



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

Report MHL2571
September 2021

Prepared for:



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

Appendix D – Hydraulic category and hazards

- Figure D.1 1% AEP Flood Life Hazard Categories
- Figure D.2 Probable Maximum Flood Life Hazard Categories
- Figure D.3 1% AEP Hydraulic Categories
- Figure D.4 Probable Maximum Flood Hydraulic Categories

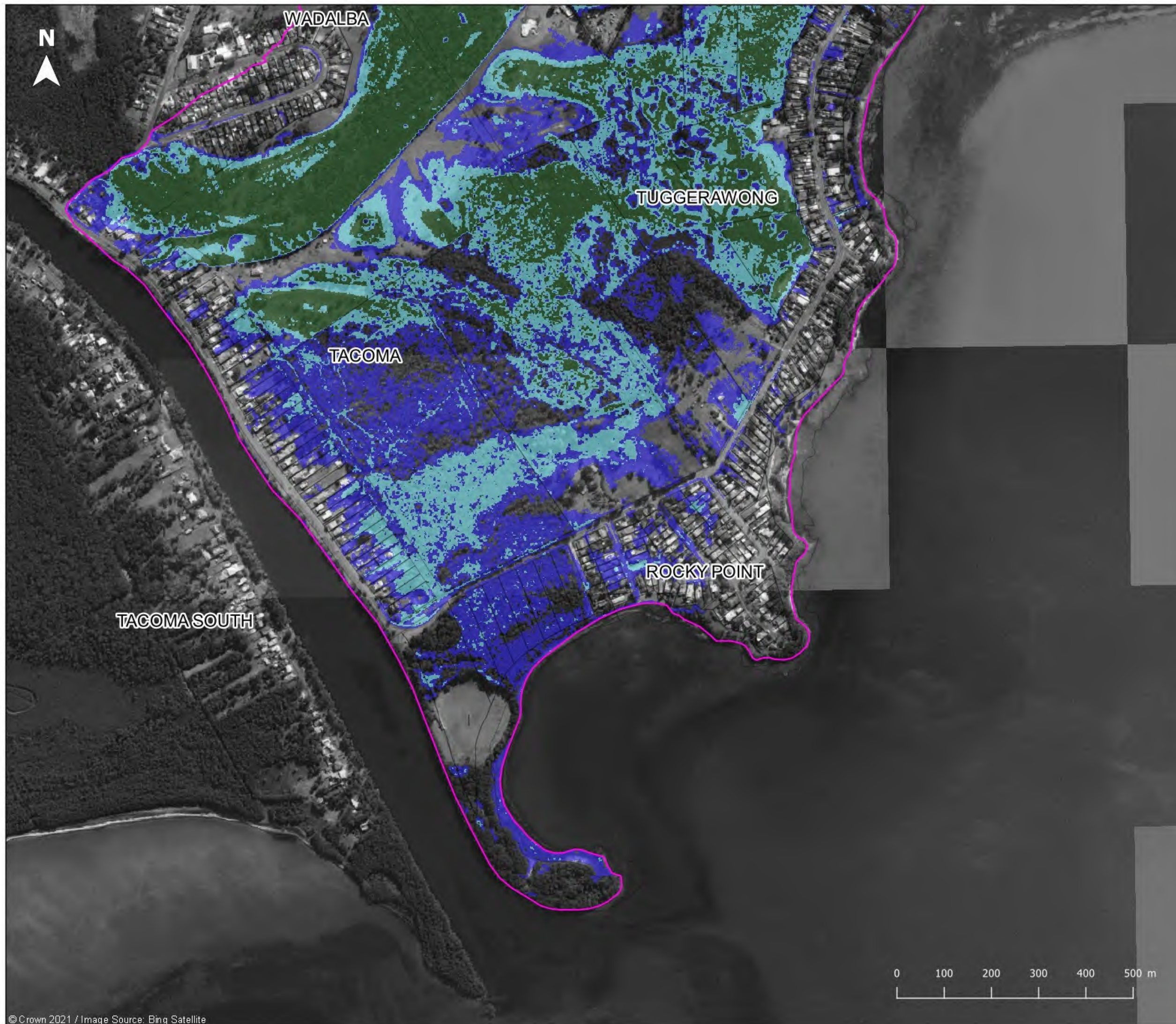


Figure D1.1

1% AEP Flood Life Hazard Categories

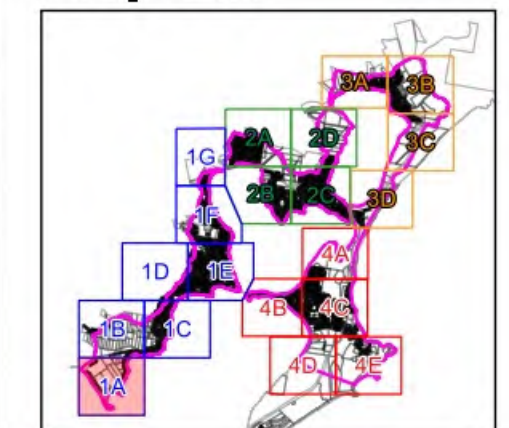
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 1A



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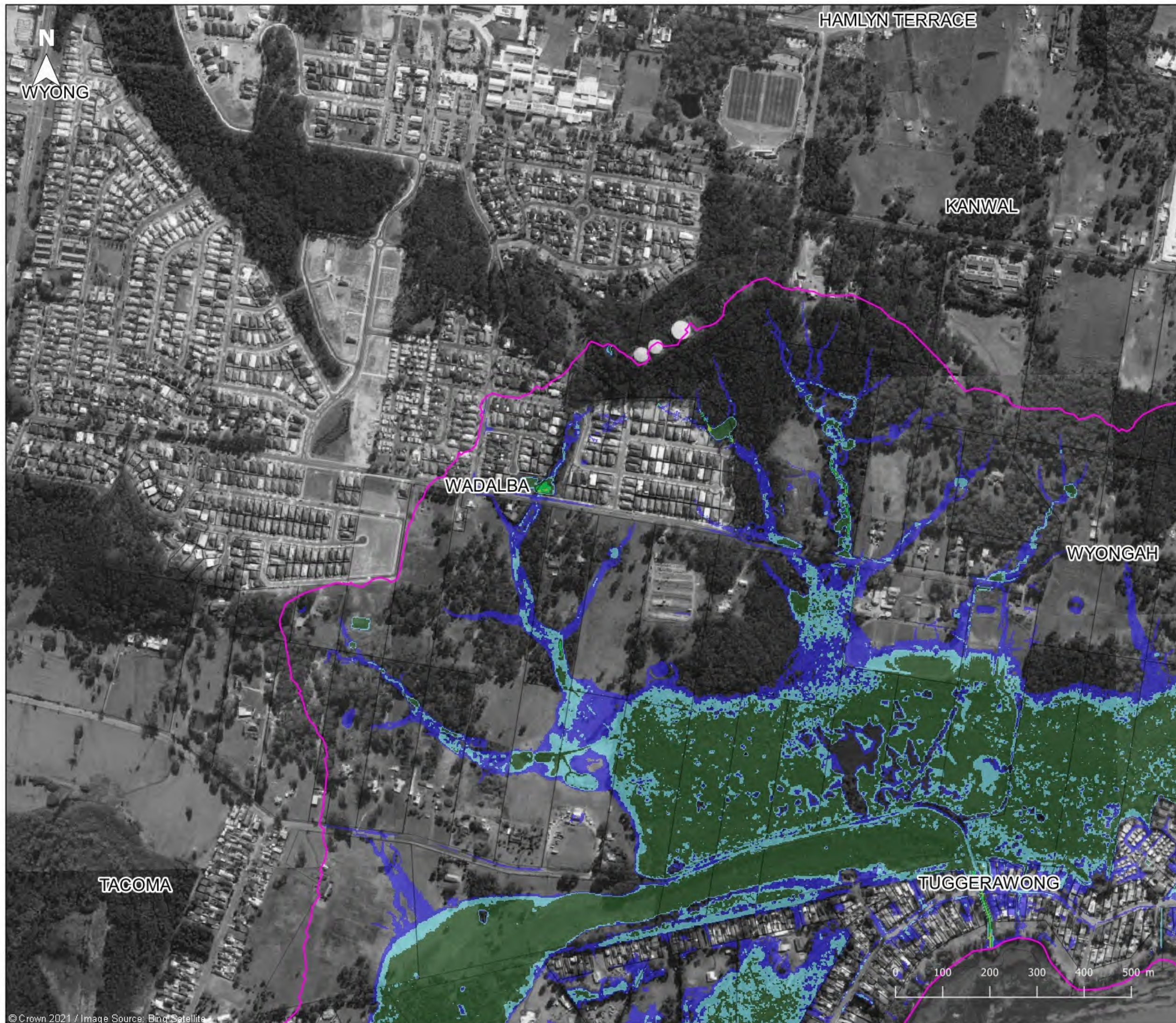


Figure D1.2

1% AEP Flood Life Hazard Categories

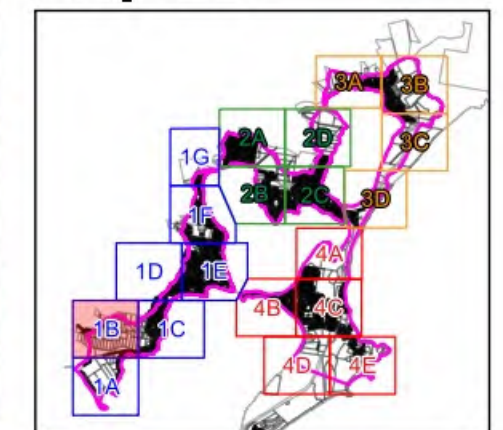
Legend

- Catchment area
- Cadastral

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 1B

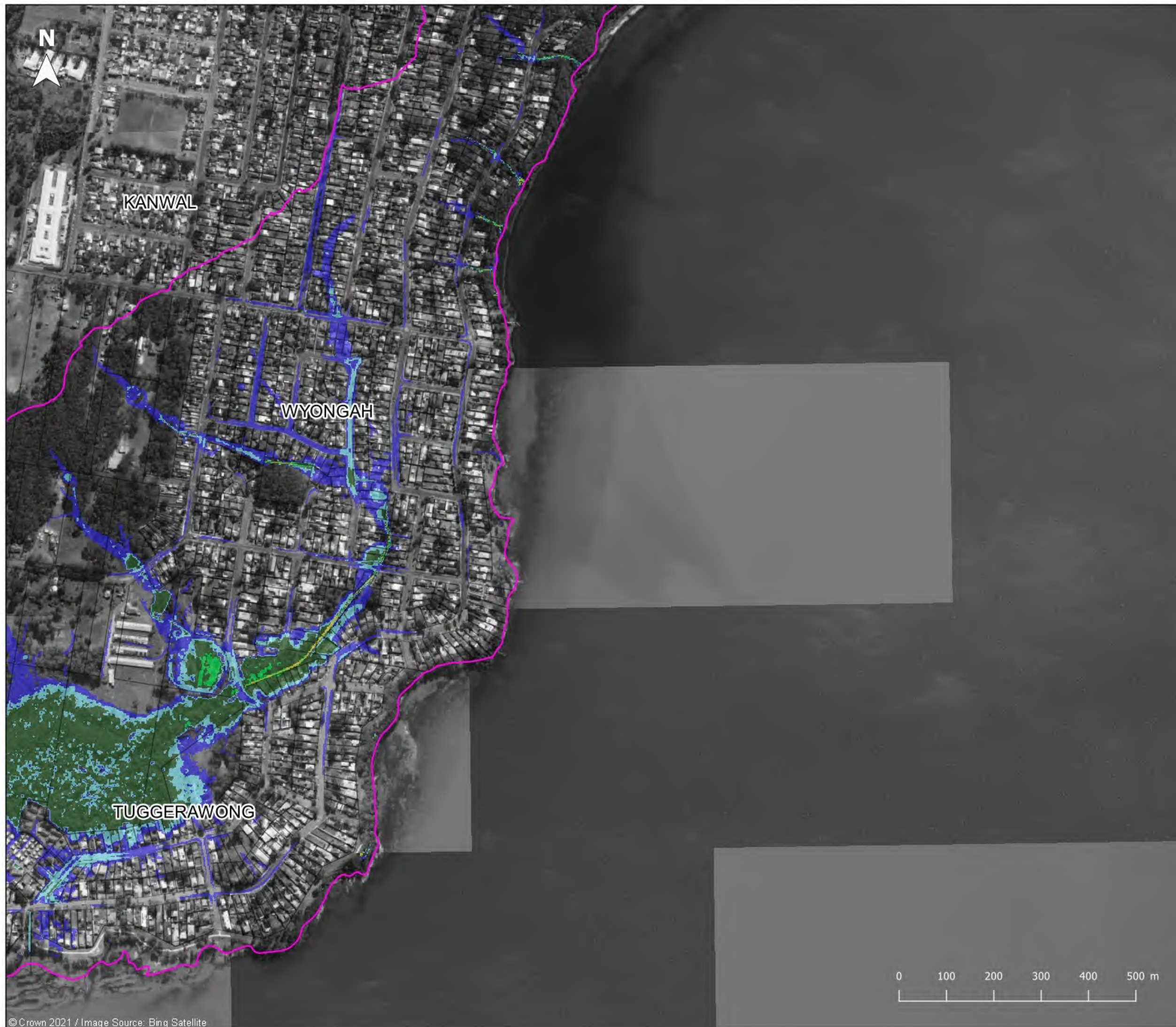


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Figure D1.3

1% AEP Flood Life Hazard Categories

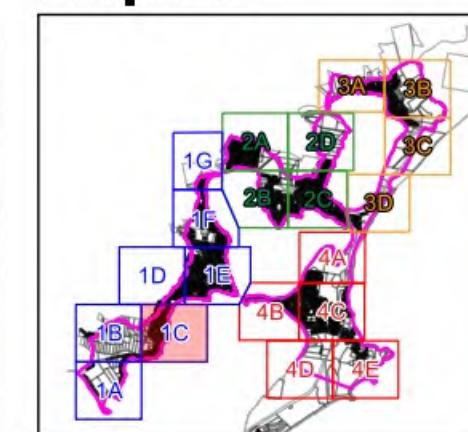
Legend

-  Catchment area
-  Cadastre

Hazard Categories

-  H1
-  H2
-  H3
-  H4
-  H5
-  H6

Map 1C



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Figure D1.5

**1% AEP
Flood Life Hazard
Categories**

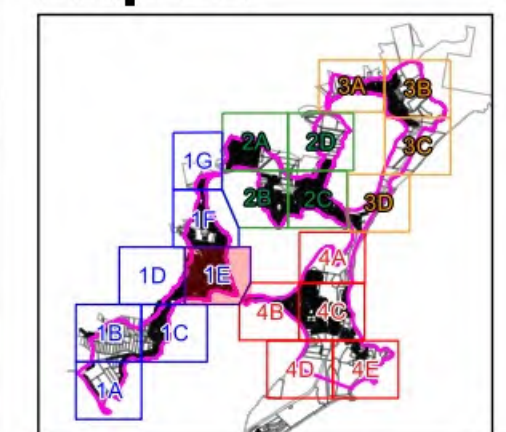
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 1E



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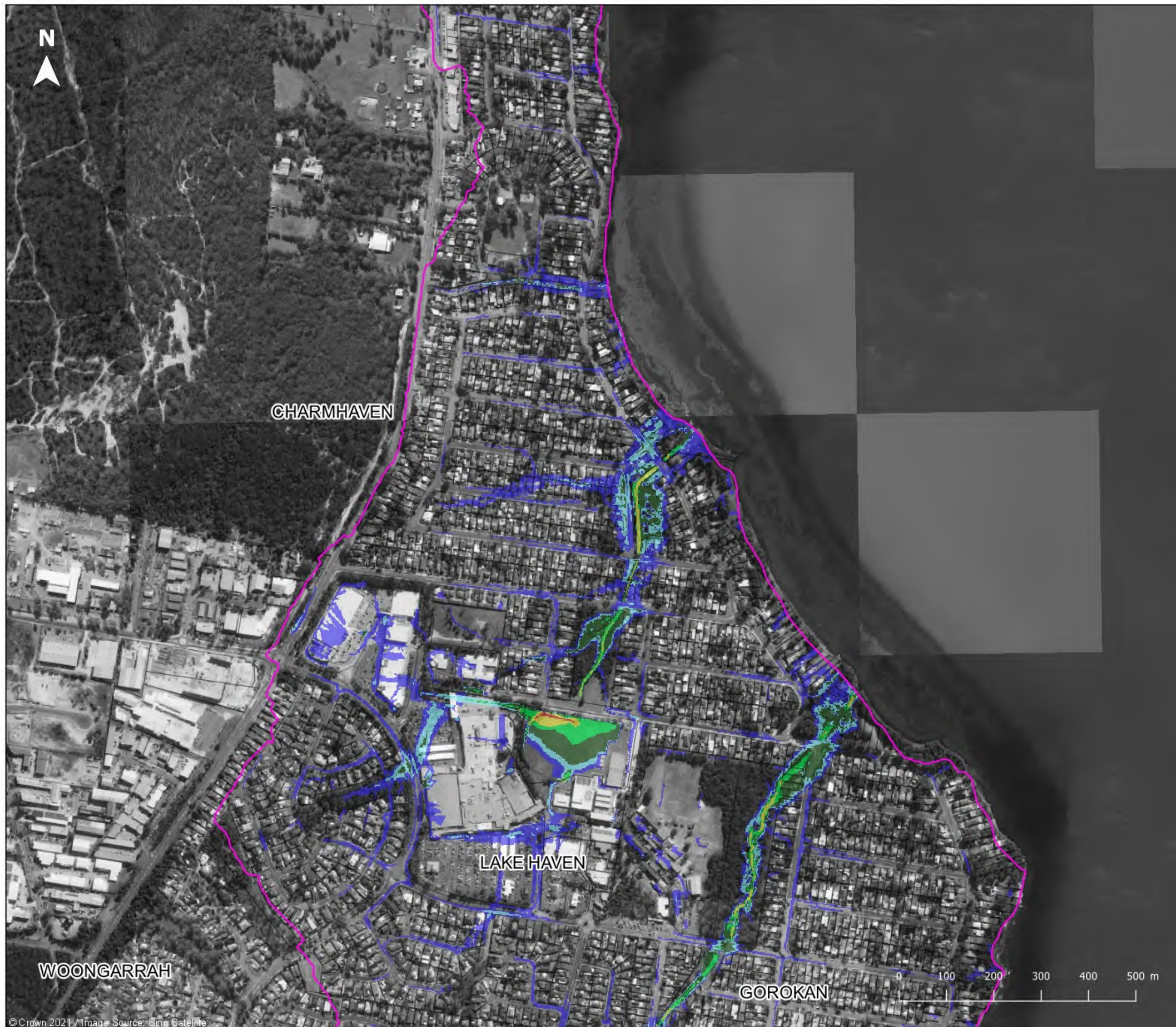


Figure D1.6

1% AEP Flood Life Hazard Categories

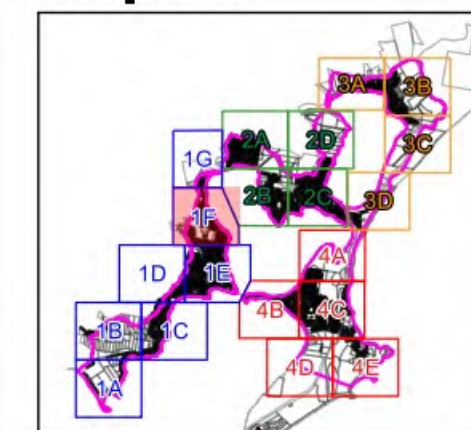
Legend

-  Catchment area
-  Cadastre

Hazard Categories

-  H1
-  H2
-  H3
-  H4
-  H5
-  H6

Map 1F



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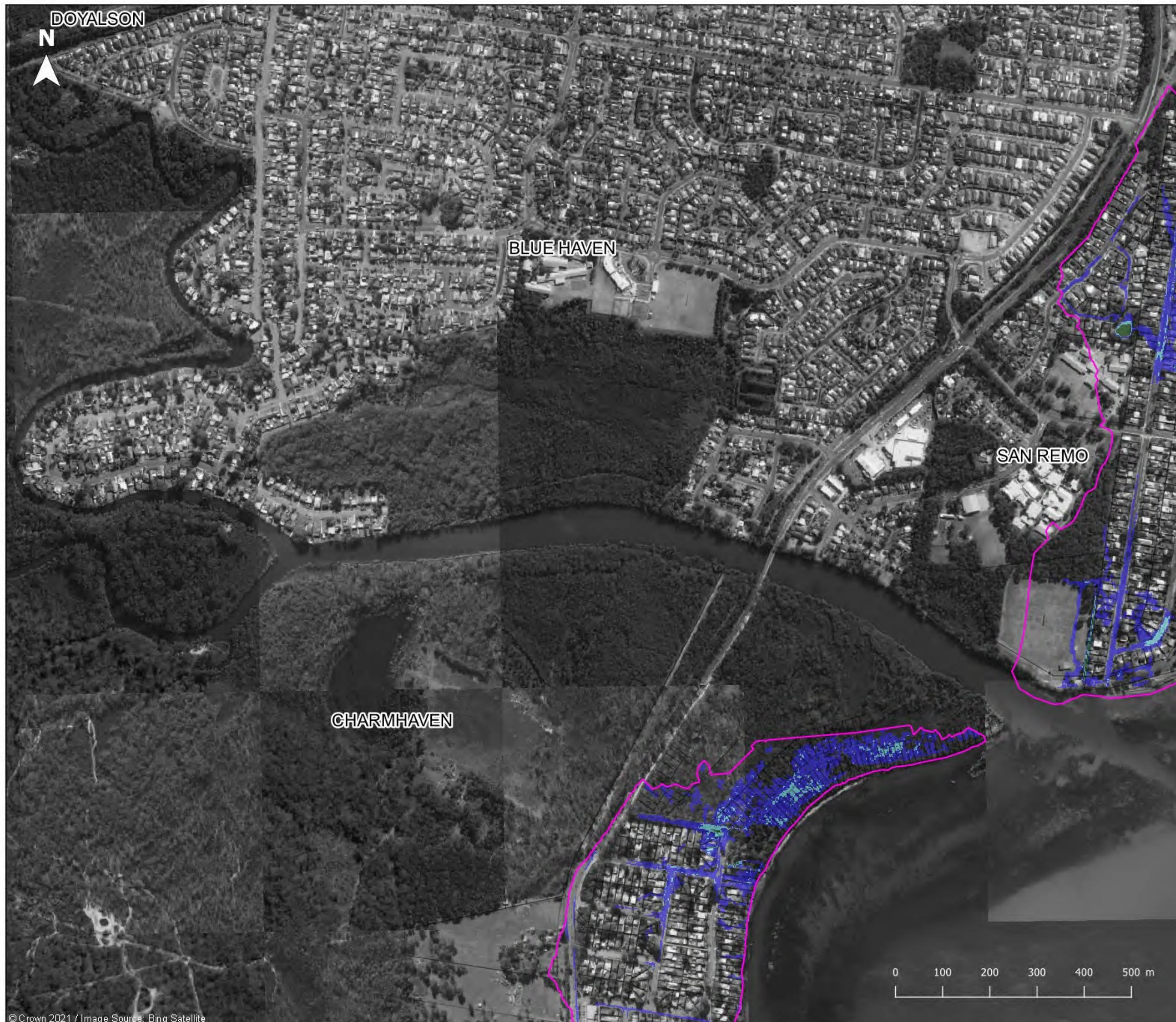


Figure D1.7

1% AEP Flood Life Hazard Categories

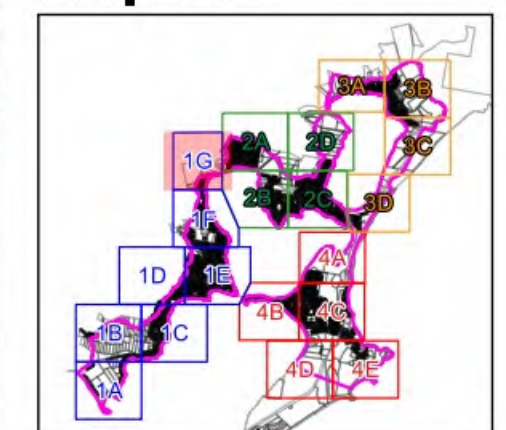
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 1G



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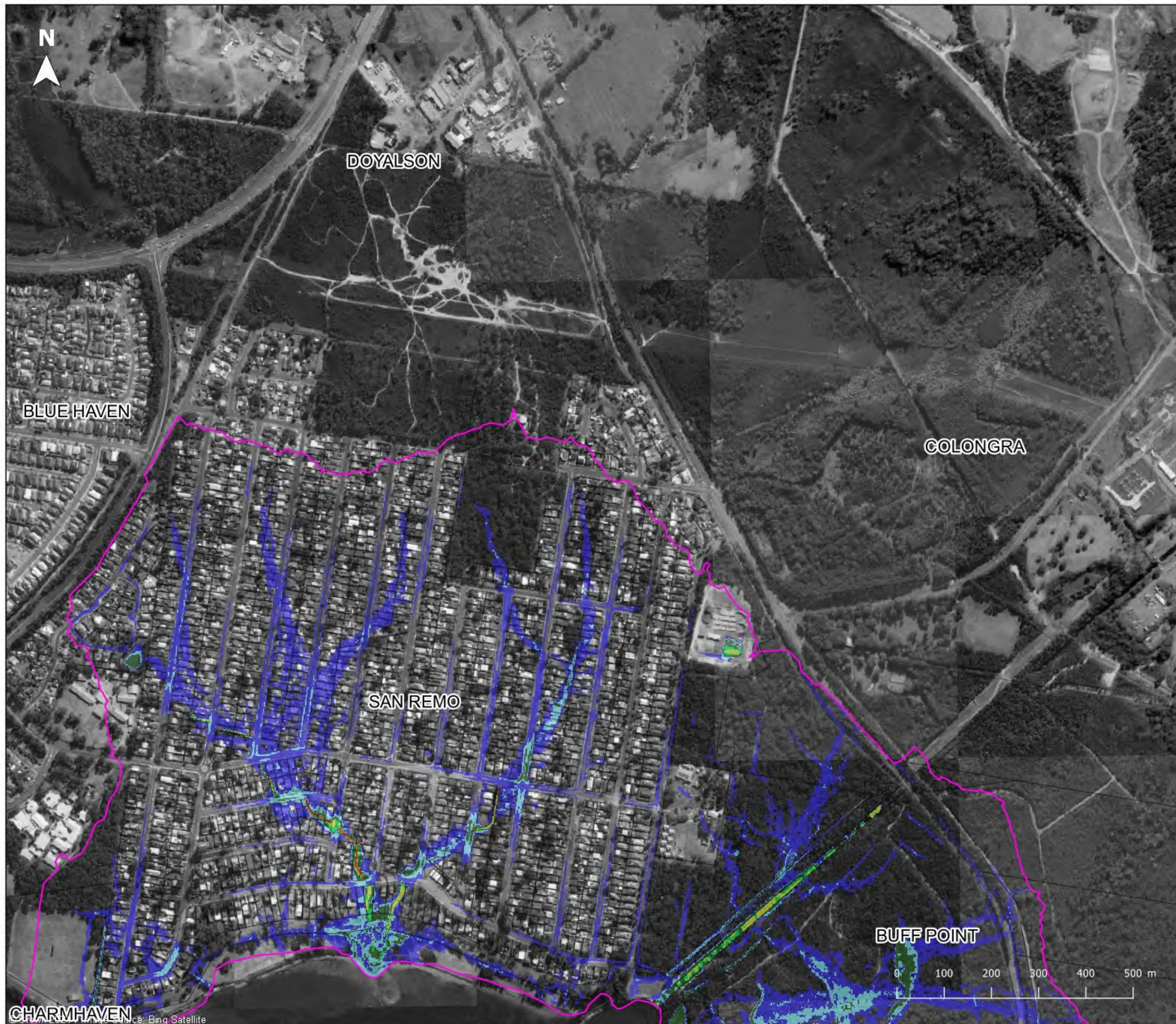


Figure D1.8

**1% AEP
Flood Life Hazard
Categories**

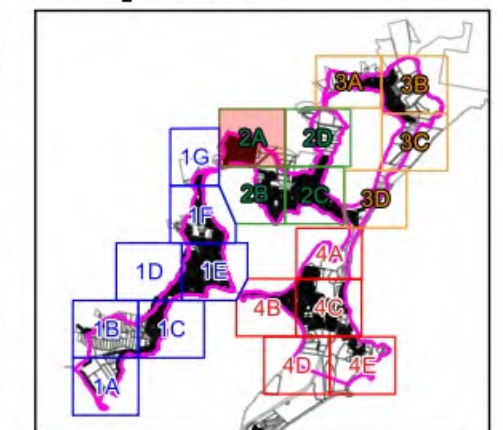
Legend

-  Catchment area
-  Cadastre

Hazard Categories

-  H1
-  H2
-  H3
-  H4
-  H5
-  H6

Map 2A



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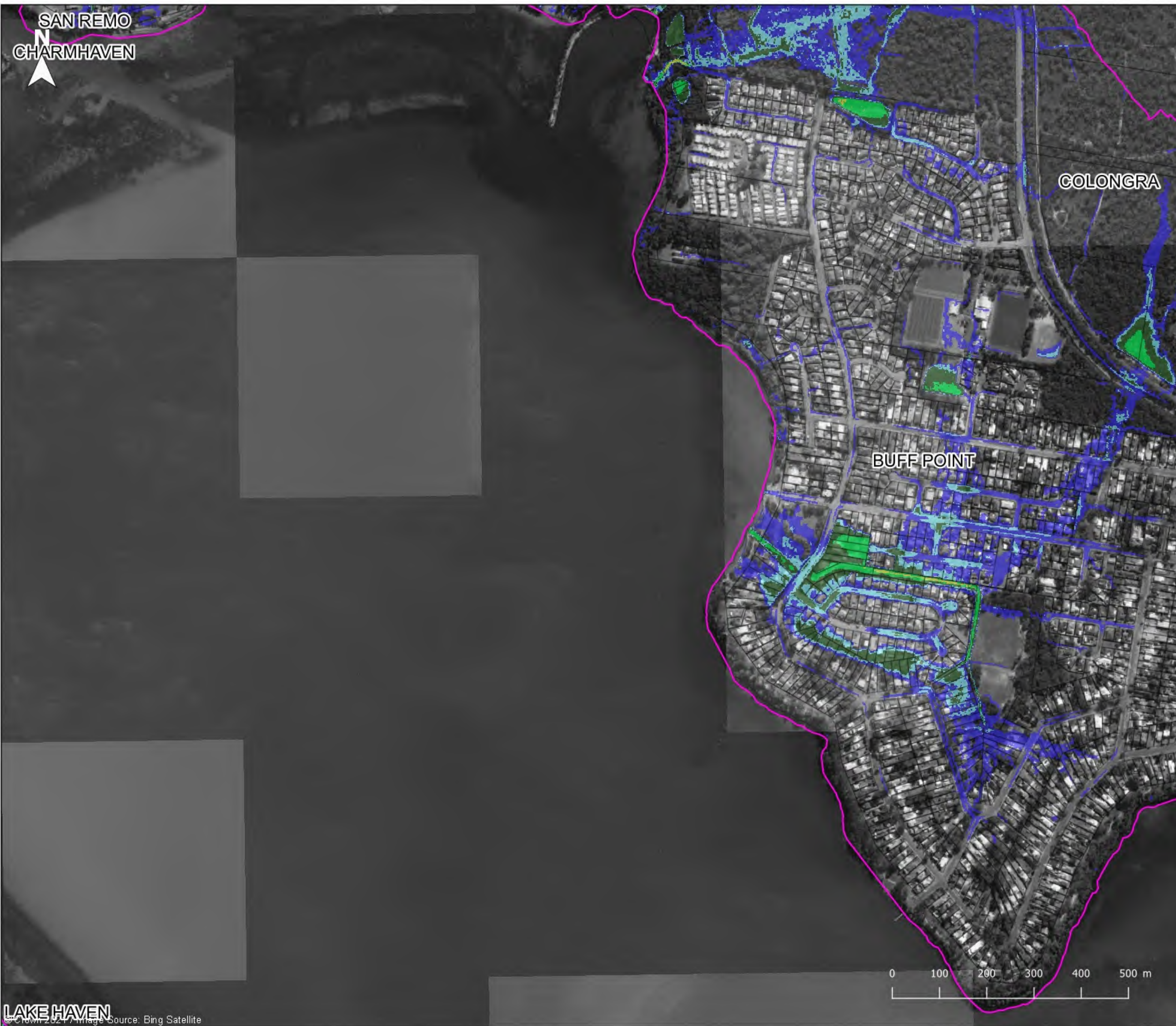


Figure D1.9

**1% AEP
Flood Life Hazard
Categories**

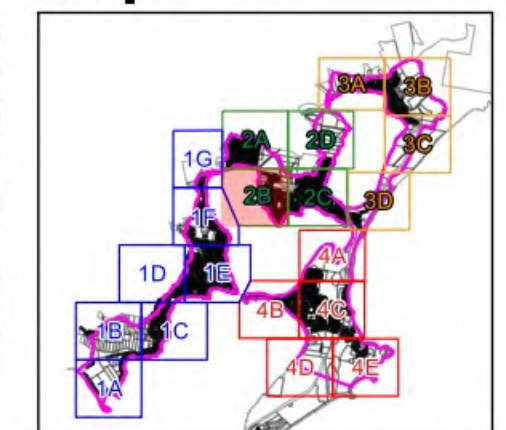
Legend

-  Catchment area
-  Cadastre

Hazard Categories

-  H1
-  H2
-  H3
-  H4
-  H5
-  H6

Map 2B



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Figure D1.10

1% AEP Flood Life Hazard Categories

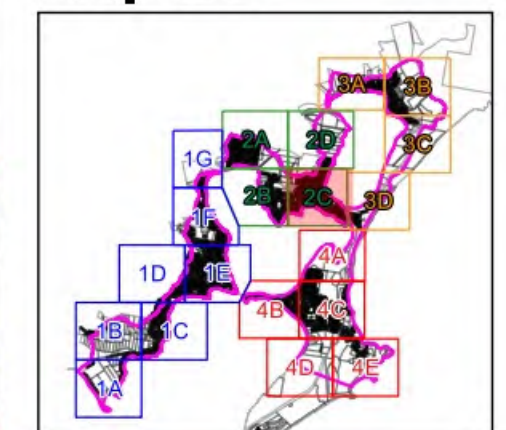
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 2C



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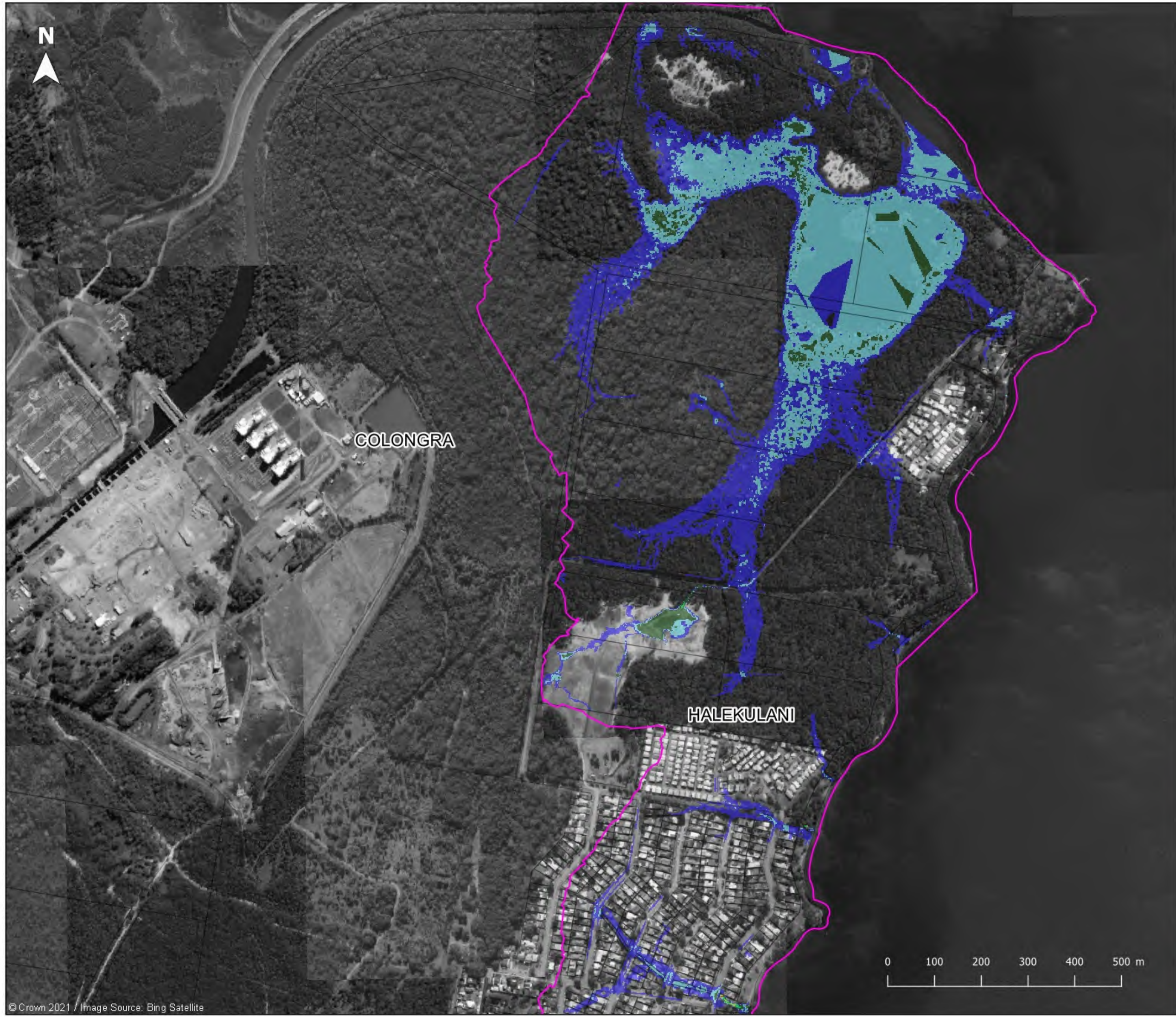


Figure D1.11

**1% AEP
Flood Life Hazard
Categories**

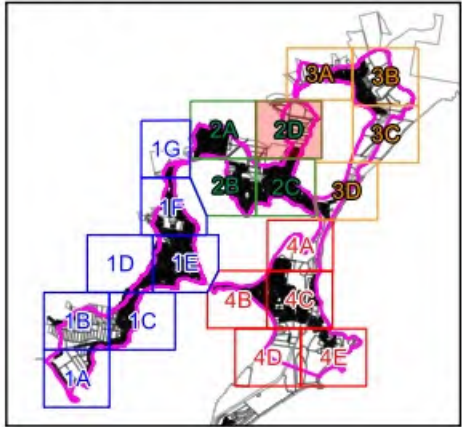
Legend

- Catchment area
- Cadaastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 2D



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Figure D1.12

1% AEP Flood Life Hazard Categories

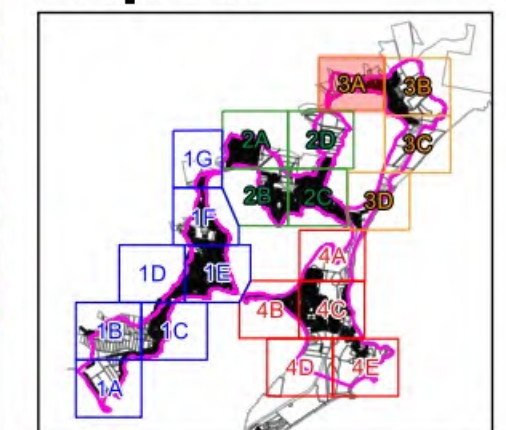
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 3A



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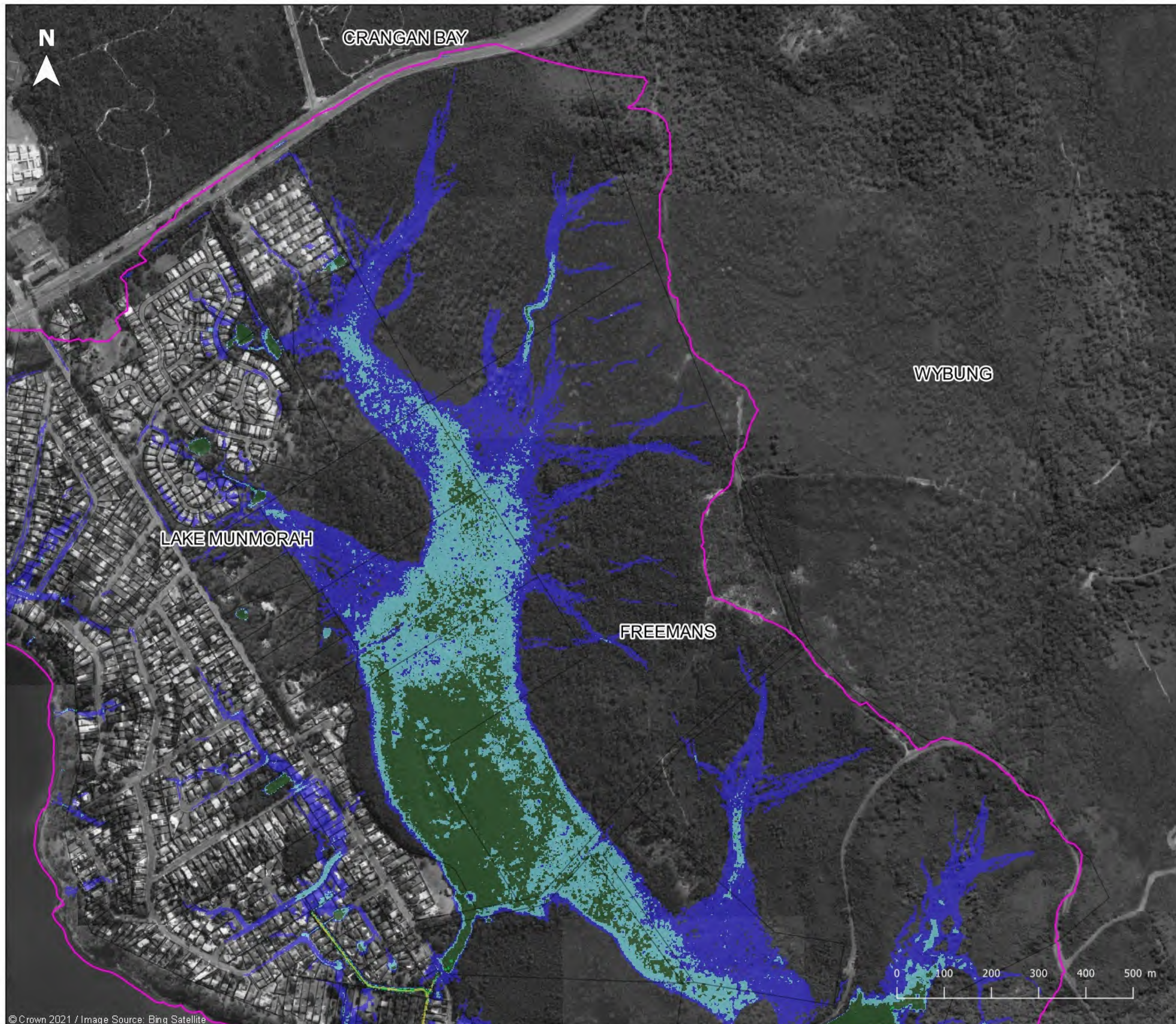


Figure D1.13

1% AEP Flood Life Hazard Categories

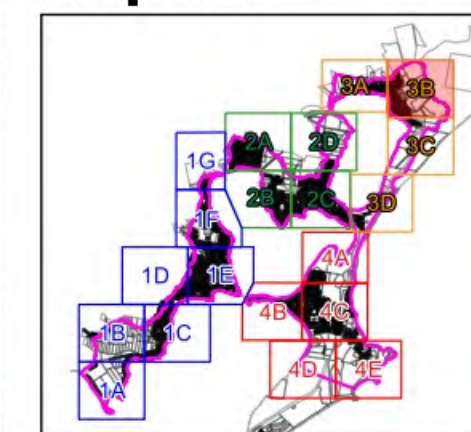
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 3B



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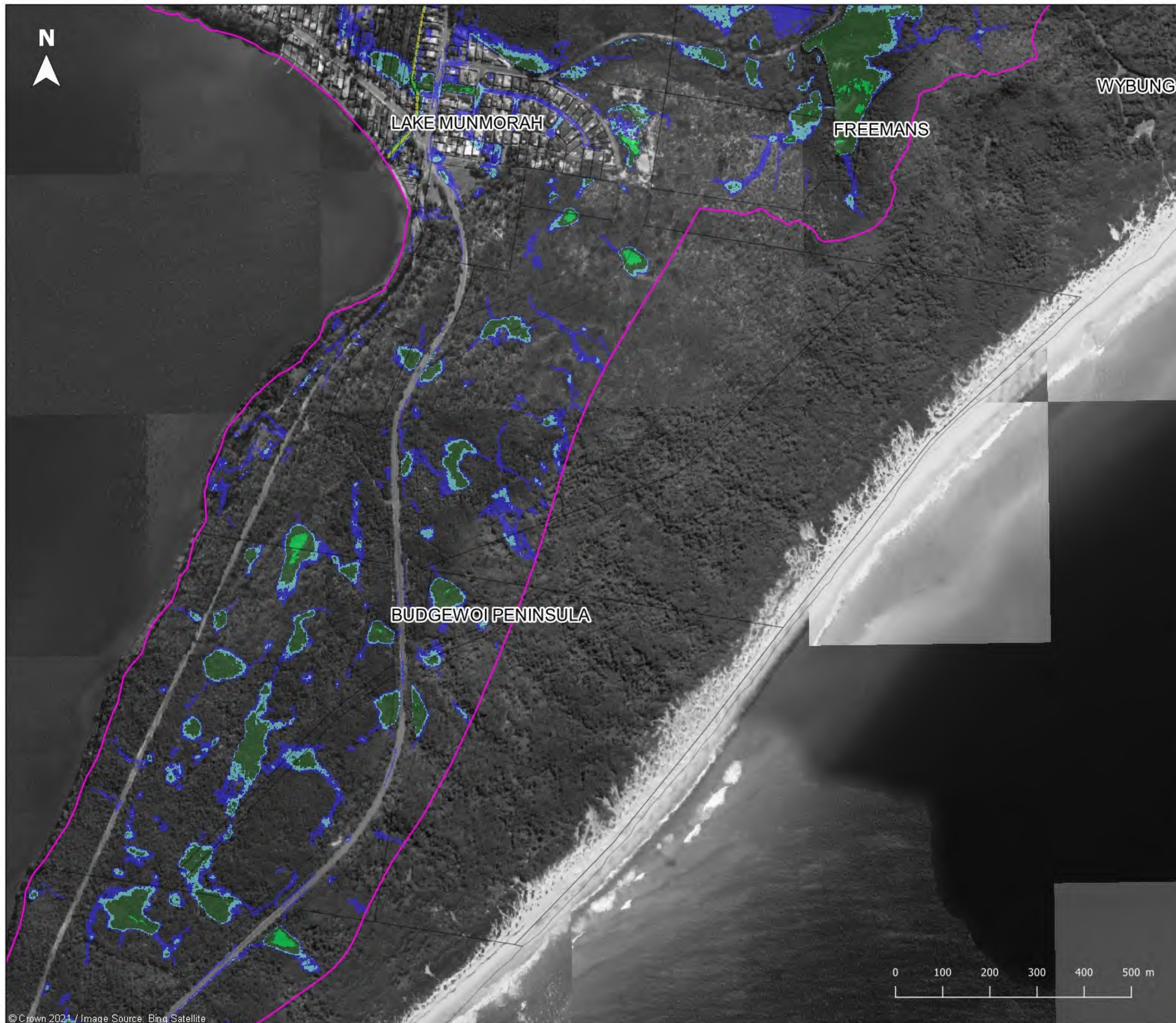


Figure D1.14

1% AEP Flood Life Hazard Categories

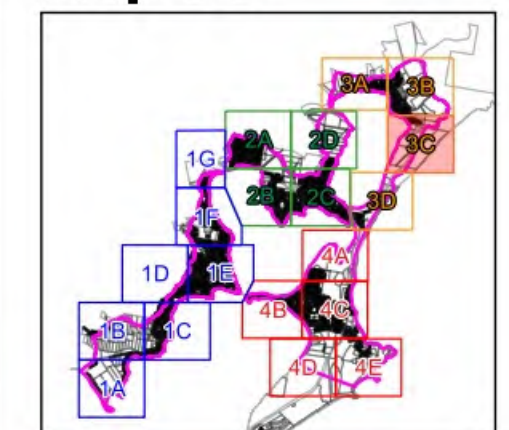
Legend

- Catchment area
- Cadastral

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 3C



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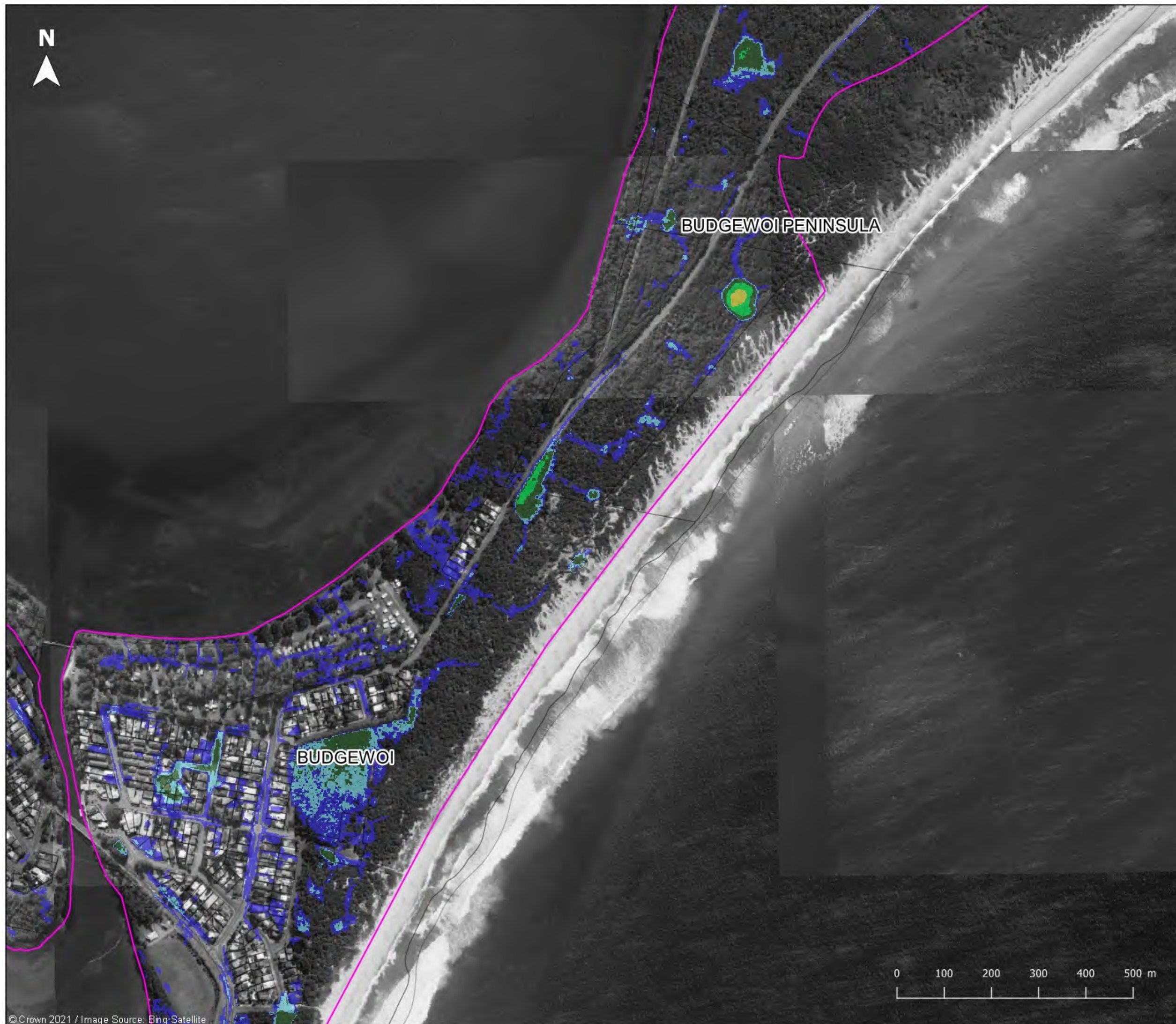


Figure D1.15

1% AEP Flood Life Hazard Categories

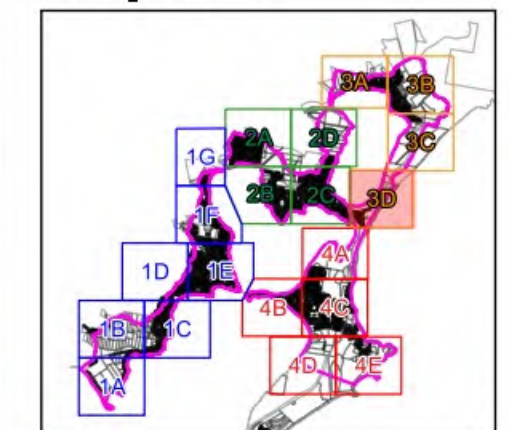
Legend

- Catchment area
- Cadastral

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 3D



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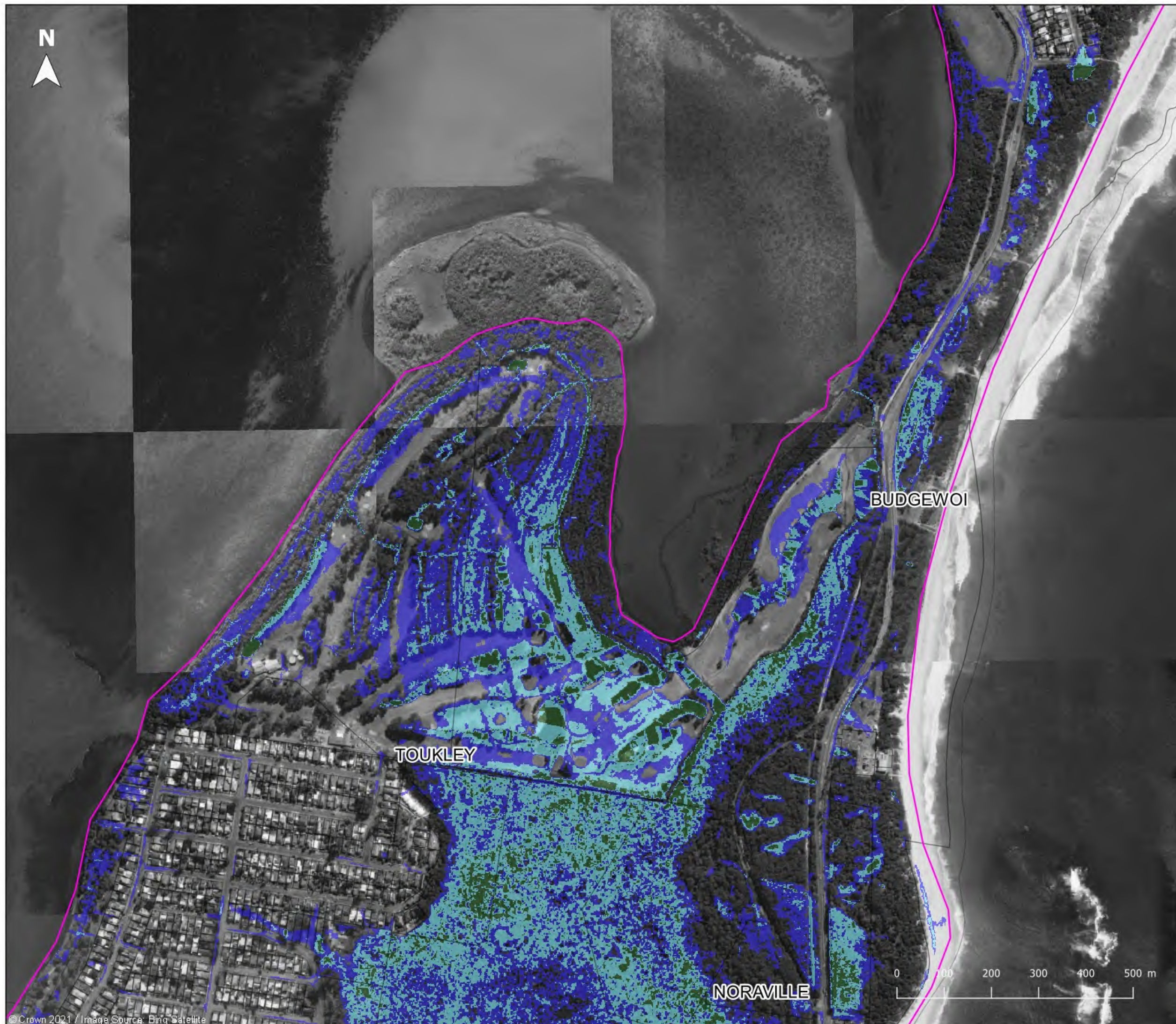


Figure D1.16

1% AEP Flood Life Hazard Categories

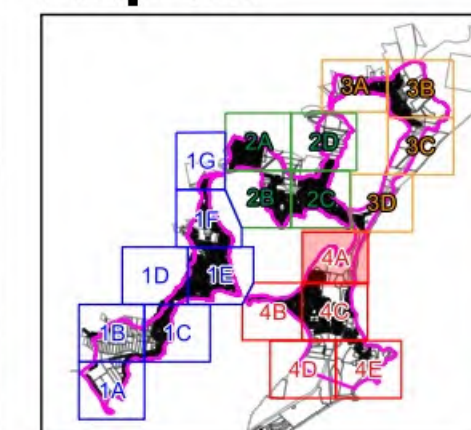
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 4A



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Figure D1.17

**1% AEP
Flood Life Hazard
Categories**

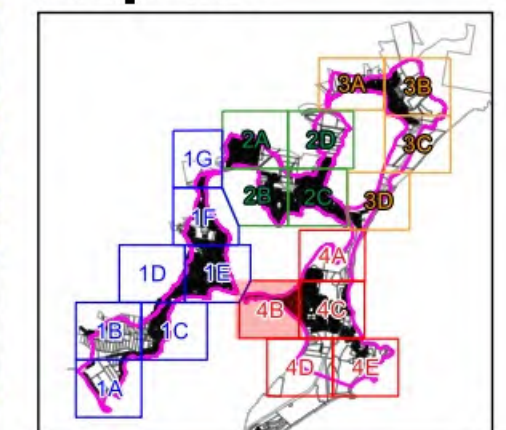
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 4B



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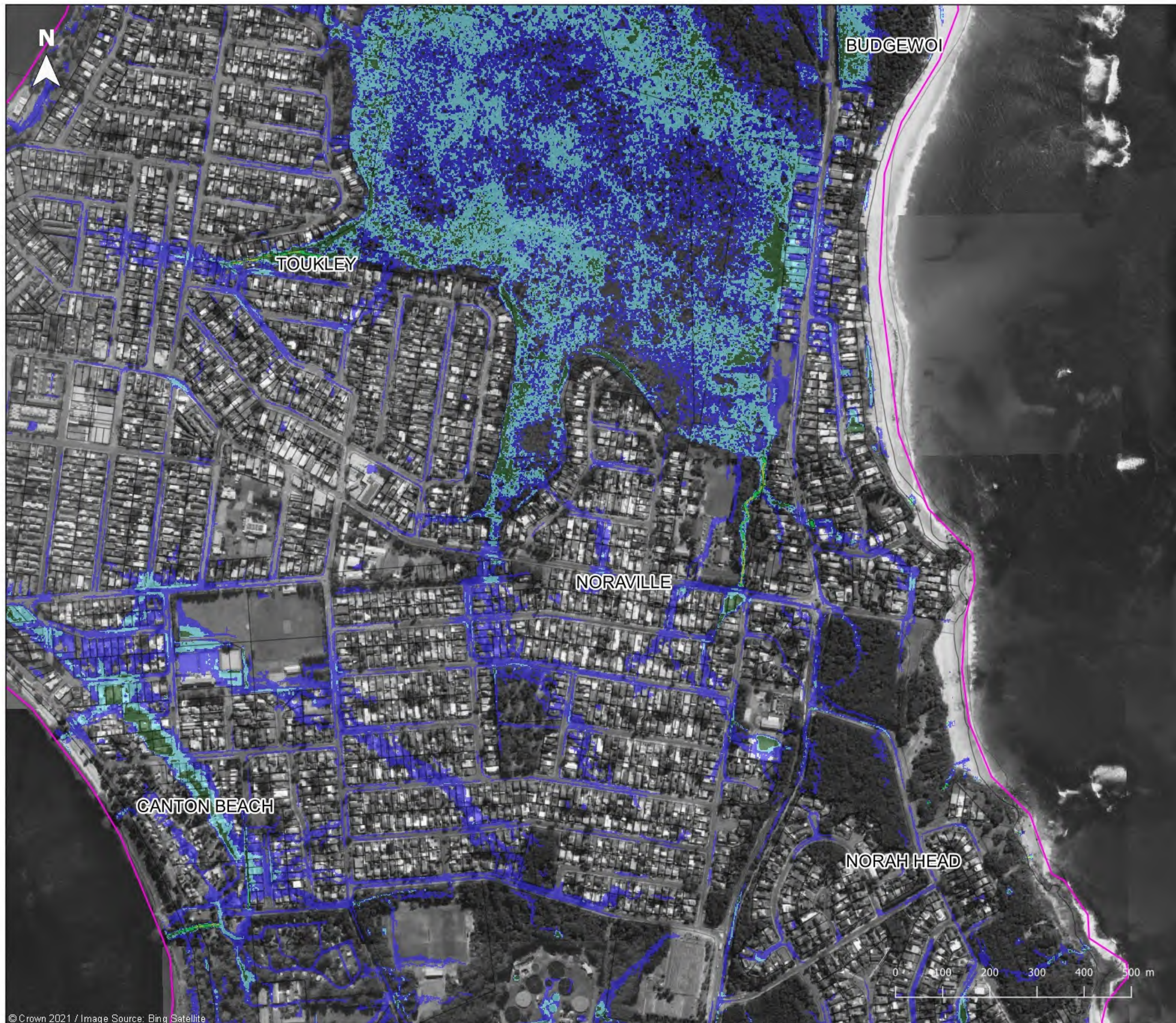


Figure D1.18

1% AEP Flood Life Hazard Categories

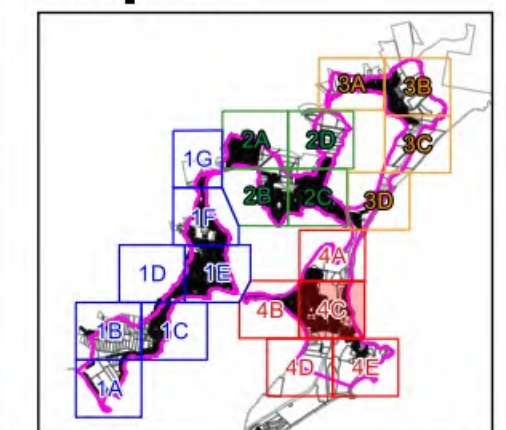
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 4C

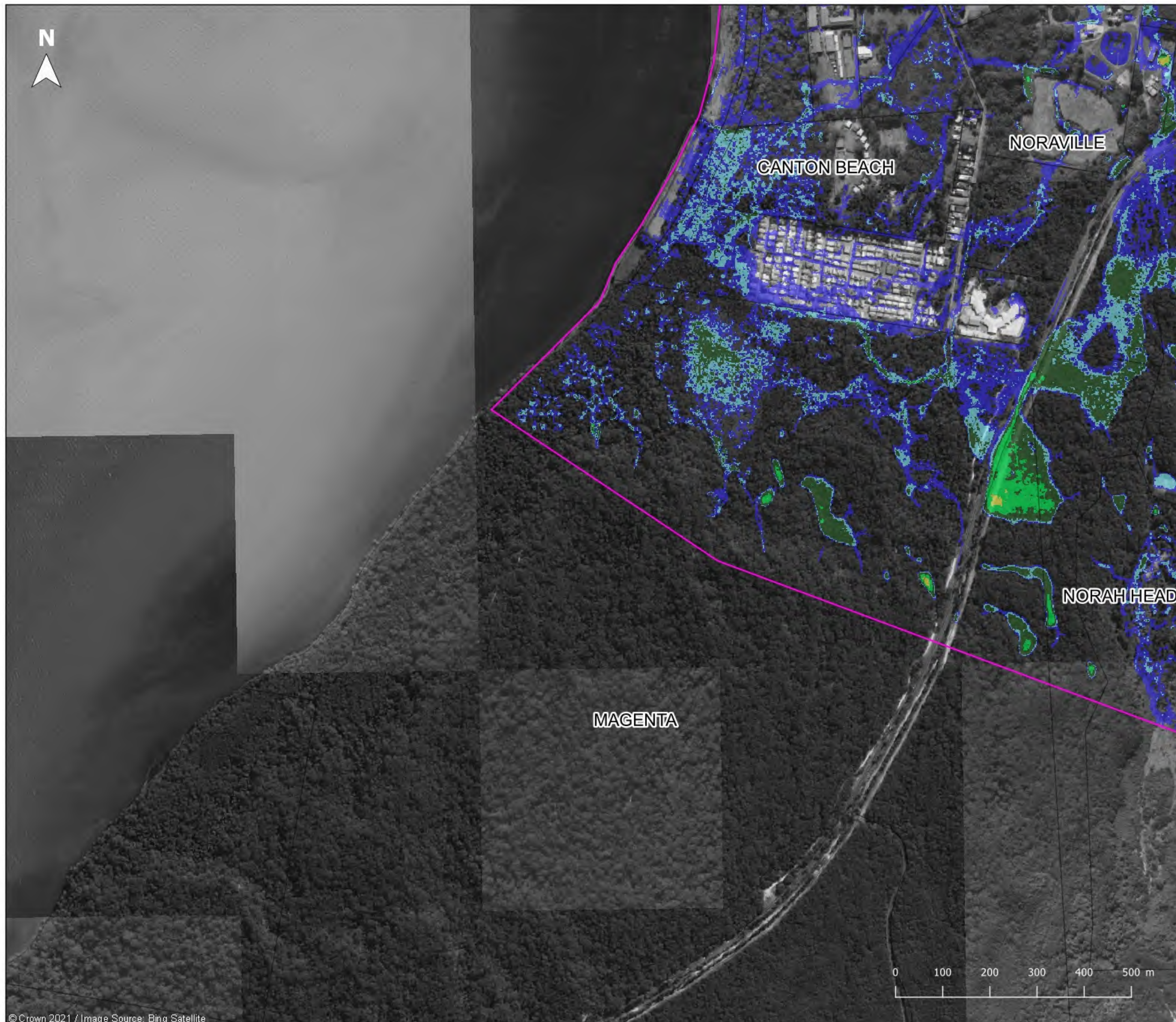


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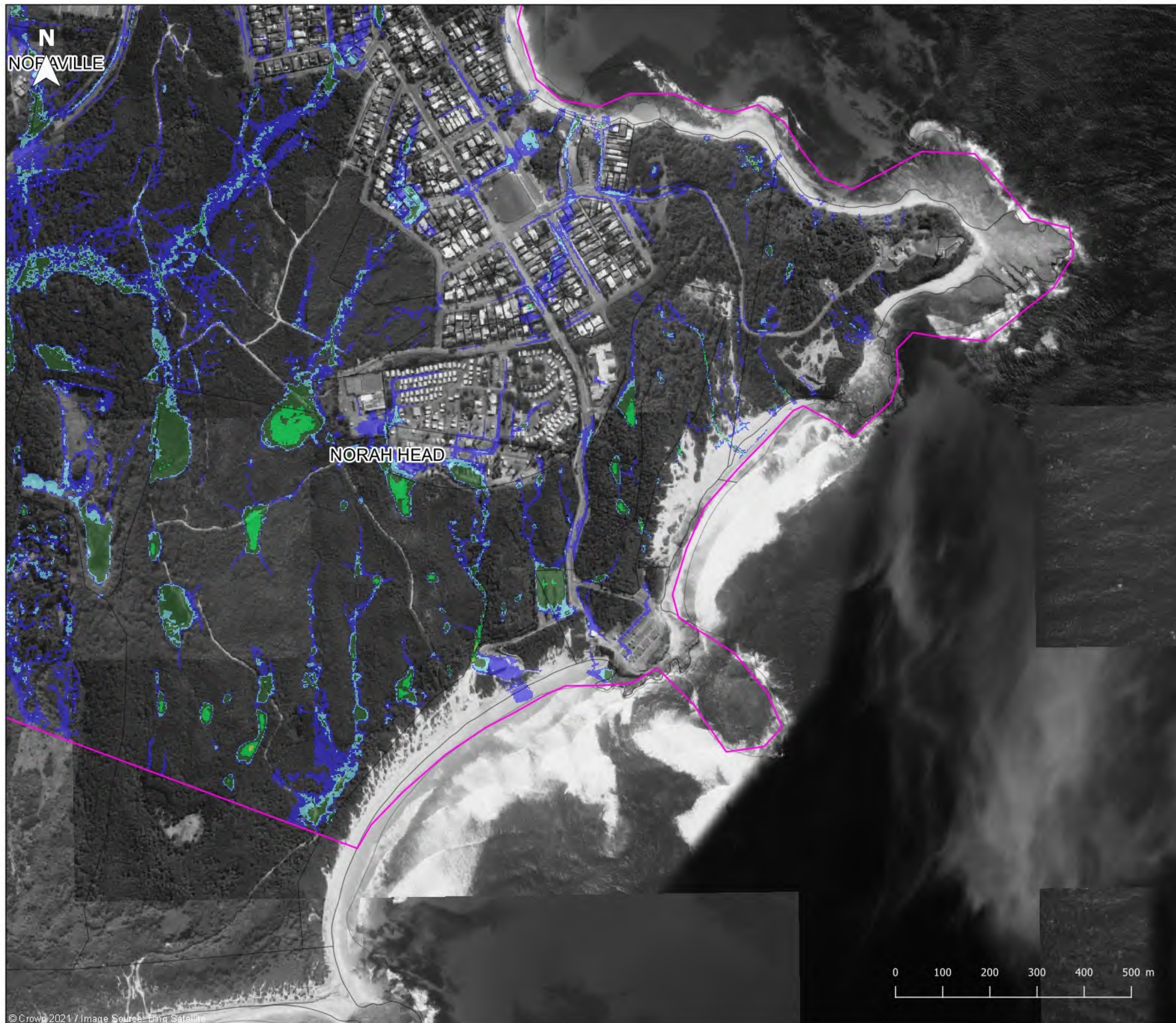


Figure D1.20

1% AEP Flood Life Hazard Categories

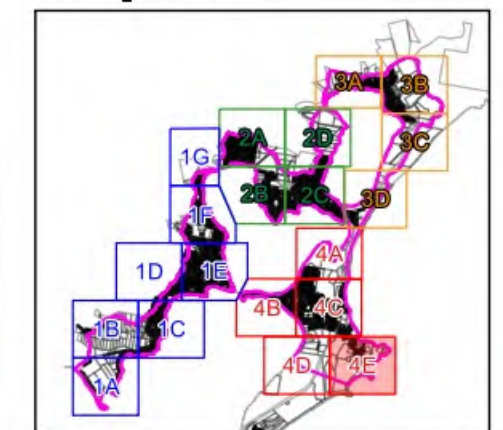
Legend

- Catchment area
- Cadaastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 4E



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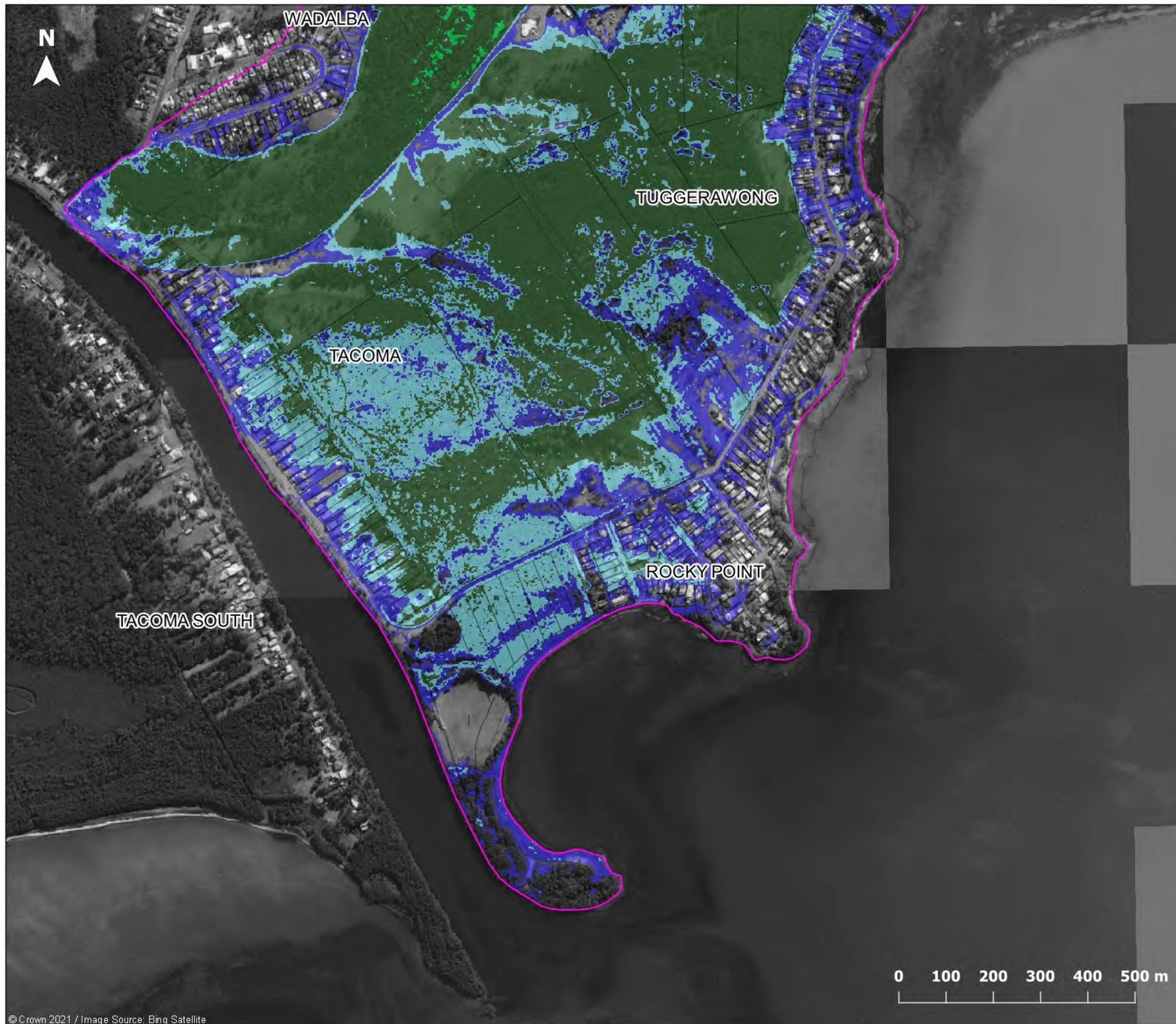


Figure D2.1

Probable Maximum Flood Life Hazard Categories

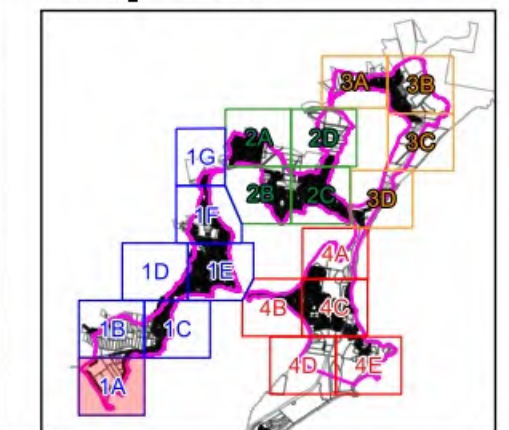
Legend

- Catchment area
- Cadastral

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 1A

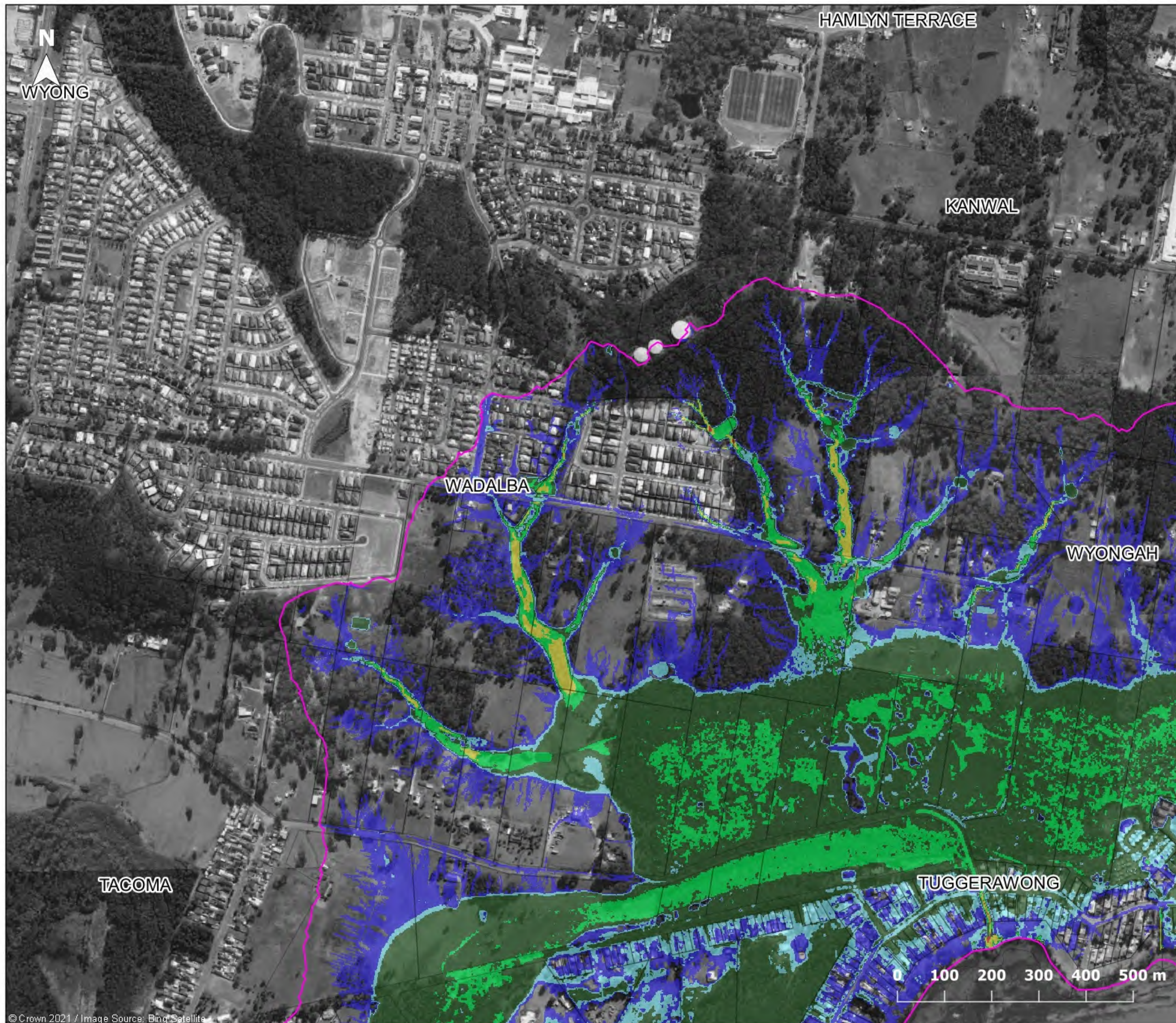


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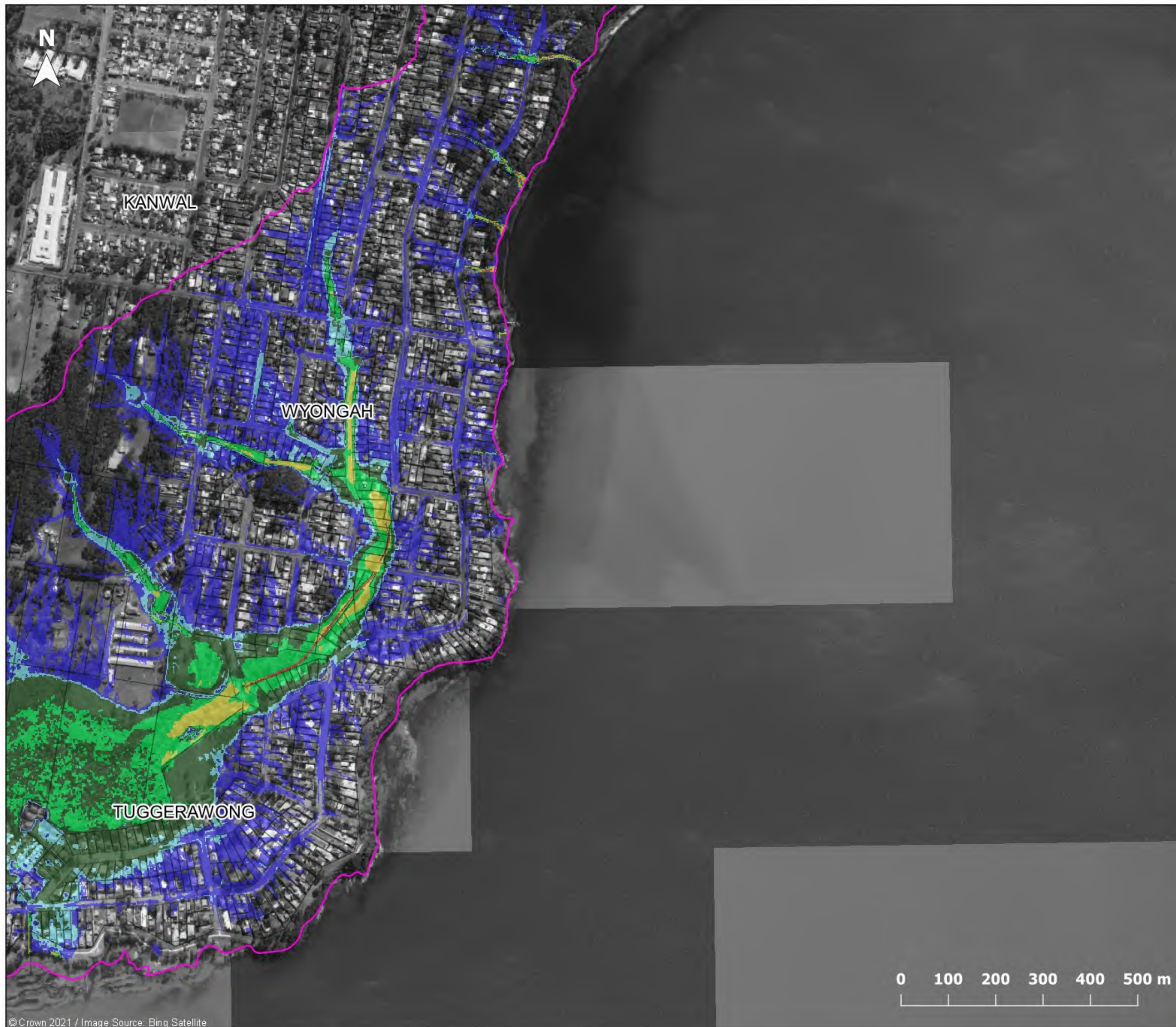


Figure D2.3

Probable Maximum Flood Life Hazard Categories

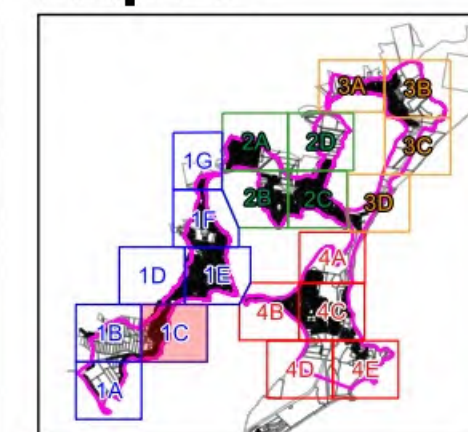
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 1C



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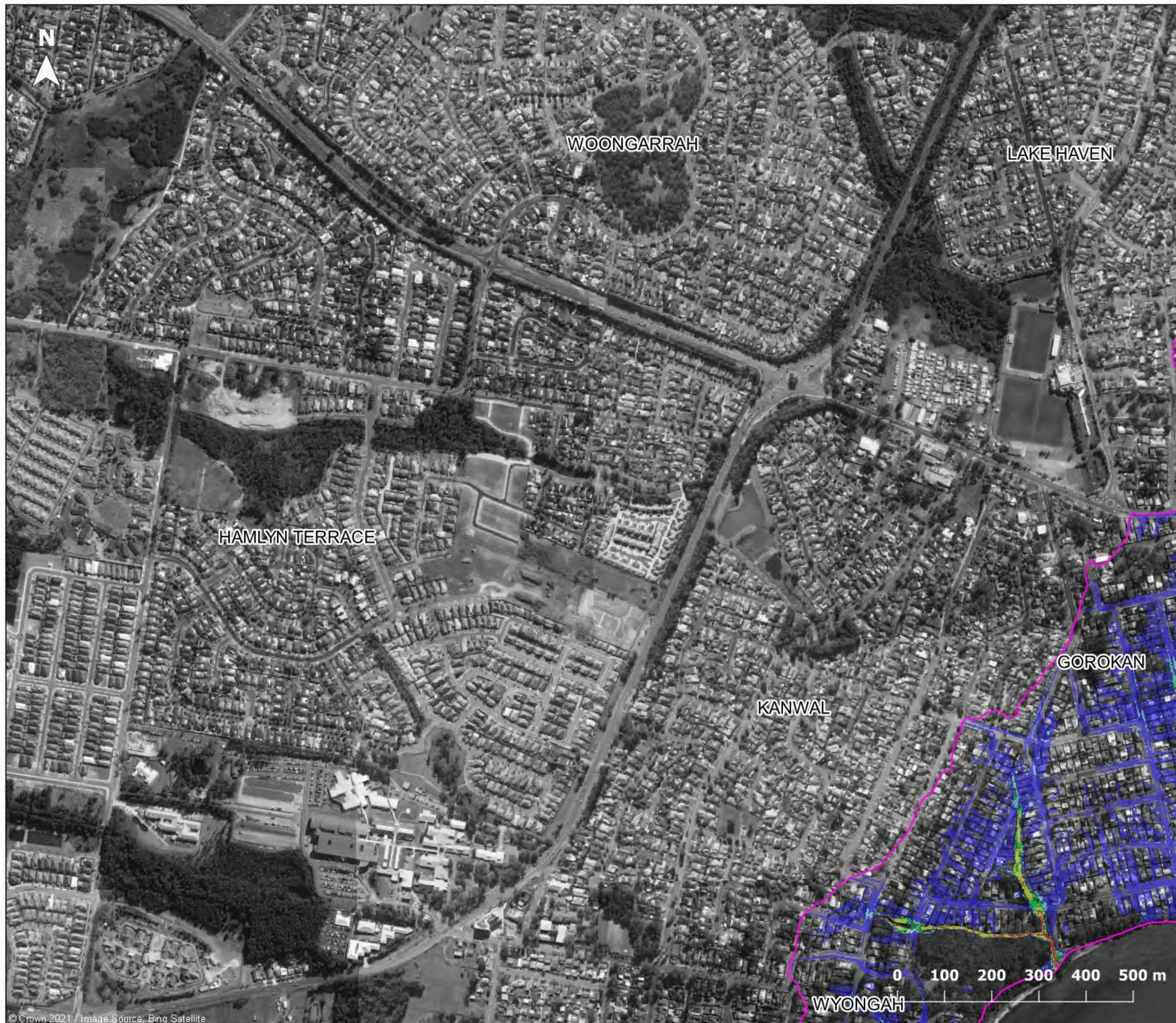


Figure D2.4

Probable Maximum Flood Life Hazard Categories

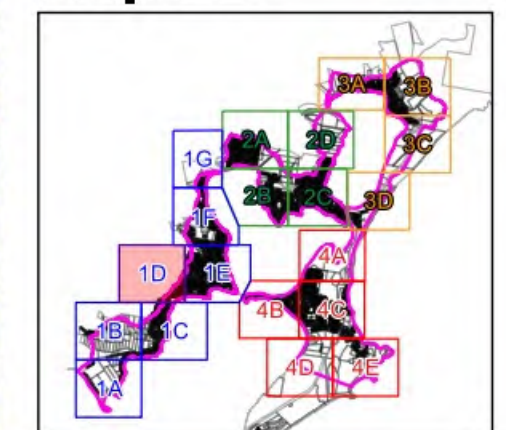
Legend

- Catchment area
- Cadastral

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 1D



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Figure D2.5

Probable Maximum Flood Life Hazard Categories

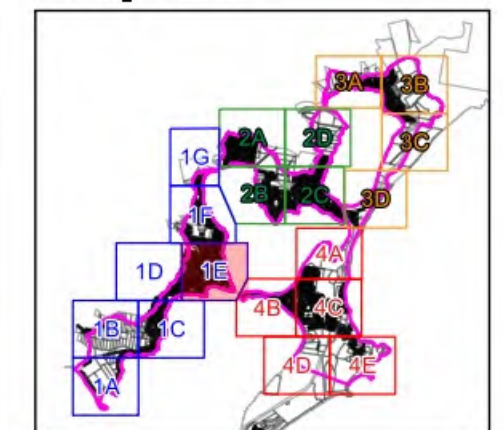
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 1E



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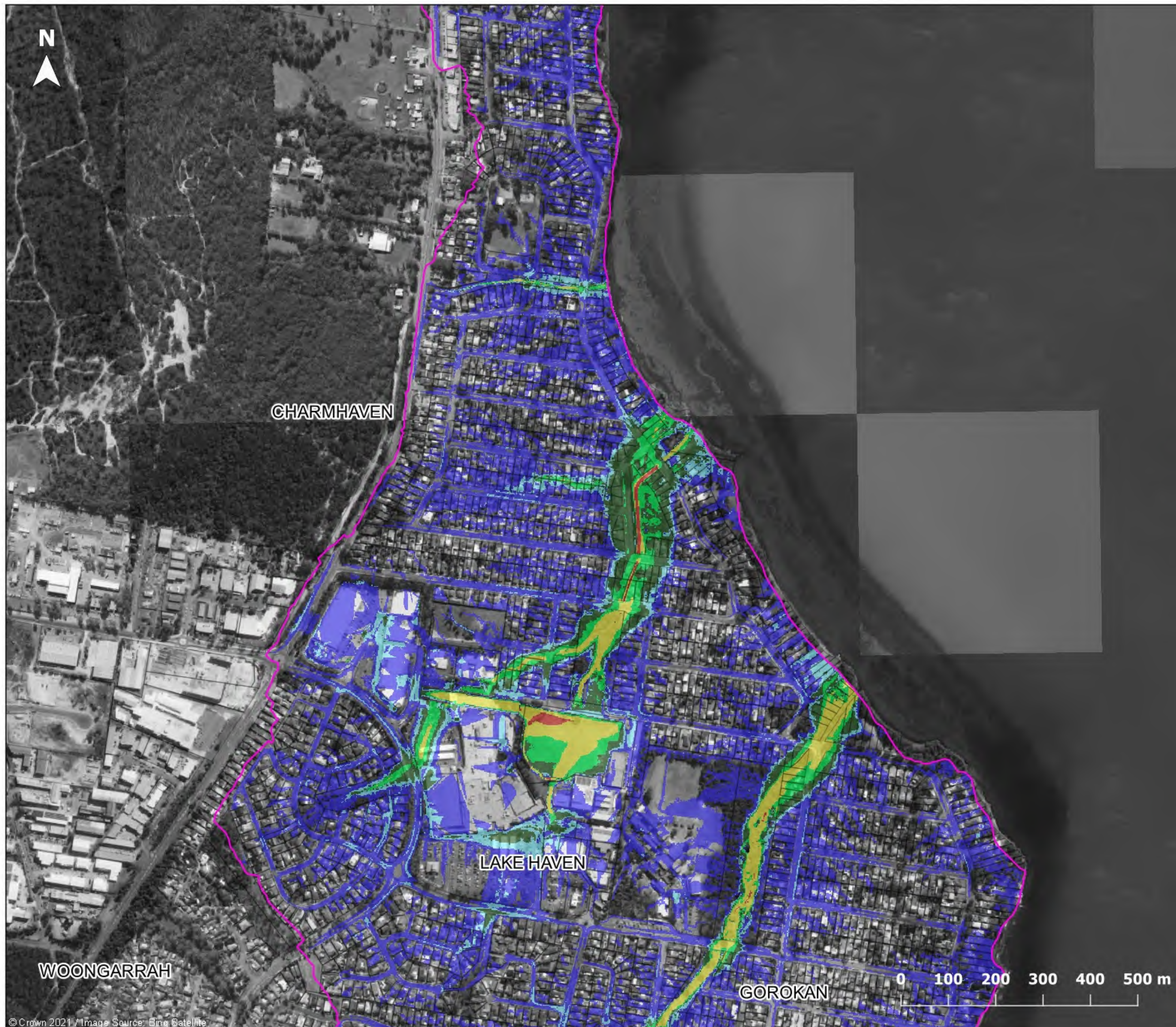


Figure D2.6

Probable Maximum Flood Life Hazard Categories

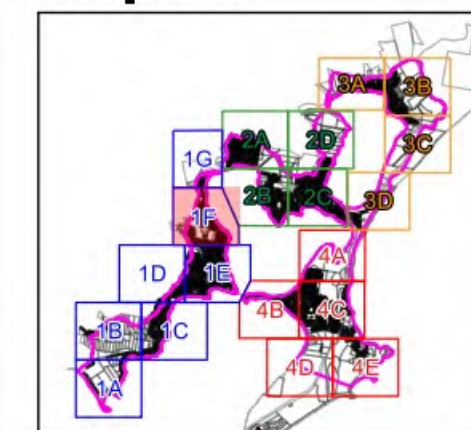
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 1F



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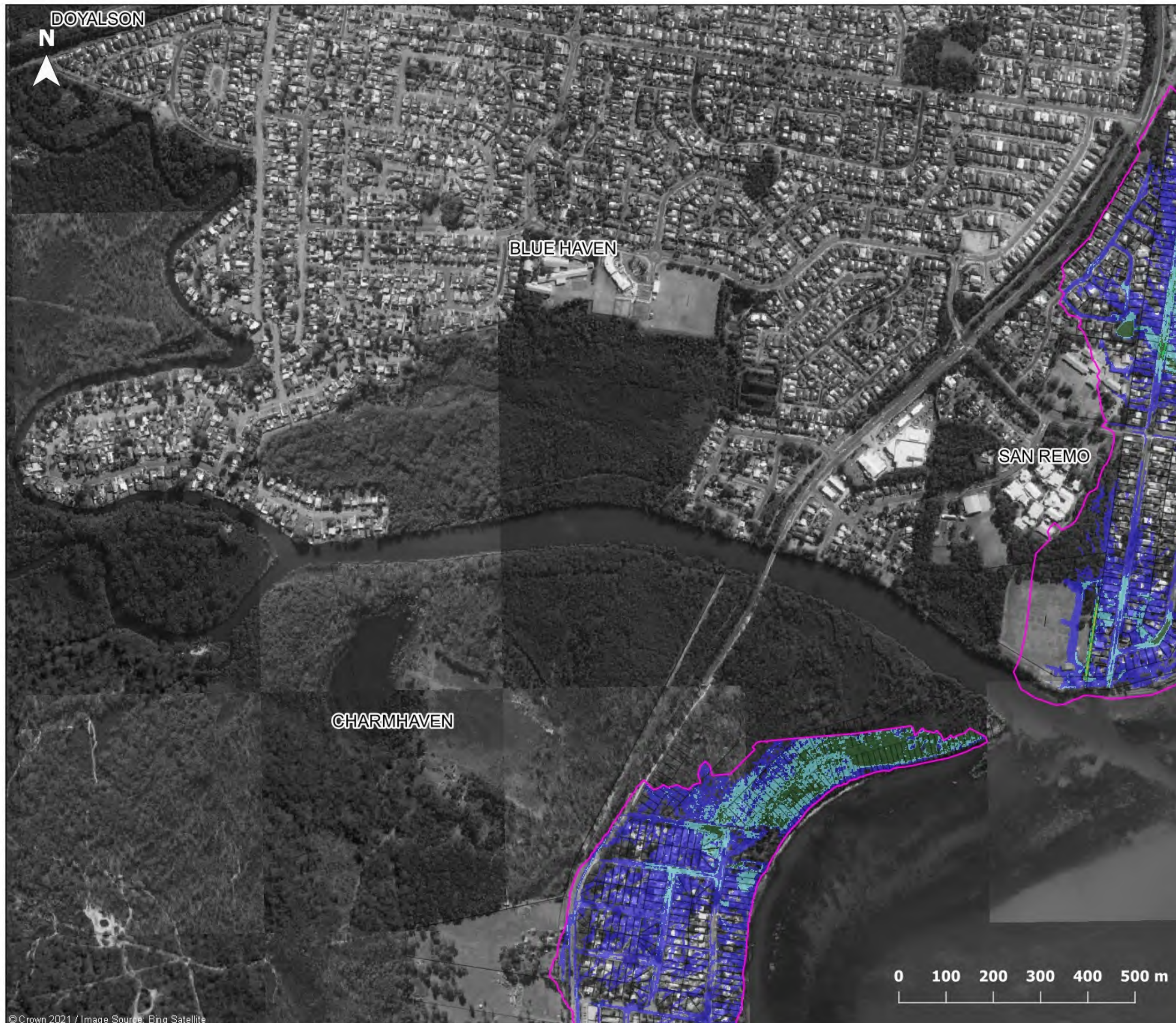


Figure D2.7

Probable Maximum Flood Life Hazard Categories

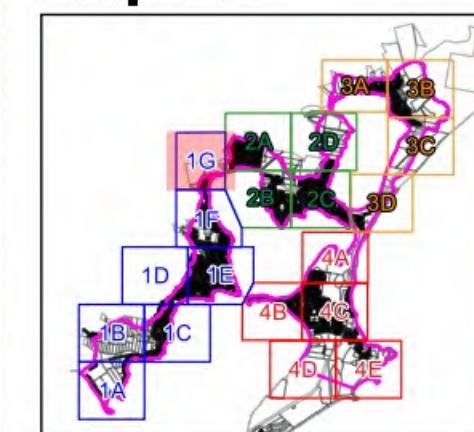
Legend

- Catchment area
- Cadaastre

Hazard Categories

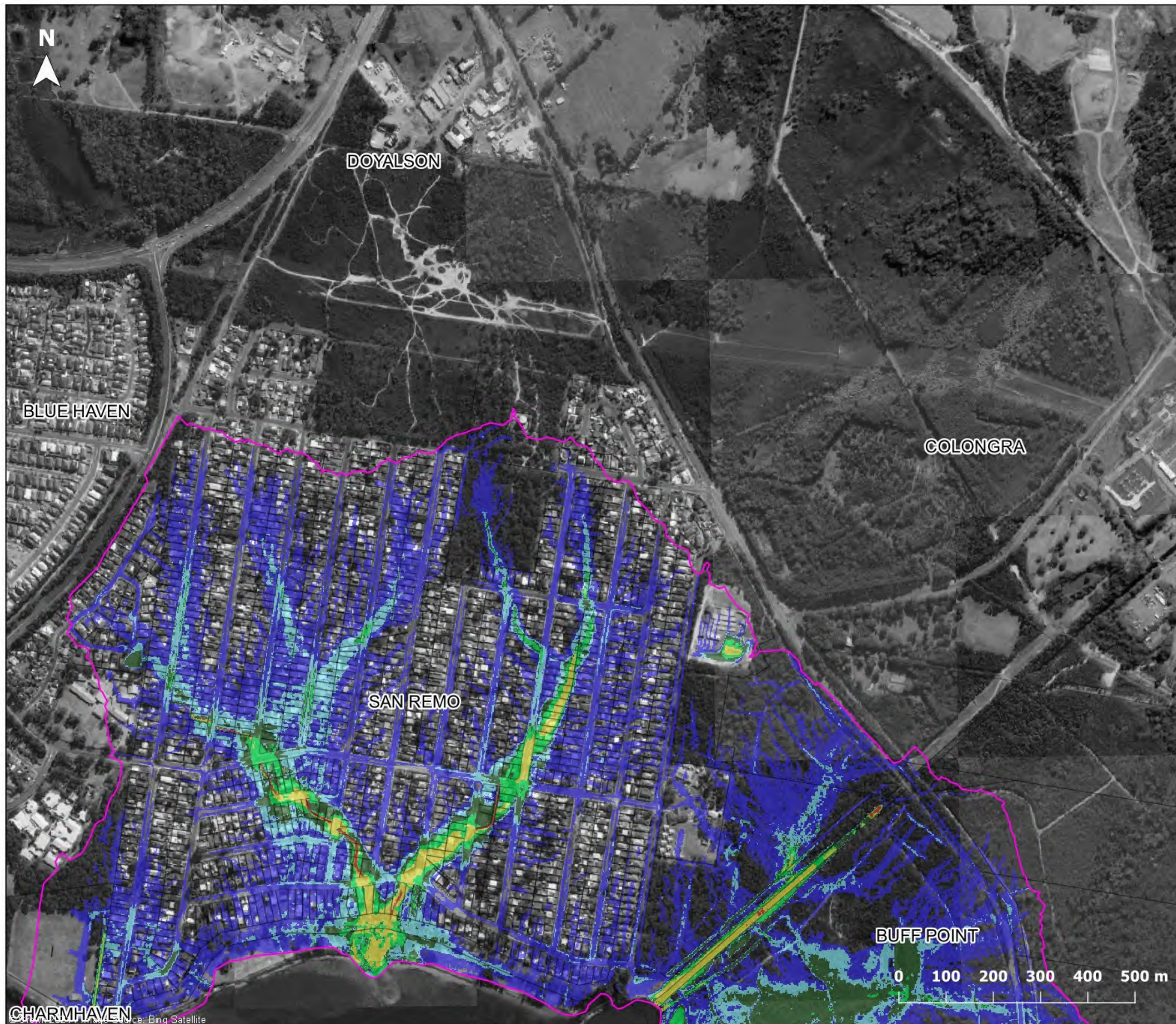
- H1
- H2
- H3
- H4
- H5
- H6

Map 1G



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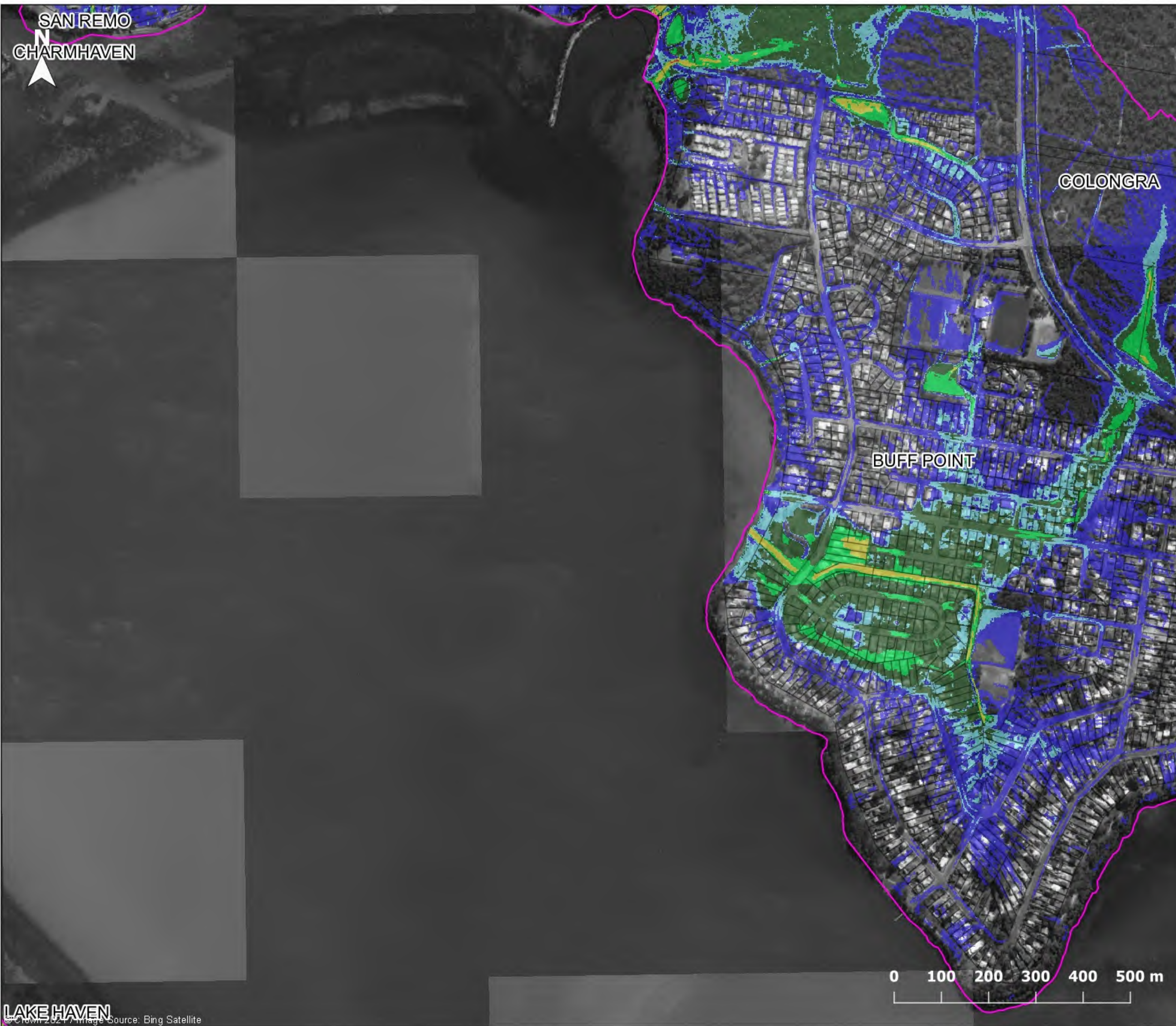


Figure D2.9

Probable Maximum Flood Life Hazard Categories

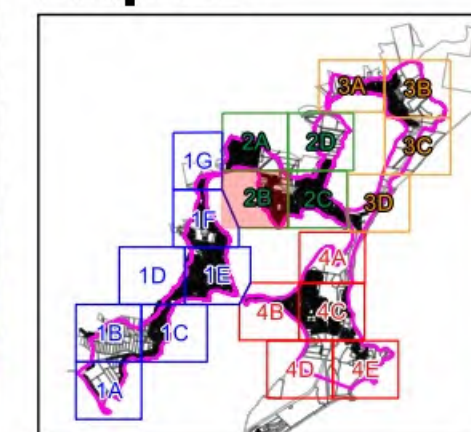
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 2B



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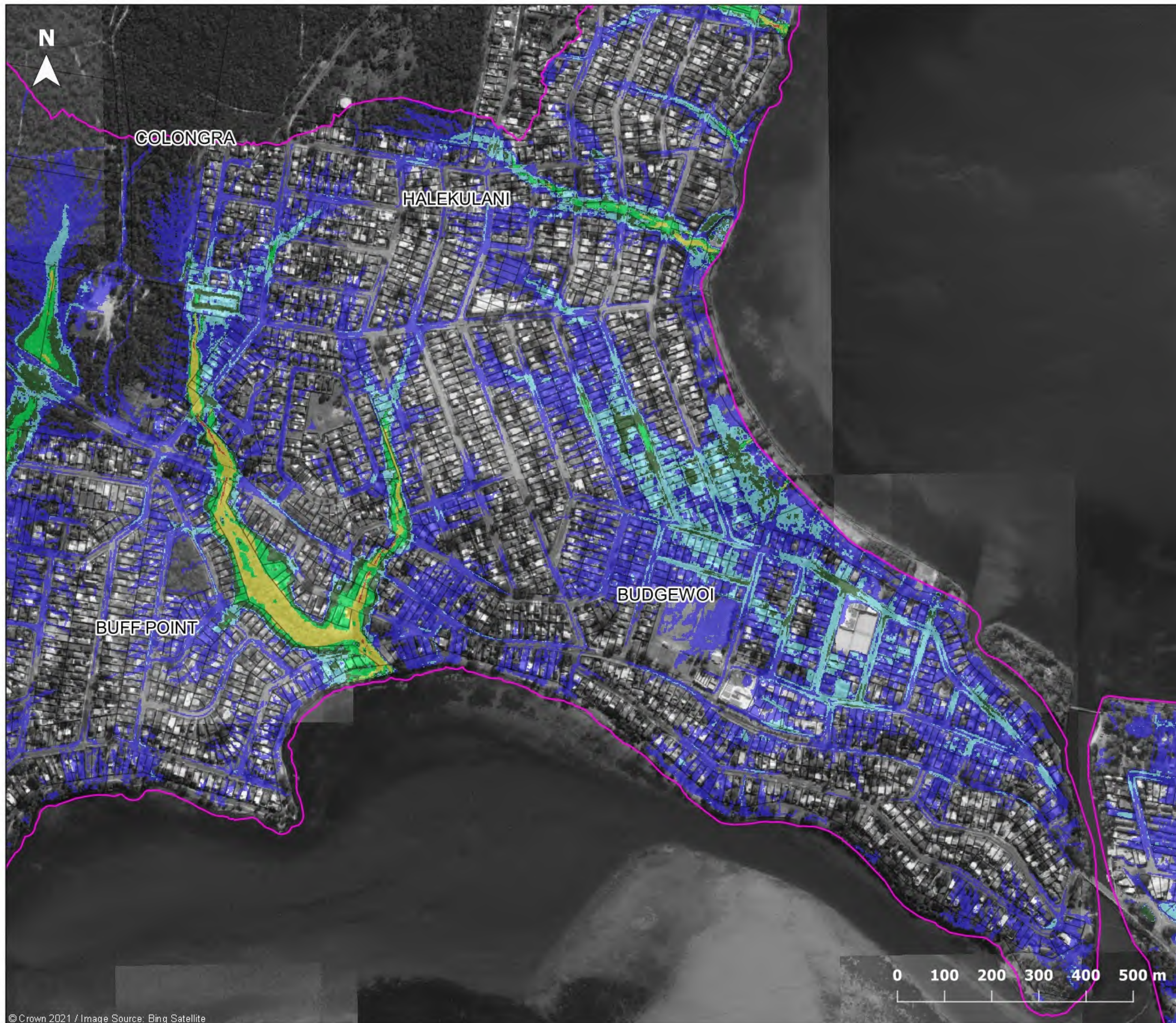


Figure D2.10

Probable Maximum Flood Life Hazard Categories

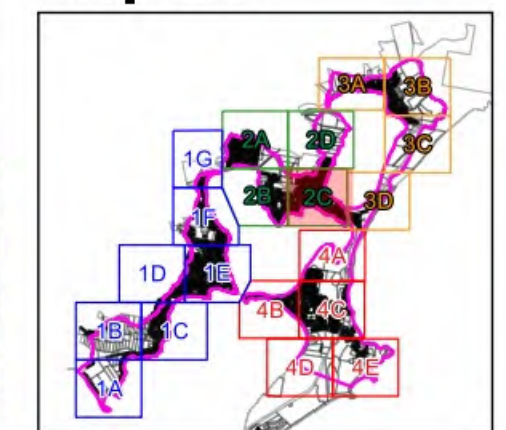
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 2C



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Figure D2.11

Probable Maximum Flood Life Hazard Categories

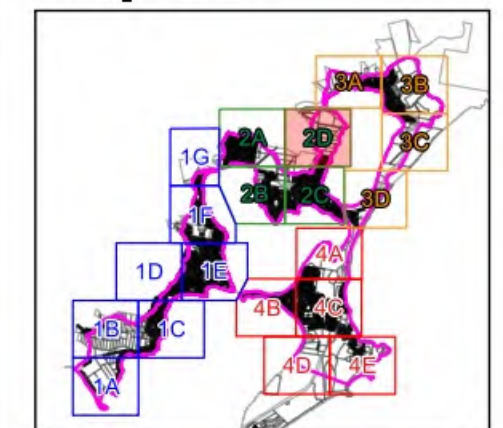
Legend

-  Catchment area
-  Cadastre

Hazard Categories

-  H1
-  H2
-  H3
-  H4
-  H5
-  H6

Map 2D



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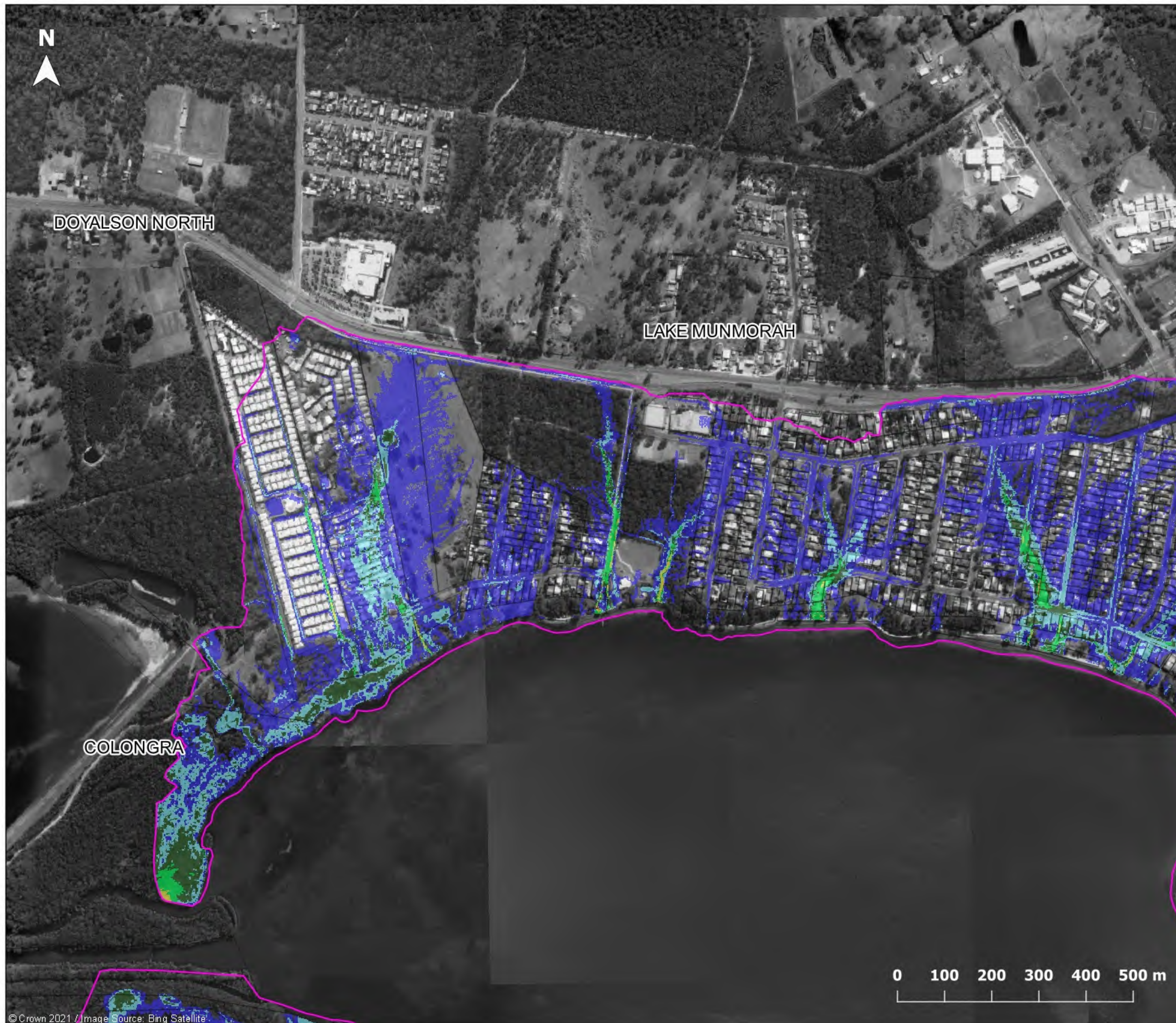


Figure D2.12

Probable Maximum Flood Life Hazard Categories

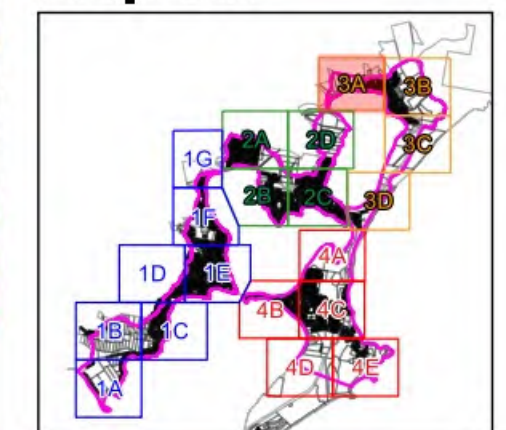
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
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- H4
- H5
- H6

Map 3A



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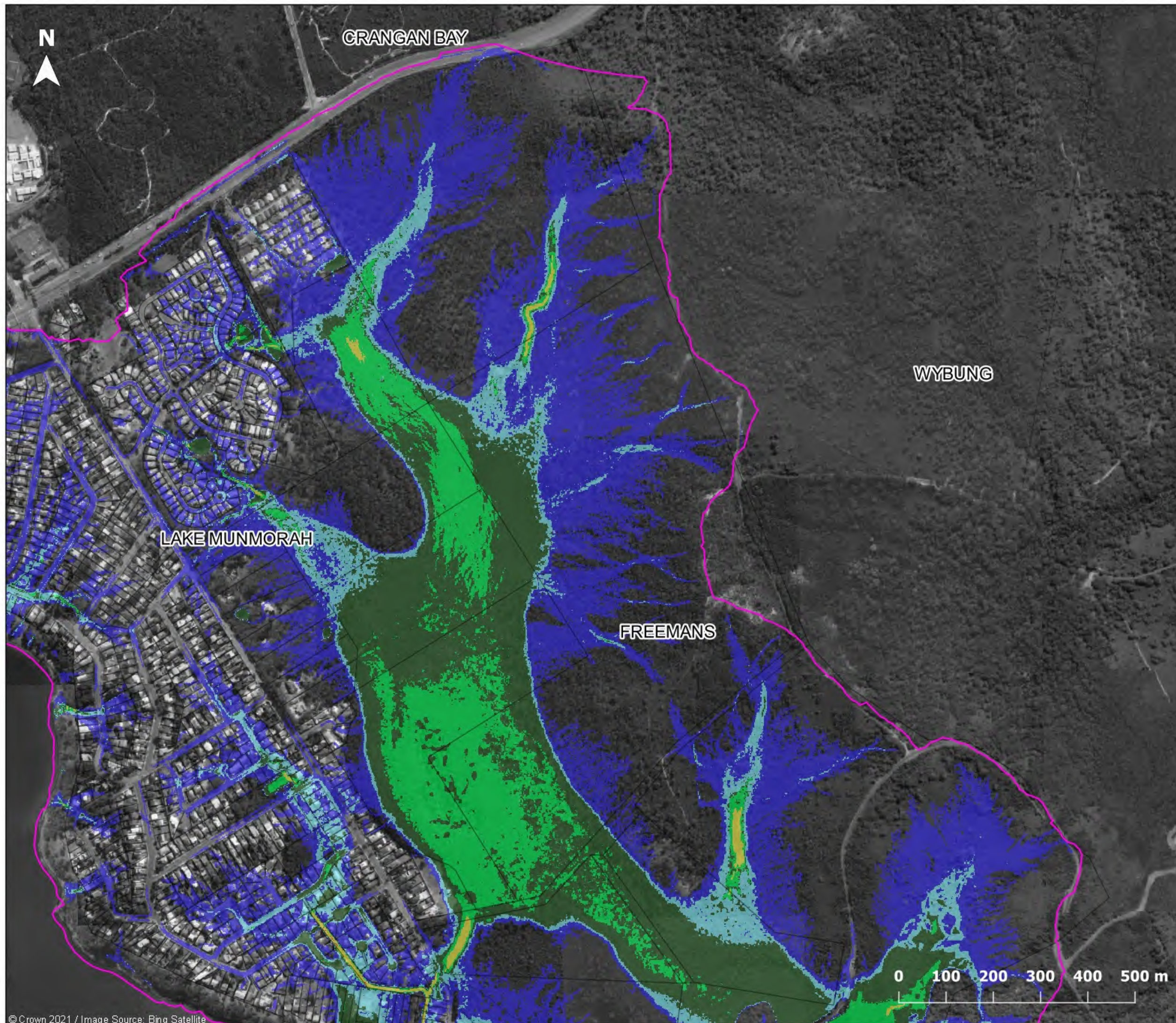


Figure D2.13

Probable Maximum Flood Life Hazard Categories

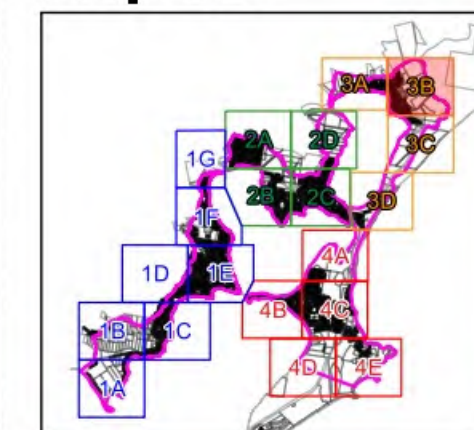
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
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- H5
- H6

Map 3B

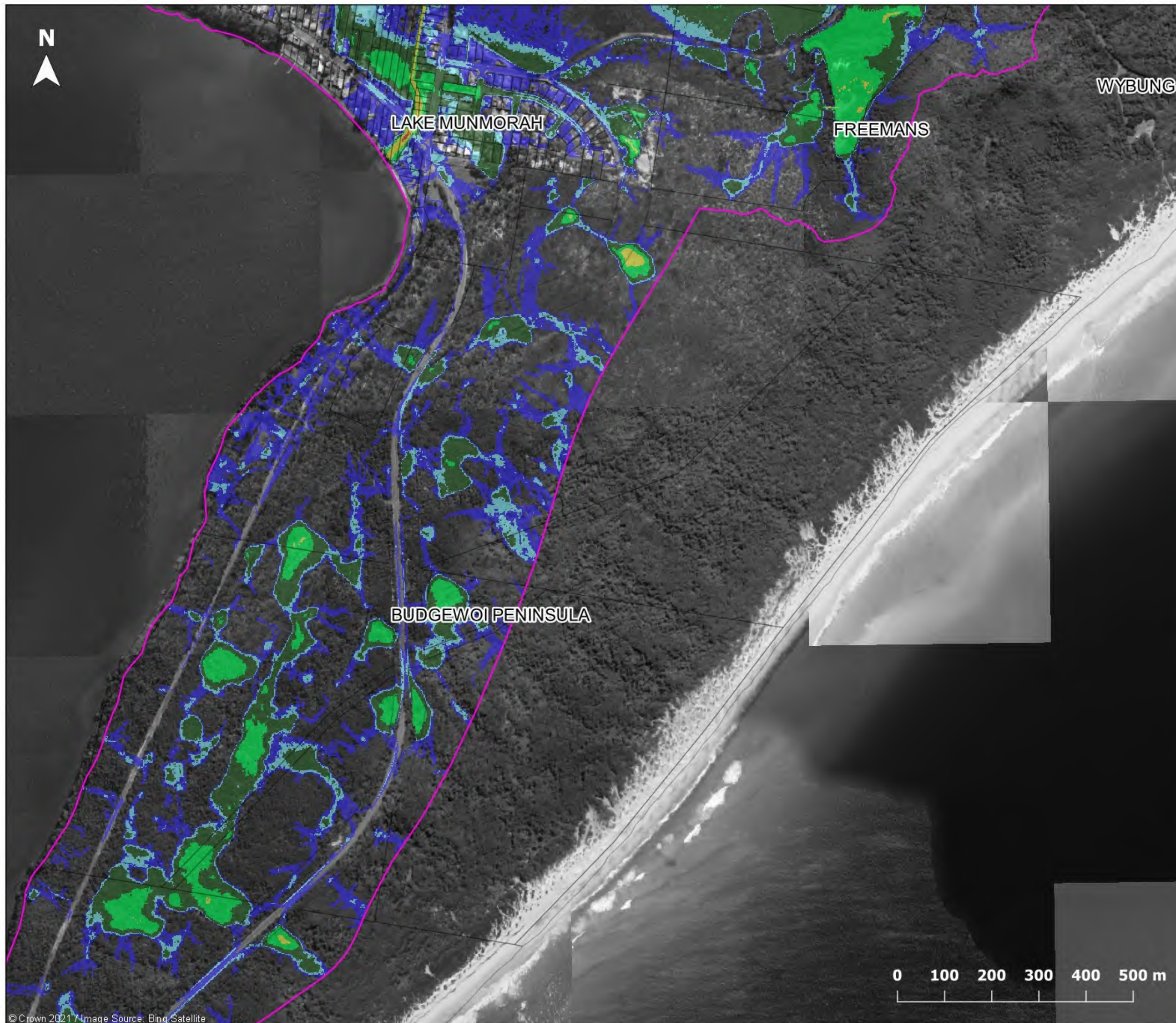


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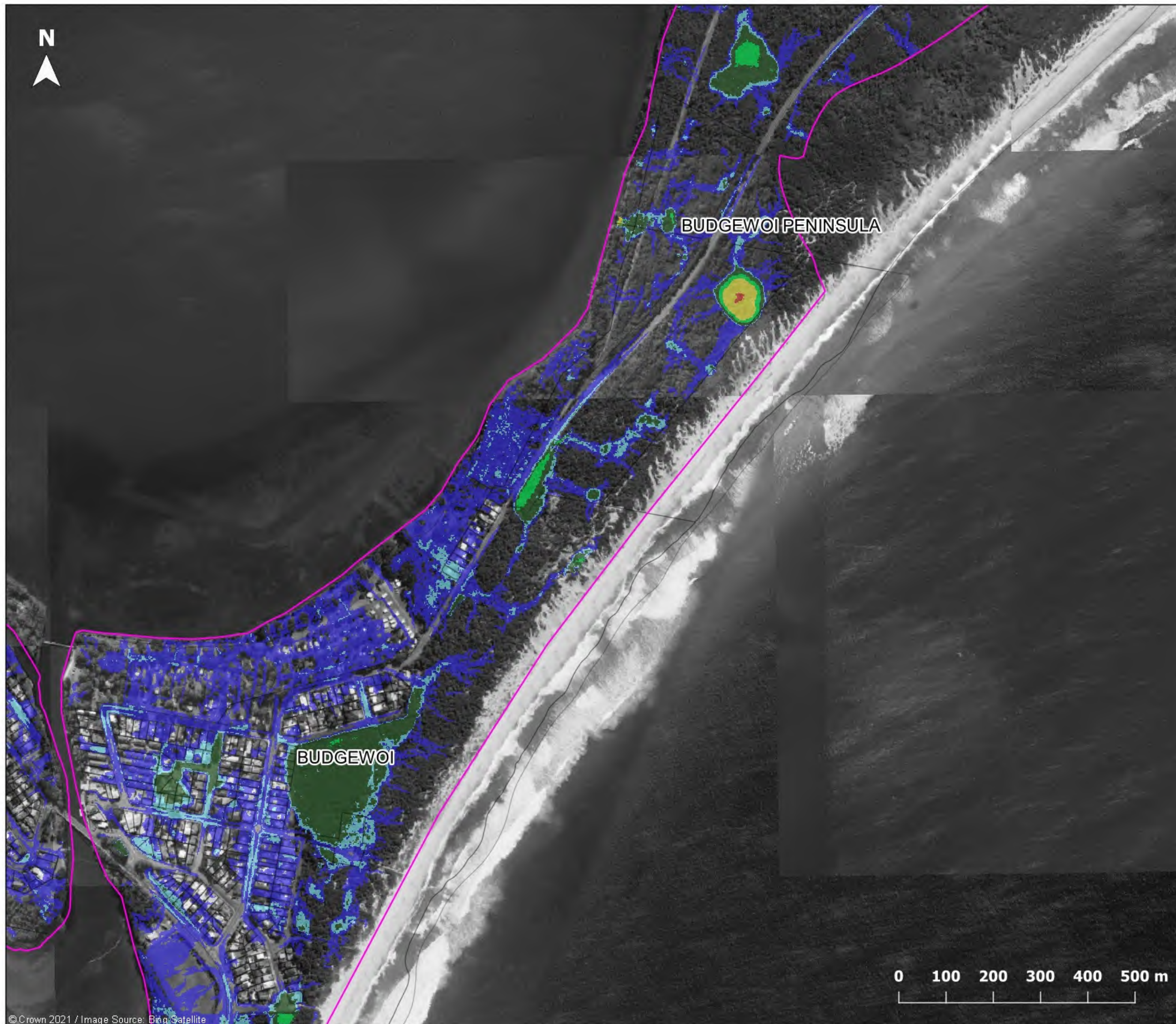


Figure D2.15

Probable Maximum Flood Life Hazard Categories

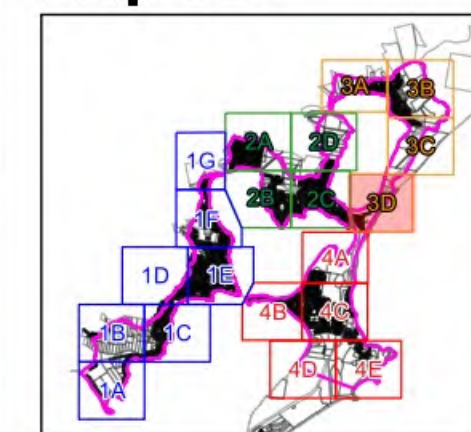
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 3D



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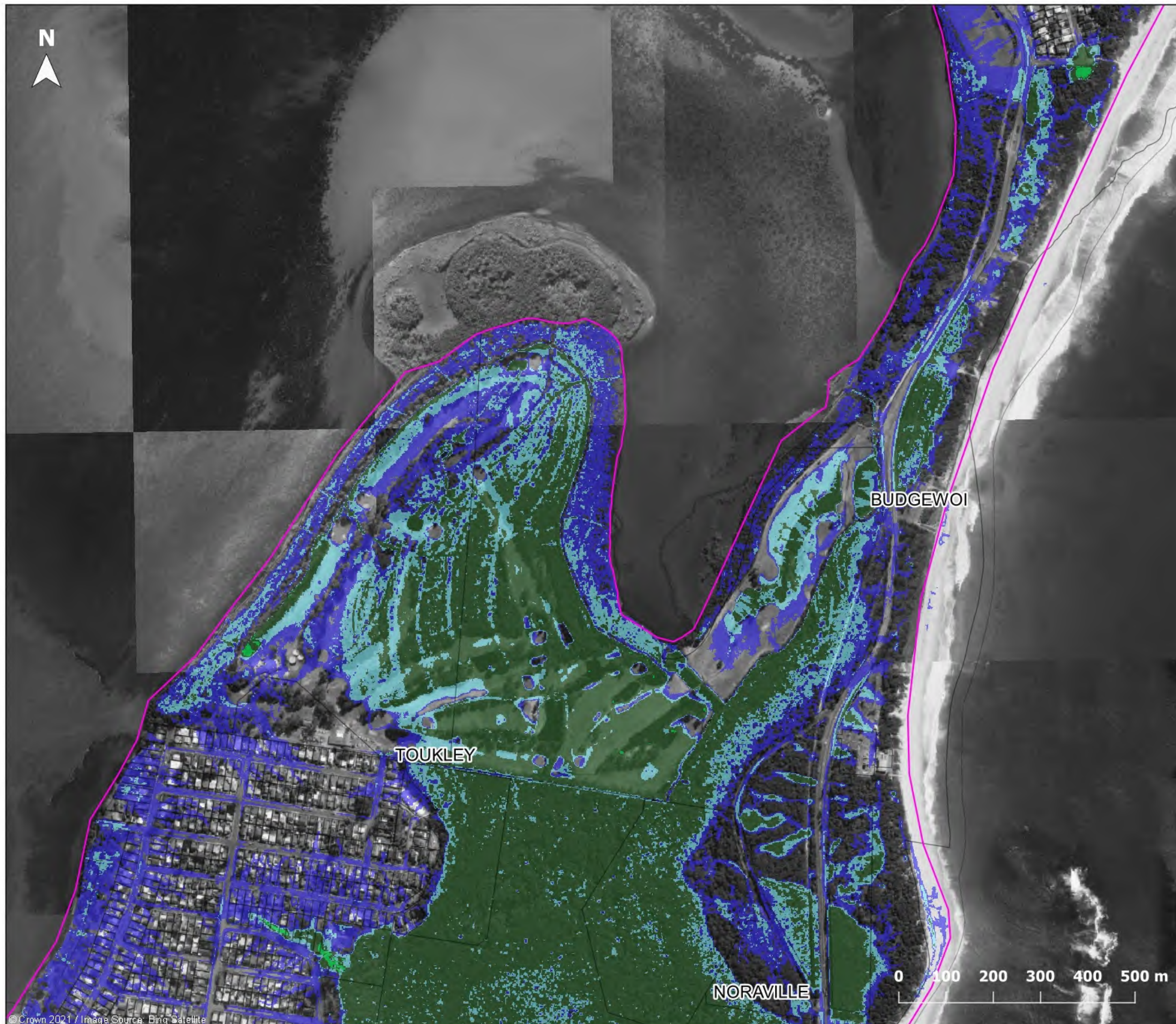




Figure D2.17

Probable Maximum Flood Life Hazard Categories

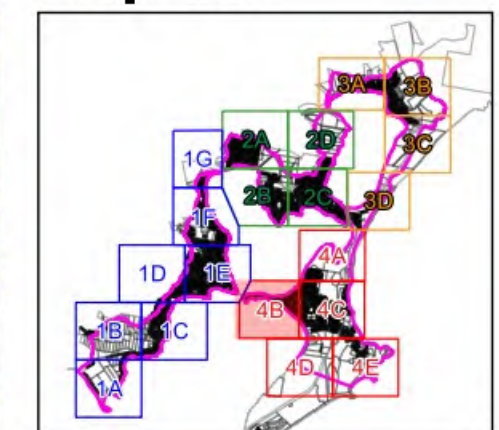
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 4B



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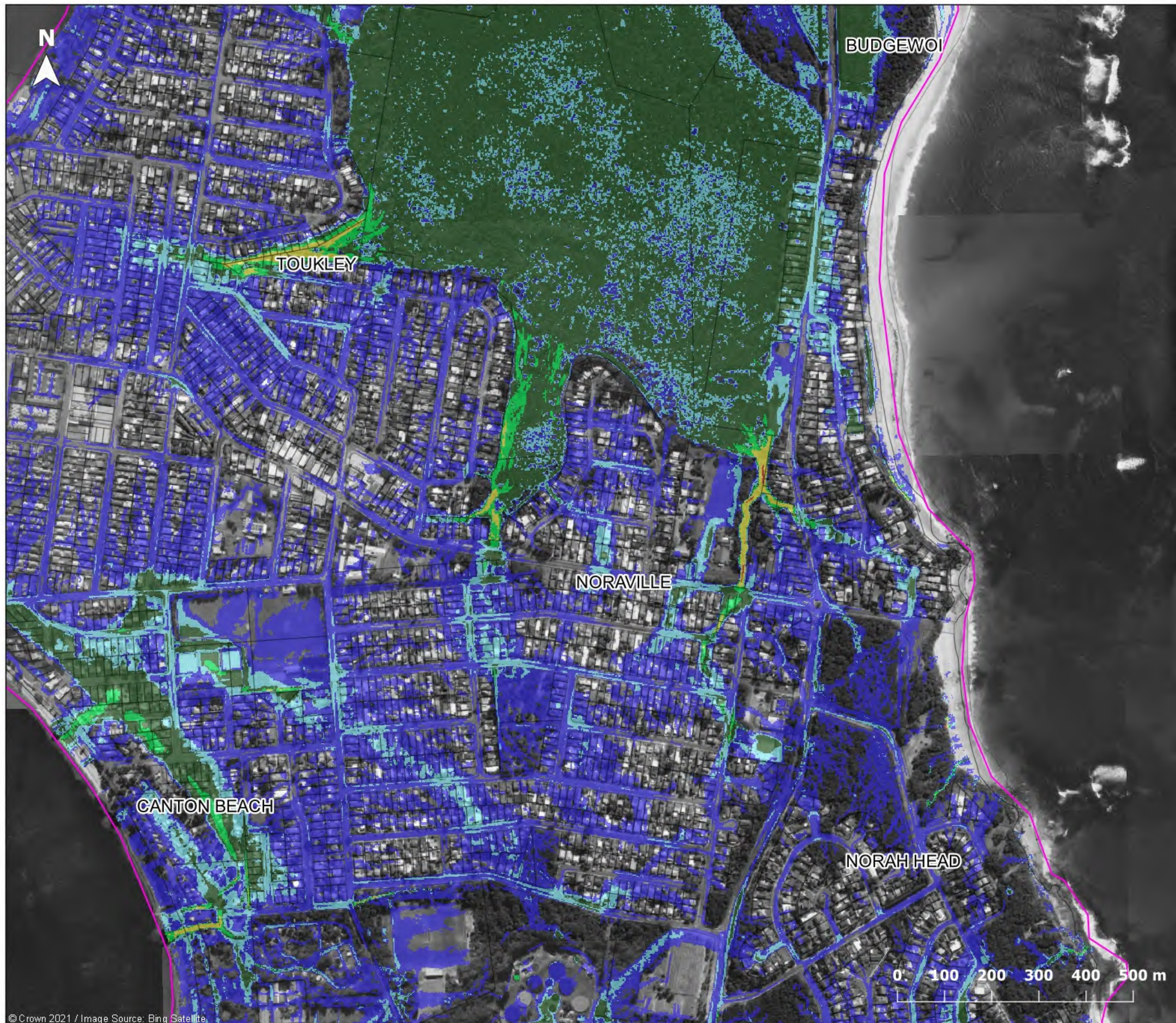


Figure D2.18

Probable Maximum Flood Life Hazard Categories

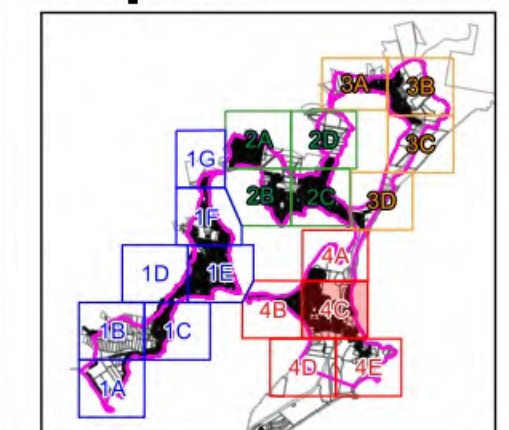
Legend

- Catchment area
- Cadastral

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 4C



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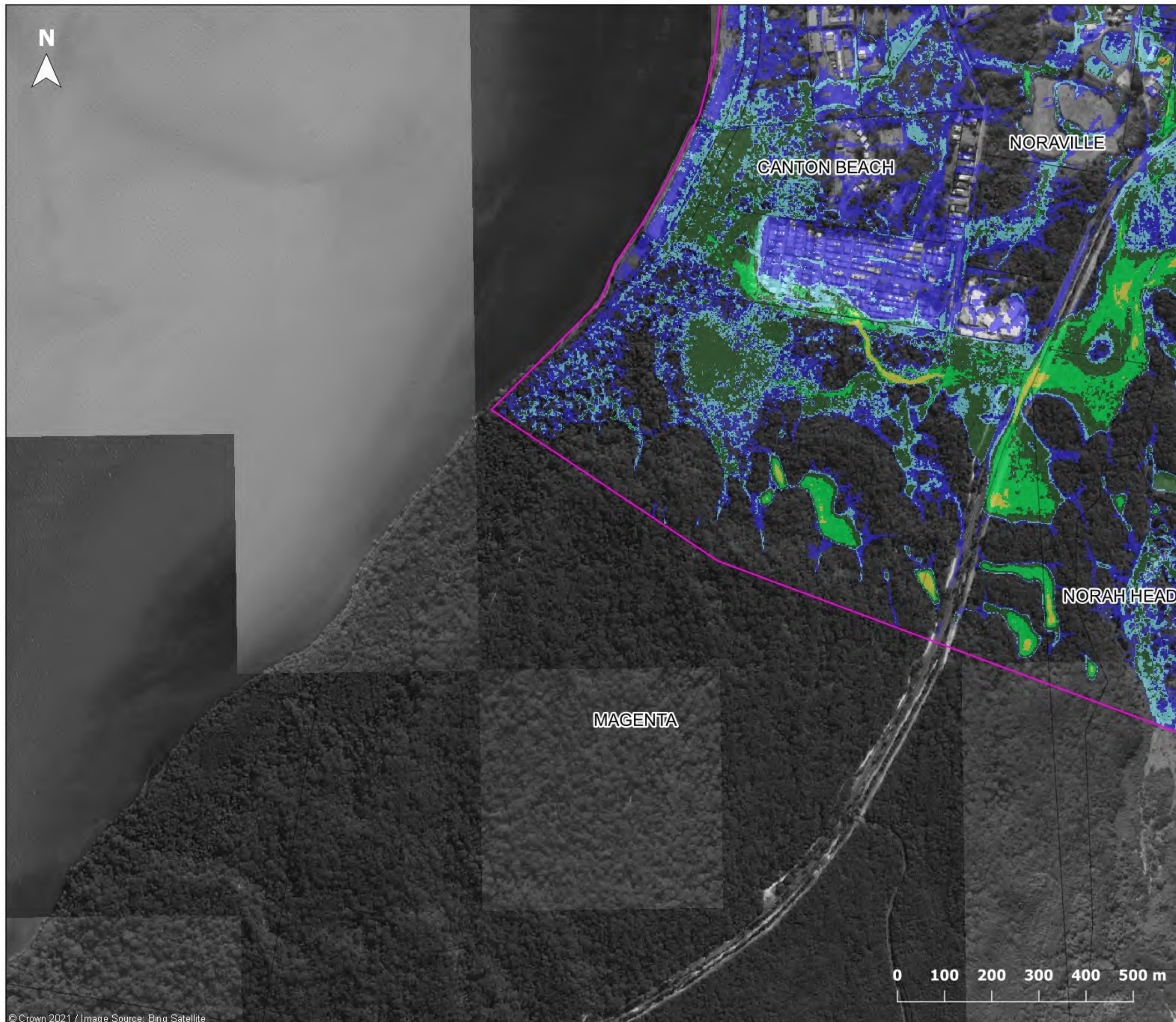


Figure D2.19

Probable Maximum Flood Life Hazard Categories

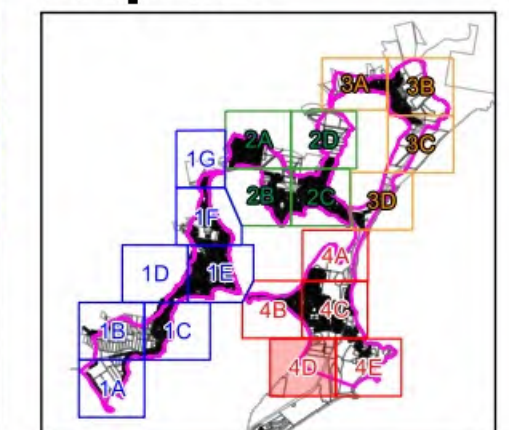
Legend

- Catchment area
- Cadastral

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 4D



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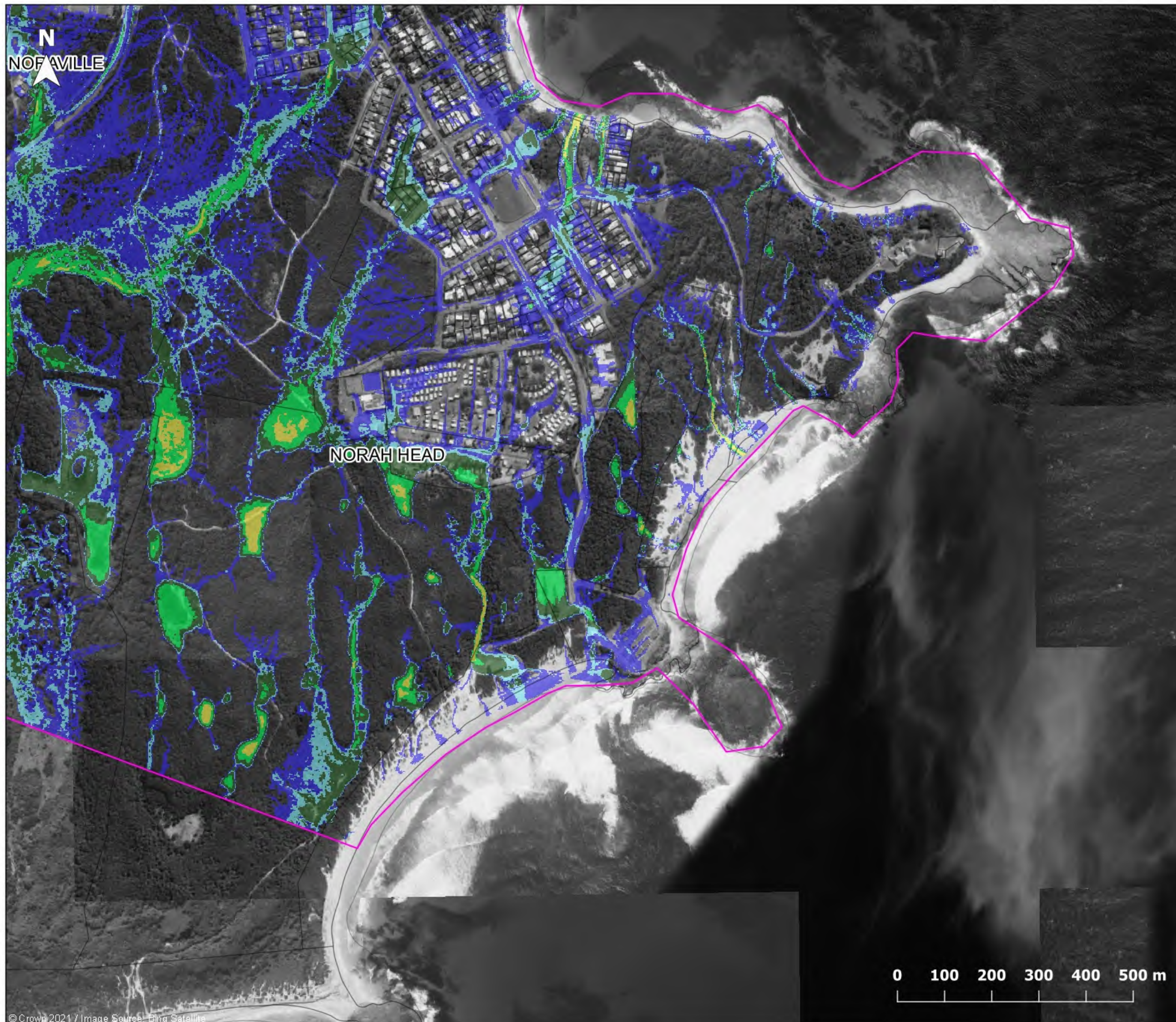


Figure D2.20

Probable Maximum Flood Life Hazard Categories

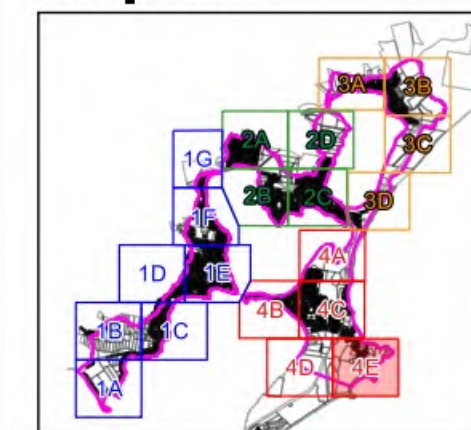
Legend

- Catchment area
- Cadastre

Hazard Categories

- H1
- H2
- H3
- H4
- H5
- H6

Map 4E



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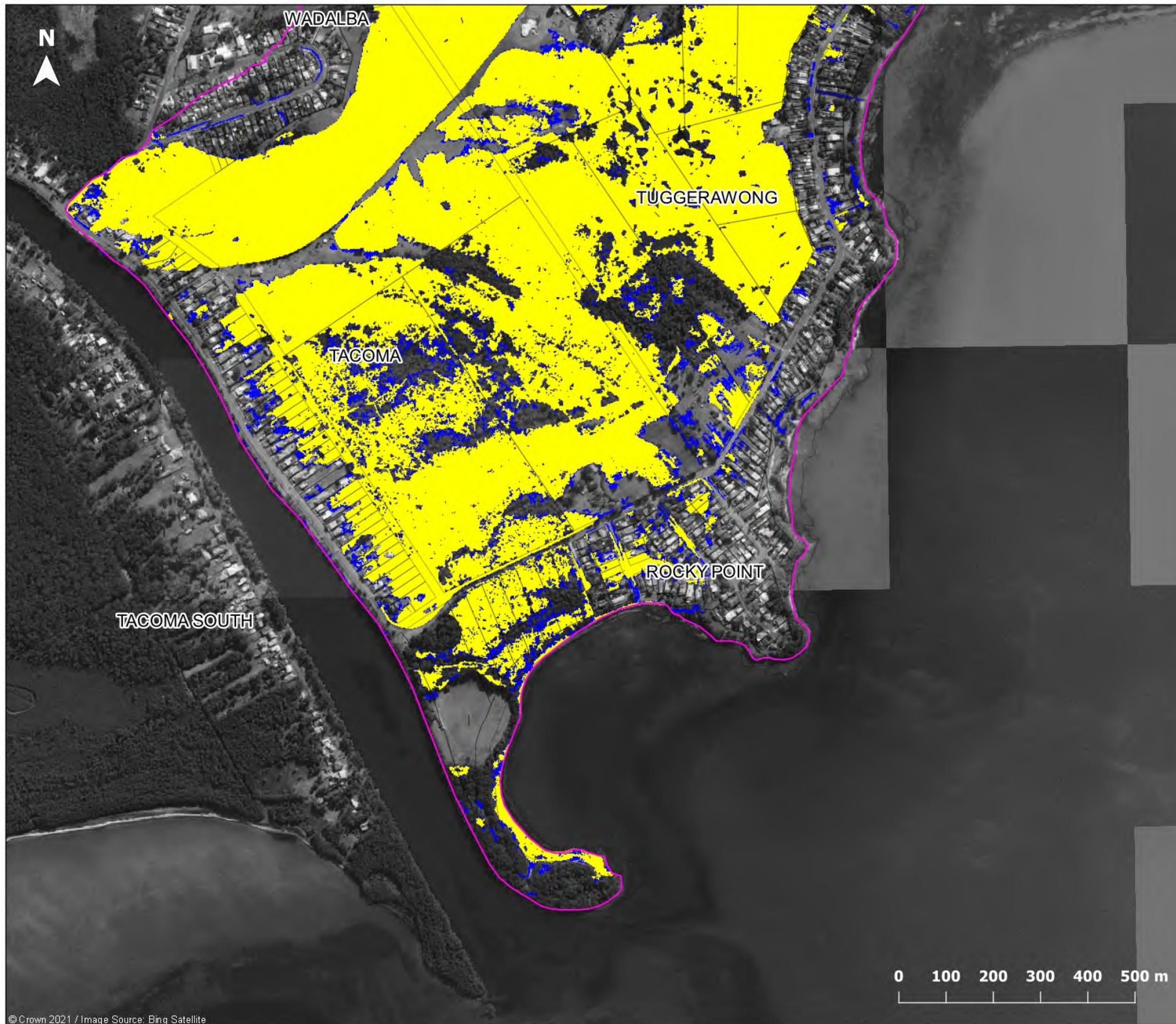


Figure D3.1

1% AEP Hydraulic Categories

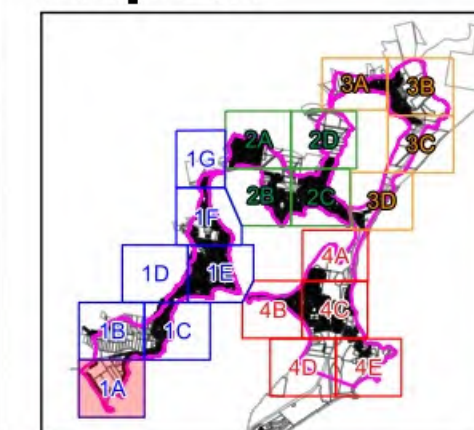
Legend

- Catchment area
- Cadastral

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 1A



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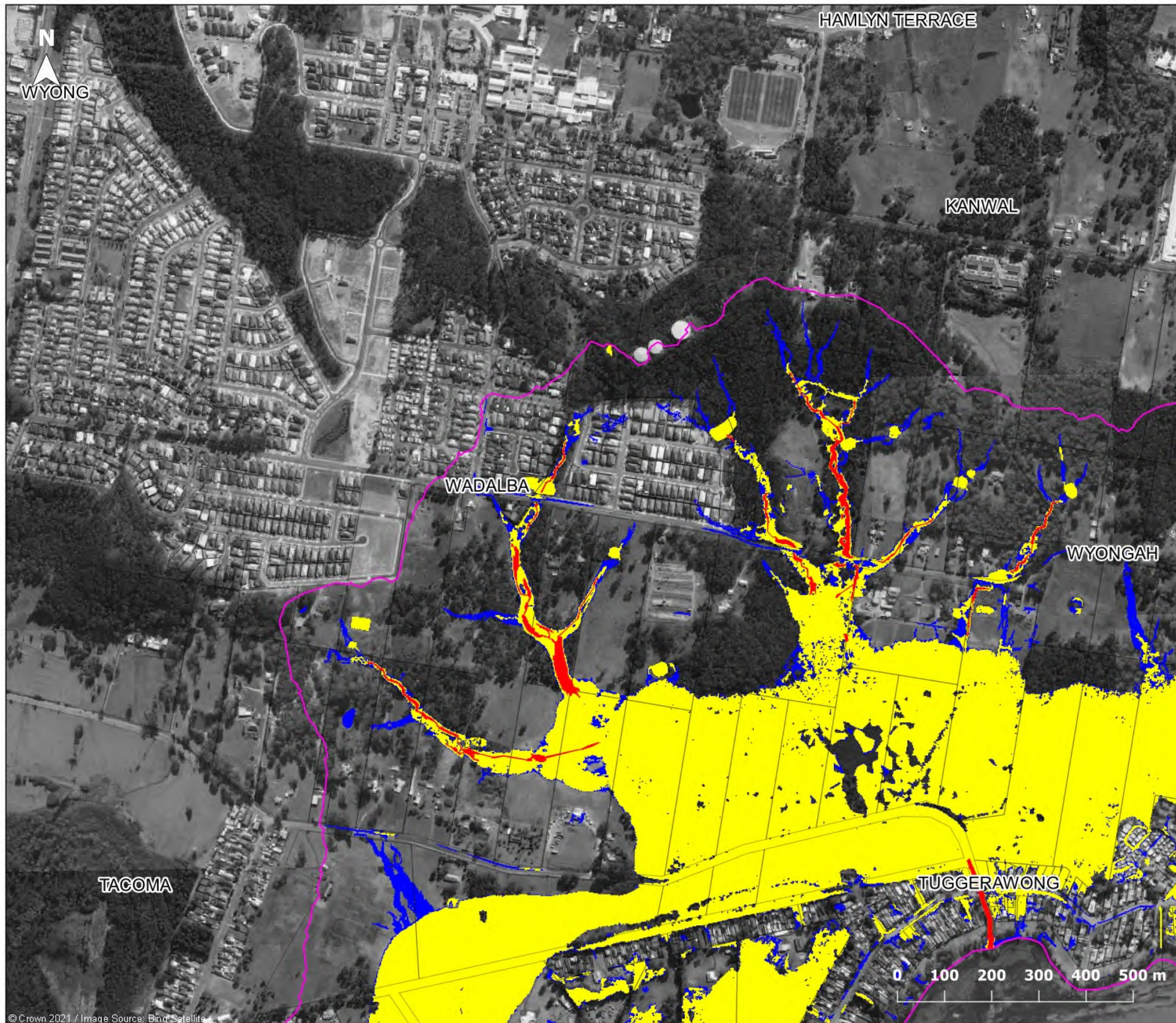


Figure D3.2

1% AEP Hydraulic Categories

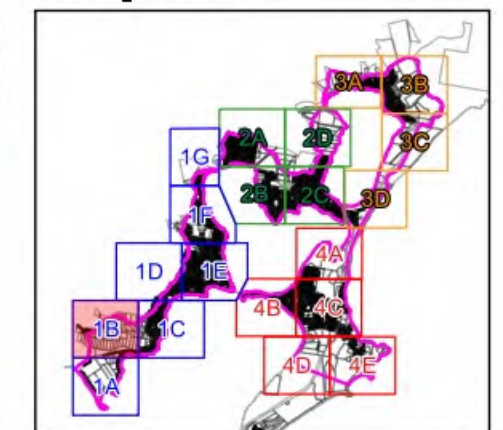
Legend

- Catchment area
- Cadastral

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 1B



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Figure D3.3

1% AEP Hydraulic Categories

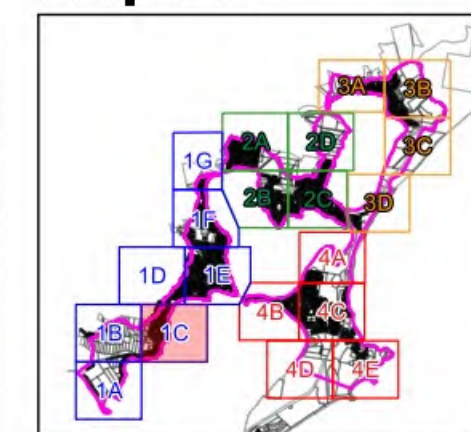
Legend

- Catchment area
- Cadastre

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 1C



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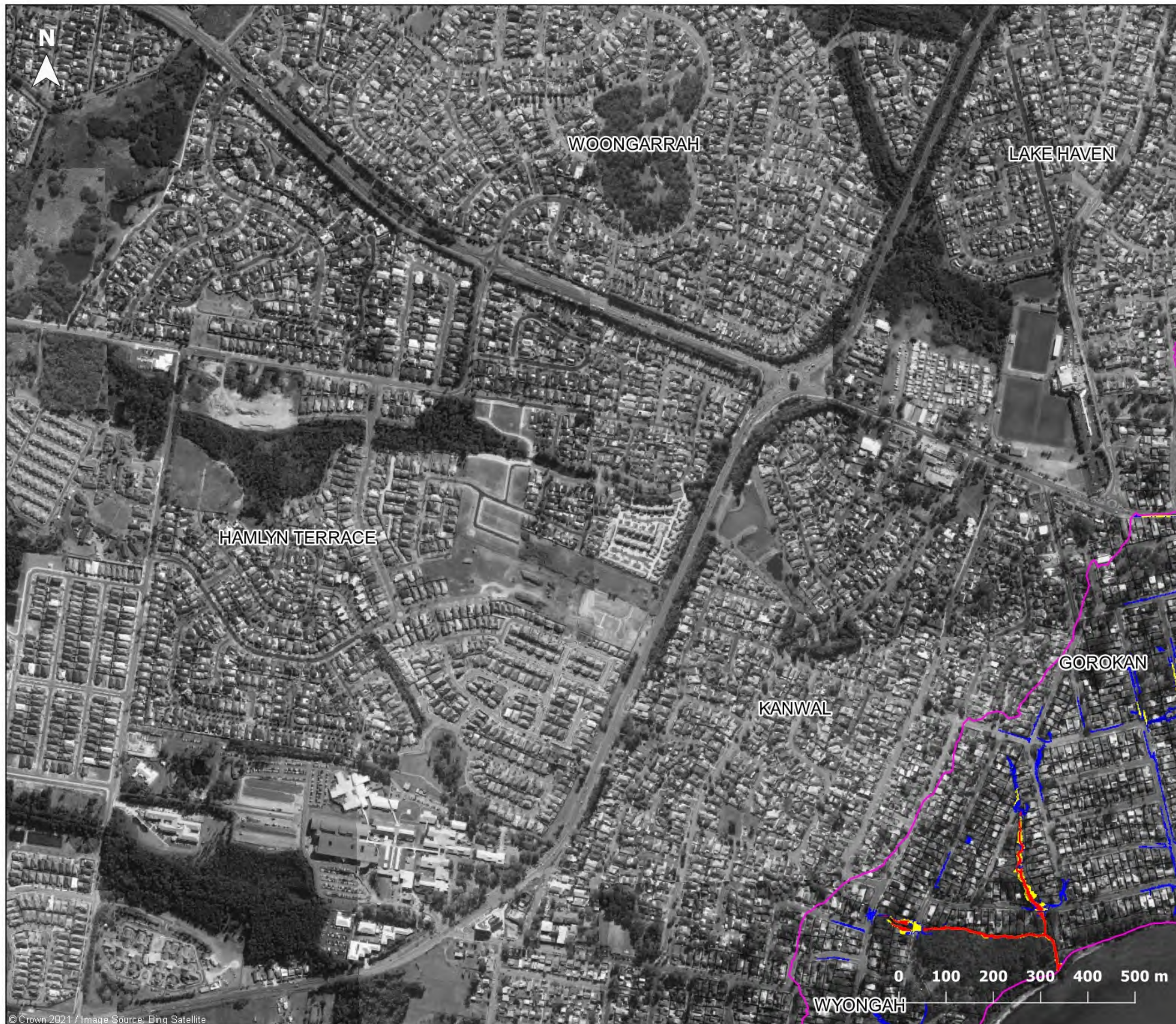


Figure D3.4

1% AEP Hydraulic Categories

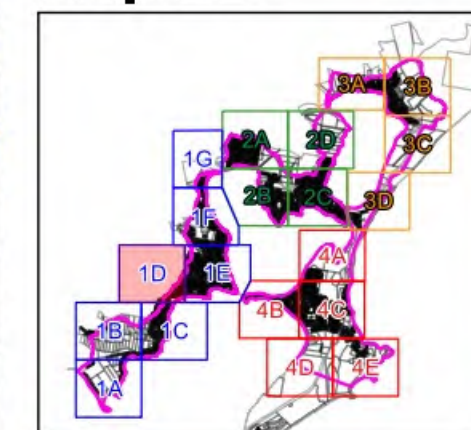
Legend

- Catchment area
- Cadastre

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 1D



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Figure D3.5

1% AEP Hydraulic Categories

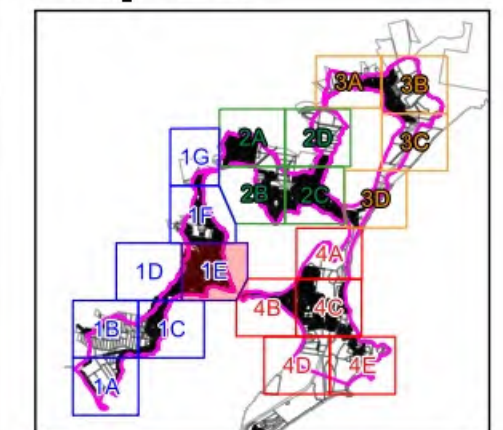
Legend

- Catchment area
- Cadastral

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 1E



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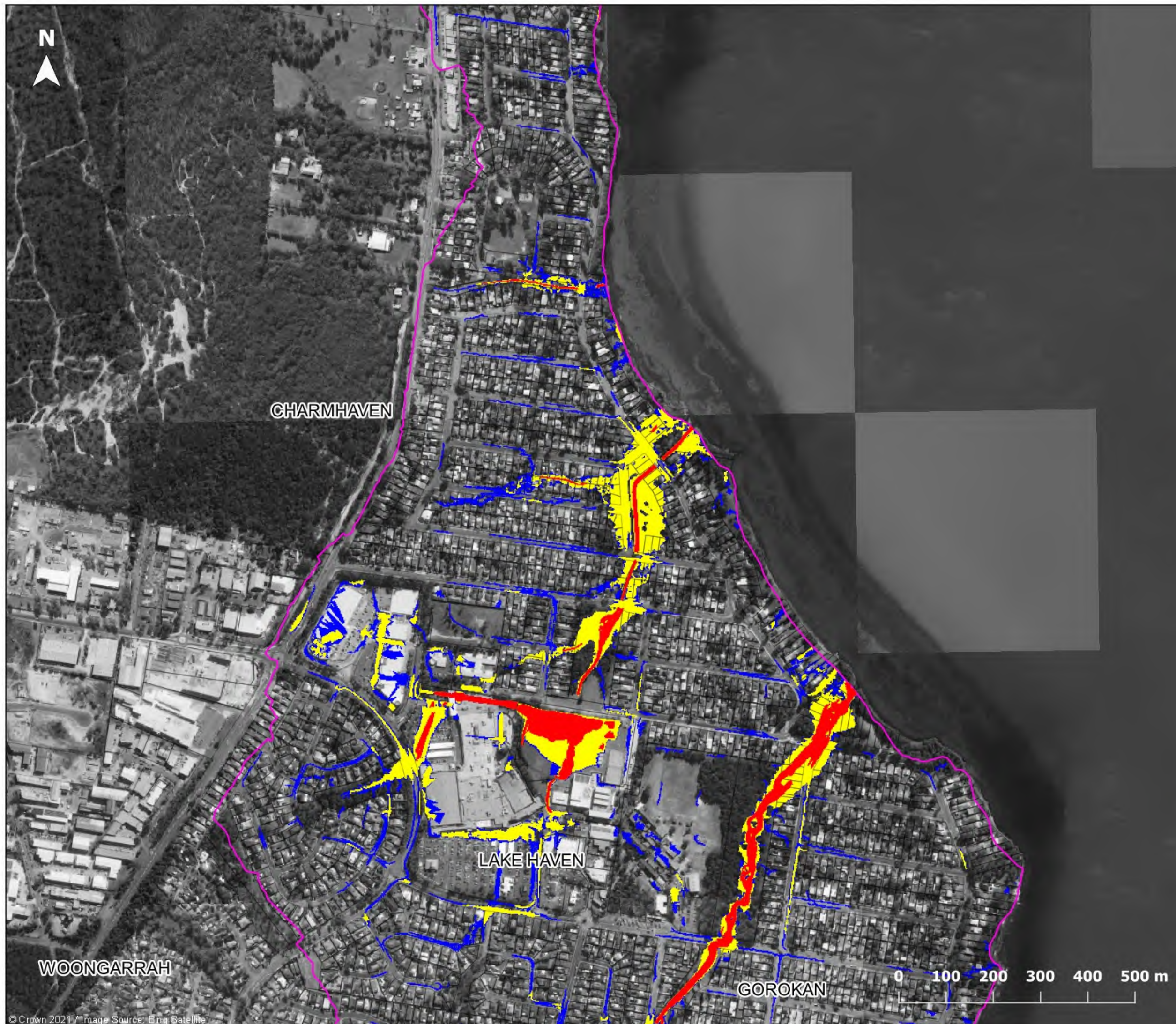


Figure D3.6

1% AEP Hydraulic Categories

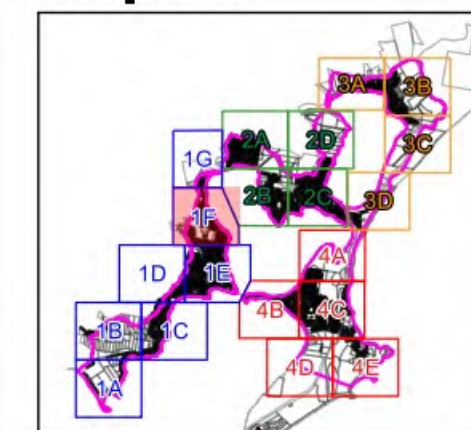
Legend

- Catchment area
- Cadastre

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 1F



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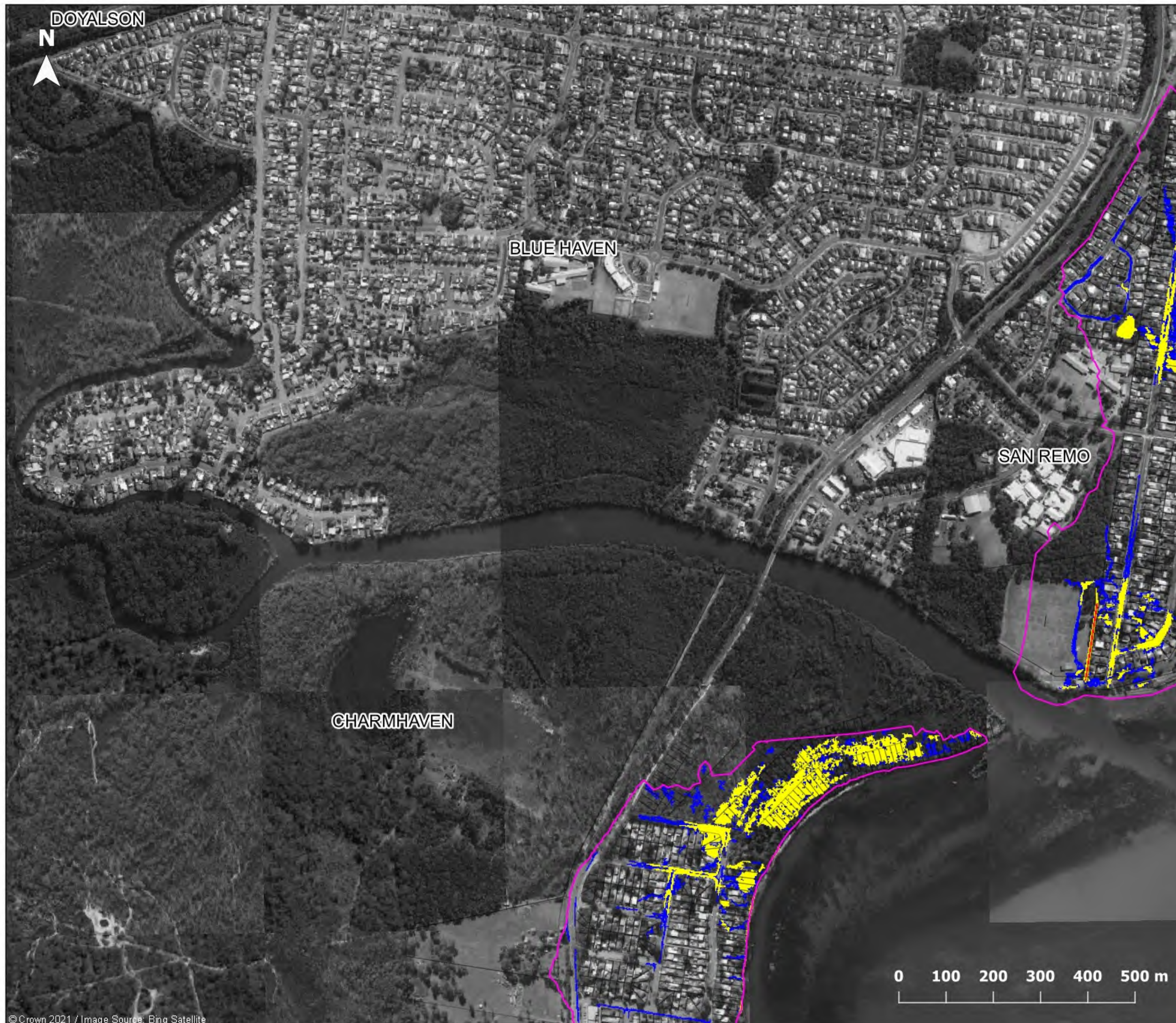


Figure D3.7

1% AEP Hydraulic Categories

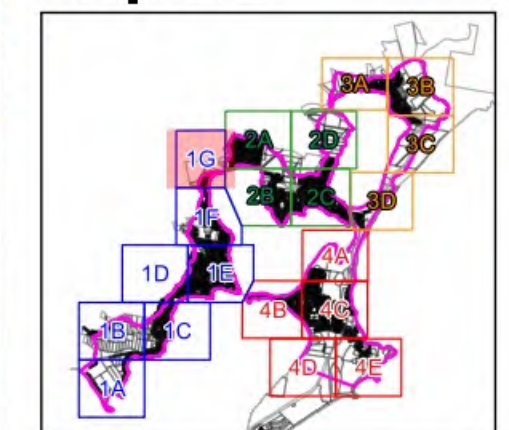
Legend

- Catchment area
- Cadastre

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 1G



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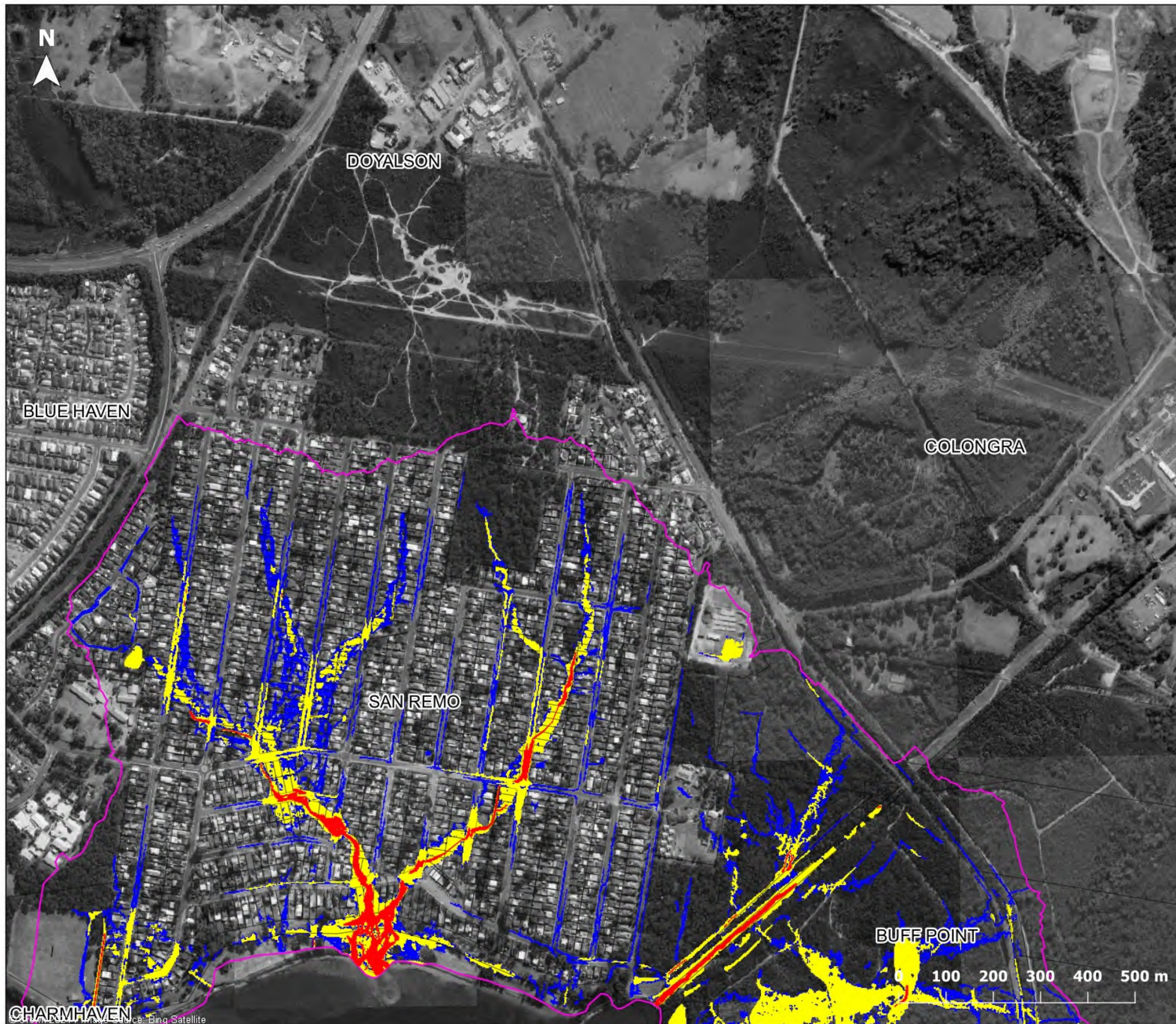




Figure D3.9

1% AEP Hydraulic Categories

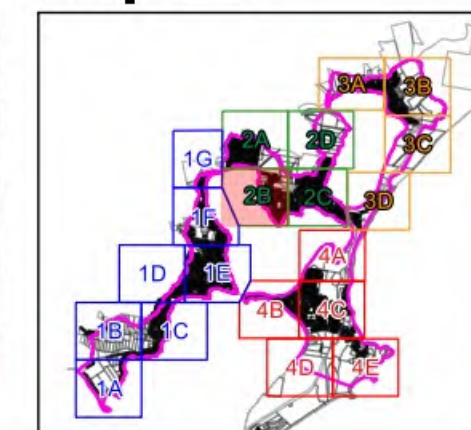
Legend

-  Catchment area
-  Cadastre

Hydraulic Category

-  Flood Fringe
-  Flood Storage
-  Floodway

Map 2B



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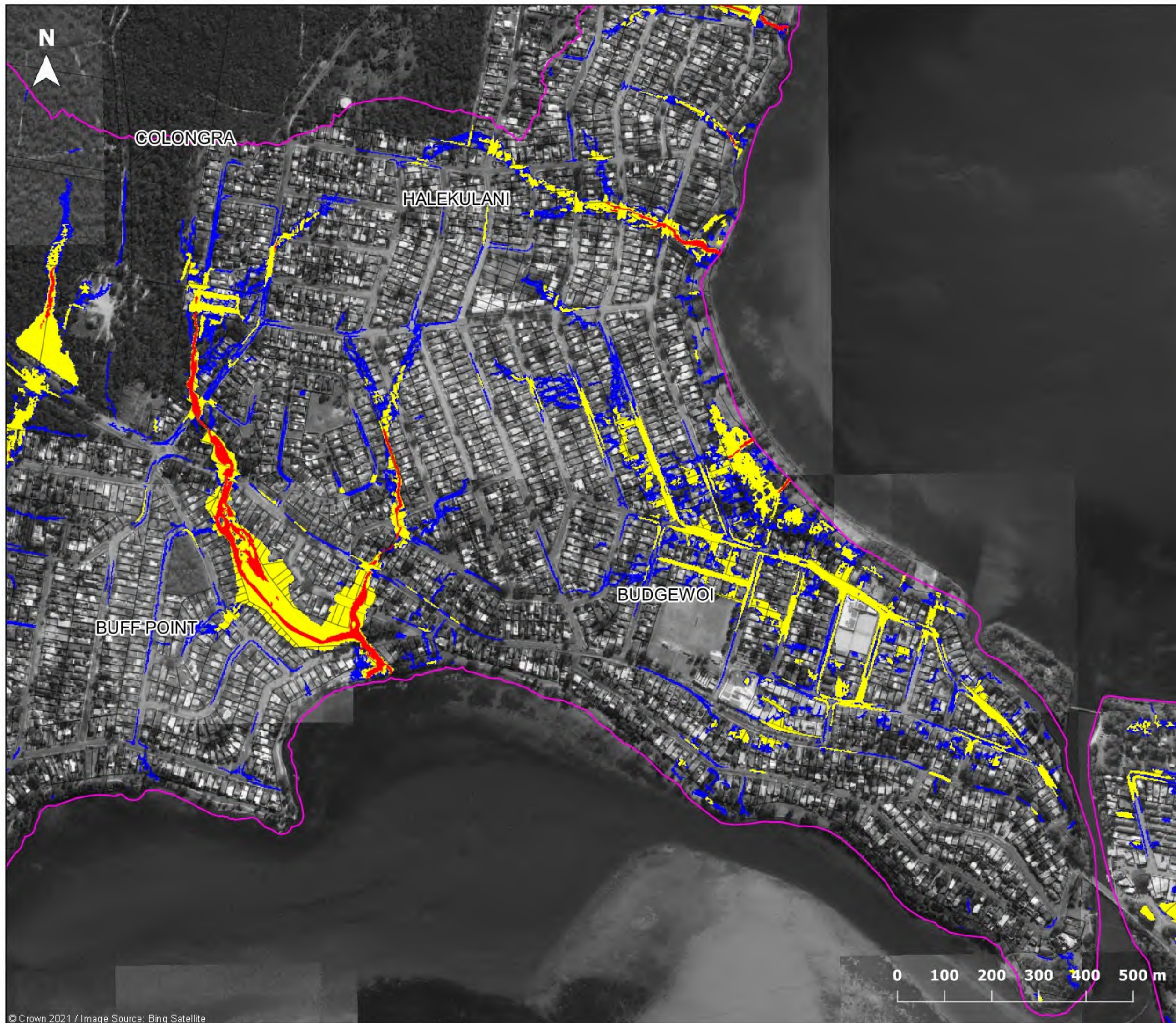


Figure D3.10

1% AEP Hydraulic Categories

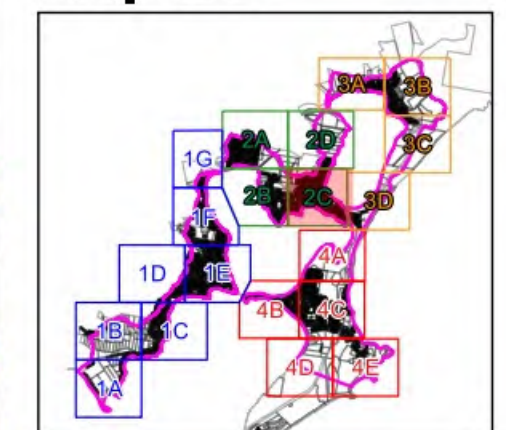
Legend

- Catchment area
- Cadastre

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 2C



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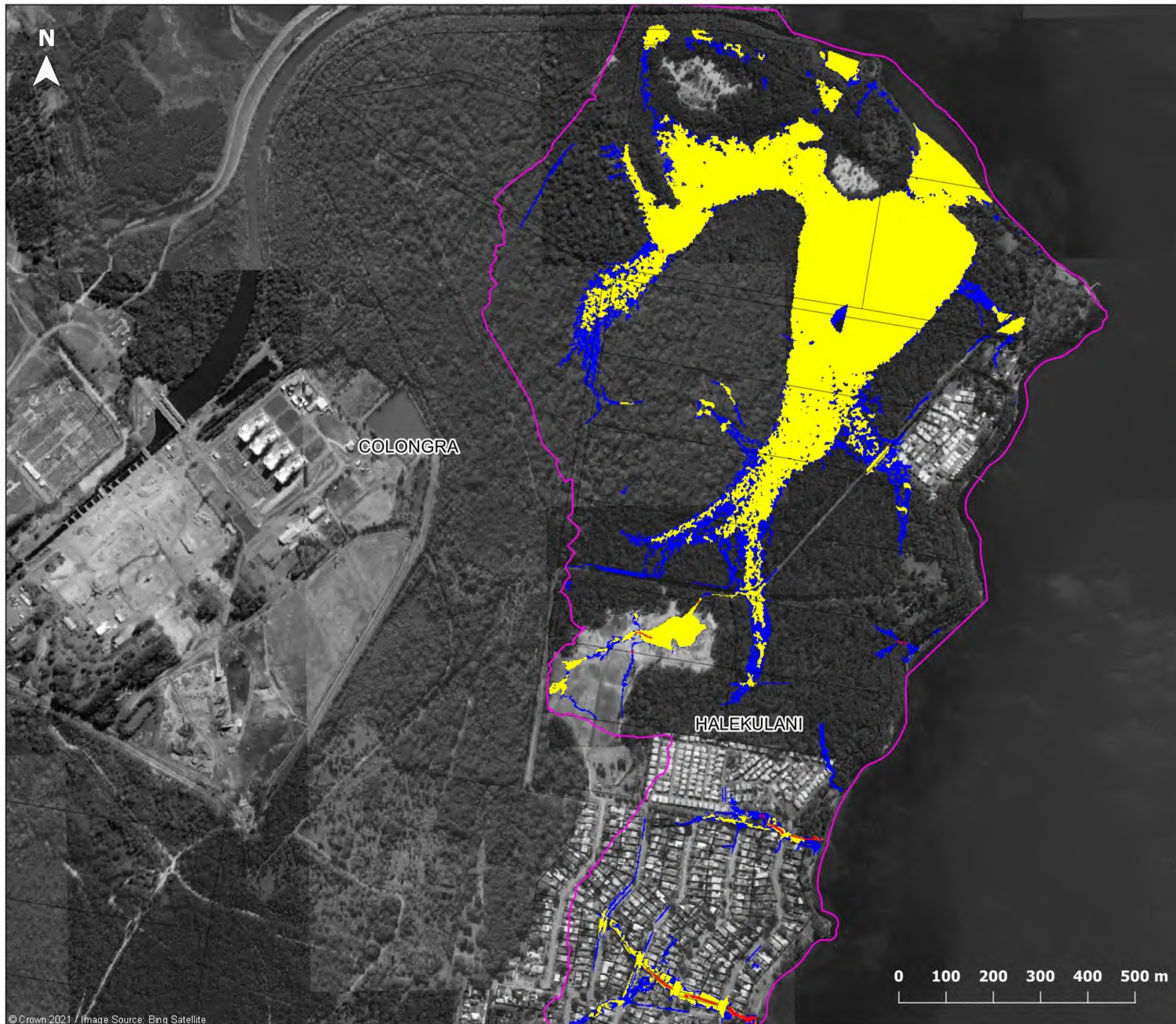


Figure D3.11

1% AEP Hydraulic Categories

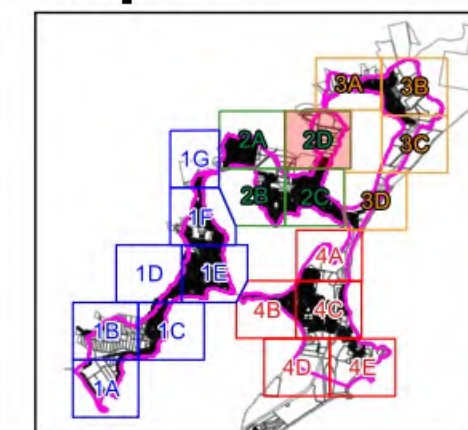
Legend

- Catchment area
- Cadastre

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 2D



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Figure D3.12

1% AEP Hydraulic Categories

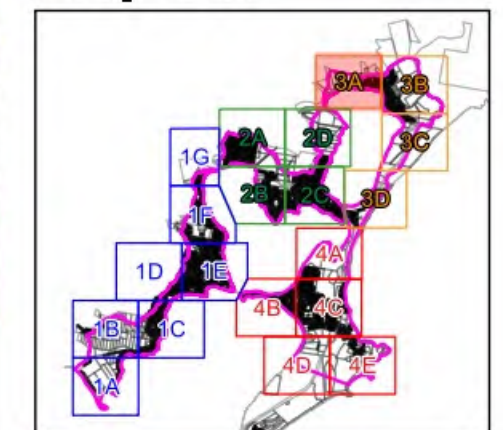
Legend

-  Catchment area
-  Cadastre

Hydraulic Category

-  Flood Fringe
-  Flood Storage
-  Floodway

Map 3A



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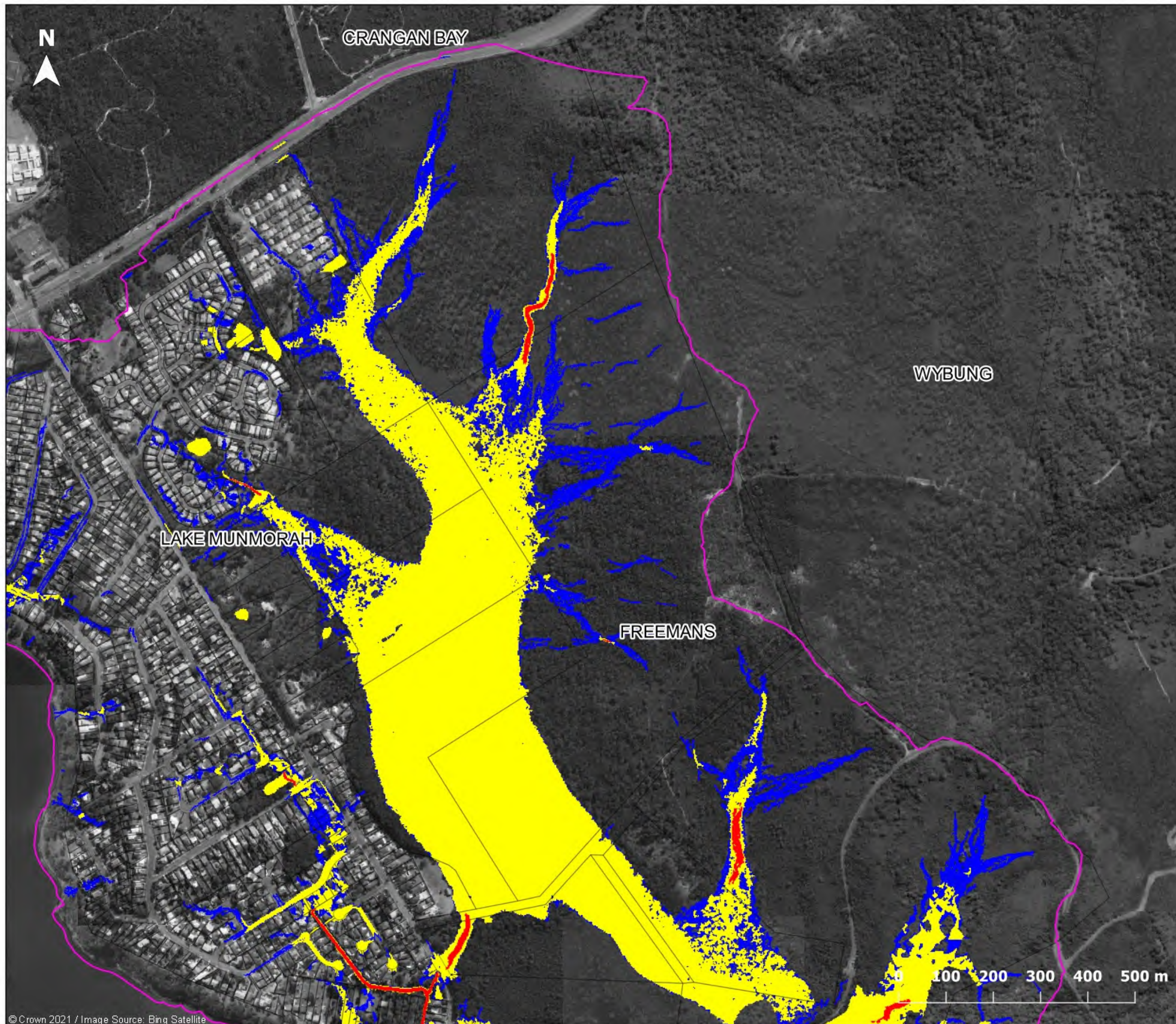


Figure D3.13

1% AEP Hydraulic Categories

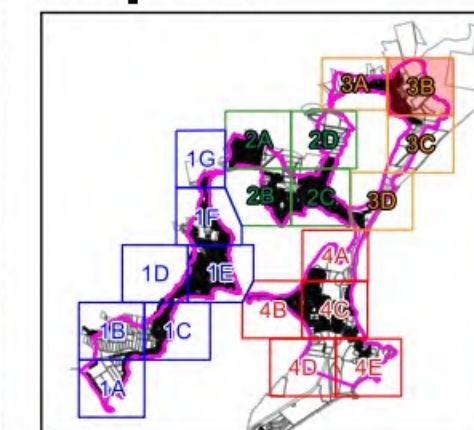
Legend

- Catchment area
- Cadastral

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 3B



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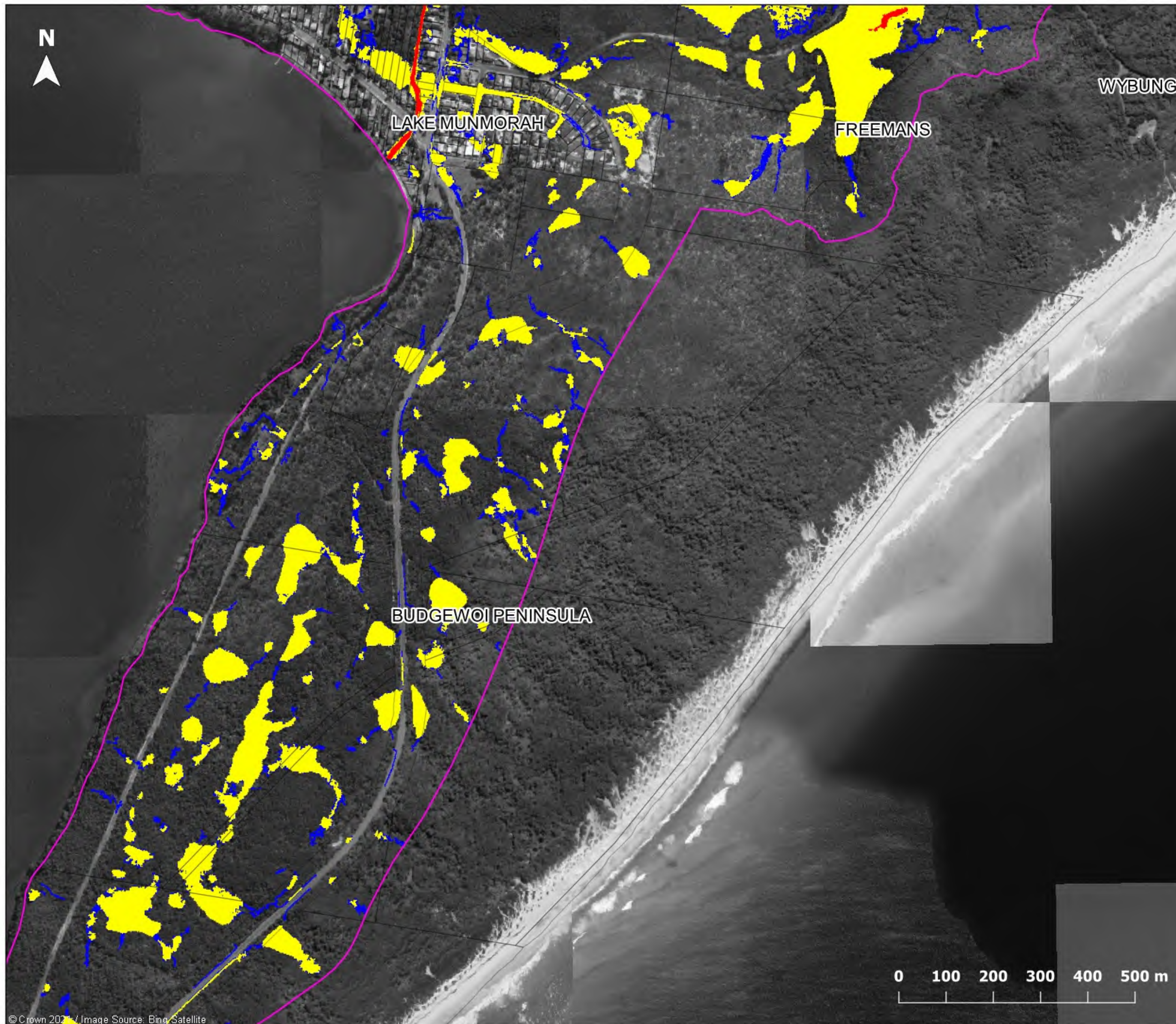


Figure D3.14

1% AEP Hydraulic Categories

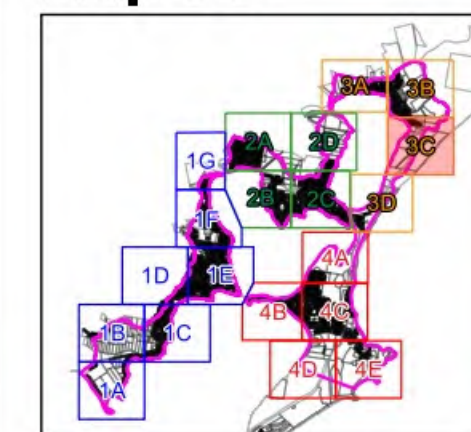
Legend

- Catchment area
- Cadastral

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 3C



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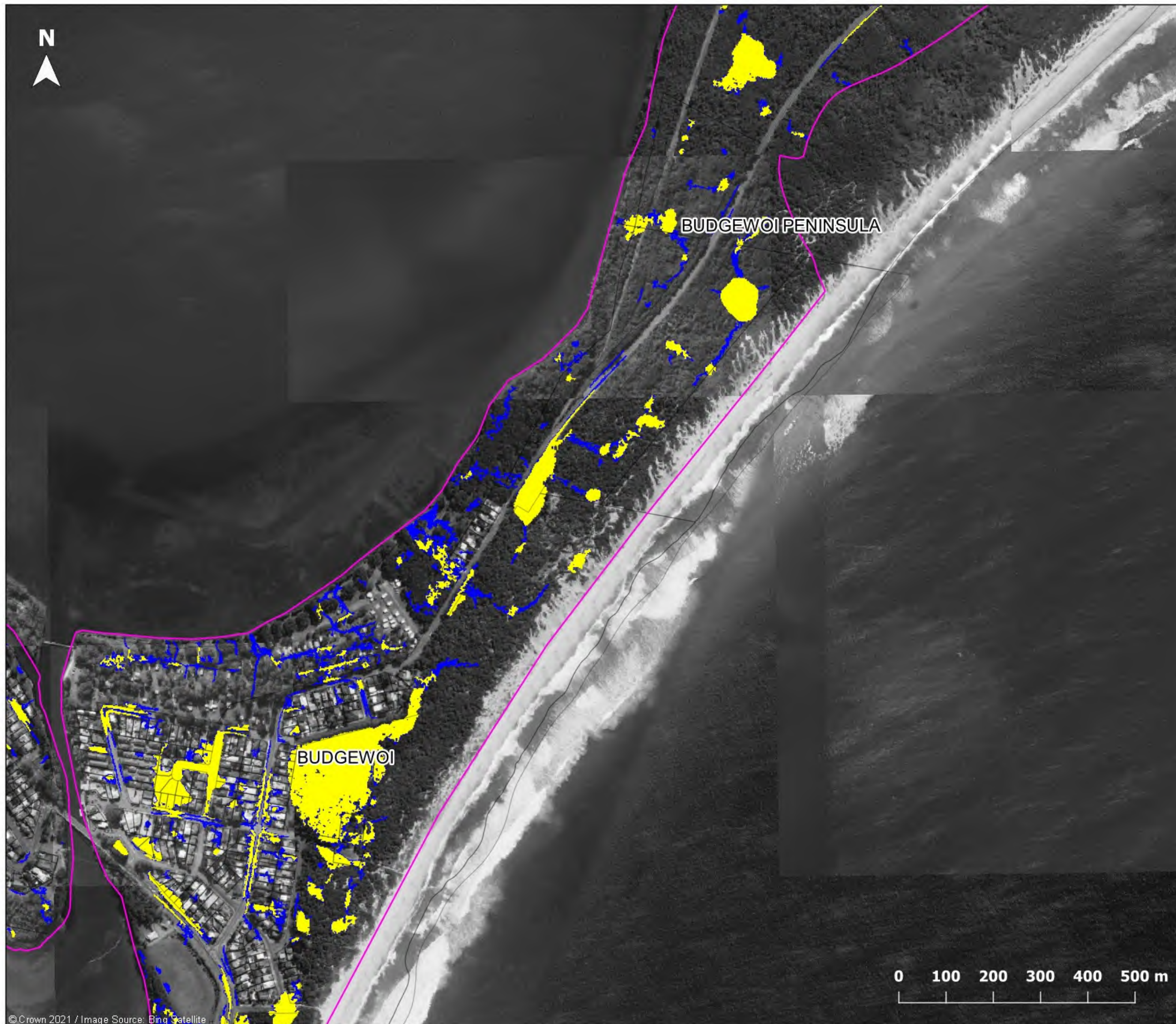


Figure D3.15

1% AEP Hydraulic Categories

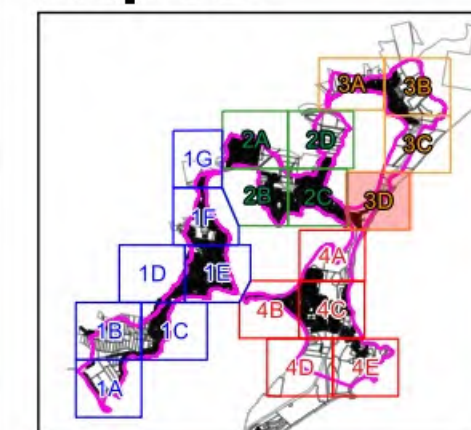
Legend

-  Catchment area
-  Cadastre

Hydraulic Category

-  Flood Fringe
-  Flood Storage
-  Floodway

Map 3D



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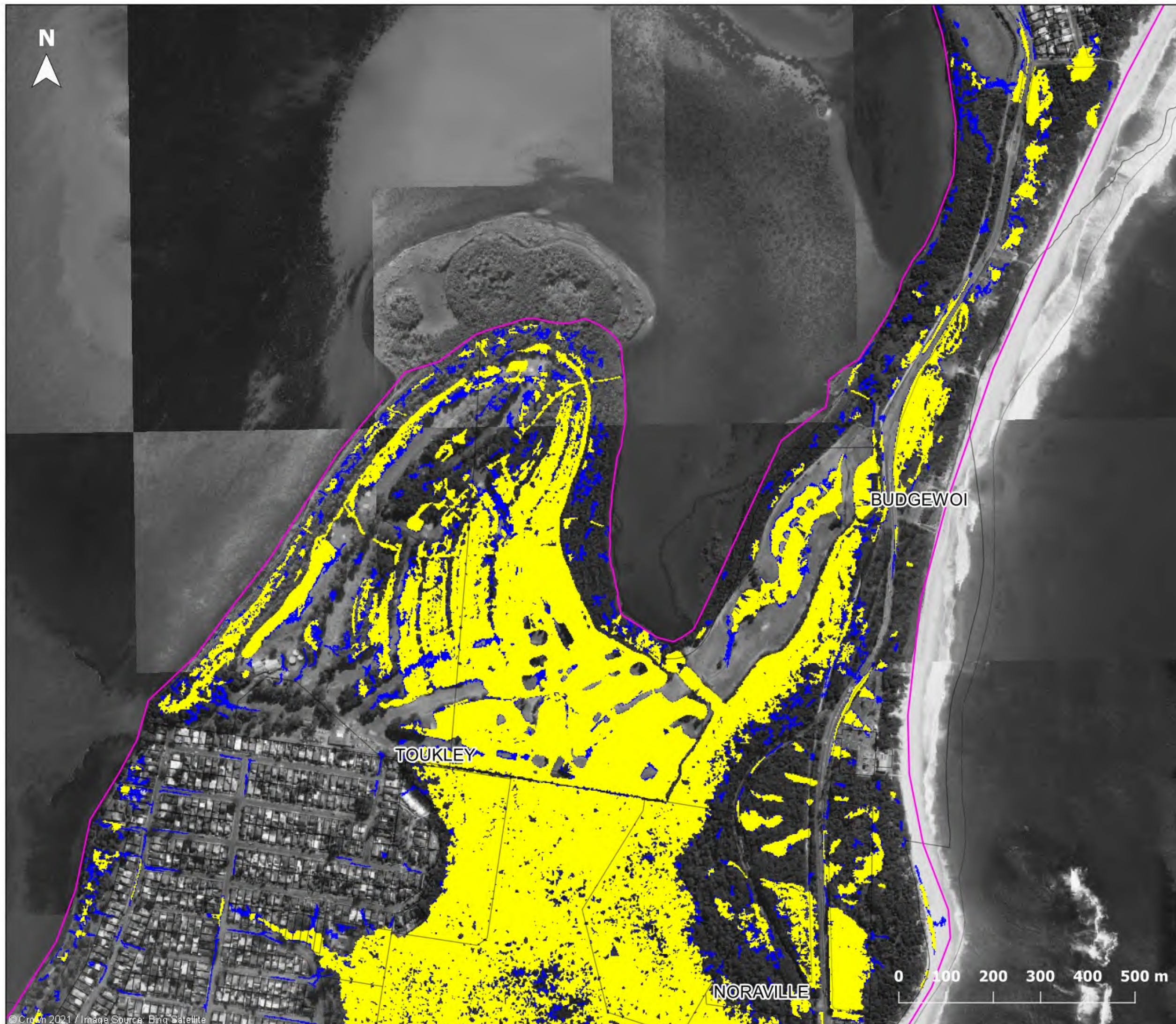


Figure D3.16

1% AEP Hydraulic Categories

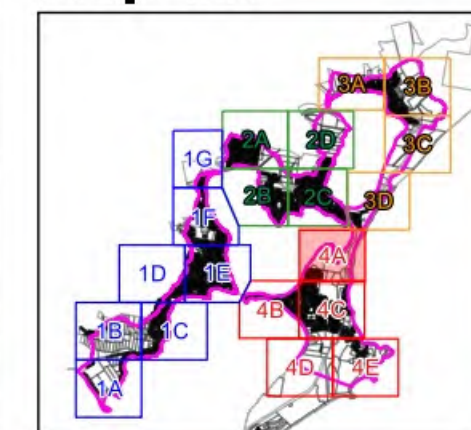
Legend

-  Catchment area
-  Cadastre

Hydraulic Category

-  Flood Fringe
-  Flood Storage
-  Floodway

Map 4A



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Figure D3.17

1% AEP Hydraulic Categories

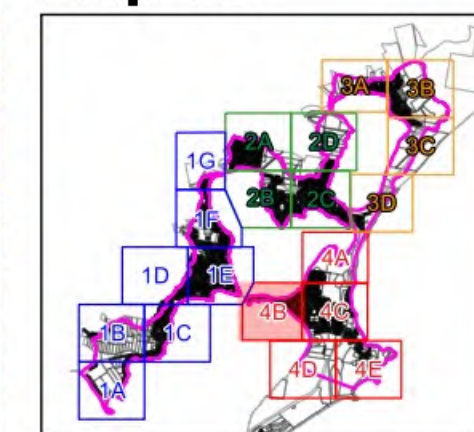
Legend

- Catchment area
- Cadastre

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 4B



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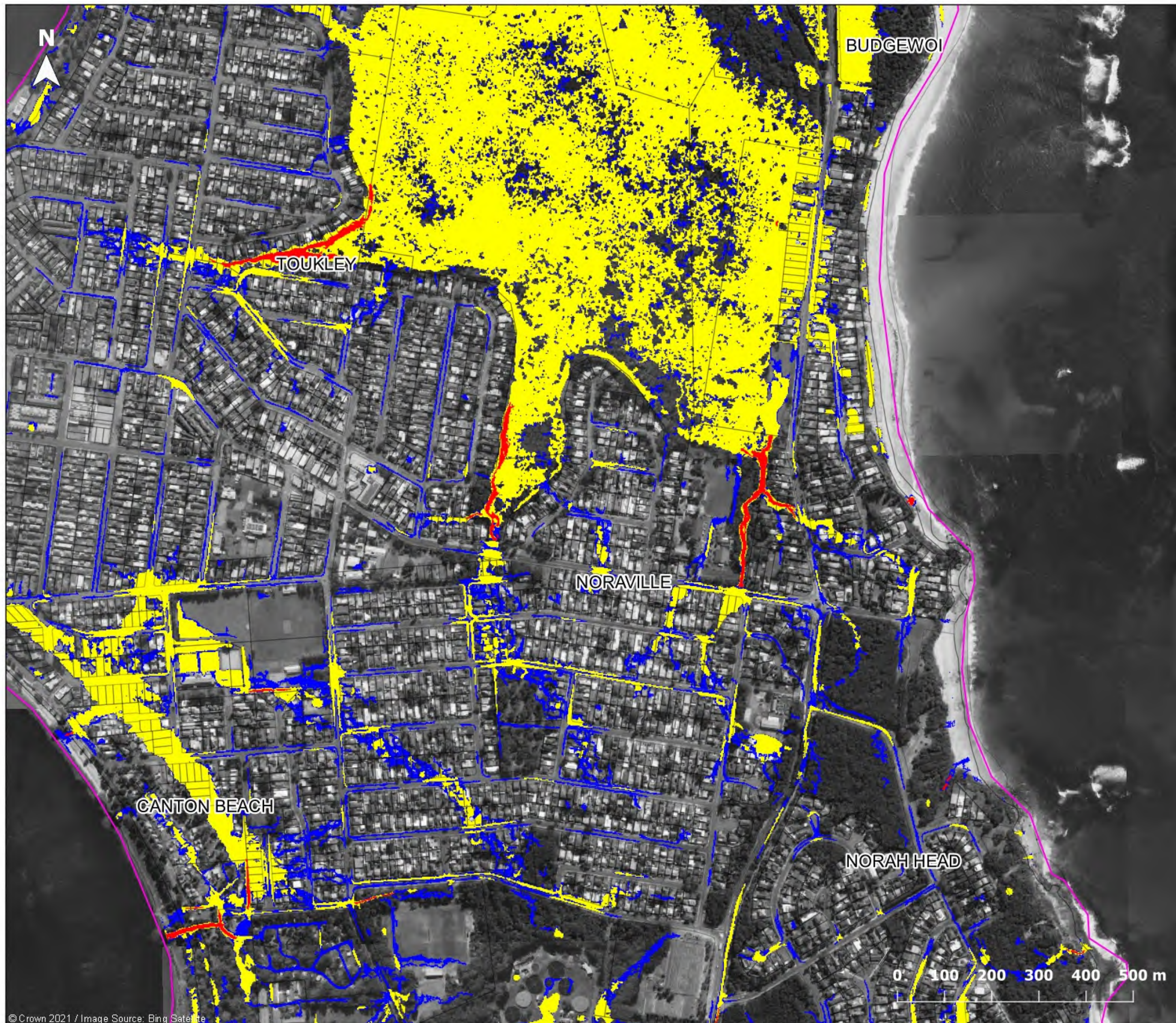


Figure D3.18

1% AEP Hydraulic Categories

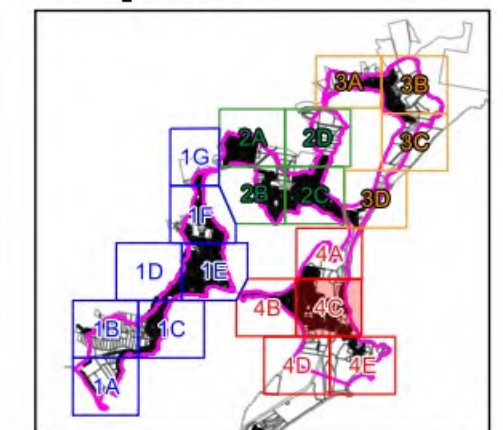
Legend

-  Catchment area
-  Cadastre

Hydraulic Category

-  Flood Fringe
-  Flood Storage
-  Floodway

Map 4C



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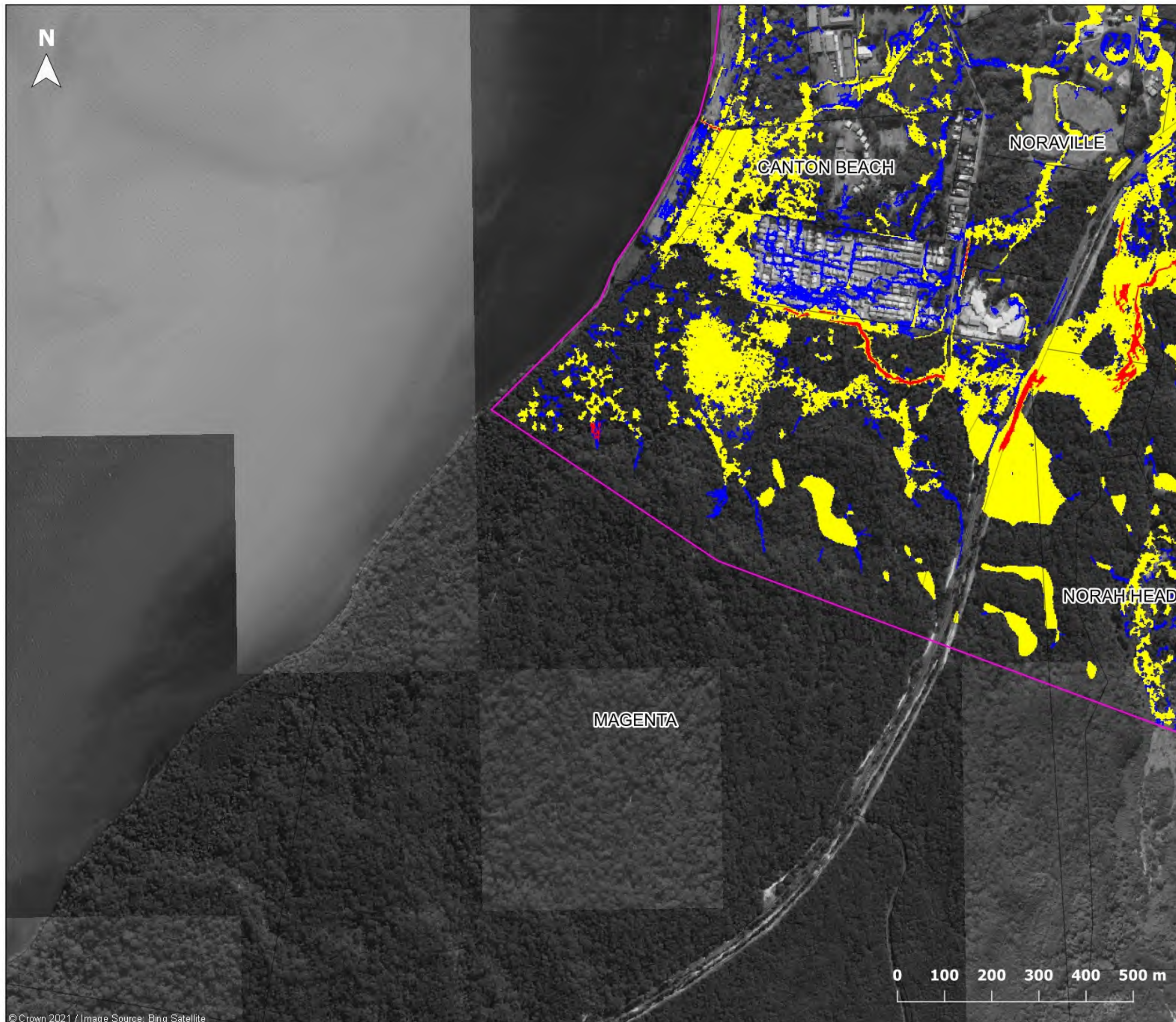


Figure D3.19

1% AEP Hydraulic Categories

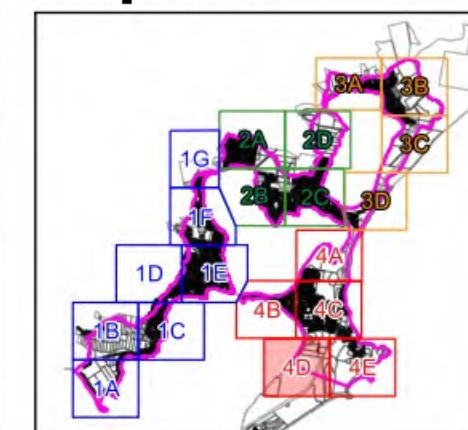
Legend

-  Catchment area
-  Cadastre

Hydraulic Category

-  Flood Fringe
-  Flood Storage
-  Floodway

Map 4D



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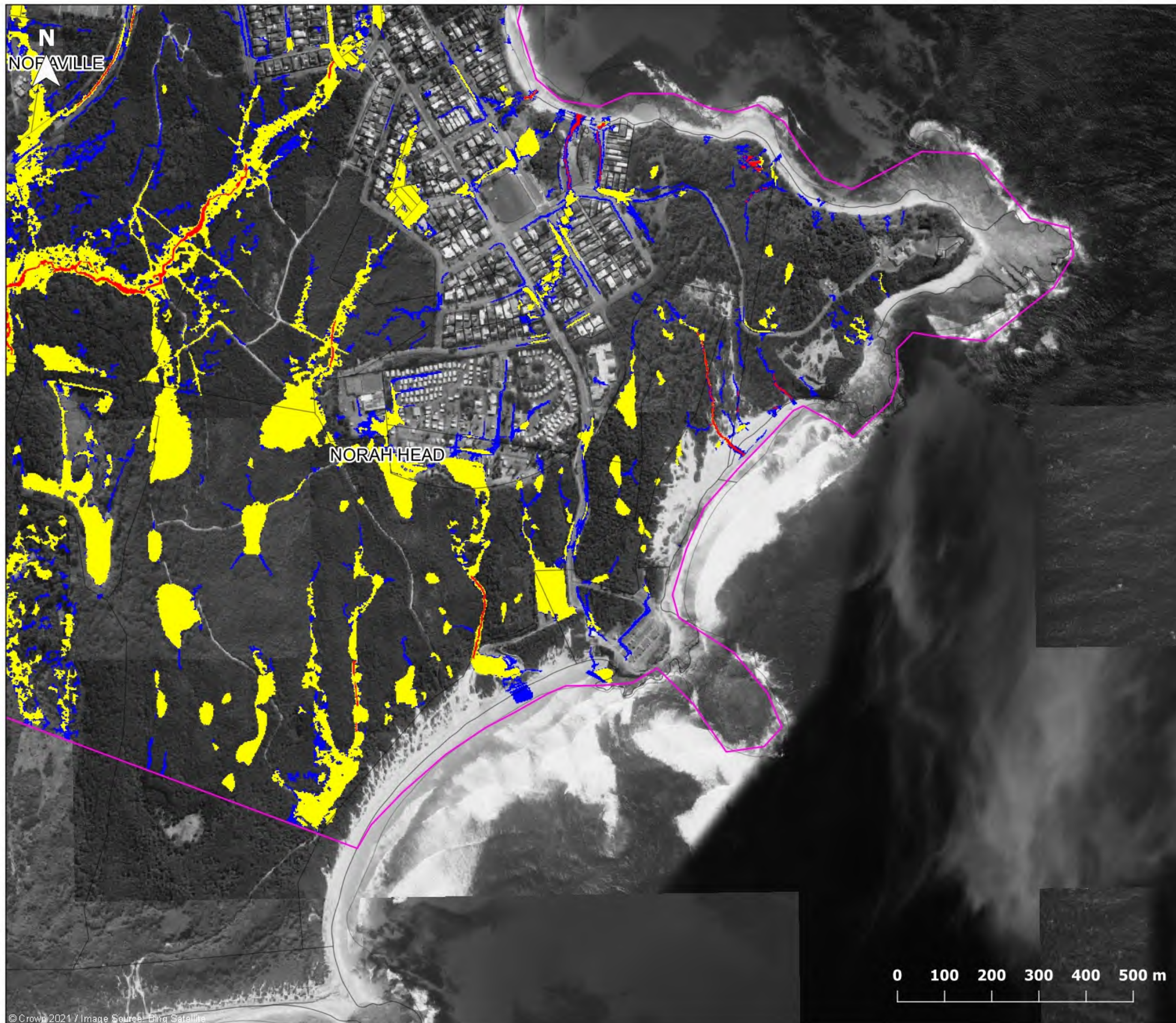


Figure D3.20

1% AEP Hydraulic Categories

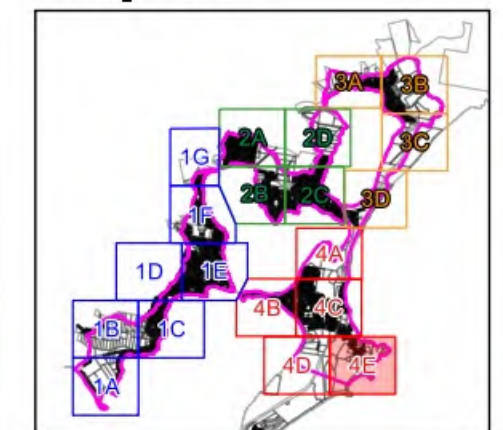
Legend

-  Catchment area
-  Cadastre

Hydraulic Category

-  Flood Fringe
-  Flood Storage
-  Floodway

Map 4E



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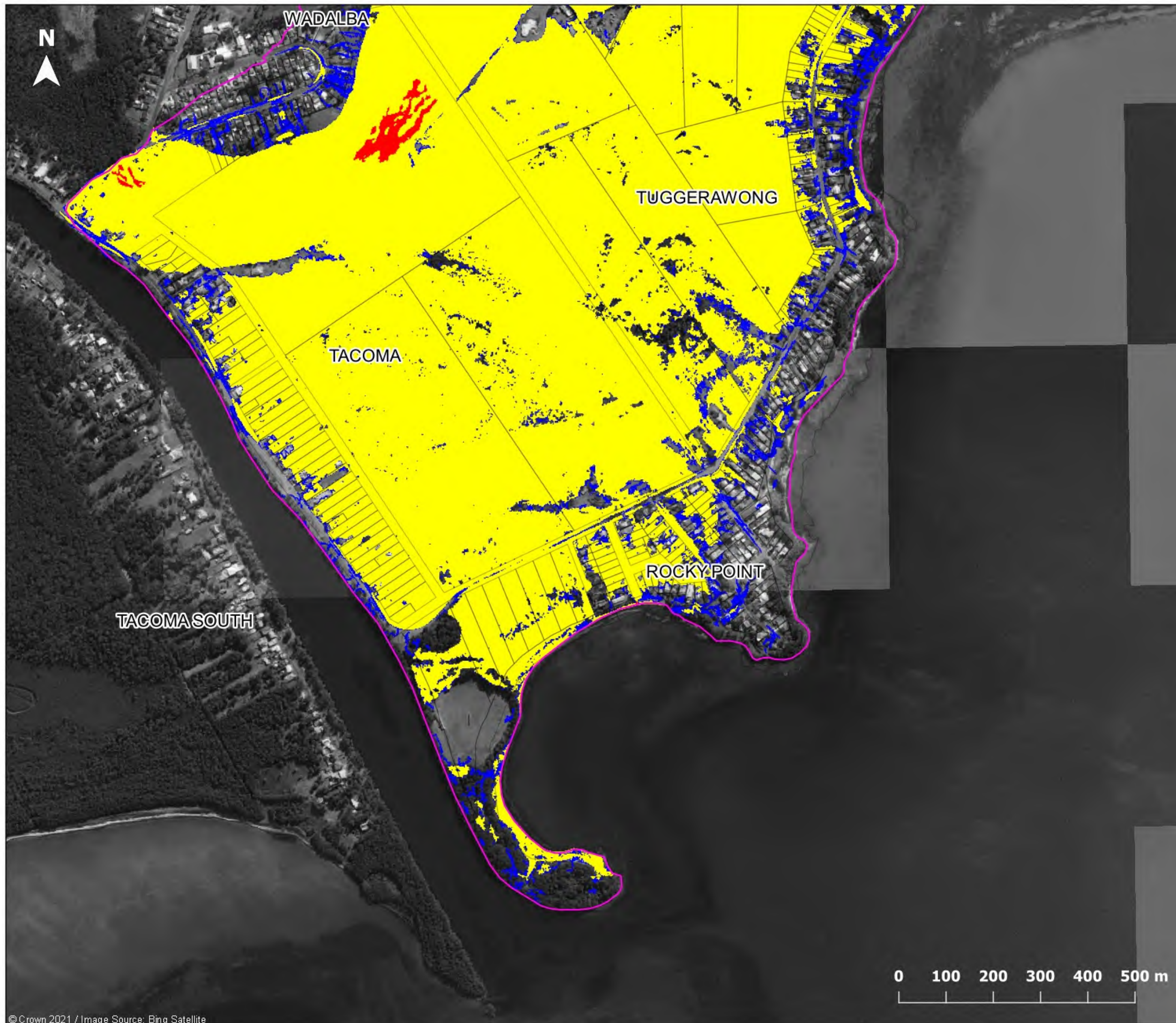
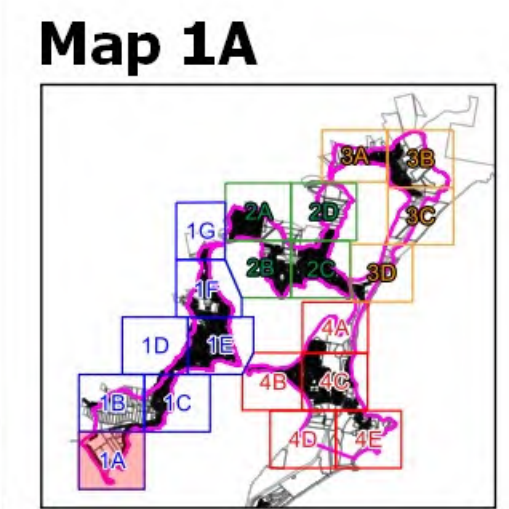


Figure D4.1

Probable Maximum Flood Hydraulic Categories

- Legend**
- Catchment area
 - Cadastral
- Hydraulic Category**
- Flood Fringe
 - Flood Storage
 - Floodway



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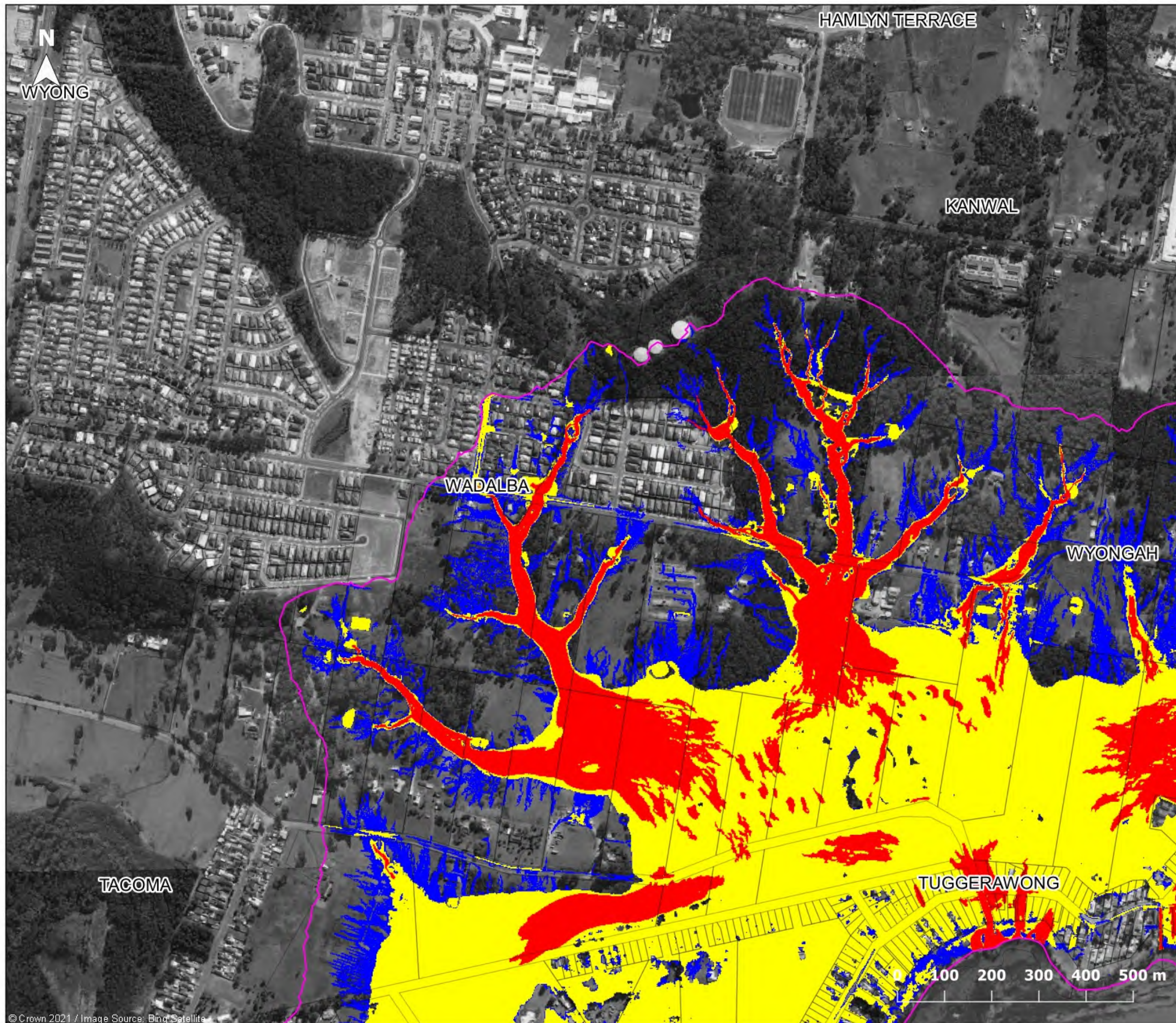


Figure D4.2

Probable Maximum Flood Hydraulic Categories

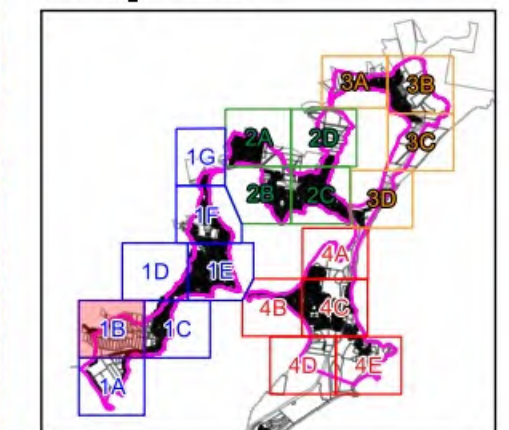
Legend

- Catchment area
- Cadastral

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 1B

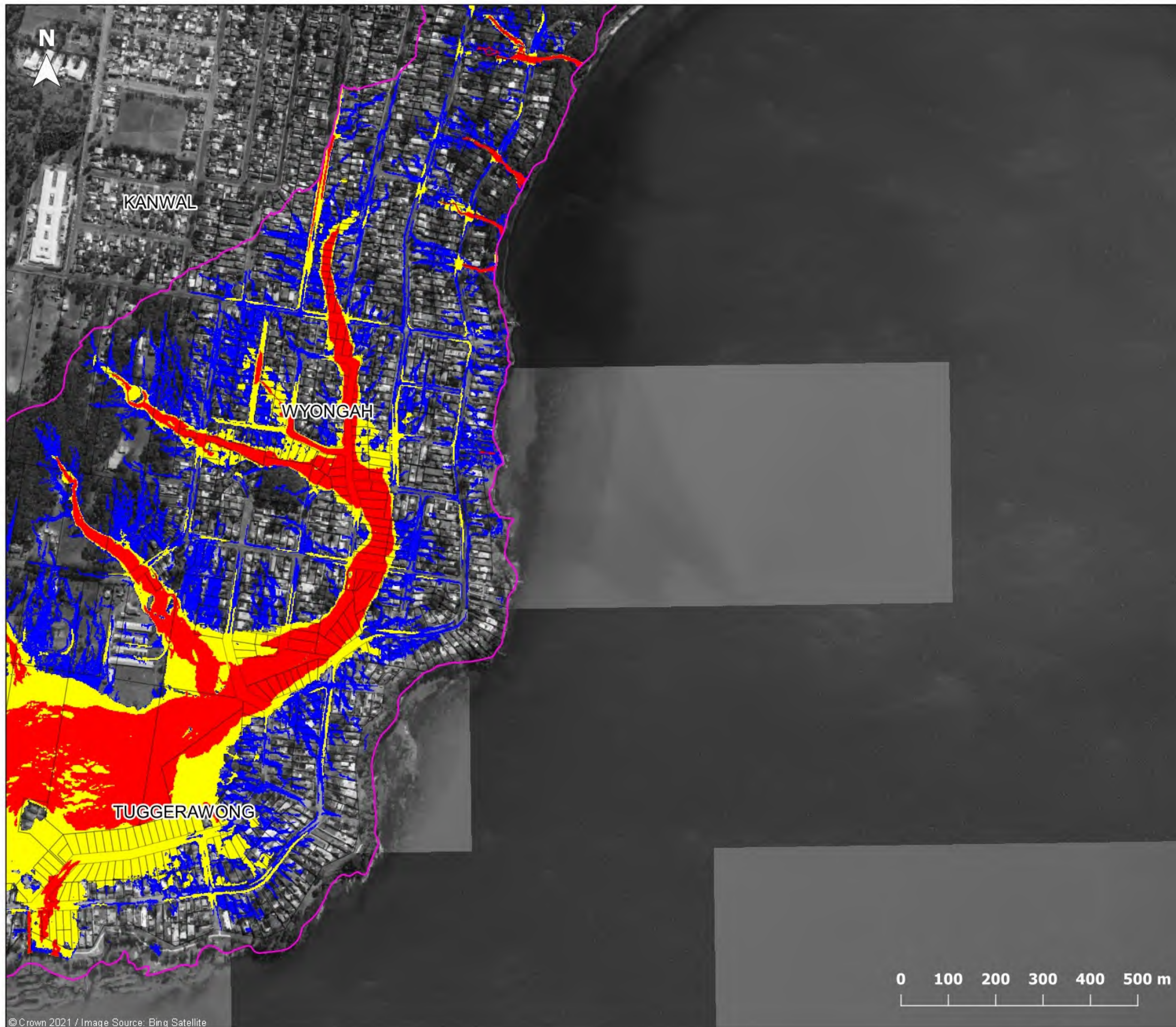


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Figure D4.3

Probable Maximum Flood Hydraulic Categories

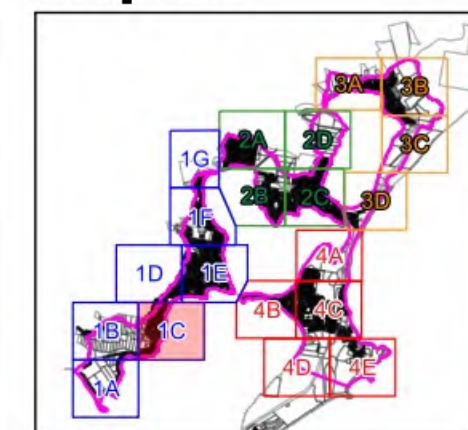
Legend

-  Catchment area
-  Cadastre

Hydraulic Category

-  Flood Fringe
-  Flood Storage
-  Floodway

Map 1C



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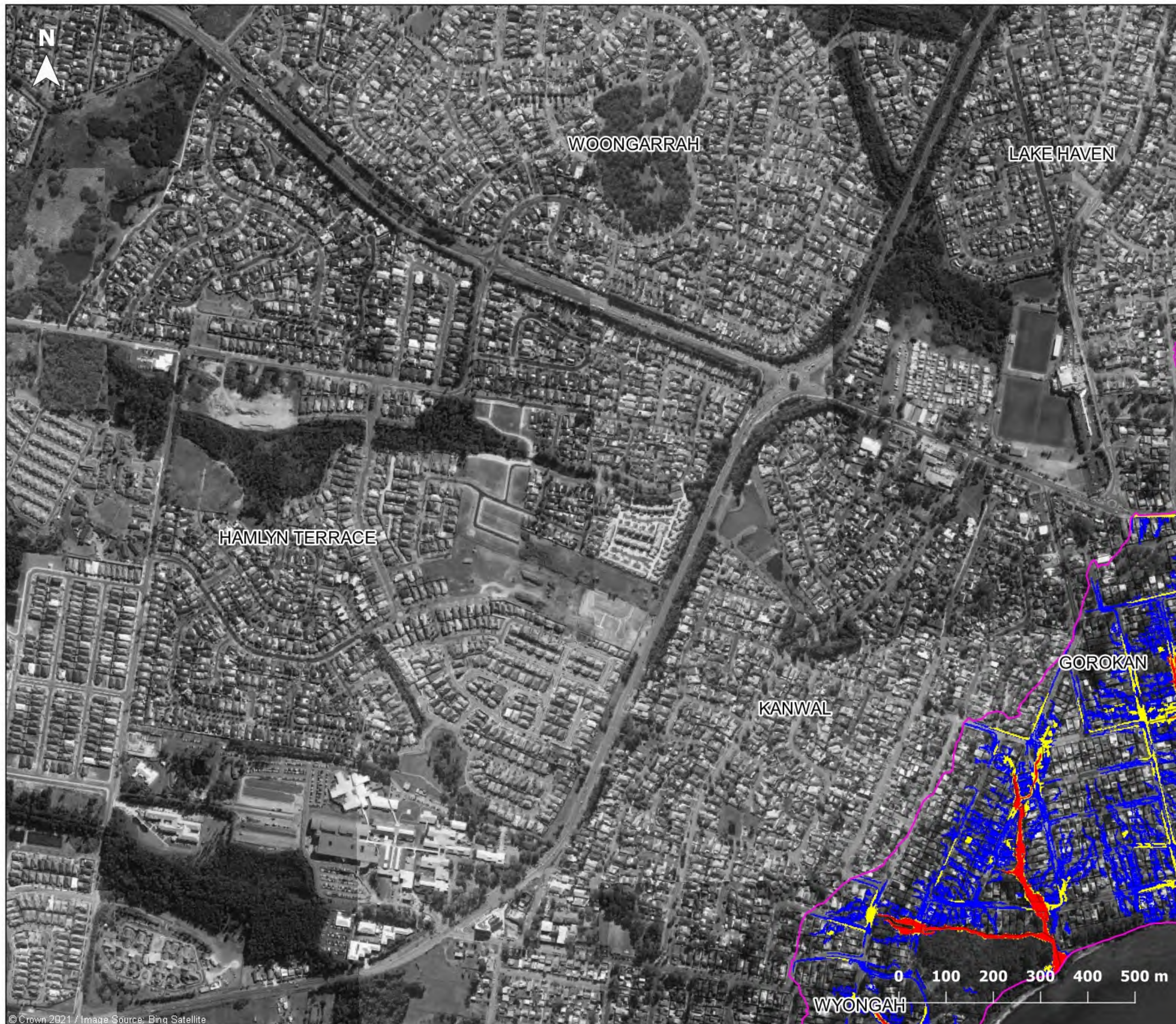


Figure D4.4

Probable Maximum Flood Hydraulic Categories

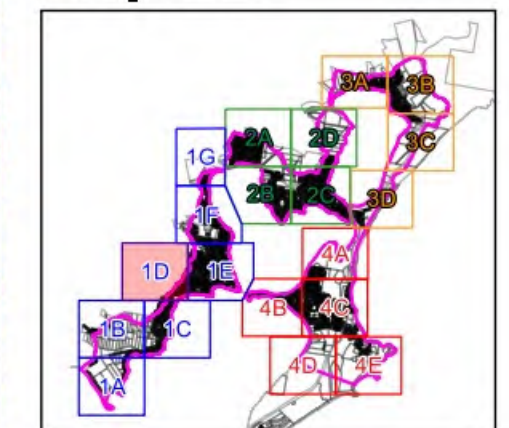
Legend

-  Catchment area
-  Cadastre

Hydraulic Category

-  Flood Fringe
-  Flood Storage
-  Floodway

Map 1D



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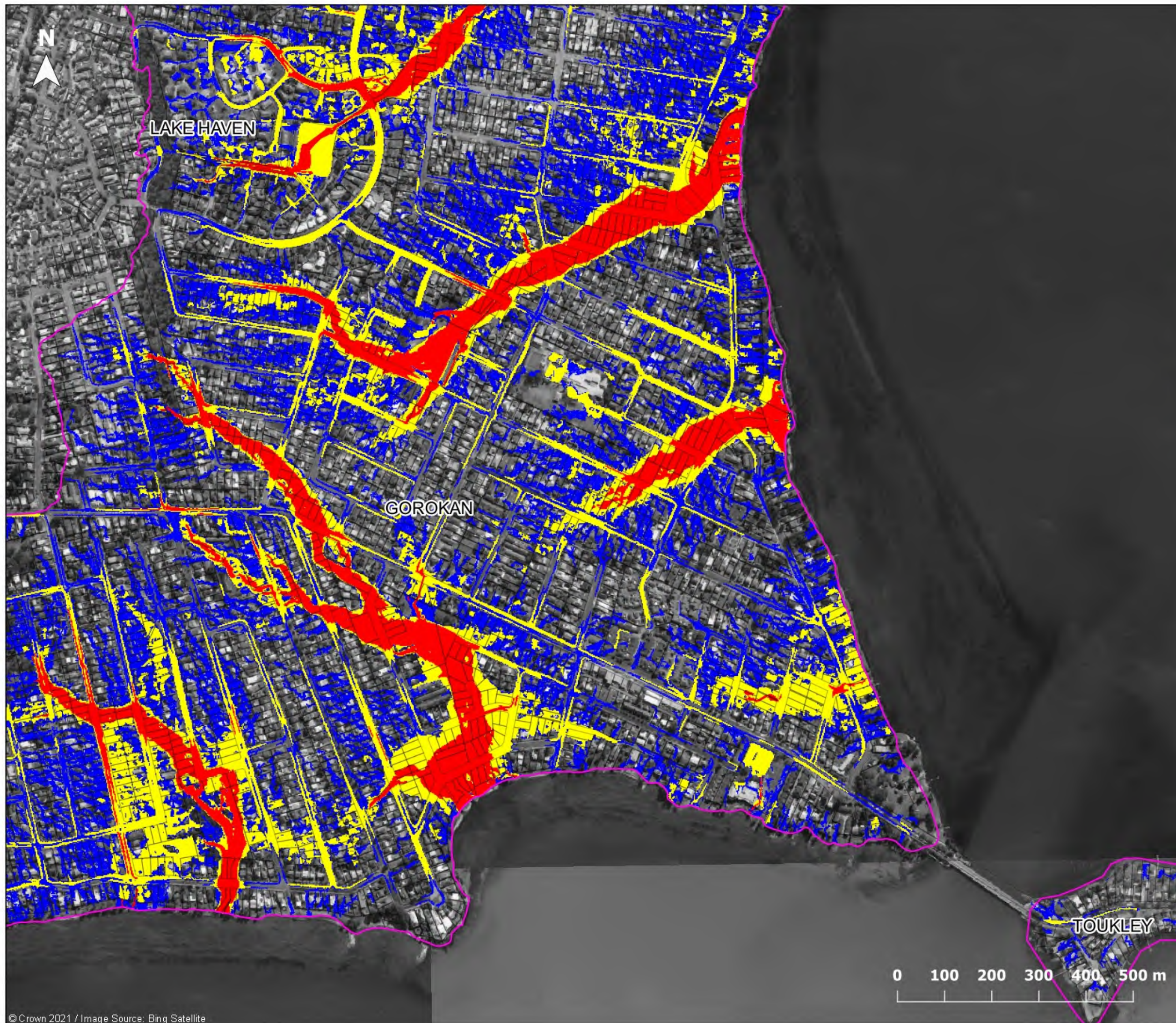


Figure D4.5

Probable Maximum Flood Hydraulic Categories

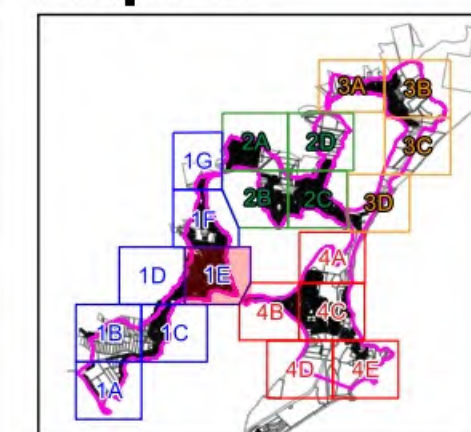
Legend

- Catchment area
- Cadastre

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 1E



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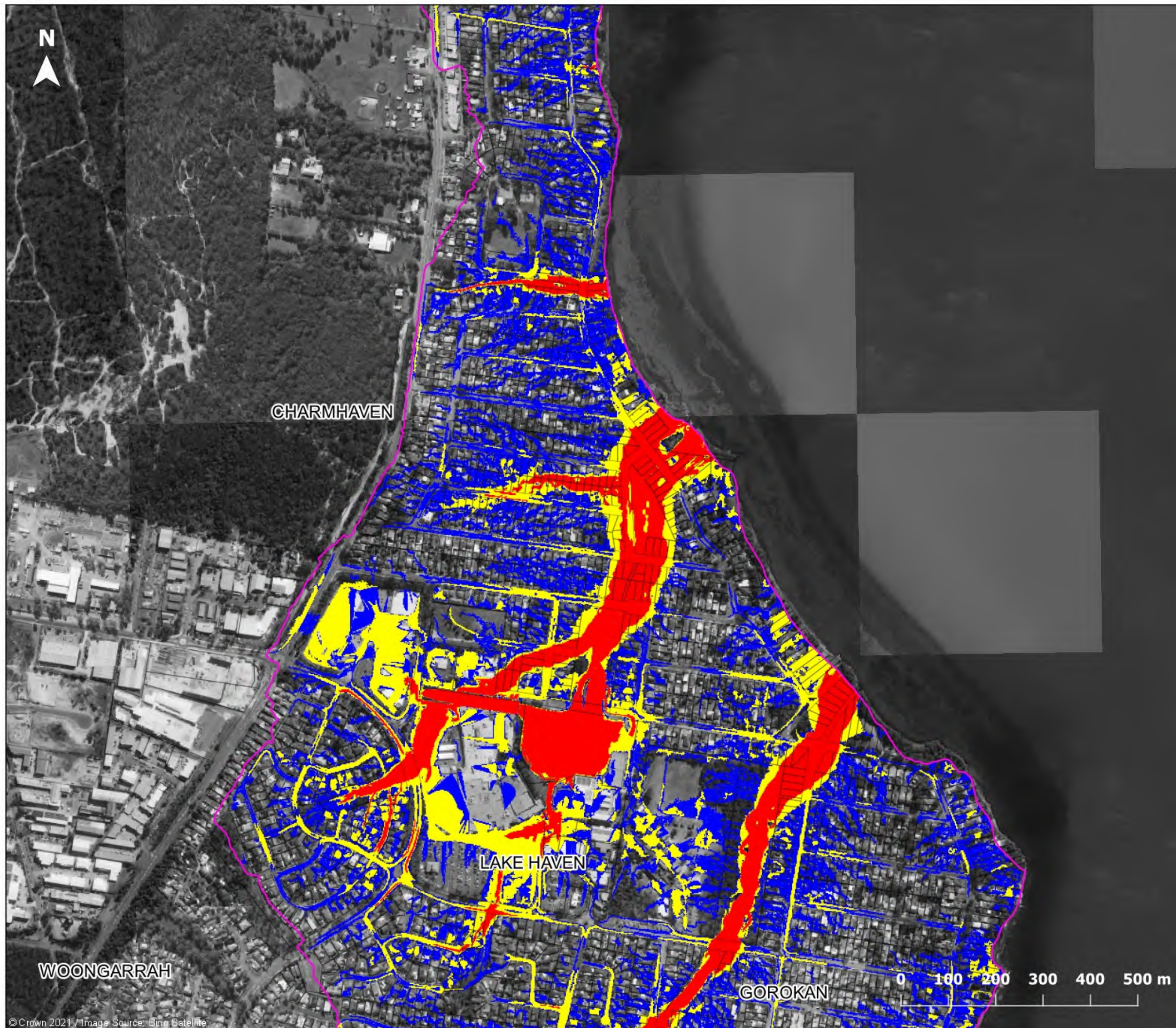


Figure D4.6

Probable Maximum Flood Hydraulic Categories

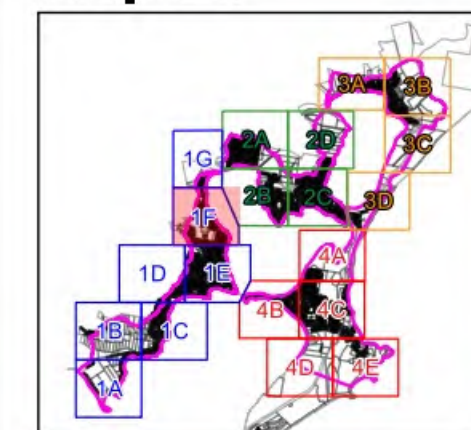
Legend

- Catchment area
- Cadastre

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 1F



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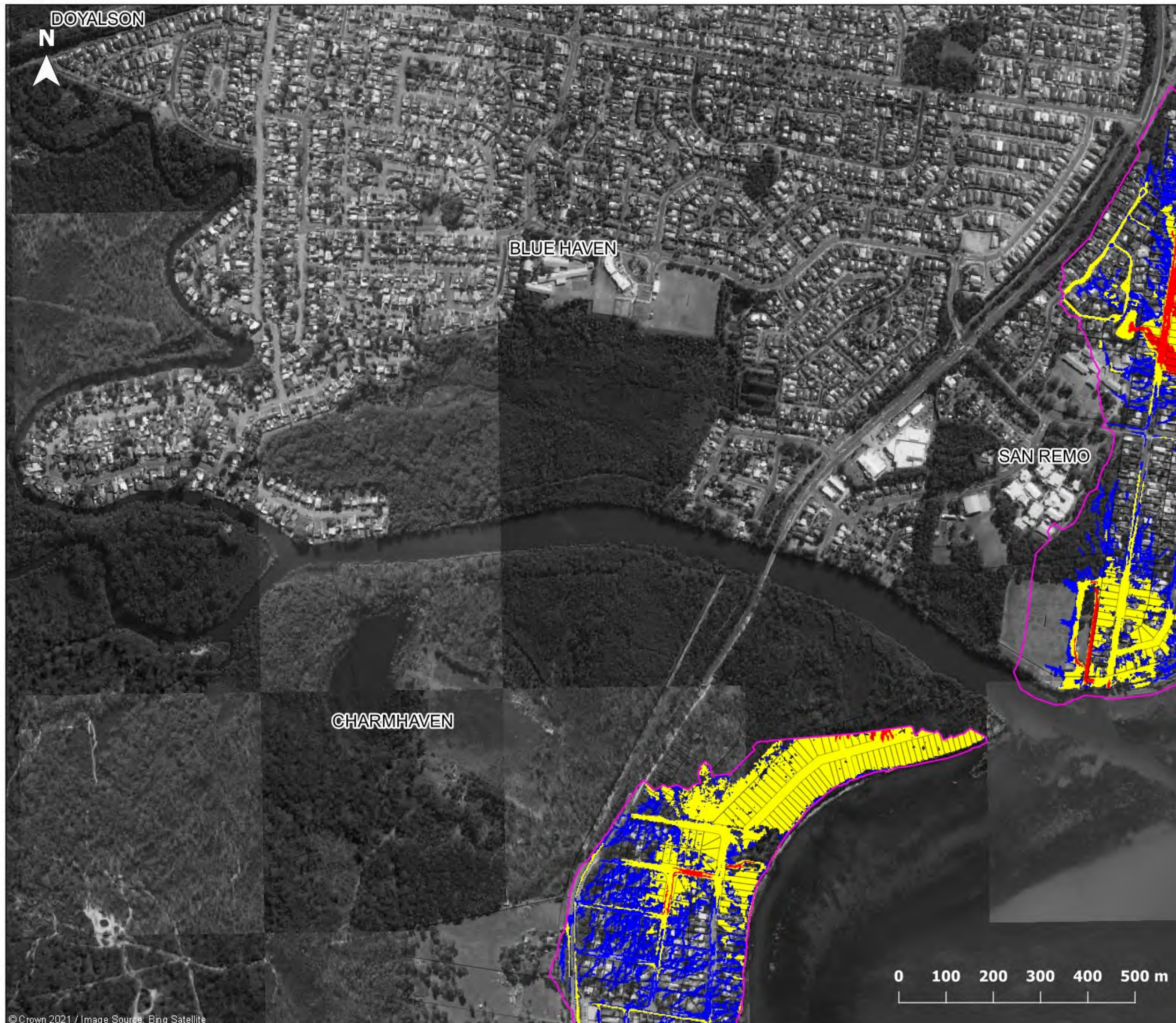


Figure D4.7

Probable Maximum Flood Hydraulic Categories

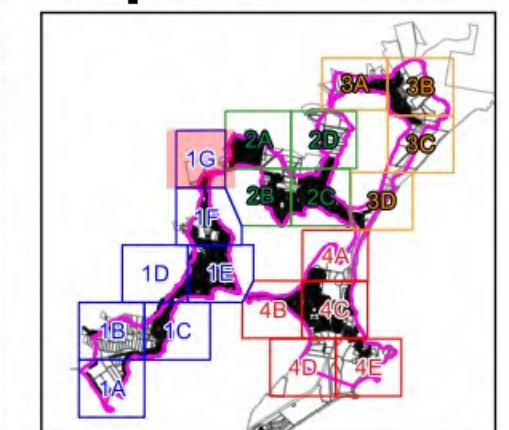
Legend

- Catchment area
- Cadaastre

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 1G

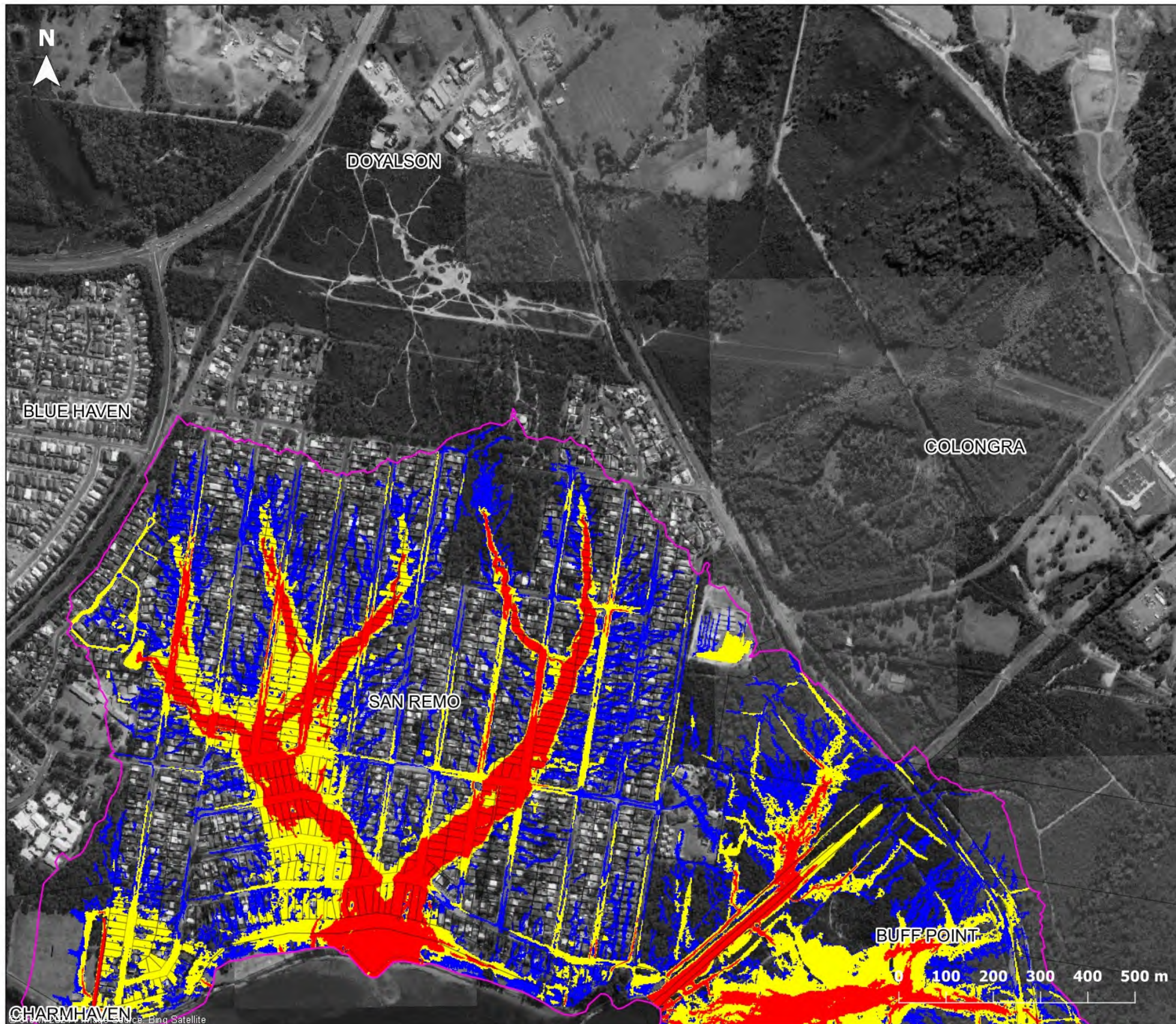


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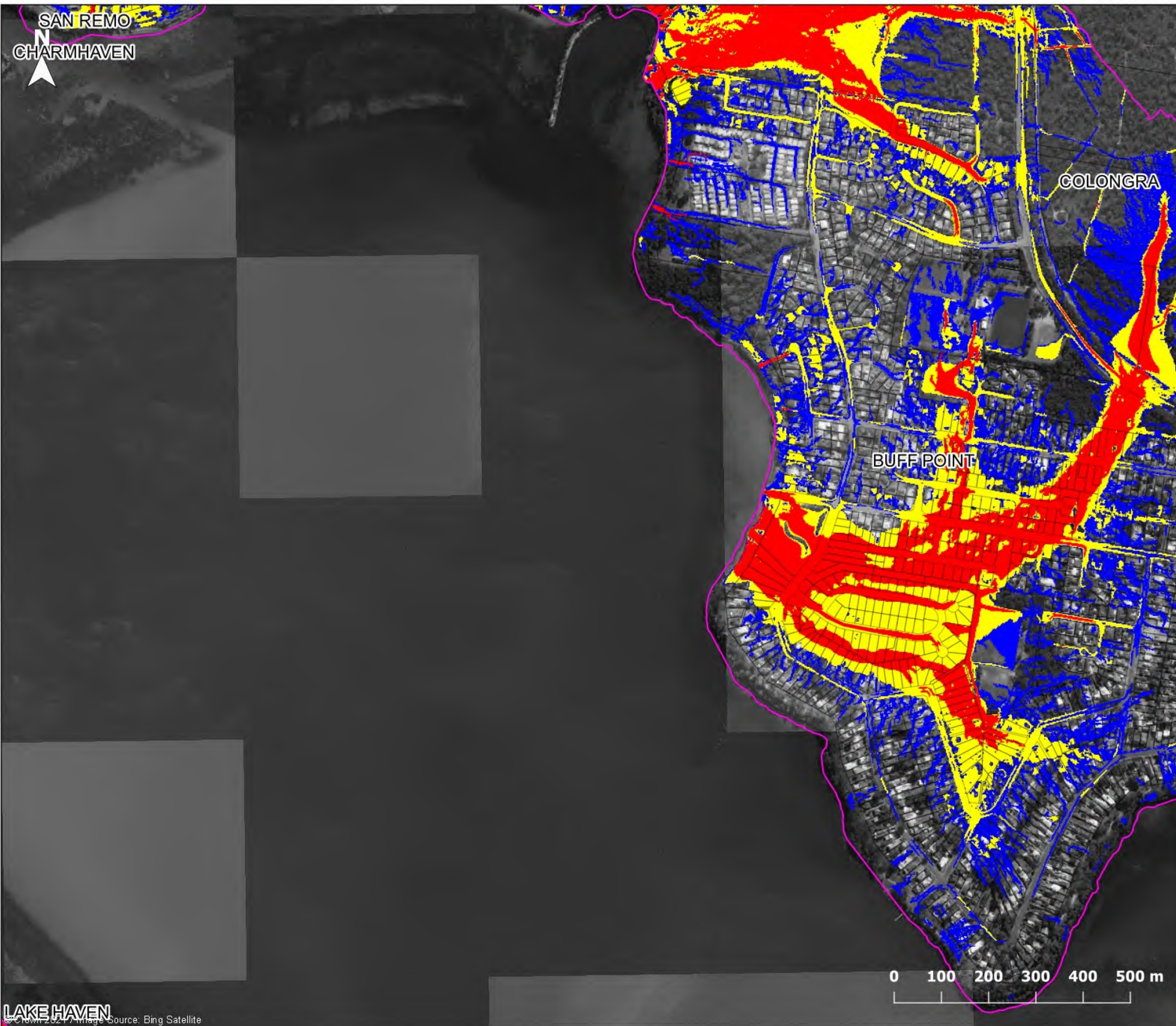


Figure D4.9

Probable Maximum Flood Hydraulic Categories

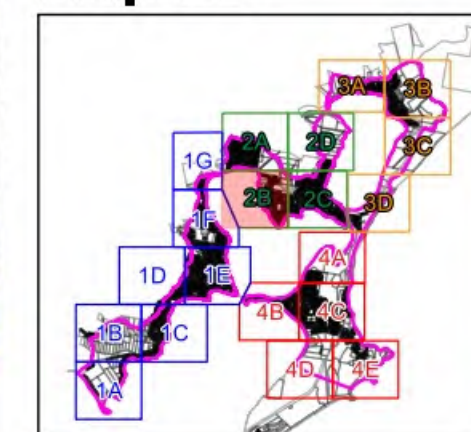
Legend

- Catchment area
- Cadastre

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 2B



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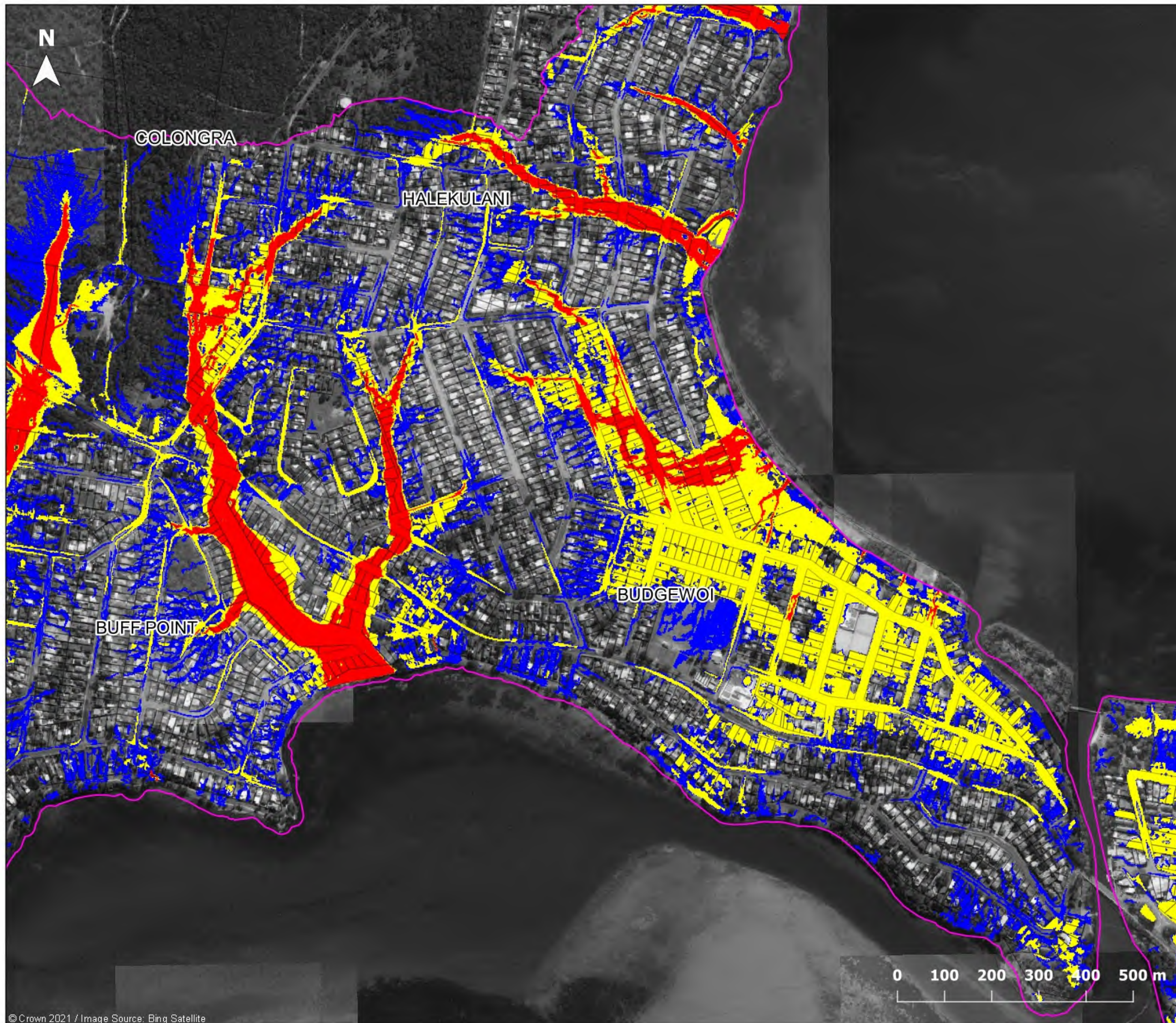


Figure D4.10

Probable Maximum Flood Hydraulic Categories

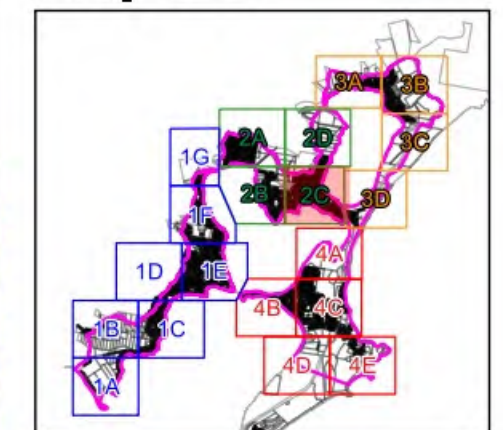
Legend

- Catchment area
- Cadastre

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 2C



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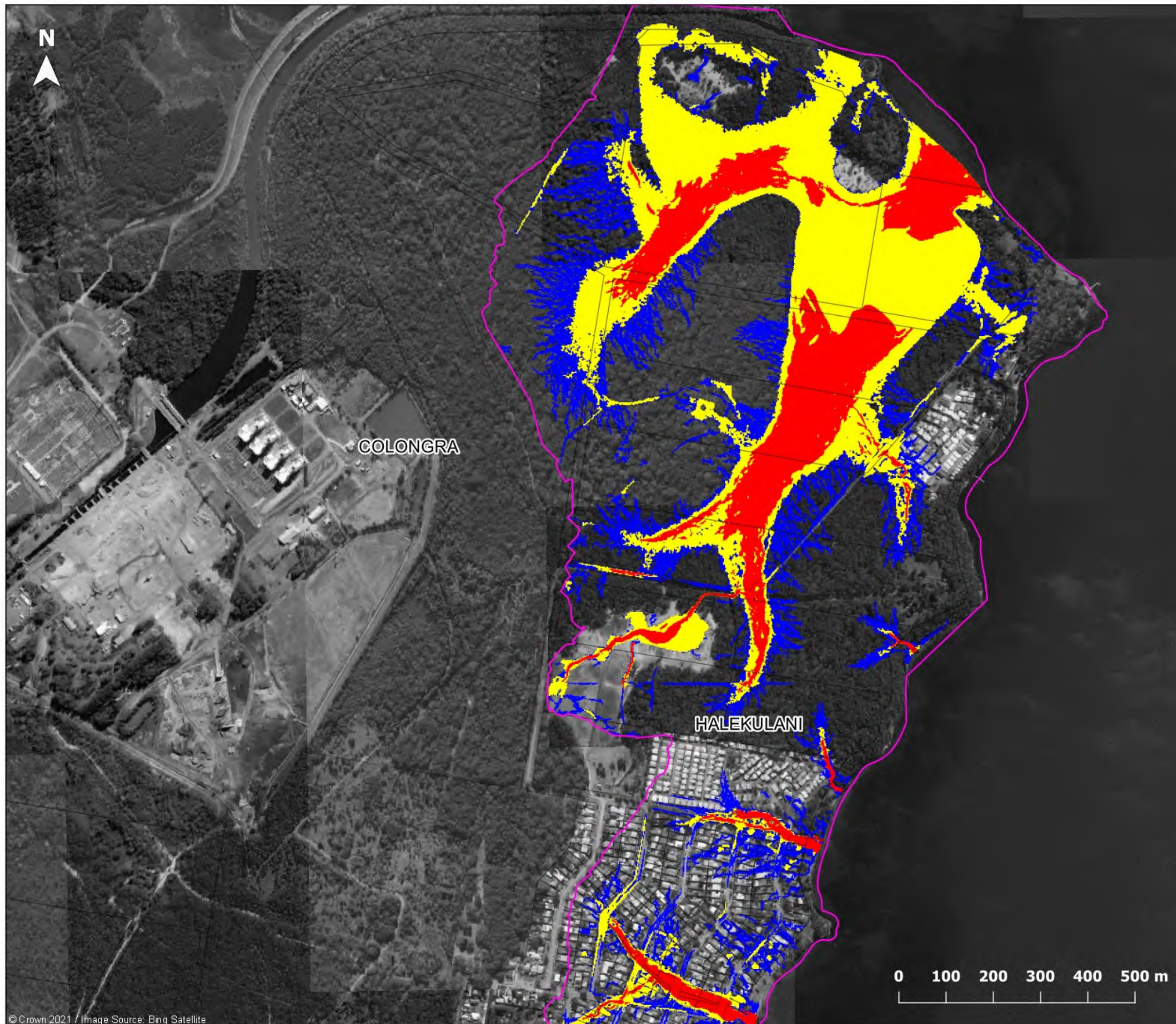


Figure D4.11

Probable Maximum Flood Hydraulic Categories

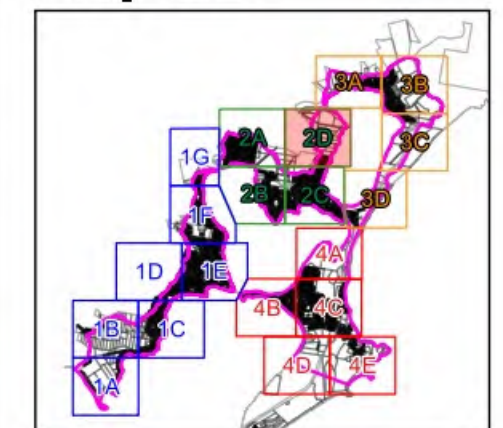
Legend

-  Catchment area
-  Cadastre

Hydraulic Category

-  Flood Fringe
-  Flood Storage
-  Floodway

Map 2D



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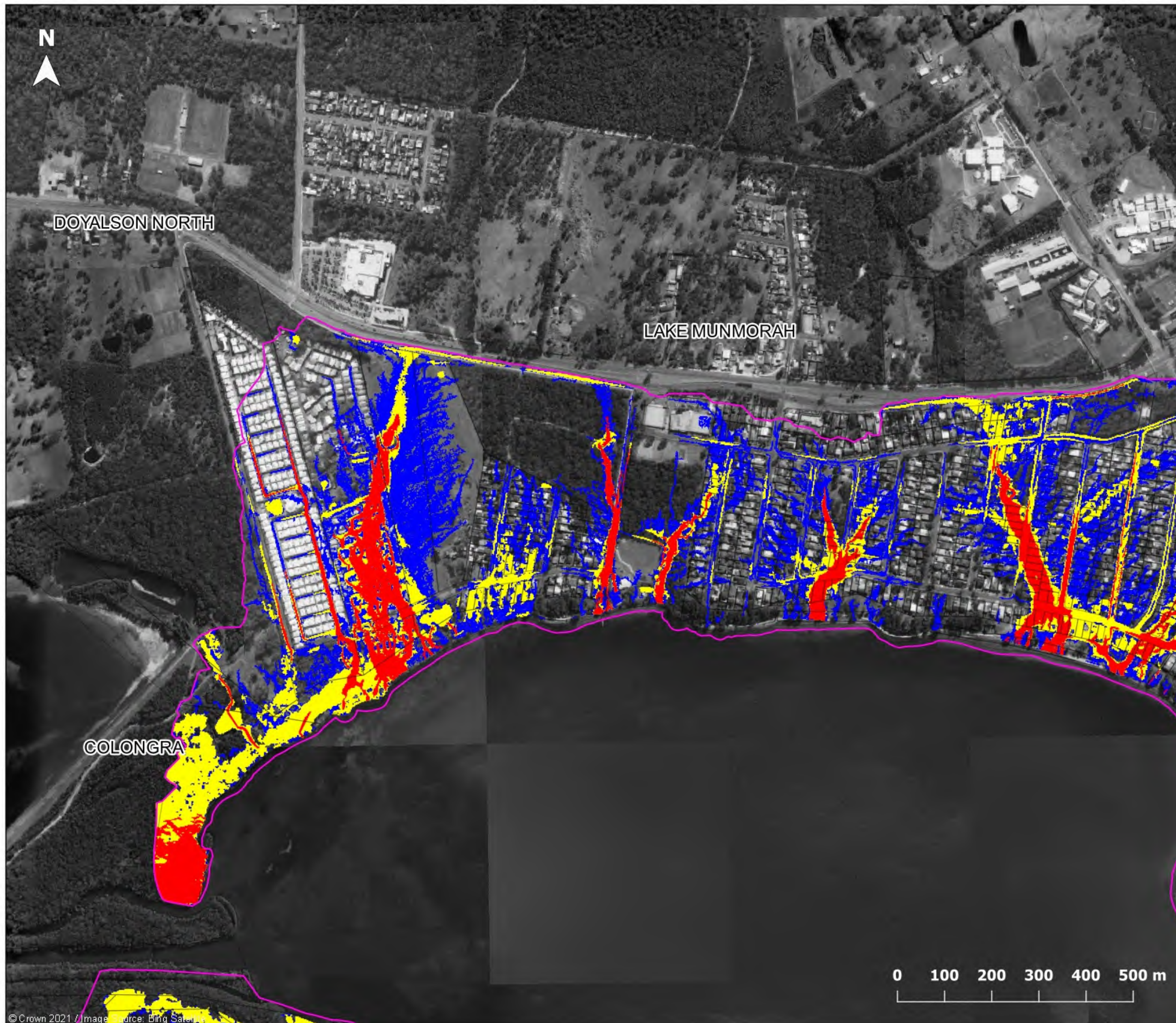


Figure D4.12

Probable Maximum Flood Hydraulic Categories

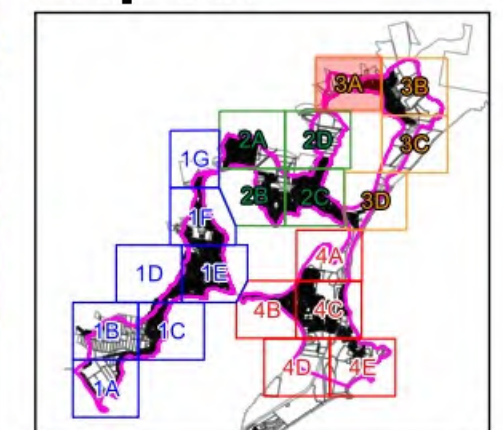
Legend

- Catchment area
- Cadastre

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 3A



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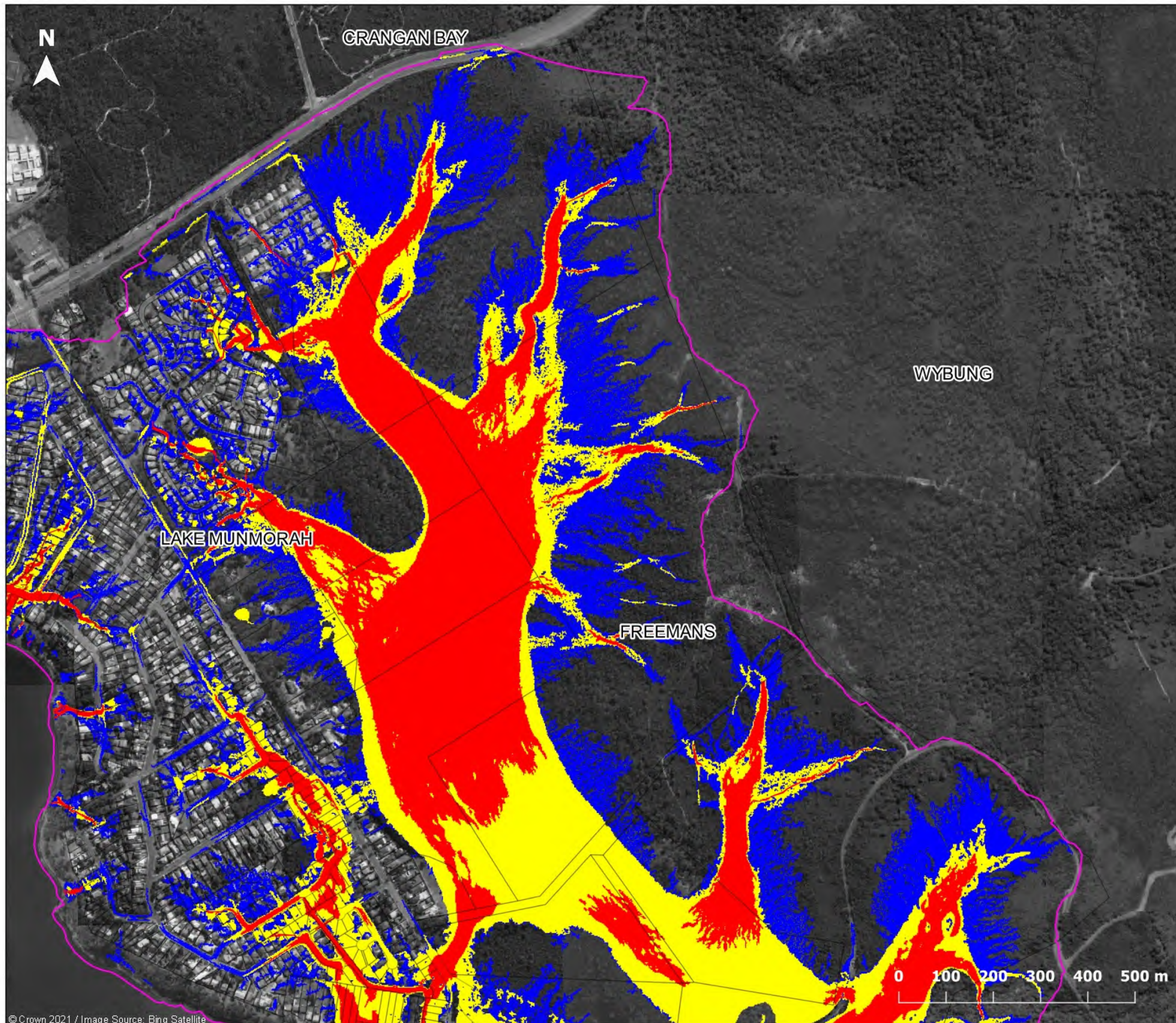


Figure D4.13

Probable Maximum Flood Hydraulic Categories

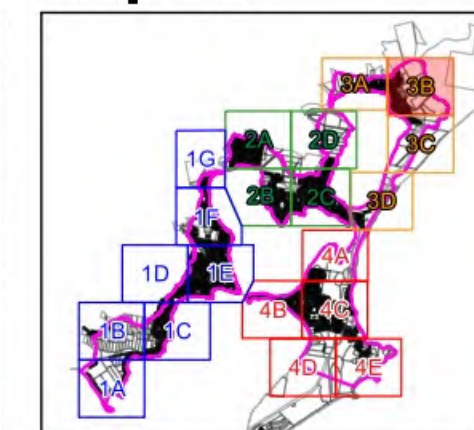
Legend

- Catchment area
- Cadastral

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 3B



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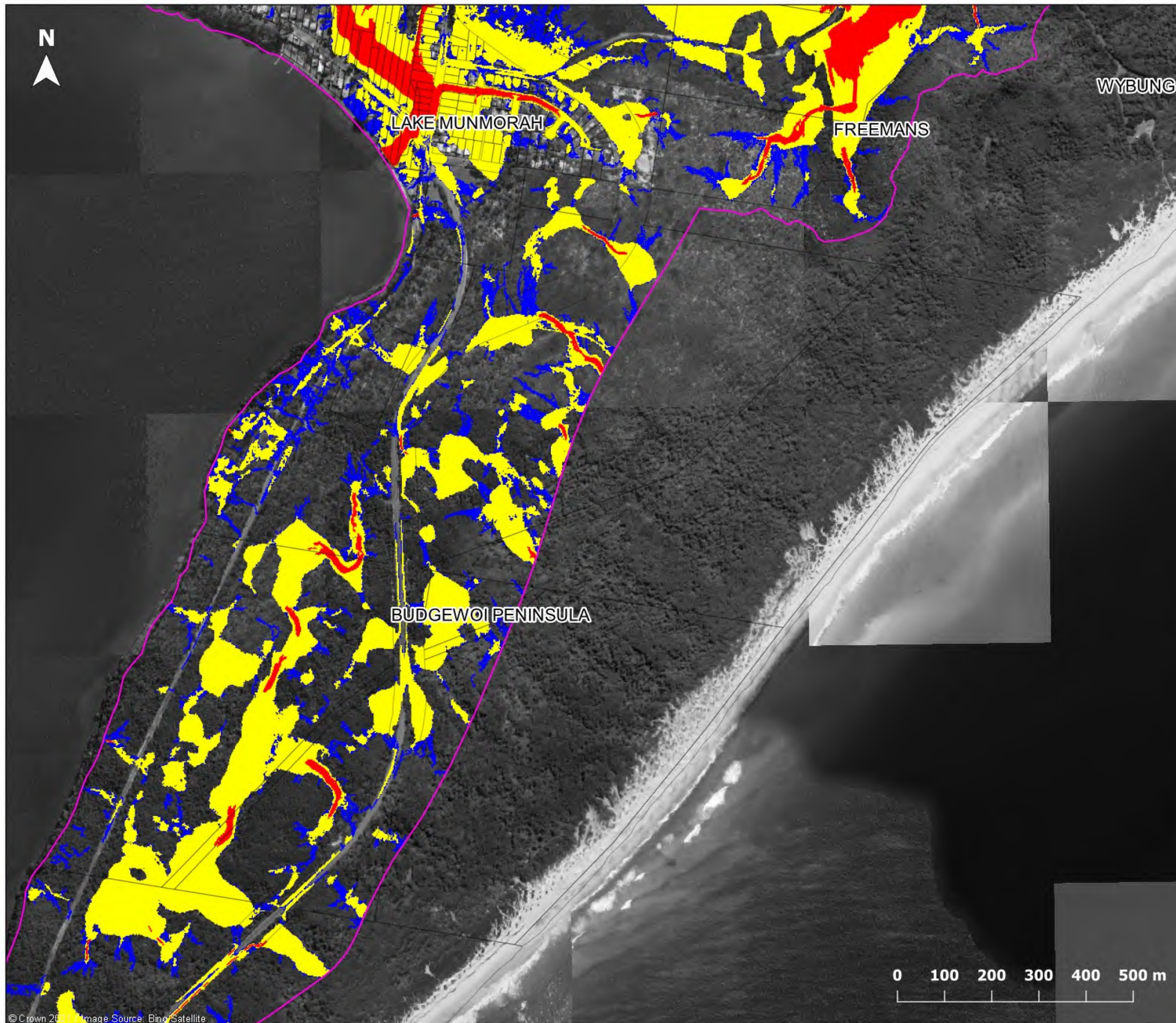


Figure D4.14

Probable Maximum Flood Hydraulic Categories

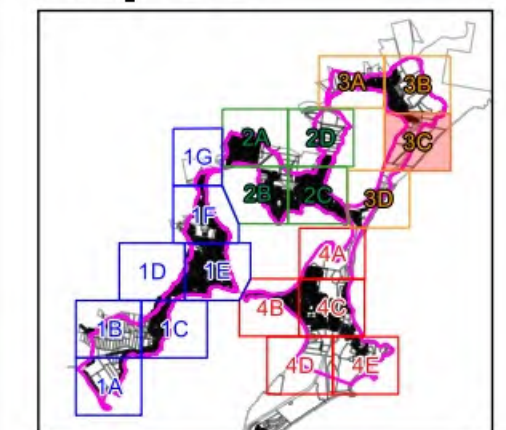
Legend

- Catchment area
- Cadastral

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 3C



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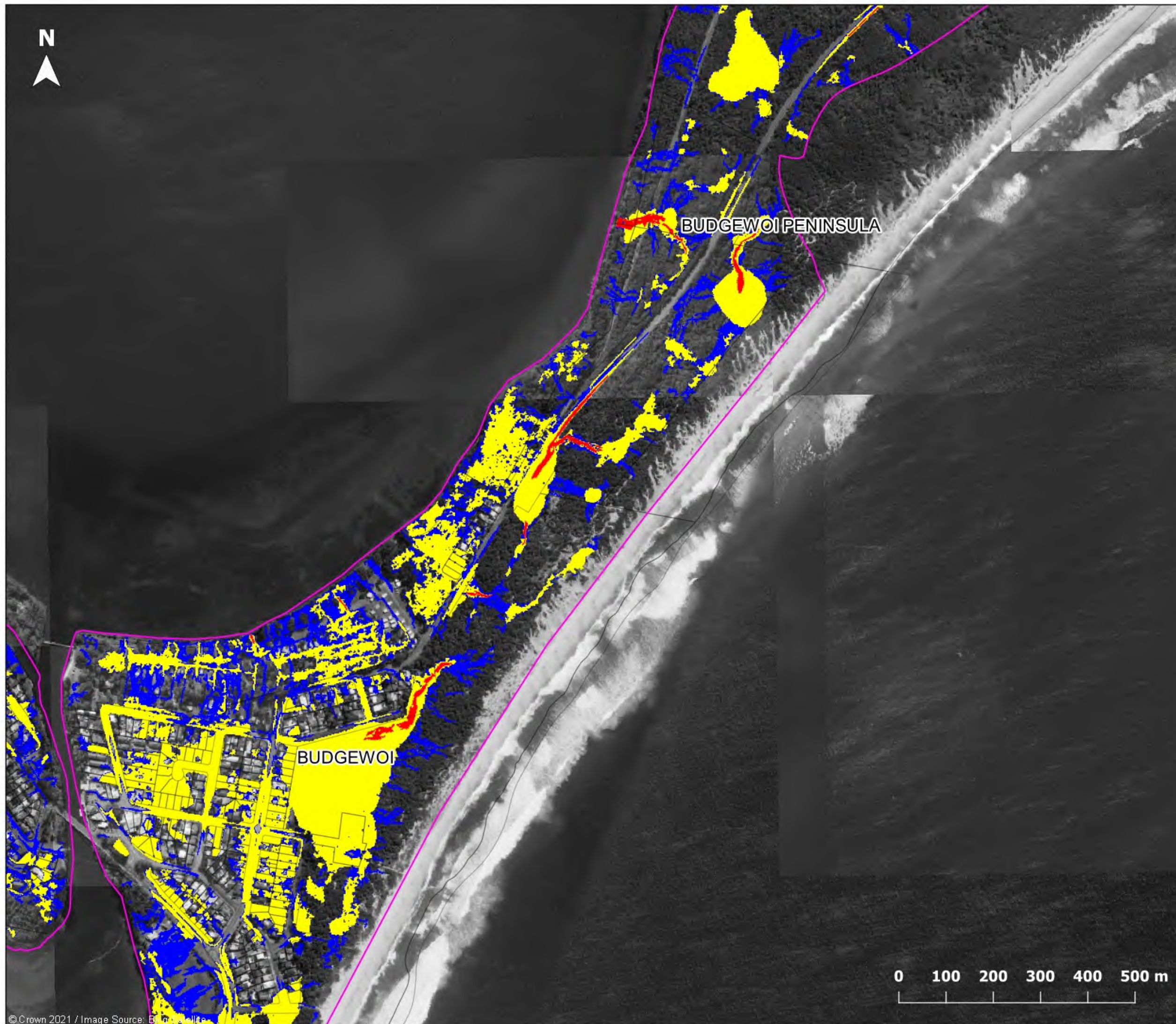


Figure D4.15

Probable Maximum Flood Hydraulic Categories

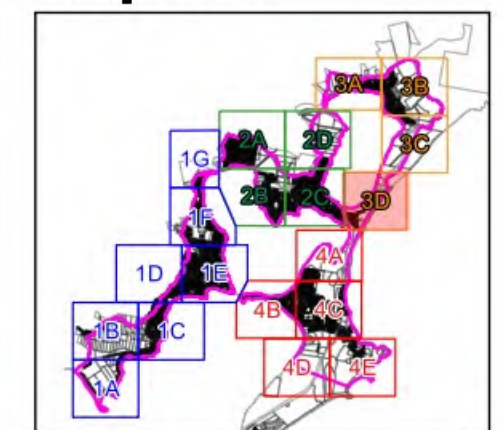
Legend

- Catchment area
- Cadastre

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 3D



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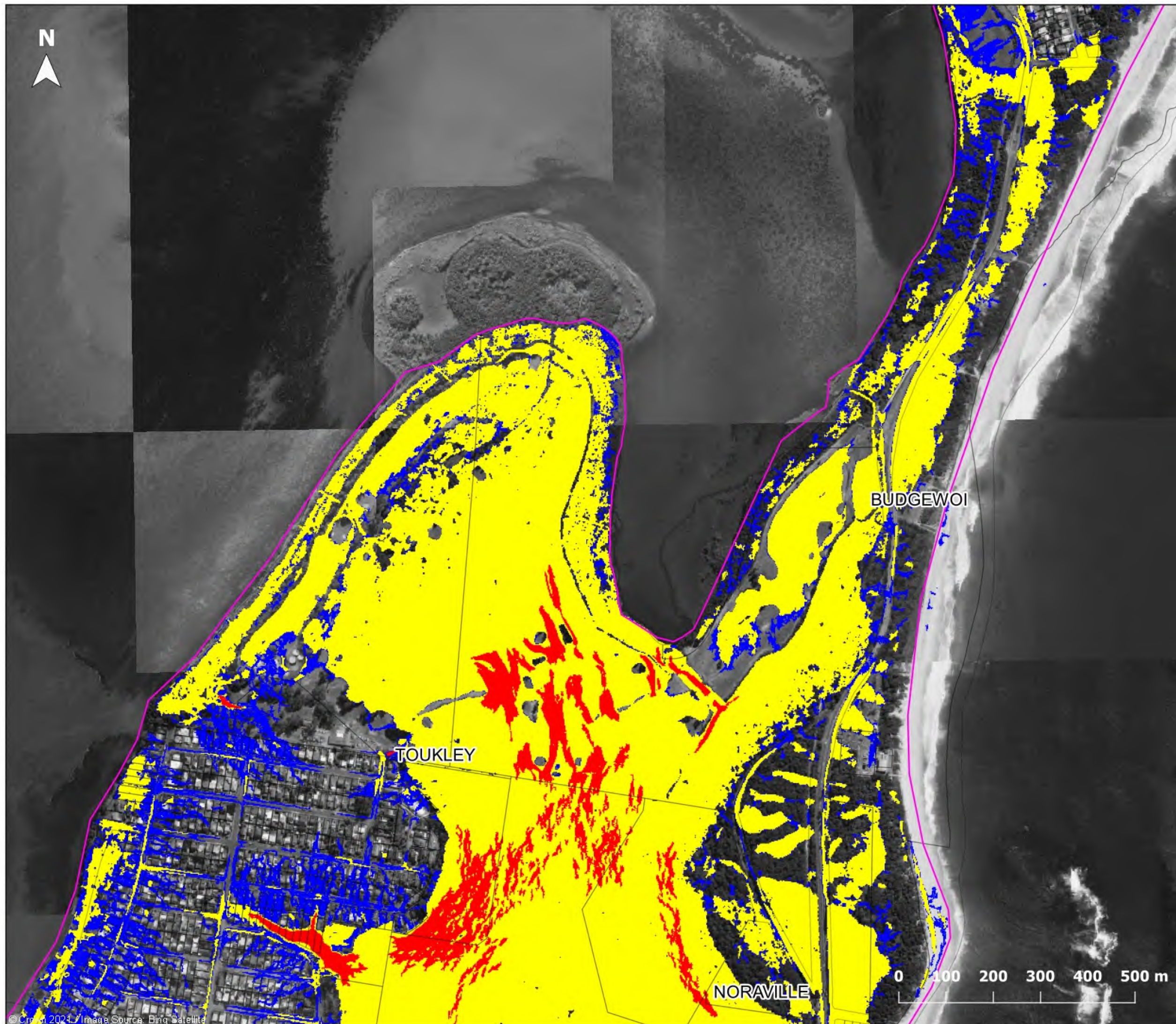




Figure D4.17

Probable Maximum Flood Hydraulic Categories

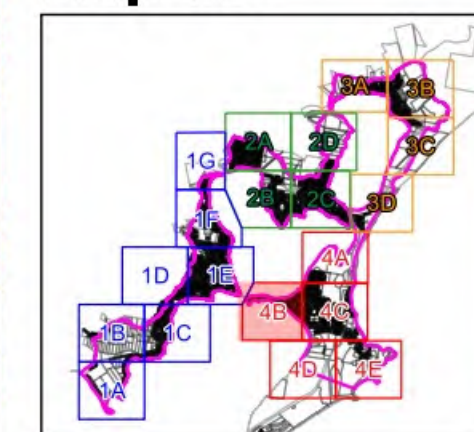
Legend

- Catchment area
- Cadaastre

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 4B



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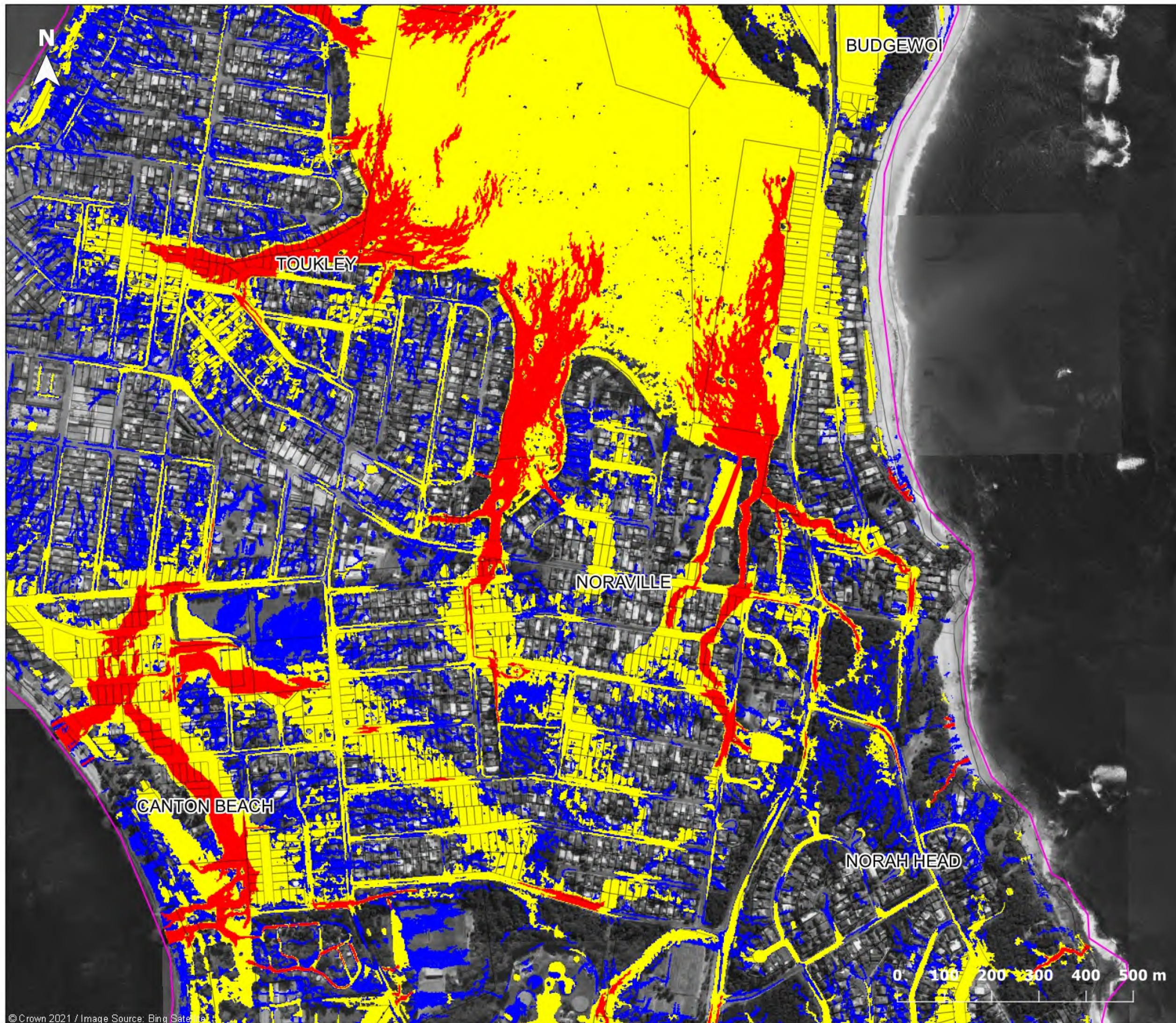


Figure D4.18

Probable Maximum Flood Hydraulic Categories

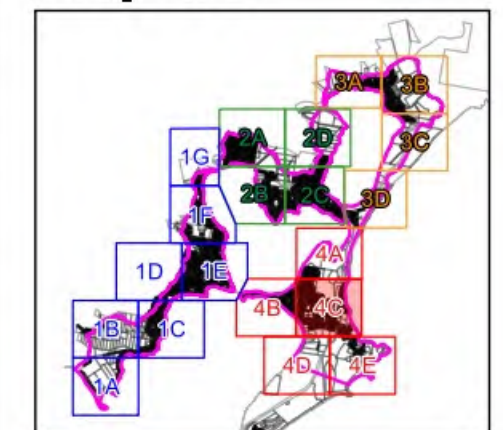
Legend

- Catchment area
- Cadastral

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 4C



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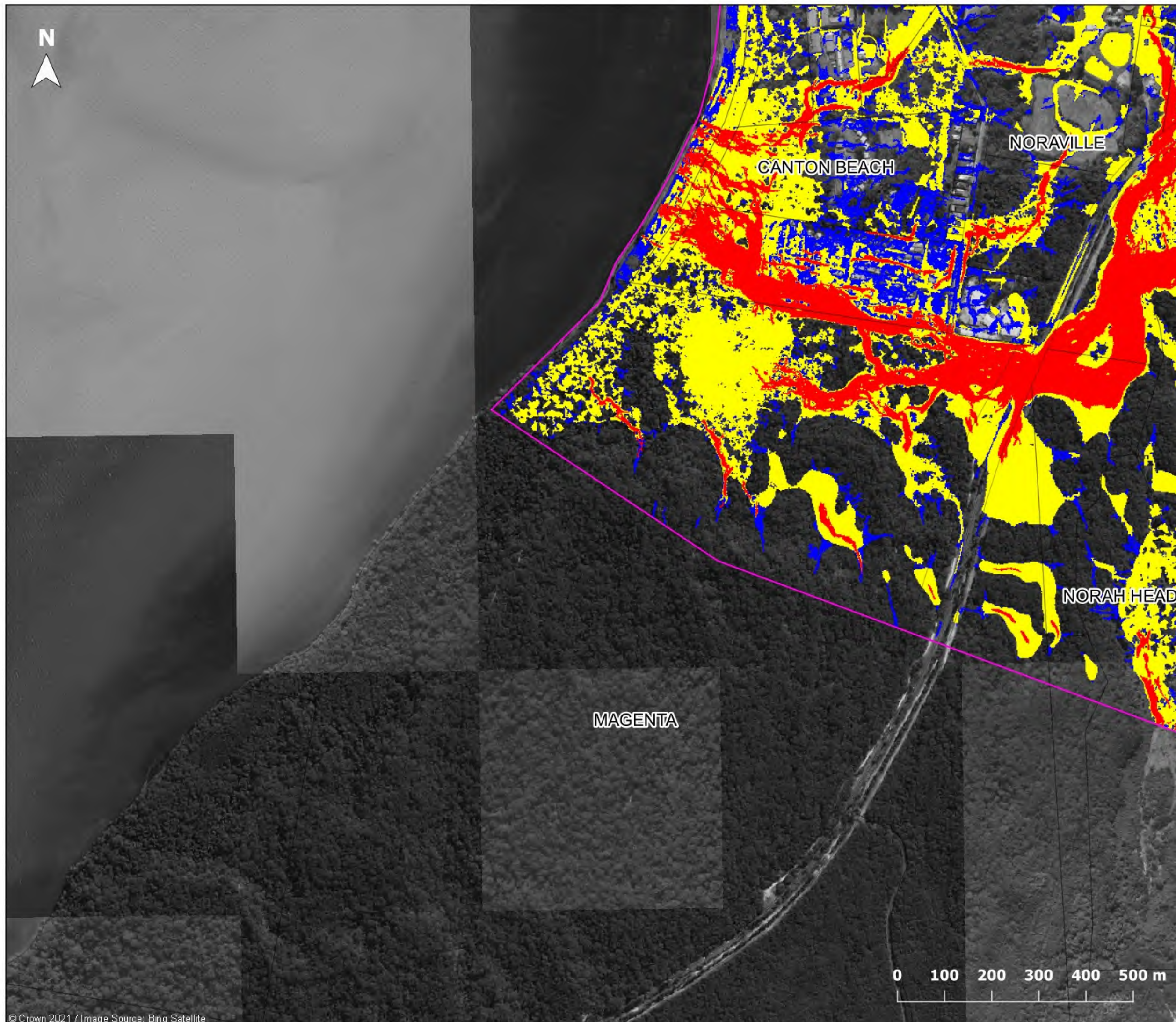


Figure D4.19

Probable Maximum Flood Hydraulic Categories

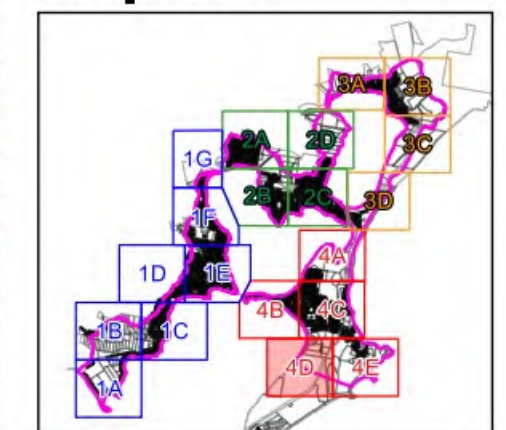
Legend

- Catchment area
- Cadastral

Hydraulic Category

- Flood Fringe
- Flood Storage
- Floodway

Map 4D

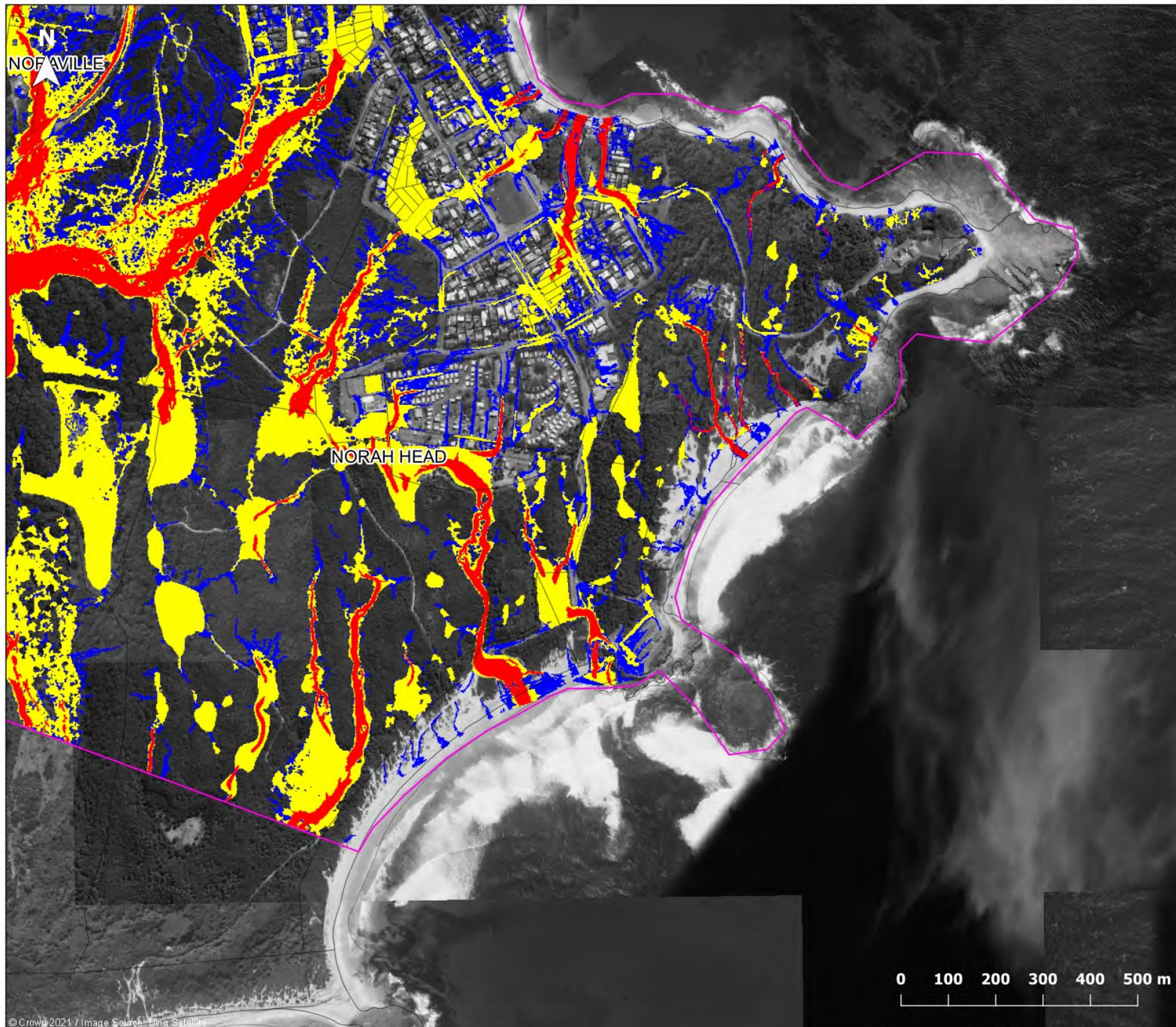


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Appendix E – Flood emergency response classifications

- Figure E.1 5% AEP Flood Emergency Response Classification
- Figure E.2 1% AEP Flood Emergency Response Classification
- Figure E.3 Probable Maximum Flood Emergency Response Classification

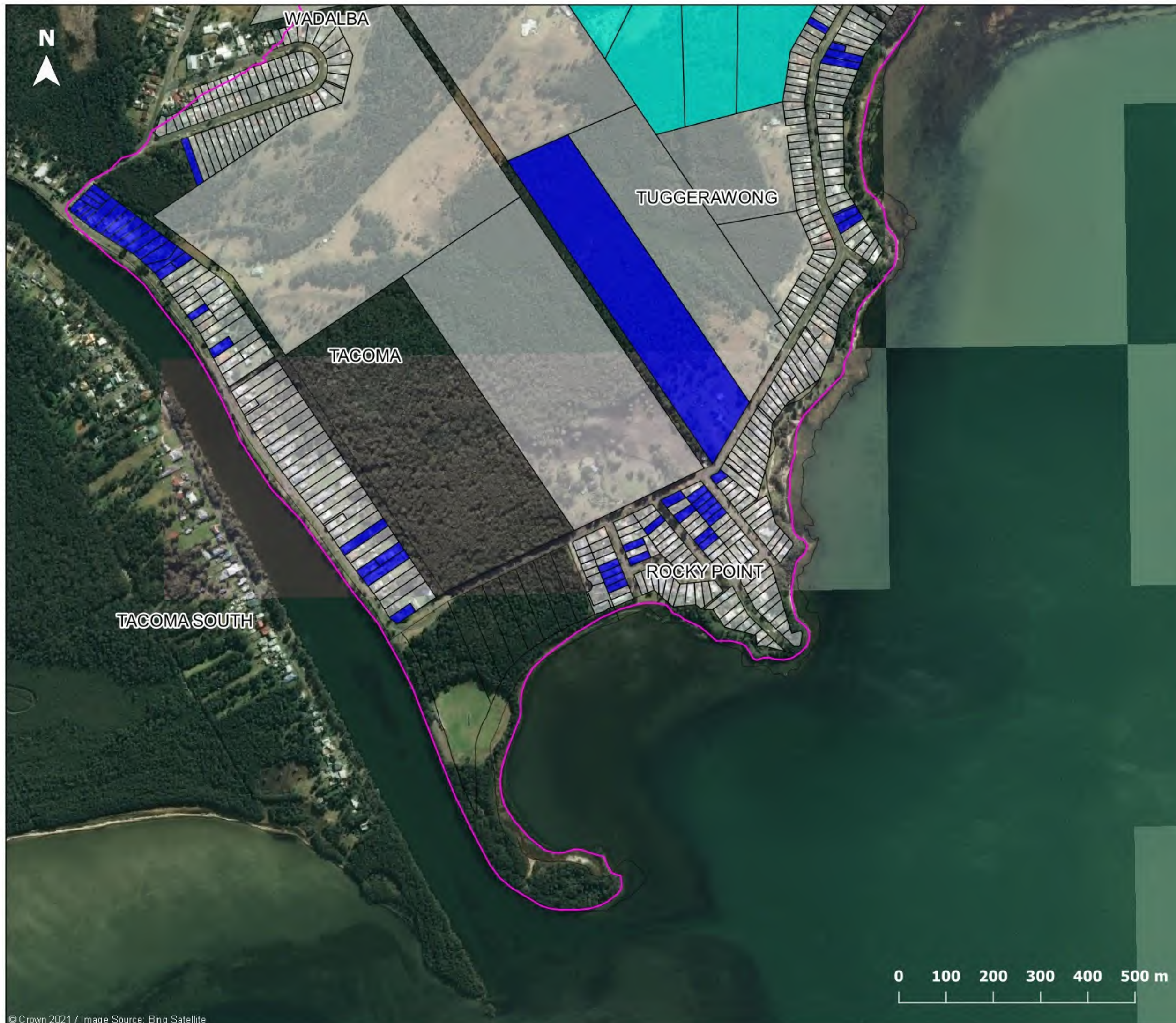


Figure E1.1

5%AEP Flood Emergency Response Classification

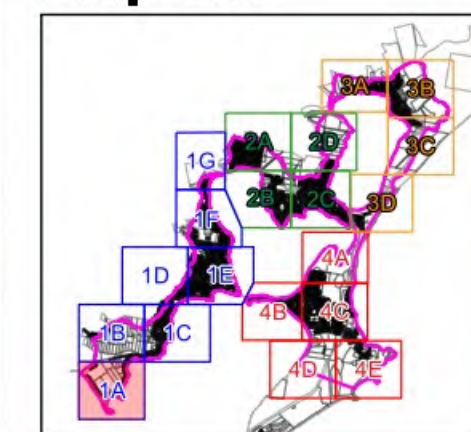
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1A



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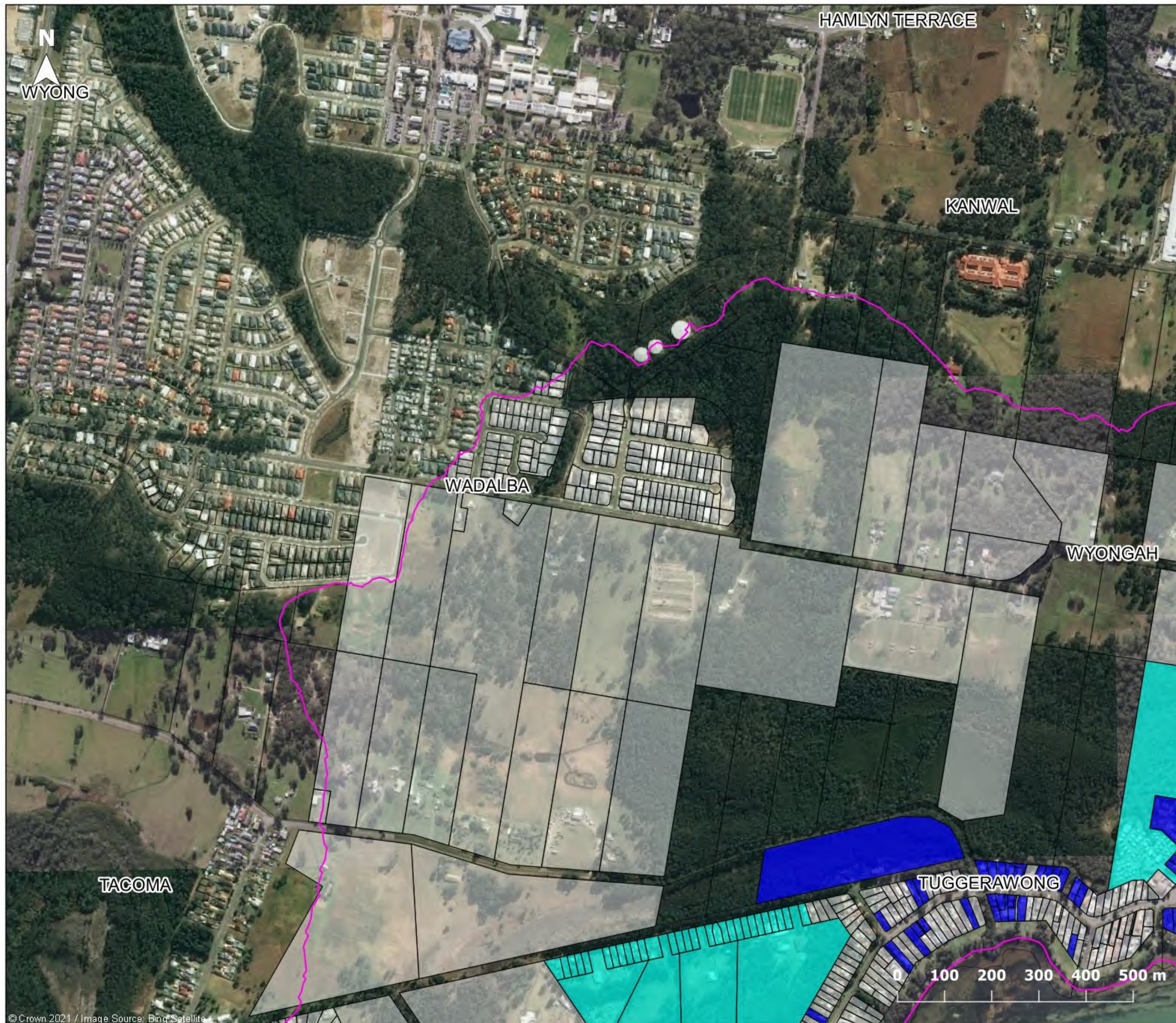


Figure E1.2

5%AEP Flood Emergency Response Classification

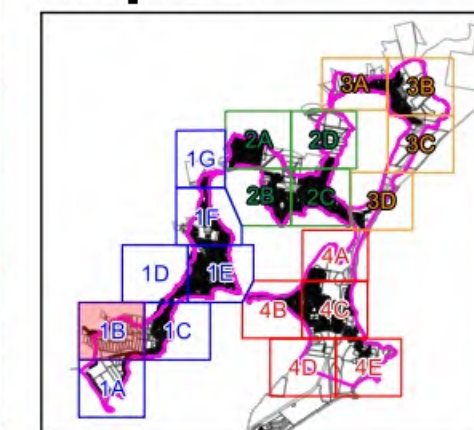
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1B



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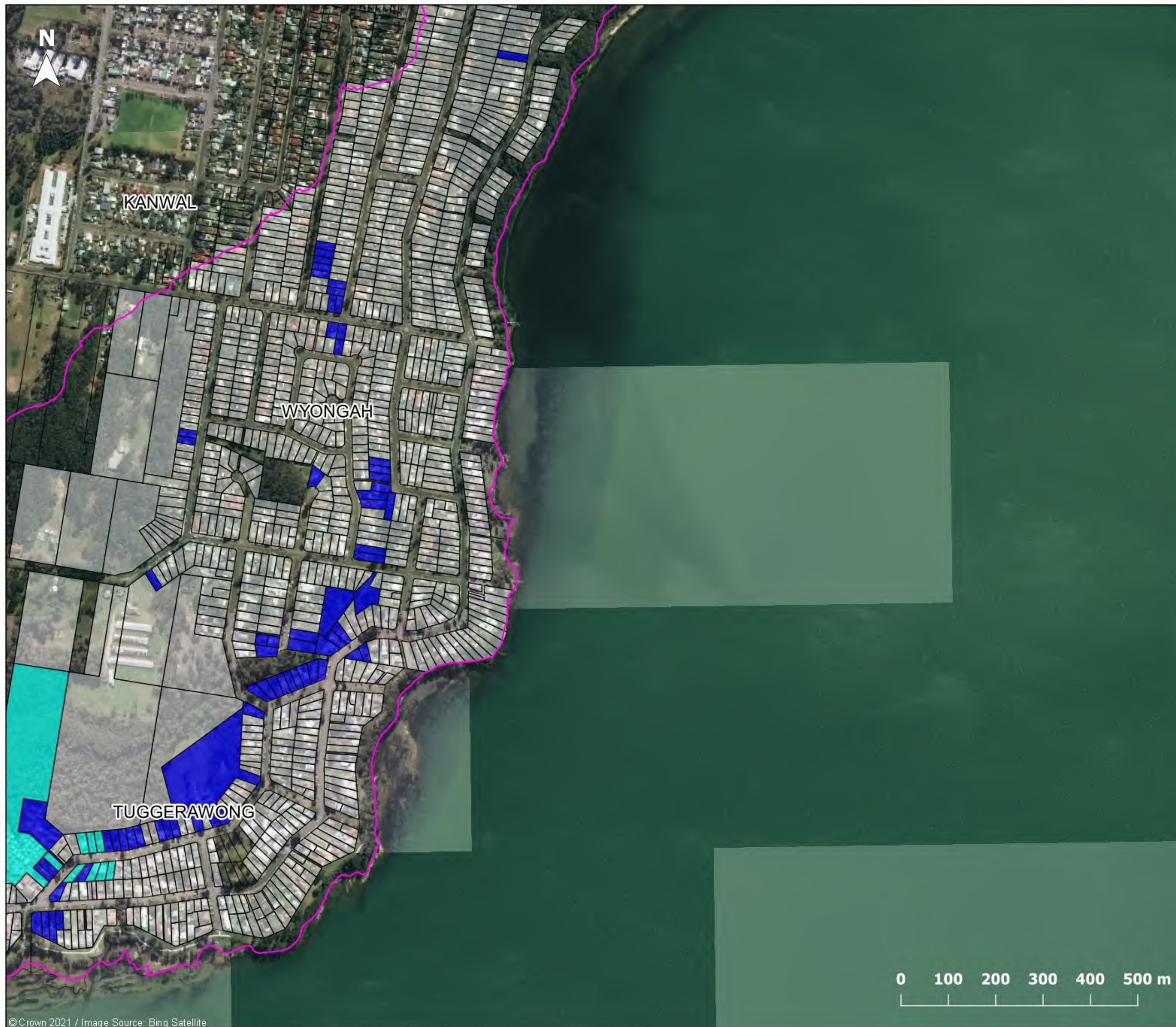


Figure E1.3

5%AEP Flood Emergency Response Classification

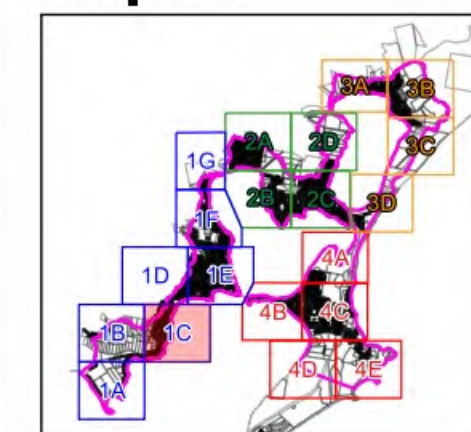
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1C



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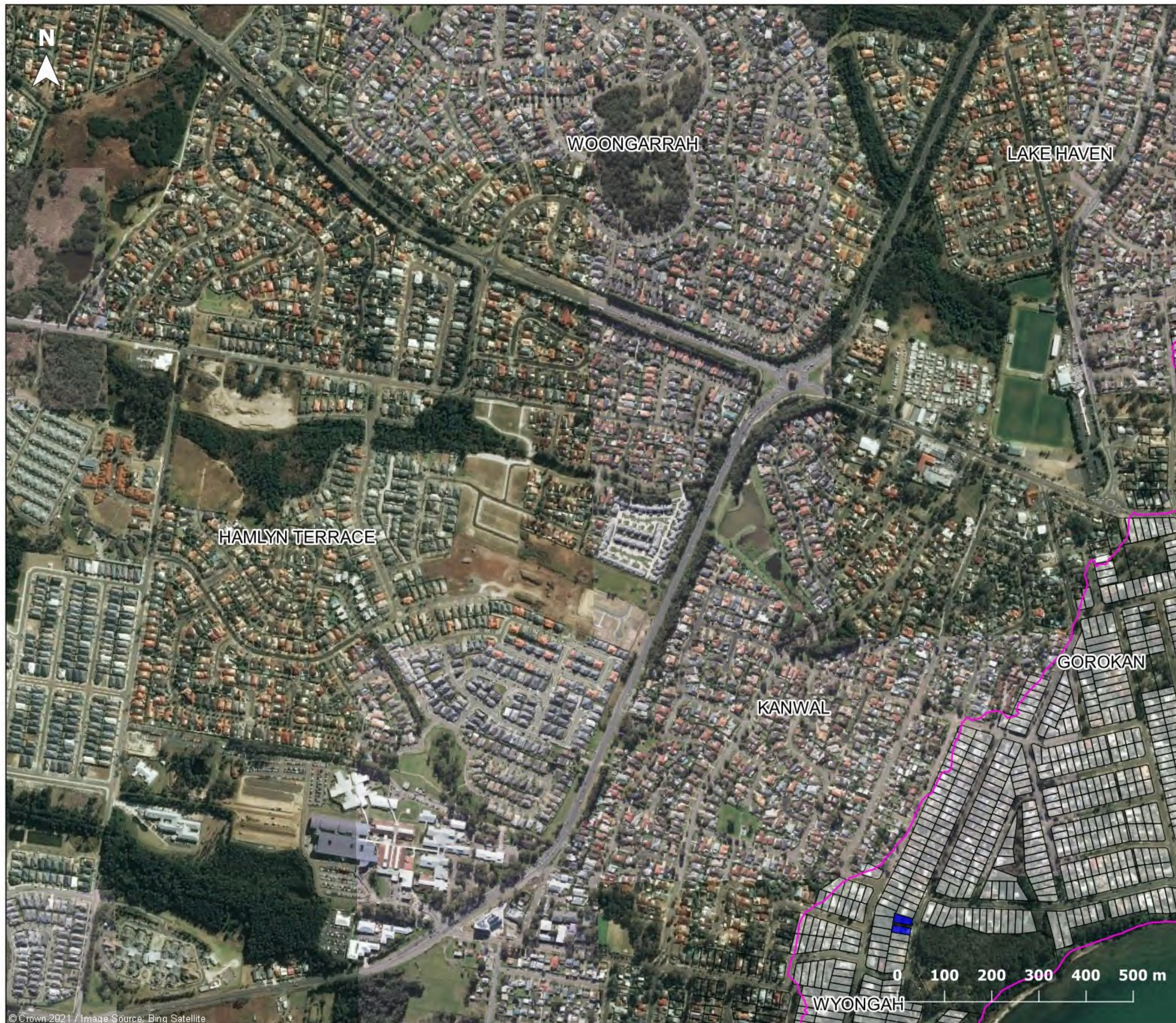


Figure E1.4

5%AEP Flood Emergency Response Classification

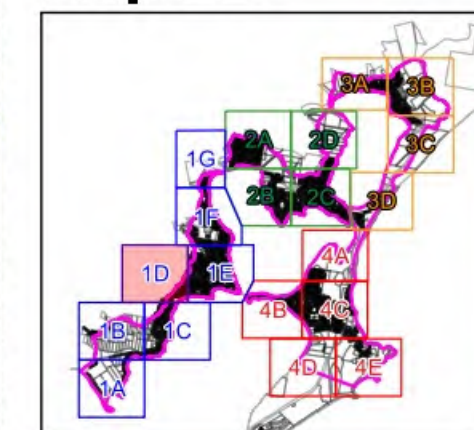
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1D



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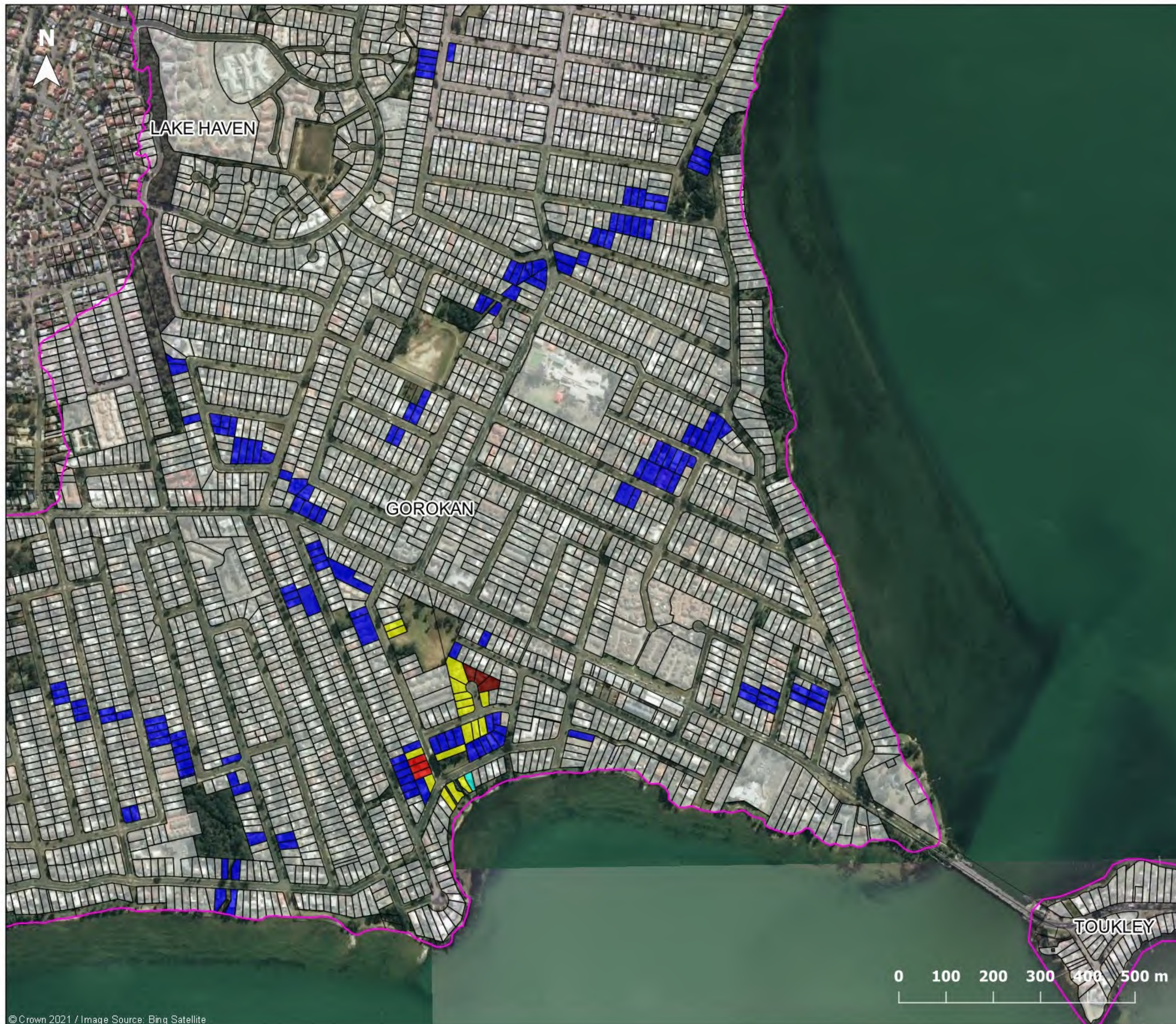


Figure E1.5

5%AEP Flood Emergency Response Classification

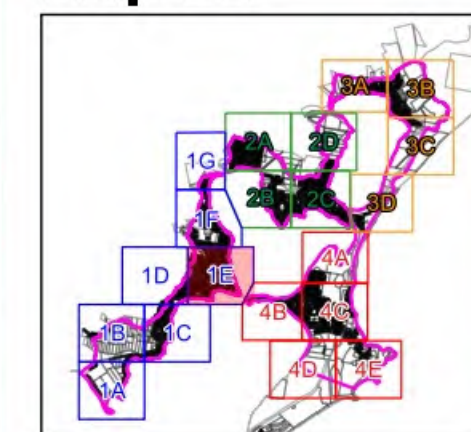
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1E



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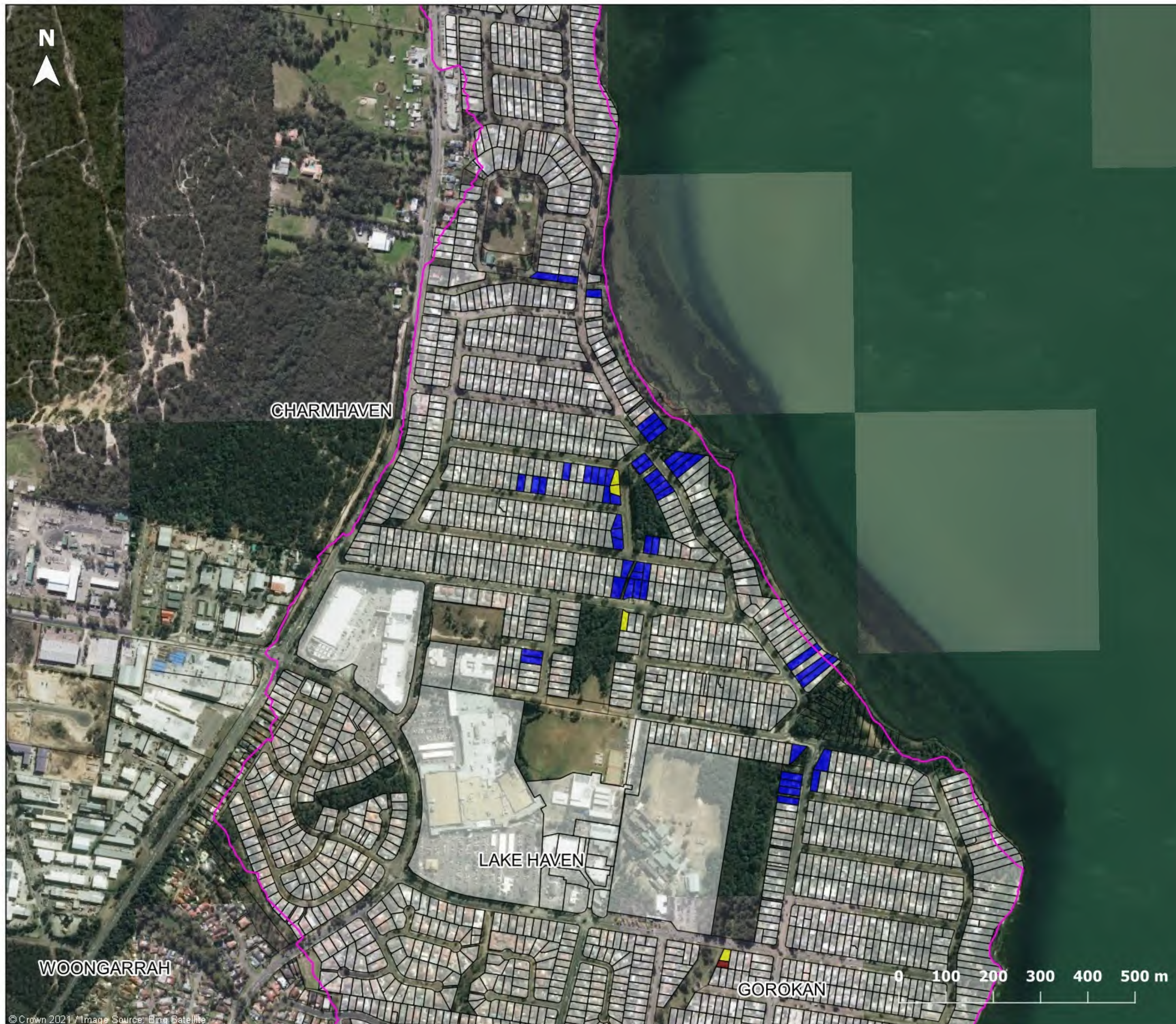


Figure E1.6

5%AEP Flood Emergency Response Classification

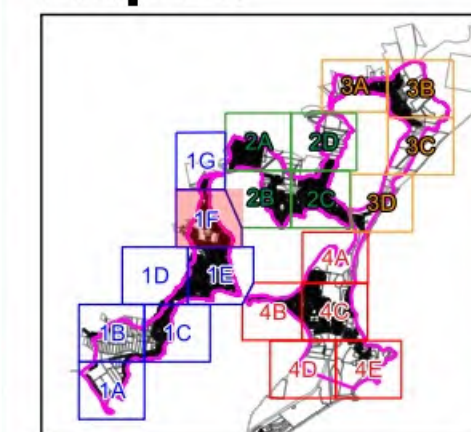
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1F



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Figure E1.7

5%AEP Flood Emergency Response Classification

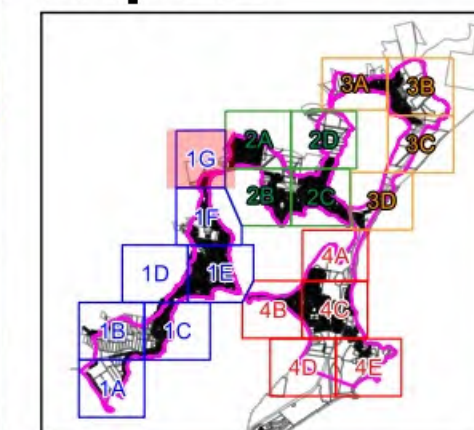
Legend

- Catchment area
- Cadastral

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1G



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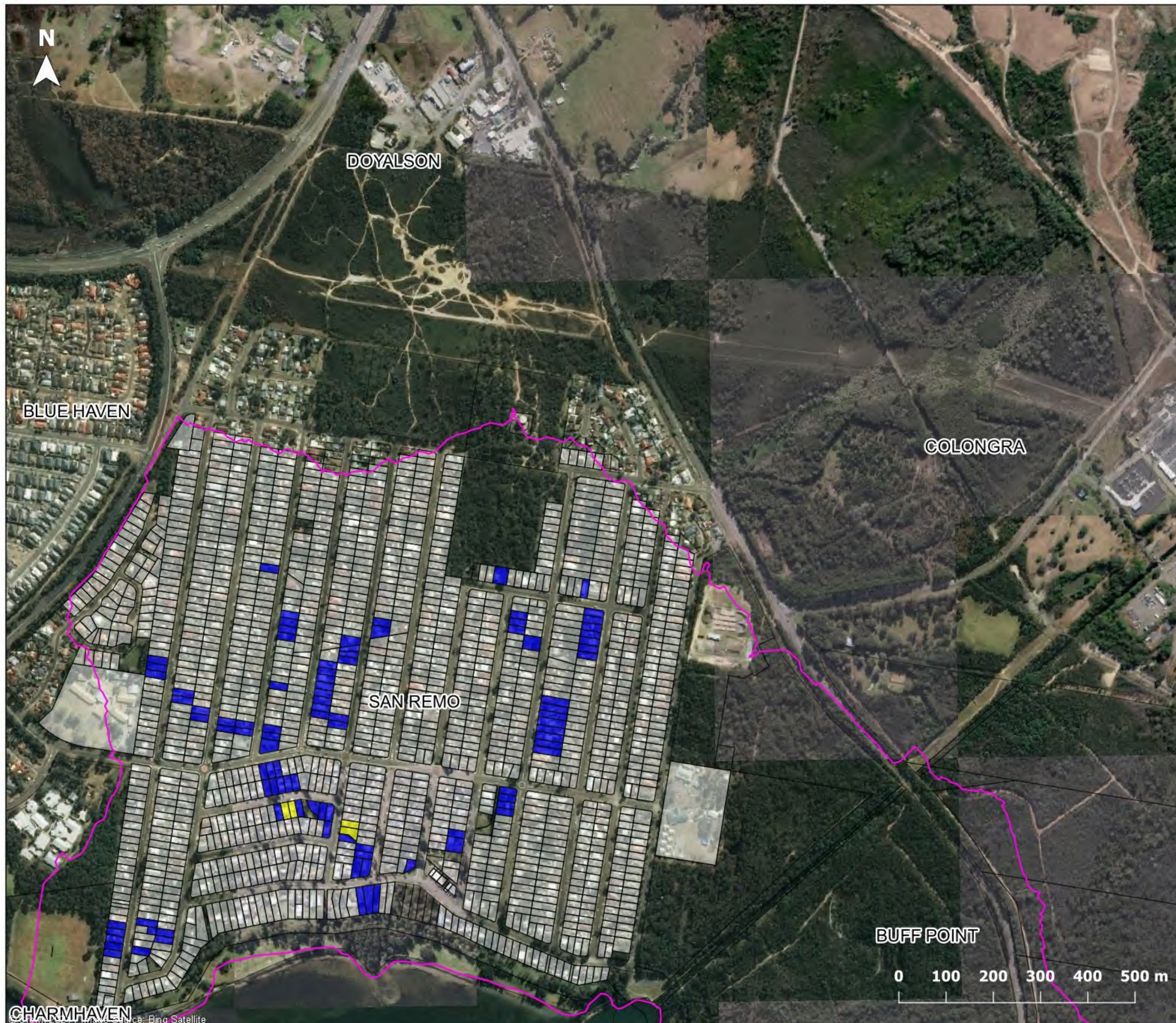


Figure E1.8

**5%AEP Flood
Emergency Response
Classification**

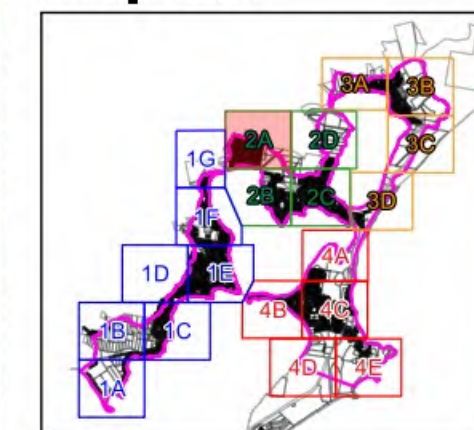
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 2A



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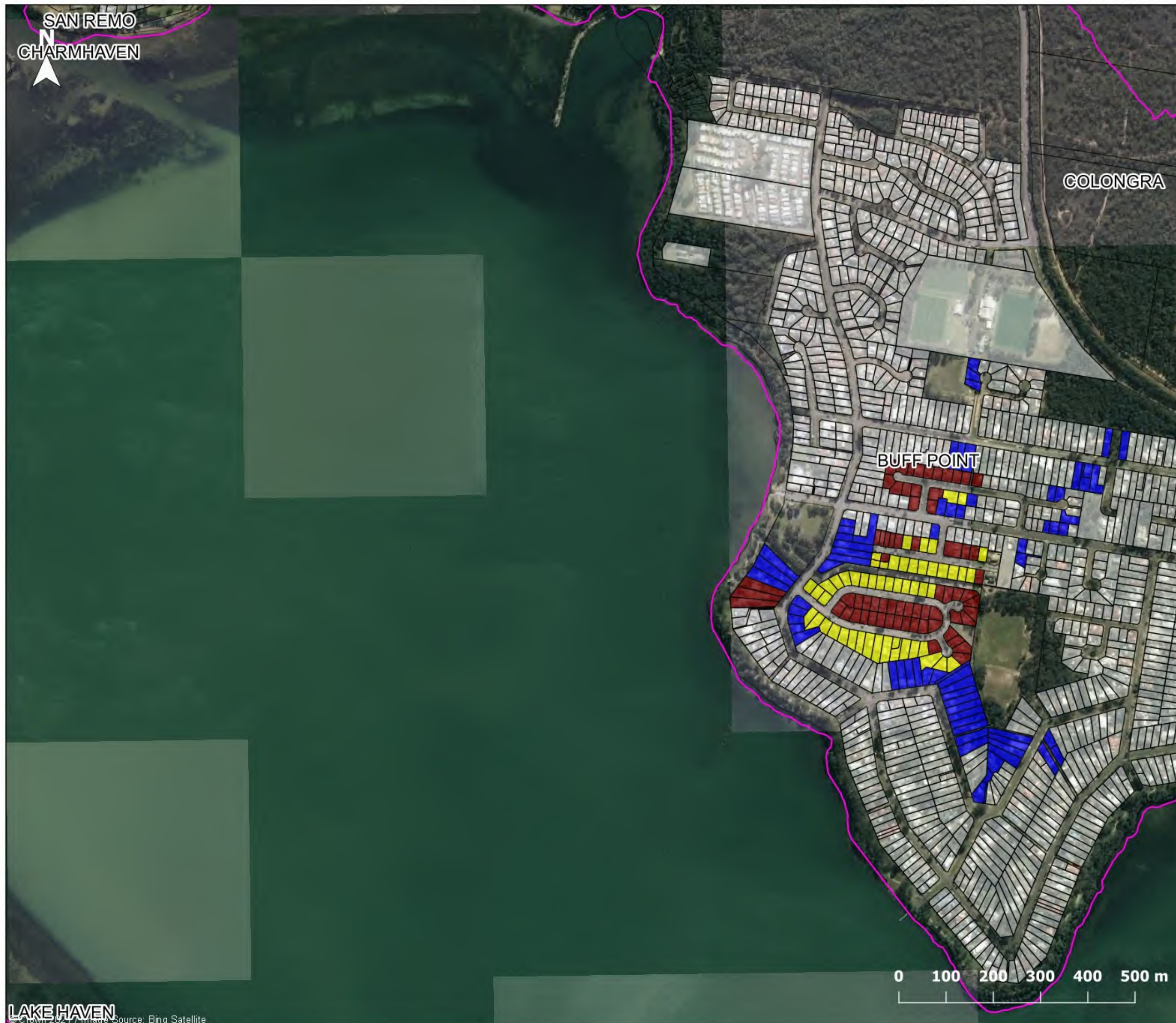


Figure E1.9

5%AEP Flood Emergency Response Classification

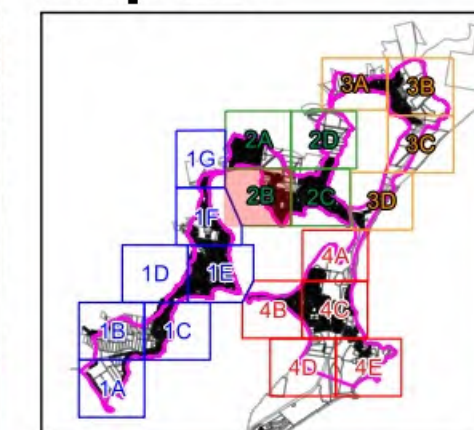
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 2B



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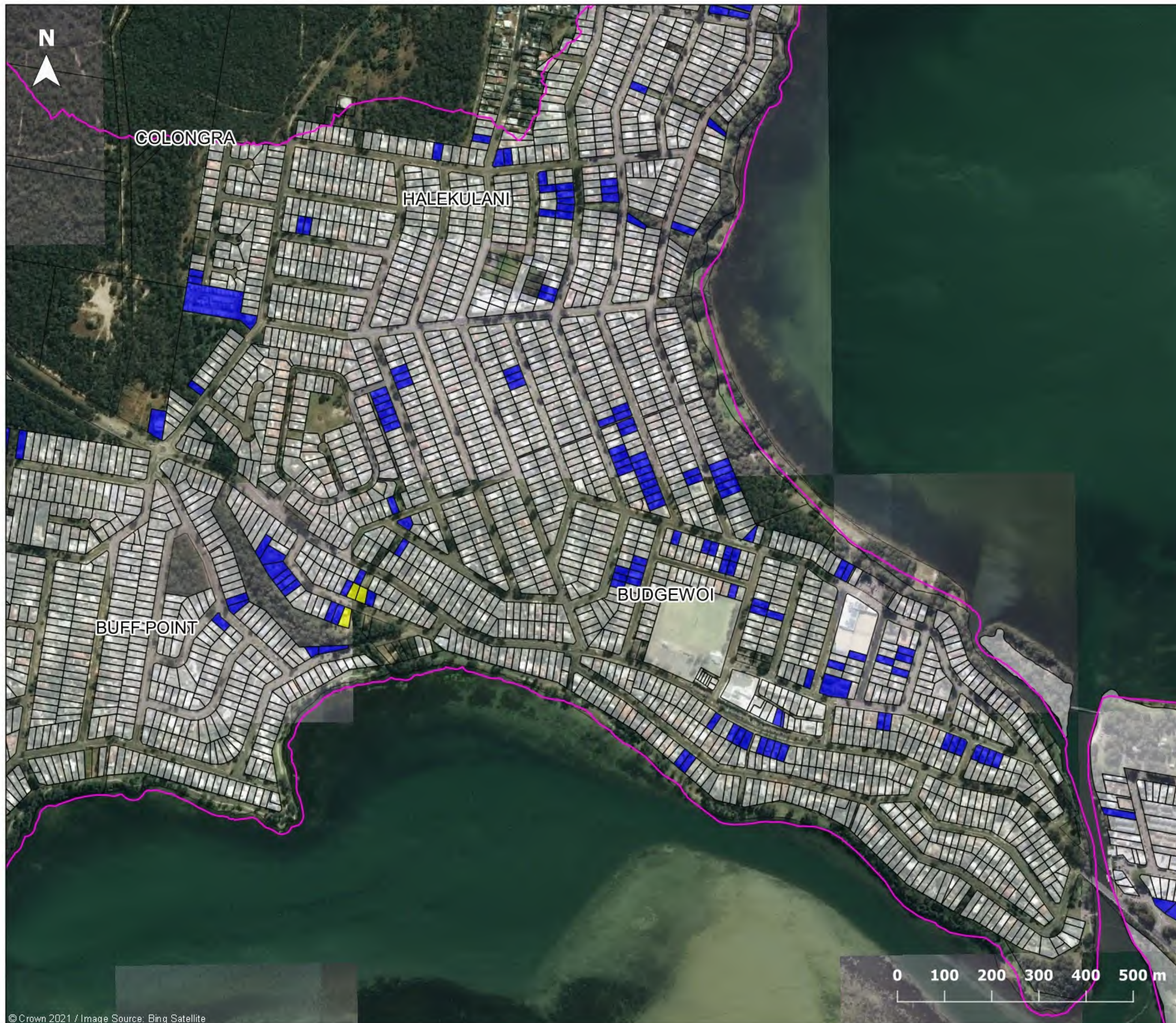


Figure E1.10

5%AEP Flood Emergency Response Classification

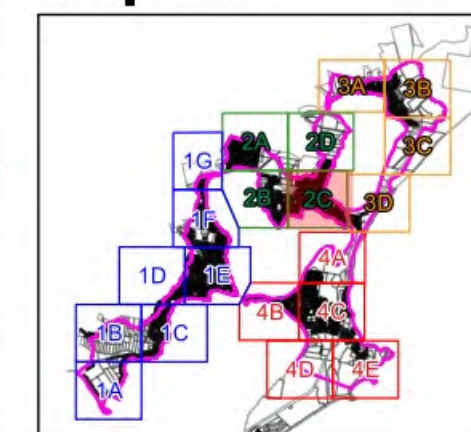
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 2C



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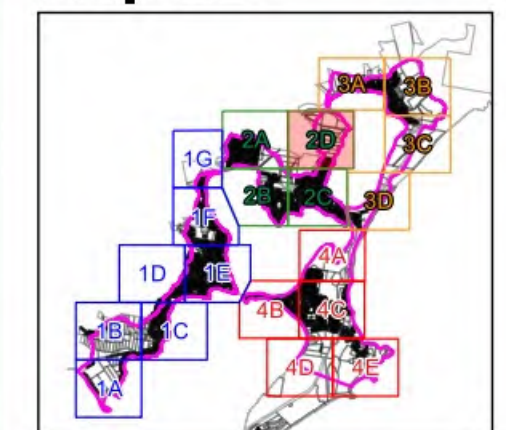
Figure E1.11

**5%AEP Flood
Emergency Response
Classification**

Legend

- Catchment area
- Cadastre
- Response Classification**
 - High Flood Island
 - Low Flood Island
 - Rising Road Access
 - Overland escape Route
 - Low Trapped Perimeter Area
 - High Trapped Perimeter Area
 - Indirectly Affected Area
 - Overland Refuge Area
 - Not Flood Affected

Map 2D



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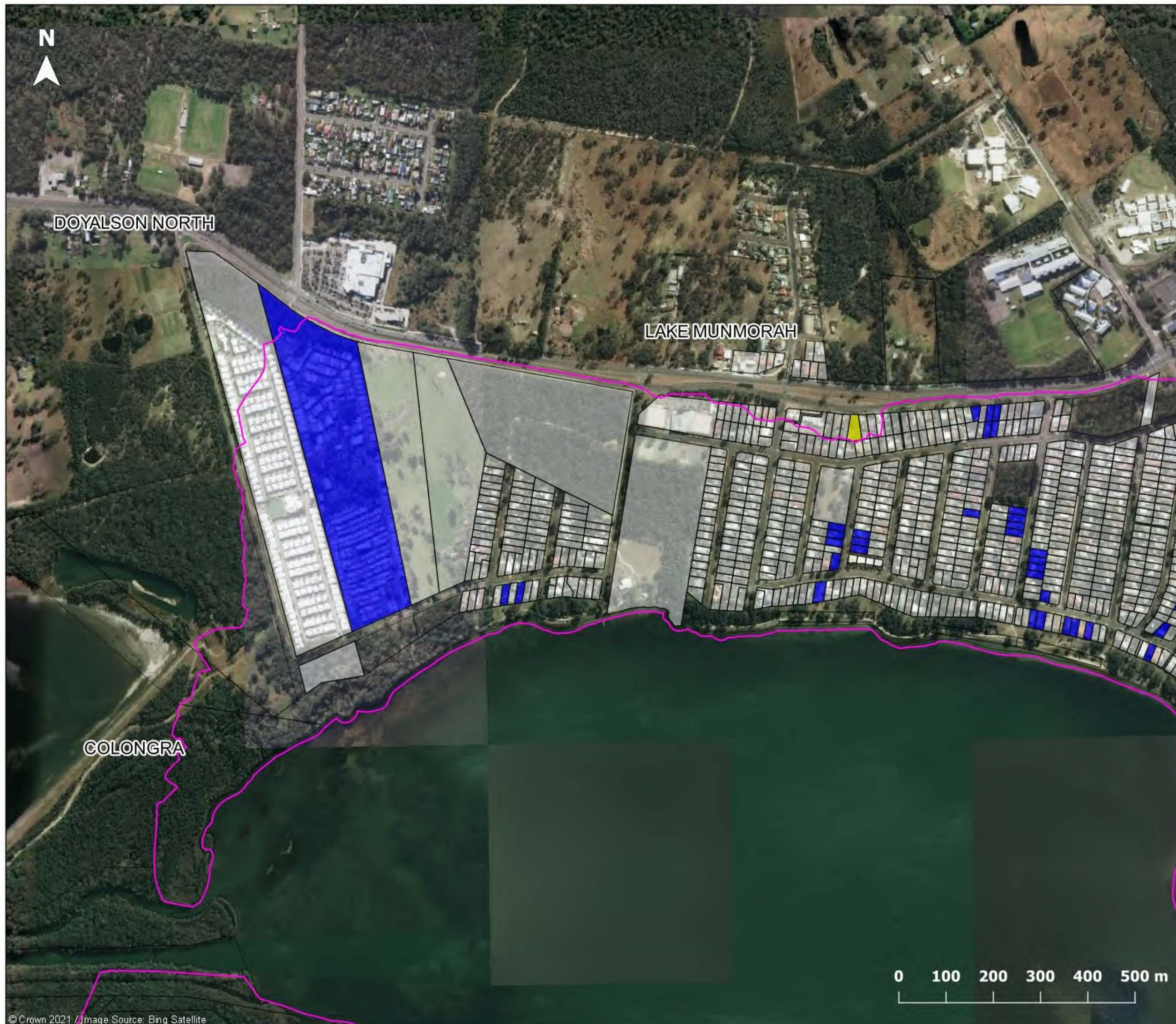


Figure E1.12

5%AEP Flood Emergency Response Classification

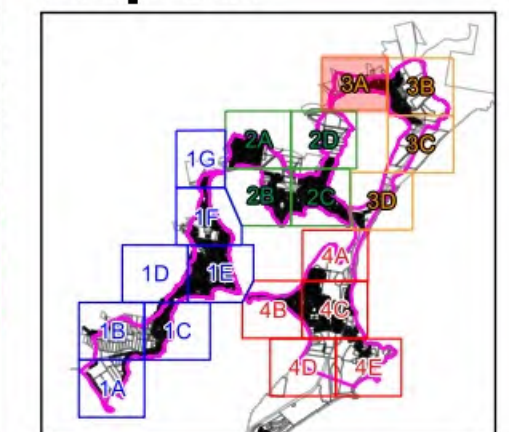
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 3A



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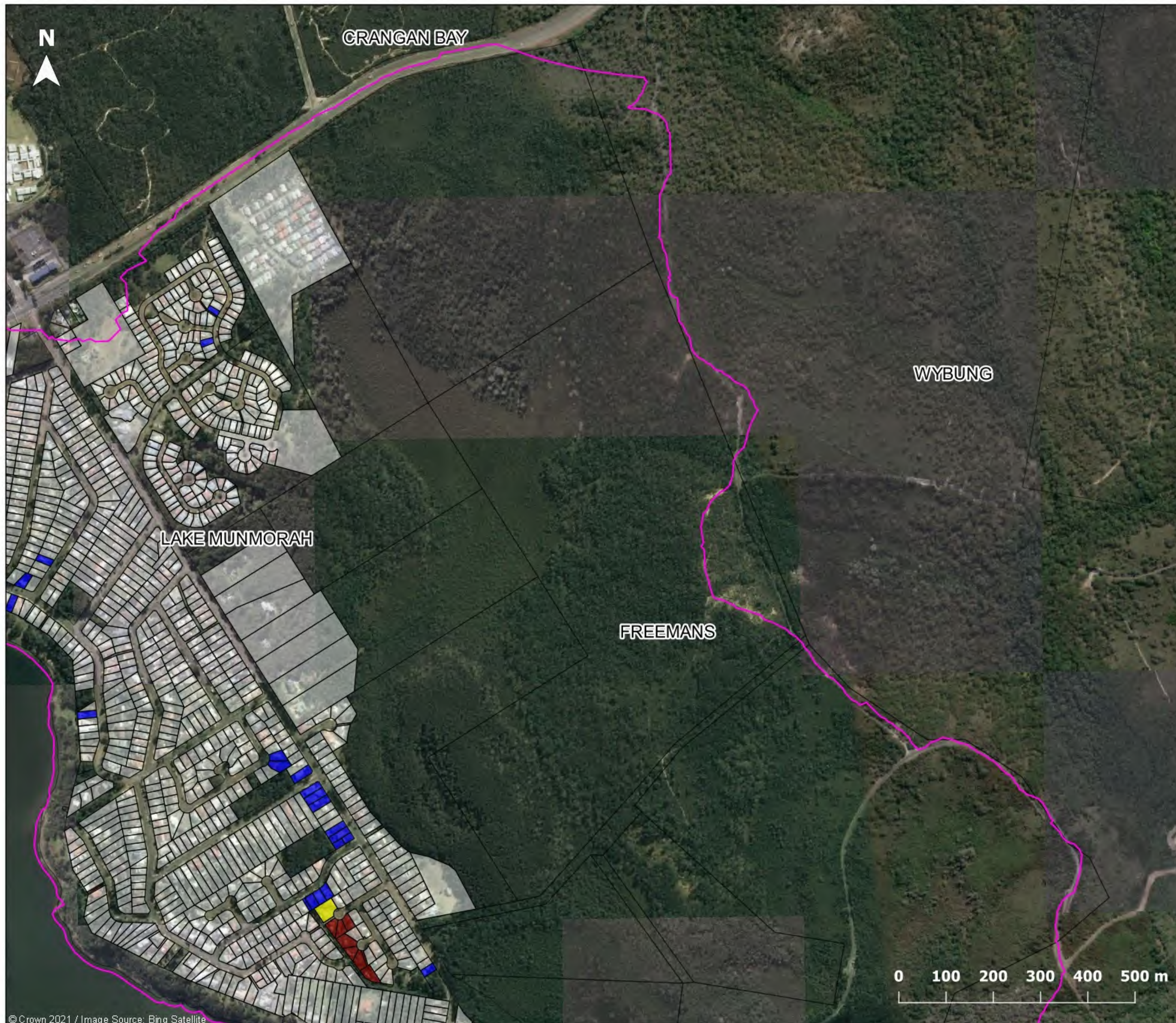


Figure E1.13

5%AEP Flood Emergency Response Classification

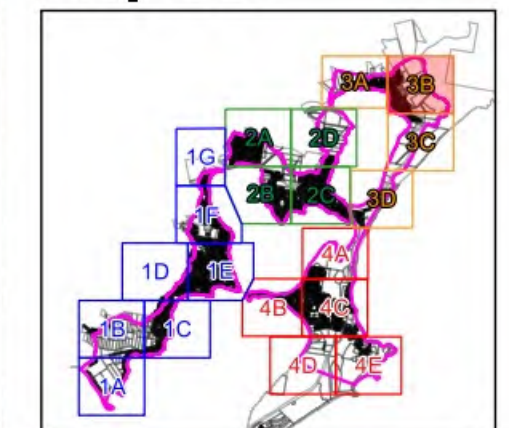
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 3B



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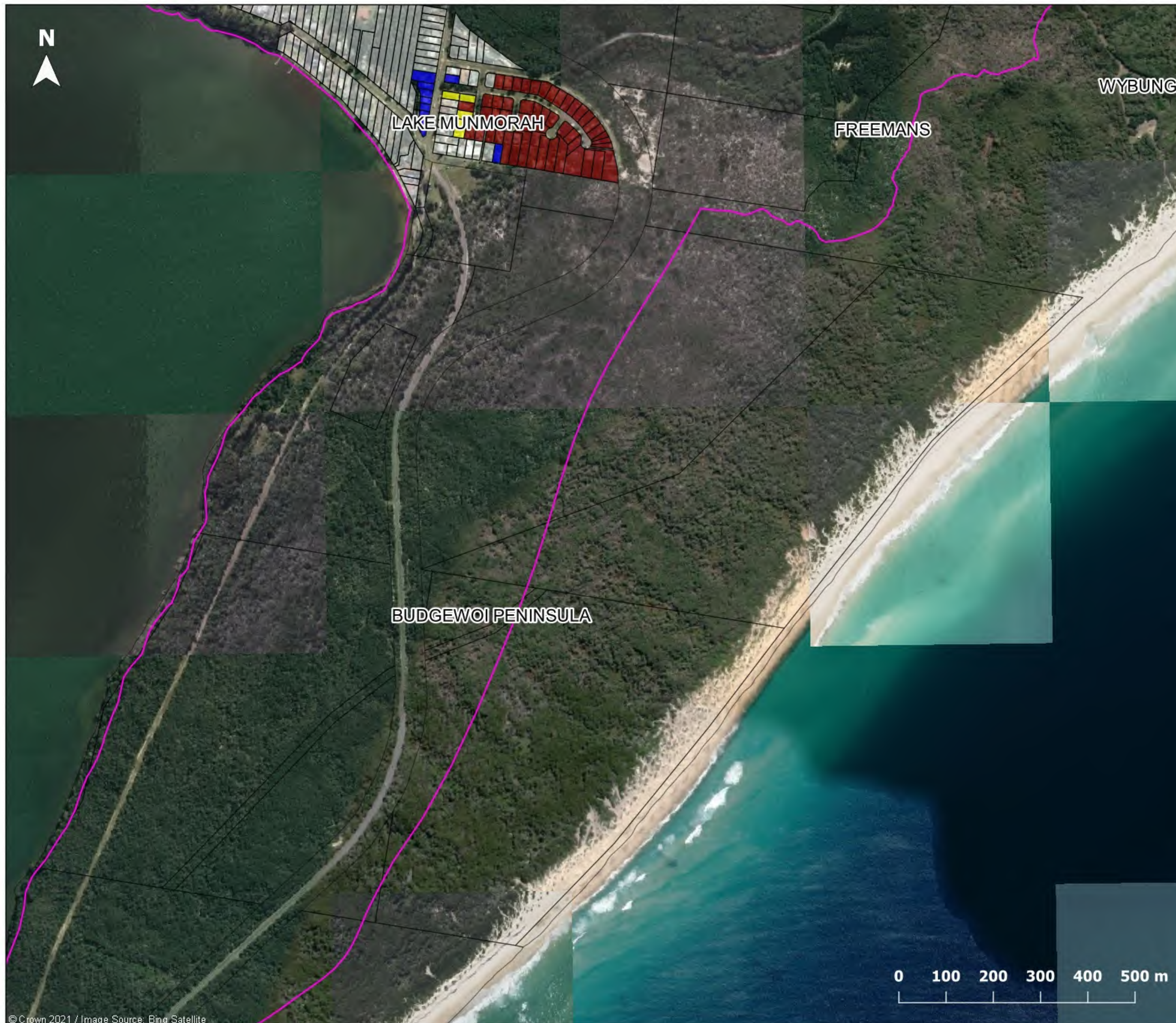


Figure E1.14

5%AEP Flood Emergency Response Classification

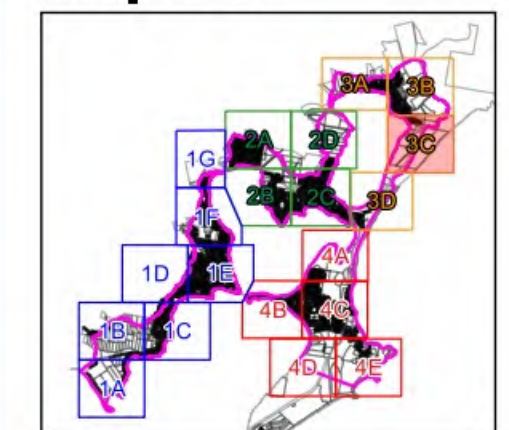
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 3C



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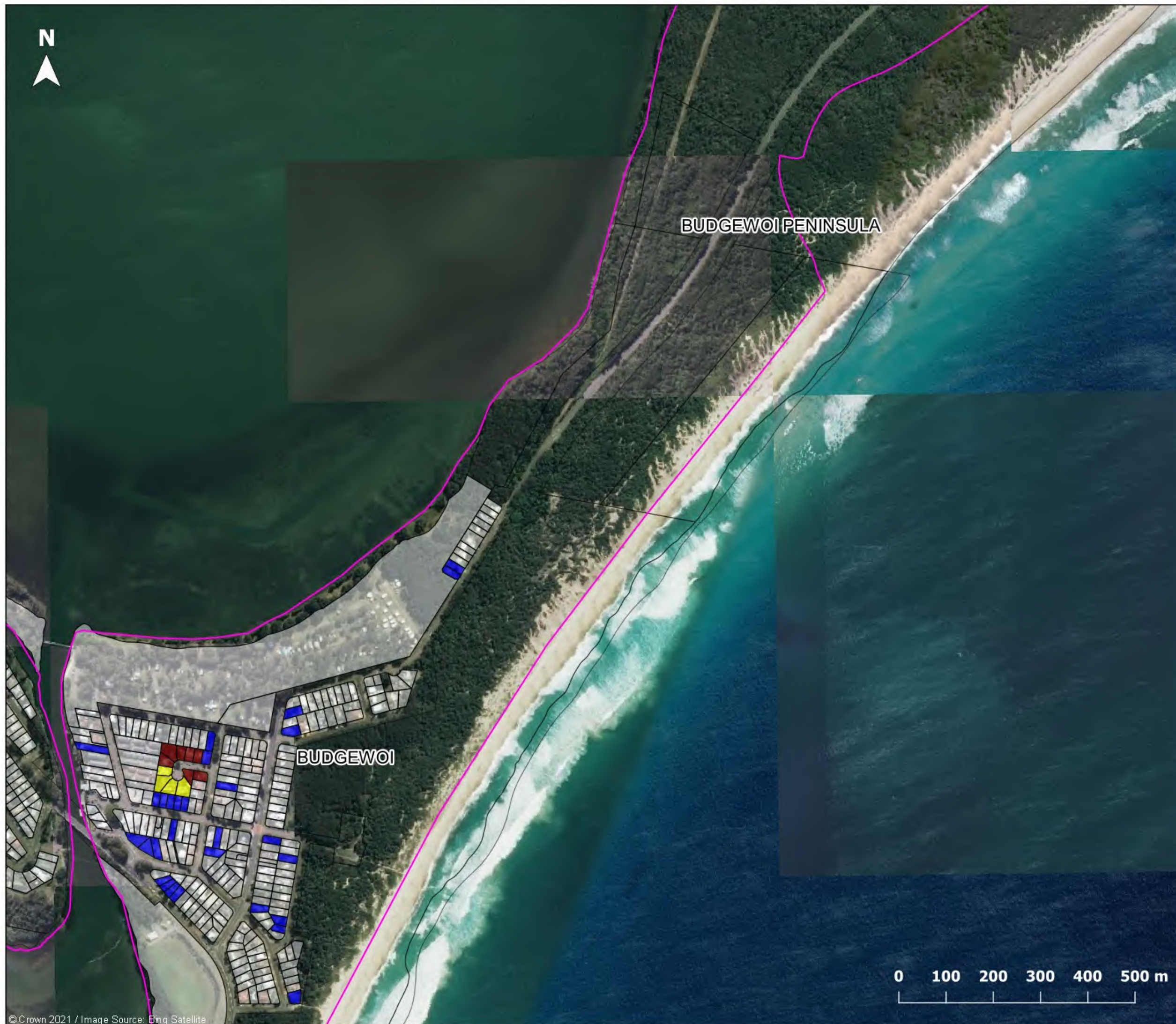


Figure E1.15

5% AEP Flood Emergency Response Classification

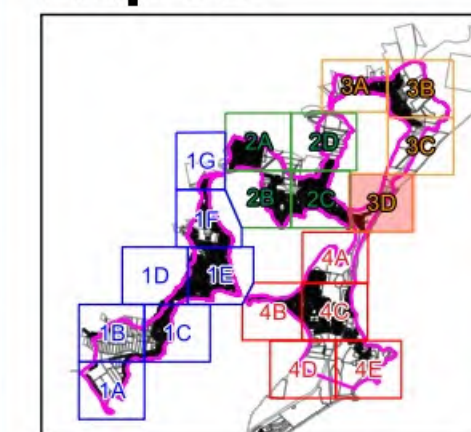
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 3D



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Figure E1.16

5%AEP Flood Emergency Response Classification

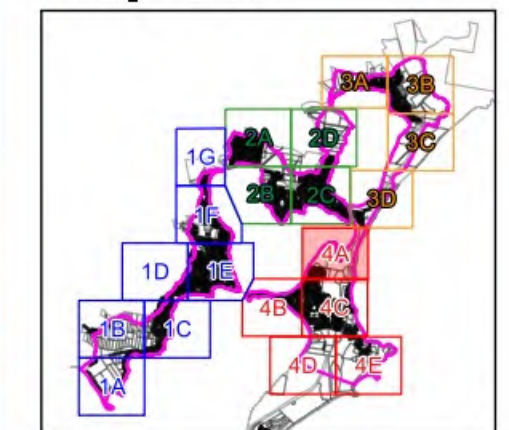
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 4A



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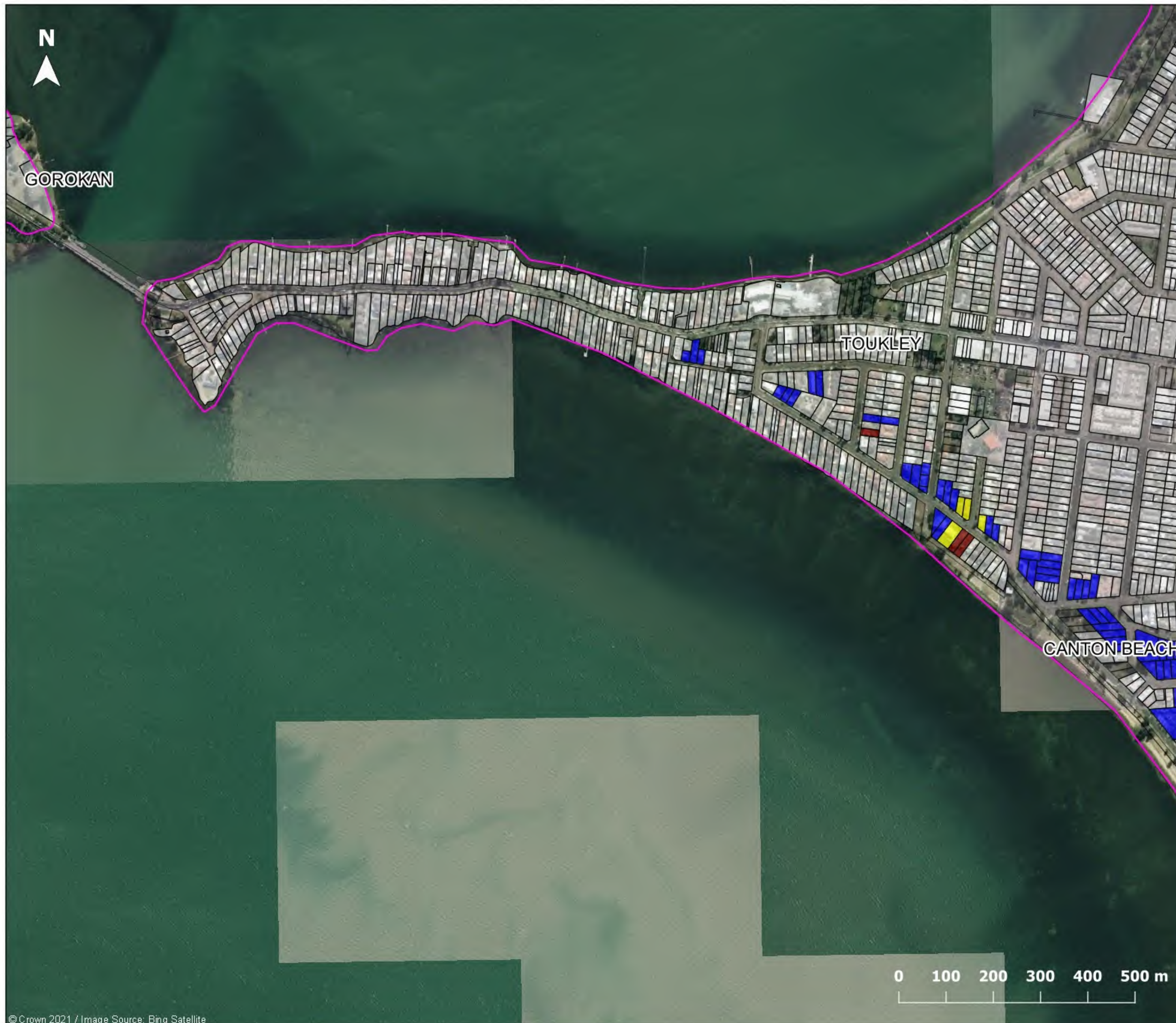


Figure E1.17

5%AEP Flood Emergency Response Classification

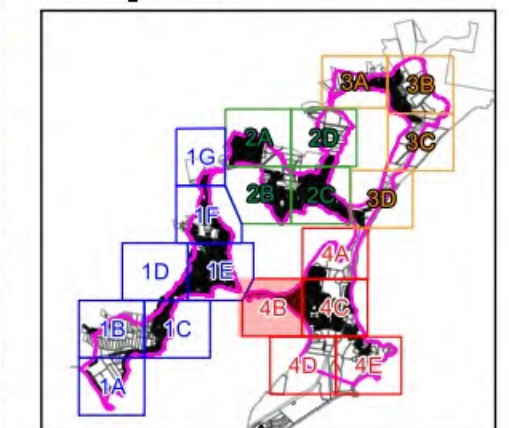
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 4B



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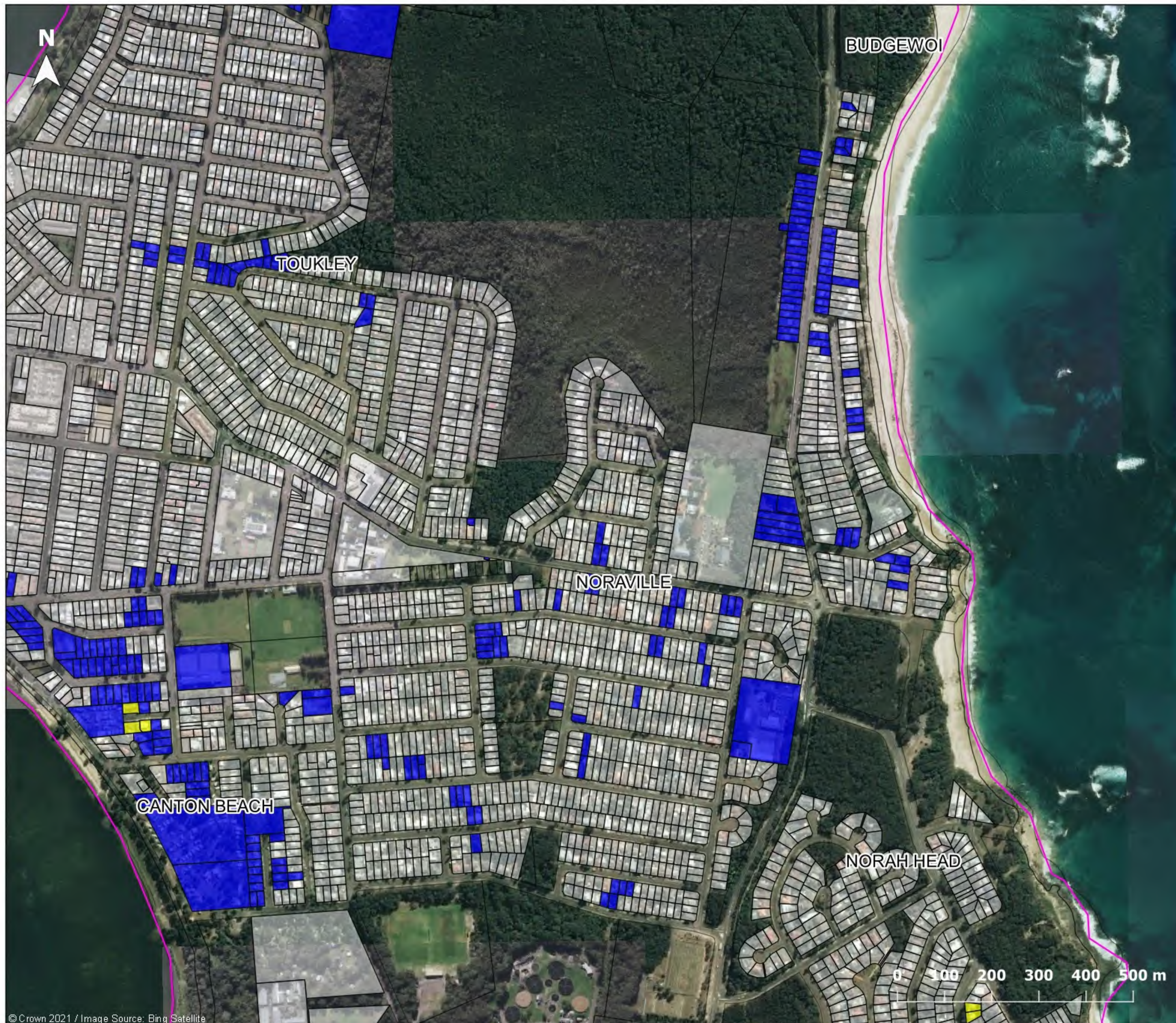


Figure E1.18

5% AEP Flood Emergency Response Classification

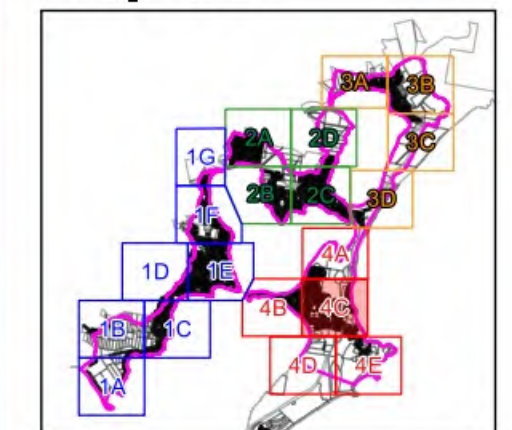
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 4C



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Figure E1.19

5% AEP Flood Emergency Response Classification

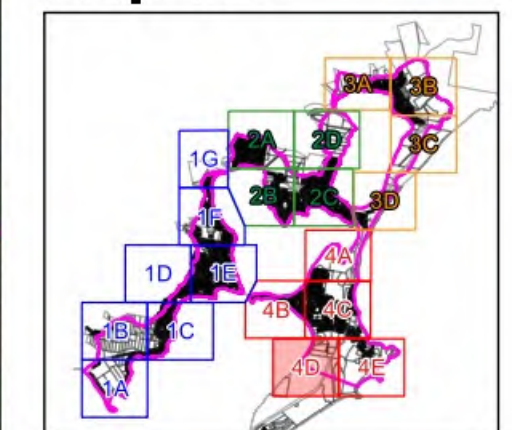
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 4D



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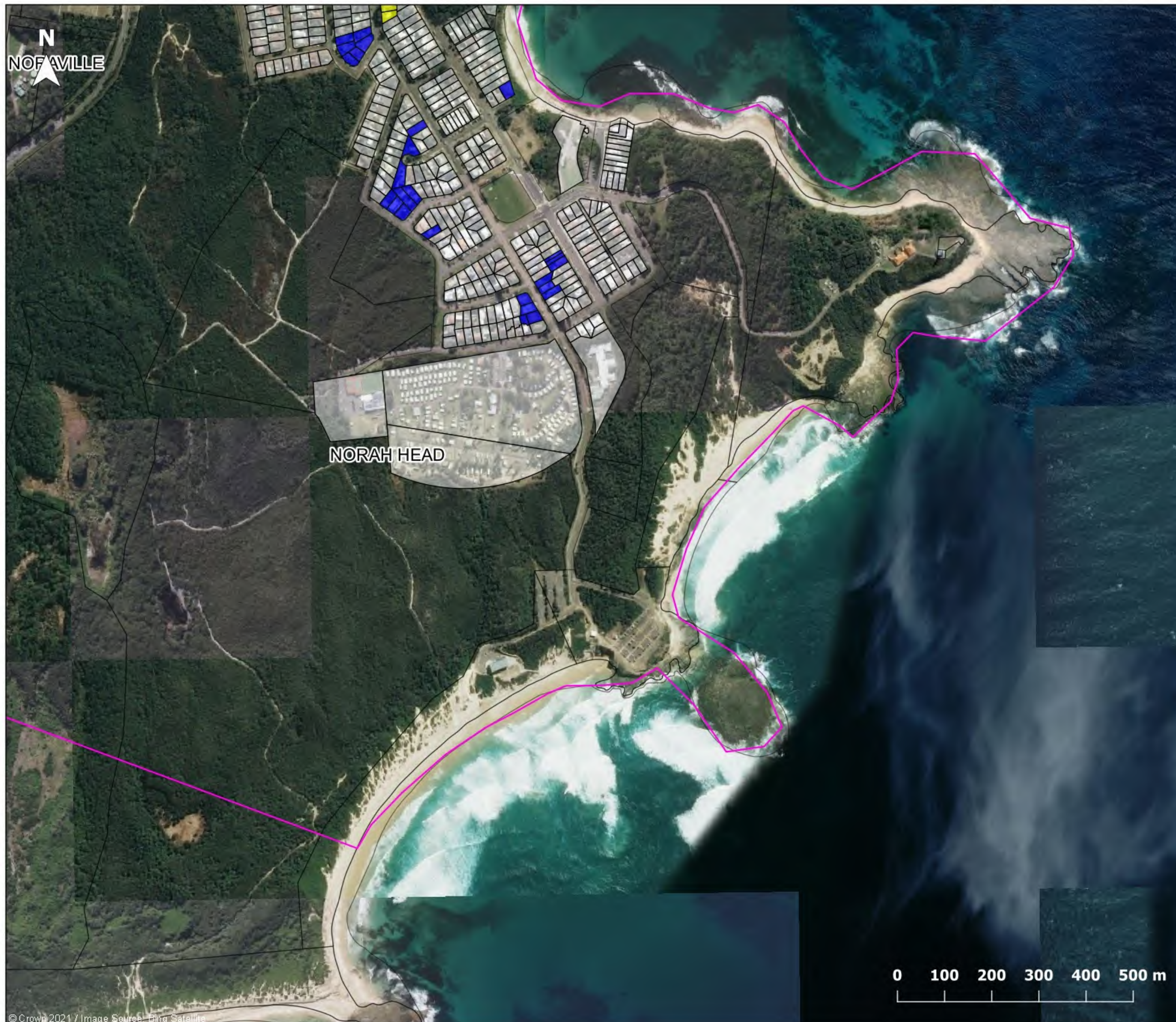


Figure E1.20

5%AEP Flood Emergency Response Classification

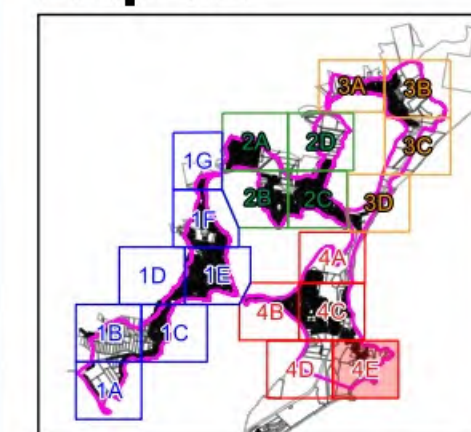
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 4E



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Figure E2.1

1%AEP Flood Emergency Response Classification

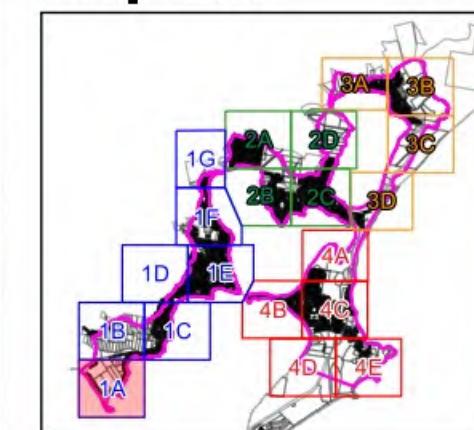
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1A



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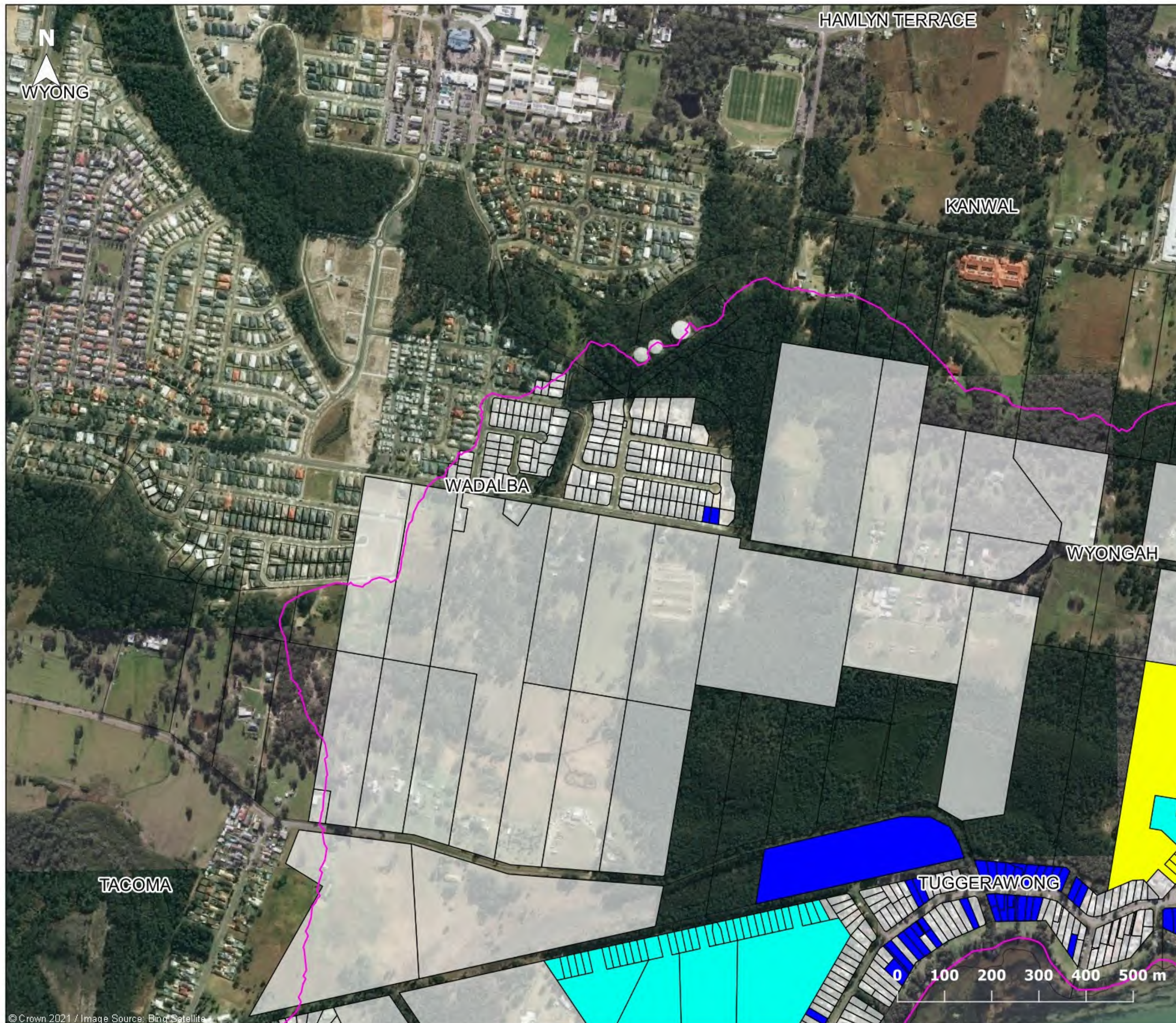


Figure E2.2

1%AEP Flood Emergency Response Classification

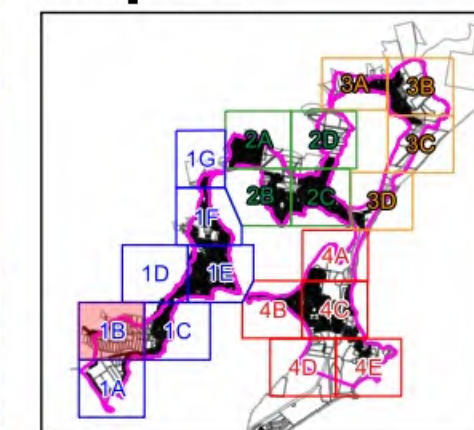
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1B



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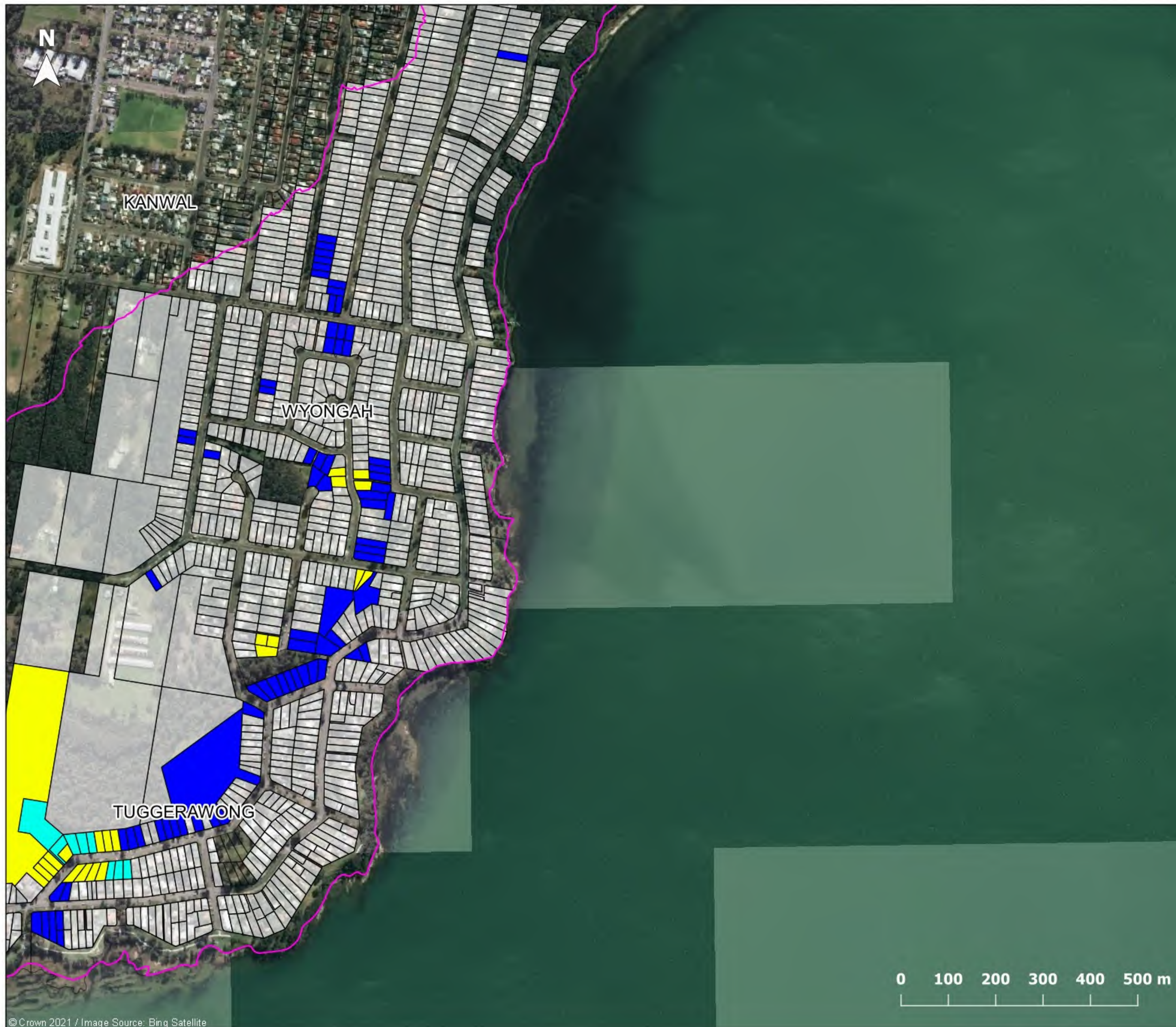


Figure E2.3

1%AEP Flood Emergency Response Classification

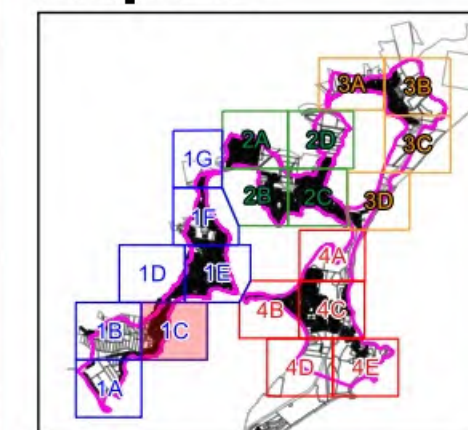
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1C



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Figure E2.4

1%AEP Flood Emergency Response Classification

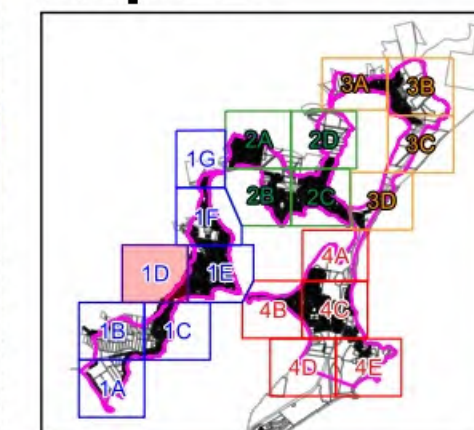
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1D



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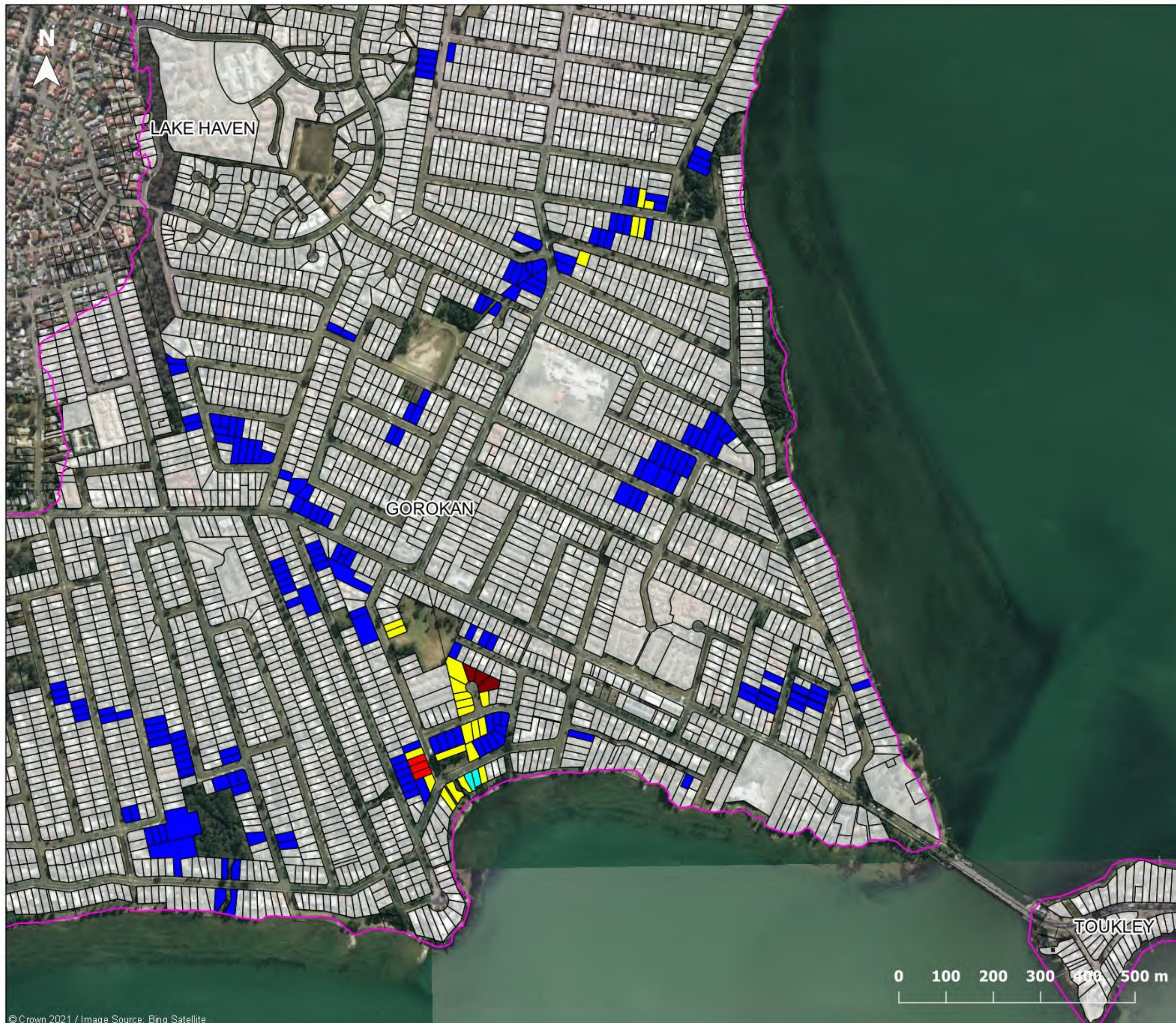


Figure E2.5

1%AEP Flood Emergency Response Classification

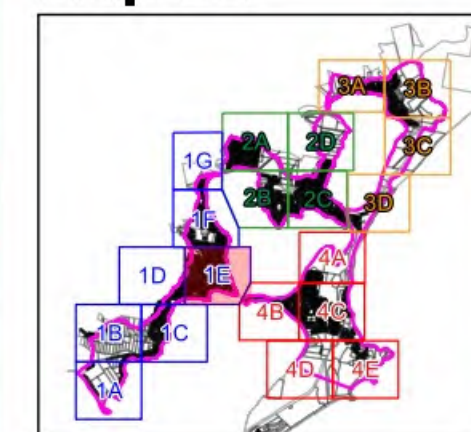
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1E



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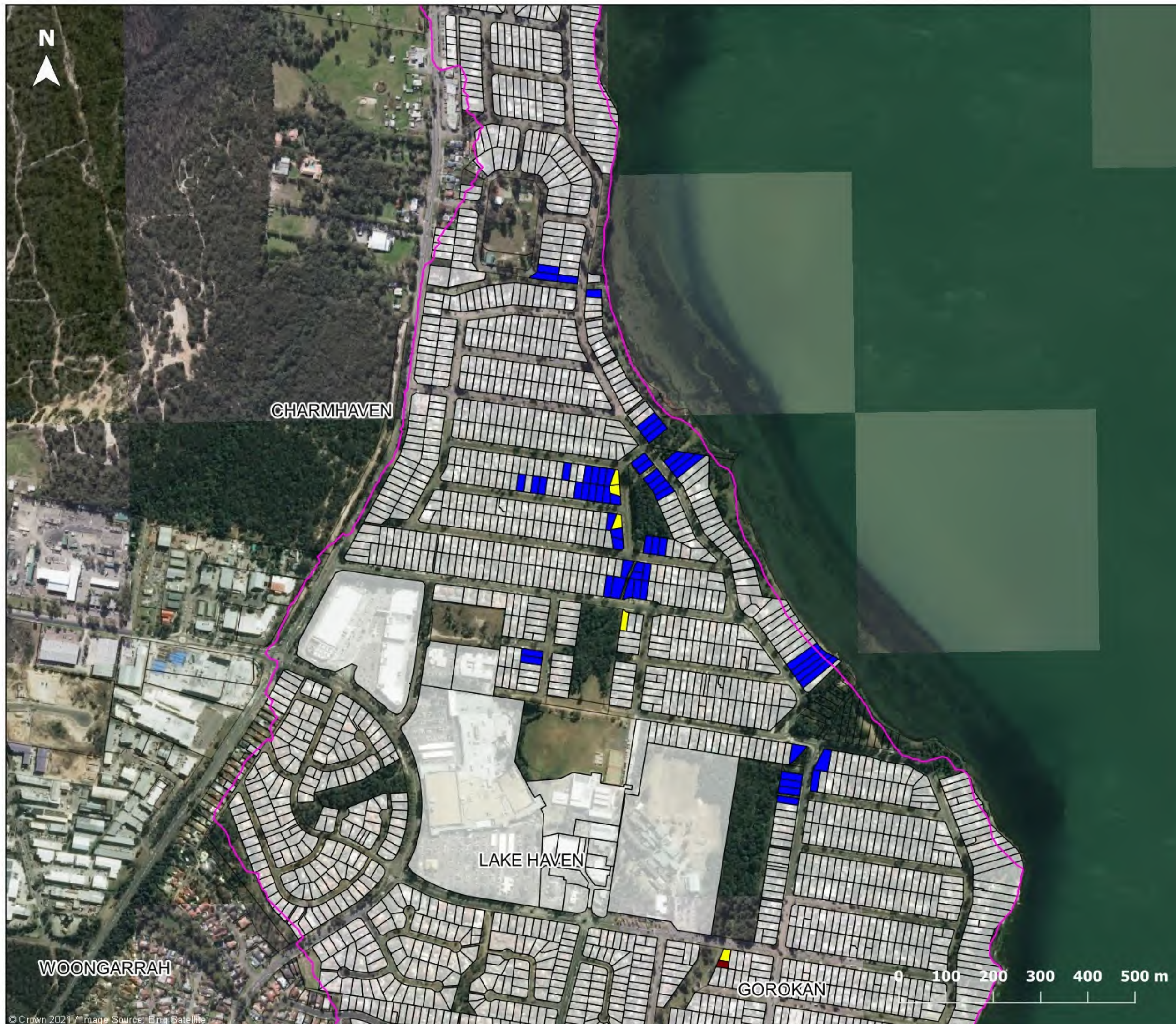


Figure E2.6

1%AEP Flood Emergency Response Classification

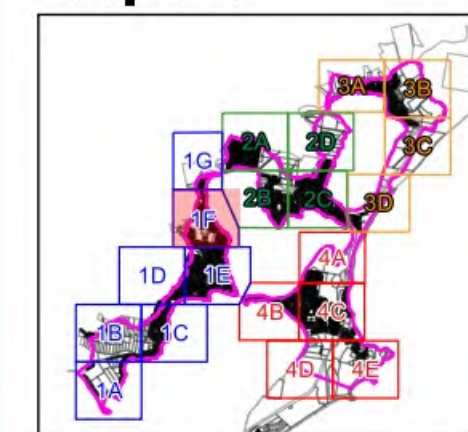
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1F



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Figure E2.7

1%AEP Flood Emergency Response Classification

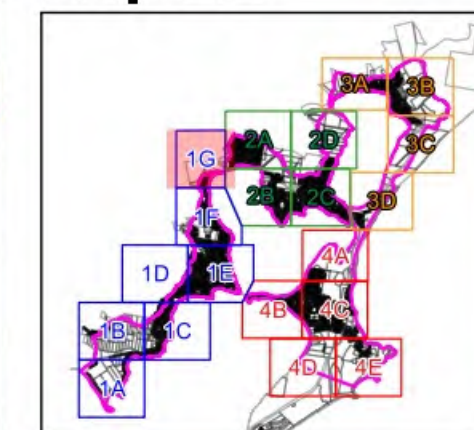
Legend

- Catchment area
- Cadastral

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1G



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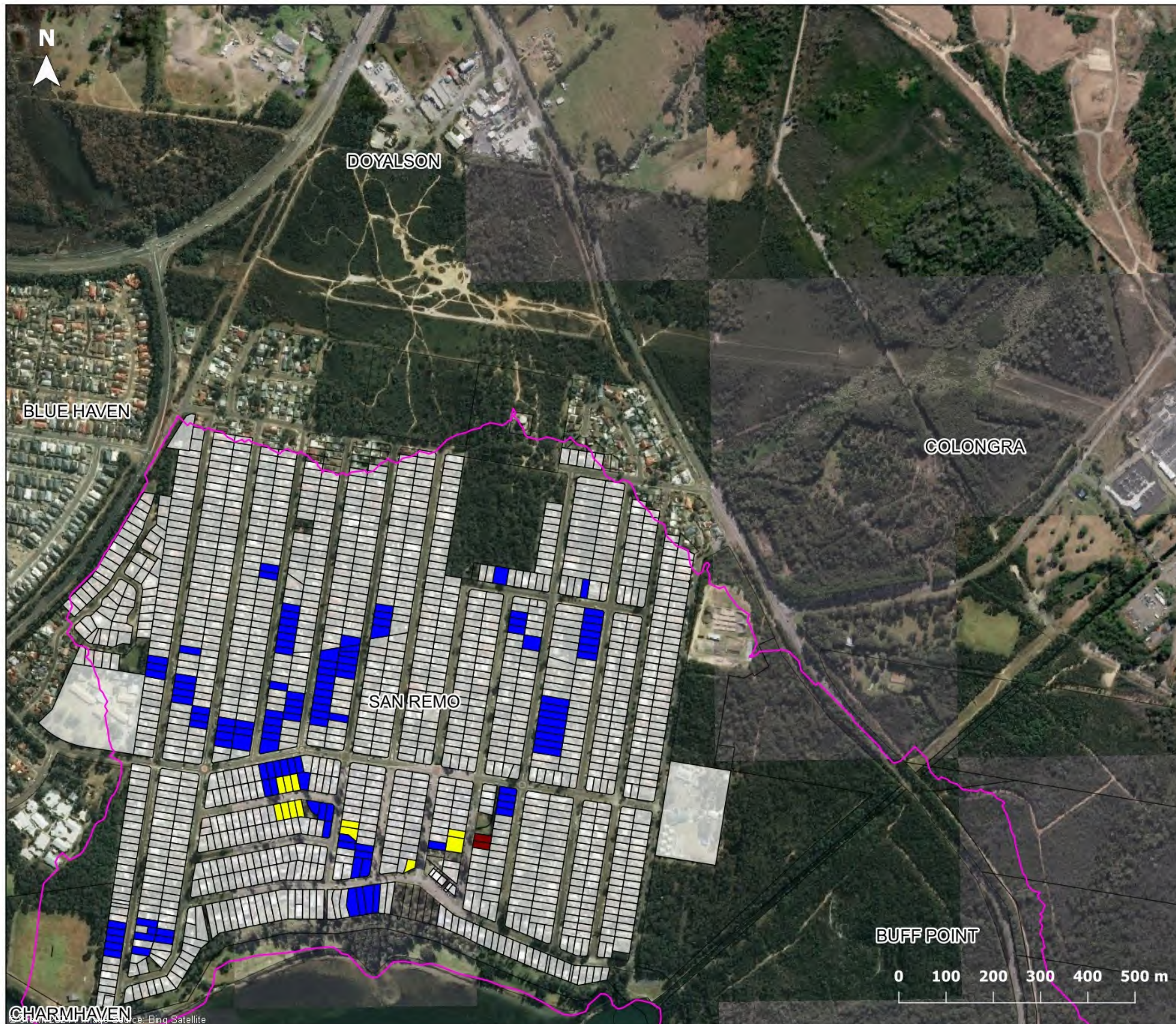


Figure E2.8

1%AEP Flood Emergency Response Classification

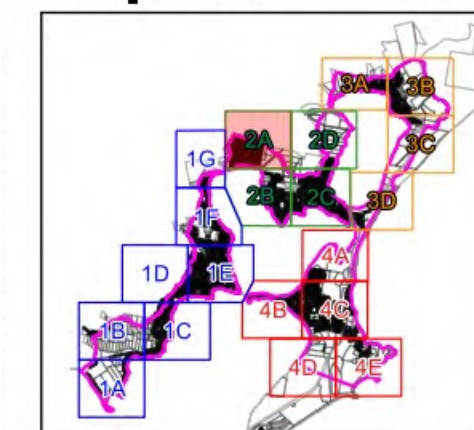
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 2A



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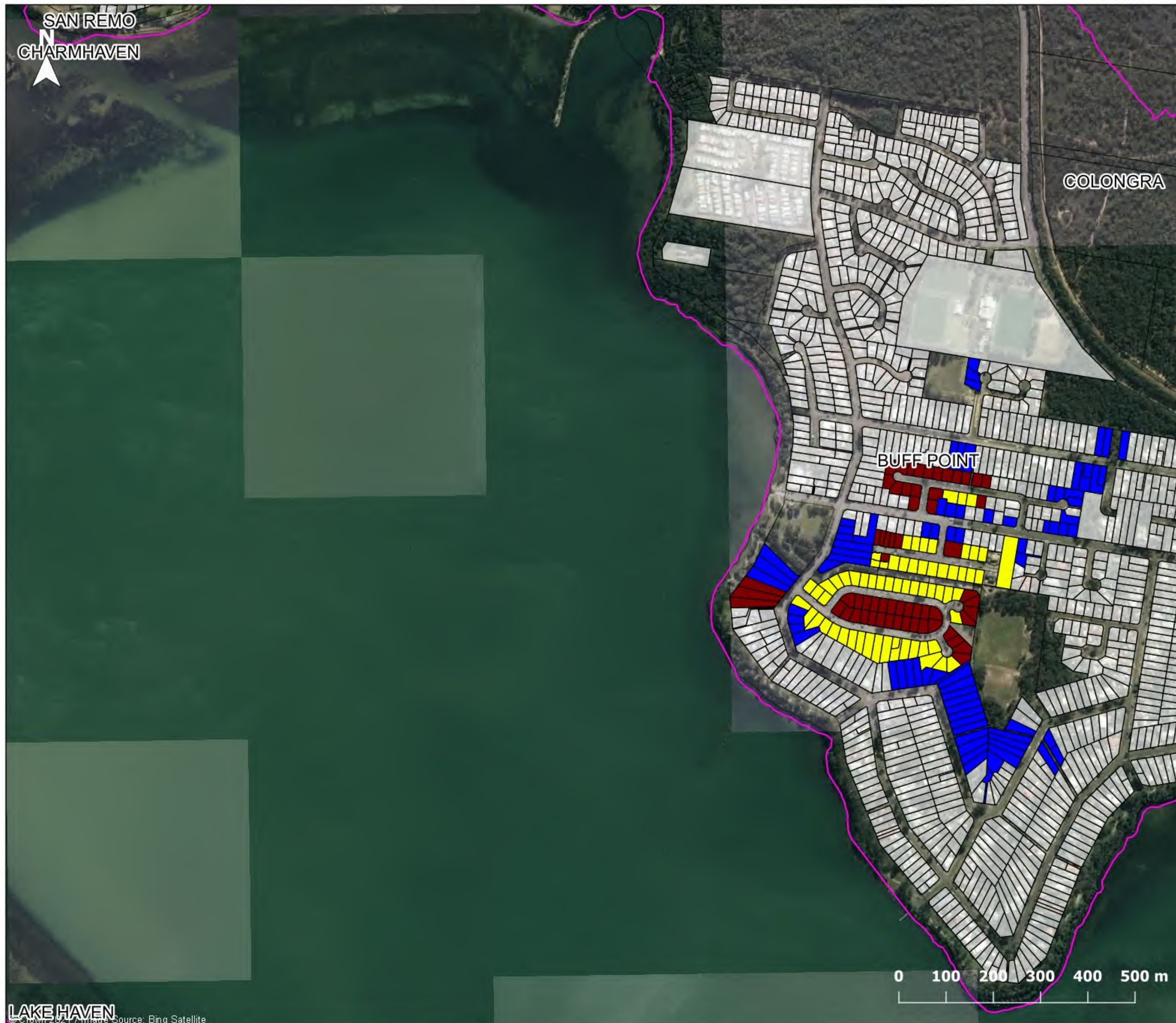


Figure E2.9

**1% AEP Flood
Emergency Response
Classification**

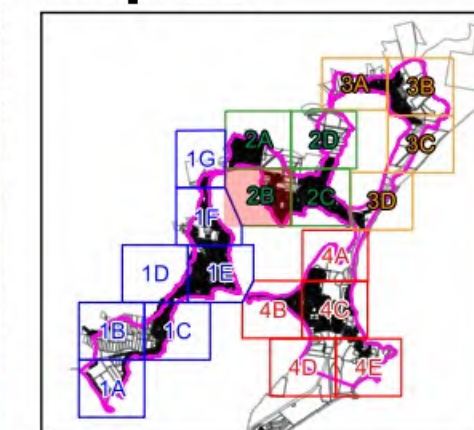
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 2B



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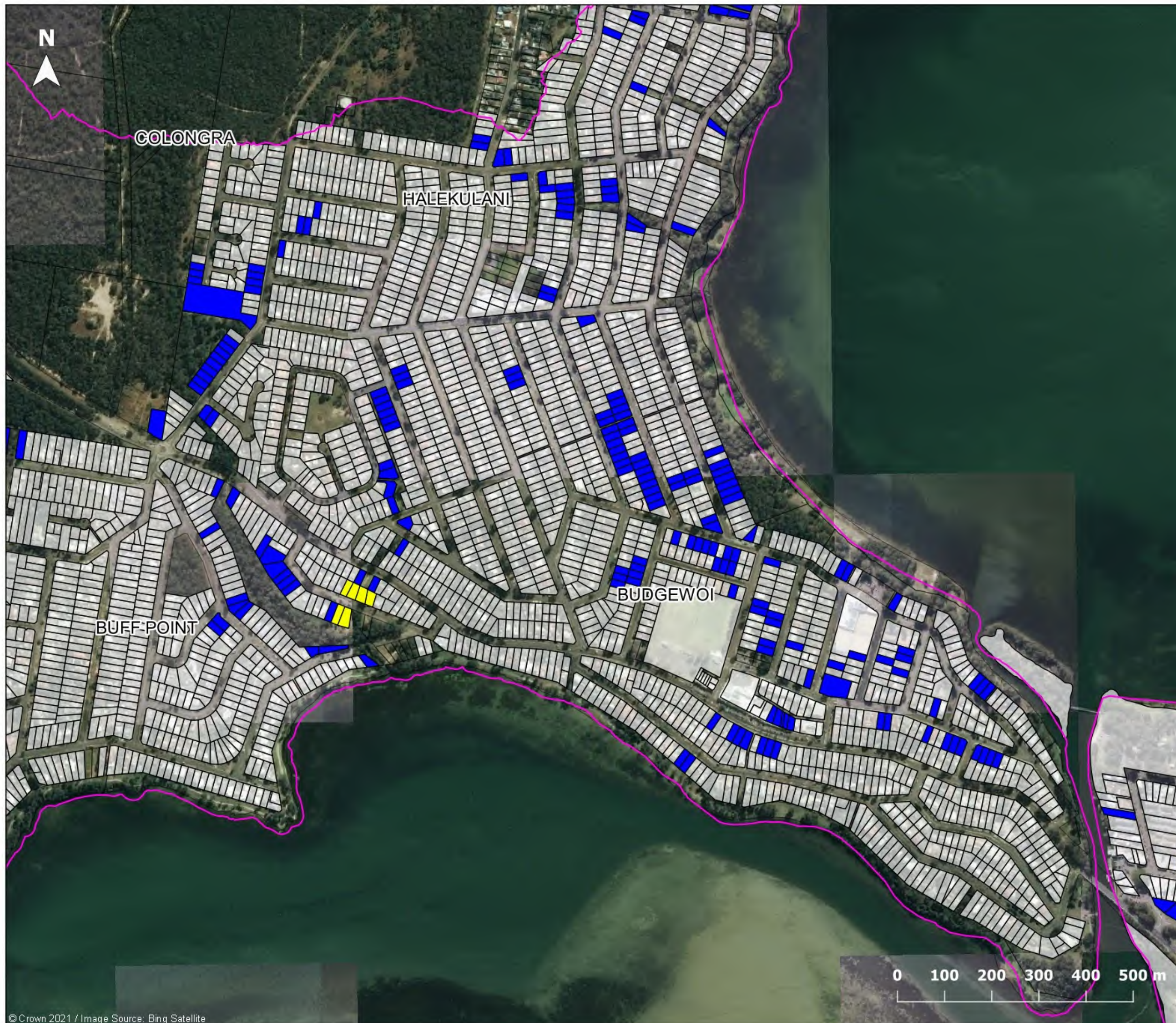


Figure E2.10

1%AEP Flood Emergency Response Classification

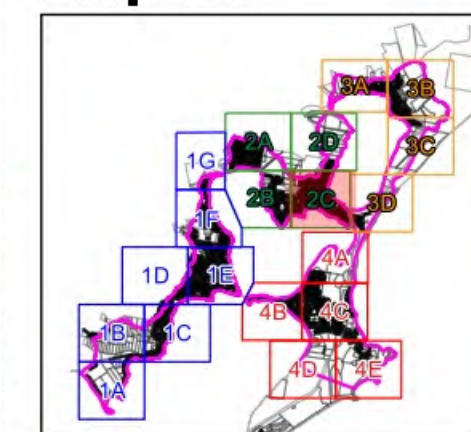
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 2C



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Figure E2.11

1%AEP Flood Emergency Response Classification

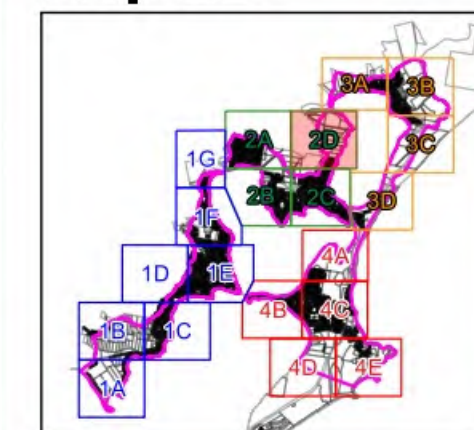
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 2D



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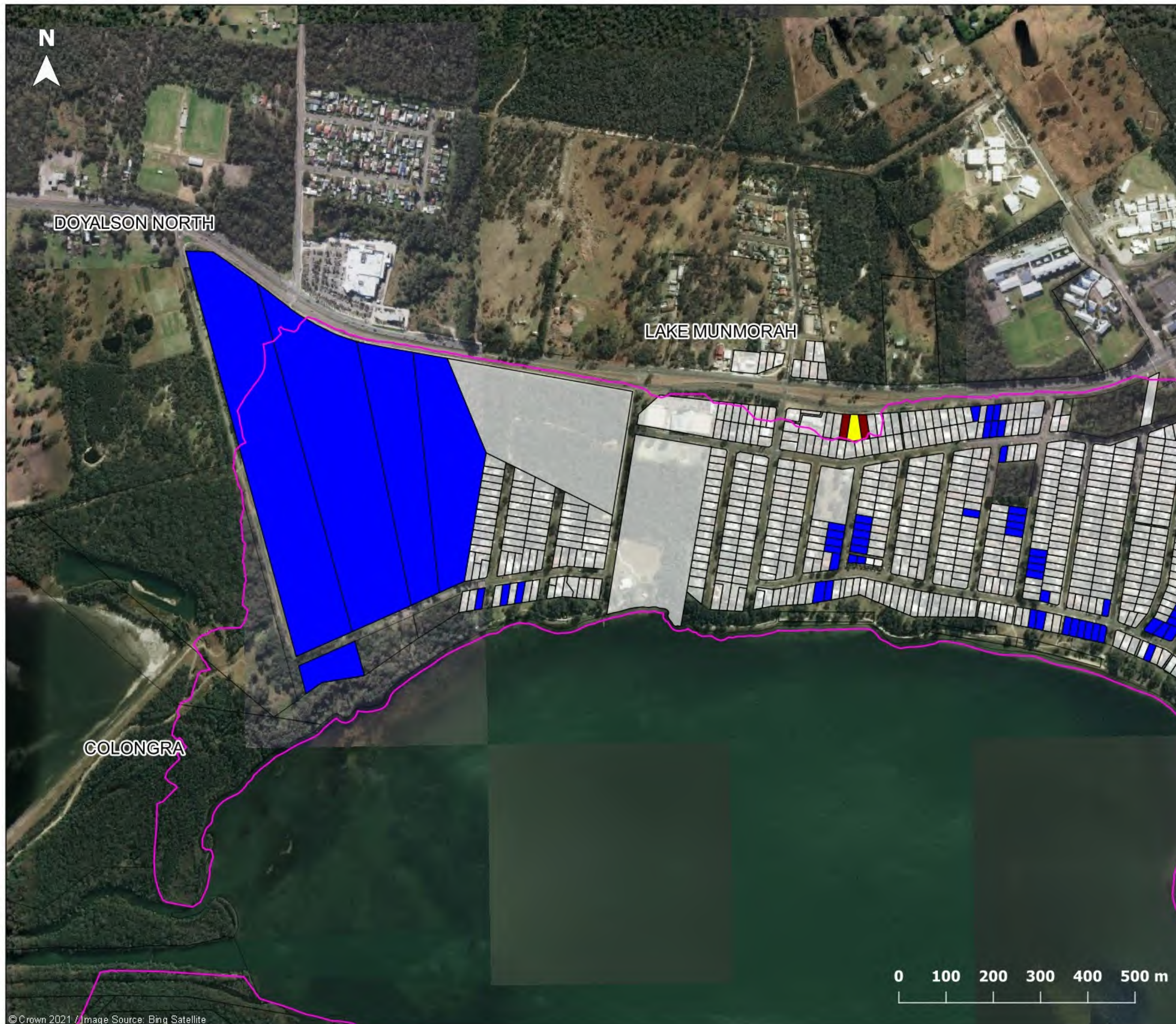


Figure E2.12

1%AEP Flood Emergency Response Classification

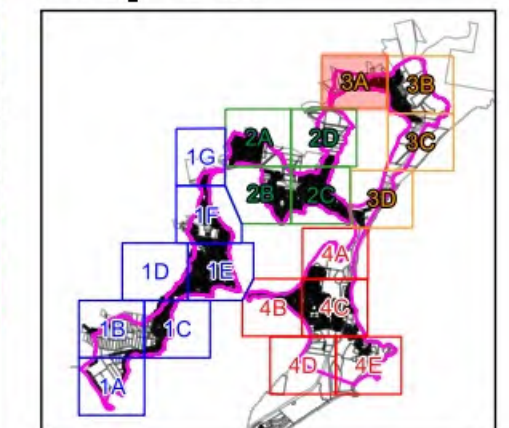
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 3A



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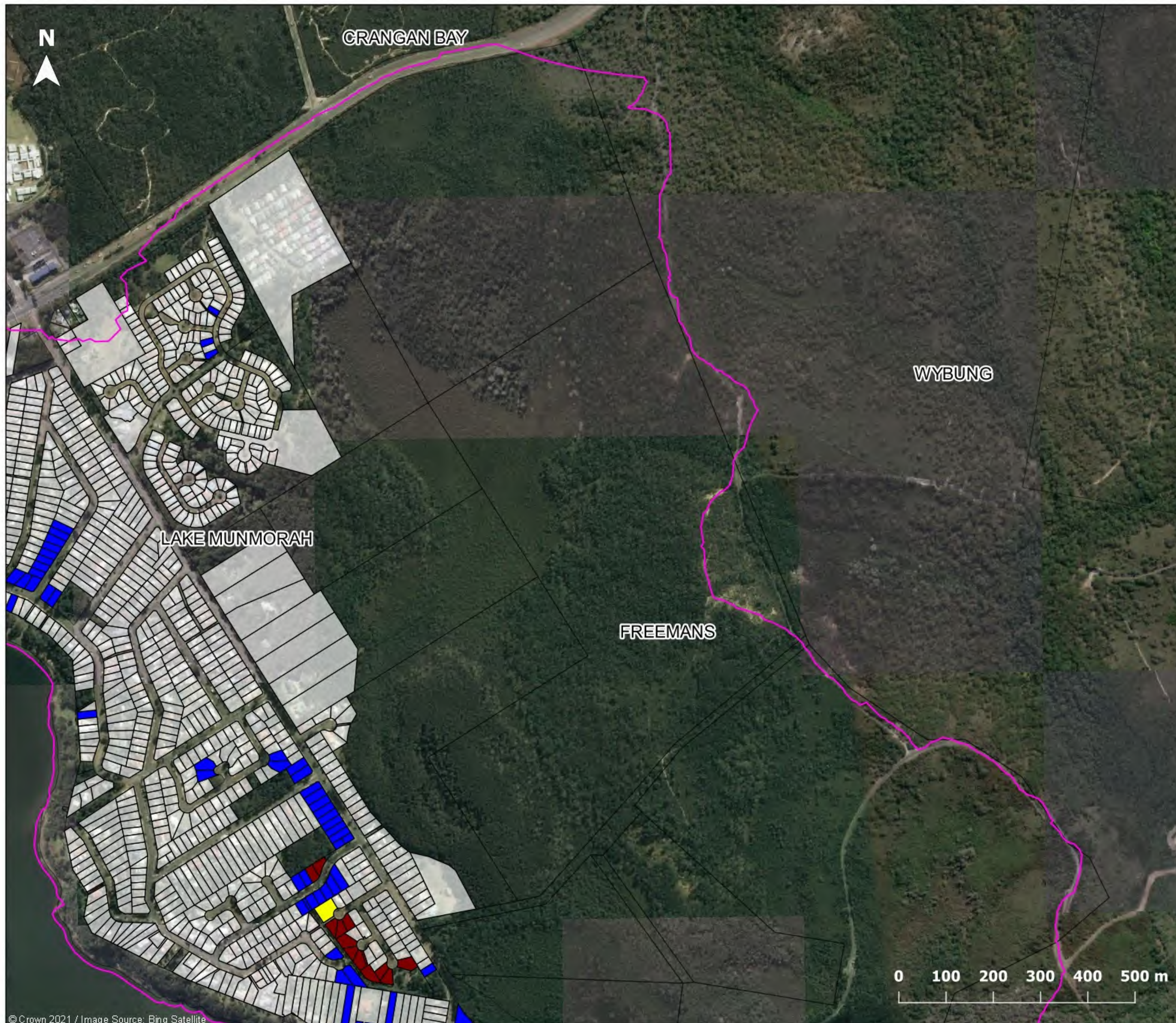


Figure E2.13

1%AEP Flood Emergency Response Classification

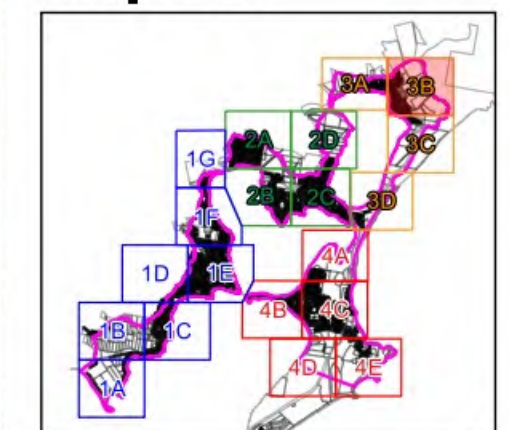
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 3B



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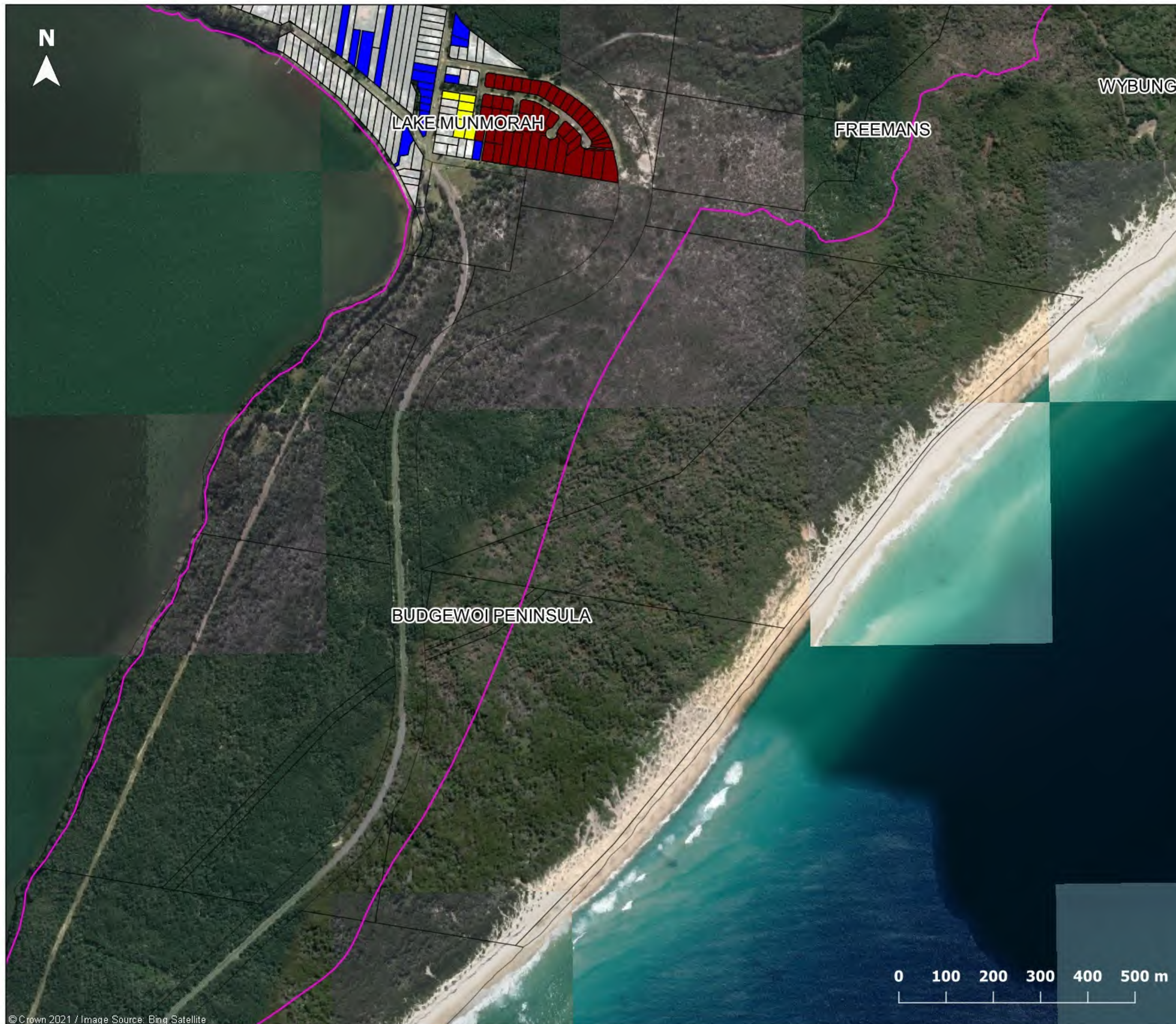


Figure E2.14

1%AEP Flood Emergency Response Classification

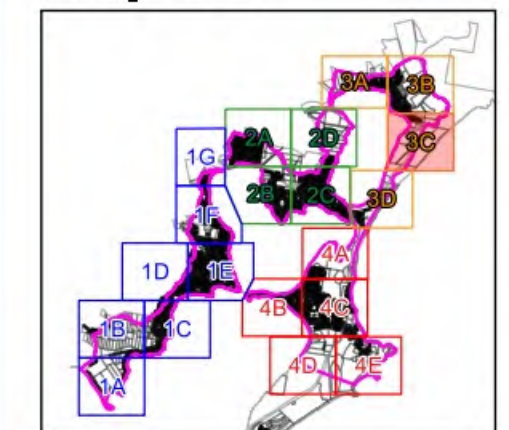
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 3C



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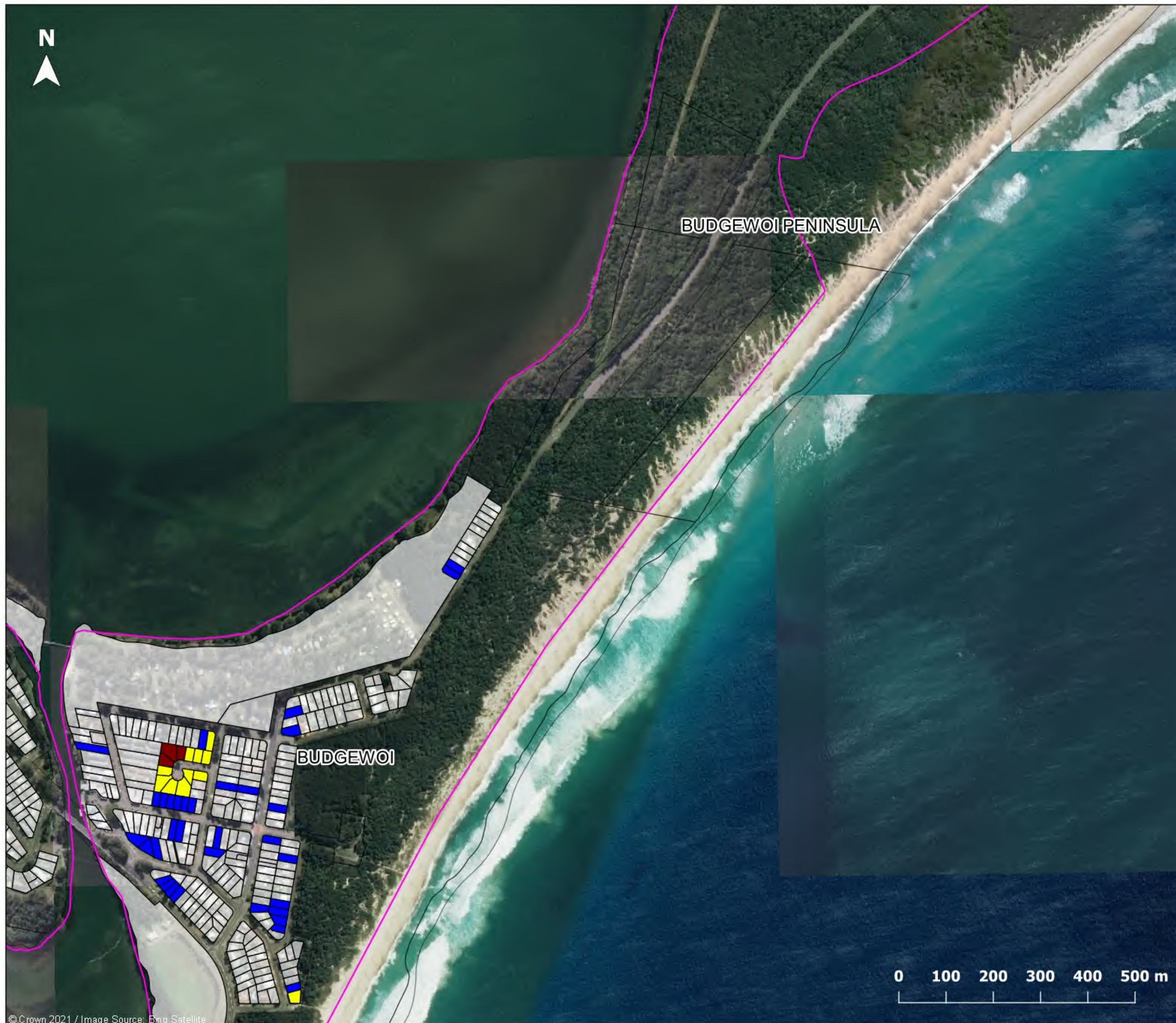


Figure E2.15

1%AEP Flood Emergency Response Classification

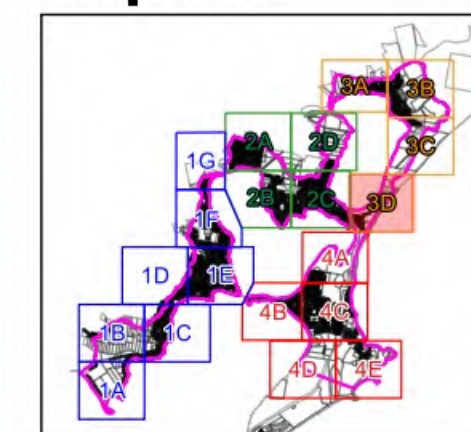
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 3D



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Figure E2.16

1%AEP Flood Emergency Response Classification

Legend

Catchment area

Cadastre

Response Classification

High Flood Island

Low Flood Island

Rising Road Access

Overland escape Route

Low Trapped Perimeter Area

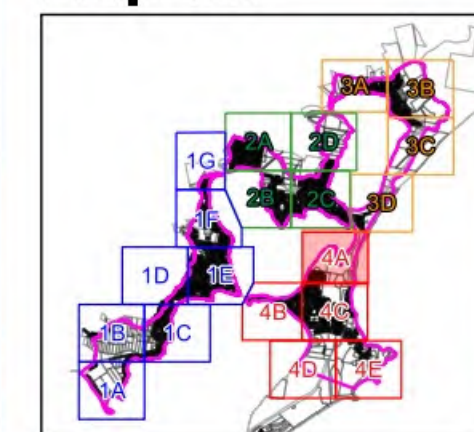
High Trapped Perimeter Area

Indirectly Affected Area

Overland Refuge Area

Not Flood Affected

Map 4A



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Figure E2.17

1%AEP Flood Emergency Response Classification

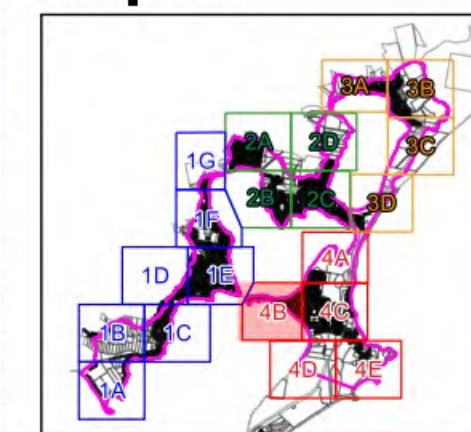
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 4B



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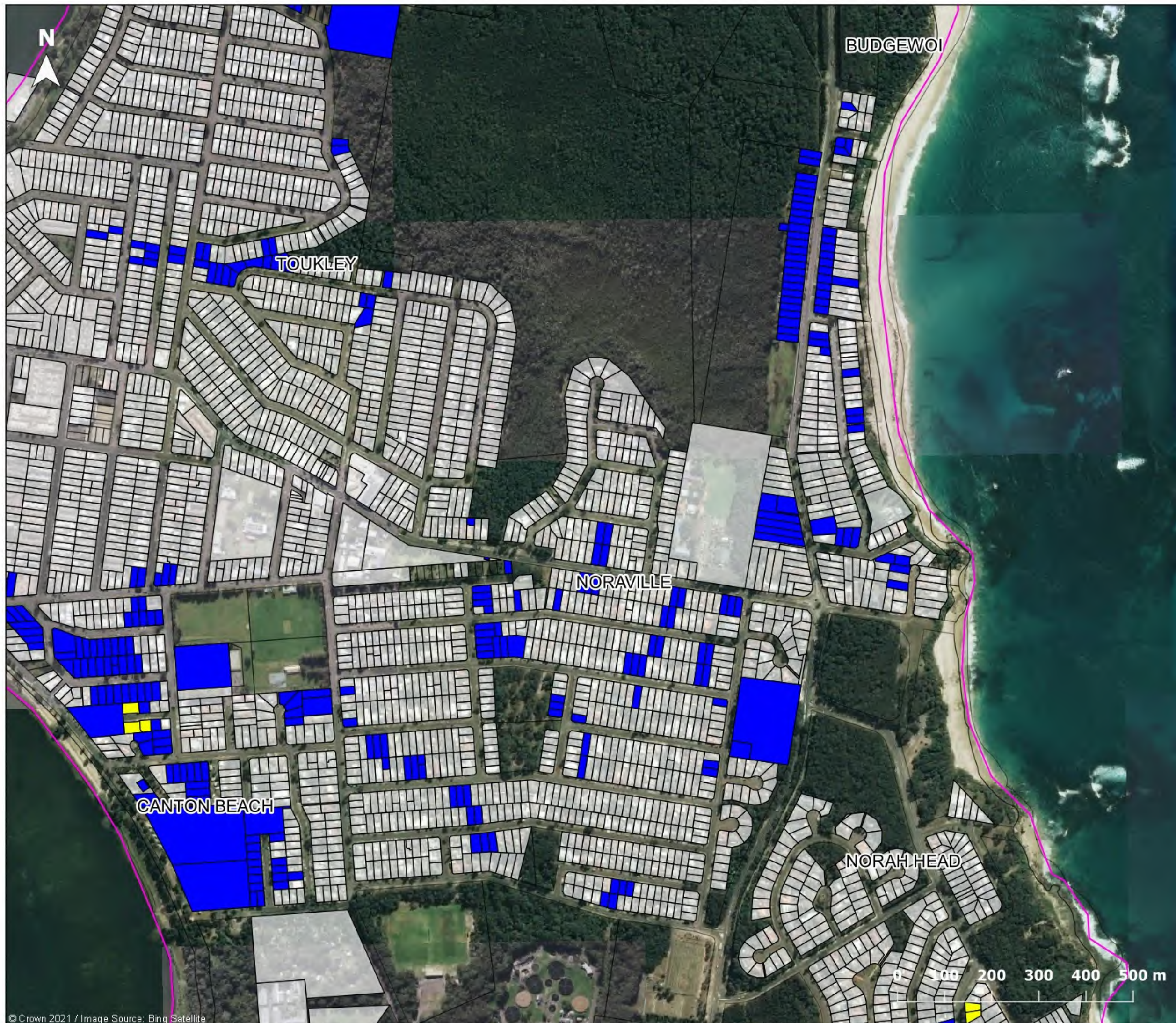


Figure E2.18

1% AEP Flood Emergency Response Classification

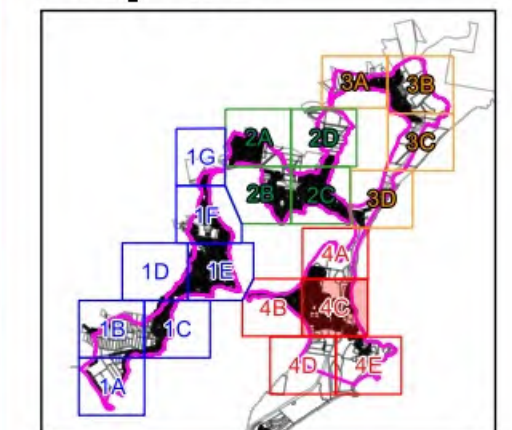
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 4C



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Figure E2.19

1% AEP Flood Emergency Response Classification

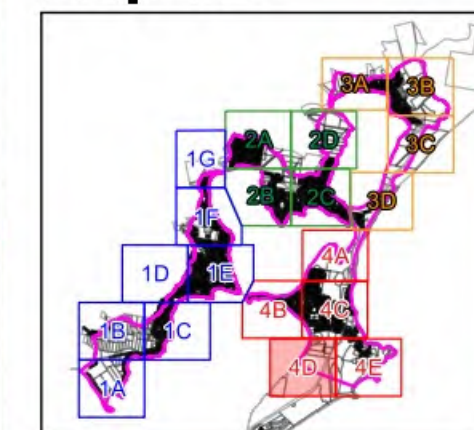
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 4D



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Figure E2.20

1% AEP Flood Emergency Response Classification

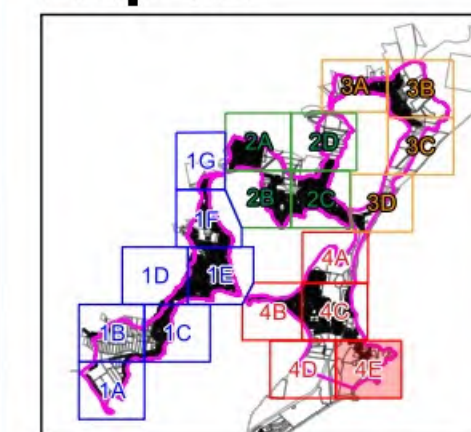
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 4E



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Figure E3.1

PMF Flood Emergency Response Classification

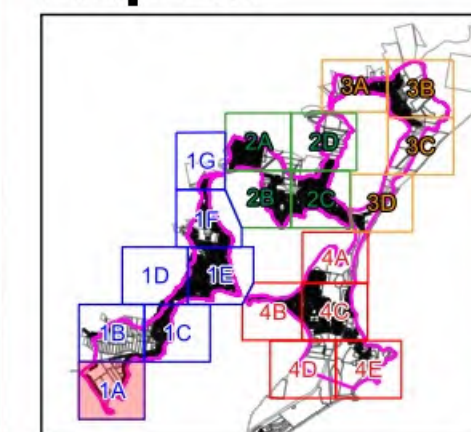
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1A



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Figure E3.2

PMF Flood Emergency Response Classification

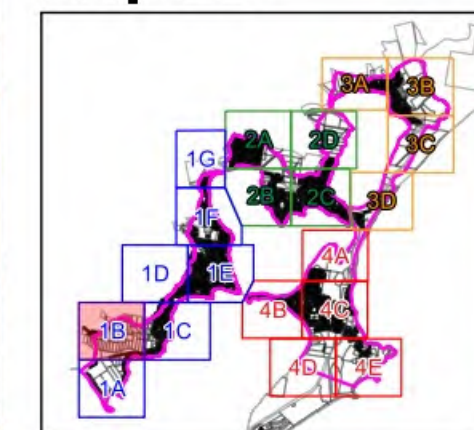
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1B



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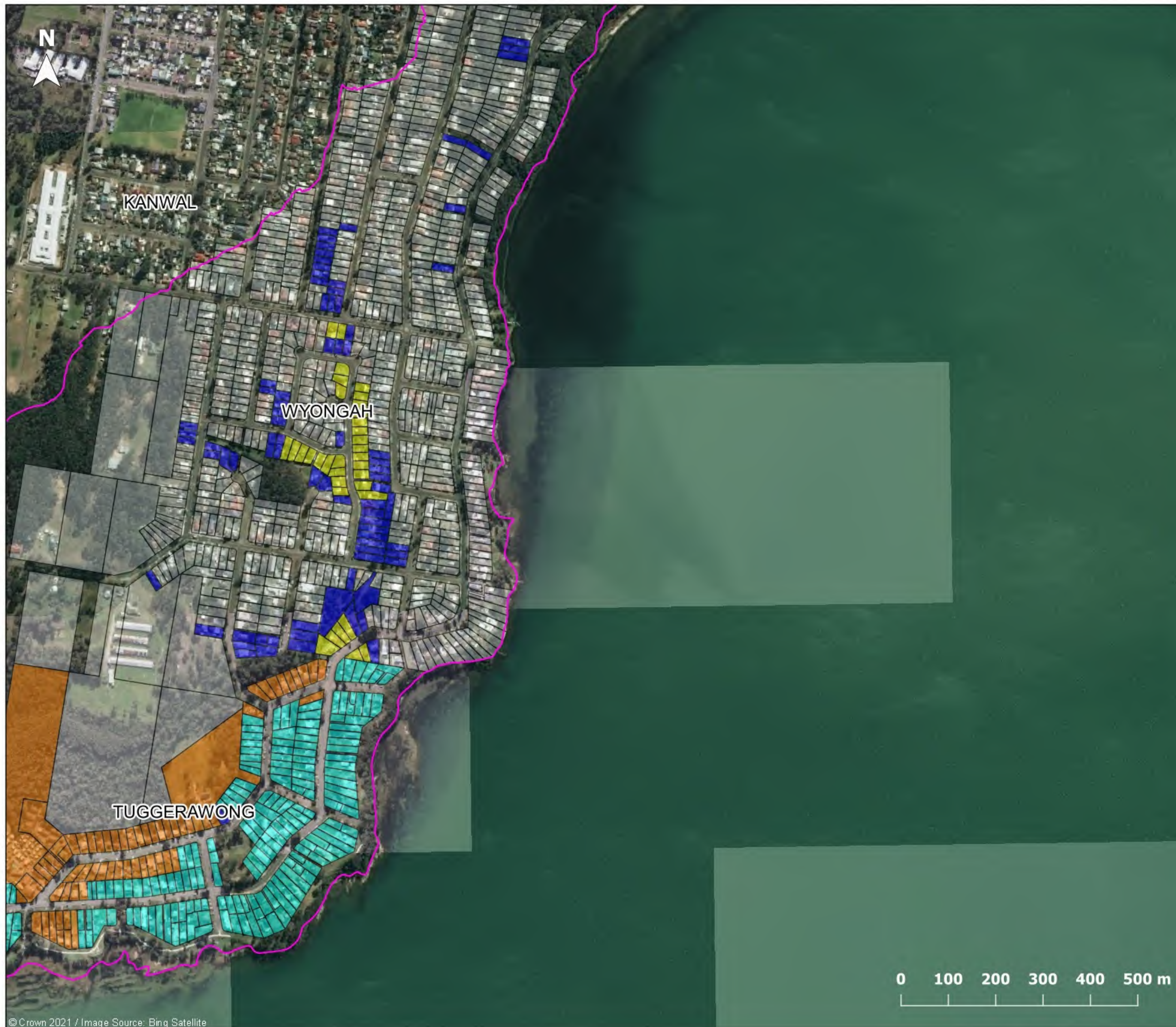


Figure E3.3

PMF Flood Emergency Response Classification

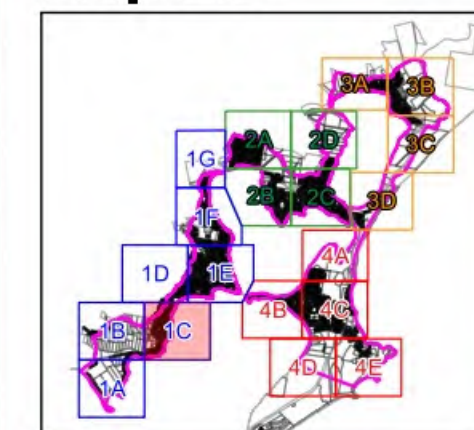
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1C



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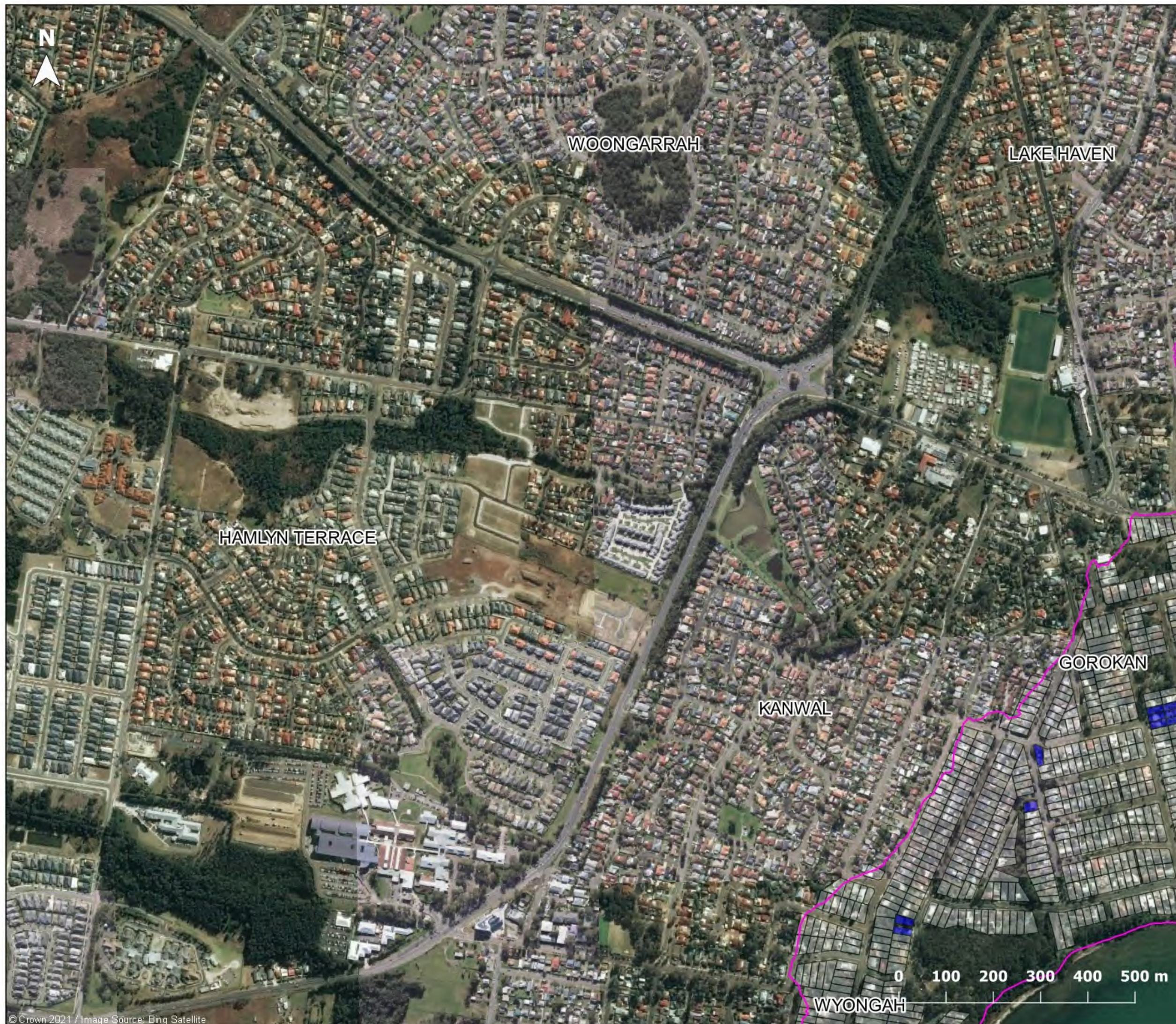


Figure E3.4

PMF Flood Emergency Response Classification

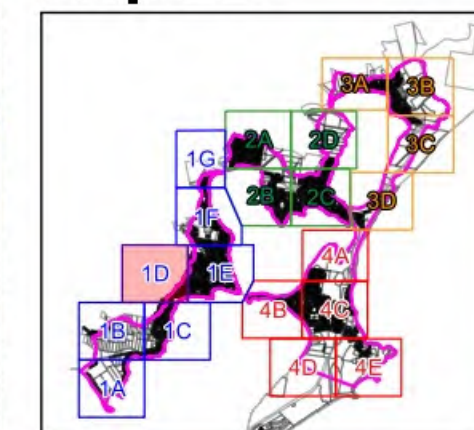
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1D



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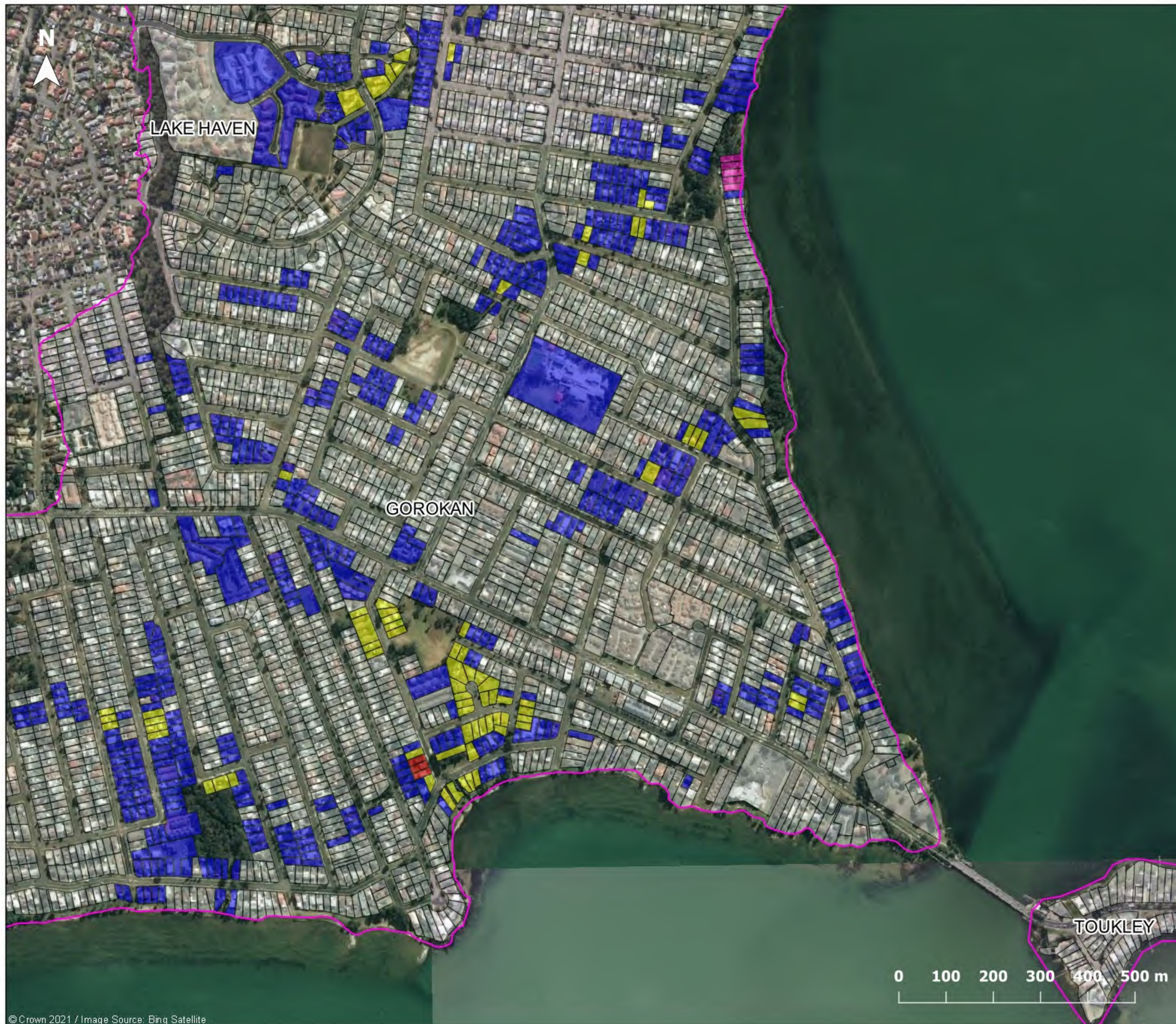


Figure E3.5

PMF Flood Emergency Response Classification

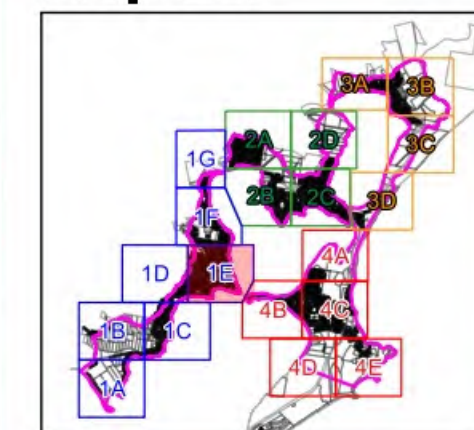
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1E



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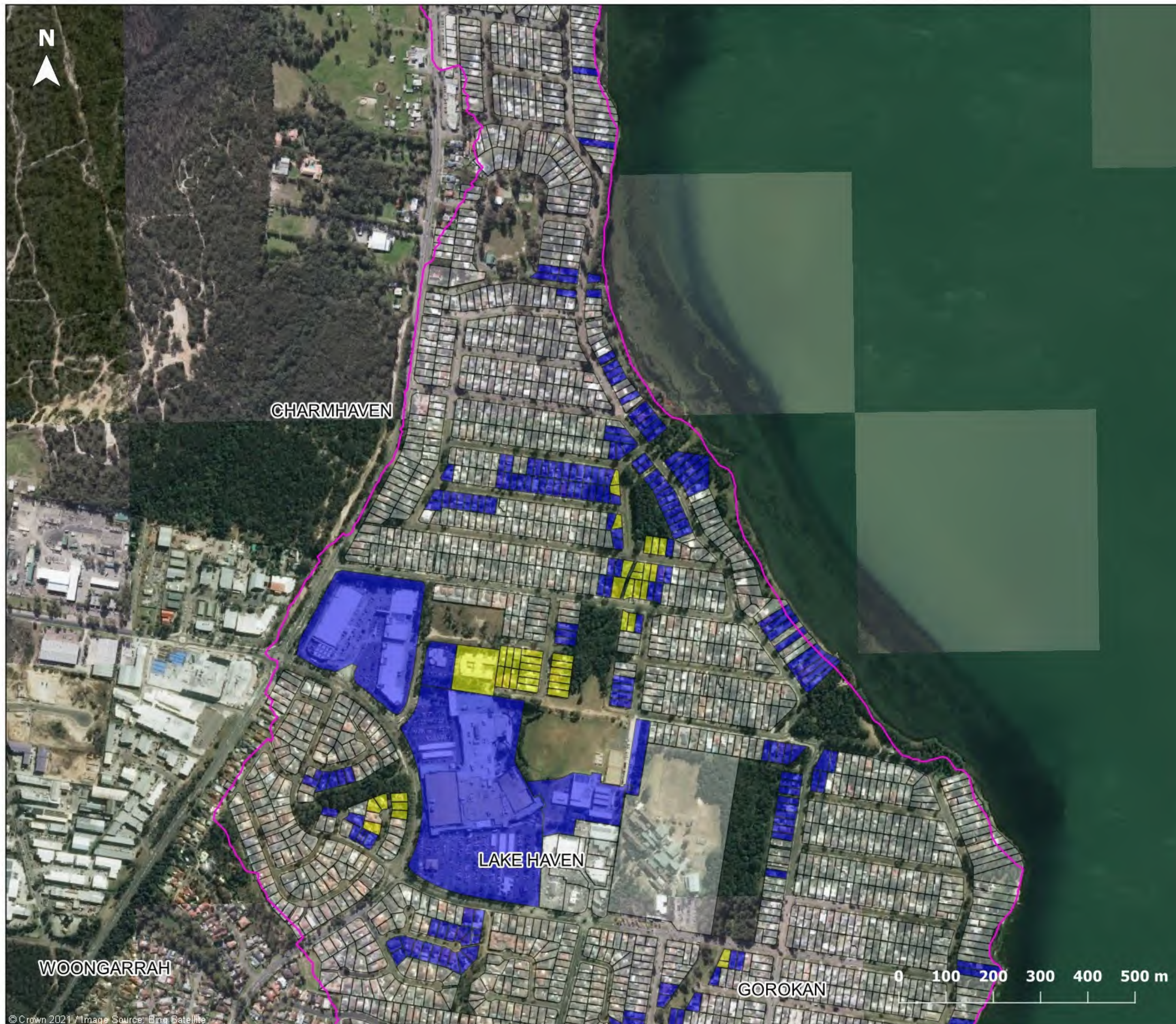


Figure E3.6

PMF Flood Emergency Response Classification

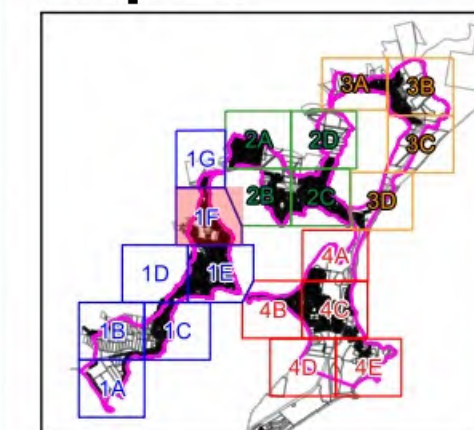
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1F



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Figure E3.7

PMF Flood Emergency Response Classification

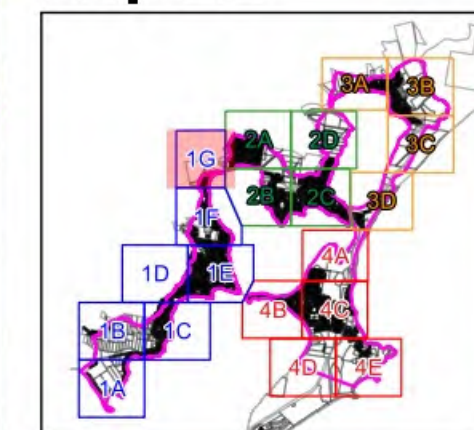
Legend

- Catchment area
- Cadastral

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 1G



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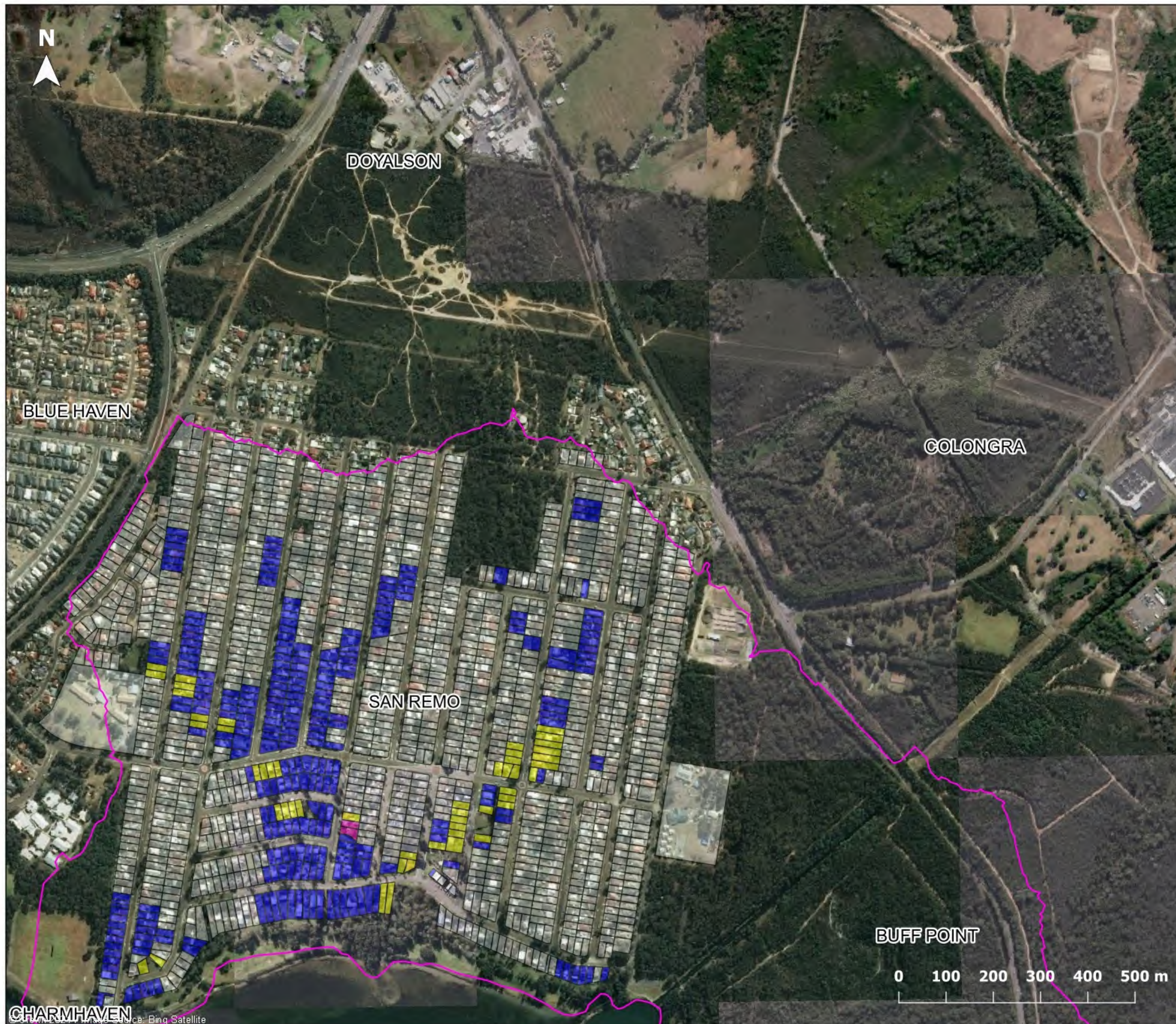


Figure E3.8

PMF Flood Emergency Response Classification

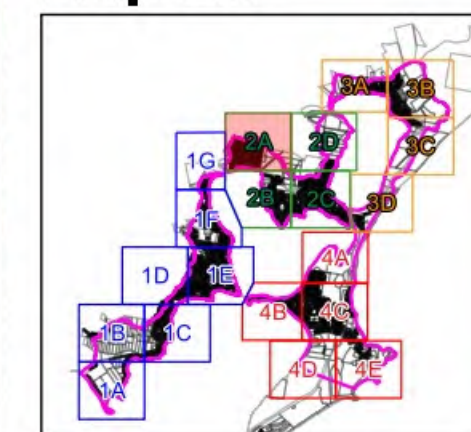
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 2A



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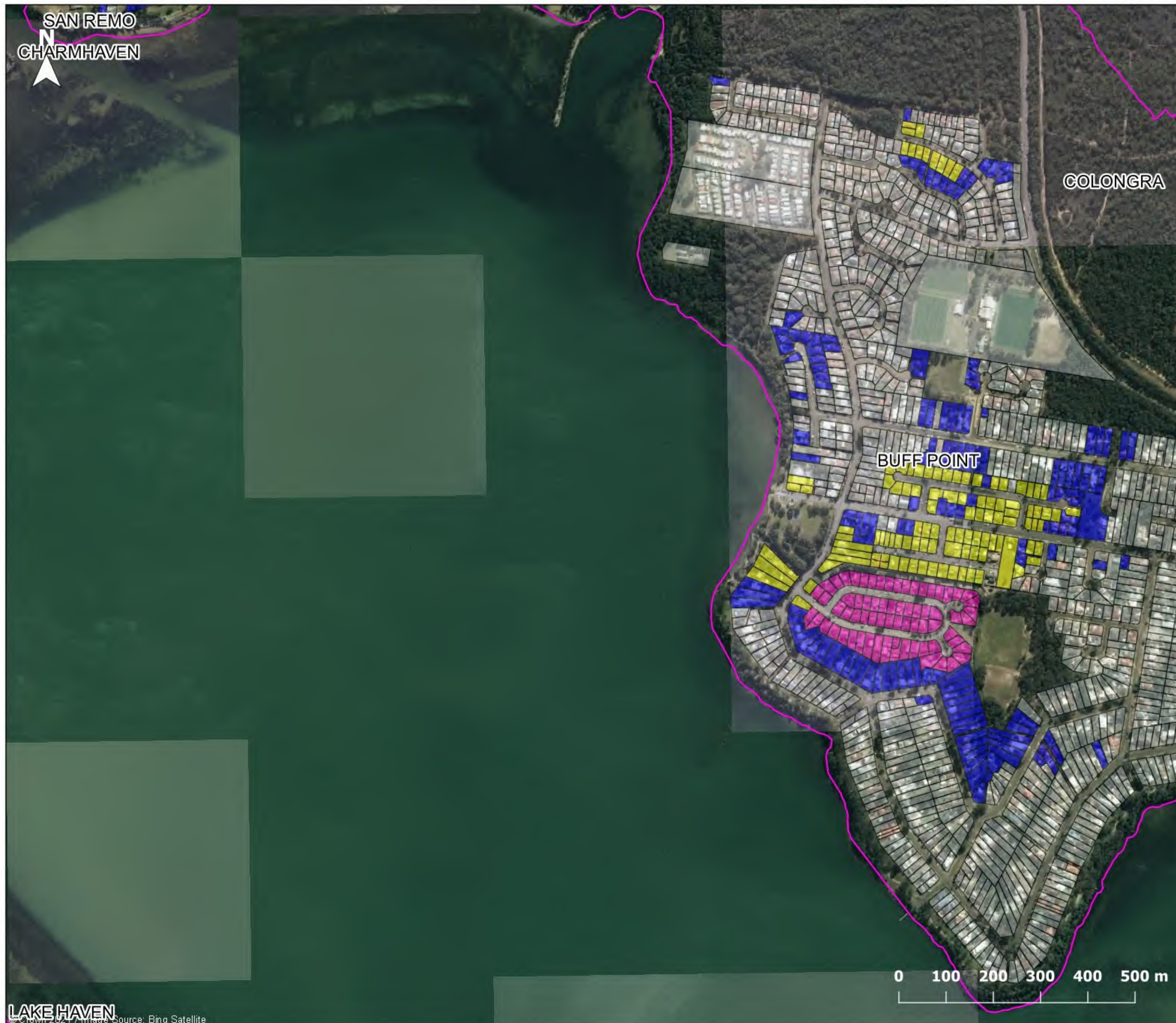


Figure E3.9

PMF Flood Emergency Response Classification

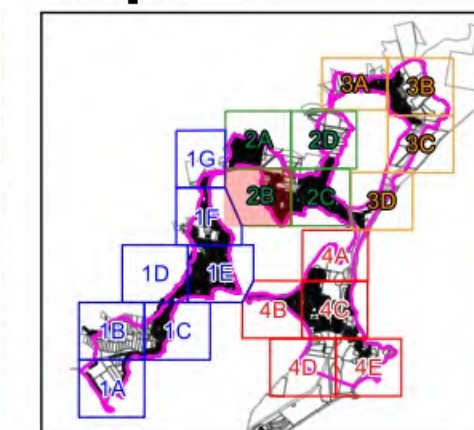
Legend

- Catchment area
- Cadastral

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 2B



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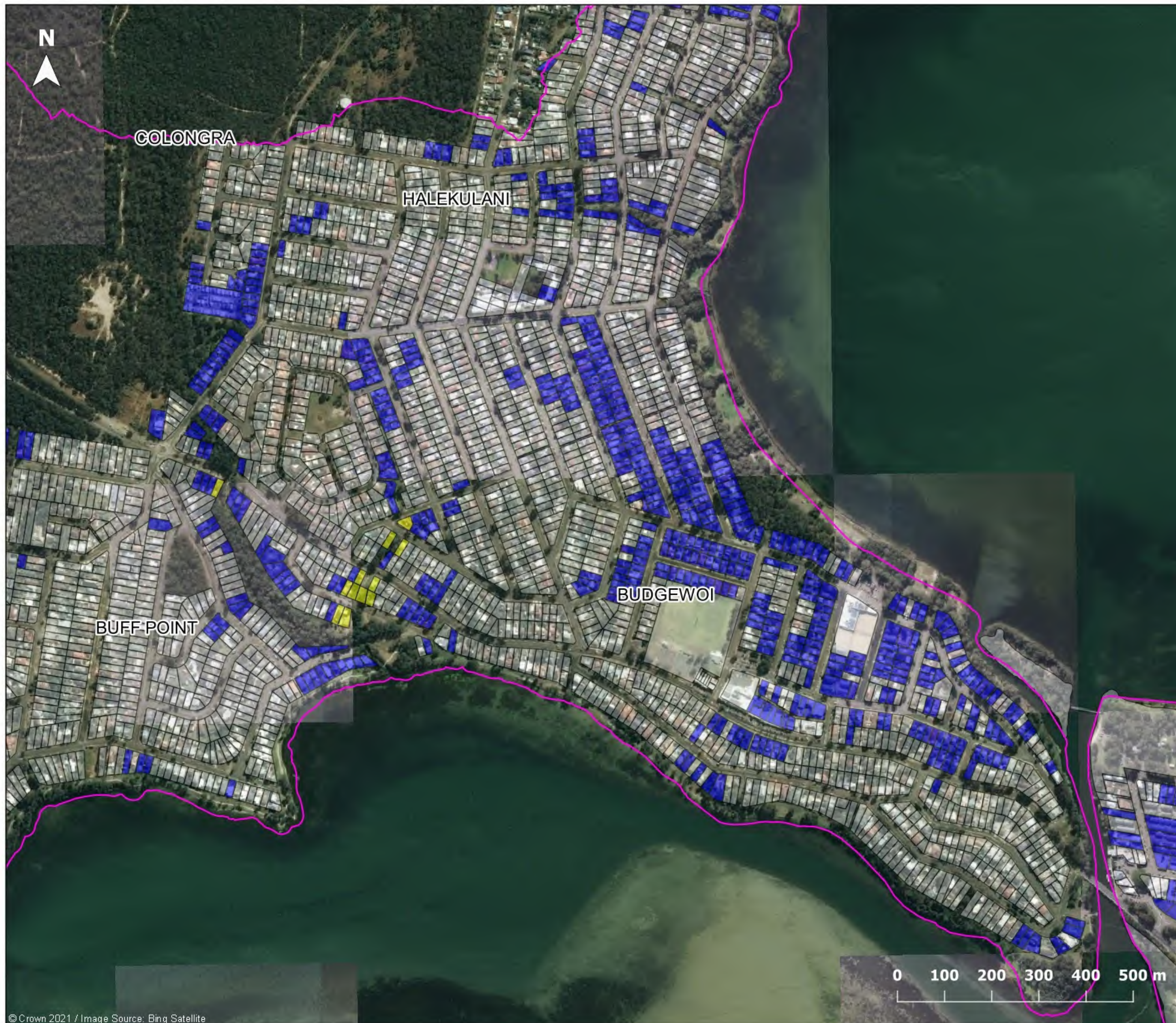


Figure E3.10

PMF Flood Emergency Response Classification

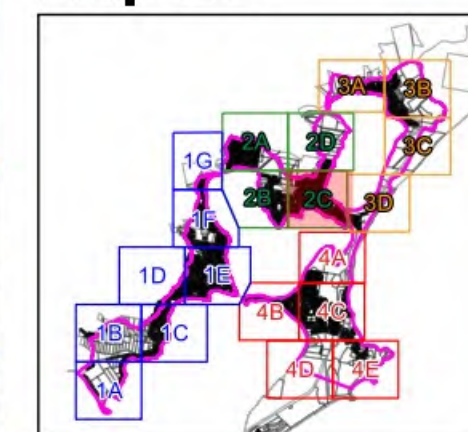
Legend

-  Catchment area
-  Cadastre

Response Classification

-  High Flood Island
-  Low Flood Island
-  Rising Road Access
-  Overland escape Route
-  Low Trapped Perimeter Area
-  High Trapped Perimeter Area
-  Indirectly Affected Area
-  Overland Refuge Area
-  Not Flood Affected

Map 2C



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Figure E3.11

PMF Flood Emergency Response Classification

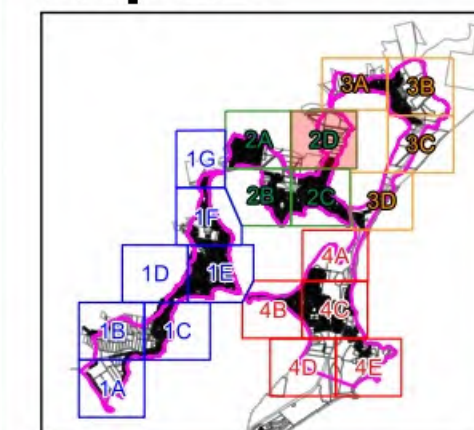
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 2D



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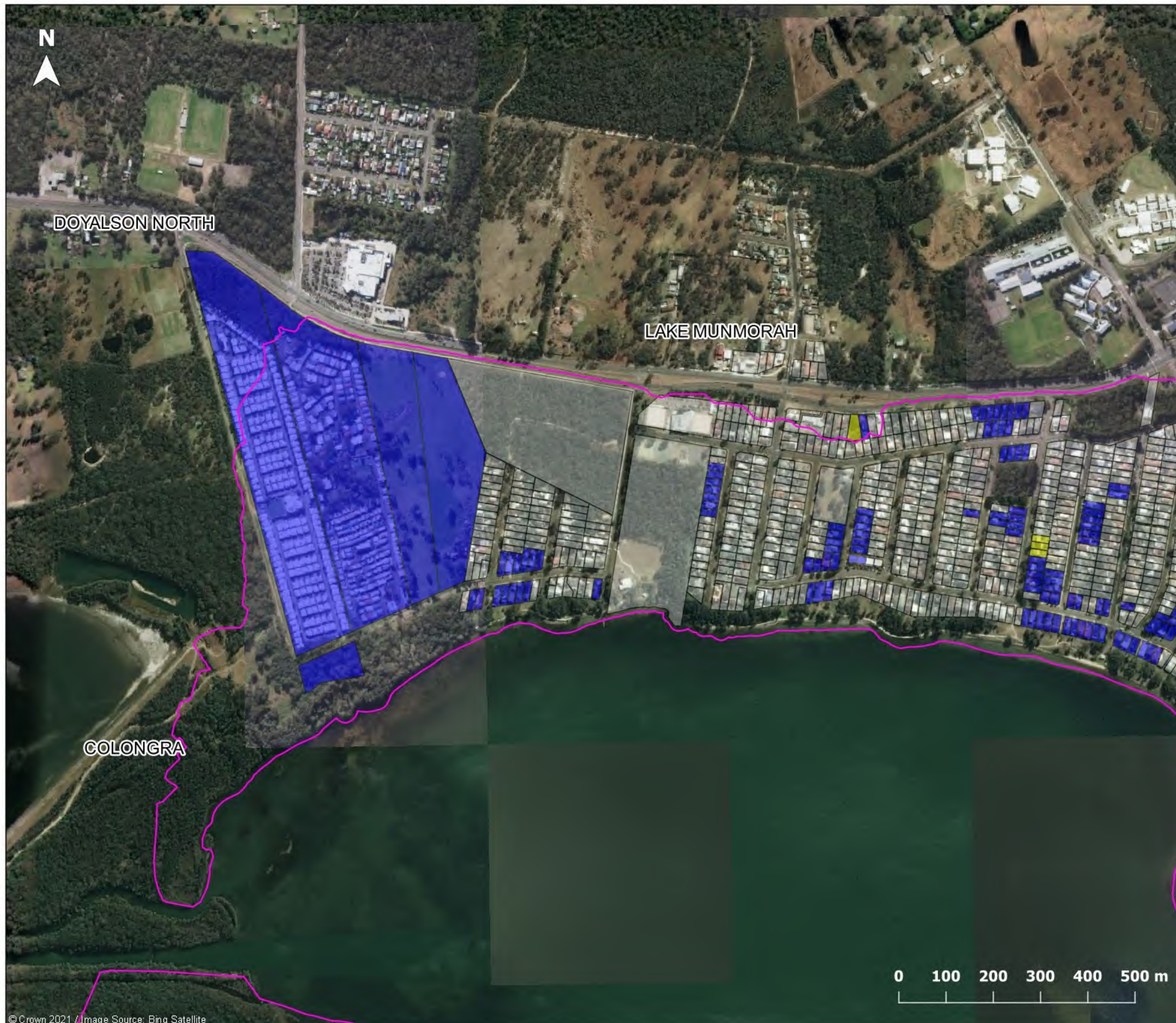


Figure E3.12

PMF Flood Emergency Response Classification

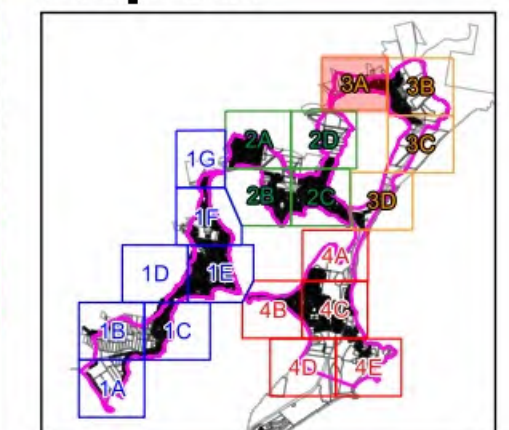
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 3A



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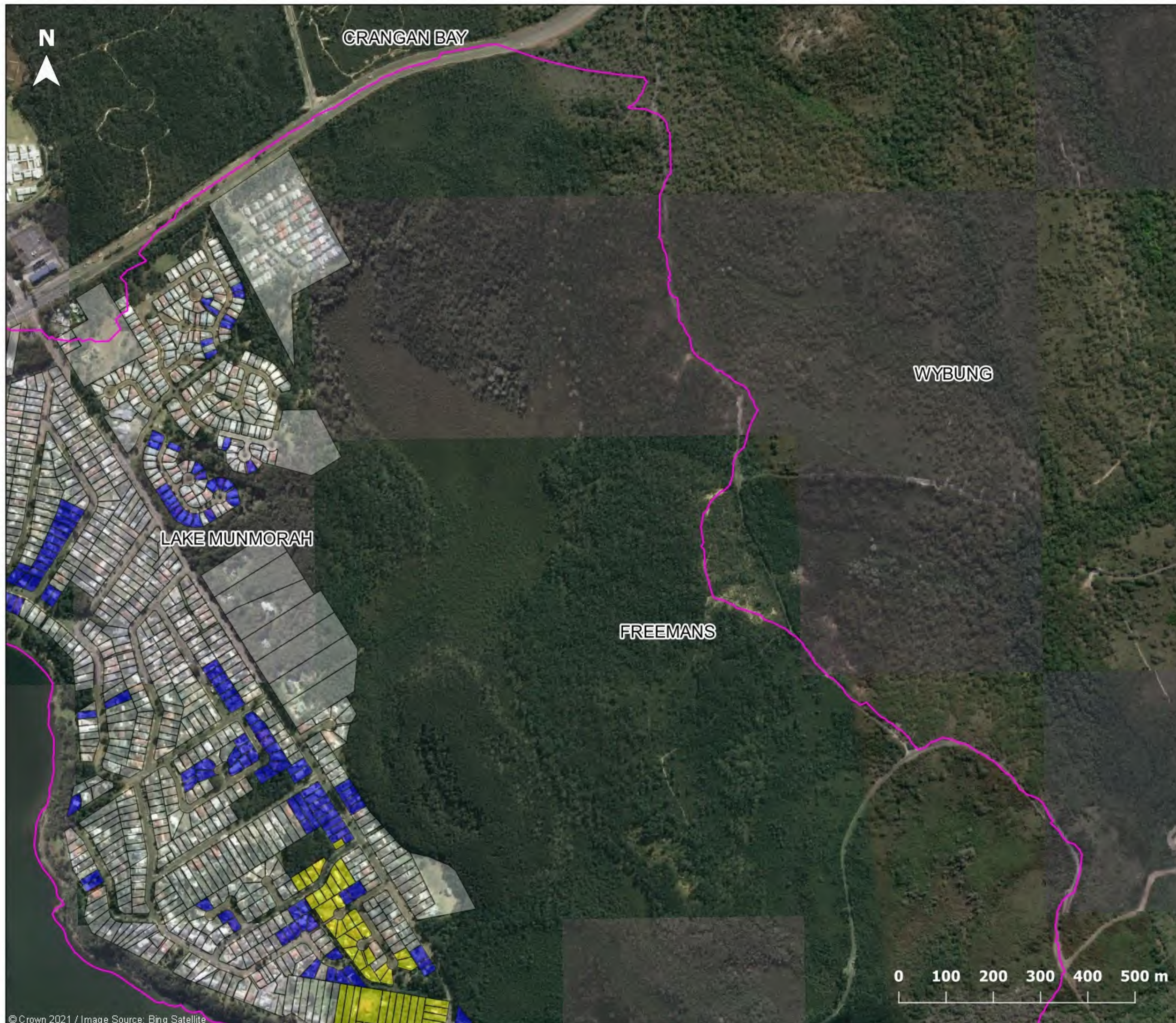


Figure E3.13

PMF Flood Emergency Response Classification

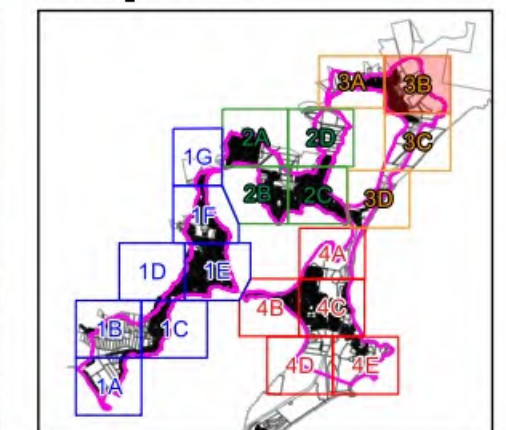
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 3B



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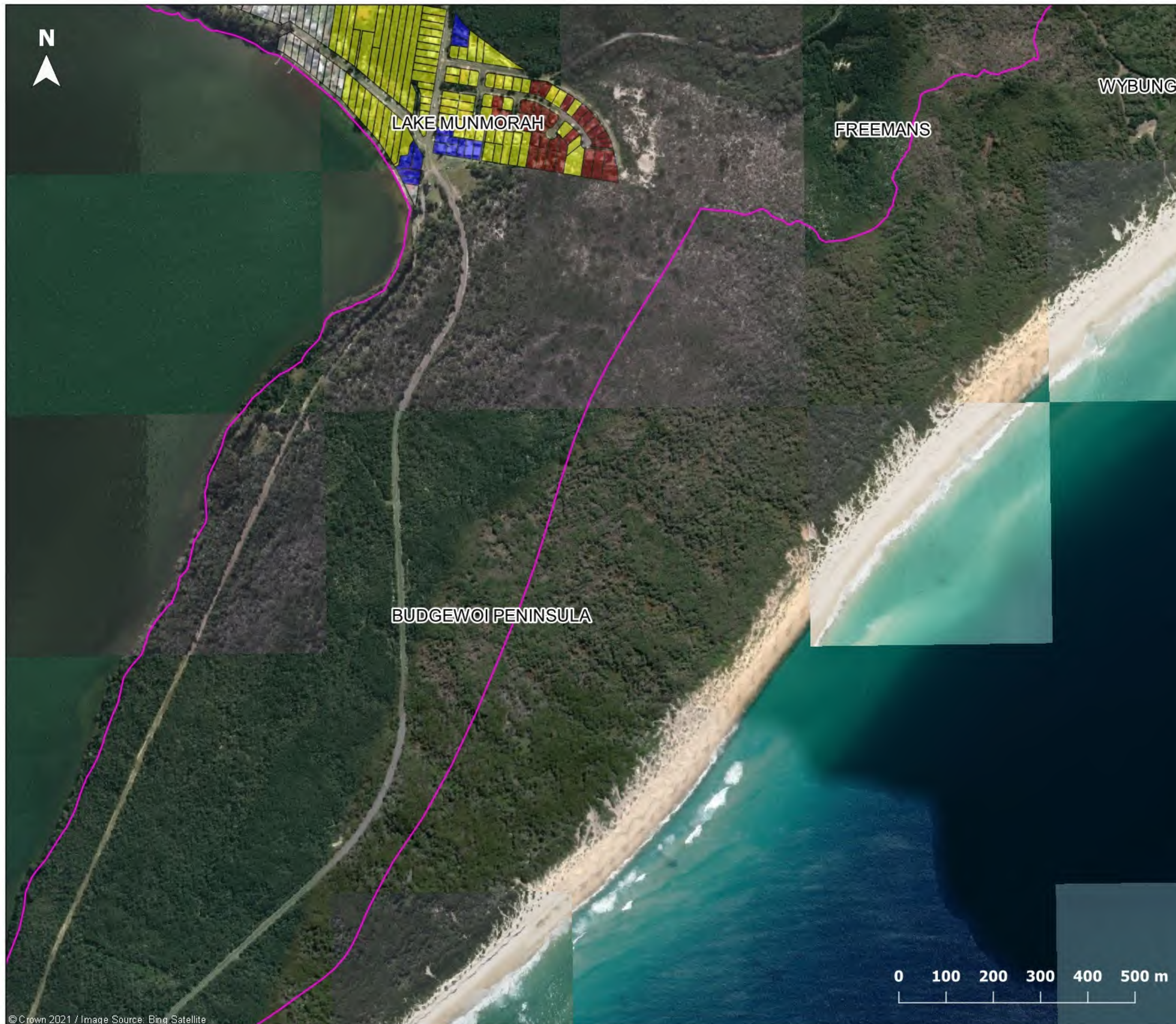


Figure E3.14

PMF Flood Emergency Response Classification

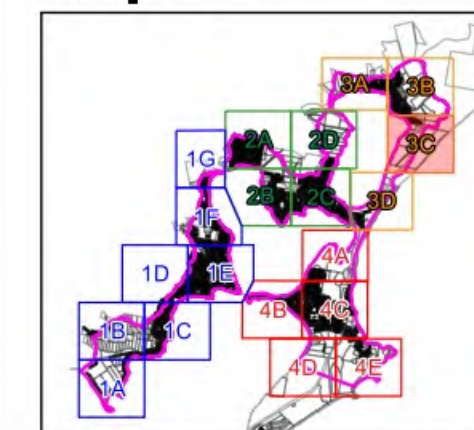
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 3C



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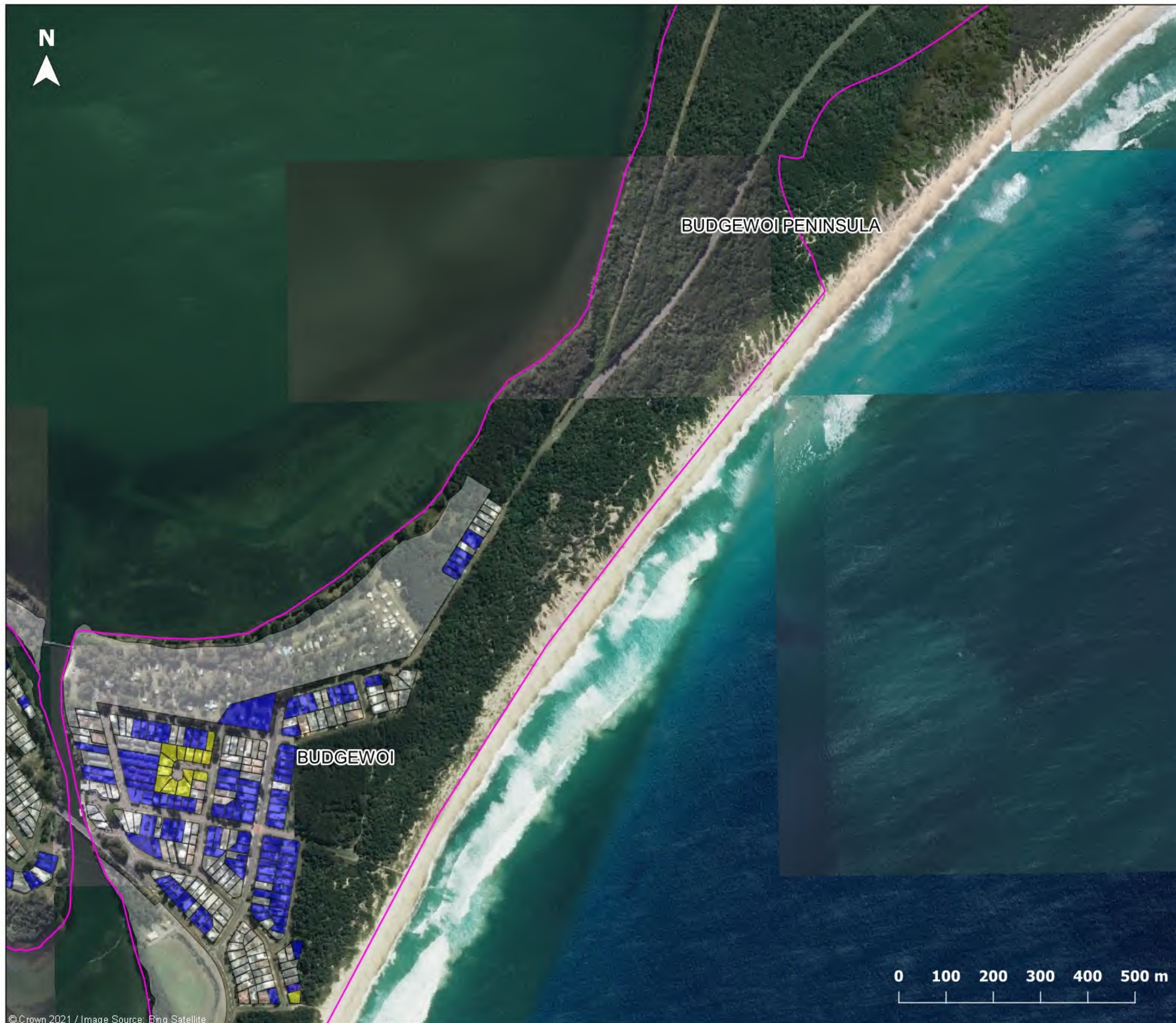


Figure E3.15

PMF Flood Emergency Response Classification

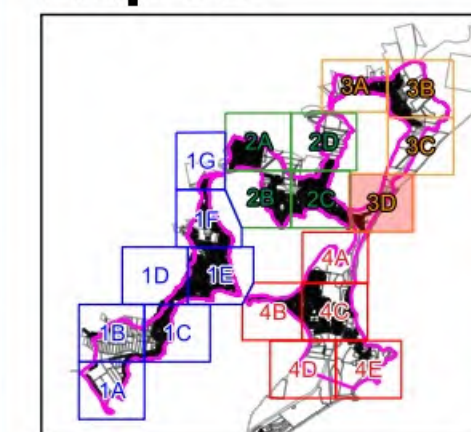
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 3D



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Figure E3.16

PMF Flood Emergency Response Classification

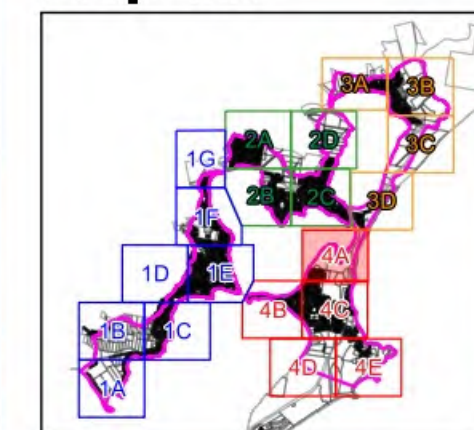
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 4A



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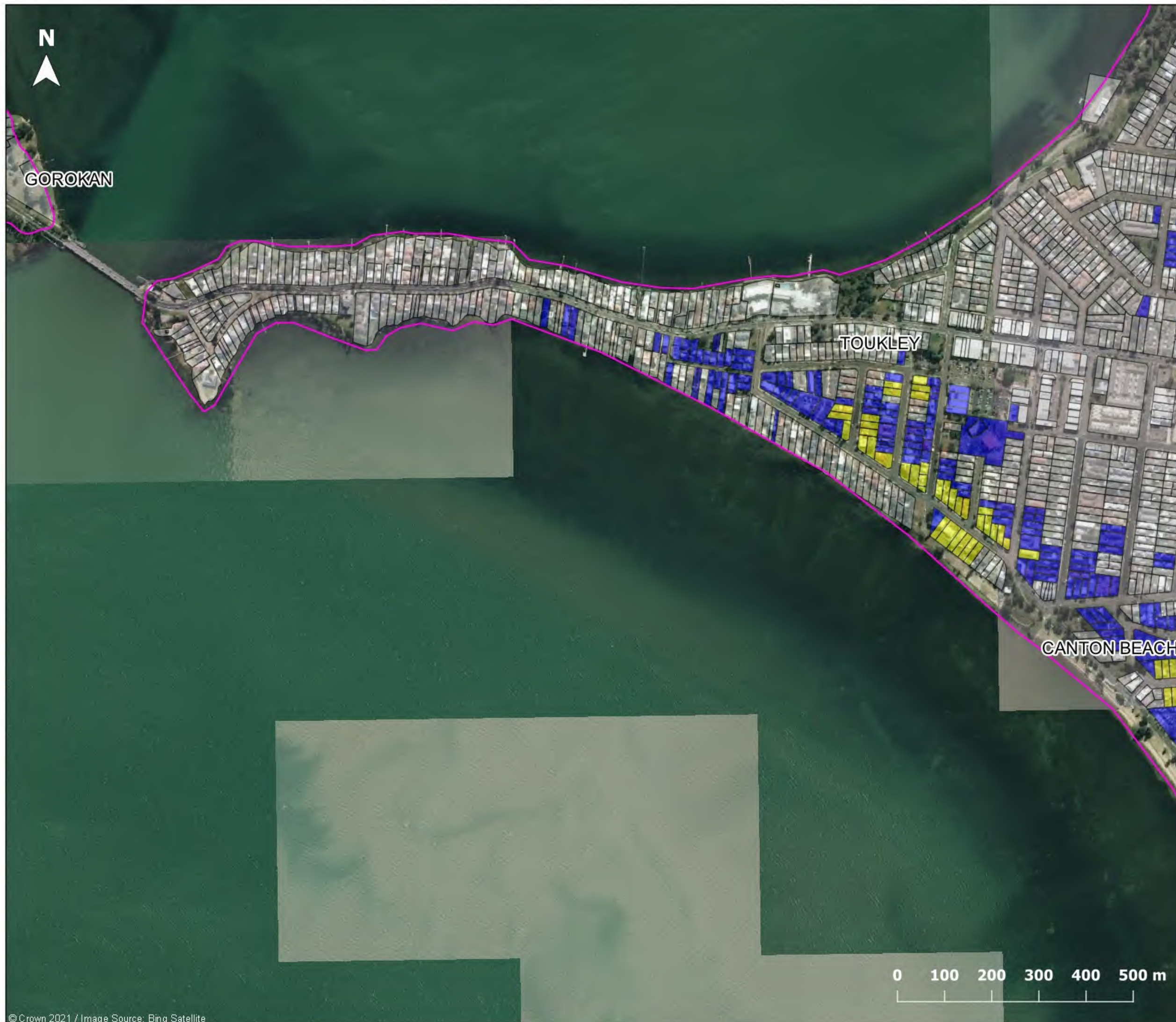


Figure E3.17

PMF Flood Emergency Response Classification

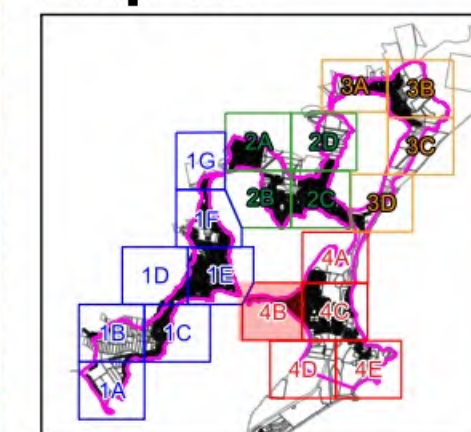
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 4B



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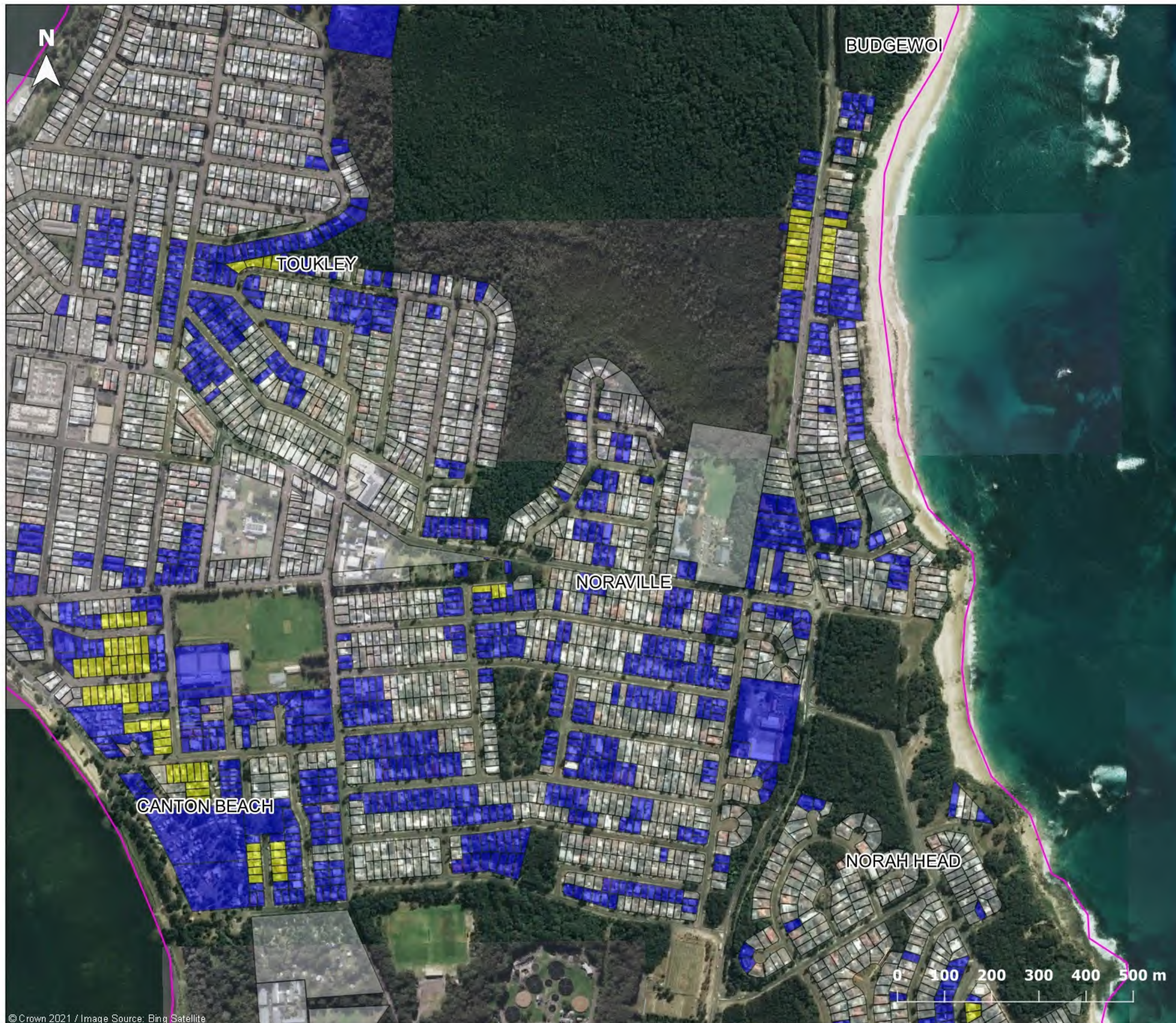


Figure E3.18

PMF Flood Emergency Response Classification

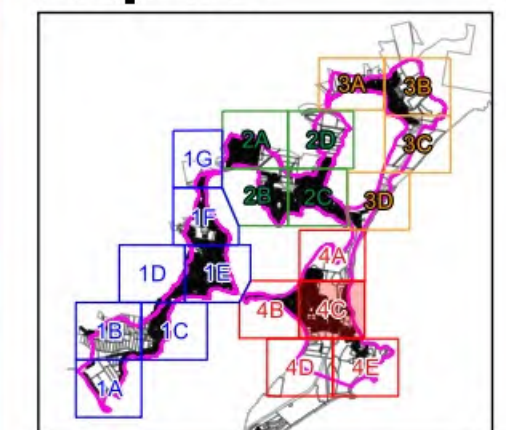
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 4C



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Figure E3.19

PMF Flood Emergency Response Classification

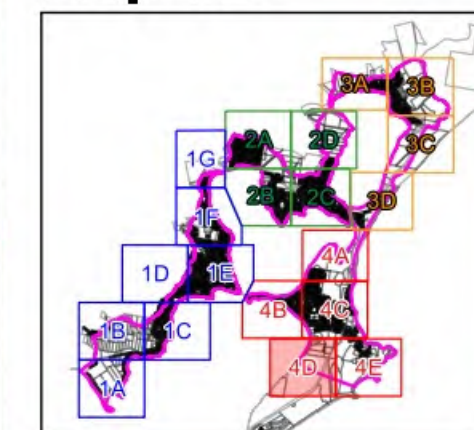
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 4D



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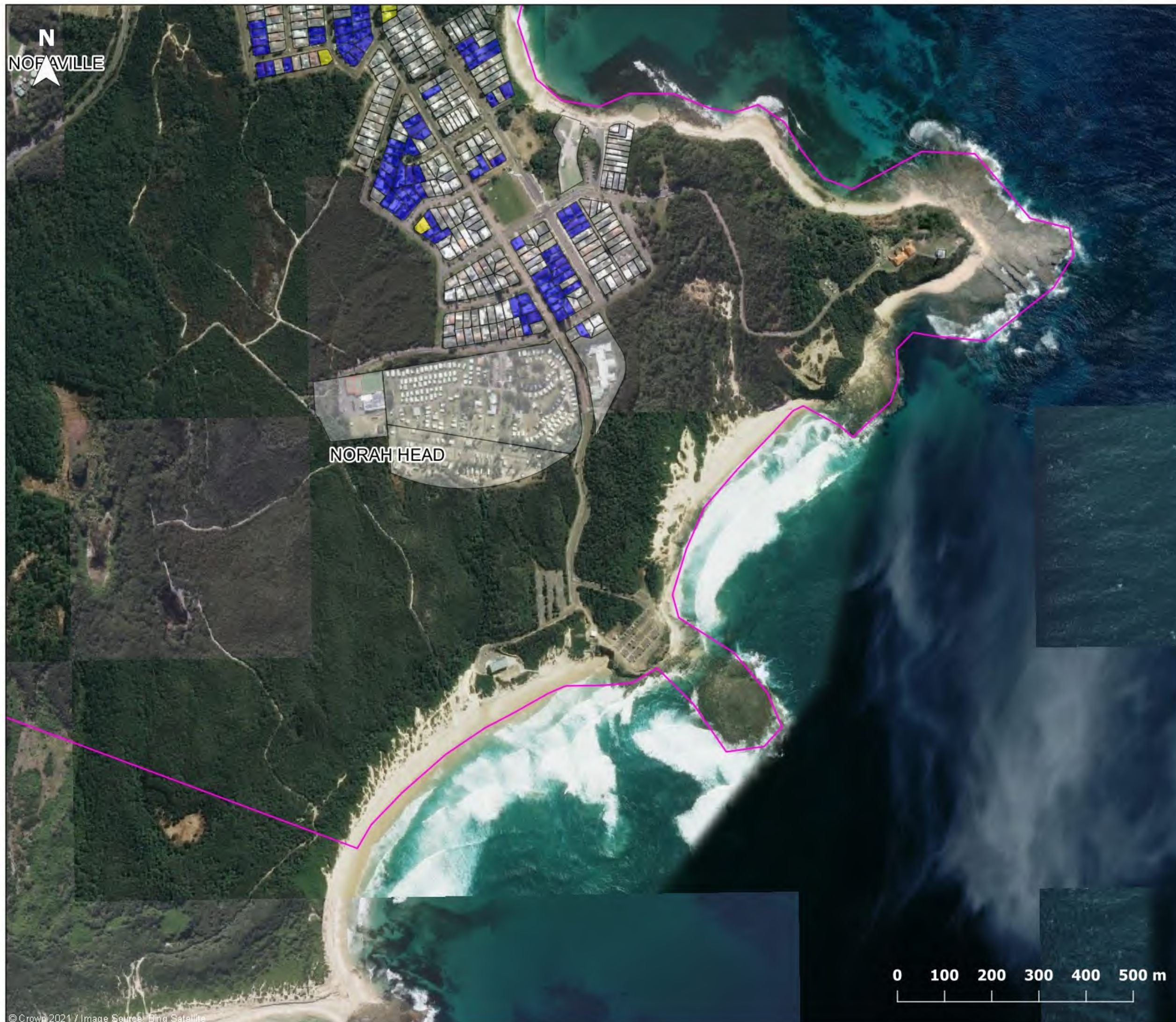


Figure E3.20

PMF Flood Emergency Response Classification

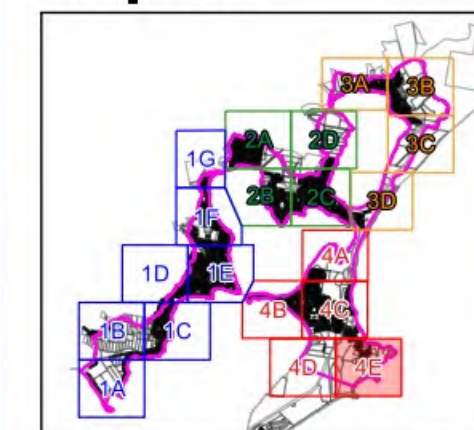
Legend

- Catchment area
- Cadastre

Response Classification

- High Flood Island
- Low Flood Island
- Rising Road Access
- Overland escape Route
- Low Trapped Perimeter Area
- High Trapped Perimeter Area
- Indirectly Affected Area
- Overland Refuge Area
- Not Flood Affected

Map 4E



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Appendix F – Flood planning area

Figure F.1 Flood Planning Area and Recommended Freeboards



Figure F1.1

Flood Planning Area and Recommended Freeboards

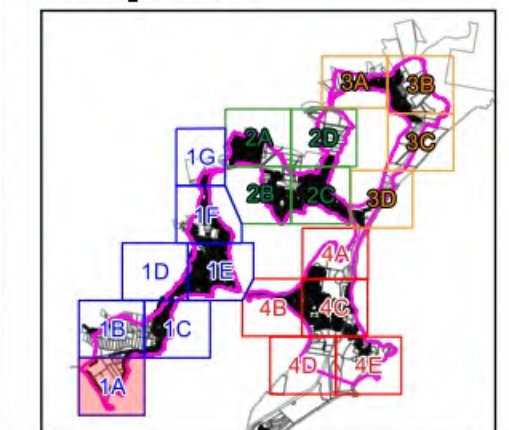
Legend

- Catchment area
- Cadastre
- PMF Flood Extent
- 1% AEP Flood Extent

Flood Planning Area

- Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 1A



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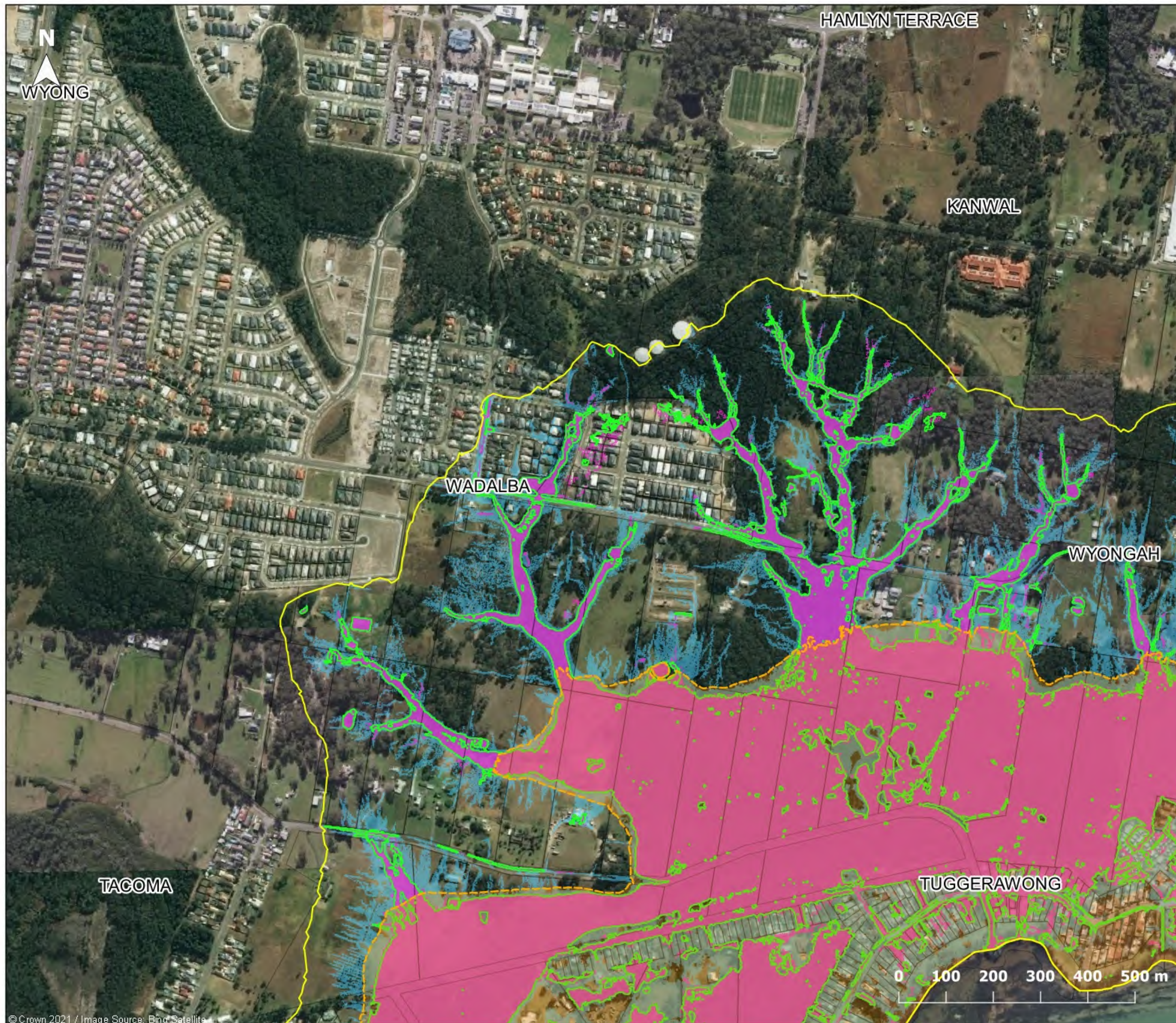


Figure F1.2

Flood Planning Area and Recommended Freeboards

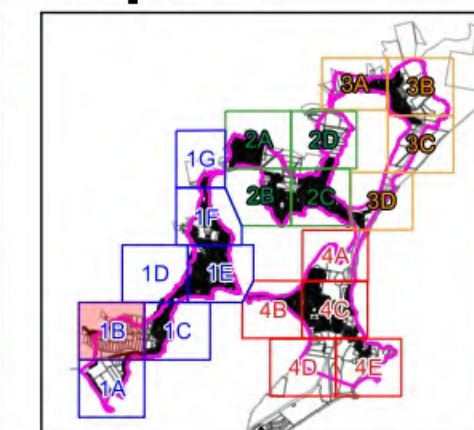
Legend

- Catchment area
- Cadastre
- PMF Flood Extent
- 1% AEP Flood Extent

Flood Planning Area

- Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 1B



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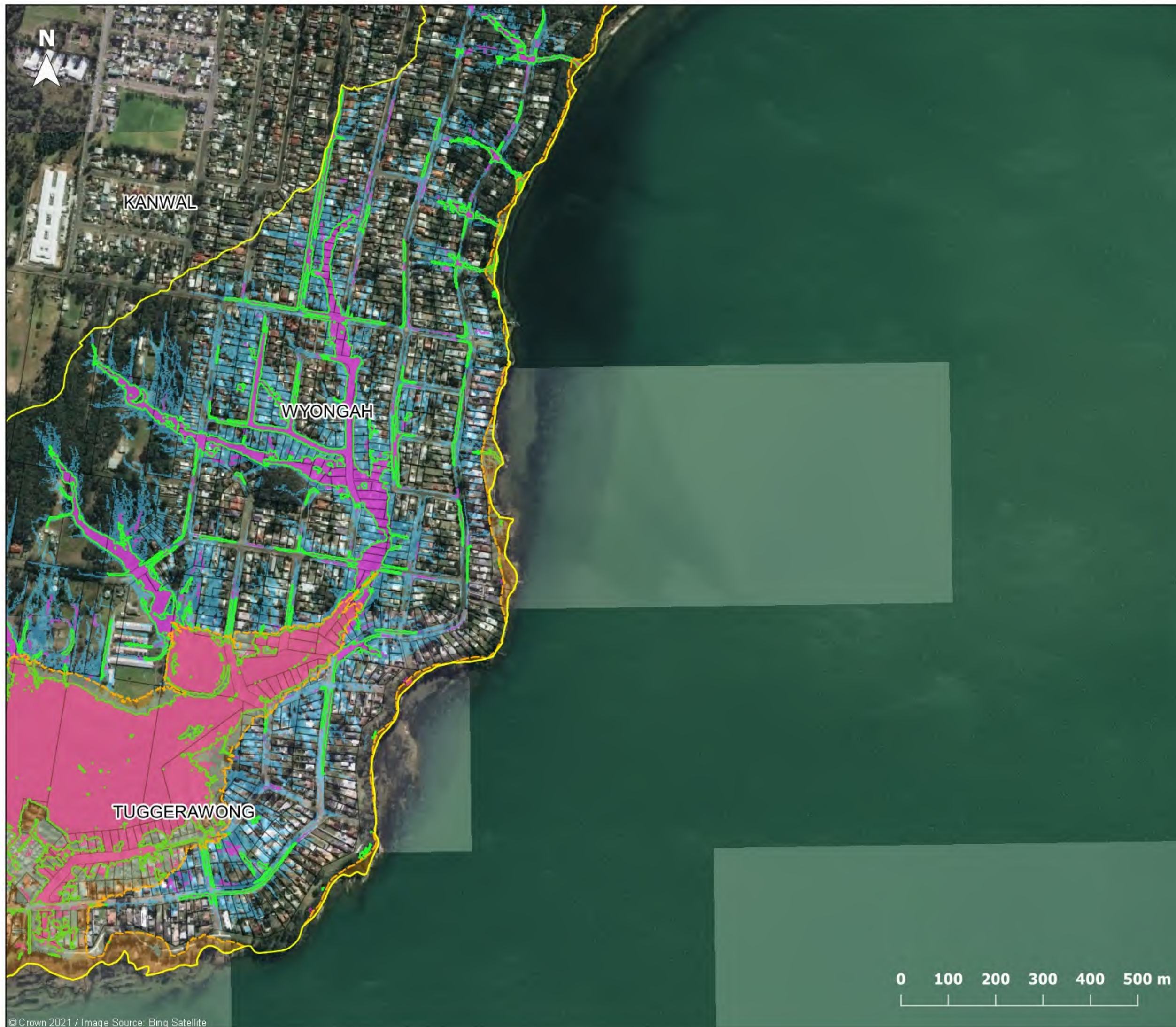


Figure F1.3

Flood Planning Area and Recommended Freeboards

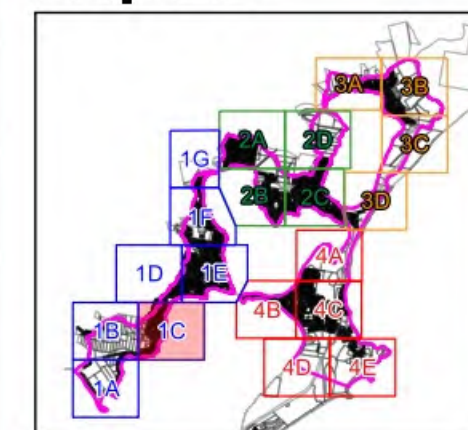
Legend

- ▬ Catchment area
- ▬ Cadastre
- ▬ PMF Flood Extent
- ▬ 1% AEP Flood Extent

Flood Planning Area

- ▬ Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- ▬ Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 1C



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Figure F1.4

Flood Planning Area and Recommended Freeboards

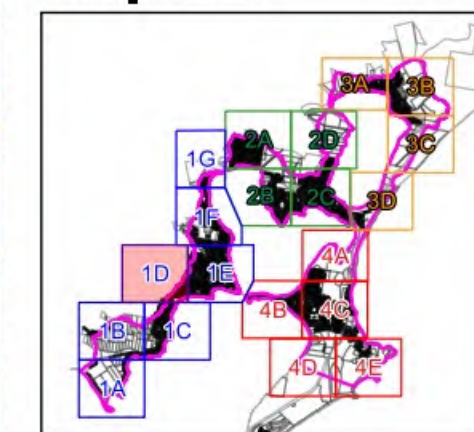
Legend

- ▬ Catchment area
- ▬ Cadastre
- ▬ PMF Flood Extent
- ▬ 1% AEP Flood Extent

Flood Planning Area

- ▬ Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- ▬ Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 1D



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Figure F1.5

Flood Planning Area and Recommended Freeboards

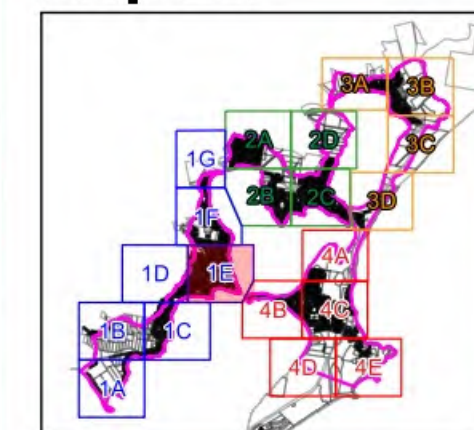
Legend

- ▬ Catchment area
- ▬ Cadastre
- ▬ PMF Flood Extent
- ▬ 1% AEP Flood Extent

Flood Planning Area

- ▬ Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- ▬ Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 1E



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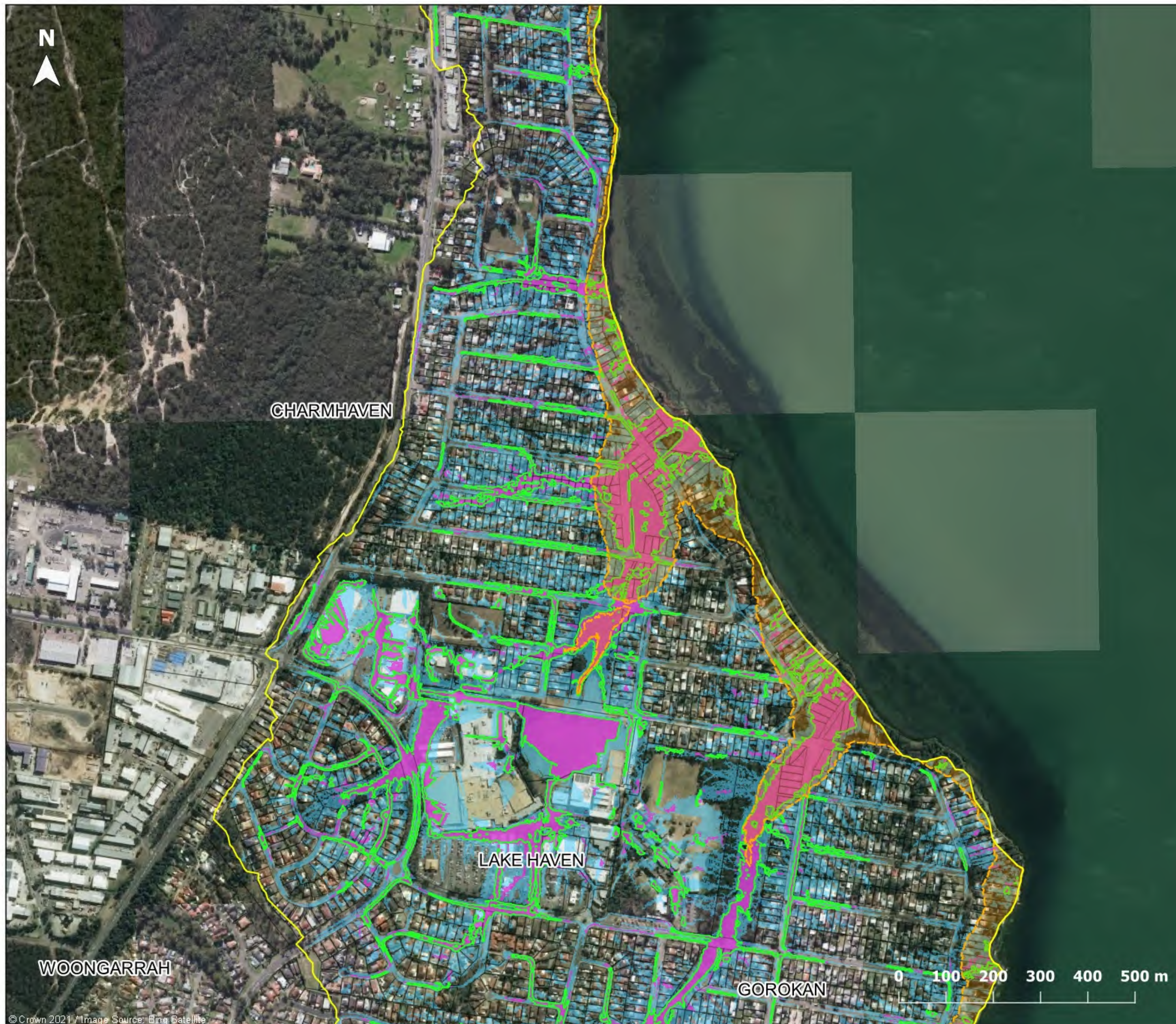


Figure F1.6

Flood Planning Area and Recommended Freeboards

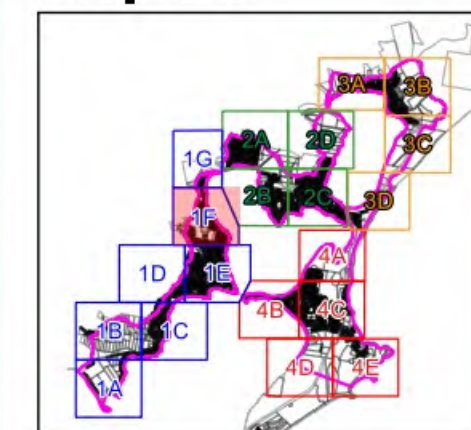
Legend

- ▬ Catchment area
- ▬ Cadastre
- ▬ PMF Flood Extent
- ▬ 1% AEP Flood Extent

Flood Planning Area

- ▬ Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- ▬ Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 1F



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Figure F1.7

Flood Planning Area and Recommended Freeboards

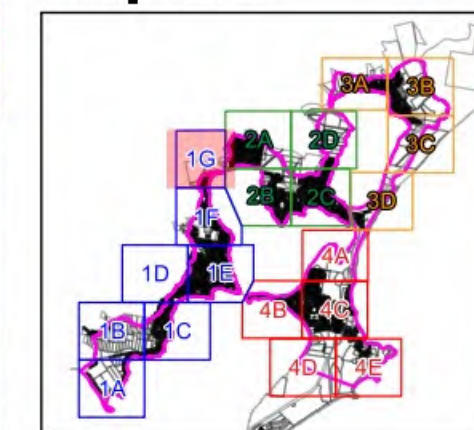
Legend

- ▬ Catchment area
- ▬ Cadastre
- ▬ PMF Flood Extent
- ▬ 1% AEP Flood Extent

Flood Planning Area

- ▬ Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- ▬ Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 1G



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Figure F1.8

Flood Planning Area and Recommended Freeboards

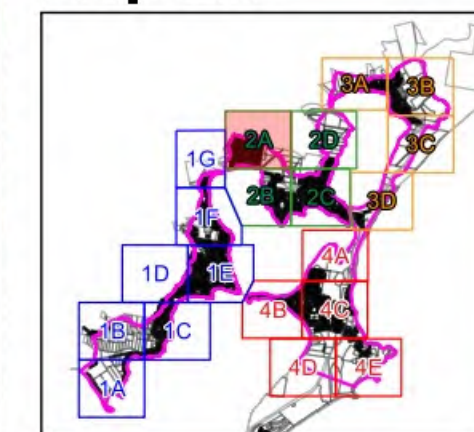
Legend

- Catchment area
- Cadastre
- PMF Flood Extent
- 1% AEP Flood Extent

Flood Planning Area

- Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 2A



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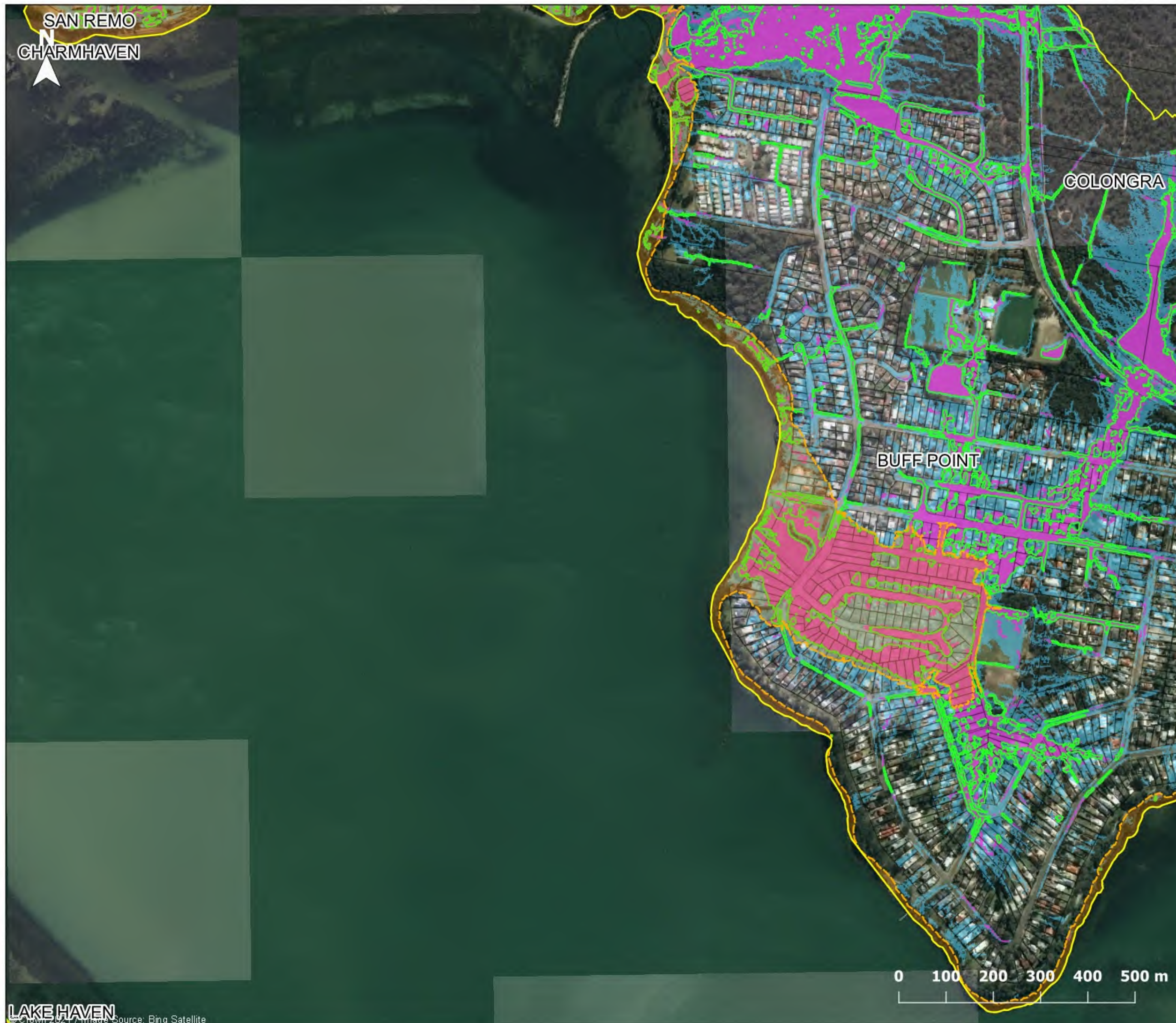


Figure F1.9

Flood Planning Area and Recommended Freeboards

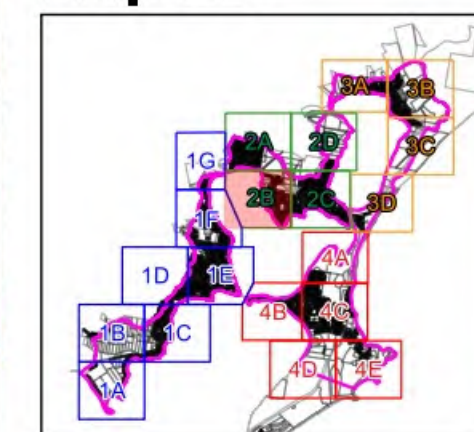
Legend

- Catchment area
- Cadastre
- PMF Flood Extent
- 1% AEP Flood Extent

Flood Planning Area

- Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 2B



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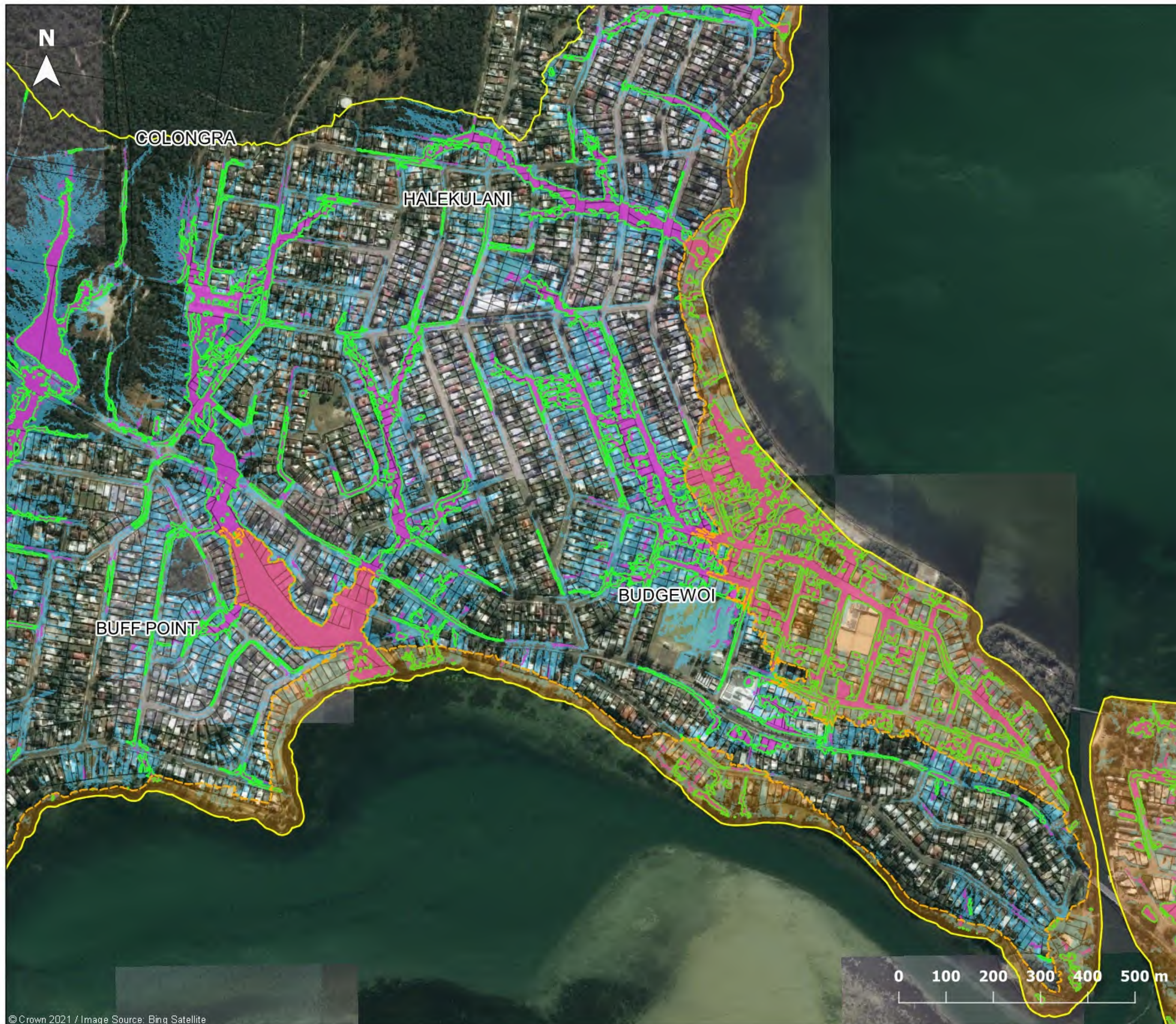


Figure F1.10

Flood Planning Area and Recommended Freeboards

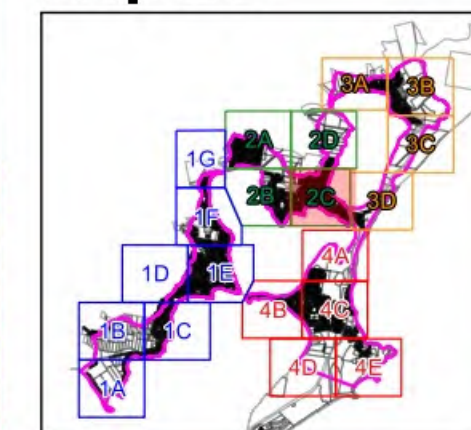
Legend

- ▬ Catchment area
- ▬ Cadastre
- ▬ PMF Flood Extent
- ▬ 1% AEP Flood Extent

Flood Planning Area

- ▬ Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- ▬ Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 2C



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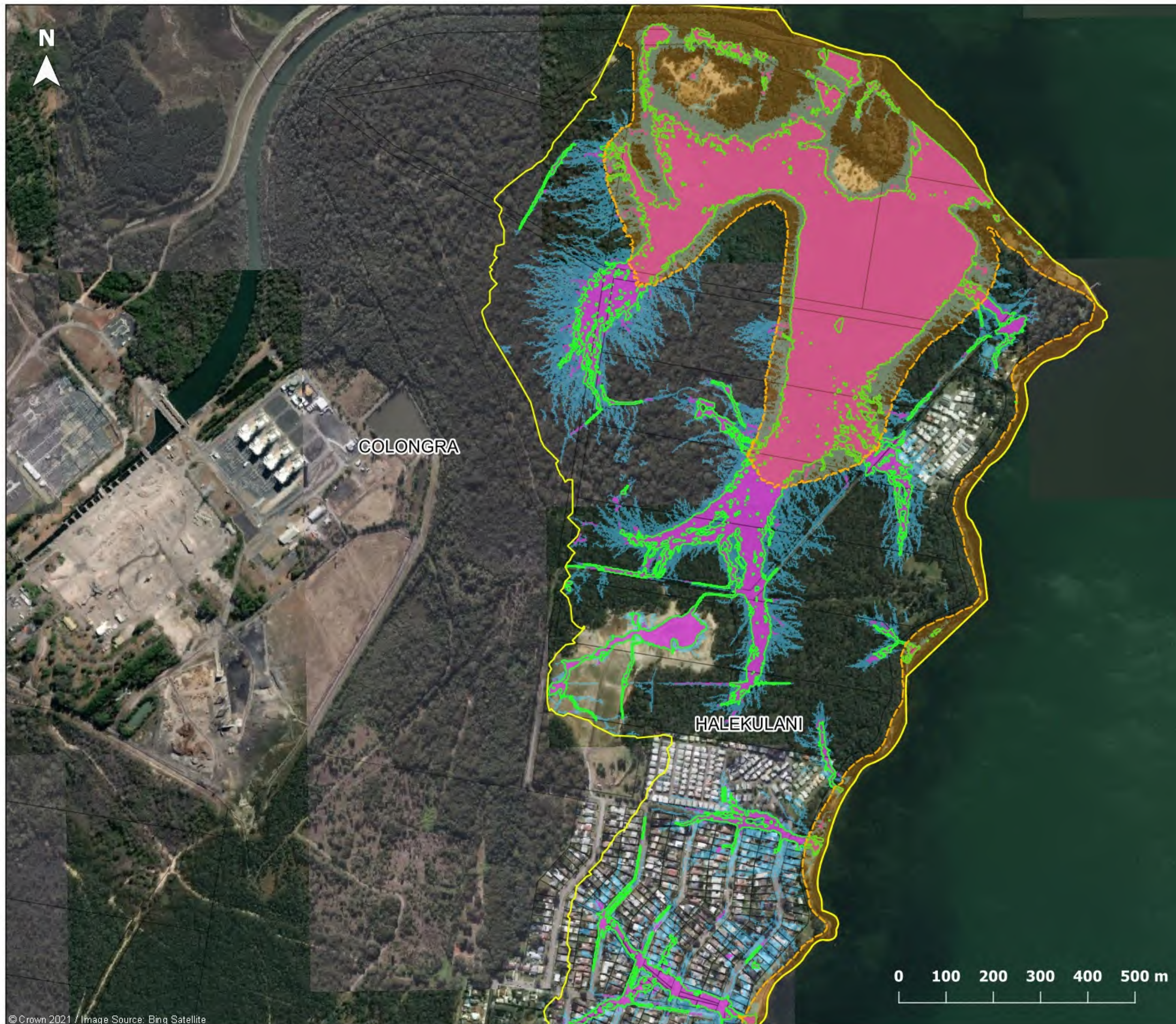


Figure F1.11

Flood Planning Area and Recommended Freeboards

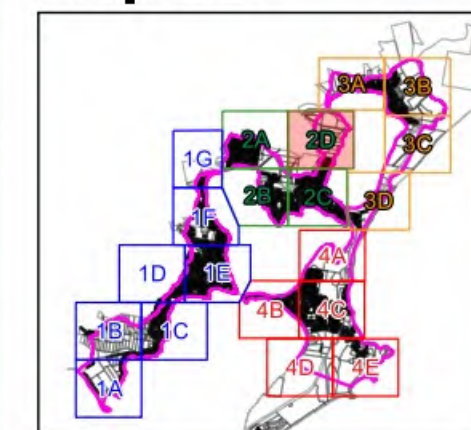
Legend

- Catchment area
- Cadastral
- PMF Flood Extent
- 1% AEP Flood Extent

Flood Planning Area

- Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 2D



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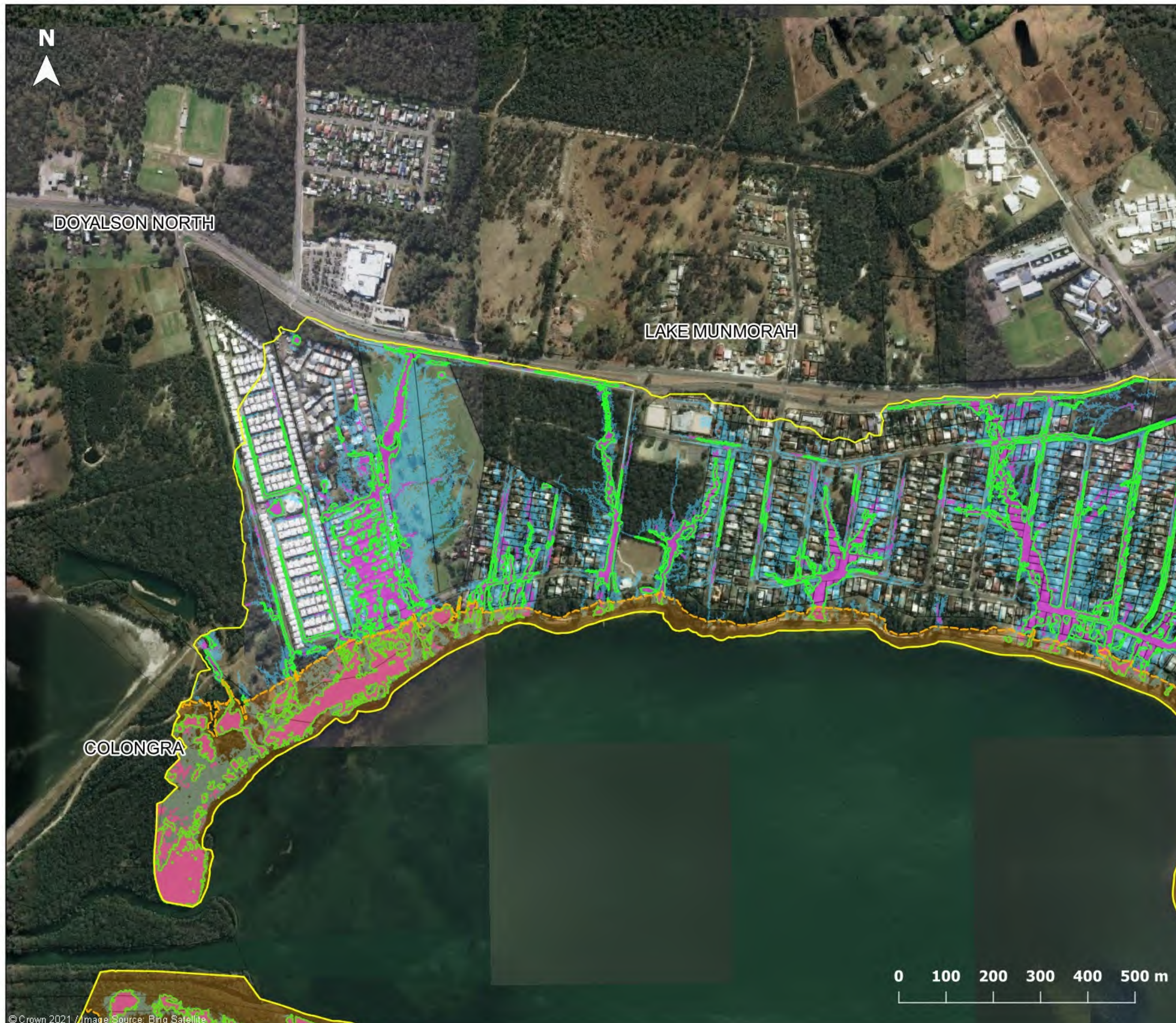


Figure F1.12

Flood Planning Area and Recommended Freeboards

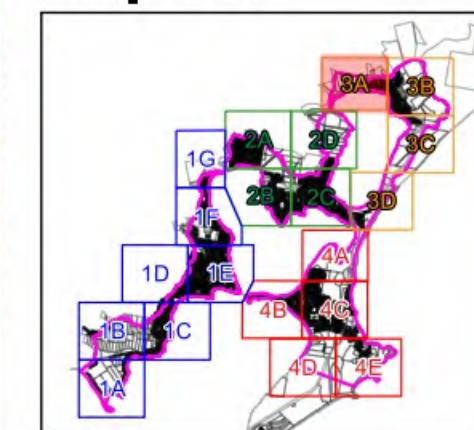
Legend

- Catchment area
- Cadastre
- PMF Flood Extent
- 1% AEP Flood Extent

Flood Planning Area

- Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 3A



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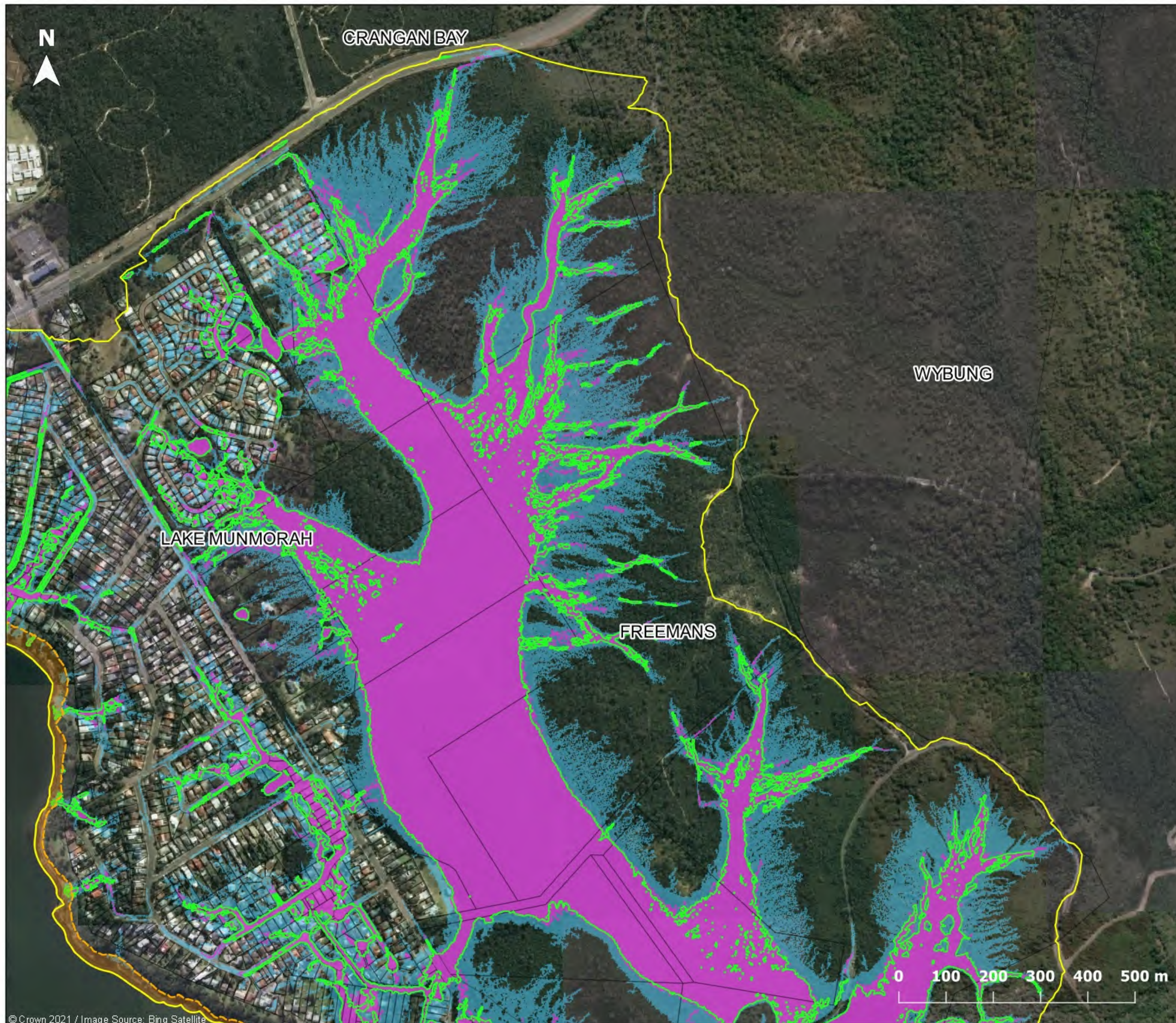


Figure F1.13

Flood Planning Area and Recommended Freeboards

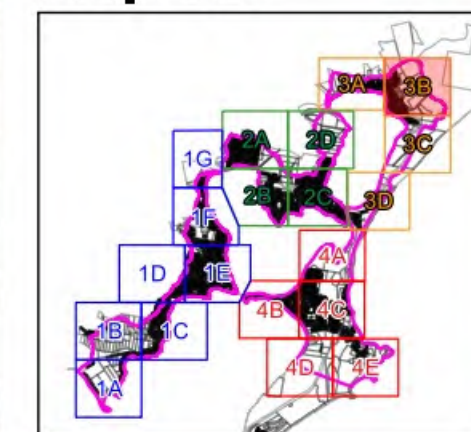
Legend

- Catchment area
- Cadastre
- PMF Flood Extent
- 1% AEP Flood Extent

Flood Planning Area

- Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 3B



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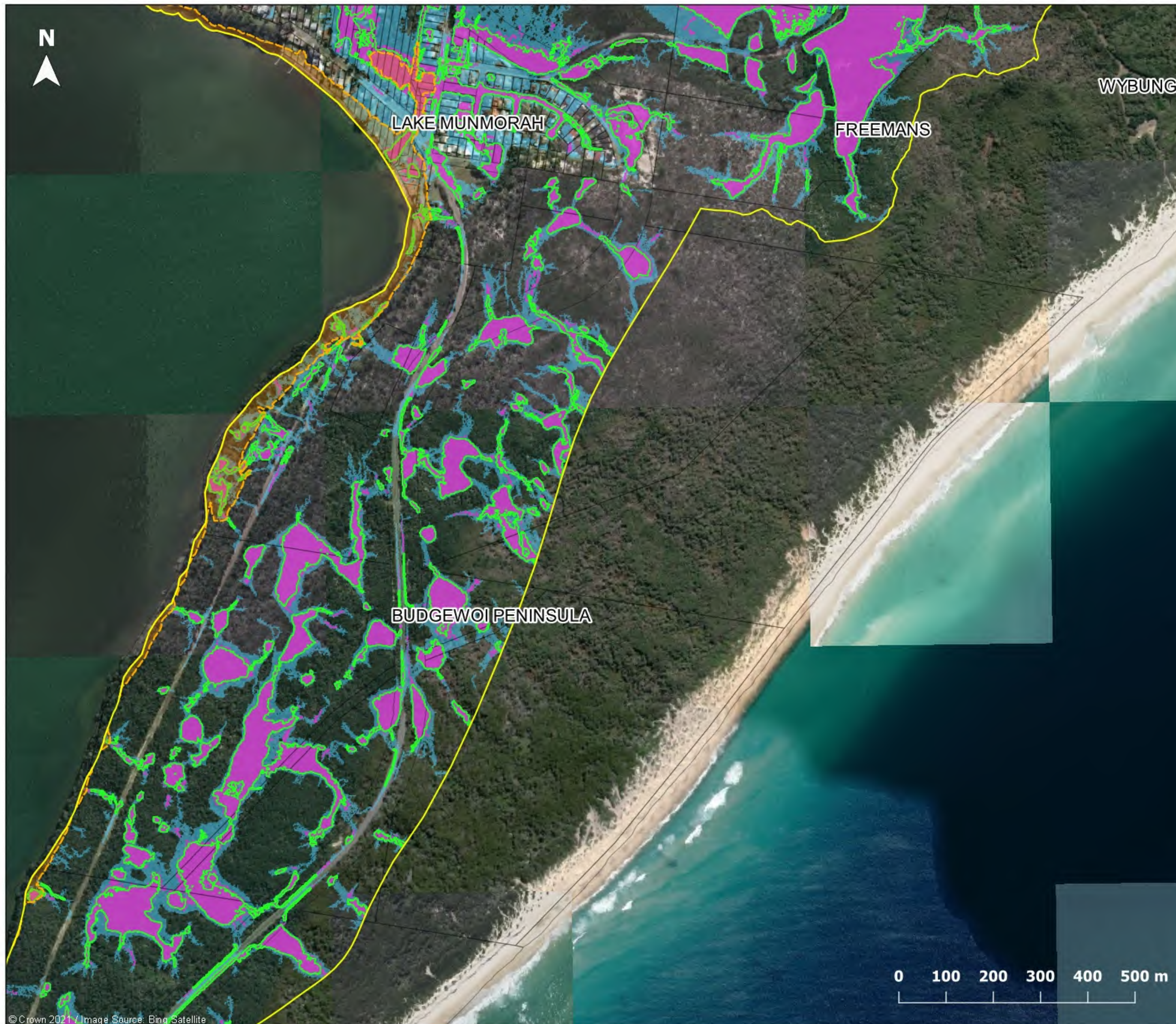


Figure F1.14

Flood Planning Area and Recommended Freeboards

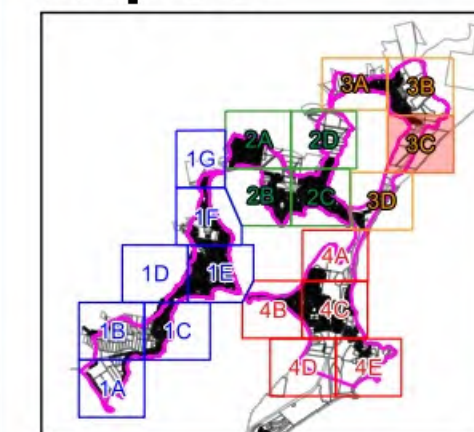
Legend

- Catchment area
- Cadastre
- PMF Flood Extent
- 1% AEP Flood Extent

Flood Planning Area

- Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 3C



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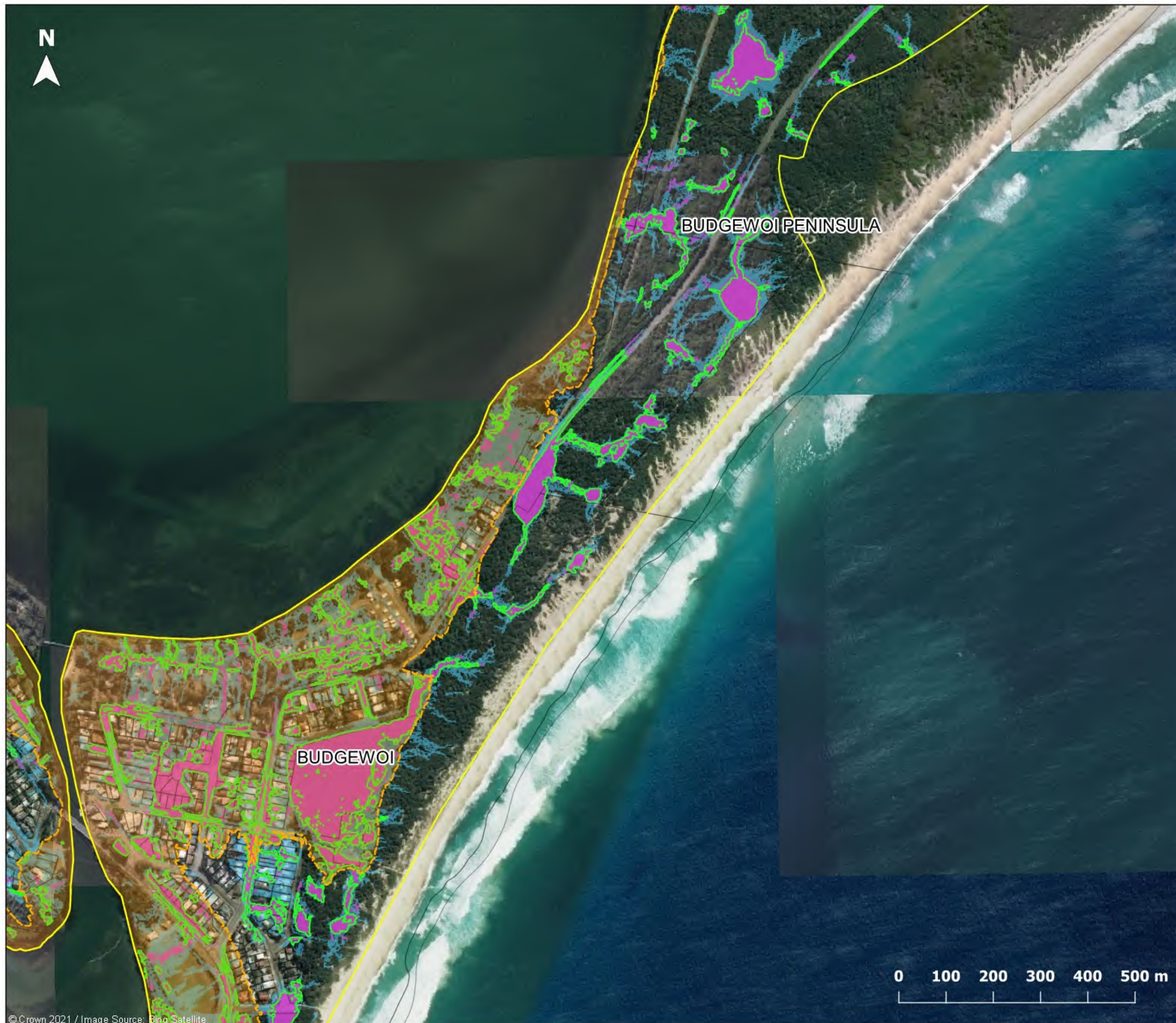


Figure F1.15

Flood Planning Area and Recommended Freeboards

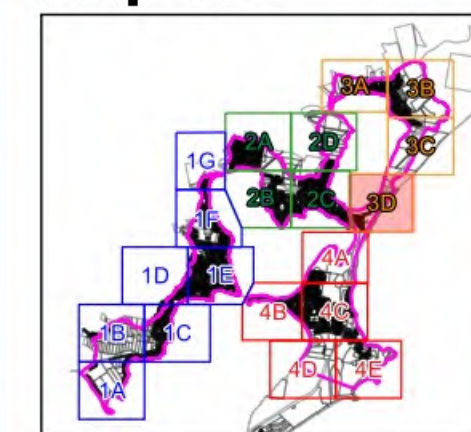
Legend

- Catchment area
- Cadastre
- PMF Flood Extent
- 1% AEP Flood Extent

Flood Planning Area

- Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 3D



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Figure F1.16

Flood Planning Area and Recommended Freeboards

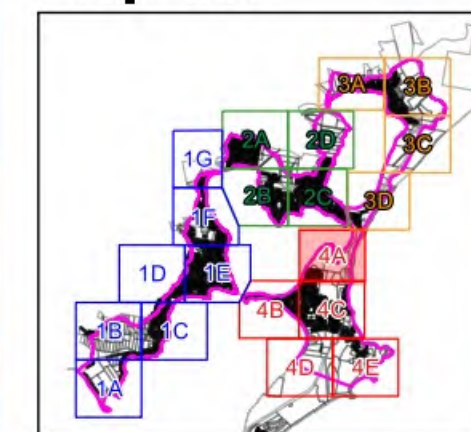
Legend

- Catchment area
- Cadastre
- PMF Flood Extent
- 1% AEP Flood Extent

Flood Planning Area

- Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 4A



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Figure F1.17

Flood Planning Area and Recommended Freeboards

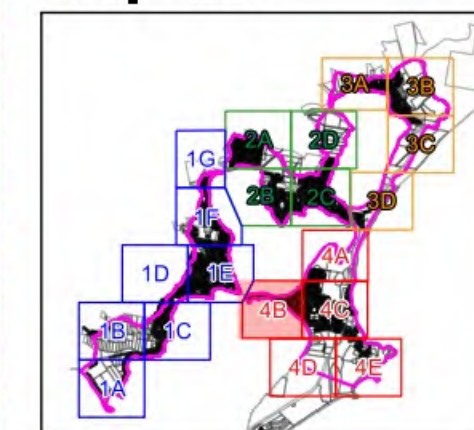
Legend

- Catchment area
- Cadastre
- PMF Flood Extent
- 1% AEP Flood Extent

Flood Planning Area

- Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 4B



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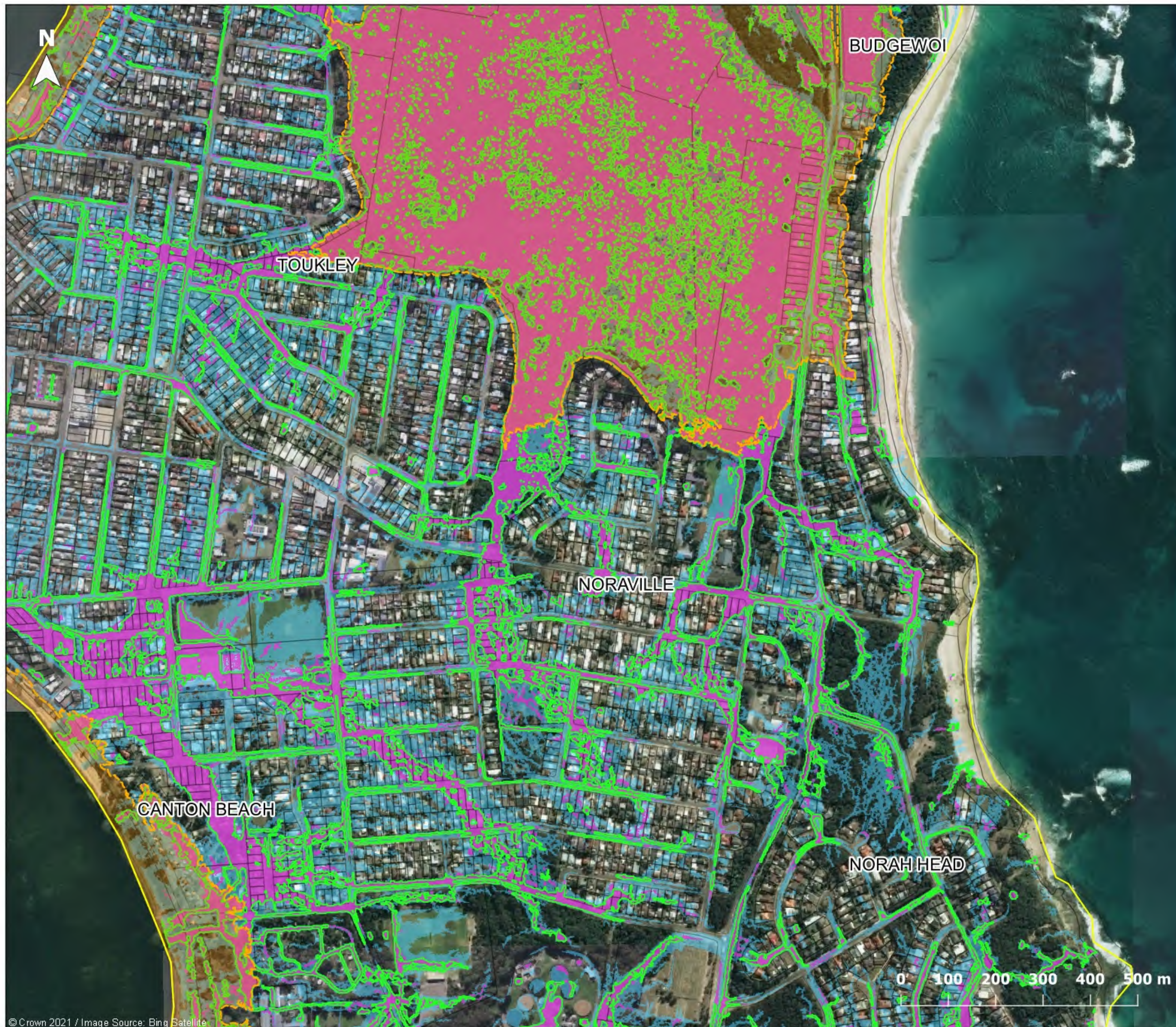


Figure F1.18

Flood Planning Area and Recommended Freeboards

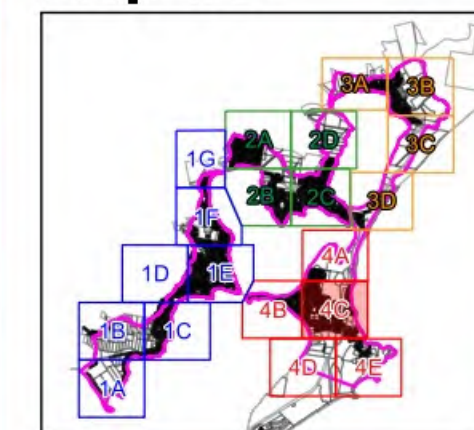
Legend

- ▬ Catchment area
- ▬ Cadastre
- ▬ PMF Flood Extent
- ▬ 1% AEP Flood Extent

Flood Planning Area

- ▬ Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- ▬ Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 4C



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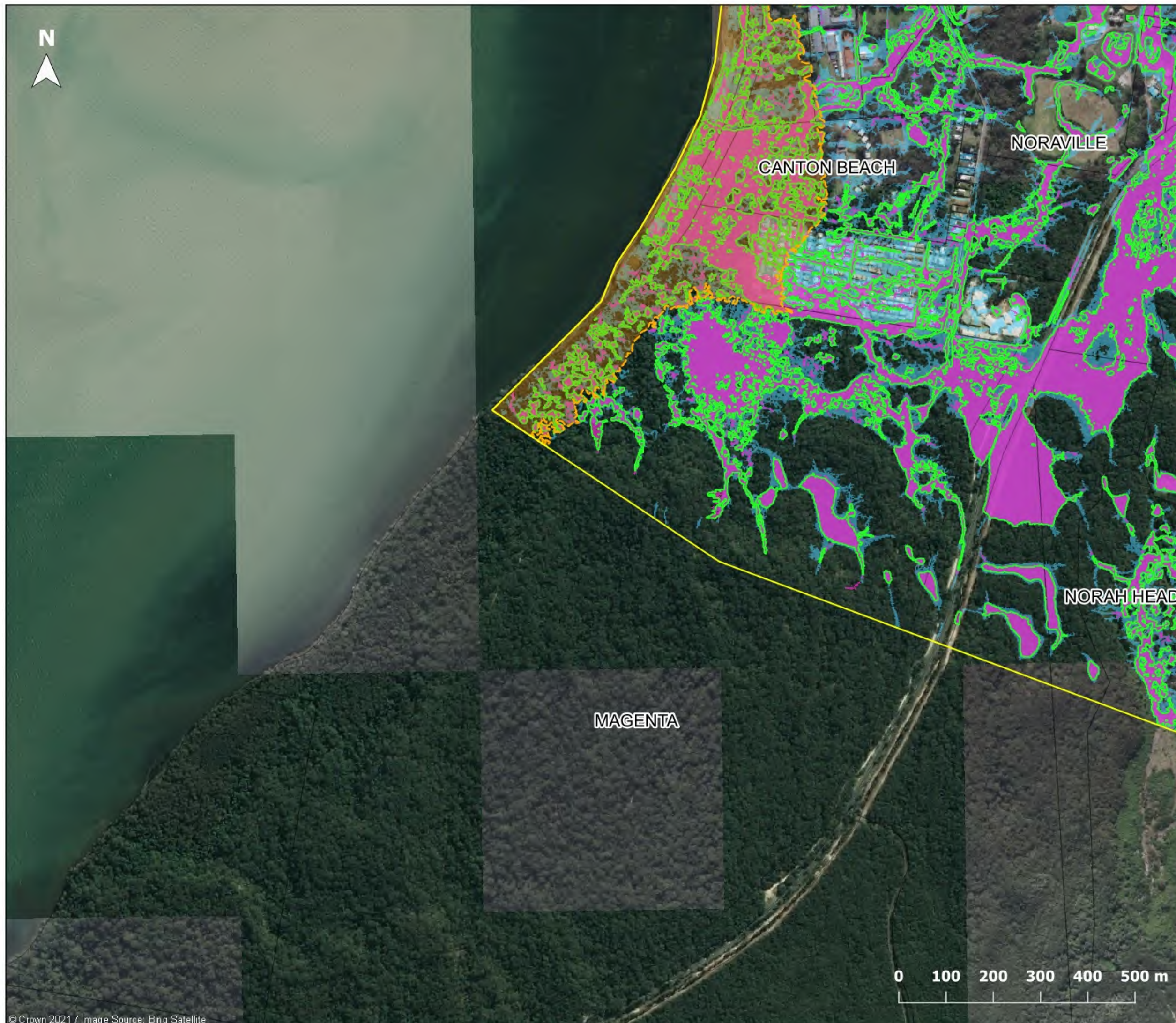


Figure F1.19

Flood Planning Area and Recommended Freeboards

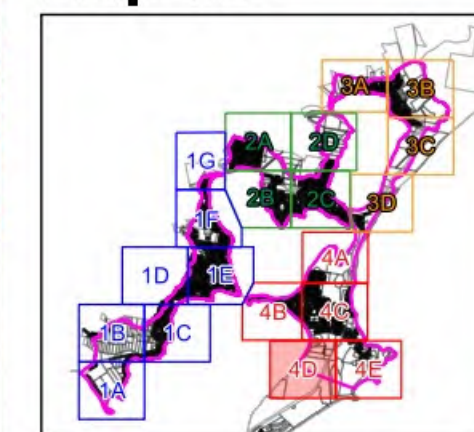
Legend

- Catchment area
- Cadastre
- PMF Flood Extent
- 1% AEP Flood Extent

Flood Planning Area

- Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 4D



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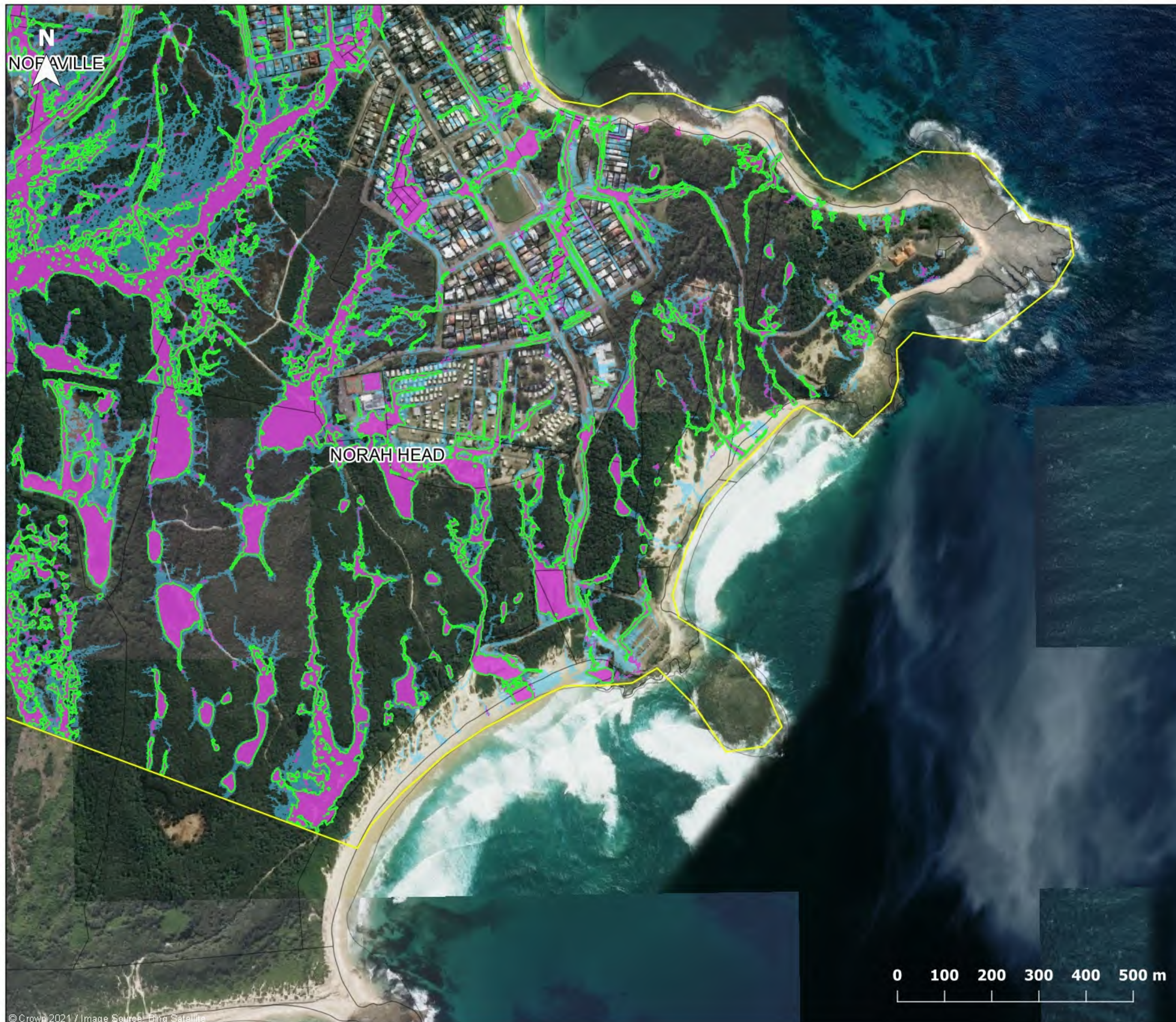


Figure F1.20

Flood Planning Area and Recommended Freeboards

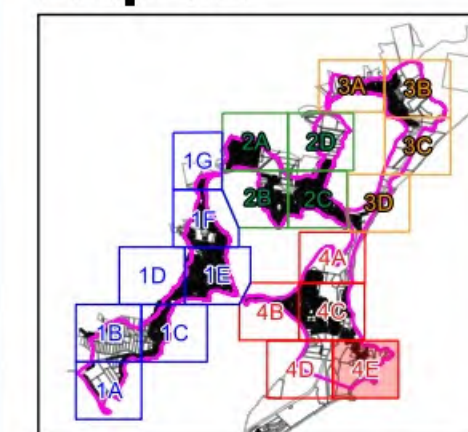
Legend

- ▬ Catchment area
- ▬ Cadastre
- ▬ PMF Flood Extent
- ▬ 1% AEP Flood Extent

Flood Planning Area

- ▬ Current Study Overland Flood Planning Area based on 1% AEP + 30% increase in rainfall intensity (300mm Freeboard)
- ▬ Tuggerah Lakes FRMSP Flood Planning Area based on Flood Planning Level of 2.70 m AHD

Map 4E



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Appendix G – Road closure

Road Closure ID	Depth (m)				Velocity (m/s)				Velocity x Depth (m2/s)				H1-H6 Hazard				Time to Peak (hour)				Duration Water Above Road (min)				Duration Water Above Road over 0.3m Depth (min)			
	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF*	20% AEP	5% AEP	1% AEP	PMF*	20% AEP	5% AEP	1% AEP	PMF*
M1_1	0.11	0.13	0.16	0.49	1.35	1.49	1.49	2.24	0.15	0.19	0.21	1.09	H1	H1	H1	H4	0.58	0.50	0.50	0.17 to 0.25	35	55	70	30 to 45	0	0	0	10 to 20
M1_2	0.19	0.20	0.24	0.52	0.71	0.80	0.84	1.29	0.13	0.16	0.2	0.67	H1	H1	H1	H4	0.50	0.50	0.50	0.17 to 0.25	135	135	140	60	0	0	0	20 to 35
M1_3	0.22	0.27	0.3	0.63	0.34	0.4	0.44	0.92	0.08	0.11	0.13	0.58	H1	H1	H2	H3	0.58	0.58	0.58	0.17 to 0.25	60	50	65	35 to 45	0	0	0	15 to 25
M1_4	0.19	0.21	0.23	0.46	0.61	0.67	0.73	1.31	0.11	0.14	0.17	0.61	H1	H1	H1	H3	0.50	0.50	0.50	0.17	105	105	110	55 to 60	0	0	0	15 to 20
M1_5	0	0.1	0.13	0.33	0	0.35	0.4	0.72	0	0.03	0.05	0.23	H0	H1	H1	H2	0.67	0.58	0.58	0.17 to 0.25	20	30	40	35 to 45	0	0	0	10
M1_6	0	0.11	0.17	0.61	0	0.22	0.29	0.88	0	0.02	0.05	0.54	H0	H1	H1	H3	0.67	0.67	0.58	0.25	20	30	25	25 to 40	0	0	0	15 to 25
M1_7	0	0	0.1	0.36	0	0	0.48	1.03	0	0	0.05	0.36	H0	H0	H1	H2	0.00	0.50	0.50	0.17	0	10	20	20 to 30	0	0	0	5 to 10
M1_8	0.16	0.19	0.22	0.41	0.29	0.33	0.37	0.59	0.05	0.06	0.08	0.24	H1	H1	H1	H2	0.67	0.58	0.58	0.25	45	45	65	40 to 55	0	0	0	15 to 20
M1_9	0.22	0.28	0.33	0.75	0.48	0.56	0.64	1.39	0.11	0.15	0.21	1.05	H1	H1	H2	H5	0.58	0.58	0.58	0.17 to 0.25	95	105	110	60	0	0	15	25 to 30
M1_10	0	0.1	0.14	0.49	0	0.37	0.43	0.93	0	0.04	0.06	0.46	H0	H1	H1	H2	0.67	0.67	0.58	0.25	10	20	30	25 to 40	0	0	0	15 to 20
M1_11	0.12	0.18	0.22	0.57	0.37	0.44	0.48	0.93	0.05	0.08	0.11	0.53	H1	H1	H1	H3	0.58	0.58	0.58	0.17 to 0.25	25	40	55	35 to 40	0	0	0	15 to 25
M1_12	0.22	0.26	0.28	0.44	0.13	0.14	0.15	0.22	0.02	0.02	0.03	0.1	H1	H1	H1	H2	0.58	0.58	0.58	0.17 to 0.25	90	100	100	50 to 60	0	0	10	20 to 25
M1_13	0	0.13	0.16	0.39	0	0.2	0.24	0.56	0	0.03	0.04	0.22	H0	H1	H1	H2	0.58	0.58	0.58	0.17 to 0.25	90	100	105	60	0	0	0	10 to 20
M1_14	0	0.11	0.15	0.4	0	0.25	0.3	0.58	0	0.03	0.05	0.23	H0	H1	H1	H2	0.67	0.67	0.67	0.25 to 0.33	20	30	45	35 to 45	0	0	0	15 to 20
M1_15	0.09	0.12	0.14	0.4	0.44	0.54	0.61	1.29	0.04	0.06	0.09	0.51	H1	H1	H1	H2	0.58	0.50	0.50	0.17	10	20	25	25 to 30	0	0	0	5
M1_16	0.18	0.22	0.26	0.55	0.22	0.3	0.36	0.82	0.04	0.07	0.09	0.45	H1	H1	H1	H3	0.58	0.50	0.50	0.17	25	40	55	30 to 40	0	0	0	15 to 25
M1_17**	0.14	0.17	0.18	0.32	0.02	0.02	0.02	0.07	0	0	0	0.02	H1	H1	H1	H2	0.67 to 20	0.67 to 20	0.67 to 20	0.25 to 0.67	580 to 3060	580 to 3120	590 to 3240	480 to 600	0	0	0	0 to 10
M1_18**	0.18	0.3	0.4	0.87	0.01	0.03	0.08	0.16	0.01	0.01	0.01	0.14	H1	H2	H2	H3	2.67 to 21	1.67 to 21	1.5 to 20	0.83 to 1.5	580 to 2640	580 to 2760	590 to 2940	480 to 600	0	0	0 to 300	110 to 270
M1_19**	0.27	0.3	0.34	0.54	0.02	0.02	0.03	0.11	0	0.01	0.01	0.06	H1	H2	H2	H3	0.67 to 20	0.67 to 20	0.67 to 20	0.25 to 1.67	90 to 240	100 to 480	110 to 600	120 to 300	0	0	0	40 to 230
M1_20**	0	0.12	0.15	0.45	0	0.38	0.5	1	0	0.05	0.07	0.45	H0	H1	H1	H2	0.67 to 18	0.67 to 19	0.5 to 20	0.17 to 0.5	0.00	0 to 20	0 to 30	20 to 110	0	0	0	*
M1_21**	0.28	0.38	0.47	0.96	0.24	0.25	0.3	0.36	0.06	0.07	0.07	0.21	H1	H2	H2	H3	3.5 to 21	2.5 to 21	2.33 to 20	0.83 to 1.5	60 to 1140	320 to 1440	420 to 1740	470 to 580	0	0 to 180	0 to 420	150 to 320
M1_22**	0.17	0.21	0.24	0.45	0.6	0.73	0.82	1.52	0.1	0.15	0.19	0.69	H1	H1	H1	H3	0.67 to 20	0.5 to 19	0.5 to 20	0.17 to 0.33	180 to 1500	180 to 1980	180 to 2280	130 to 220	0	0	0	10 to 40
M1_23**	0.18	0.23	0.26	0.59	0.13	0.14	0.16	0.34	0.02	0.03	0.04	0.18	H1	H1	H1	H3	0.67 to 20	0.5 to 19	0.5 to 20	0.33 to 0.67	0 to 50	60 to 120	70 to 240	40 to 130	0	0	0	20 to 70
M1_24**	0.17	0.2	0.23	0.49	0.46	0.55	0.62	1.14	0.08	0.11	0.14	0.56	H1	H1	H1	H2	0.5 to 20	0.5 to 20	0.5 to 20	0.17 to 0.5	90 to 480	100 to 720	100 to 960	50 to 150	0	0	0	10 to 60
M1_25**	0.19	0.22	0.26	0.61	0.44	0.51	0.57	1.11	0.08	0.11	0.15	0.68	H1	H1	H1	H4	0.5 to 20	0.5 to 20	0.5 to 20	0.17 to 0.5	110 to 1140	110 to 1440	110 to 1620	65 to 160	0	0	0	20 to 80
M1_26**	0.14	0.17	0.21	0.44	0.31	0.36	0.41	0.75	0.04	0.06	0.08	0.34	H1	H1	H1	H2	0.5 to 20	0.5 to 20	0.5 to 20	0.17 to 0.33	80 to 240	80 to 360	90 to 600	35 to 130	0	0	0	10 to 20
M1_27**	0.16	0.23	0.28	0.59	0.39	0.42	0.44	0.83	0.06	0.1	0.12	0.49	H1	H1	H1	H3	0.67 to 20	0.5 to 19	0.5 to 20	0.17 to 0.33	100 to 900	100 to 1080	100 to 1500	50 to 150	0	0	0	15 to 80
M1_28	0.2	0.26	0.3	0.64	0.76	0.84	0.91	1.53	0.15	0.21	0.27	0.98	H1	H1	H1	H4	0.50	0.50	0.50	0.17	105	115	115	60	0	0	0	15 to 25
M1_29**	0.17	0.19	0.21	0.44	0.22	0.26	0.31	0.72	0.04	0.05	0.06	0.32	H1	H1	H1	H2	0.5 to 20	0.5 to 19	0.5 to 19	0.17 to 0.33	590 to 3240	590 to 3300	600 to 3300	480 to 600	0	0	0	15 to 30
M1_30	0	0.11	0.13	0.31	0	0.3	0.32	0.55	0	0.03	0.04	0.17	H0	H1	H1	H2	0.58	0.58	0.58	0.17 to 0.25	40	60	70	35 to 55	0	0	0	10
M1_31	0	0.11	0.17	0.5	0	0.42	0.52	1.1	0	0.05	0.09	0.54	H0	H1	H1	H2	0.67	0.58	0.58	0.17 to 0.25	35	50	60	35 to 50	0	0	0	10 to 20
M1_32	0.16	0.22	0.28	0.66	0.2	0.22	0.27	0.75	0.03	0.05	0.07	0.49	H1	H1	H1	H3	0.58	0.58	0.58	0.17 to 0.25	60	75	85	40 to 50	0	0	0	15 to 25
M1_33	0	0.08	0.1	0.43	0	0.34	0.42	0.81	0	0.03	0.04	0.35	H0	H1	H1	H2	0.58	0.58	0.58	0.17 to 0.25	30	40	60	35 to 45	0	0	0	10 to 15
M1_34	0.24	0.27	0.3	0.51	0.23	0.29	0.34	0.66	0.05	0.08	0.1	0.33	H1	H1	H2	H3	0.58	0.58	0.58	0.17 to 0.25	115	120	130	60	0	0	5	20 to 30
M1_35	0.16	0.21	0.28	0.97	0.57	0.69	0.69	1.48	0.09	0.13	0.2	1.41	H1	H1	H1	H5	0.83	0.75	0.67	0.33 to 0.42	40	65	80	50 to 55	0	0	0	30 to 35
M1_36	0.3	0.39	0.46	1	0.24	0.25	0.31	0.75	0.06	0.09	0.14	0.75	H2	H2	H2	H4	0.75	0.67	0.67	0.25 to 0.33	115	125	130	60	5	20	35	35 to 45
M1_37	0	0.08	0.11	0.35	0	0.35	0.43	0.97	0	0.03	0.05	0.34	H0	H1	H1	H2	0.00	0.58	0.50	0.17 to 0.25	0	15	20	25 to 35	0	0	0	5

Road Closure ID	Depth (m)				Velocity (m/s)				Velocity x Depth (m2/s)				H1-H6 Hazard				Time to Peak (hour)				Duration Water Above Road (min)				Duration Water Above Road over 0.3m Depth (min)			
	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF*	20% AEP	5% AEP	1% AEP	PMF*	20% AEP	5% AEP	1% AEP	PMF*
M1_38	0	0	0	0.35	0	0	0	0.7	0	0	0	0.24	H0	H0	H0	H2	0.00	0.00	0.58	0.17 to 0.25	0	0	5	20 to 30	0	0	0	0 to 5
M1_39	0	0	0.11	0.35	0	0	0.41	0.89	0	0	0.04	0.31	H0	H0	H1	H2	0.58	0.58	0.58	0.17 to 0.25	5	15	25	25 to 35	0	0	0	10
M1_40	0.15	0.21	0.26	0.66	0.36	0.44	0.51	0.98	0.05	0.09	0.13	0.65	H1	H1	H1	H4	0.67	0.67	0.67	0.25 to 0.33	40	60	80	50 to 55	0	0	0	20 to 35
M1_41	0	0	0	0.62	0	0	0	0.88	0	0	0	0.54	H0	H0	H0	H3	1.17	1.00	0.83	0.25 to 0.42	25	45	65	60	0	0	0	10 to 20
M1_42	0.28	0.33	0.36	0.68	0.29	0.37	0.42	0.83	0.08	0.12	0.15	0.57	H1	H2	H2	H3	0.58	0.58	0.58	0.17 to 0.25	80	85	95	50 to 55	0	0	5	15 to 30
M1_43	0.15	0.19	0.22	0.76	0.52	0.58	0.64	1.52	0.08	0.11	0.14	1.16	H1	H1	H1	H5	0.83	0.75	0.67	0.42 to 0.50	115	120	125	55	0	0	0	35 to 45
M1_44	0	0	0	0.65	0	0	0	1.09	0	0	0	0.71	H0	H0	H0	H4	0.00	0.00	0.58	0.33 to 0.42	0	0	10	40 to 50	0	0	0	15 to 25
M1_45	0.15	0.19	0.22	0.51	0.53	0.61	0.68	1.26	0.08	0.12	0.15	0.65	H1	H1	H1	H4	0.58	0.58	0.58	0.17 to 0.25	35	50	70	30 to 45	0	0	0	10 to 20
M1_46	0	0	0	0.62	0	0	0	1.12	0	0	0	0.69	H0	H0	H0	H4	0.00	0.00	0.00	0.42 to 0.50	0	0	0	40 to 45	0	0	0	10 to 25
M1_47	0.53	0.61	0.69	1.58	0.29	0.36	0.43	0.92	0.15	0.22	0.3	1.45	H3	H3	H3	H5	0.92	0.83	0.75	0.33 to 0.42	140	140	145	60	110	120	130	55 to 60
M1_48	0.19	0.28	0.42	1.35	1.35	1.53	1.6	1.75	0.25	0.36	0.45	1.88	H1	H2	H2	H5	0.92	0.83	0.83	0.33 to 0.42	125	130	130	55	0	0	40	45 to 50
M1_49	0.19	0.28	0.35	0.77	0.46	0.58	0.68	1.19	0.09	0.16	0.24	0.92	H1	H1	H2	H4	0.67	0.67	0.67	0.25 to 0.33	55	75	85	55 to 60	0	0	15	25 to 40
M1_50	0.23	0.28	0.32	0.6	0.19	0.22	0.25	0.56	0.04	0.06	0.08	0.33	H1	H1	H2	H3	0.67	0.58	0.58	0.17 to 0.42	70	90	105	60	0	0	0	25 to 35
M1_51	0.4	0.48	0.55	1.07	0.62	0.72	0.81	1.47	0.25	0.35	0.45	1.57	H2	H2	H3	H5	0.83	0.75	0.67	0.25 to 0.33	125	125	130	55 to 60	45	60	70	50 to 55
M1_52	0.44	0.51	0.58	1.1	0.42	0.48	0.54	1.04	0.19	0.25	0.31	1.14	H2	H3	H3	H5	0.67	0.67	0.58	0.25 to 0.33	135	140	140	60	40	60	75	50 to 55
M1_53	0.23	0.28	0.32	0.96	0.08	0.1	0.13	0.38	0.02	0.03	0.04	0.25	H1	H1	H2	H3	0.67	0.67	0.58	0.25 to 0.50	110	125	130	55 to 60	0	0	20	50 to 55
M1_54	0.56	0.66	0.75	1.41	0.31	0.37	0.43	0.86	0.17	0.24	0.32	1.22	H3	H3	H3	H5	0.83	0.75	0.67	0.25 to 0.33	135	135	140	60	75	90	105	55
M1_55	0.36	0.4	0.42	0.59	0.08	0.11	0.13	0.31	0.03	0.04	0.06	0.18	H2	H2	H2	H3	0.75	0.67	0.67	0.25 to 0.33	130	135	135	60	40	55	70	45 to 55
M1_56	0.18	0.29	0.37	0.95	0.23	0.31	0.37	0.78	0.04	0.09	0.14	0.74	H1	H1	H2	H4	1.08	0.92	0.83	0.33 to 0.50	95	115	125	60	0	0	35	50 to 55
M1_57**	0.01	0.07	0.13	0.54	0.07	0.2	0.24	0.51	0	0.02	0.04	0.29	H1	H1	H1	H3	0.83 to 20	0.67 to 20	1.33 to 20	0.58 to 1.5	180 to 2100	190 to 2340	240 to 2340	320 to 500	0	0 to 120	0 to 300	145 to 300
M1_58**	0.31	0.35	0.4	0.61	0.03	0.03	0.05	0.14	0	0.01	0.02	0.08	H2	H2	H2	H3	1.33 to 20	1.33 to 20	1.17 to 20	0.33 to 0.83	590 to 3180	590 to 3240	590 to 3240	480 to 600	0 to 60	70 to 180	110 to 240	110 to 280
M1_59**	0	0.14	0.31	0.97	0	0.21	0.41	1.09	0	0.03	0.13	1.06	H0	H1	H2	H5	0.5 to 5	0.67 to 19	0.67 to 19	0.25 to 0.5	0.00	0 to 20	0 to 30	35 to 110	0	0	0 to 10	25 to 100
M1_60**	0.14	0.24	0.36	0.95	0.1	0.16	0.22	0.43	0.01	0.04	0.08	0.4	H1	H1	H2	H3	1 to 20	1 to 20	0.83 to 20	0.33 to 0.67	100 to 540	140 to 780	150 to 1020	120 to 210	0	0	0 to 20	35 to 120
M1_61**	0.19	0.31	0.39	0.93	0.24	0.26	0.28	0.53	0.05	0.08	0.11	0.49	H1	H2	H2	H3	0.67 to 20	0.67 to 20	0.67 to 20	0.25 to 0.5	110 to 1080	110 to 1380	120 to 1620	70 to 170	0	0	0 to 20	20 to 100
M1_62**	0.32	0.51	0.63	1.32	0.16	0.24	0.32	0.9	0.05	0.12	0.2	1.19	H2	H3	H3	H5	0.67 to 20	0.67 to 20	0.67 to 20	0.25 to 0.5	80 to 240	90 to 360	90 to 600	50 to 150	0	0 to 20	0 to 30	30 to 120
M1_63	0.24	0.3	0.33	0.87	0.51	0.57	0.61	1.07	0.12	0.17	0.2	0.93	H1	H1	H2	H4	0.58	0.58	0.50	0.17 to 0.25	120	120	65	30 to 45	0	0	10	20 to 30
M1_64	0.26	0.33	0.4	0.9	1	1.1	1.2	1.96	0.26	0.36	0.48	1.75	H1	H2	H2	H5	0.75	0.75	0.67	0.25 to 0.33	80	95	100	55	0	15	25	30 to 40
M1_65	0.61	0.74	0.85	1.44	0.11	0.11	0.14	0.42	0.05	0.08	0.12	0.61	H3	H3	H3	H4	1.00	0.92	0.83	0.33 to 0.42	100	110	115	60	65	75	90	55
M1_66	1	1.13	1.24	1.86	0.14	0.15	0.15	0.2	0.05	0.07	0.09	0.37	H3	H3	H4	H4	1.00	0.92	0.83	0.33 to 0.42	135	135	140	60	125	130	130	55 to 60
M1_67	0.3	0.4	0.48	1.04	0.37	0.47	0.56	1.06	0.11	0.19	0.27	1.11	H1	H2	H2	H5	0.83	0.75	0.67	0.25 to 0.33	90	95	105	60	0	25	35	30 to 40
M1_68	0.36	0.43	0.54	1.24	0.05	0.08	0.1	0.26	0.02	0.03	0.04	0.31	H2	H2	H3	H4	0.75	0.92	0.83	0.33 to 0.42	130	130	135	60	75	85	90	55
M1_69	0.3	0.37	0.46	1.11	0.27	0.34	0.46	1.4	0.08	0.12	0.21	1.56	H2	H2	H2	H5	0.67	0.58	0.92	0.25 to 0.33	135	140	140	60	0	25	60	45 to 50
M1_70	0.22	0.27	0.32	0.73	0.26	0.32	0.36	0.6	0.06	0.09	0.11	0.43	H1	H1	H2	H3	0.67	0.67	0.58	0.25 to 0.33	120	125	130	60	0	0	10	25 to 35
M1_71	0.27	0.35	0.43	1.29	0.29	0.35	0.39	0.78	0.08	0.12	0.17	0.99	H1	H2	H2	H4	0.83	0.75	0.75	0.33 to 0.42	110	125	130	55 to 60	0	25	50	45 to 55
M1_72	0.46	0.5	0.55	1.21	0.31	0.35	0.35	1.27	0.12	0.16	0.19	1.54	H2	H2	H3	H5	0.75	0.75	0.92	0.25 to 0.33	105	125	135	60	70	90	95	55
M1_73**	0.25	0.34	0.42	0.97	0.06	0.07	0.07	0.24	0.01	0.02	0.03	0.19	H1	H2	H2	H3	0.5 to 21	0.5 to 20	2.17 to 20	0.75 to 1.5	0 to 180	0 to 420	50 to 600	215 to 380	0	0	0	0 to 120
M2_1	0	0.13	0.15	0.36	0	0.1	0.1	0.18	0	0.01	0.01	0.05	H0	H1	H1	H2	0.67	0.58	0.58	0.25 to 0.33	45	60	75	55	0	0	0	10 to 15

Road Closure ID	Depth (m)				Velocity (m/s)				Velocity x Depth (m2/s)				H1-H6 Hazard				Time to Peak (hour)				Duration Water Above Road (min)				Duration Water Above Road over 0.3m Depth (min)			
	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF*	20% AEP	5% AEP	1% AEP	PMF*	20% AEP	5% AEP	1% AEP	PMF*
M2_2	0	0.11	0.16	0.48	0	0.15	0.19	0.38	0	0.02	0.03	0.18	H0	H1	H1	H2	0.75	0.75	0.75	0.25 to 0.42	80	90	105	60	0	0	0	25 to 35
M2_3	0	0	0.12	0.38	0	0	0.2	0.45	0	0	0.03	0.17	H0	H0	H1	H2	0.00	0.83	0.75	0.25 to 0.42	0	25	50	50 to 55	0	0	0	0 to 15
M2_4	0	0.14	0.18	0.41	0	0.1	0.11	0.2	0	0.01	0.02	0.06	H0	H1	H1	H2	0.67	0.67	0.67	0.25 to 0.33	45	65	75	55	0	0	0	15 to 20
M2_5	0.15	0.19	0.22	0.42	0.06	0.08	0.09	0.2	0.01	0.01	0.02	0.08	H1	H1	H1	H2	1.00	0.92	0.83	0.33 to 0.42	70	85	95	55 to 60	0	0	0	15 to 25
M2_6	0	0	0.13	0.35	0	0	0.14	0.22	0	0	0.02	0.08	H0	H0	H1	H2	0.67	0.75	0.75	0.25 to 0.42	55	70	80	60	0	0	0	10 to 20
M2_7	0.19	0.22	0.24	0.37	0.04	0.03	0.05	0.11	0.01	0.01	0.01	0.04	H1	H1	H1	H2	0.58	0.58	0.50	0.17 to 0.25	135	140	140	60	0	0	0	10 to 20
M2_8	0.15	0.19	0.24	0.57	0.44	0.57	0.7	1.33	0.06	0.11	0.17	0.76	H1	H1	H1	H4	0.58	0.58	0.58	0.25	40	55	70	40 to 55	0	0	0	15 to 25
M2_9	0.24	0.3	0.36	0.71	0.35	0.45	0.54	1.06	0.09	0.14	0.19	0.75	H1	H1	H2	H4	0.67	0.58	0.58	0.17 to 0.25	75	90	95	45 to 60	0	0	15	25 to 30
M2_10	0.17	0.22	0.26	0.64	0.48	0.55	0.61	1.06	0.08	0.12	0.16	0.68	H1	H1	H1	H4	0.58	0.58	0.58	0.17 to 0.25	70	75	90	40 to 55	0	0	0	15 to 25
M2_11	0.12	0.14	0.15	0.39	0.53	0.59	0.63	1.23	0.06	0.08	0.1	0.47	H1	H1	H1	H2	0.50	0.50	0.50	0.17	35	50	70	25 to 40	0	0	0	0
M2_12	0.21	0.23	0.25	0.4	0.14	0.17	0.18	0.35	0.03	0.04	0.05	0.14	H1	H1	H1	H2	0.50	0.50	0.50	0.17	30	45	60	30 to 40	0	0	0	5 to 10
M2_13	0.18	0.23	0.26	0.52	0.27	0.35	0.41	0.82	0.05	0.08	0.11	0.42	H1	H1	H1	H3	0.58	0.50	0.50	0.17 to 0.25	85	95	95	45 to 60	0	0	0	15 to 25
M2_14	0	0.08	0.11	0.37	0	0.41	0.54	1.18	0	0.03	0.06	0.43	H0	H1	H1	H2	0.67	0.58	0.58	0.17 to 0.25	5	15	25	30 to 35	0	0	0	10
M2_15	0.15	0.19	0.22	0.5	0.25	0.26	0.29	0.53	0.04	0.05	0.07	0.26	H1	H1	H1	H3	0.58	0.58	0.58	0.17 to 0.25	45	60	70	35 to 50	0	0	0	10 to 20
M2_16	0	0.16	0.26	0.64	0	0.16	0.22	0.73	0	0.02	0.06	0.47	H0	H1	H1	H3	0.58	1.33	1.00	0.25 to 0.33	10	65	100	55 to 60	0	0	0	20 to 30
M2_17	0	0.16	0.21	0.49	0	0.26	0.3	0.56	0	0.04	0.06	0.27	H0	H1	H1	H2	0.58	0.58	0.50	0.17 to 0.25	15	30	40	25 to 40	0	0	0	10 to 25
M2_18	0.16	0.19	0.21	0.51	0.11	0.13	0.15	0.53	0.02	0.02	0.03	0.27	H1	H1	H1	H3	0.58	0.58	0.50	0.25 to 0.33	85	125	135	60	0	0	0	15 to 30
M2_19	0.13	0.16	0.21	0.67	0.17	0.21	0.27	0.87	0.02	0.04	0.06	0.58	H1	H1	H1	H3	0.67	0.58	1.08	0.25 to 0.33	110	135	135	60	0	0	0	25 to 40
M2_20	0.1	0.14	0.18	0.63	0.28	0.34	0.39	0.88	0.03	0.05	0.07	0.56	H1	H1	H1	H3	0.67	0.58	0.58	0.33 to 0.42	30	45	80	50 to 55	0	0	0	20 to 35
M2_21	0	0.08	0.1	0.57	0	0.41	0.45	1.21	0	0.03	0.04	0.69	H0	H1	H1	H4	0.50	0.50	0.50	0.25 to 0.33	20	30	65	35 to 45	0	0	0	15 to 20
M2_22	0	0	0	0.53	0	0	0	0.39	0	0	0	0.22	H0	H0	H0	H3	0.00	0.00	0.00	0.50 to 0.58	0	0	0	55 to 60	0	0	0	10 to 30
M2_23	0.1	0.12	0.14	0.32	0.32	0.37	0.42	0.74	0.03	0.05	0.06	0.24	H1	H1	H1	H2	0.58	0.58	0.50	0.17 to 0.25	70	80	90	40 to 55	0	0	0	0 to 5
M2_24	0.11	0.14	0.16	0.39	0.39	0.43	0.47	0.82	0.04	0.06	0.08	0.33	H1	H1	H1	H2	0.58	0.50	0.50	0.17	45	55	70	30 to 45	0	0	0	5 to 15
M2_25	0.21	0.26	0.31	0.75	0.91	1.01	1.1	1.8	0.19	0.26	0.34	1.35	H1	H1	H2	H5	0.75	0.67	0.58	0.25 to 0.33	120	120	125	55	0	0	0	20 to 25
M2_26	0.19	0.23	0.27	0.65	0.35	0.41	0.46	0.92	0.07	0.09	0.12	0.6	H1	H1	H1	H3	0.58	0.58	0.58	0.17 to 0.25	70	80	85	40 to 50	0	0	0	15 to 25
M2_27	0.15	0.17	0.2	0.43	0.36	0.41	0.44	0.79	0.05	0.07	0.09	0.34	H1	H1	H1	H2	0.58	0.50	0.50	0.17	40	55	70	30 to 40	0	0	0	10 to 15
M2_28	0.14	0.18	0.21	0.45	0.15	0.18	0.2	0.4	0.02	0.03	0.04	0.18	H1	H1	H1	H2	0.75	0.67	0.67	0.25 to 0.33	55	70	85	55	0	0	0	15 to 20
M2_29	0.17	0.22	0.29	0.81	0.3	0.36	0.43	0.81	0.05	0.08	0.12	0.66	H1	H1	H1	H4	0.58	0.58	0.58	0.25	55	70	80	45 to 60	0	0	0	20 to 30
M2_30	0.15	0.21	0.26	0.53	0.18	0.22	0.25	0.34	0.03	0.05	0.06	0.18	H1	H1	H1	H3	0.75	0.67	0.67	0.25 to 0.33	110	115	125	60	0	0	0	25 to 35
M2_31	0	0.11	0.16	0.44	0	0.2	0.3	0.78	0	0.02	0.05	0.34	H0	H1	H1	H2	0.00	0.67	0.67	0.25 to 0.33	0	15	25	30 to 40	0	0	0	5 to 15
M2_32	0.16	0.2	0.23	0.52	0.45	0.54	0.62	1.22	0.07	0.11	0.14	0.63	H1	H1	H1	H4	0.50	0.50	0.50	0.17	40	55	65	25 to 40	0	0	0	15 to 20
M2_33	0.17	0.2	0.23	0.4	0.24	0.27	0.3	0.47	0.04	0.05	0.07	0.19	H1	H1	H1	H2	0.58	0.58	0.50	0.17 to 0.25	110	115	120	60	0	0	0	10 to 20
M2_34	0.13	0.17	0.2	0.54	0.49	0.57	0.63	1.16	0.07	0.09	0.13	0.62	H1	H1	H1	H4	0.58	0.58	0.58	0.17 to 0.25	80	85	95	45 to 60	0	0	0	10 to 25
M2_35	0.05	0.08	0.11	0.34	0.71	0.48	0.53	1.05	0.03	0.06	0.07	0.36	H1	H1	H1	H2	0.58	0.58	0.50	0.17	15	25	35	25 to 40	0	0	0	5 to 10
M2_36	0	0	0.12	0.63	0	0	0.42	1.05	0	0	0.05	0.66	H0	H0	H1	H4	0.00	0.67	0.58	0.25	0	25	30	35 to 45	0	0	0	15 to 20
M2_37	0.1	0.15	0.19	0.5	0.35	0.44	0.51	0.97	0.04	0.07	0.1	0.49	H1	H1	H1	H3	0.67	0.58	0.58	0.17 to 0.25	20	30	45	35 to 40	0	0	0	10 to 25
M2_38	0.19	0.24	0.27	0.54	0.56	0.64	0.7	1.1	0.11	0.16	0.19	0.6	H1	H1	H1	H3	0.67	0.58	0.58	0.17 to 0.25	95	100	110	55 to 60	0	0	0	15 to 25

Road Closure ID	Depth (m)				Velocity (m/s)				Velocity x Depth (m2/s)				H1-H6 Hazard				Time to Peak (hour)				Duration Water Above Road (min)				Duration Water Above Road over 0.3m Depth (min)			
	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF*	20% AEP	5% AEP	1% AEP	PMF*	20% AEP	5% AEP	1% AEP	PMF*
M2_39	0	0.16	0.2	0.47	0	0.45	0.54	1.11	0	0.07	0.1	0.52	H0	H1	H1	H2	0.67	0.67	0.58	0.17 to 0.25	20	30	45	30 to 40	0	0	0	15 to 20
M2_40	0.14	0.19	0.23	0.68	0.37	0.44	0.5	1.11	0.05	0.08	0.11	0.75	H1	H1	H1	H4	0.67	0.67	0.67	0.25	60	70	80	45 to 50	0	0	0	15 to 25
M2_41	0	0.08	0.1	0.33	0	0.53	0.6	1.07	0	0.04	0.06	0.36	H0	H1	H1	H2	0.58	0.50	0.50	0.17	10	15	20	20 to 30	0	0	0	0 to 5
M2_42	0.23	0.51	0.66	1.29	0.14	0.34	0.49	1.18	0.03	0.17	0.32	1.52	H1	H3	H3	H5	0.67	0.67	0.58	0.25 to 0.33	135	135	140	60	0	15	25	25 to 40
M2_43	0.24	0.28	0.32	0.66	0.07	0.1	0.15	0.76	0.01	0.03	0.05	0.51	H1	H1	H2	H3	0.58	0.58	0.58	0.25	45	60	75	40 to 55	0	0	10	20 to 30
M2_44	0.56	0.56	0.56	0.98	1.59	1.57	1.58	2.1	0.83	0.81	0.83	2.06	H4	H4	H4	H5	0.75	0.42	0.67	0.25 to 0.33	80	85	95	55 to 60	10	30	35	30 to 45
M2_45	0	0	0.19	0.86	0	0	0.26	1.07	0	0	0.05	0.92	H0	H0	H1	H4	0.00	0.00	0.67	0.25 to 0.33	0	0	25	35 to 40	0	0	0	20 to 30
M2_46	0.14	0.18	0.22	0.55	0.36	0.4	0.44	0.86	0.05	0.07	0.1	0.47	H1	H1	H1	H3	0.58	0.58	0.50	0.17	80	85	95	40 to 55	0	0	0	15 to 20
M2_47	0	0	0.09	0.43	0	0	0.41	1.1	0	0	0.04	0.47	H0	H0	H1	H2	0.00	0.58	0.58	0.17 to 0.25	0	5	15	20 to 30	0	0	0	10 to 20
M2_48	0.25	0.27	0.36	0.84	0.63	0.59	0.71	1.53	0.15	0.16	0.26	1.28	H1	H1	H2	H5	0.83	0.75	0.67	0.25 to 0.33	20	35	50	35 to 50	0	0	10	25 to 35
M2_49	0.4	0.43	0.45	0.59	0.03	0.03	0.03	0.12	0.01	0.01	0.01	0.06	H2	H2	H2	H3	0.83	0.75	0.67	0.25 to 0.33	135	135	140	60	115	125	125	55 to 60
M2_50	0.26	0.36	0.44	0.96	0.4	0.5	0.56	1	0.11	0.18	0.25	0.95	H1	H2	H2	H4	0.75	0.67	0.67	0.25 to 0.33	40	50	70	40 to 50	0	20	30	30 to 40
M2_51	0.48	0.55	0.6	1.11	0.54	0.66	0.75	1.36	0.26	0.36	0.45	1.51	H2	H3	H3	H5	0.67	0.67	0.58	0.25	120	130	135	60	40	55	65	40 to 45
M2_52	0.48	0.53	0.56	0.91	0.1	0.04	0.17	0.42	0.05	0.07	0.1	0.38	H2	H3	H3	H3	0.67	0.58	0.58	0.25 to 0.33	135	140	140	60	85	105	120	55 to 60
M2_53	0.27	0.35	0.43	0.96	0.5	0.6	0.69	1.31	0.13	0.21	0.3	1.26	H1	H2	H2	H5	0.58	0.58	0.58	0.17 to 0.25	115	120	120	60	0	15	20	25 to 35
M2_54	0.28	0.34	0.4	0.81	0.36	0.46	0.54	1.05	0.1	0.16	0.21	0.85	H1	H2	H2	H4	0.58	0.58	0.58	0.17 to 0.25	80	90	100	50 to 60	0	5	15	20 to 30
M2_55	0.19	0.25	0.32	0.74	0.54	0.63	0.74	1.39	0.1	0.16	0.24	1.03	H1	H1	H2	H5	0.58	0.58	0.58	0.25	45	60	70	40 to 55	0	0	10	20 to 30
M2_56	0.56	0.62	0.7	1.22	0.08	0.1	0.12	0.43	0.03	0.05	0.08	0.52	H3	H3	H3	H4	1.33	1.17	1.08	0.42 to 0.50	130	130	135	60	100	110	120	55
M2_57	0.33	0.38	0.42	0.83	0.2	0.21	0.25	0.56	0.05	0.08	0.11	0.47	H2	H2	H2	H3	0.75	0.67	0.67	0.25 to 0.42	115	130	135	55 to 60	10	30	65	45 to 55
M2_58	0.3	0.39	0.48	1.24	0.01	0.08	0.09	0.26	0.01	0.01	0.01	0.31	H1	H2	H2	H4	1.58	1.50	1.42	0.42 to 0.50	135	135	140	60	0	85	110	55
M2_59	0.46	0.53	0.61	1.18	0.02	0.08	0.1	0.15	0.02	0.03	0.04	0.24	H2	H3	H3	H3	1.33	1.17	1.08	0.42 to 0.50	140	140	140	60	95	105	110	55
M2_60	0.29	0.35	0.41	0.89	0.26	0.32	0.39	0.8	0.07	0.11	0.16	0.71	H1	H2	H2	H4	1.33	1.17	1.08	0.42 to 0.50	100	125	130	55	0	50	80	45 to 50
M2_61	0.38	0.46	0.55	1.3	0.05	0.05	0.02	0.42	0.01	0.01	0.03	0.46	H2	H2	H3	H4	1.42	1.25	1.08	0.42 to 0.50	135	140	140	60	65	100	110	55
M2_62	0.25	0.32	0.38	1.02	0.09	0.14	0.2	0.54	0.02	0.05	0.07	0.54	H1	H2	H2	H3	0.83	0.75	0.75	0.33 to 0.42	115	135	135	60	0	10	35	50
M2_63	0.48	0.57	0.67	1.36	0.09	0.12	0.15	0.37	0.04	0.06	0.08	0.49	H2	H3	H3	H4	1.17	1.00	0.92	0.42 to 0.50	140	140	140	60	120	125	130	55 to 60
M2_64	0.34	0.43	0.49	1.06	0.28	0.37	0.44	0.95	0.1	0.16	0.22	1	H2	H2	H2	H5	0.58	0.58	0.58	0.17 to 0.25	85	90	100	50 to 60	15	25	35	30 to 35
M2_65	0.5	0.67	0.83	1.59	1.94	1.95	1.98	2.42	0.29	0.37	0.46	1.5	H3	H3	H3	H5	1.42	1.17	1.00	0.33 to 0.42	130	130	135	55 to 60	100	110	115	55
M2_66	0.4	0.47	0.53	0.99	0.63	0.73	0.82	1.56	0.25	0.35	0.44	1.55	H2	H2	H3	H5	0.67	0.67	0.58	0.25	120	130	135	60	25	35	55	35 to 45
M2_67	0.22	0.3	0.37	0.92	0.32	0.4	0.49	1.14	0.07	0.12	0.18	1.06	H1	H1	H2	H5	0.58	0.58	0.58	0.17 to 0.25	95	100	105	55 to 60	0	5	15	25 to 30
M2_68	0.27	0.31	0.35	0.56	0.05	0.07	0.09	0.21	0.01	0.02	0.03	0.12	H1	H2	H2	H3	1.00	0.92	0.83	0.33 to 0.42	135	135	140	60	0	30	50	50 to 55
M2_69	0.33	0.36	0.38	0.55	0.15	0.17	0.19	0.34	0.05	0.06	0.07	0.19	H2	H2	H2	H3	0.67	0.58	0.58	0.25 to 0.33	135	140	140	60	20	35	50	30 to 45
M2_70	0.55	0.59	0.62	0.91	0.3	0.37	0.42	0.8	0.17	0.22	0.26	0.74	H3	H3	H3	H4	0.58	0.58	0.58	0.17 to 0.25	135	140	140	60	130	135	135	55 to 60
M2_71	0.25	0.29	0.32	0.51	0.07	0.08	0.1	0.21	0.02	0.02	0.03	0.1	H1	H1	H2	H3	0.75	0.67	0.67	0.25	110	115	125	60	0	0	0	20 to 35
M3_1	0	0.07	0.1	0.23	0	1.16	1.27	2.97	0	0.08	0.12	0.67	H0	H1	H1	H4	0.58	0.50	0.50	0.17	10	10	25	20 to 35	0	0	0	0
M3_2	0.19	0.25	0.29	0.64	0.18	0.25	0.31	0.72	0.03	0.06	0.09	0.46	H1	H1	H1	H3	0.67	0.58	0.58	0.25 to 0.33	35	50	65	40 to 45	0	0	0	15 to 30
M3_3	0.12	0.16	0.2	0.59	0.35	0.42	0.46	0.74	0.04	0.07	0.09	0.44	H1	H1	H1	H3	0.67	0.50	0.50	0.17 to 0.25	40	55	70	30 to 45	0	0	0	10 to 20
M3_4	0.13	0.15	0.16	0.39	0.36	0.4	0.44	0.75	0.05	0.06	0.07	0.29	H1	H1	H1	H2	0.58	0.50	0.50	0.17	80	90	90	35 to 50	0	0	0	5

Road Closure ID	Depth (m)				Velocity (m/s)				Velocity x Depth (m2/s)				H1-H6 Hazard				Time to Peak (hour)				Duration Water Above Road (min)				Duration Water Above Road over 0.3m Depth (min)			
	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF*	20% AEP	5% AEP	1% AEP	PMF*	20% AEP	5% AEP	1% AEP	PMF*
M3_5	0.09	0.13	0.16	0.42	0.35	0.43	0.48	0.96	0.03	0.06	0.07	0.4	H1	H1	H1	H2	0.67	0.50	0.50	0.17	30	60	70	30 to 45	0	0	0	10 to 15
M3_6	0.16	0.21	0.24	0.54	0.29	0.36	0.42	0.95	0.05	0.08	0.1	0.51	H1	H1	H1	H3	0.67	0.58	0.58	0.17 to 0.25	40	50	70	35 to 50	0	0	0	15 to 25
M3_7	0.12	0.17	0.21	0.53	0.29	0.35	0.4	0.81	0.04	0.06	0.08	0.43	H1	H1	H1	H3	0.67	0.58	0.58	0.17	95	100	100	45 to 60	0	0	0	10 to 20
M3_8	0	0.21	0.28	0.55	0	0.08	0.13	0.28	0	0.02	0.03	0.15	H0	H1	H1	H3	0.00	0.75	0.67	0.25 to 0.33	0	30	45	40 to 55	0	0	0	25 to 30
M3_9	0	0.14	0.22	0.55	0	0.18	0.26	0.53	0	0.03	0.06	0.29	H0	H1	H1	H3	0.58	0.83	0.75	0.25 to 0.33	50	55	70	40 to 55	0	0	0	20 to 25
M3_10	0	0	0.1	0.37	0	0	0.42	0.82	0	0	0.04	0.31	H0	H0	H1	H2	0.58	0.50	0.50	0.17	15	25	40	20 to 40	0	0	0	5 to 10
M3_11	0	0	0.13	0.37	0	0	0.29	0.47	0	0	0.04	0.17	H0	H0	H1	H2	0.67	0.50	0.75	0.25 to 0.33	15	40	50	40 to 50	0	0	0	5 to 10
M3_12	0	0	0.12	0.48	0	0	0.23	0.5	0	0	0.03	0.23	H0	H0	H1	H2	0.00	0.67	0.58	0.25 to 0.42	0	10	20	40 to 55	0	0	0	15 to 30
M3_13	0	0	0	0.35	0	0	0	0.35	0	0	0	0.12	H0	H0	H0	H2	0.00	0.58	0.58	0.17 to 0.42	0	15	20	25 to 40	0	0	0	10 to 15
M3_14	0.17	0.21	0.26	0.52	0.34	0.42	0.5	1.03	0.06	0.09	0.13	0.53	H1	H1	H1	H3	2.50	2.25	2.00	0.75 to 0.83	45	80	100	50 to 55	0	0	45	35
M3_15	0.36	0.4	0.43	0.6	0.13	0.14	0.14	0.25	0.05	0.05	0.06	0.15	H2	H2	H2	H3	0.67	0.58	0.58	0.25	90	100	105	60	25	35	50	35 to 40
M3_16	0.19	0.26	0.33	0.77	0.35	0.45	0.54	1.13	0.07	0.12	0.18	0.87	H1	H1	H2	H4	0.67	0.58	0.58	0.17 to 0.25	80	90	95	50 to 60	0	0	5	20 to 30
M3_17	0.46	0.51	0.58	1.32	0.13	0.14	0.14	0.37	0.02	0.04	0.07	0.35	H2	H3	H3	H4	1.08	0.83	0.83	0.42 to 0.50	125	135	135	60	110	120	125	55
M3_18	0.12	0.15	0.19	1.04	0.24	0.31	0.37	0.58	0.03	0.05	0.07	0.32	H1	H1	H1	H3	1.08	0.92	0.92	0.42 to 0.50	100	120	125	55 to 60	0	0	0	50
M3_19	0	0	0	0.94	0	0	0	1.25	0	0	0	1.18	H0	H0	H0	H5	0.58	0.50	0.50	0.42 to 0.50	50	60	75	60	0	0	0	45 to 50
M4_1	0	0.14	0.27	0.68	0	0.24	0.28	0.83	0	0.03	0.08	0.56	H0	H1	H1	H3	0.67	0.83	0.75	0.25 to 0.33	40	60	70	50 to 60	0	0	0	25 to 35
M4_2	0	0	0	0.39	0	0	0	0.23	0	0	0	0.08	H0	H0	H0	H2	1.00	1.42	1.25	0.50 to 0.58	55	70	85	55	0	0	0	0 to 25
M4_3	0	0.2	0.26	0.54	0	0.4	0.5	0.9	0	0.08	0.13	0.49	H0	H1	H1	H3	0.50	0.75	0.67	0.25 to 0.33	85	90	95	45 to 60	0	0	0	20 to 30
M4_4	0.4	0.49	0.55	0.74	0.02	0.02	0.03	0.17	0	0.01	0.02	0.13	H2	H2	H3	H3	1.75	1.67	1.50	0.33 to 0.42	130	135	140	60	100	115	125	55
M4_5	0.26	0.32	0.37	0.64	0.14	0.18	0.22	0.45	0.04	0.06	0.08	0.29	H1	H2	H2	H3	0.92	0.83	0.75	0.25 to 0.33	140	140	140	60	0	15	30	40 to 45
M4_6	0.44	0.53	0.59	0.79	0.01	0.04	0.05	0.14	0.01	0.01	0.02	0.08	H2	H3	H3	H3	1.75	1.67	1.50	0.33 to 0.42	140	140	145	60	105	120	125	55
M4_7	0.28	0.32	0.35	0.81	0.09	0.14	0.2	0.79	0.02	0.04	0.07	0.63	H1	H2	H2	H4	0.67	0.67	0.58	0.25 to 0.33	70	80	95	60	0	5	20	25 to 40
M4_8	0.17	0.19	0.22	0.39	0.07	0.1	0.11	0.31	0.01	0.02	0.02	0.12	H1	H1	H1	H2	0.58	0.58	0.50	0.17 to 0.25	35	45	60	35 to 50	0	0	0	10 to 20
M4_9	0	0	0.12	0.3	0	0	0.22	0.53	0	0	0.03	0.16	H0	H0	H1	H2	0.83	0.75	0.67	0.25 to 0.33	45	60	75	55	0	0	0	0 to 5
M4_10	0.11	0.16	0.19	0.44	0.14	0.25	0.32	0.72	0.02	0.04	0.06	0.31	H1	H1	H1	H2	0.67	0.58	0.58	0.17 to 0.25	80	85	95	50 to 60	0	0	0	15 to 25
M4_11	0	0.11	0.16	0.37	0	0.07	0.08	0.2	0	0.01	0.01	0.05	H0	H1	H1	H2	0.58	0.58	1.50	0.25 to 0.42	85	135	140	60	0	0	0	10 to 25
M4_12	0.17	0.21	0.25	0.53	0.26	0.29	0.32	0.59	0.04	0.06	0.08	0.31	H1	H1	H1	H3	0.67	0.58	0.58	0.17 to 0.25	140	140	140	60	0	0	0	15 to 30
M4_13	0.17	0.22	0.26	0.54	0.27	0.37	0.44	0.89	0.05	0.08	0.11	0.48	H1	H1	H1	H3	0.67	0.67	0.58	0.25	30	45	60	35 to 50	0	0	0	15 to 25
M4_14	0	0.16	0.25	0.7	0	0.34	0.44	0.88	0	0.05	0.11	0.61	H0	H1	H1	H4	0.75	0.67	0.75	0.25 to 0.33	15	40	55	45 to 50	0	0	0	25 to 35
M4_15	0.11	0.12	0.13	0.34	0.15	0.17	0.18	0.47	0.02	0.02	0.02	0.16	H1	H1	H1	H2	0.67	0.58	0.50	0.25	85	90	100	55 to 60	0	0	0	5 to 10
M4_16	0	0	0.13	0.59	0	0	0.35	0.88	0	0	0.05	0.52	H0	H0	H1	H3	0.00	0.58	0.58	0.25	0	10	25	25 to 40	0	0	0	15 to 25
M4_17	0.17	0.23	0.29	0.57	0.22	0.31	0.39	0.9	0.04	0.07	0.11	0.51	H1	H1	H1	H3	0.75	0.67	0.58	0.25	30	45	60	40 to 50	0	0	0	20 to 30
M4_18	0.2	0.24	0.27	0.51	0.13	0.19	0.26	0.64	0.03	0.04	0.07	0.33	H1	H1	H1	H3	0.75	0.67	0.58	0.25 to 0.33	140	140	140	60	0	0	0	20 to 35
M5_1	0	0.13	0.17	0.47	0	0.2	0.23	0.47	0	0.03	0.04	0.22	H0	H1	H1	H2	0.67	0.67	0.58	0.25 to 0.33	25	35	55	35 to 45	0	0	0	15 to 20
M5_2	0.12	0.17	0.2	0.36	0.09	0.11	0.13	0.32	0.01	0.02	0.03	0.12	H1	H1	H1	H2	0.67	0.67	0.58	0.25 to 0.33	30	50	65	45 to 55	0	0	0	10 to 20
M5_3	0	0	0	0.31	0	0	0	0.23	0	0	0	0.05	H0	H0	H0	H2	0.00	0.00	0.67	0.33 to 0.42	0	0	10	35 to 45	0	0	0	0 to 10
M5_4	0.18	0.25	0.3	0.55	0.23	0.36	0.44	0.83	0.04	0.09	0.13	0.46	H1	H1	H1	H3	0.75	0.75	0.67	0.25 to 0.33	100	110	120	60	0	0	10	30 to 35

Road Closure ID	Depth (m)				Velocity (m/s)				Velocity x Depth (m2/s)				H1-H6 Hazard				Time to Peak (hour)				Duration Water Above Road (min)				Duration Water Above Road over 0.3m Depth (min)			
	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF	20% AEP	5% AEP	1% AEP	PMF*	20% AEP	5% AEP	1% AEP	PMF*	20% AEP	5% AEP	1% AEP	PMF*
M5_5	0	0	0	0.35	0	0	0	0.48	0	0	0	0.13	H0	H0	H0	H2	0.00	0.00	0.75	0.25 to 0.42	0	0	15	35 to 45	0	0	0	0 to 15
M5_6	0	0	0	0.35	0	0	0	0.3	0	0	0	0.09	H0	H0	H0	H2	1.08	0.83	0.67	0.25 to 0.42	90	95	105	55 to 60	0	0	0	0 to 15
M5_7	0.33	0.42	0.51	0.9	0.05	0.06	0.06	0.15	0.01	0.01	0.01	0.03	H2	H2	H3	H3	1.00	1.00	1.00	0.25 to 0.42	105	135	140	60	35	80	115	55
M5_8	0.48	0.52	0.56	0.98	0.18	0.13	0.12	0.39	0.05	0.07	0.1	0.38	H2	H3	H3	H3	0.67	0.58	0.67	0.25 to 0.33	135	140	140	60	120	130	135	55 to 60
M5_9	0.26	0.49	0.61	1.17	0.15	0.12	0.12	0.28	0.04	0.05	0.05	0.33	H1	H2	H3	H3	0.92	1.00	0.92	0.33 to 0.42	100	110	120	60	0	50	70	55
M5_10	0.35	0.41	0.46	0.72	0.07	0.08	0.11	0.29	0.02	0.03	0.05	0.21	H2	H2	H2	H3	0.92	0.83	0.75	0.25 to 0.42	130	135	135	60	45	65	80	55
M5_11	0.16	0.27	0.36	0.93	0.2	0.22	0.22	0.4	0.02	0.04	0.06	0.3	H1	H1	H2	H3	1.17	1.00	0.92	0.33 to 0.42	100	115	130	55 to 60	0	0	35	45 to 50
M5_12	0.18	0.24	0.31	0.76	0.09	0.13	0.16	0.36	0.02	0.03	0.05	0.27	H1	H1	H2	H3	0.83	0.83	0.83	0.33 to 0.42	65	80	90	55 to 60	0	0	5	35 to 45
M5_13	0.2	0.3	0.34	0.52	0.01	0.04	0.07	0.27	0	0.01	0.02	0.14	H1	H1	H2	H3	0.83	0.67	0.58	0.17 to 0.25	50	65	80	55 to 60	0	25	40	30 to 40
M5_14	0.15	0.27	0.36	0.82	0.13	0.18	0.23	0.52	0.02	0.04	0.08	0.42	H1	H1	H2	H3	1.50	1.25	1.08	0.33 to 0.50	130	130	135	60	0	0	35	50
M5_15	0.15	0.21	0.25	0.53	0.13	0.14	0.07	0.42	0.02	0.02	0.03	0.22	H1	H1	H1	H3	0.67	0.58	0.58	0.25 to 0.33	75	80	90	40 to 55	0	0	0	15 to 30
M5_16	0	0.16	0.24	0.46	0	0.07	0.07	0.13	0	0.01	0.01	0.06	H0	H1	H1	H2	0.75	0.75	0.75	0.25 to 0.33	20	45	75	55 to 60	0	0	0	25 to 30
M5_17	0.11	0.17	0.22	0.49	0.09	0.12	0.15	0.32	0.01	0.02	0.03	0.15	H1	H1	H1	H2	0.67	0.67	0.67	0.25	15	30	40	40 to 45	0	0	0	15 to 20
M5_18	0.14	0.18	0.2	0.33	0.1	0.14	0.16	0.26	0.01	0.02	0.03	0.09	H1	H1	H1	H2	0.58	0.58	0.58	0.17 to 0.33	100	100	110	55 to 60	0	0	0	10 to 20
M5_19	0.12	0.16	0.2	0.52	0.24	0.28	0.32	0.64	0.03	0.05	0.06	0.33	H1	H1	H1	H3	0.58	0.58	0.50	0.17 to 0.25	85	85	90	35 to 45	0	0	0	10 to 20
M5_20	0	0.14	0.2	0.44	0	0.27	0.34	0.61	0	0.04	0.07	0.27	H0	H1	H1	H2	1.00	0.83	0.75	0.25 to 0.33	45	70	85	55 to 60	0	0	0	20 to 30
M5_21	0.18	0.23	0.28	0.54	0.24	0.28	0.33	0.6	0.04	0.06	0.09	0.33	H1	H1	H1	H3	0.92	0.83	0.75	0.33 to 0.42	95	105	110	60	0	0	0	25 to 40
M5_22	0.19	0.22	0.24	0.43	0.25	0.31	0.36	0.63	0.05	0.07	0.09	0.27	H1	H1	H1	H2	0.75	0.75	0.67	0.25 to 0.33	135	140	140	60	0	0	0	25 to 30
M5_23	0	0	0	0.36	0	0	0	0.55	0	0	0	0.2	H0	H0	H0	H2	0.00	0.00	0.67	0.25	0	0	10	20 to 35	0	0	0	5 to 10
M5_24	0.19	0.26	0.36	0.56	0.13	0.14	0.14	0.28	0.02	0.03	0.04	0.16	H1	H1	H2	H3	0.58	0.58	0.58	0.17 to 0.25	140	140	140	60	0	0	15	25 to 35
M5_25	0.23	0.27	0.34	0.64	0.18	0.28	0.46	1.35	0.04	0.08	0.16	0.86	H1	H1	H2	H4	0.58	0.67	0.67	0.25 to 0.33	135	135	140	60	0	0	15	30 to 35
M5_26	0.19	0.23	0.26	0.49	0.05	0.05	0.06	0.13	0.01	0.01	0.01	0.06	H1	H1	H1	H2	0.58	0.58	0.58	0.17 to 0.25	135	135	140	60	0	0	0	15 to 25

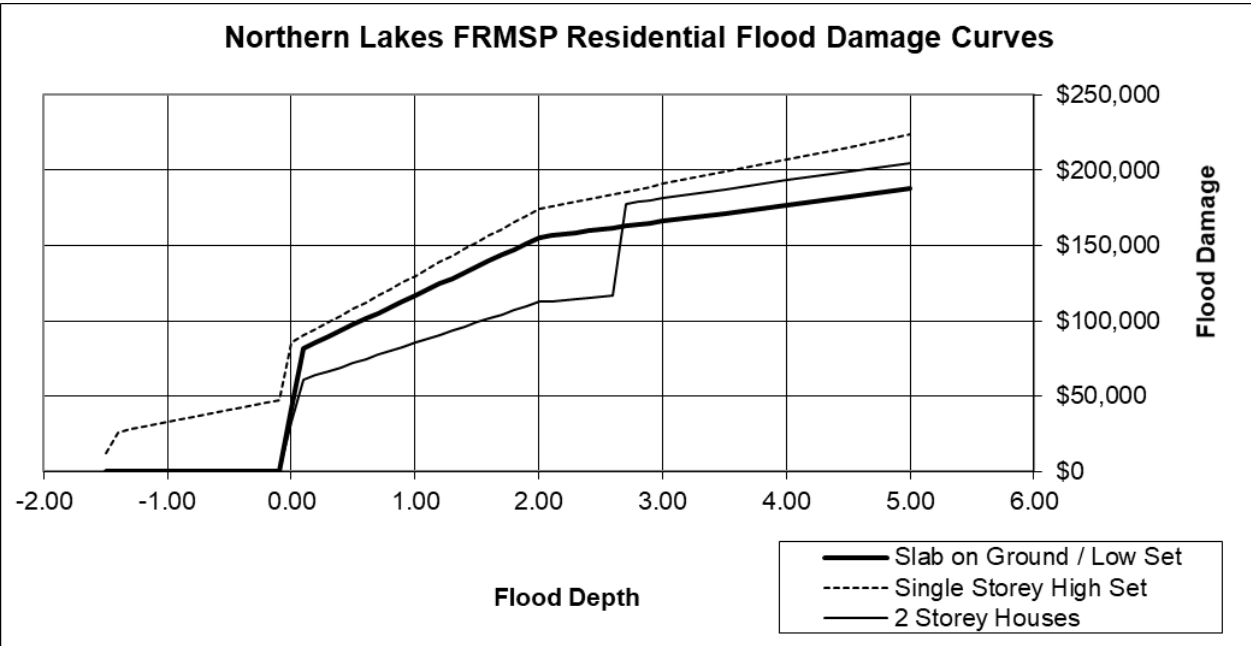
*A range is provided as the PMF is an envelope of the 15 min and the 30 min durations.

** A range is provided as the location is also subject to longer duration flooding with critical duration of 48 hours.

Appendix H – Damage assessment stage damage data

Residential Stage-Damage Data

Above Floor Depth (m)	Single Storey High Set Damage	Slab on Ground / Low Set Damage	2 Storey Houses Damage
-5.00	\$0	\$0	\$0
-1.50	\$12,443	\$0	\$0
-1.40	\$26,037	\$0	\$0
-1.30	\$27,684	\$0	\$0
-1.20	\$29,331	\$0	\$0
-1.10	\$30,978	\$0	\$0
-1.00	\$32,626	\$0	\$0
-0.90	\$34,273	\$0	\$0
-0.80	\$35,920	\$0	\$0
-0.70	\$37,568	\$0	\$0
-0.60	\$39,215	\$0	\$0
-0.50	\$40,862	\$0	\$0
-0.40	\$42,509	\$0	\$0
-0.30	\$44,157	\$0	\$0
-0.20	\$45,804	\$0	\$0
-0.10	\$47,451	\$0	\$0
0.00	\$85,611	\$41,536	\$32,808
0.10	\$90,044	\$81,910	\$61,070
0.20	\$94,477	\$85,772	\$63,774
0.30	\$98,910	\$89,635	\$66,477
0.40	\$103,343	\$93,497	\$69,181
0.50	\$107,776	\$97,359	\$71,884
0.60	\$112,209	\$101,221	\$74,588
0.70	\$116,642	\$105,084	\$77,291
0.80	\$121,075	\$108,946	\$79,995
0.90	\$125,508	\$112,808	\$82,699
1.00	\$129,941	\$116,670	\$85,402
1.10	\$134,375	\$120,533	\$88,106
1.20	\$138,808	\$124,395	\$90,809
1.30	\$143,241	\$128,257	\$93,513
1.40	\$147,674	\$132,119	\$96,216
1.50	\$152,107	\$135,982	\$98,920
1.60	\$156,540	\$139,844	\$101,624
1.70	\$160,973	\$143,706	\$104,327
1.80	\$165,406	\$147,568	\$107,031
1.90	\$169,839	\$151,431	\$109,734
2.00	\$174,272	\$155,293	\$112,438
2.10	\$175,919	\$156,369	\$113,191
2.20	\$177,567	\$157,446	\$113,945
2.30	\$179,214	\$158,522	\$114,699
2.40	\$180,861	\$159,599	\$115,452
2.50	\$182,508	\$160,675	\$116,206
2.60	\$184,156	\$161,752	\$116,959
2.70	\$185,803	\$162,828	\$177,867
2.80	\$187,450	\$163,905	\$179,051
2.90	\$189,098	\$164,981	\$180,235
3.00	\$190,745	\$166,058	\$181,419
3.50	\$198,981	\$171,440	\$187,340
4.00	\$207,218	\$176,822	\$193,260
4.50	\$215,454	\$182,205	\$199,181
5.00	\$223,691	\$187,587	\$205,101



Commercial-Industrial Damages

Depth (m)	Commercial Low	Commercial Medium	Commercial High	Industrial Low	Industrial Medium	Industrial High
	WS-C-low	WS-C-med	WS-C-high	WS-I-low	WS-I-med	WS-I-high
-999	0	0	0	0	0	0
0.10	\$118	\$208	\$445	\$118	\$208	\$948
0.20	\$118	\$208	\$445	\$118	\$208	\$948
0.30	\$139	\$276	\$593	\$153	\$286	\$1,047
0.50	\$177	\$415	\$889	\$223	\$445	\$1,245
0.60	\$190	\$450	\$984	\$240	\$509	\$1,328
0.75	\$208	\$504	\$1,127	\$267	\$608	\$1,453
1.00	\$238	\$548	\$1,260	\$297	\$726	\$1,660
1.50	\$282	\$578	\$1,439	\$326	\$830	\$2,016
2.00	\$297	\$608	\$1,601	\$356	\$919	\$2,342

Damage per square metre in Nov 2019 dollars



110B King Street

Manly Vale NSW 2093