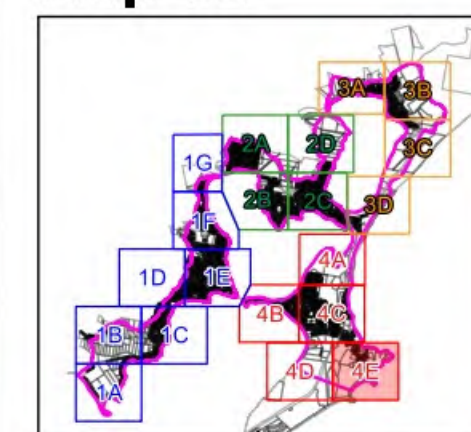
Legend

- Catchment area
- Cadastre

Velocity (m/s)

- 0.00-0.25
- 0.25-0.50
- 0.50-0.75
- 0.75-1.00
- 1.00-1.50
- > 1.50

Map 4E



Report MHL2571

Northern Lakes Floodplain
Risk Management Study &
Plan



110B King Street

Manly Vale NSW 2093