

APPENDIX F – MAPS & SCHEMATICS

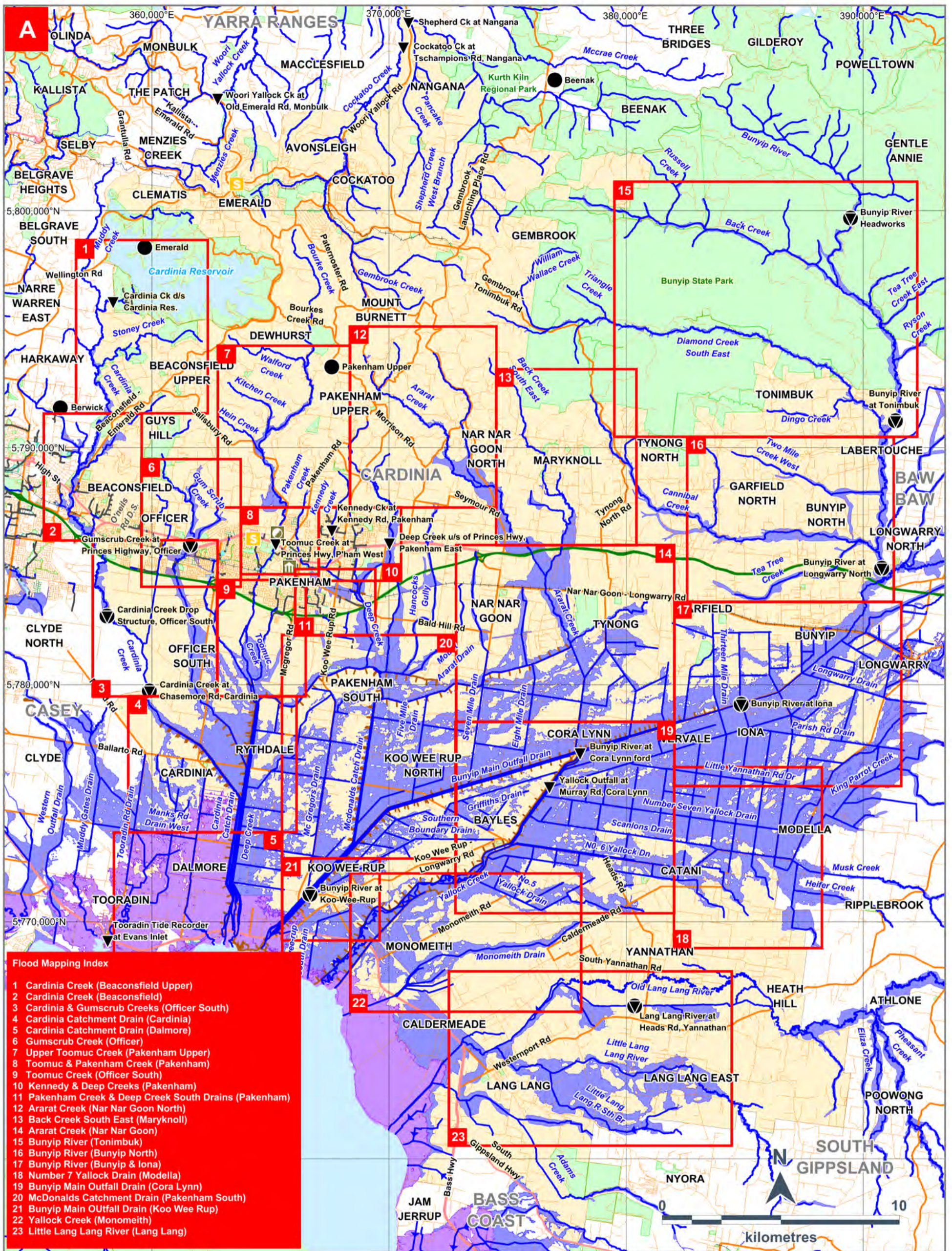
Overview

Maps considered useful to flood response are included in this Appendix. They include:

- A map outlining a series of flooding hot spot maps within Cardinia Shire.
- A map showing the Municipal boundary together with the open waterways and underground stormwater drainage pipe network within Cardinia Shire and the 1% AEP (100-year ARI) flood extents (sourced from Melbourne Water GIS).
- A set of 23 maps showing flooding hot spots within Cardinia Shire together with the 1% AEP (100-year ARI) flood extents (sourced from the Melbourne Water GIS).
- Schematics detailing the drainage catchments relevant for this municipality.
 - Each Schematic outlines the drainage system comprising of rivers, creeks or storm-water drains contained within one of the major catchments in the Port Phillip & Westernport Region;
 - Within each Schematic, there are details useful to flood response such as those relating to gauges, towns, rivers, creeks, drains and reservoirs. Historical facts and figures may also be shown;
 - The schematics also detail the response boundaries for SES Units and local government, and provide a reference link to the corresponding Municipal Flood Emergency Plan and
 - Details within these Catchment Schematics reflect those contained within either other sections of this Municipal Flood Emergency Plan or refer to other Municipal Flood Emergency Plans. These details have been filtered to contain only key facts. For more information on a gauge, drainage system or town consult the corresponding Flood Emergency Plan.

Note that:

- The mapping/data provided in this Appendix has been developed from Melbourne Water and other sources and taken from historical records and flood modelling. It may not include more recent data or local anecdotal information. It is planned that the mapping/data be updated as further studies or modelling is completed and other Information obtained.
- Maps showing the Special Building Overlay and Land Subject to Inundation Overlay are included in Cardinia Shire Planning Scheme can be used as a guide to areas that may flood during an event. The maps can be found in hard copy form at the Council's main office or online at the Department of Environment, Land, Water & Planning website <https://mapshare.vic.gov.au/vicplan/>.
- Maps showing 1 in 100-year ARI (1% AEP) flood extents and floodways (together with volume, height and water quality data) are shown at DELWP's mapshare website <http://mapshare.maps.vic.gov.au/MapShareVic/index.html?viewer=MapShareVic.PublicSite&locale=en-AU>

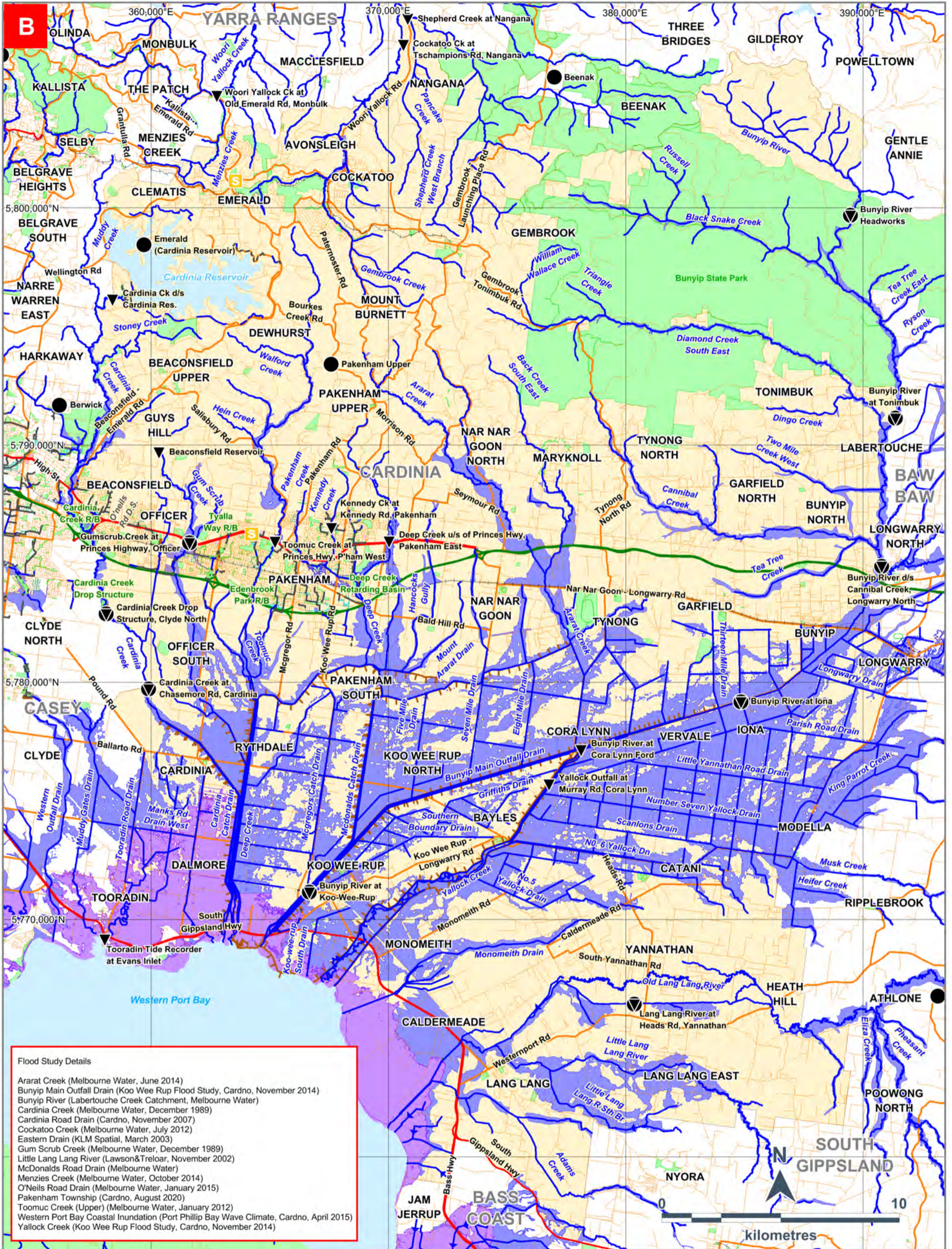


- Flood Mapping Index**
- 1 Cardinia Creek (Beaconsfield Upper)
 - 2 Cardinia Creek (Beaconsfield)
 - 3 Cardinia & Gumscrub Creeks (Officer South)
 - 4 Cardinia Catchment Drain (Cardinia)
 - 5 Cardinia Catchment Drain (Dalmore)
 - 6 Gumscrub Creek (Officer)
 - 7 Upper Toomuc Creek (Pakenham Upper)
 - 8 Toomuc & Pakenham Creek (Pakenham)
 - 9 Toomuc Creek (Officer South)
 - 10 Kennedy & Deep Creeks (Pakenham)
 - 11 Pakenham Creek & Deep Creek South Drains (Pakenham)
 - 12 Ararat Creek (Nar Nar Goon North)
 - 13 Back Creek South East (Maryknoll)
 - 14 Ararat Creek (Nar Nar Goon)
 - 15 Bunyip River (Tonimbuk)
 - 16 Bunyip River (Bunyip North)
 - 17 Bunyip River (Bunyip & Iona)
 - 18 Number 7 Yallock Drain (Modella)
 - 19 Bunyip Main Outfall Drain (Cora Lynn)
 - 20 McDonalds Catchment Drain (Pakenham South)
 - 21 Bunyip Main Outfall Drain (Koo Wee Rup)
 - 22 Yallock Creek (Monomeith)
 - 23 Little Lang Lang River (Lang Lang)

CARDINIA SHIRE
Version 4: December 2020
A - Flood Mapping Index

- | | | |
|------------------------------|---------------------|----------------------------------|
| 1% AEP Storm Surge Extent | Commercial Precinct | Waterway |
| 1% AEP Flash Flood Extent | Flood Map Border | Melbourne Water Stormwater Drain |
| 1% AEP Riverine Flood Extent | Stream Level Gauge | Embankment |
| Reserve / Area of Interest | Rain Gauge | Levee |
| Waterbody | Municipal Building | Municipal Depot |
| | | State Emergency Service |

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Flood Study Details

- Ararat Creek (Melbourne Water, June 2014)
- Bunyip Main Outfall Drain (Koo Wee Rup Flood Study, Cardno, November 2014)
- Bunyip River (Labertouche Creek Catchment, Melbourne Water)
- Cardinia Creek (Melbourne Water, December 1989)
- Cardinia Road Drain (Cardno, November 2007)
- Cockatoo Creek (Melbourne Water, July 2012)
- Eastern Drain (KLM Spatial, March 2003)
- Gum Scrub Creek (Melbourne Water, December 1989)
- Little Lang Lang River (Lawson&Treloar, November 2002)
- McDonalds Road Drain (Melbourne Water)
- Menzies Creek (Melbourne Water, October 2014)
- O'Neils Road Drain (Melbourne Water, January 2015)
- Pakenham Township (Cardno, August 2020)
- Toomuc Creek (Upper) (Melbourne Water, January 2012)
- Western Port Bay Coastal Inundation (Port Phillip Bay Wave Climate, Cardno, April 2015)
- Yallock Creek (Koo Wee Rup Flood Study, Cardno, November 2014)

CARDINIA SHIRE
Version 4: December 2020
B - 1% AEP (100yr ARI)
Flood Extent

- 1% AEP Storm Surge Extent
- 1% AEP Flash Flood Extent
- 1% AEP Riverine Flood Extent
- Reserve
- Waterbody
- Shopping Precinct
- Melbourne Water Retarding Basin
- Stream Level Gauge
- Rain Gauge
- Waterway
- Melbourne Water Stormwater Drain
- Embankment
- Levee
- State Emergency Service

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Flood Extent Maps (sourced Melbourne Water GIS)



Cardinia Creek flood modelling completed by Melbourne Water, December 1989. Cardinia Northern Catchments flood modelling completed by Cardno, September 2020. Map Produced by VICSES February 2022.

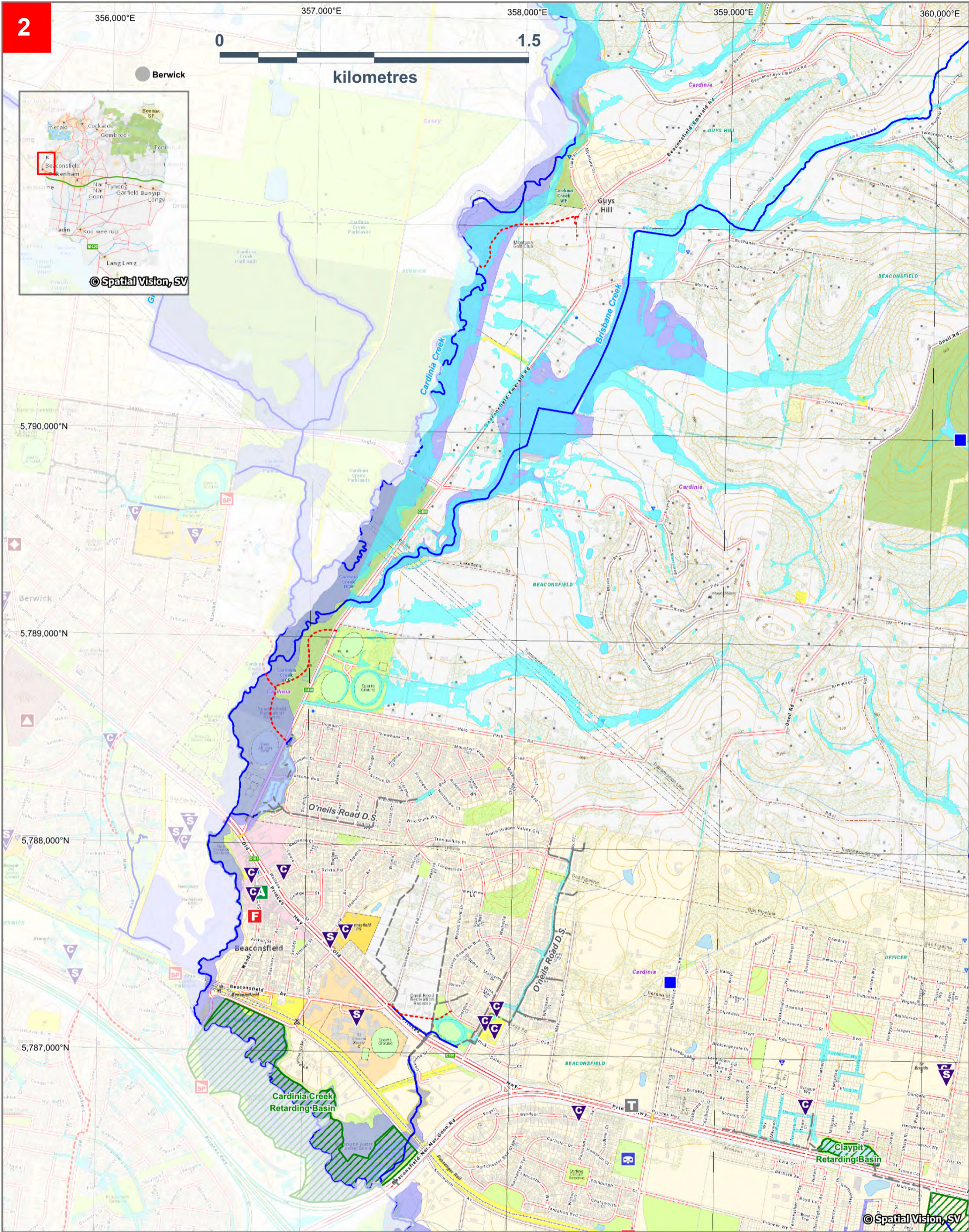
CARDINIA SHIRE
1% AEP (100yr ARI) Flooding
1. Cardinia Creek (Beaconsfield Upper)

- | | | |
|--|-----------------------------------|---|
| Building | Melbourne Water Underground Drain | Camp Ground |
| Waterbody | Bicycle / Walking Trail | Stream Level Gauge & 1% AEP Flood Level |
| 1% AEP Riverine Flood Extent (Depth Unavailable) | Waterway | Telephone Exchange |
| 1% AEP Flash Flood Extent (Depth Unavailable) | Drainage Pumping Station | Community Centre |
| Aged Care / Retirement Village | Aged Care / Retirement Village | Retail Water Storage |
| | Power Terminal Station | Rain Gauge |
| | Education Facility | Fire Station |
| | Child Care / Kindergarten | |

LAND USE	
	Residential
	Commercial and Business
	Industrial
	Public Parks / Cemeteries / Recreation
	Utilities and Local Government Facilities
	Education

SES VICTORIA **Melbourne Water**

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Cardinia Creek flood modelling completed by Melbourne Water, December 1989. Cardinia Northern Catchments flood modelling completed by Cardno, September 2020. Map Produced by VICSES February 2022.

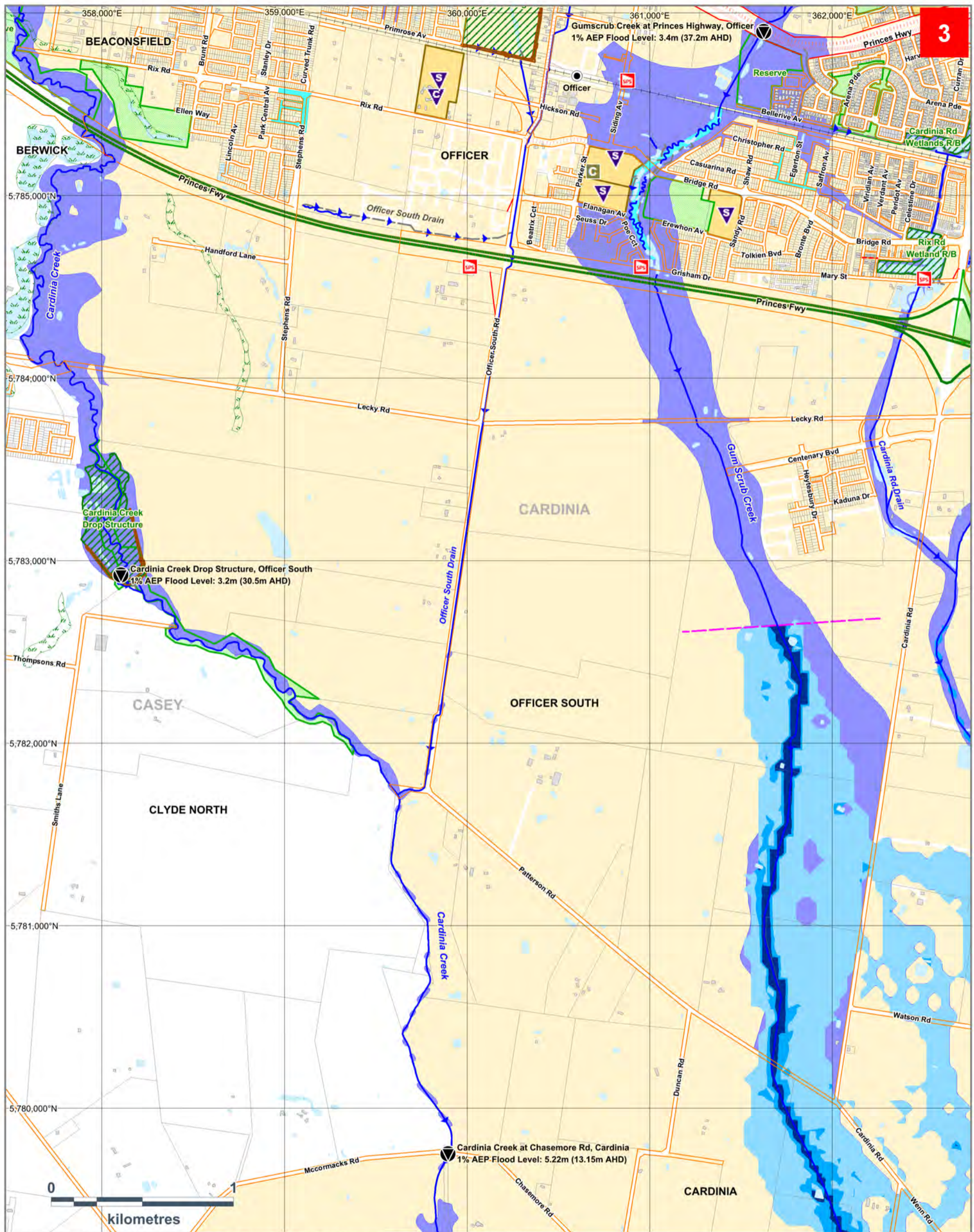
CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
2. Cardinia Creek
 (Beaconsfield)

- | | | |
|--|-----------------------------------|-----------------------|
| Building | Melbourne Water Underground Drain | Sewer Pumping Station |
| Waterbody | Bicycle / Walking Trail | Place of Worship |
| 1% AEP Riverine Flood Extent (Depth Unavailable) | Waterway | Telephone Exchange |
| 1% AEP Flash Flood Extent (Depth Unavailable) | Ambulance Station | Retail Water Storage |
| Aged Care / Retirement Village | Aged Care / Retirement Village | Rain Gauge |
| Melbourne Water Retarding Basin | Caravan Park | Fire Station |
| | Education Facility | |
| | Child Care / Kindergarten | |

LAND USE	
	Residential
	Commercial and Business
	Industrial
	Public Parks / Cemeteries / Recreation
	Utilities and Local Government Facilities
	Education

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Cardinia Creek and Gumscrib Creek flood modelling completed by Melbourne Water, December 1989. Flood depth modelling completed by Cardno, November 2014. Map Produced by VICSES June 2019.

CARDINIA SHIRE

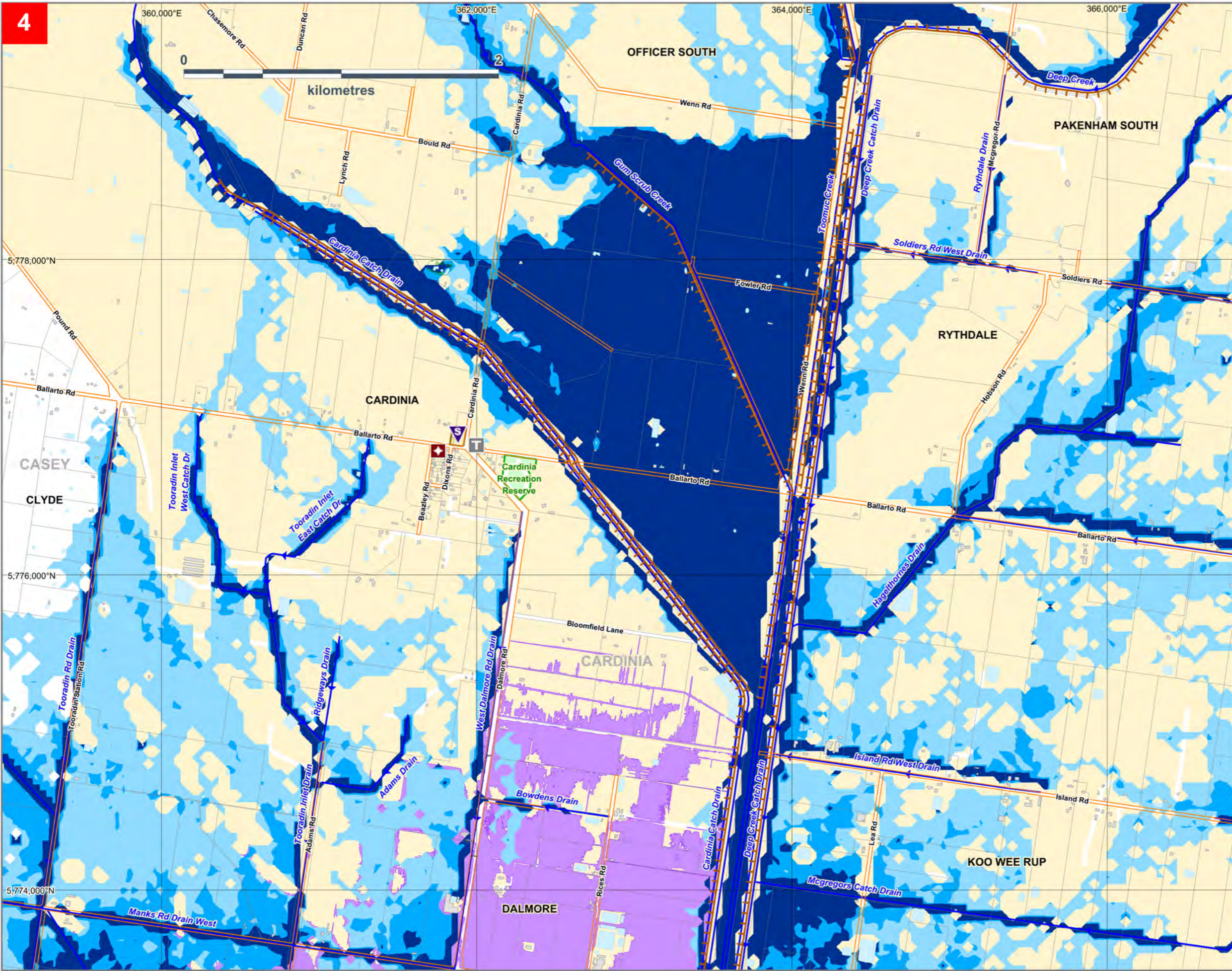
1% AEP (100yr ARI) Flooding
 3. Cardinia and Gumscrib Creeks (Officer South)

- | | | |
|--|--|---------------------------|
| Building | Melbourne Water Stormwater Drain | School / College |
| Waterbody | Creek / Waterway | Kindergarten / Child Care |
| 1% AEP Riverine Flood Extent (Depth Unavailable) | Bicycle / Walking Trail | Sewer Pumping Station |
| Natural Wetland | Bus Route (PTV) | Community Centre |
| Reserve / Park | 1% AEP Flood Depth (Cardno, 2014) | |
| Melbourne Water Retarding Basin | Greater than 60cm | |
| Commercial Precinct | Between 30cm and 60cm | |
| Flood Model Extent | Up to 30cm | |



VICTORIA State Government
Melbourne Water

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- Building
- Reserve / Area of Interest
- Waterbody
- 1% AEP Storm Surge Extent
- 1% AEP Flood Level (Cardno, 2014)**
- Greater than 60cm
- Between 30cm and 60cm
- Up to 30cm
- Creek / Channel
- Bus Routes (PTV)
- Levee
- Place Of Worship
- School / College
- Telephone Exchange

Note: It is unlikely that a Riverine flood event and a Storm surge event will occur simultaneously.



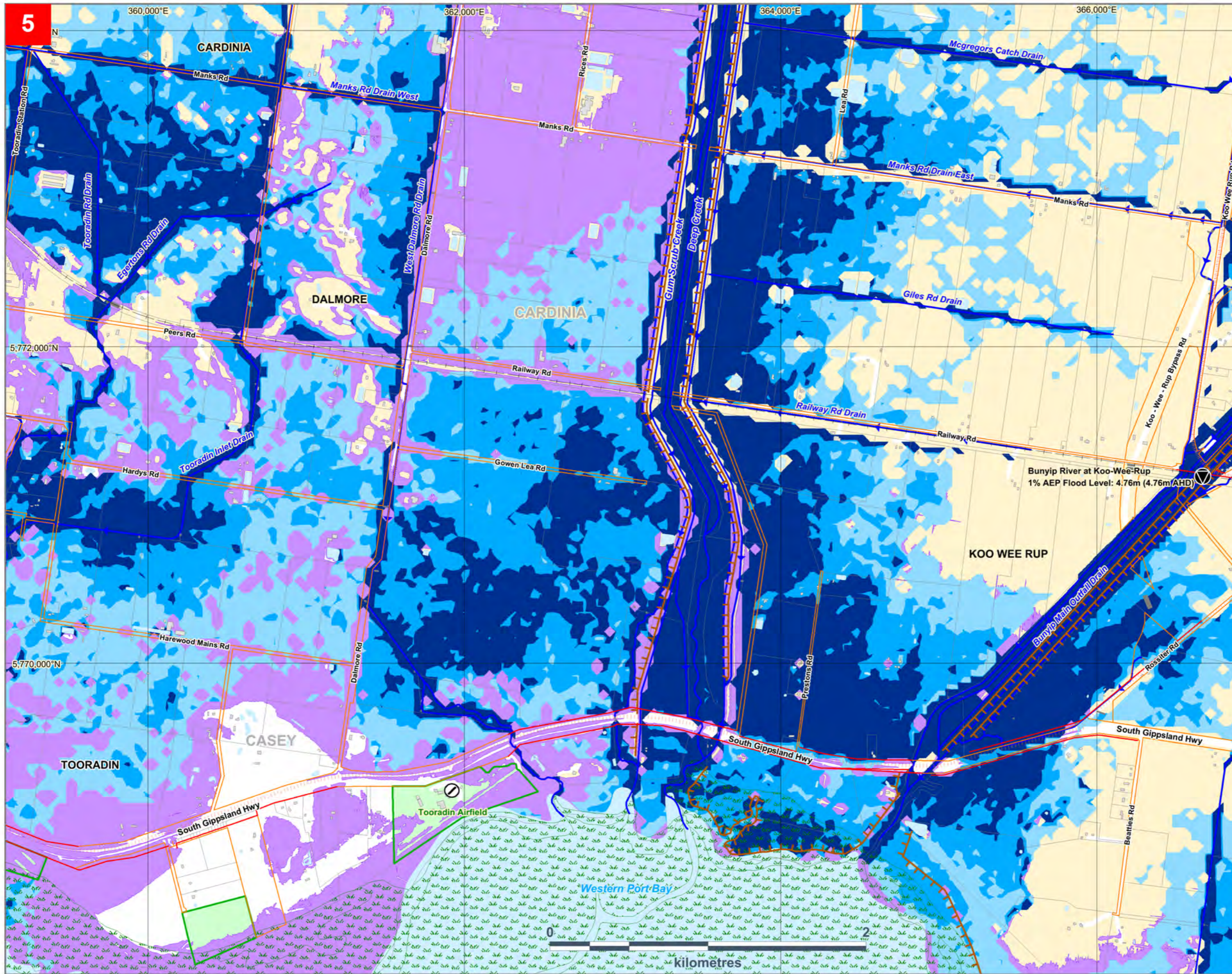
CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
4. Cardinia Catch Drain (Cardinia)



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4

Flood modelling completed by Cardno, November 2014. Map Produced by VicSES June 2019.



- Building
 - Reserve / Area of Interest
 - Waterbody
 - 1% AEP Storm Surge Extent
 - Natural Wetland
- 1% AEP Flood Level (Cardno, 2014)**
- Greater than 60cm
 - Between 30cm and 60cm
 - Up to 30cm
 - Creek / Channel
 - Bus Routes (PTV)
 - Levee
 - Airport / Airfield
 - Stream Level Gauge & 1% AEP Flood Level
 - Rain Gauge

Note: It is unlikely that a Riverine flood event and a Storm surge event will occur simultaneously.

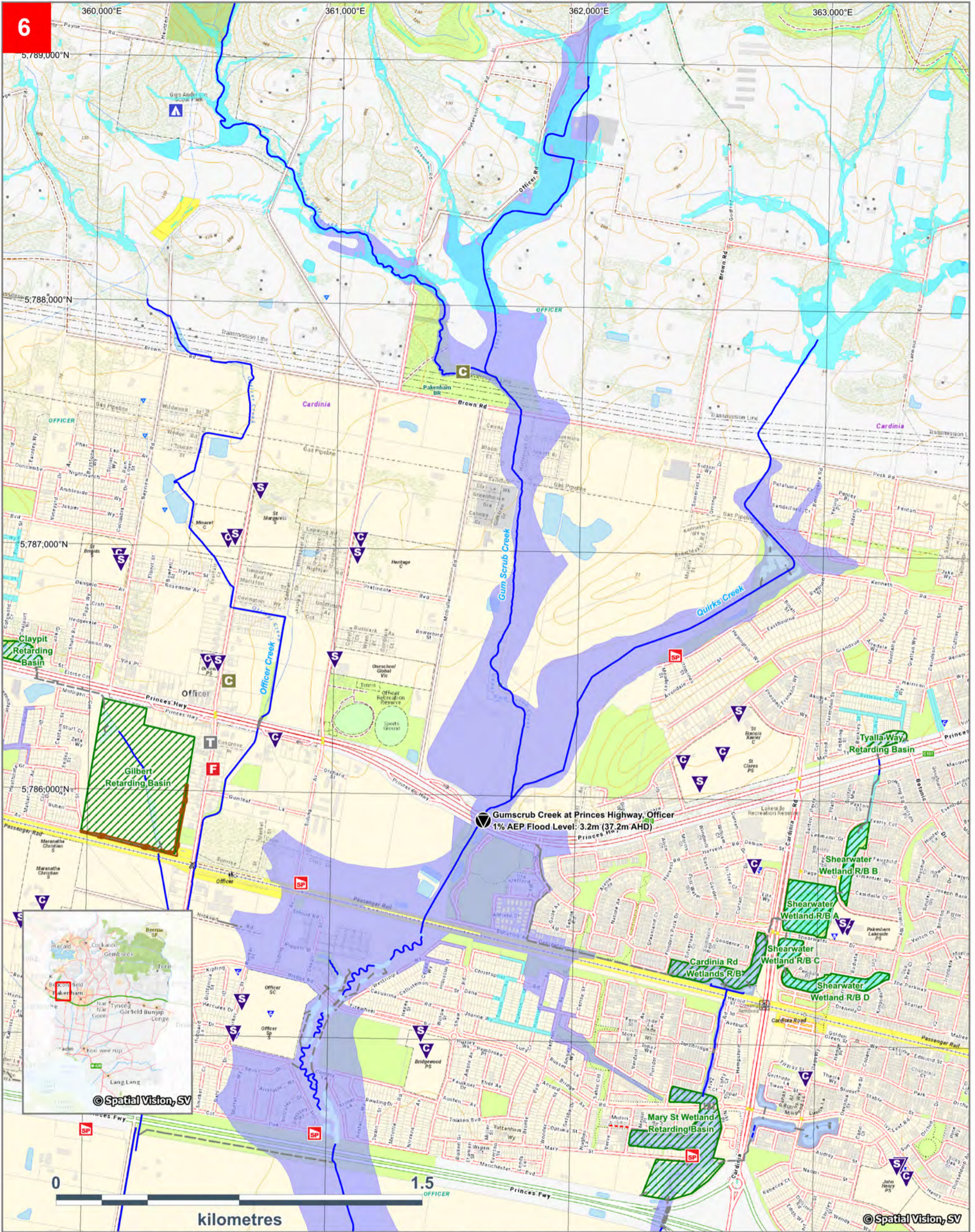


CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
 5. Cardinia Catch Drain (Dalmore)



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Flood modelling completed by Cardno, November 2014. Map Produced by VicSES June 2019.



Gumscrub Creek flood modelling completed by Melbourne Water, December 1989. Cardinia Northern Catchments flood modelling completed by Cardno, September 2020. Map Produced by VICSES February 2022.

CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
6. Gumscrub Creek
 (Officer)

- | | | | | | |
|--|--|--|-----------------------------------|--|---|
| | Building | | Melbourne Water Underground Drain | | Sewer Pumping Station |
| | Waterbody | | Bicycle / Walking Trail | | Stream Level Gauge & 1% AEP Flood Level |
| | 1% AEP Riverine Flood Extent (Depth Unavailable) | | Waterway | | Rain Gauge |
| | 1% AEP Flash Flood Extent (Depth Unavailable) | | Community Centre | | Fire Station |
| | Melbourne Water Retarding Basin | | Camp Ground | | |
| | Embankment | | Telephone Exchange | | |
| | | | Education Facility | | |
| | | | Child Care / Kindergarten | | |

LAND USE	
	Residential
	Commercial and Business
	Industrial
	Public Parks / Cemeteries / Recreation
	Utilities and Local Government Facilities
	Education

SES **VICTORIA** **Melbourne Water**

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Toomuc Creek (Upper) flood modelling completed by Melbourne Water, January 2012. Cardinia Northern Catchments flood modelling completed by Cardno, September 2020. Map Produced by VICSES February 2022.

CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
7. Toomuc Creek (Upper)
(Pakenham)

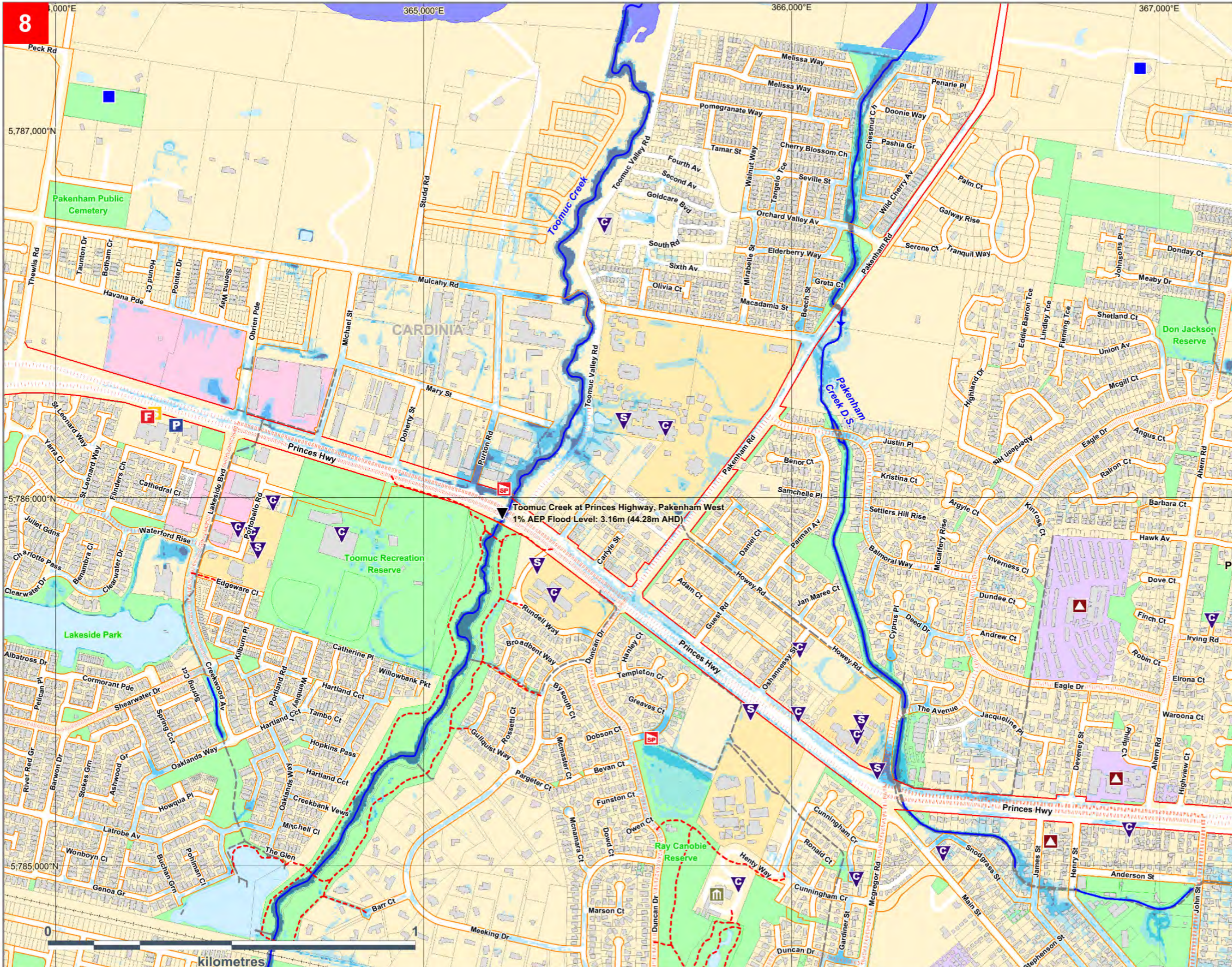
- | | | |
|--------------------------------|---------------------------|----------------------|
| Building | Waterway | Community Centre |
| Waterbody | Bicycle / Walking Trail | Fire Station |
| 1% AEP Riverine Flood Extent | Camp Ground | Telephone Exchange |
| 1% AEP Flash Flood Extent | Aged Care Facility | Retail Water Storage |
| Aged Care / Retirement Village | Child Care / Kindergarten | |
| | Stream Level Gauge | |

LAND USE	
	Residential
	Commercial and Business
	Industrial
	Public Parks / Cemeteries / Recreation
	Utilities and Local Government Facilities
	Education



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- Building
- Reserve / Feature of Interest
- Waterbody
- Shopping Precinct
- 1% AEP Riverine Flood Extent (Depth Unavailable)
- 1% AEP Flood Depth**
- Greater than 60cm
- Between 30cm and 60cm
- Between 10cm and 30cm
- Creek / Waterway
- Bicycle / Walking Trail
- Bus Routes (PTV)
- Melbourne Water Stormwater Drain
- Aged Care / Retirement Village
- Child Care / Kindergarten
- School / College
- State Emergency Service
- Police Station
- Fire Station
- Municipal Offices
- Sewer Pumping Station
- Stream Level Gauge & 1% AEP Flood Level
- Retail Water Storage

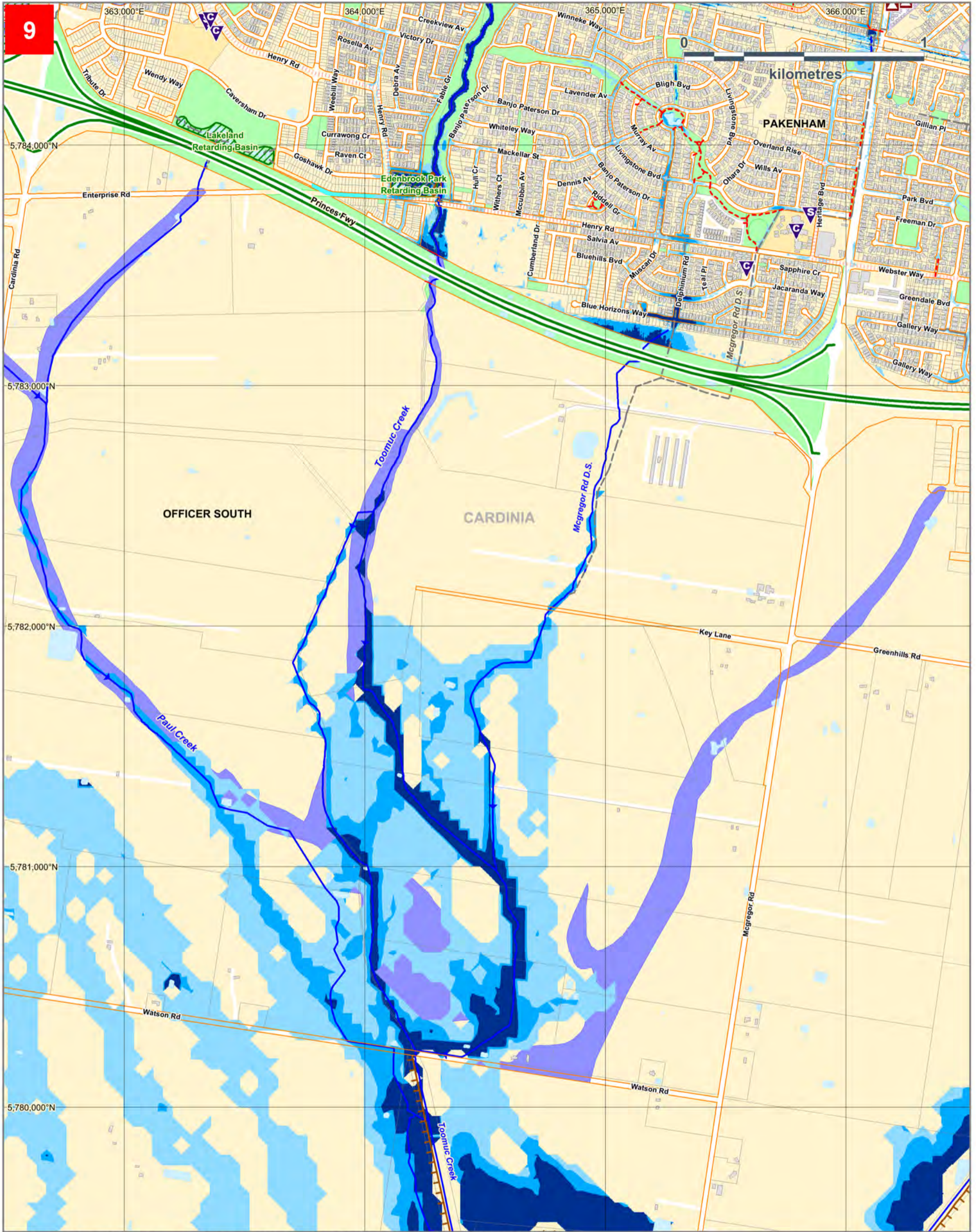


CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
 8. Toomuc & Pakenham Creeks (Pakenham)



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Pakenham Township flood modelling completed by Cardno, August 2020. Map Produced by VicSES December 2020.



Koo Wee Rup flood modelling completed by Cardno, November 2014. Pakenham Township flood modelling completed by Cardno, August 2020. Map Produced by VICSES December 2020.

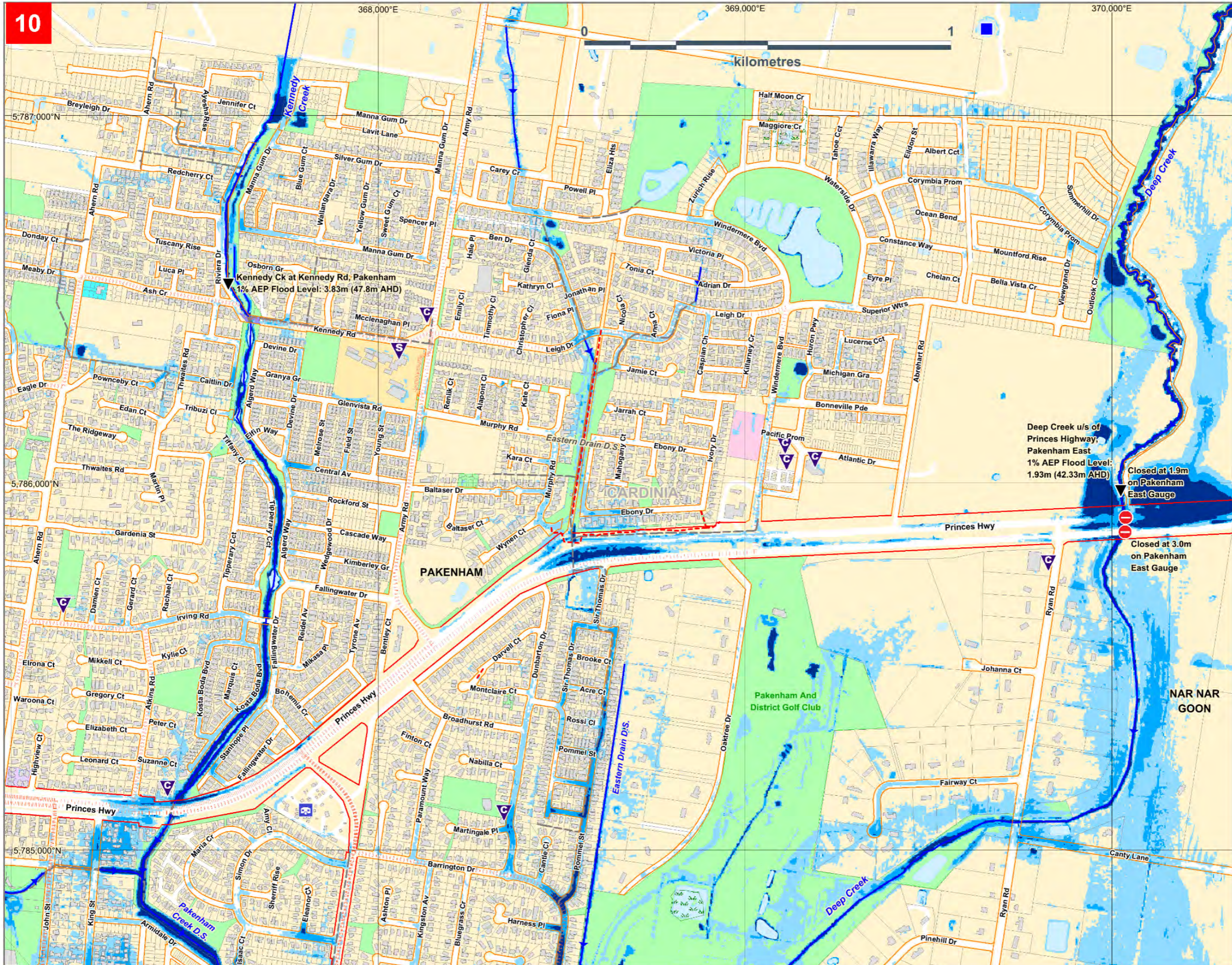
CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
 9. Toomuc Creek
 (Officer South)

- | | | | |
|--------------------------------------|--|--|----------------------------------|
| | Building | | Levee |
| | Waterbody | | Bicycle / Walking Trail |
| | 1% AEP Riverine Flood Extent (Depth Unavailable) | | Bus Route (PTV) |
| | Reserve | | Melbourne Water Stormwater Drain |
| 1% AEP Flood Depth (>10cm) | | | Creek / Waterway |
| | Greater than 60cm | | School / College |
| | Between 30cm and 60cm | | Child Care / Kindergarten |
| | Between 10cm and 30cm | | |



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- Building
- Reserve / Open Space
- Waterbody
- Shopping Precinct
- 1% AEP Flood Depth (>10cm)
 - Greater than 60cm
 - Between 30cm and 60cm
 - Between 10cm and 30cm
- Creek / Waterway
- Bicycle / Walking Trail
- Bus Routes (PTV)
- Melbourne Water Stormwater Drain
- Stream Level Gauge & 1% AEP Flood Level
- Retail Water Storage
- Road Closure & Height Against Gauge
- Child Care / Kindergarten
- School / College

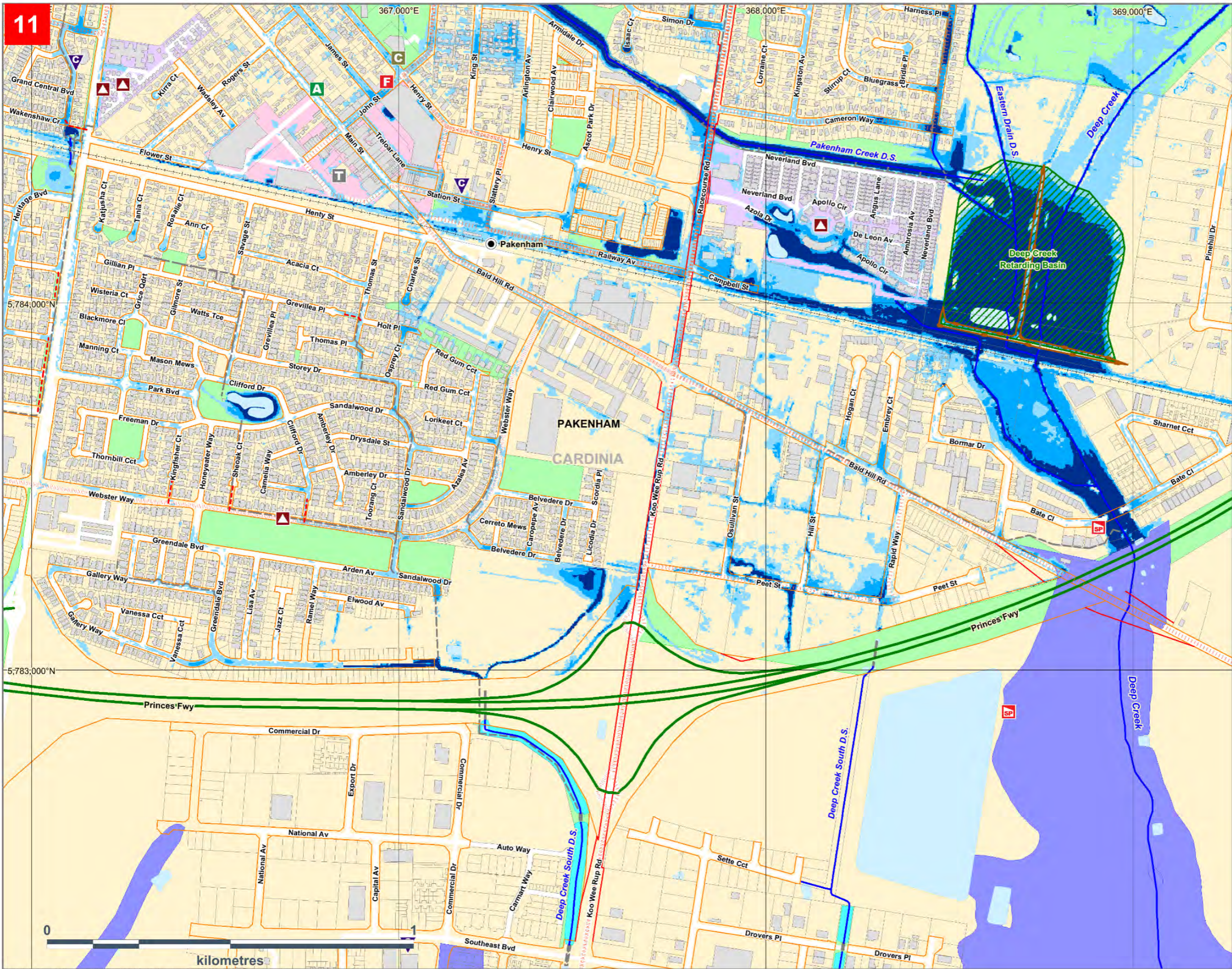


CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
**10. Kennedy & Deep
 Creeks (Pakenham)**



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Pakenham Township flood modelling completed by Cardno, August 2020. Map Produced by VicSES December 2020.



- Building
- Reserve / Open Space
- Waterbody
- Shopping Precinct
- 1% AEP Riverine Flood Extent (Depth Unavailable)
- 1% AEP Flood Depth (>10cm)**
- Greater than 60cm
- Between 30cm and 60cm
- Between 10cm and 30cm
- Melbourne Water Retarding Basin
- Creek / Waterway
- Bicycle / Walking Trail
- Bus Routes (PTV)
- Melbourne Water Stormwater Drain
- Embankment
- Aged Care / Retirement Village
- Ambulance Station
- Community Centre
- Child Care / Kindergarten
- Fire Station
- Sewer Pumping Station
- Telephone Exchange

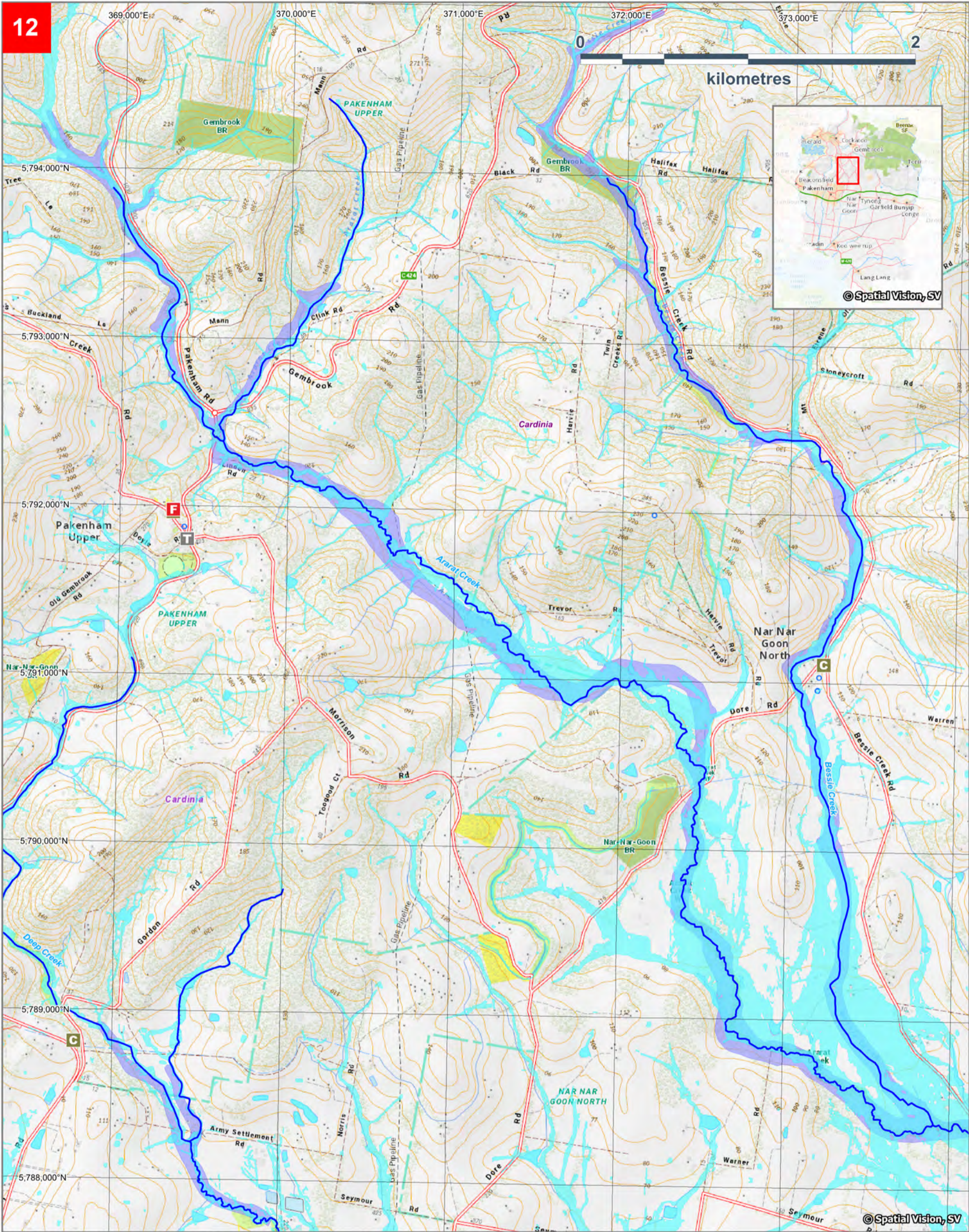


CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
11. Pakenham Creek & Deep Creek South Drains (Pakenham)



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Pakenham Township flood modelling completed by Cardno, August 2020. Map Produced by VicSES December 2020.



Ararat Creek flood modelling completed by Melbourne Water, January 2012. Cardinia Northern Catchments flood modelling completed by Cardno, September 2020. Map Produced by VICSES February 2022.

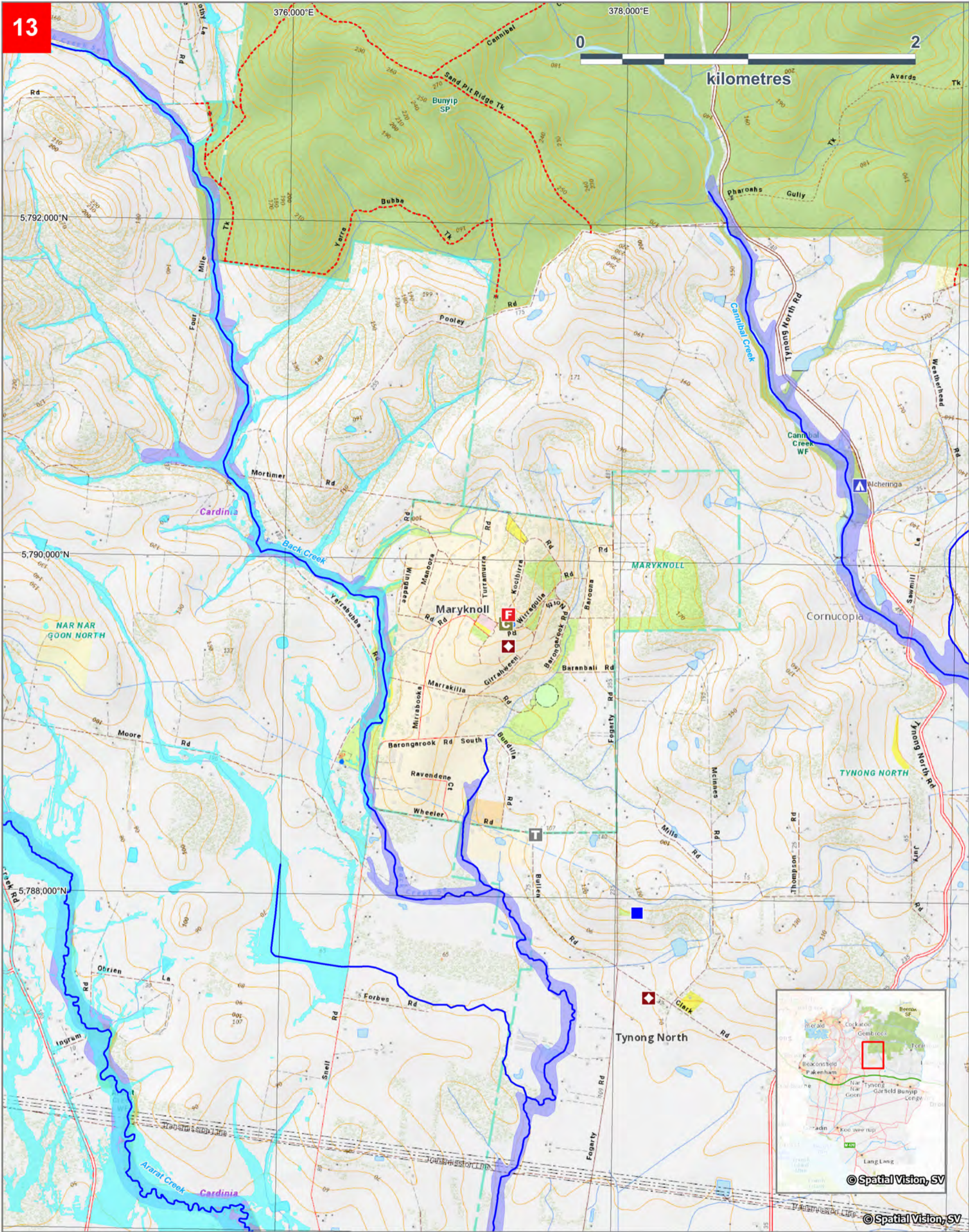
CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
12. Ararat Creek
 (Nar Nar Goon North)

- Building
- Waterbody
- 1% AEP Riverine Flood Extent (Depth Unavailable)
- 1% AEP Flash Flood Extent (Depth Unavailable)
- Waterway
- Community Centre
- Fire Station
- Telephone Exchange

- LAND USE**
- Residential
 - Commercial and Business
 - Industrial
 - Public Parks / Cemeteries / Recreation
 - Utilities and Local Government Facilities
 - Education



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Back Creek flood modelling completed by Melbourne Water, June, 2014. Cardinia Northern Catchments flood modelling completed by Cardno, September 2020. Map Produced by VICSES February 2022.

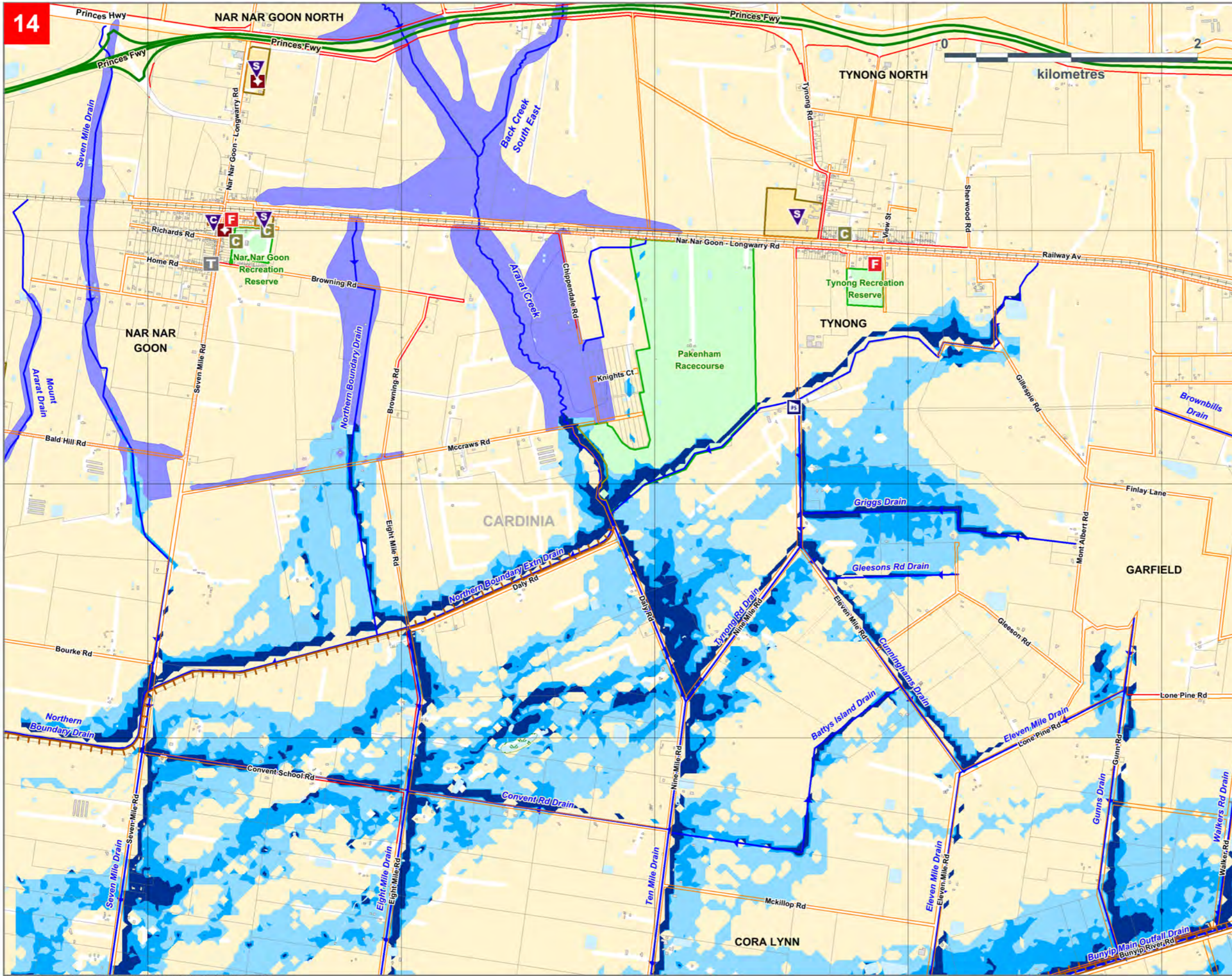
CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
13. Back Creek
 (Maryknoll)

- Building
- Waterbody
- 1% AEP Riverine Flood Extent (Depth Unavailable)
- 1% AEP Flash Flood Extent (Depth Unavailable)
- Community Centre
- Fire Station
- Telephone Exchange
- Camp Ground
- Retail Water Storage
- Place Of Worship
- Waterway

LAND USE	
	Residential
	Commercial and Business
	Industrial
	Public Parks / Cemeteries / Recreation
	Utilities and Local Government Facilities
	Education



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- Building
 - Reserve / Area of Interest
 - Waterbody
 - 1% AEP Riverine Flood Extent (Depth Unavailable)
- 1% AEP Flood Depth (Cardno, 2016)**
- Greater than 60cm
 - Between 30cm and 60cm
 - Up to 30cm
- Bus Route (PTV)
 - Creek / Channel
 - Levee
 - Community Centre
 - Fire Station
 - Place Of Worship
 - Telephone Exchange
 - Child Care / Kindergarten
 - School / College
 - Drainage Pumping Station

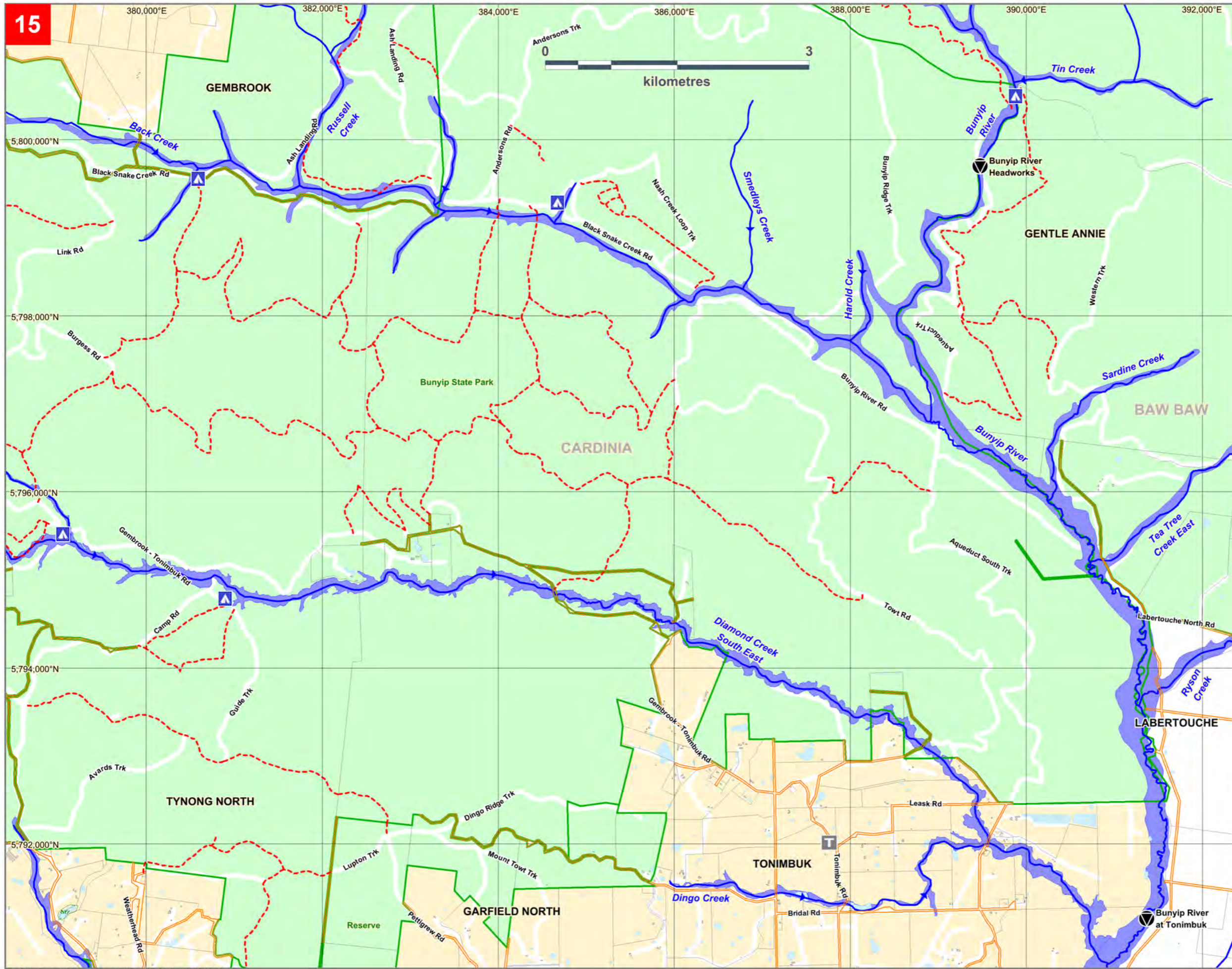


CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
 14. Ararat Creek
 (Nar Nar Goon)



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Flood modelling completed by Cardno, November 2014. Map Produced by VicSES June 2019.



- Building
- Reserve / Area of Interest
- Waterbody
- 1% AEP Riverine Flood Extent (Depth Unavailable)
- Bicycle / Walking Trail
- Creek / Channel
- T Point
- ▲ Point
- Stream Level Gauge
- Rain Gauge

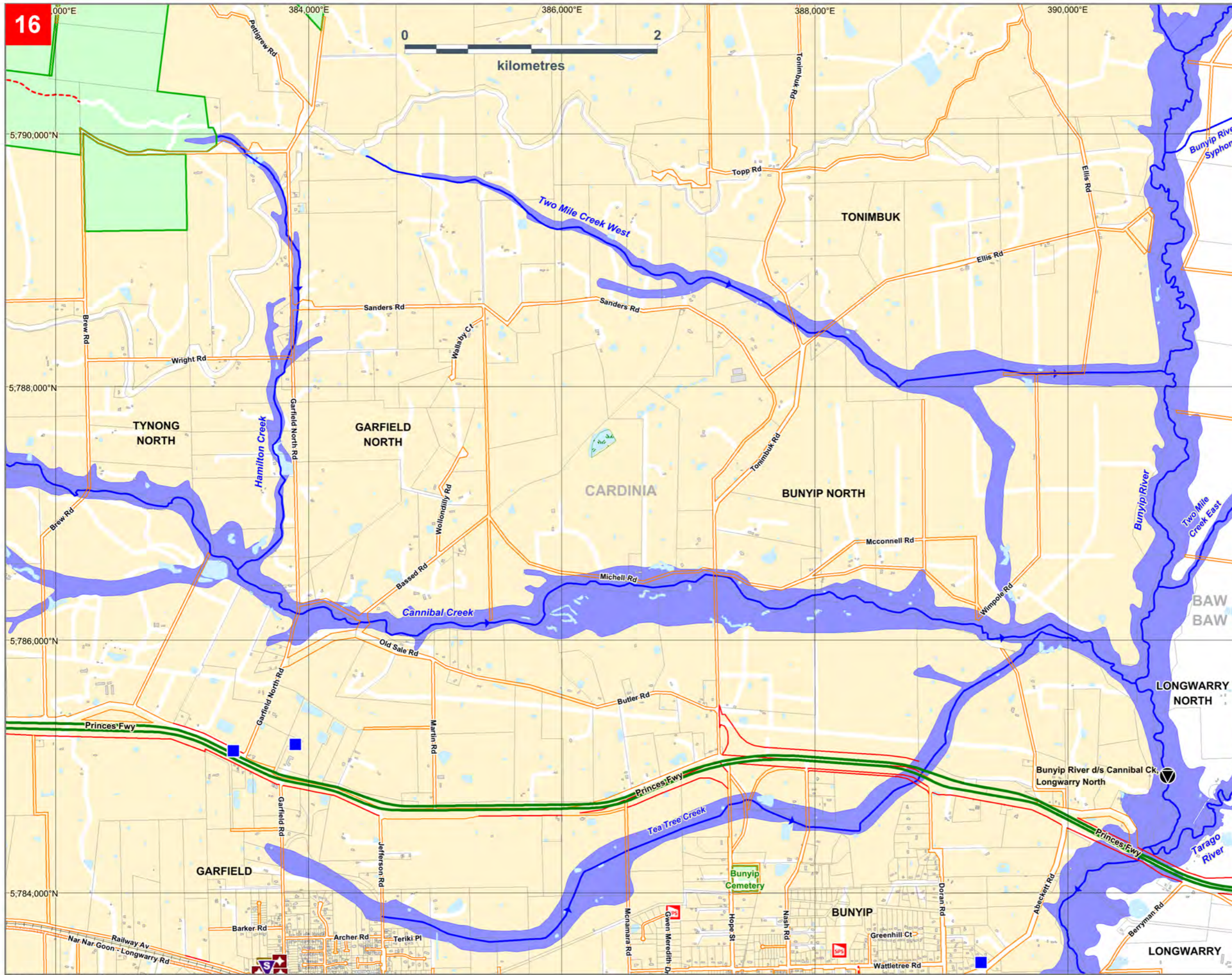


CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
15. Bunyip River (Tonimbuk)



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Flood modelling completed by Melbourne Water. Map Produced by VicSES June 2019.



- Building
- Reserve / Area of Interest
- Waterbody
- 1% AEP Riverine Flood Extent (Depth Unavailable)
- Bus Route (PTV)
- Creek / Channel
- Place Of Worship
- School / College
- Sewer Pumping Station
- Retail Water Storage
- Stream Level Gauge & 1% AEP Flood Level
- Rain Gauge

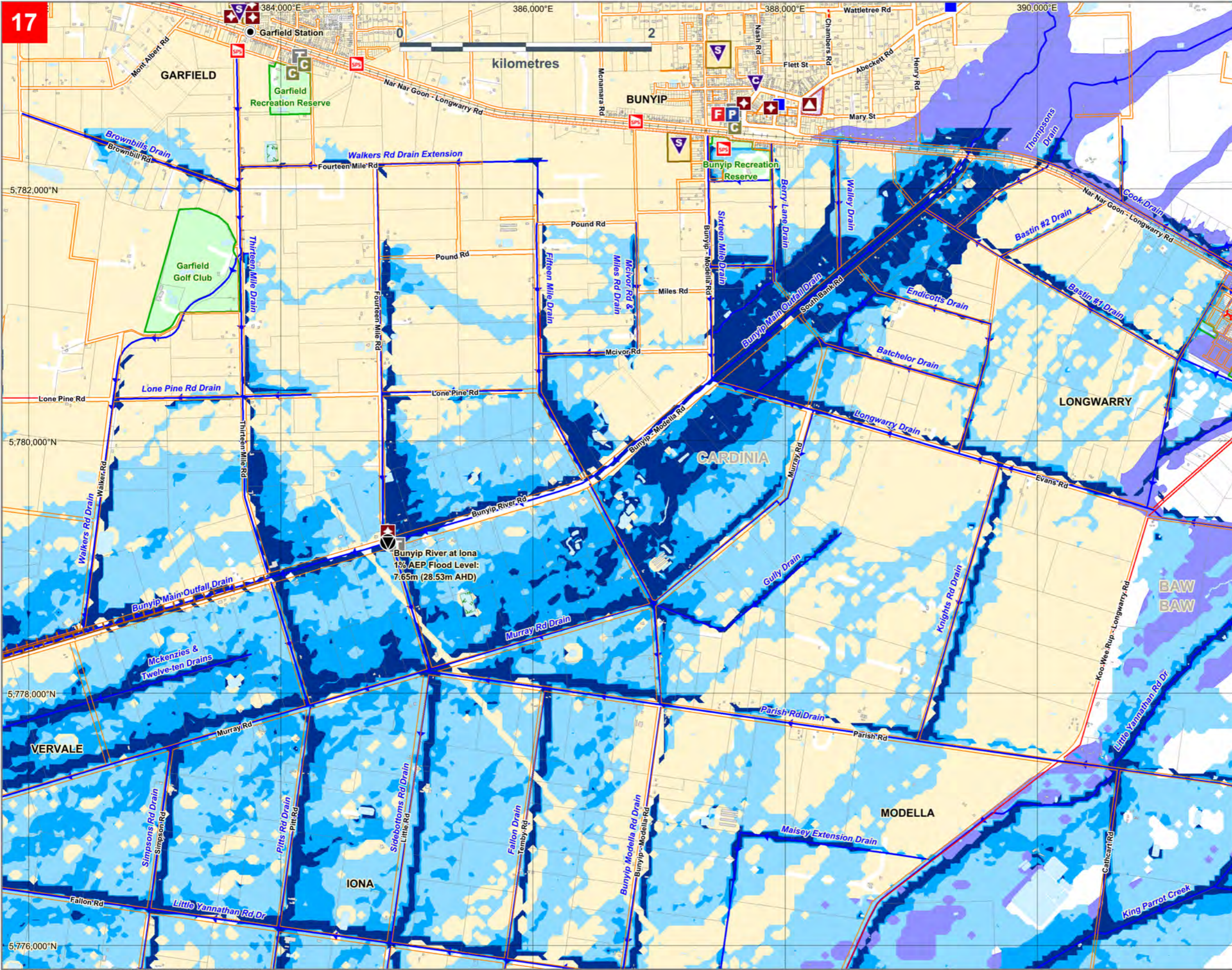


CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
16. Bunyip River
 (Bunyip North)



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Flood modelling completed by Melbourne Water. Map Produced by VicSES June 2019.



- Building
 - Reserve / Area of Interest
 - Waterbody
 - 1% AEP Riverine Flood Extent (Depth Unavailable)
- 1% AEP Flood Depth (Cardno, 2016)**
- Greater than 60cm
 - Between 30cm and 60cm
 - Up to 30cm
- Bus Route (PTV)
 - Creek / Channel
 - Levee
 - Community Centre
 - Fire Station
 - Place Of Worship
 - Telephone Exchange
 - Child Care / Kindergarten
 - School / College
 - Sewer Pumping Station
 - Retail Water Storage
 - Aged Care Facility
 - Police Station
 - Stream Level Gauge & 1% AEP Flood Level
 - Rain Gauge

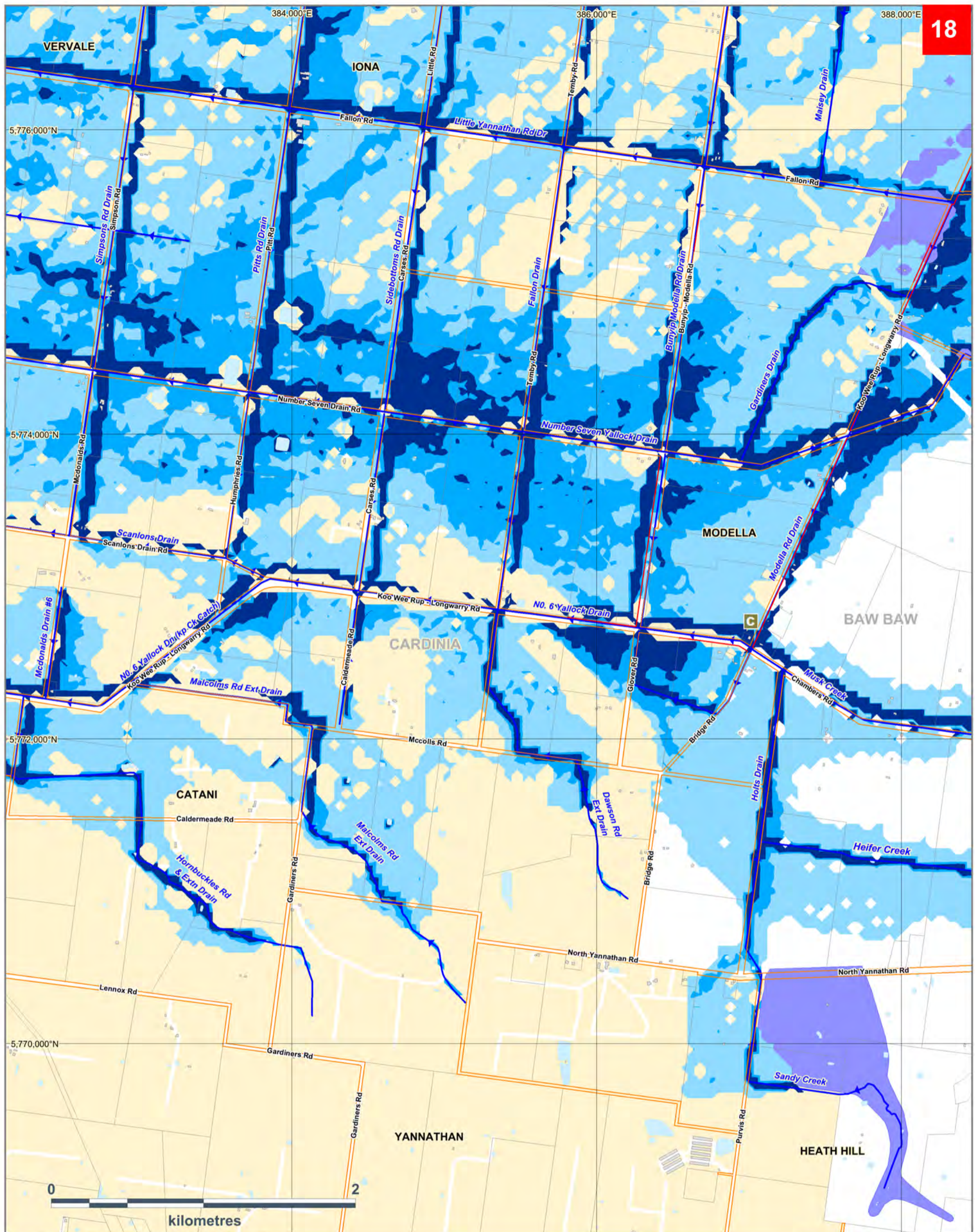


CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
 17. Bunyip River
 (Bunyip & Iona)



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Flood modelling completed by Cardno, November 2014. Map Produced by VicSES June 2019.



Flood modelling completed by Cardno, November 2014. Map Produced by VICSES June 2019.

- | | |
|--|--|
| Building | 1% AEP Flood Depth (Cardno, 2014)
Greater than 60cm |
| Waterbody | Between 30cm and 60cm |
| 1% AEP Riverine Flood Extent (Depth Unavailable) | Up to 30cm |
| Reserve / Park | Community Centre |
| Creek / Channel | |

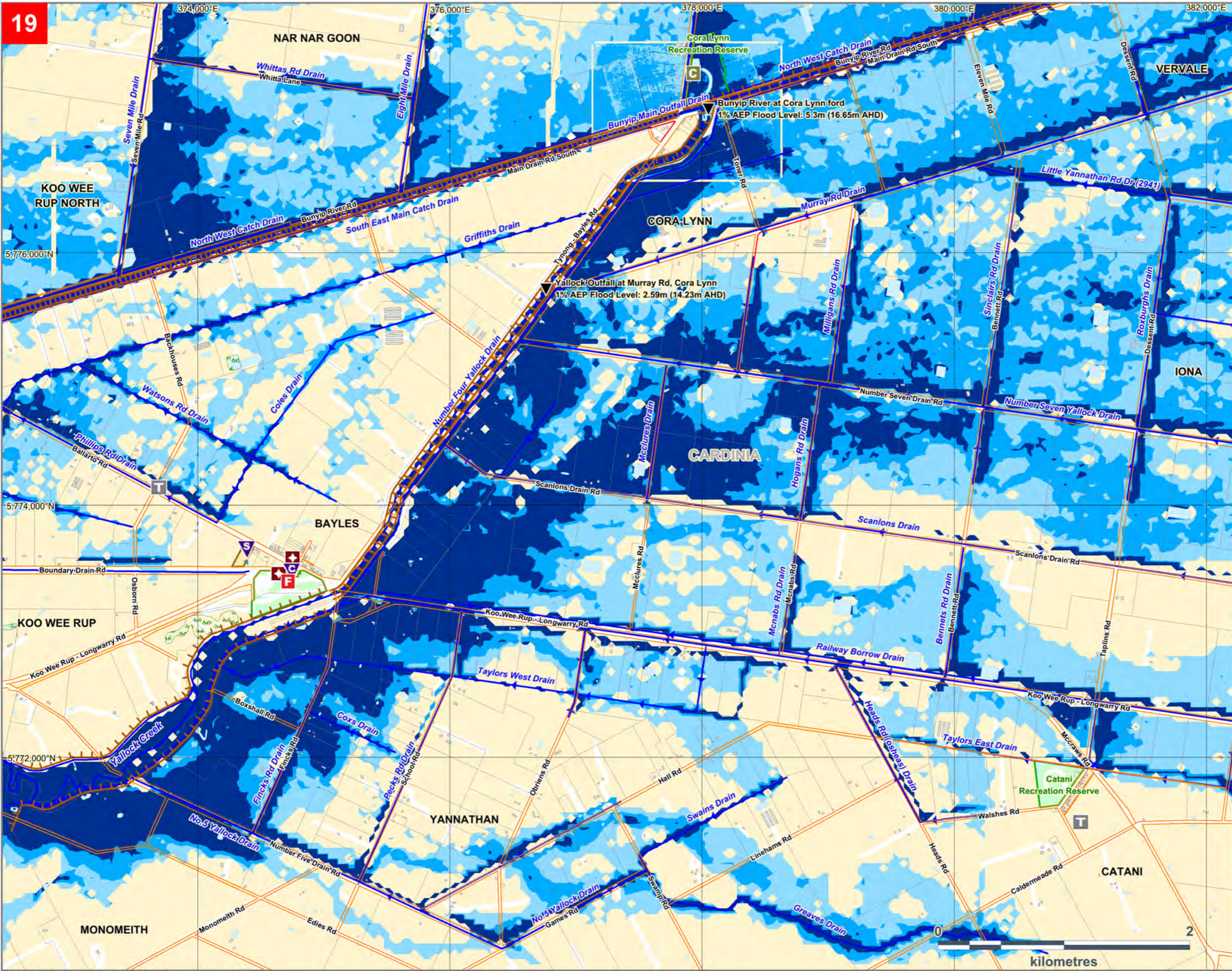
CARDINIA SHIRE

1% AEP (100yr ARI) Flooding
18. Number 7 Yallock Drain (Modella)



SES VICTORIA **Melbourne Water**

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- Building
- Reserve / Area of Interest
- Waterbody
- Natural Wetland
- 1% AEP Flood Level (Cardno, 2014)**
- Greater than 60cm
- Between 30cm and 60cm
- Up to 30cm
- Creek / Channel
- Levee
- Stream Level Gauge & 1% AEP Flood Level
- Community Centre
- Fire Station
- Place Of Worship
- Telephone Exchange
- Child Care / Kindergarten
- School / College

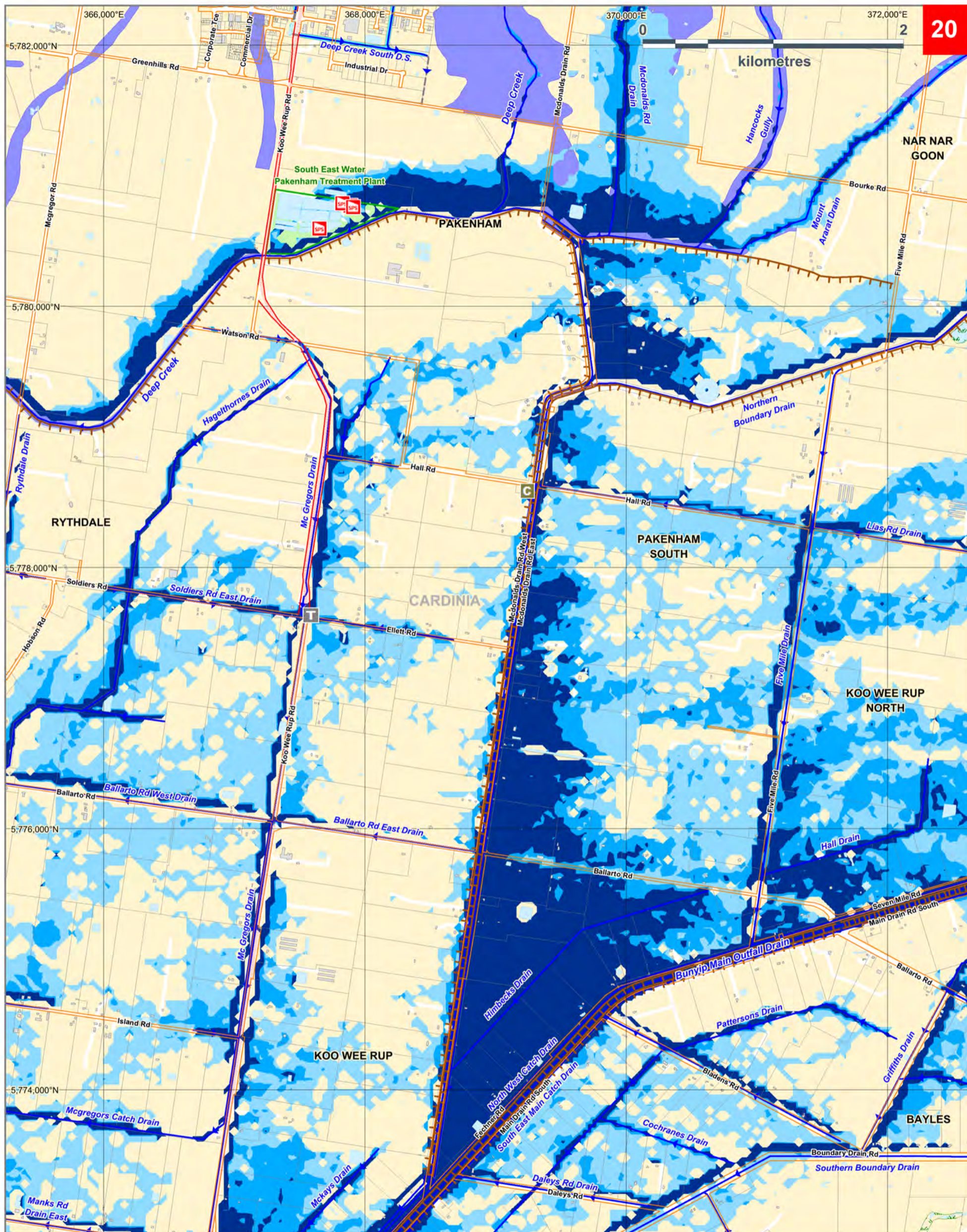


CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
19. Bunyip Main Outfall Drain (Cora Lynn)



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Flood modelling completed by Cardno, November 2014. Map Produced by VicSES June 2019.



Flood modelling completed by Melbourne Water, June 2014. Map Produced by VICSES June 2019.

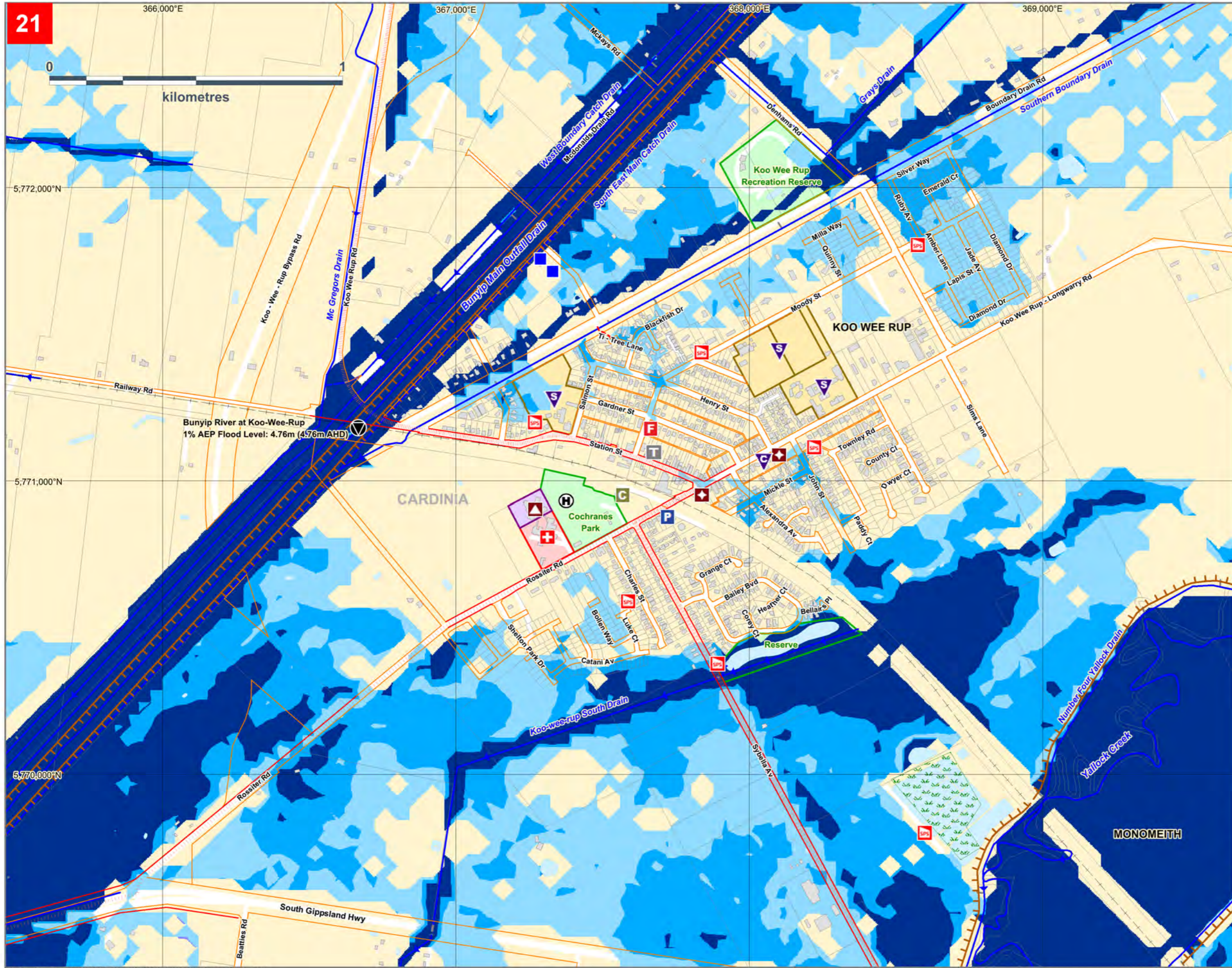
CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
 20. McDonalds Catchment Drain (Pakenham South)

- | | | | |
|--|--|--|-----------------------|
| | Building | | Bus Route (PTV) |
| | Waterbody | | Levee |
| | 1% AEP Riverine Flood Extent (Depth Unavailable) | | Creek / Channel |
| | Reserve / Park | | Community Centre |
| | Natural Wetland | | Sewer Pumping Station |
| 1% AEP Flood Depth (Cardno, 2014) | | | Telephone Exchange |
| | Greater than 60cm | | |
| | Between 30cm and 60cm | | |
| | Up to 30cm | | |



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- Building
- Reserve / Area of Interest
- Waterbody
- 1% AEP Flood Level (Cardno, 2014)**
- Greater than 60cm
- Between 30cm and 60cm
- Up to 30cm
- Creek / Channel
- Bus Routes (PTV)
- Levee
- Place Of Worship
- School / College
- Kindergarten / Child Care
- Hospital
- Fire Station
- Aged Care Facility
- Community Centre
- Sewer Pumping Station
- Telephone Exchange
- Police Station
- Helipad
- Retail Water Storage
- Stream Level Gauge & 1% AEP Flood Level
- Rain Gauge

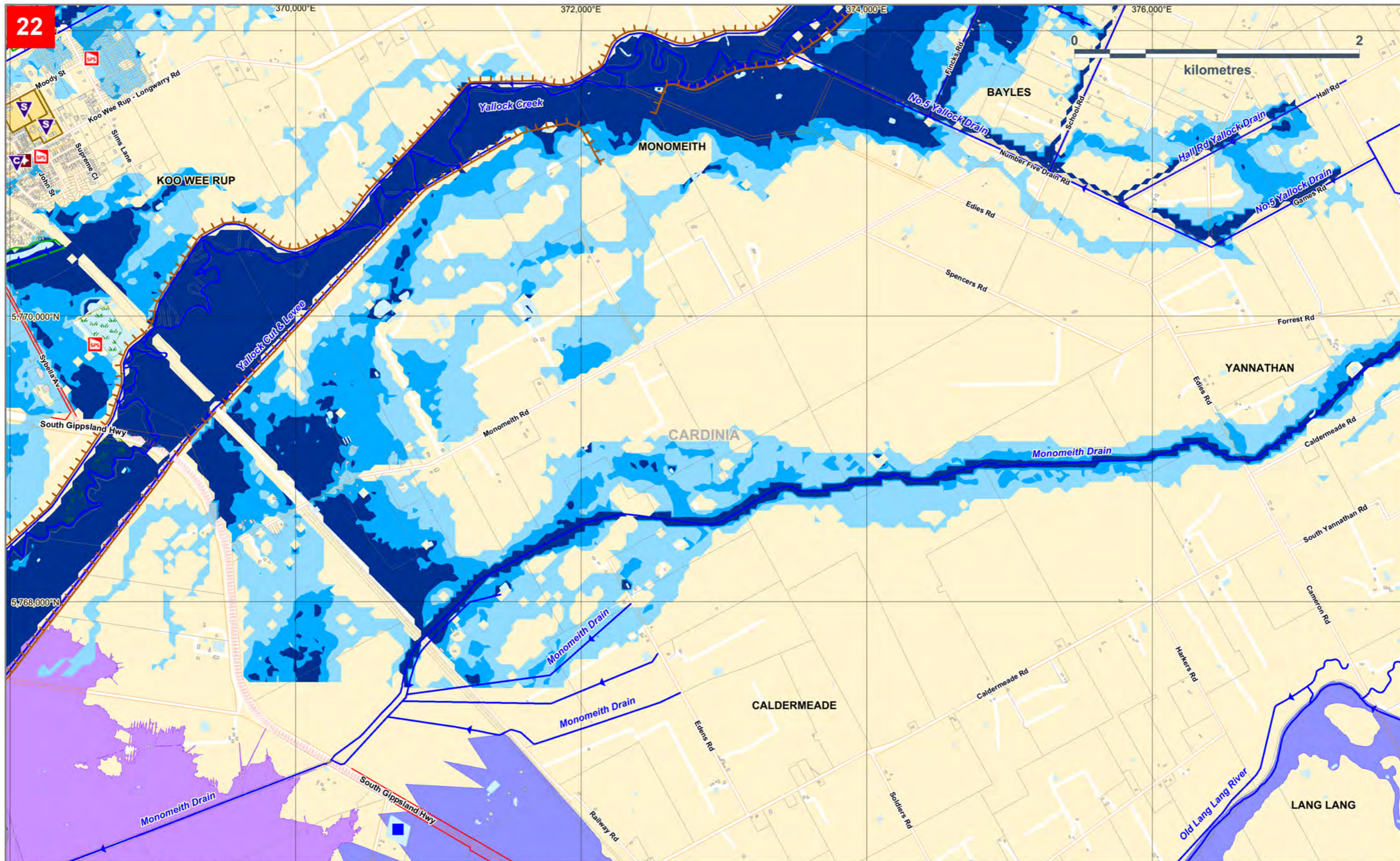


CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
21. Bunyip Main Outfall Drain
(Koo Wee Rup)



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Flood modelling completed by Cardno, November 2014. Map Produced by VicSES June 2019.



Flood modelling completed by Cardino, November 2014. Map Produced by VicSES June 2019.

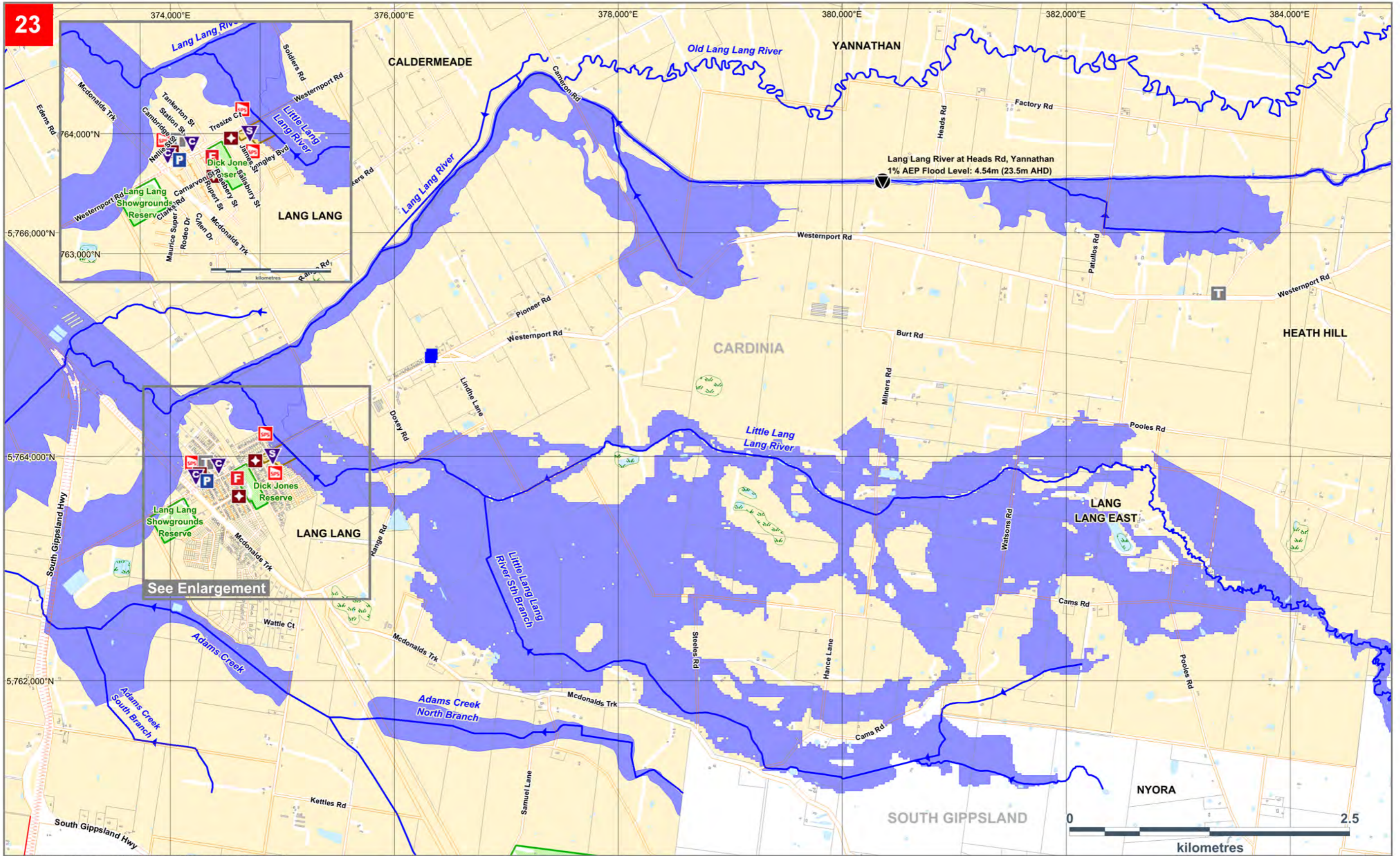
CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
22. Yallock Creek
 (Monomeith)

- | | | | |
|--|---------------------------|--|---------------------------|
| | 1% AEP Flood Depth | | School / College |
| | | | Child Care / Kindergarten |
| | | | Place Of Worship |
| | | | Sewer Pumping Station |
| | | | Retail Water Storage |
| | | | |
| | | | |



SES VICTORIA State Emergency Service
Melbourne Water

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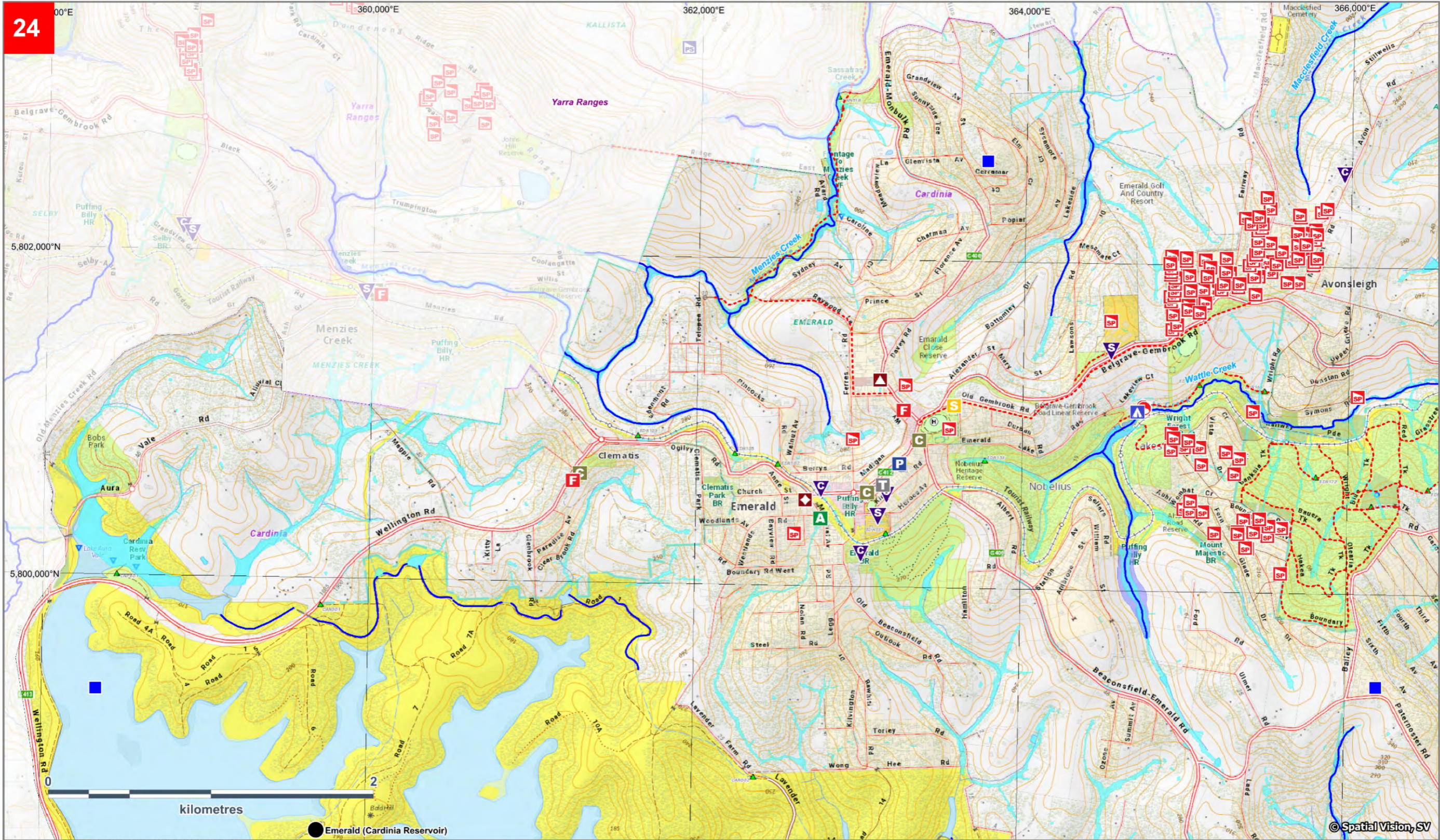
Flood modelling completed by Lawson&Trelor, November 2002. Map Produced by VicSES June 2019.

CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
23. Little Lang Lang River
(Lang Lang)

- | | | |
|--|---------------------------|---|
| Building | School / College | Fire Station |
| Area of Interest | Child Care / Kindergarten | Police Station |
| Waterbody | Place Of Worship | Stream Level Gauge & 1% AEP Flood Level |
| 1% AEP Riverine Flood Extent (Depth Unavailable) | Sewer Pumping Station | Rain Gauge |
| Creek / Channel | Retail Water Storage | |
| Bus Route (PTV) | Telephone Exchange | |



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Cardinia Northern Catchments flood modelling completed by Cardno, September 2020. Map Produced by VICSES February 2022.

CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
24. Wattle Creek (Emerald)

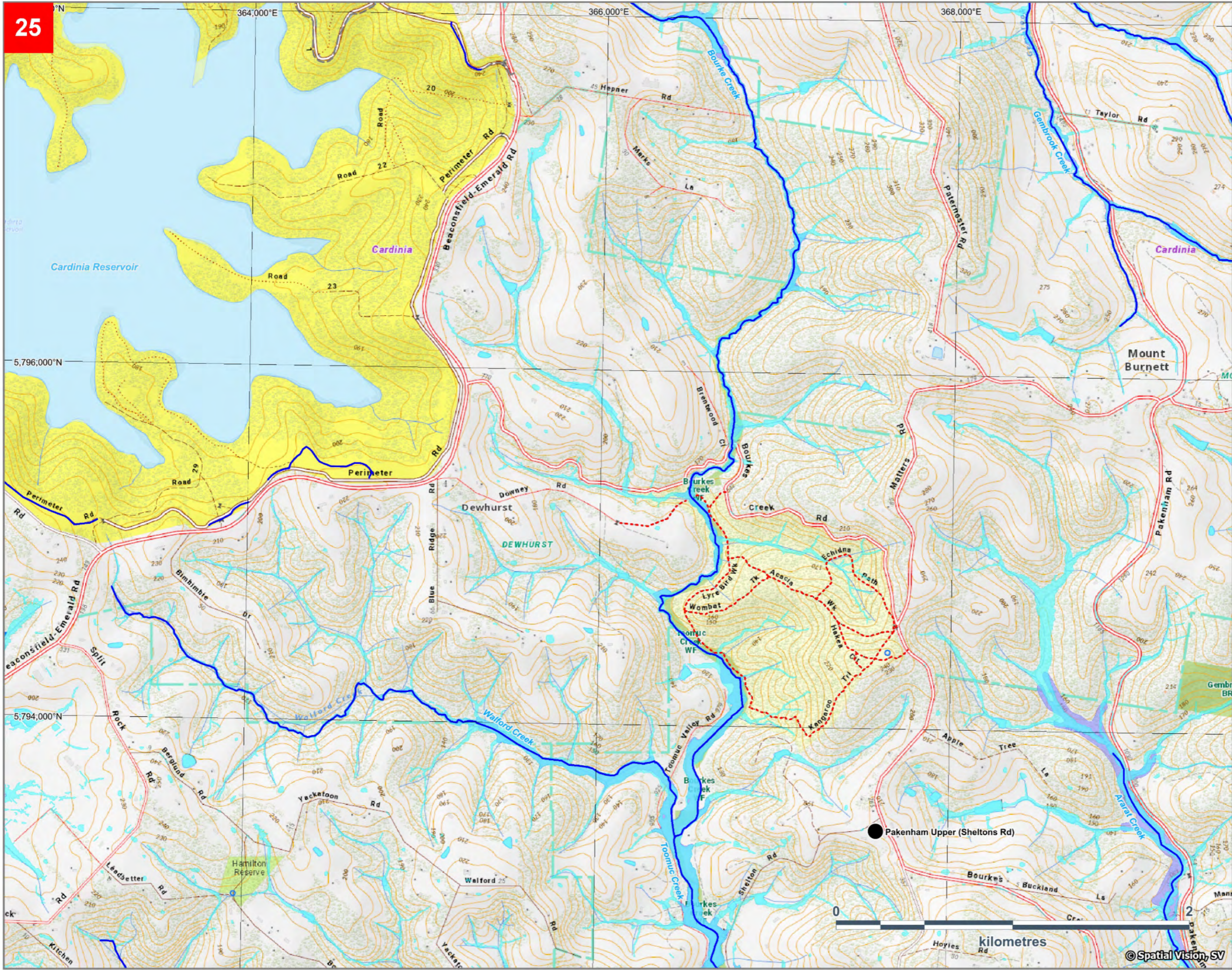
- | | | |
|--------------------------------|---------------------------|-------------------------|
| Building | Waterway | Community Centre |
| Waterbody | Bicycle / Walking Trail | Fire Station |
| 1% AEP Flash Flood Extent | Camp Ground | Telephone Exchange |
| Aged Care / Retirement Village | Aged Care Facility | Retail Water Storage |
| Ambulance Station | Child Care / Kindergarten | Rain Gauge |
| Education Facility | Place Of Worship | State Emergency Service |
| | Police Station | Sewer Pumping Station |

LAND USE	
	Residential
	Commercial and Business
	Industrial
	Public Parks / Cemeteries / Recreation
	Utilities and Local Government Facilities
	Education



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25

- Building
- Waterbody
- 1% AEP Riverine Flood Extent
- 1% AEP Flash Flood Extent
- Waterway
- Bicycle / Walking Trail
- Rain Gauge

- LAND USE
- Residential
 - Commercial and Business
 - Industrial
 - Public Parks / Cemeteries / Recreation
 - Utilities and Local Government Facilities
 - Education

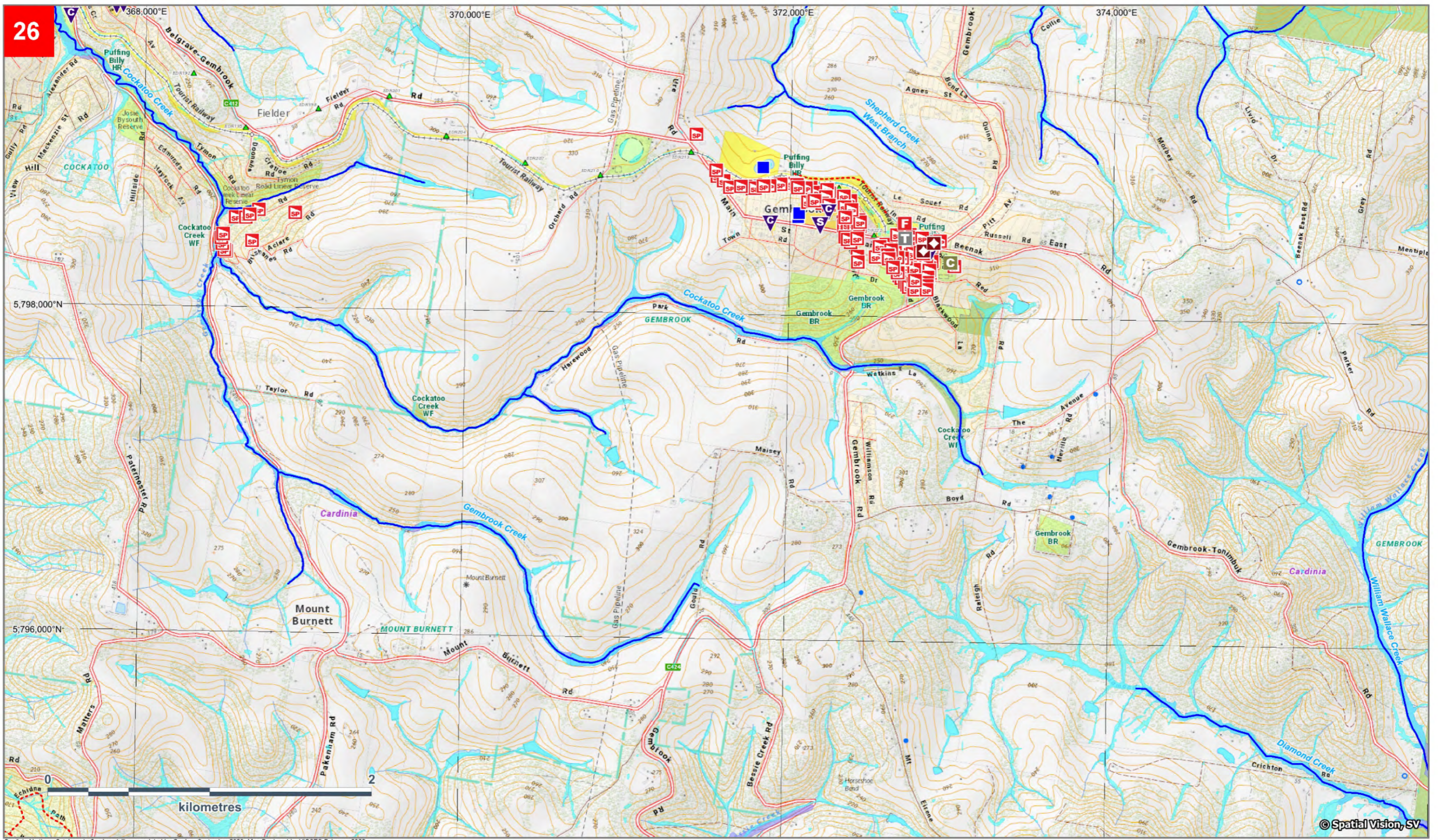


CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
25. Bourke Creek
 (Pakenham Upper)



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Flood modelling completed by Cardno, September 2020. Map Produced by VICSES February 2022.



Cardinia Northern Catchments flood modelling completed by Cardno, September 2020. Map Produced by VICSES February 2022.

CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
26. Cockatoo Creek (Gembrook)

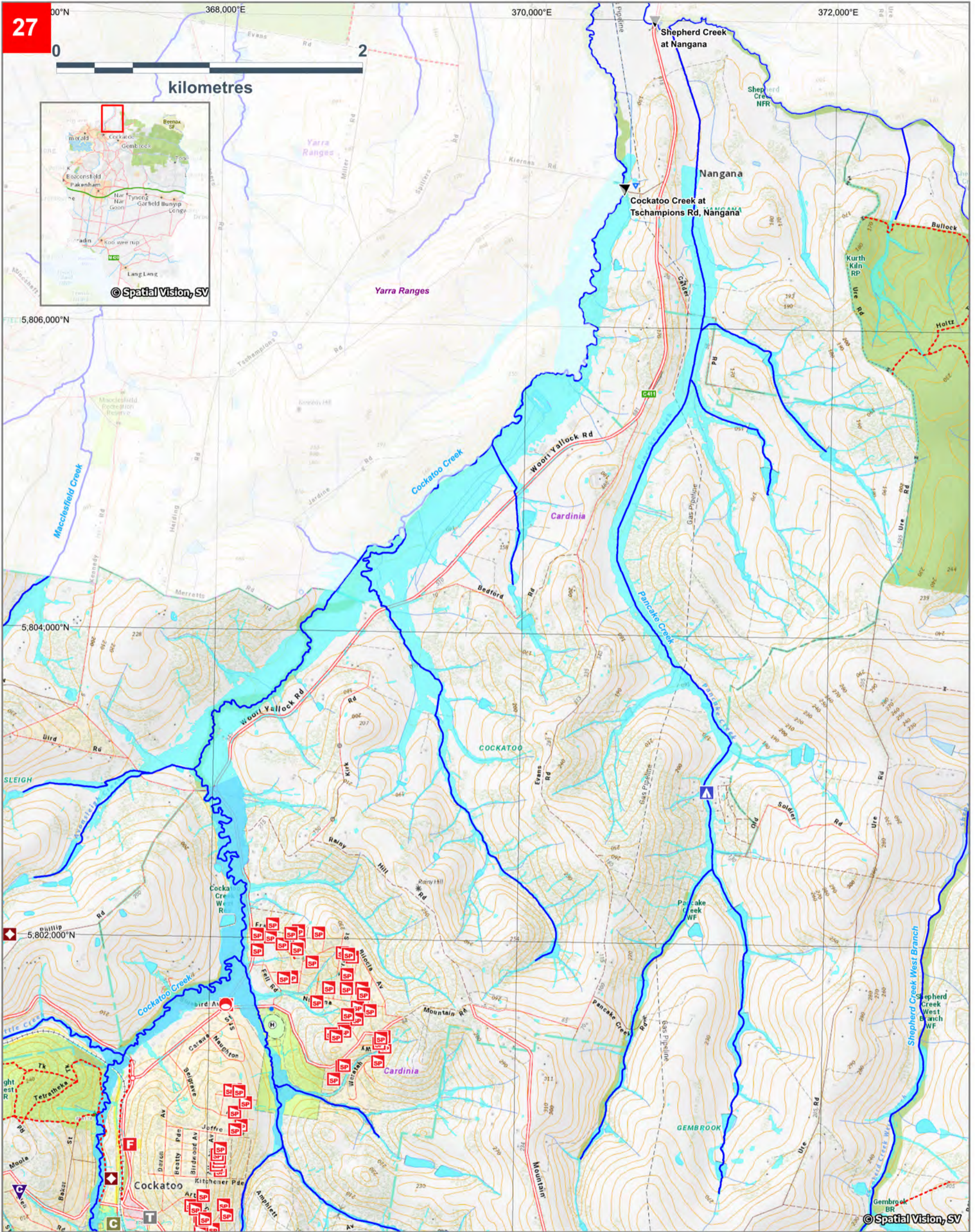
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LAND USE	
	Residential
	Commercial and Business
	Industrial
	Public Parks / Cemeteries / Recreation
	Utilities and Local Government Facilities
	Education



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Cardinia Northern Catchments flood modelling completed by Cardno, September 2020. Map Produced by VICSES February 2022.

CARDINIA SHIRE
 1% AEP (100yr ARI) Flooding
27. Cockatoo Creek
 (Cockatoo)

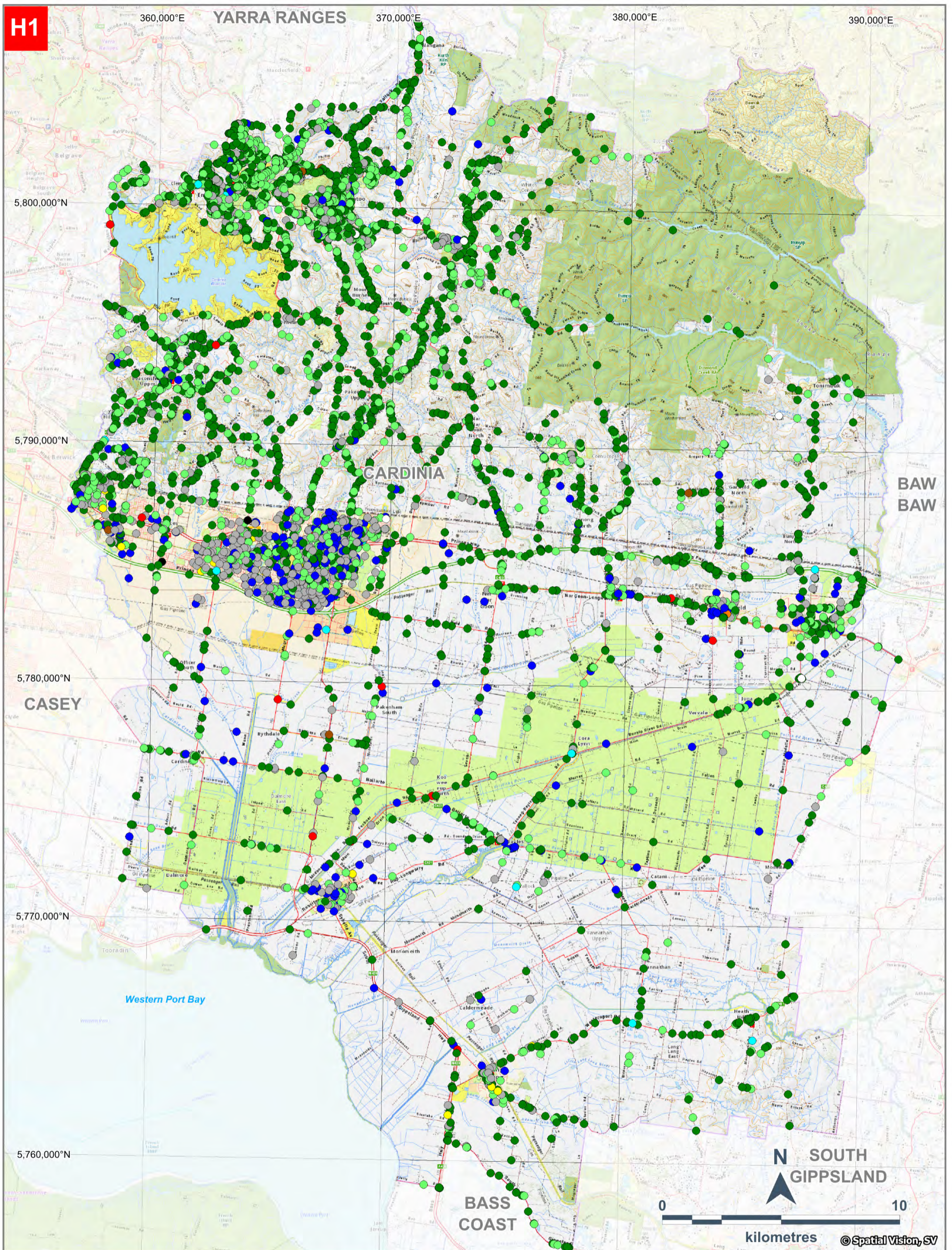
- | | |
|--|--------------------|
| Building | Waterway |
| Waterbody | Community Centre |
| 1% AEP Flash Flood Extent | Fire Station |
| Bicycle / Walking Trail | Telephone Exchange |
| Sewer Pumping Station / Unsewered Property | Camp Ground |
| Child Care / Kindergarten | Stream Level Gauge |
| Sewer Emergency Relief Point | Place Of Worship |

LAND USE	
	Residential
	Commercial and Business
	Industrial
	Public Parks / Cemeteries / Recreation
	Utilities and Local Government Facilities
	Education

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Severe Weather VICSES Requests for Assistance Maps



CARDINIA SHIRE

Version 5: January 2022

H1 - Severe Weather Request for Assistance (RFA) Received by Type (Jul 2009 - December 2021)

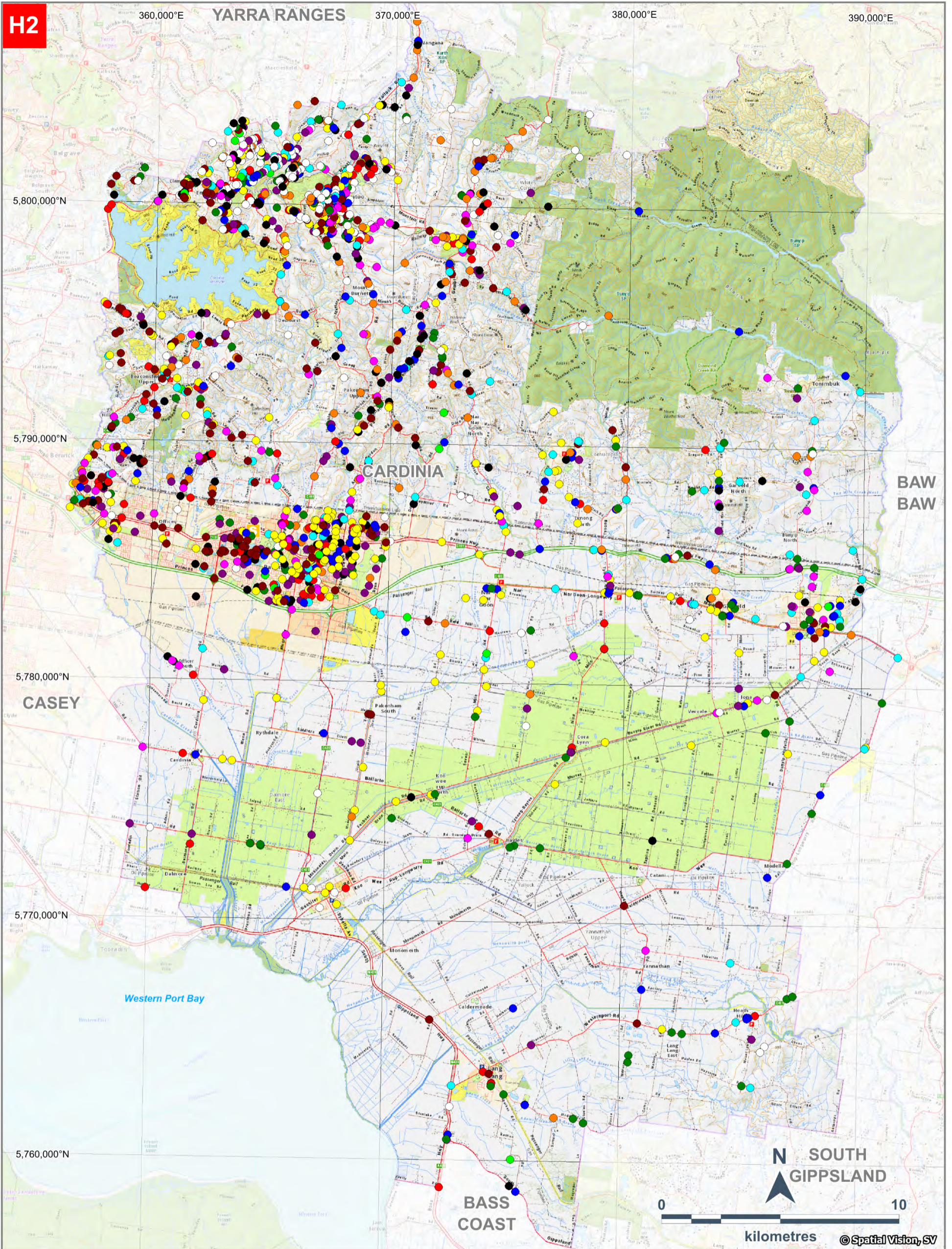
VICSES Severe Weather RFAs (Storm or Flood)

By Job Type (Grouped)

- Support Other Agency (21)
- Building Damage (1,111)
- Dam Incident (3)
- Flooding (414)
- Landslide / Hazards (10)
- Loose Debris / Object / Fence (25)
- Other (24)
- Rescue (20)
- Sandbag Request (3)
- Tree Down (2,246)
- Tree Down Traffic Hazard (3,927)
- S State Emergency Service



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CARDINIA SHIRE

Version 5: January 2022

H2 - Severe Weather Request for Assistance (RFA) Received by Month (Jul 2009 - December 2021)

VICES Severe Weather RFAs (Storm or Flood) By Month (Where >140 RFAs received)

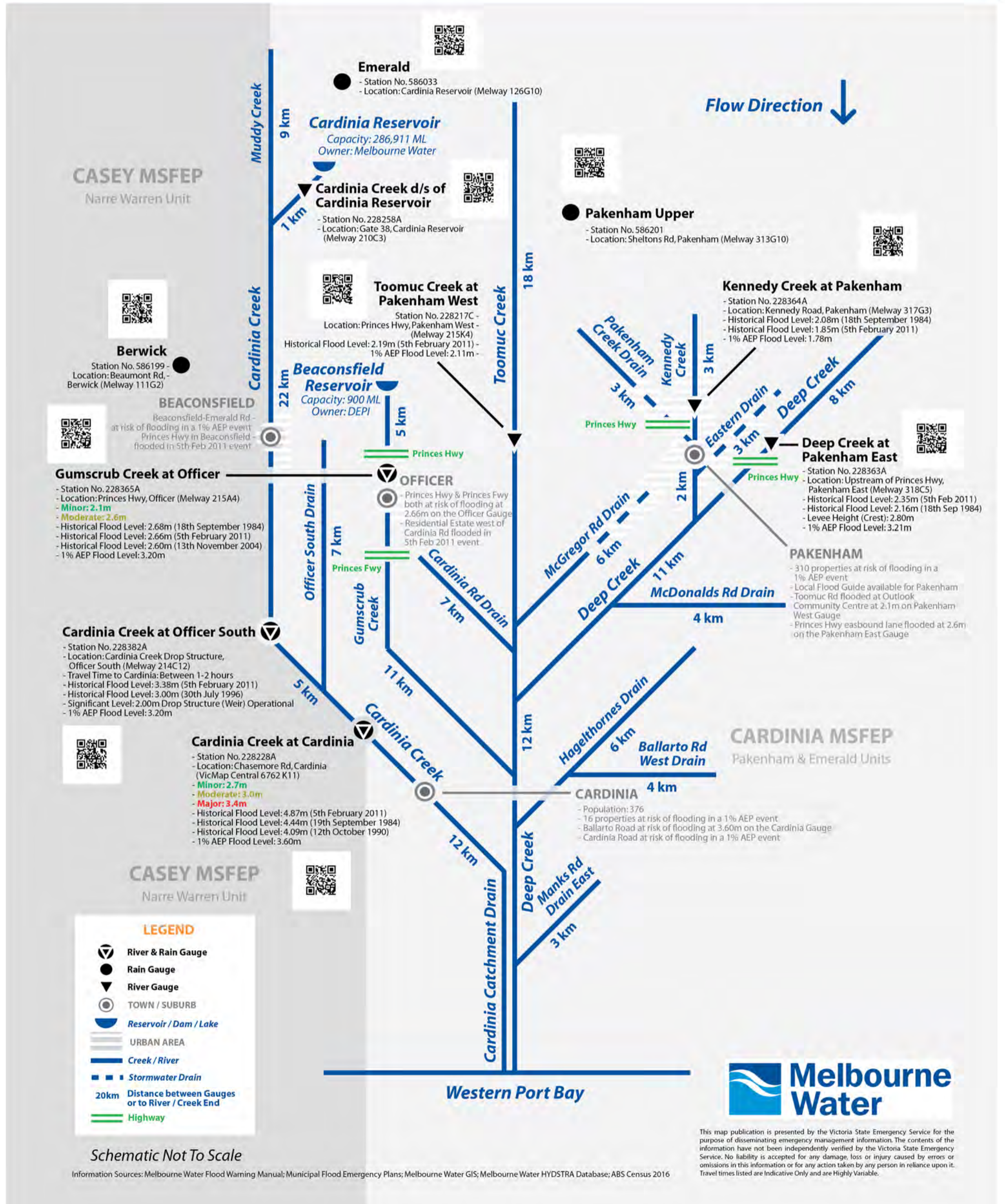
● August 2009	(144)	● July 2019	(154)
● February 2011	(278)	● August 2020	(154)
● September 2011	(22)	● June 2021	(272)
● August 2013	(146)	● October 2021	(193)
● October 2013	(186)	● November 2021	(166)
● May 2016	(146)	● State Emergency Service	(227)
● October 2016	(227)		

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Cardinia Creek Catchment Schematic

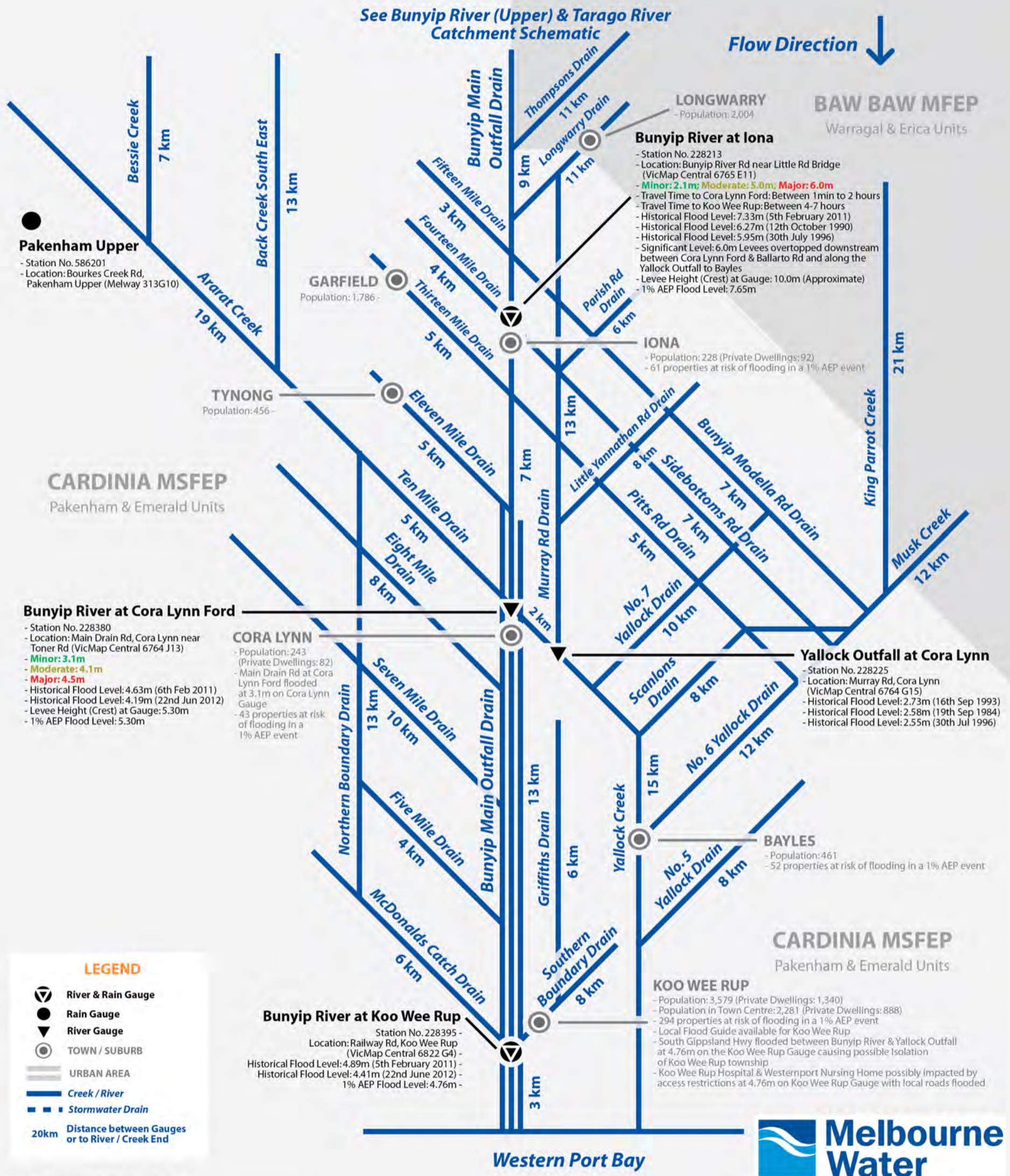
Version 4 - April 2021





Bunyip River (Lower) Catchment Schematic

Version 2 - July 2019



Schematic Not To Scale
Note: Not all Drains/Waterways are displayed

Information Sources: Melbourne Water Flood Warning Manual; Municipal Flood Emergency Plans; Melbourne Water GIS; Melbourne Water HYDSTRA Database; ABS Census 2016

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Lang Lang River Catchment Schematic

Version 2 - July 2019

Flow Direction ↓

BAW BAW MFEP
Warragul & Erica Units

Upper Lang Lang (Poowong East)
- Station No. 586196
- Location: Drouin-Korumburra Rd, Poowong East

SOUTH GIPPSLAND MFEP
Leongatha & Foster Units

CARDINIA MSFEP
Pakenham & Emerald Units

Lang Lang River at Yannathan
- Station No. 228209B
- Location: Heads Rd, Yannathan (VicMap Central 6824 A9)
- Minor: 3.5m
- Moderate: 4.0m
- Major: 4.9m
- Historical Flood Level: 4.87m (30th July 1996)
- Historical Flood Level: 3.69m (22nd June 2012)
- Historical Flood Level: 3.39m (12nd October 1990)
- 1% AEP Flood Level: 4.3m

LANG LANG
- Population: 1,585
- 42 properties at risk from flooding below-floor or isolation along Lang Lang River & Little Lang Lang River in a 1% AEP event
- South Gippsland Hwy at Lang Lang River crossing flooded at 4.9m on the Yannathan Gauge

LEGEND

- River & Rain Gauge
- Rain Gauge
- River Gauge
- TOWN / SUBURB
- URBAN AREA
- Creek / River
- Stormwater Drain
- 20km Distance between Gauges or to River / Creek End

Western Port Bay



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Schematic Not To Scale

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