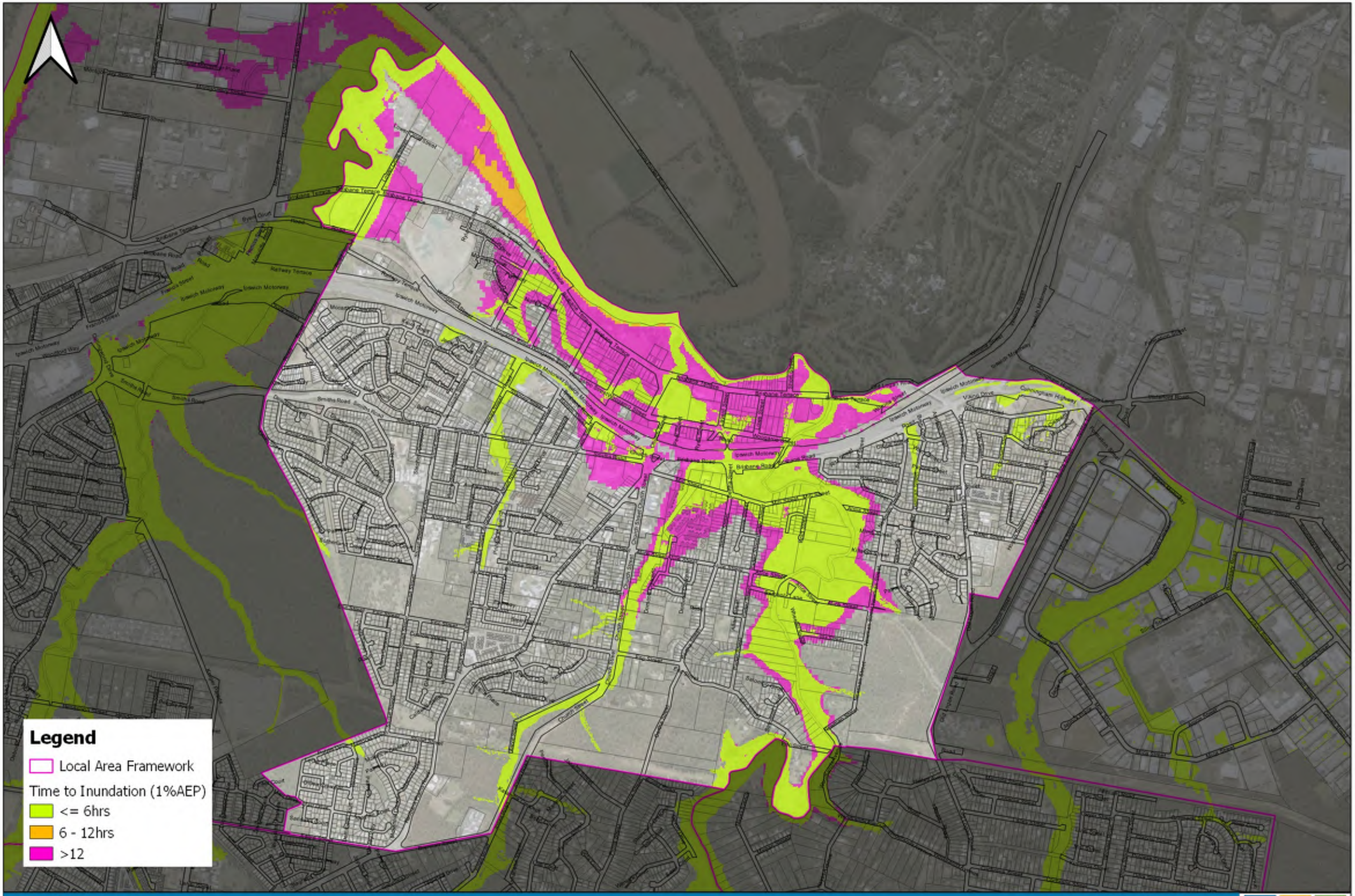
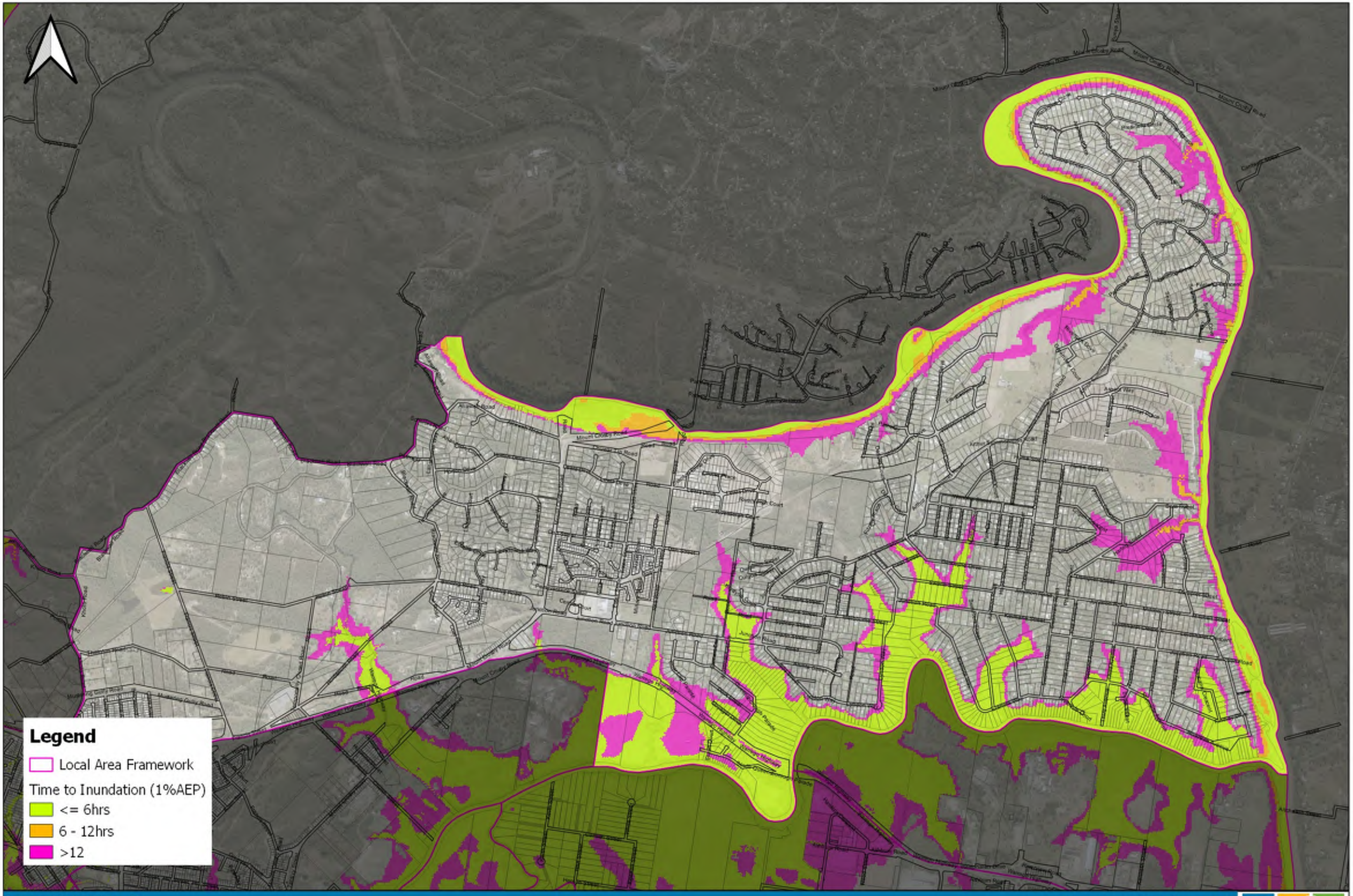

Legend
Local Area Framework
Time to Inundation (1%AEP)
<= 6hrs
6 - 12hrs
>12
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
0.8
1.6 km
Ipswich Natural Hazard Risk Assessment
Goodna, Gailes, Camira (part) Local Area Framework
WATER TECHNOLOGY


Legend
Local Area Framework
Time to Inundation (1%AEP)
<= 6hrs
6 - 12hrs
>12
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
0.8
1.6 km
Ipswich Natural Hazard Risk Assessment
Ipswich Central Local Area Framework
WATER TECHNOLOGY

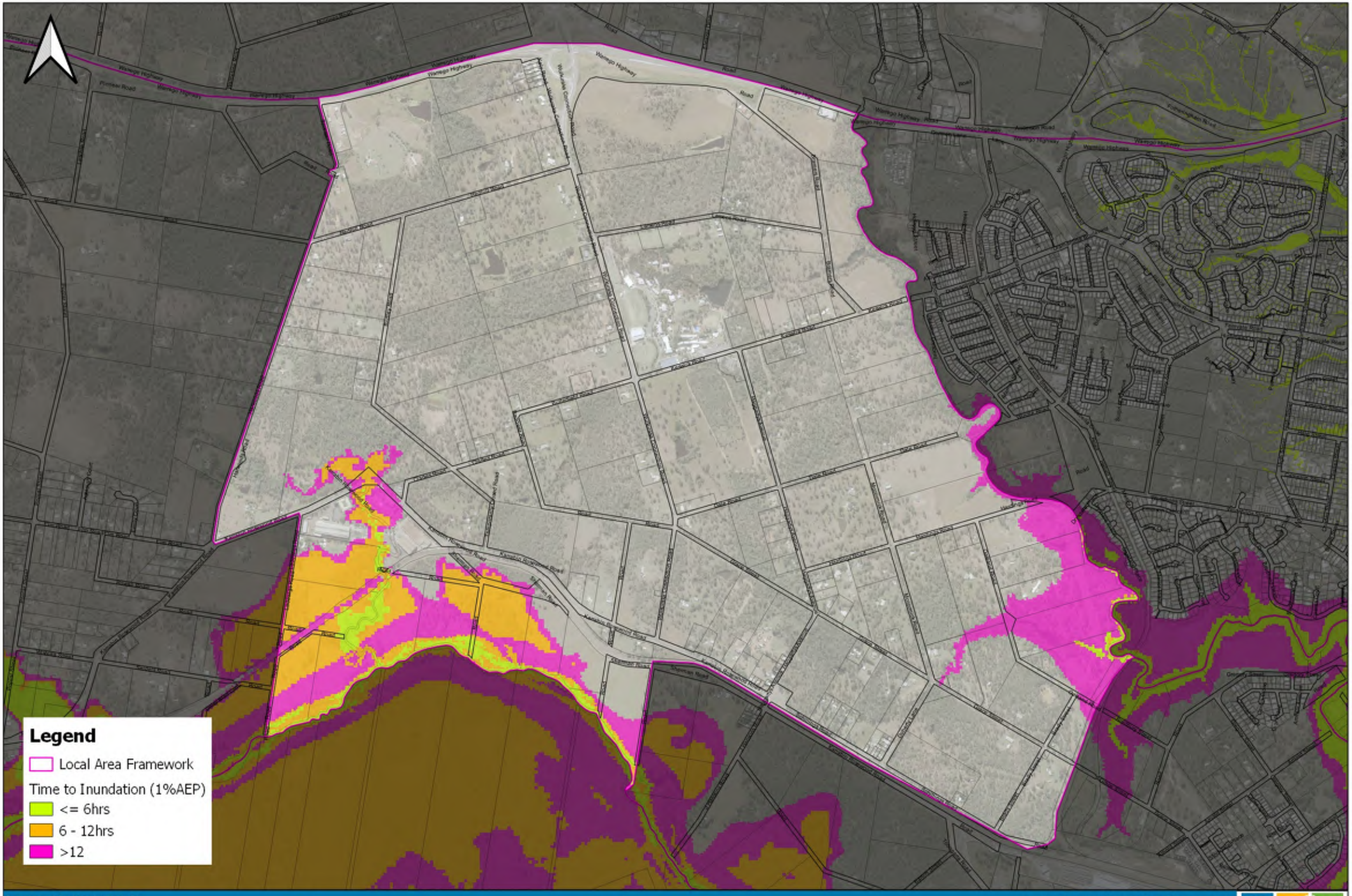


Projection: GDA94/MGA Zone 56
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Imagery Source: Queensland Globe

Ipswich Natural Hazard Risk Assessment

Karalee, Barellan Point, Chuwar Local Area Framework

WATER TECHNOLOGY

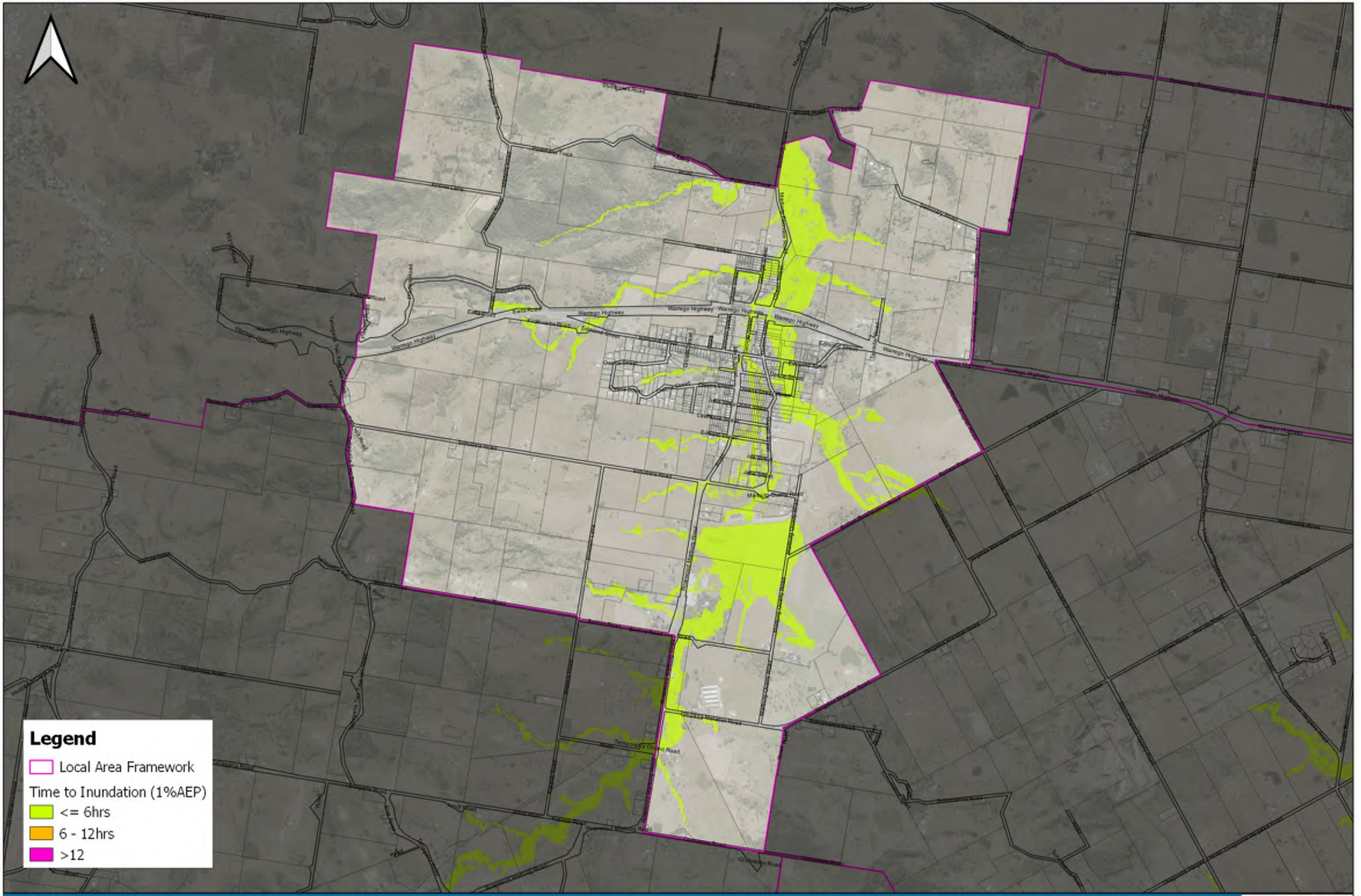


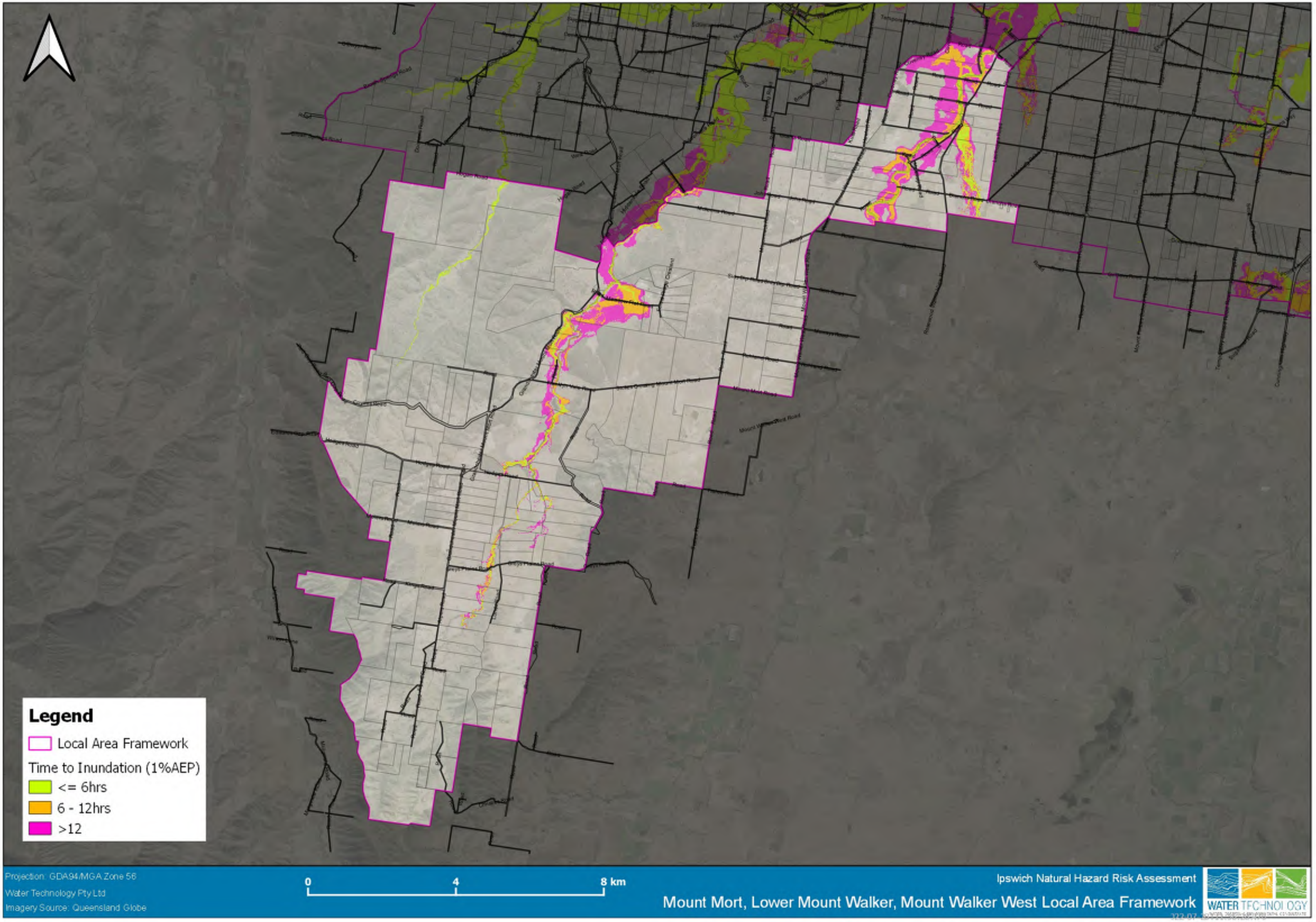
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Water Technology Pty Ltd
Imagery Source: Queensland Globe

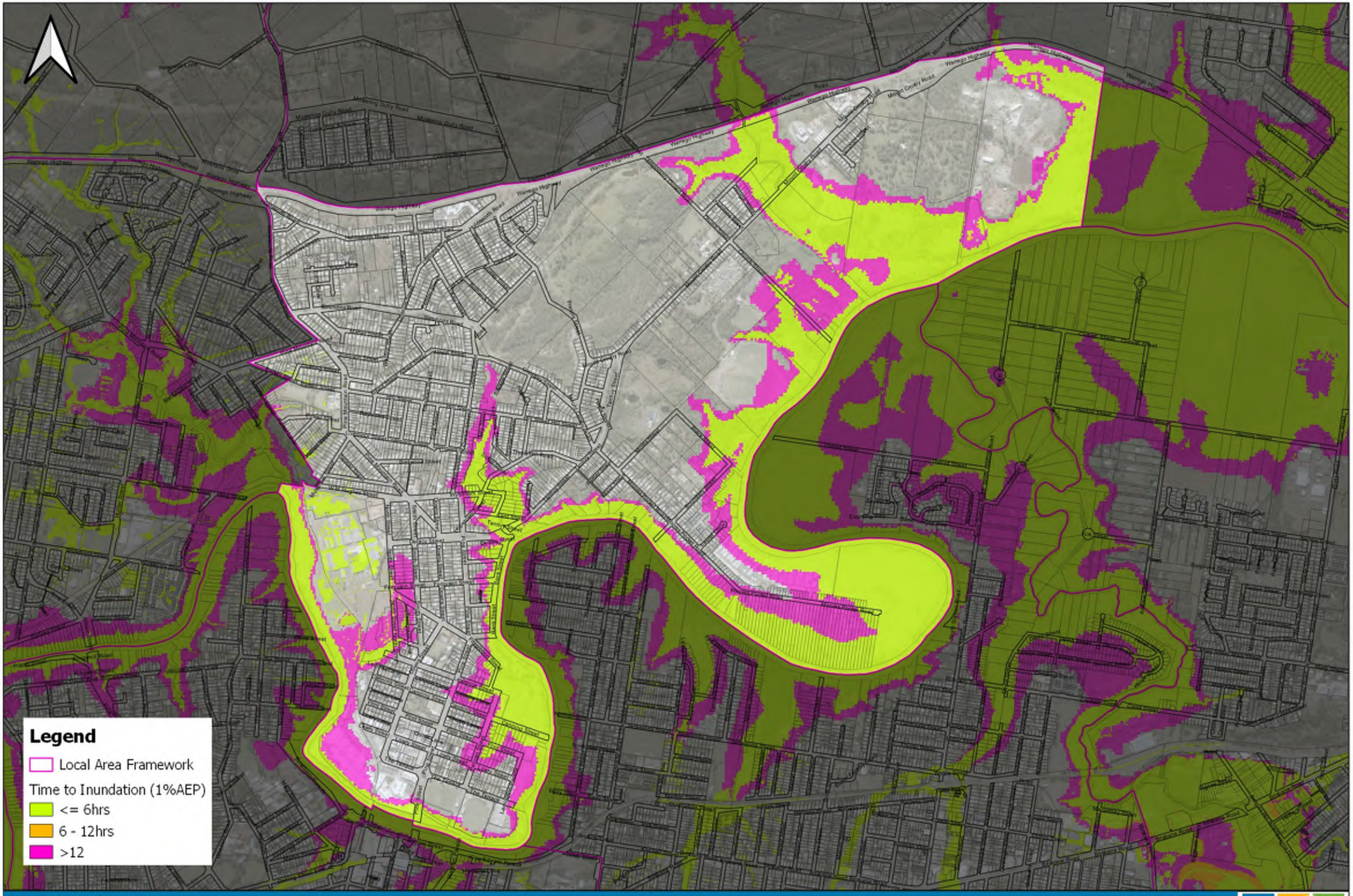
Ipswich Natural Hazard Risk Assessment

Karrabin, Blacksoil (part) Local Area Framework

WATER TECHNOLOGY


Legend
Local Area Framework
Time to Inundation (1%AEP)
<= 6hrs
6 - 12hrs
>12
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
1
2 km
Ipswich Natural Hazard Risk Assessment
Marburg Local Area Framework
WATER TECHNOLOGY


Legend
Local Area Framework
Time to Inundation (1%AEP)
<= 6hrs
6 - 12hrs
>12
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
4
8 km
Ipswich Natural Hazard Risk Assessment
Mount Mort, Lower Mount Walker, Mount Walker West Local Area Framework
WATER TECHNOLOGY


Legend
Local Area Framework
Time to Inundation (1%AEP)
<= 6hrs
6 - 12hrs
>12
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
0.8
1.6 km
Ipswich Natural Hazard Risk Assessment
North Ipswich Local Area Framework
WATER TECHNOLOGY

Legend

- Local Area Framework

Time to Inundation (1%AEP)

- <= 6hrs
- 6 - 12hrs
- >12

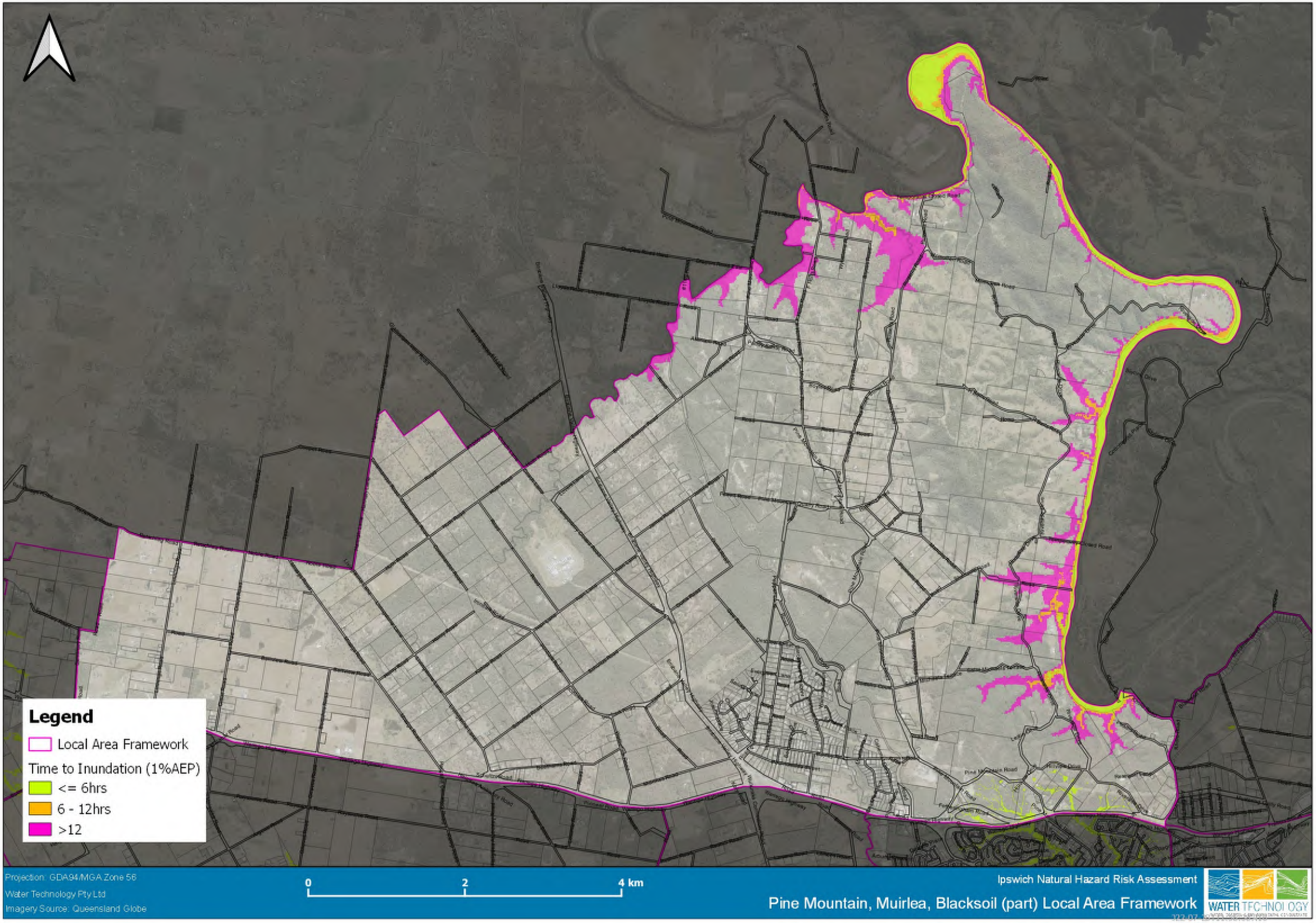
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe

0 0.9 1.8 km

Ipswich Natural Hazard Risk Assessment

One Mile, Leichhardt, Wulkuraka Local Area Framework

WATER TECHNOLOGY

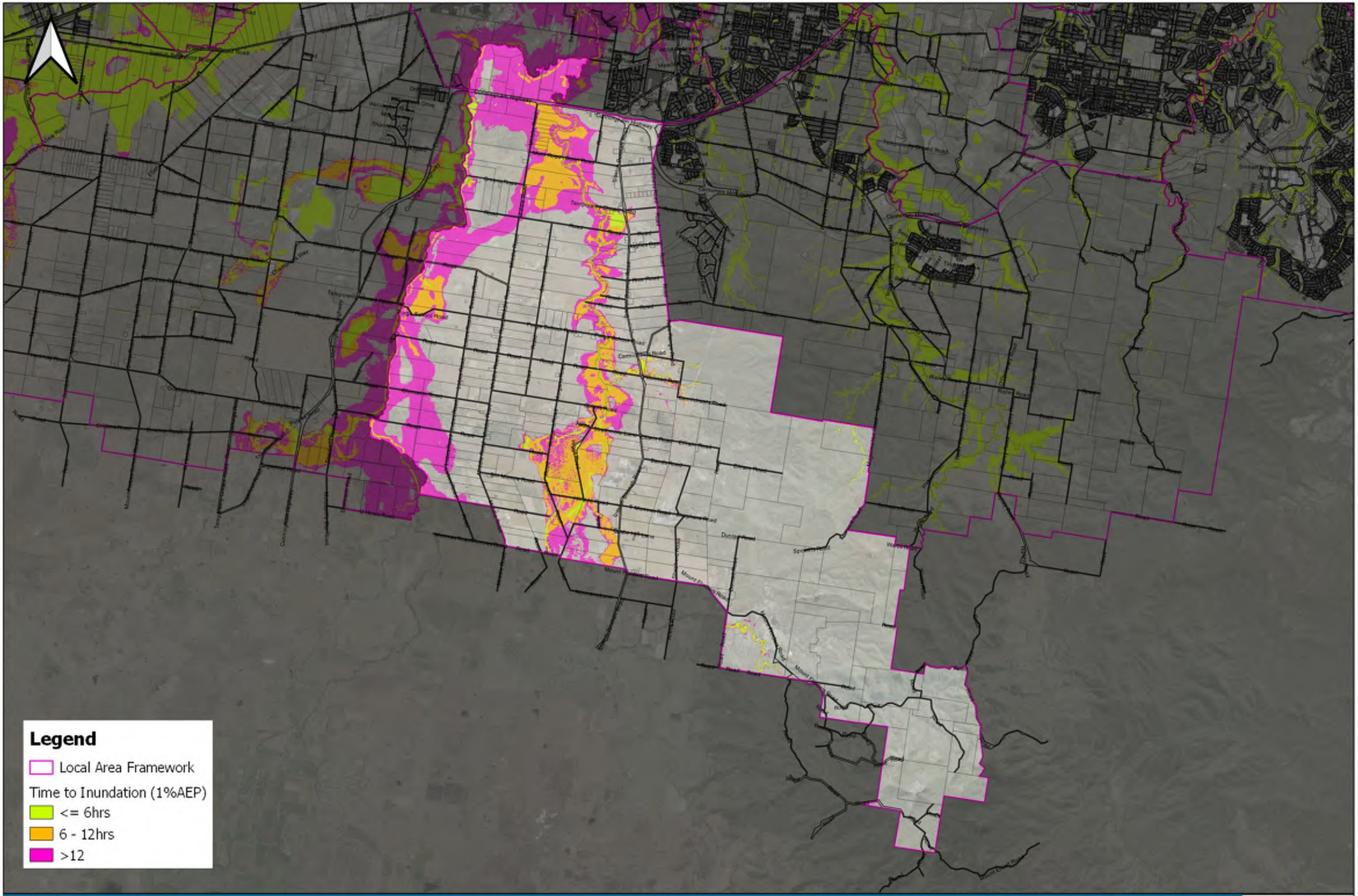


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Imagery Source: Queensland Globe

Ipswich Natural Hazard Risk Assessment

Pine Mountain, Muirlea, Blacksoil (part) Local Area Framework

WATER TECHNOLOGY

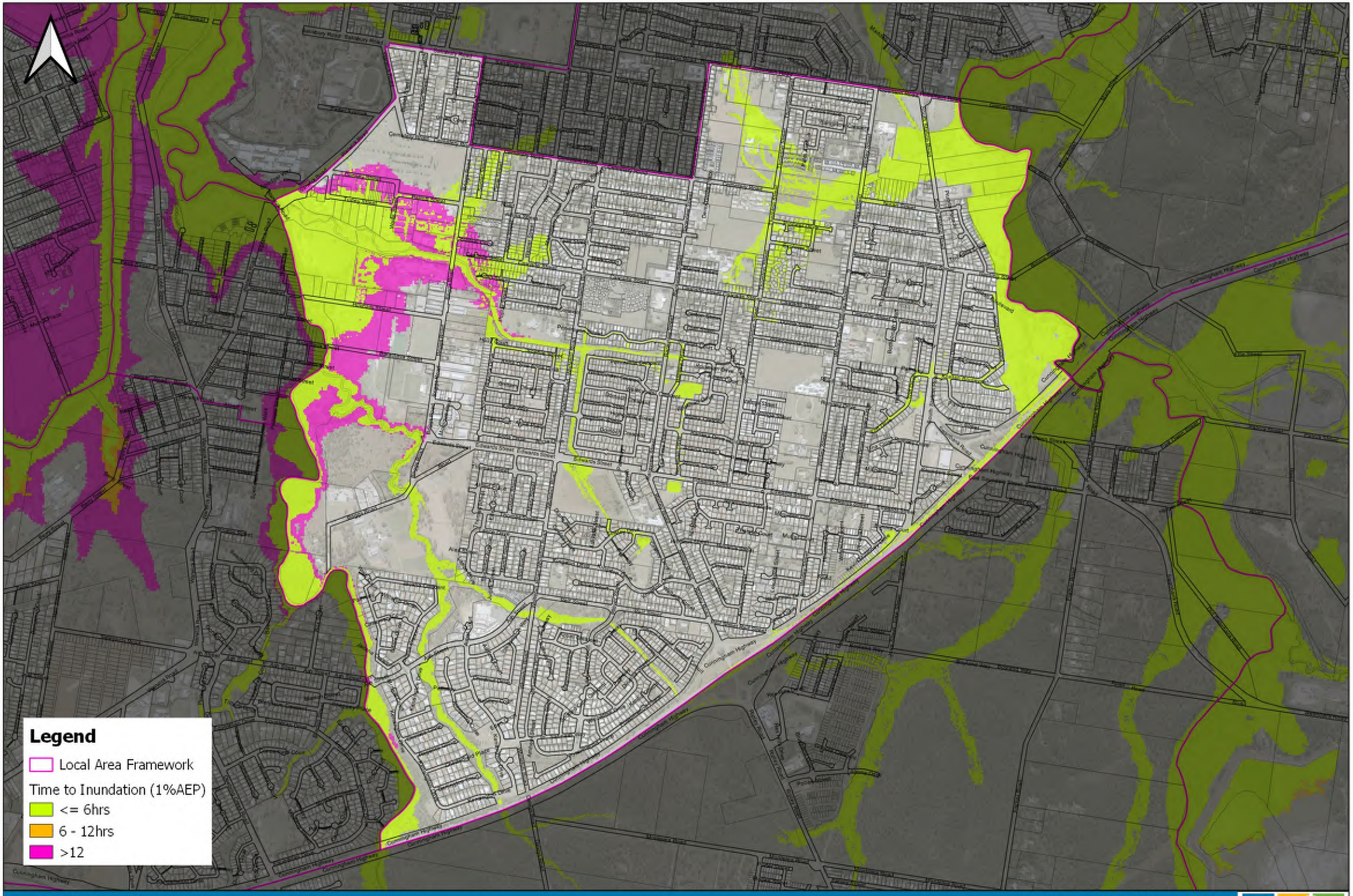


Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe

Ipswich Natural Hazard Risk Assessment

Purga (part), Goolman, Peak Crossing Local Area Framework

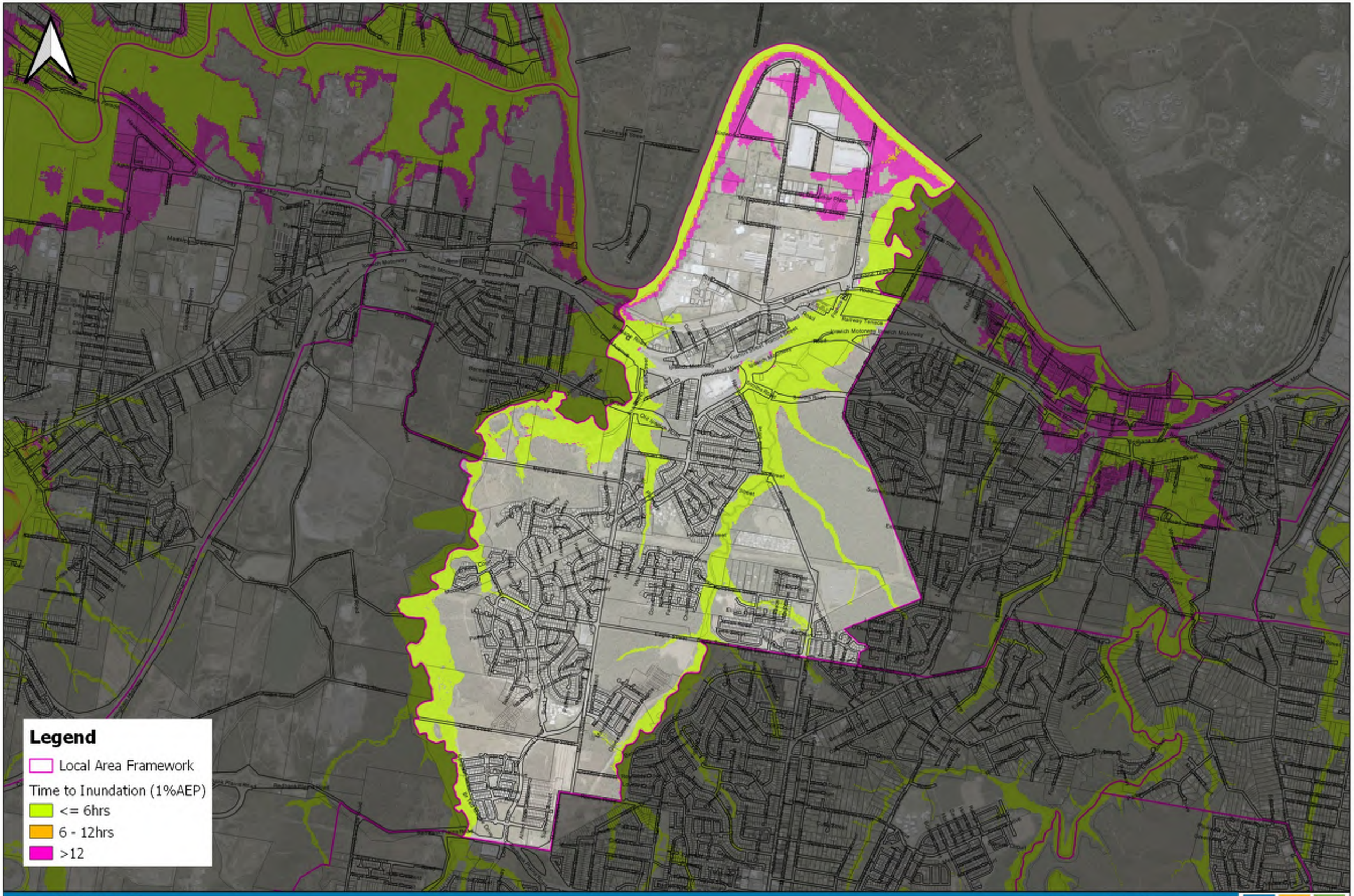
WATER TECHNOLOGY

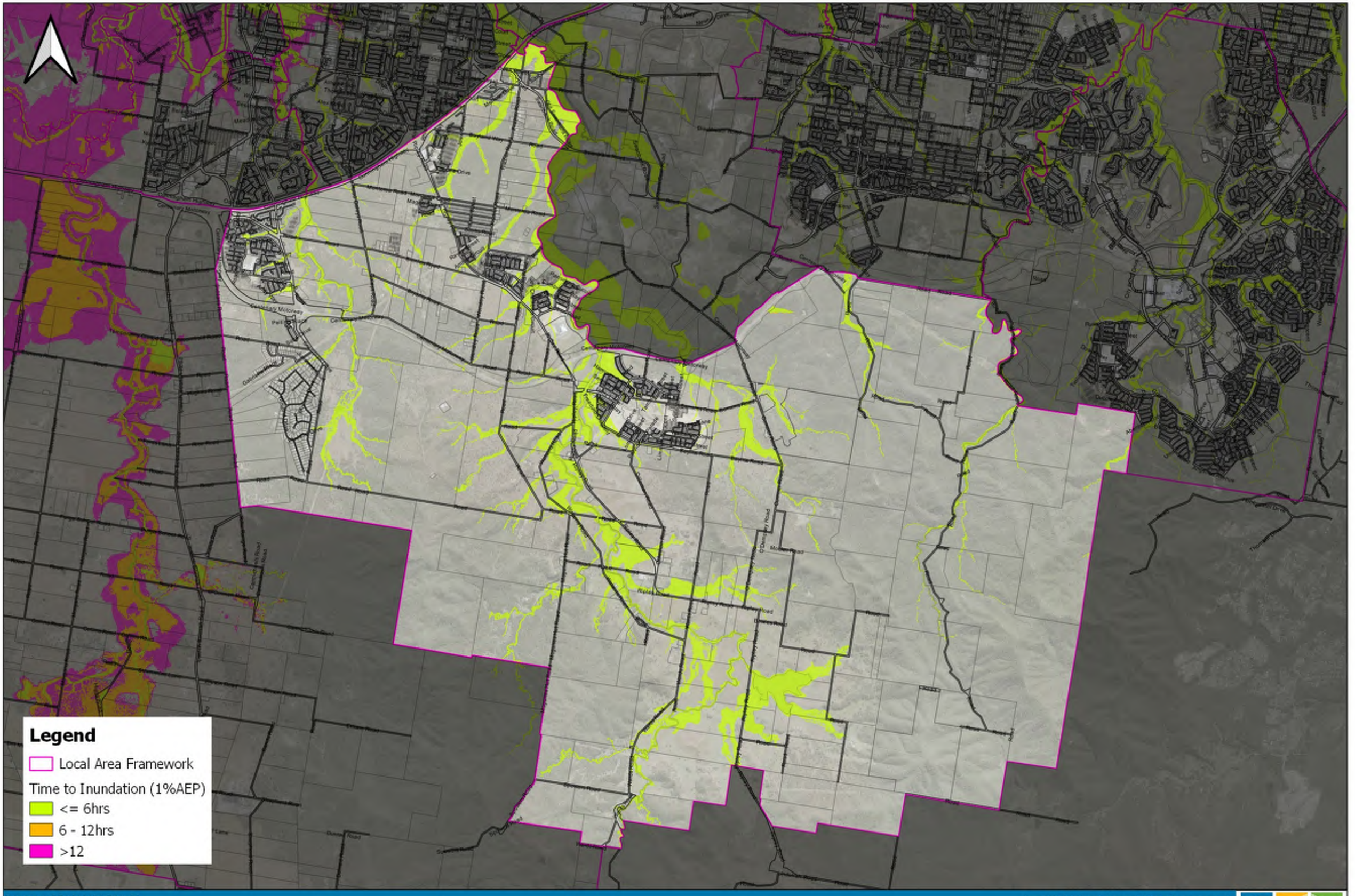


Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe

Ipswich Natural Hazard Risk Assessment

Raceview, Flinders View Local Area Framework


Legend
Local Area Framework
Time to Inundation (1%AEP)
<= 6hrs
6 - 12hrs
>12
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
1
2 km
Ipswich Natural Hazard Risk Assessment
Redbank, Collingwood Park Local Area Framework
WATER TECHNOLOGY

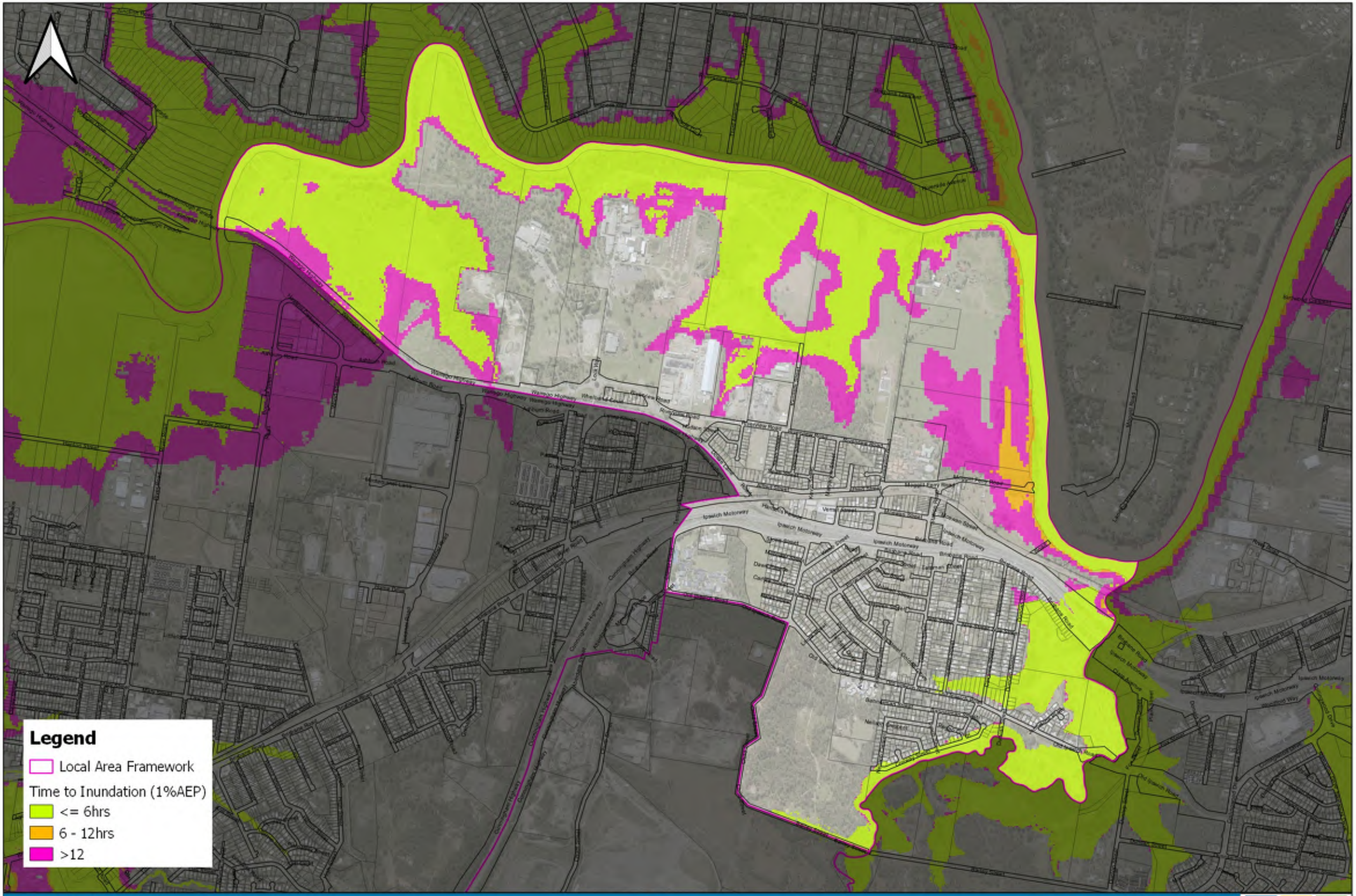


Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe

Ipswich Natural Hazard Risk Assessment

Ripley Valley Local Area Framework

WATER TECHNOLOGY



Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe

Ipswich Natural Hazard Risk Assessment
Riverview Local Area Framework

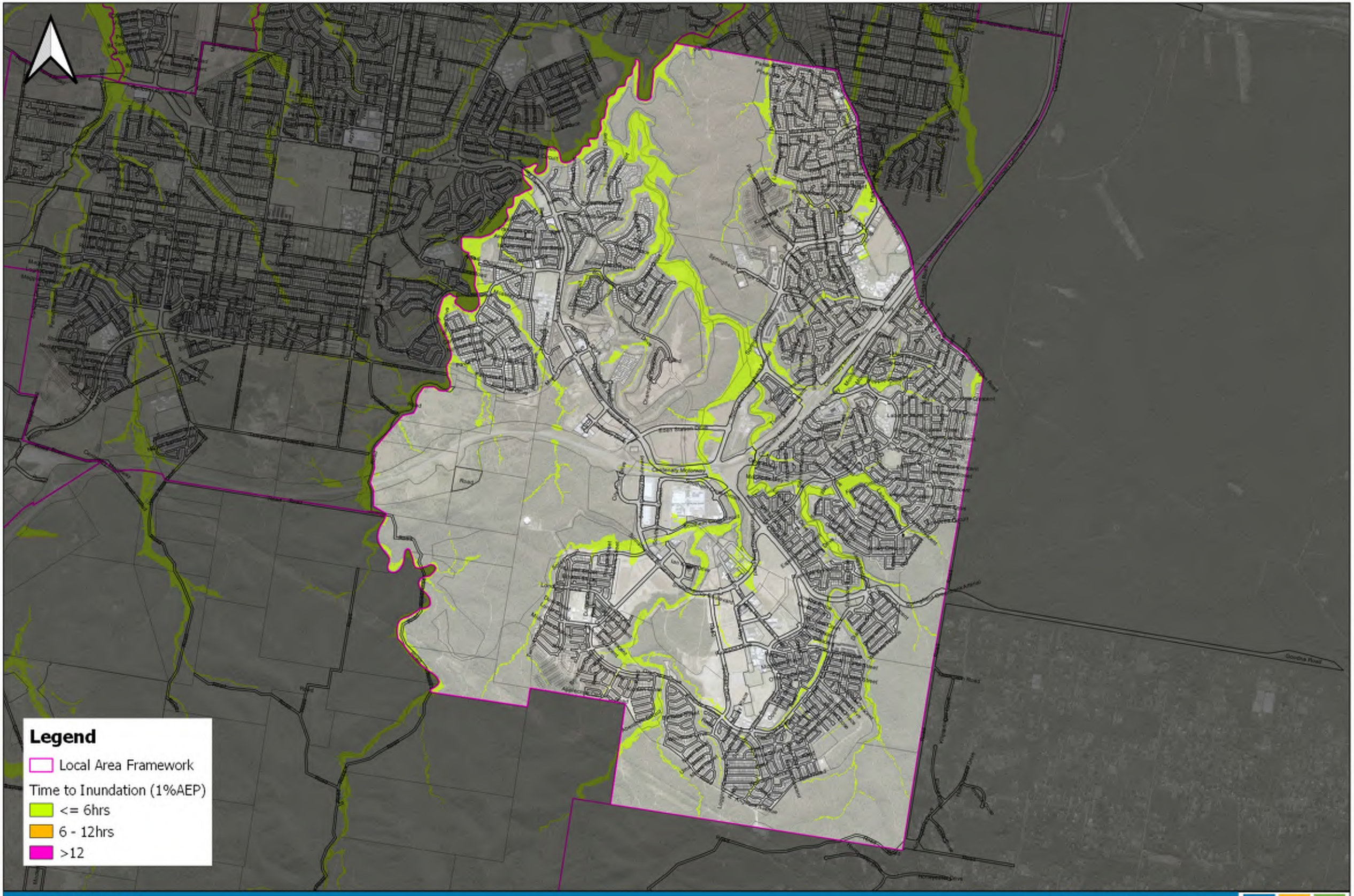


Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe

Ipswich Natural Hazard Risk Assessment

Rosewood Local Area Framework

WATER TECHNOLOGY



Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe

Ipswich Natural Hazard Risk Assessment

Springfield Estate Local Area Framework

WATER TECHNOLOGY

Legend

- Local Area Framework

Time to Inundation (1%AEP)

- <= 6hrs
- 6 - 12hrs
- >12

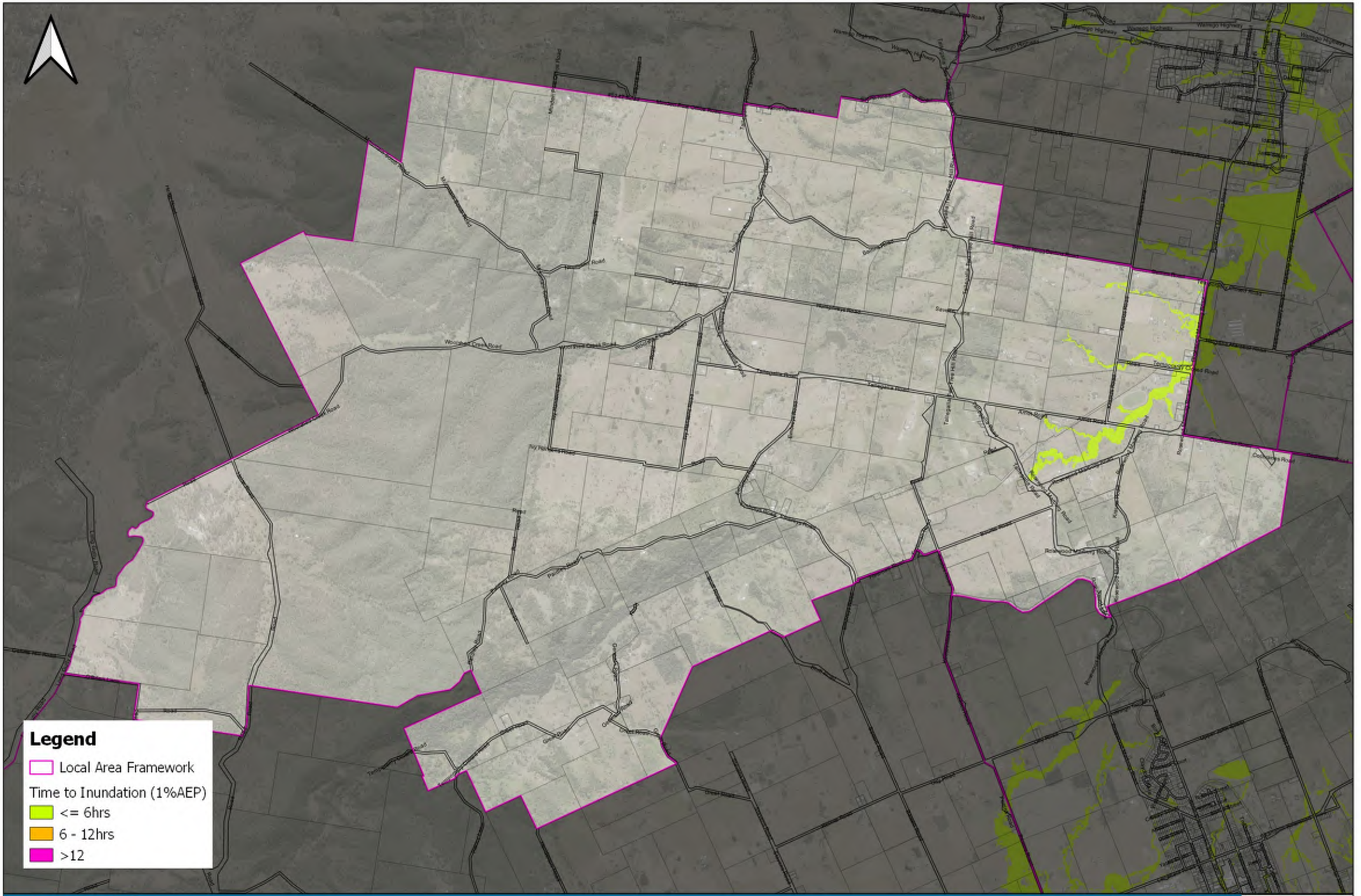
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Water Technology Pty Ltd
Imagery Source: Queensland Globe

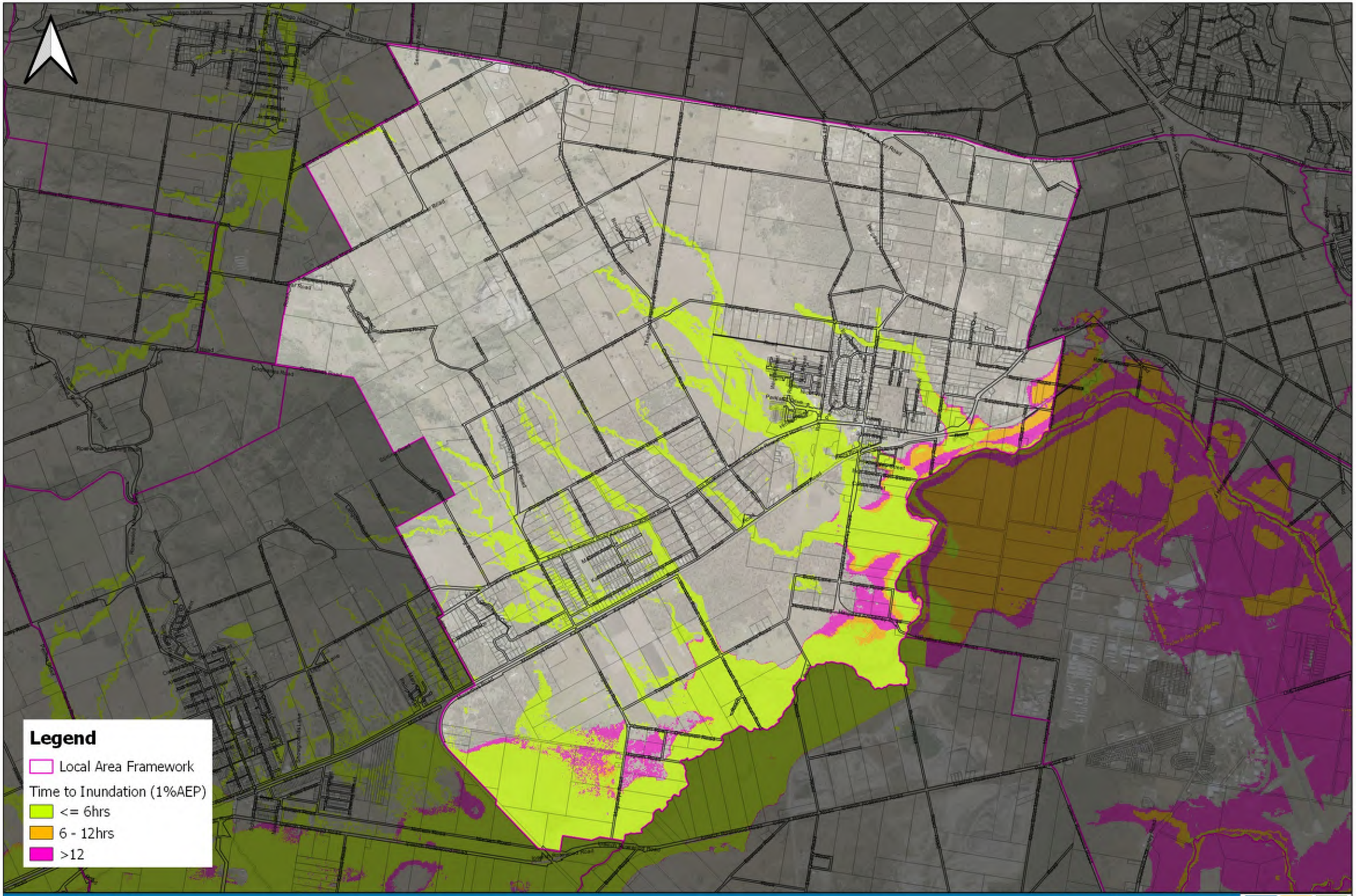
0 1 2 km

Ipswich Natural Hazard Risk Assessment

Swanbank, New Chum Local Area Framework

WATER TECHNOLOGY


Legend
Local Area Framework
Time to Inundation (1%AEP)
<= 6hrs
6 - 12hrs
>12
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
1
2 km
Ipswich Natural Hazard Risk Assessment
Tallegalla, Woolshed, The Bluff Local Area Framework
WATER TECHNOLOGY


Legend
Local Area Framework
Time to Inundation (1%AEP)
<= 6hrs
6 - 12hrs
>12
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
1
2 km
Ipswich Natural Hazard Risk Assessment
Walloon, Thagoona , Haigslea (part) Local Area Framework
WATER TECHNOLOGY



Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe

0 0.6 1.2 km

Ipswich Natural Hazard Risk Assessment

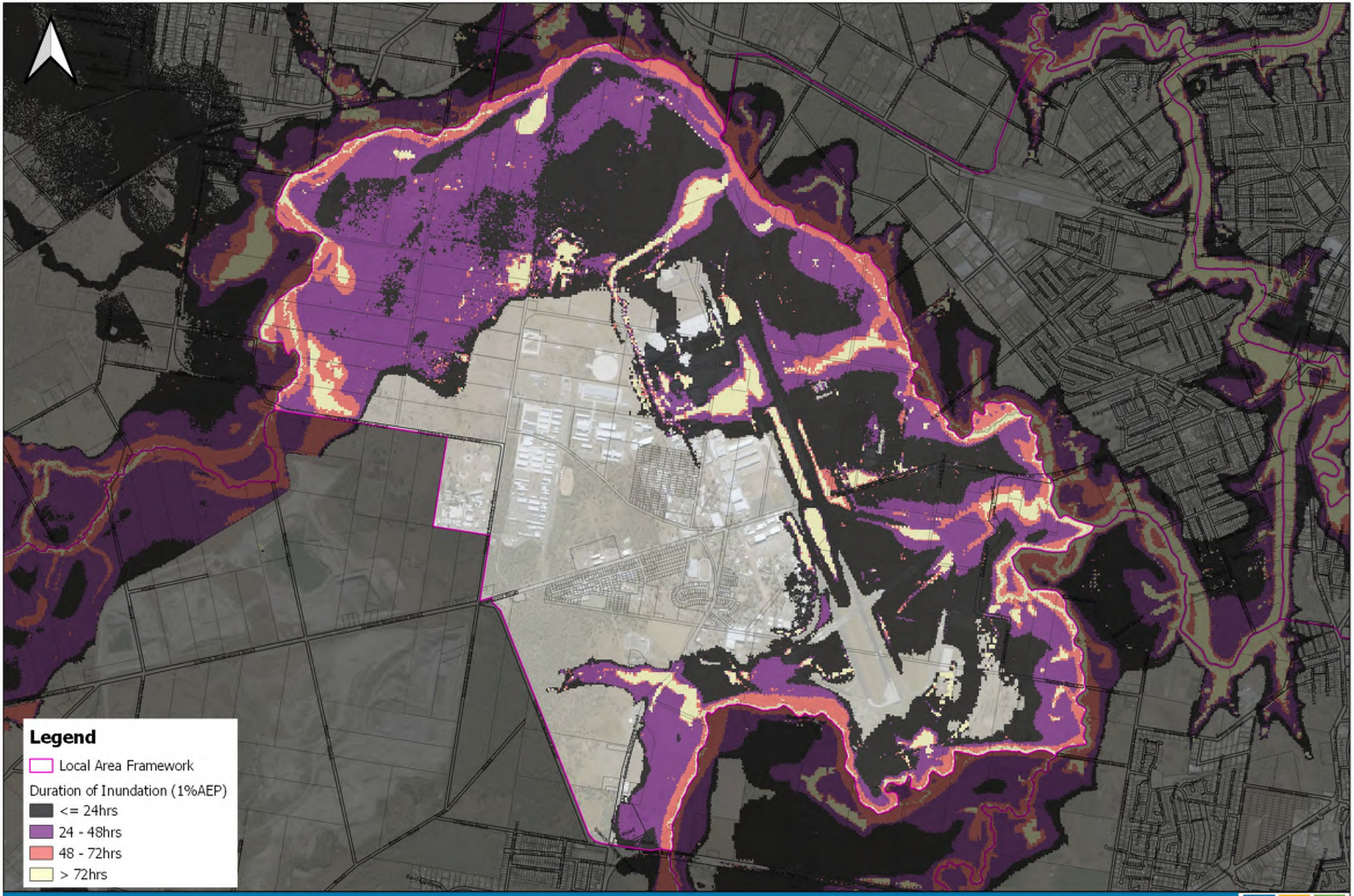
Yamanto Local Area Framework

WATER TECHNOLOGY

WATER TECHNOLOGY
WATER, COASTAL & ENVIRONMENTAL CONSULTANTS

APPENDIX D
FLOOD RISK MAPPING: DURATION OF INUNDATION BY LAF



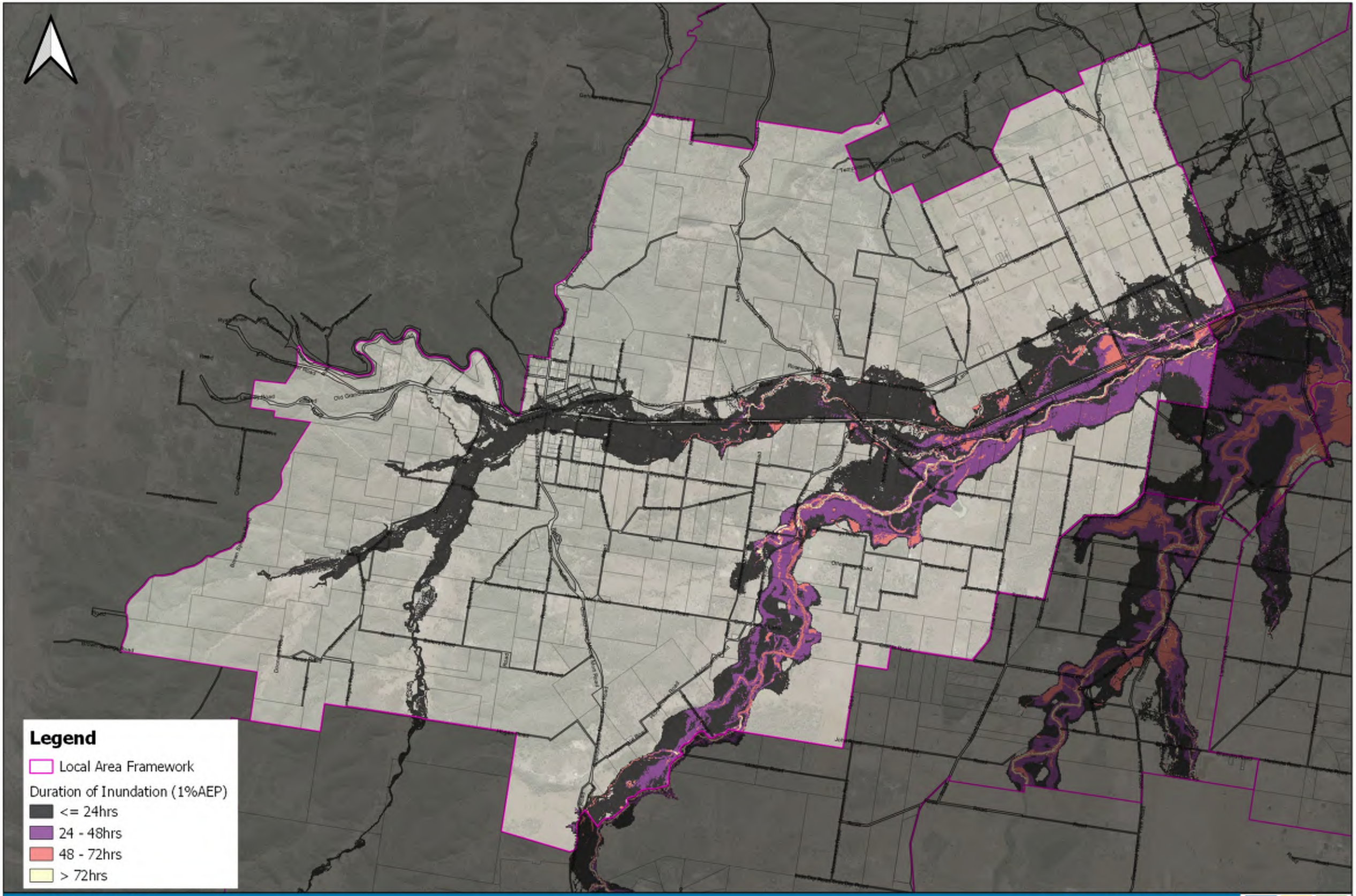


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Water Technology Pty Ltd
Imagery Source: Queensland Globe

Ipswich Natural Hazard Risk Assessment

Amberley Local Area Framework

WATER TECHNOLOGY



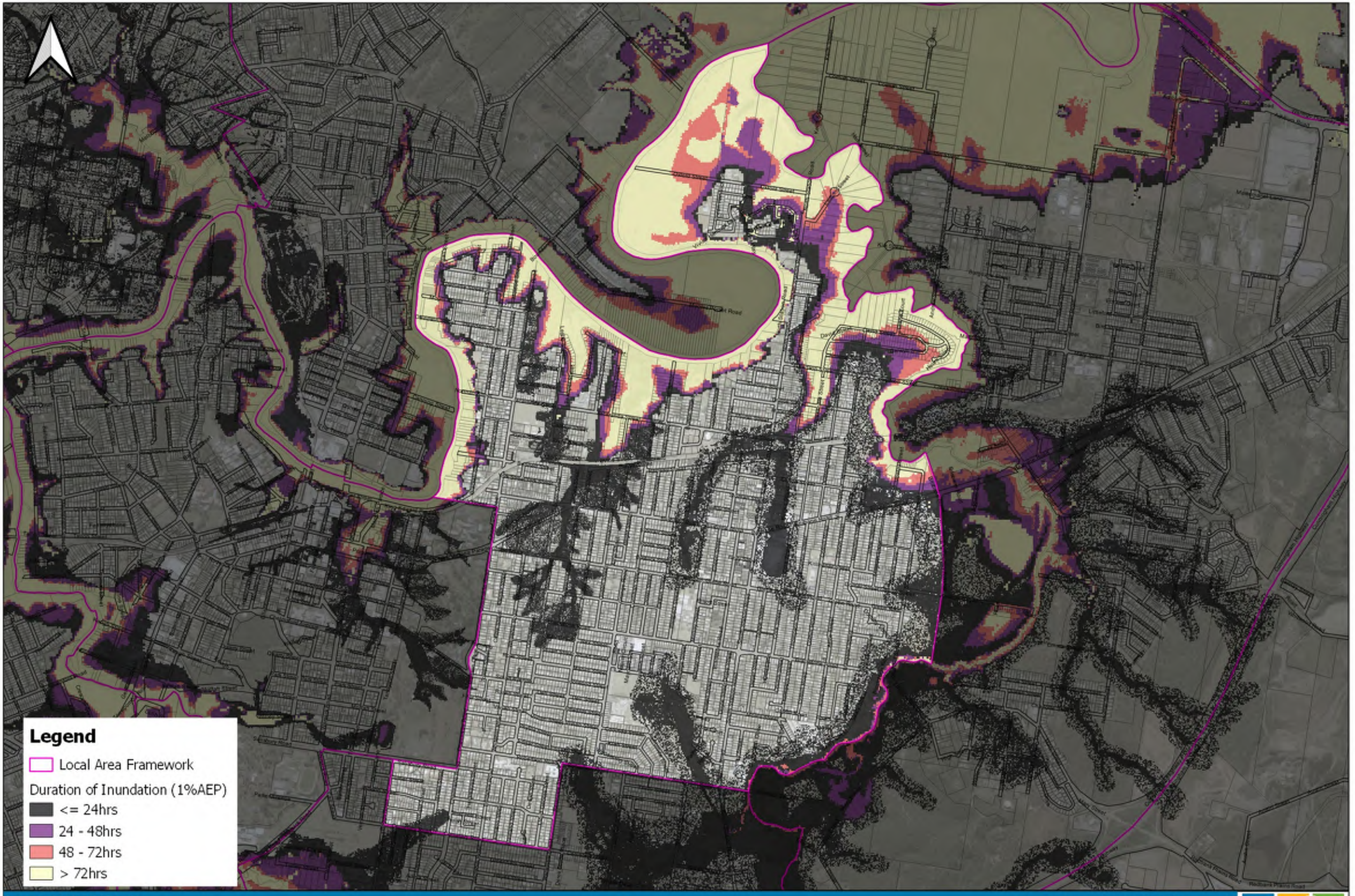
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Water Technology Pty Ltd
Imagery Source: Queensland Globe

Ipswich Natural Hazard Risk Assessment

Ashfield, Lanefield, Calvert, Grandchester Local Area Framework

WATER TECHNOLOGY


Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
1
2 km
Ipswich Natural Hazard Risk Assessment
Bellbird Park, Redbank Plains, Augustine Heights Local Area Framework
WATER TECHNOLOGY


Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
1
2 km
Ipswich Natural Hazard Risk Assessment
Booval, East Ipswich, North Booval Local Area Framework
WATER TECHNOLOGY

Legend

- Local Area Framework

Duration of Inundation (1%AEP)

- <= 24hrs
- 24 - 48hrs
- 48 - 72hrs
- > 72hrs

Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe

0 0.5 1 km

Ipswich Natural Hazard Risk Assessment

Brassall Local Area Framework

WATER TECHNOLOGY

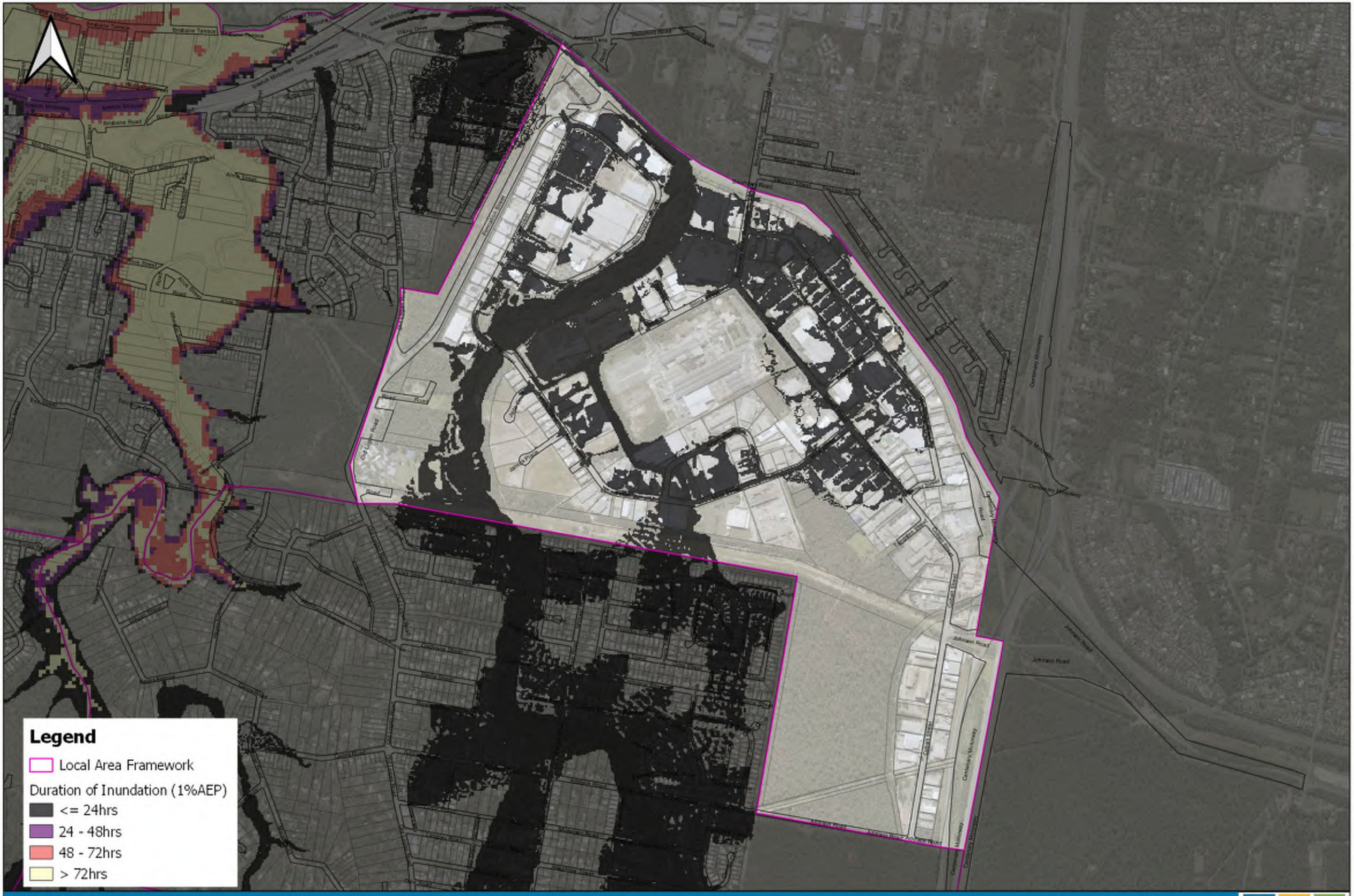


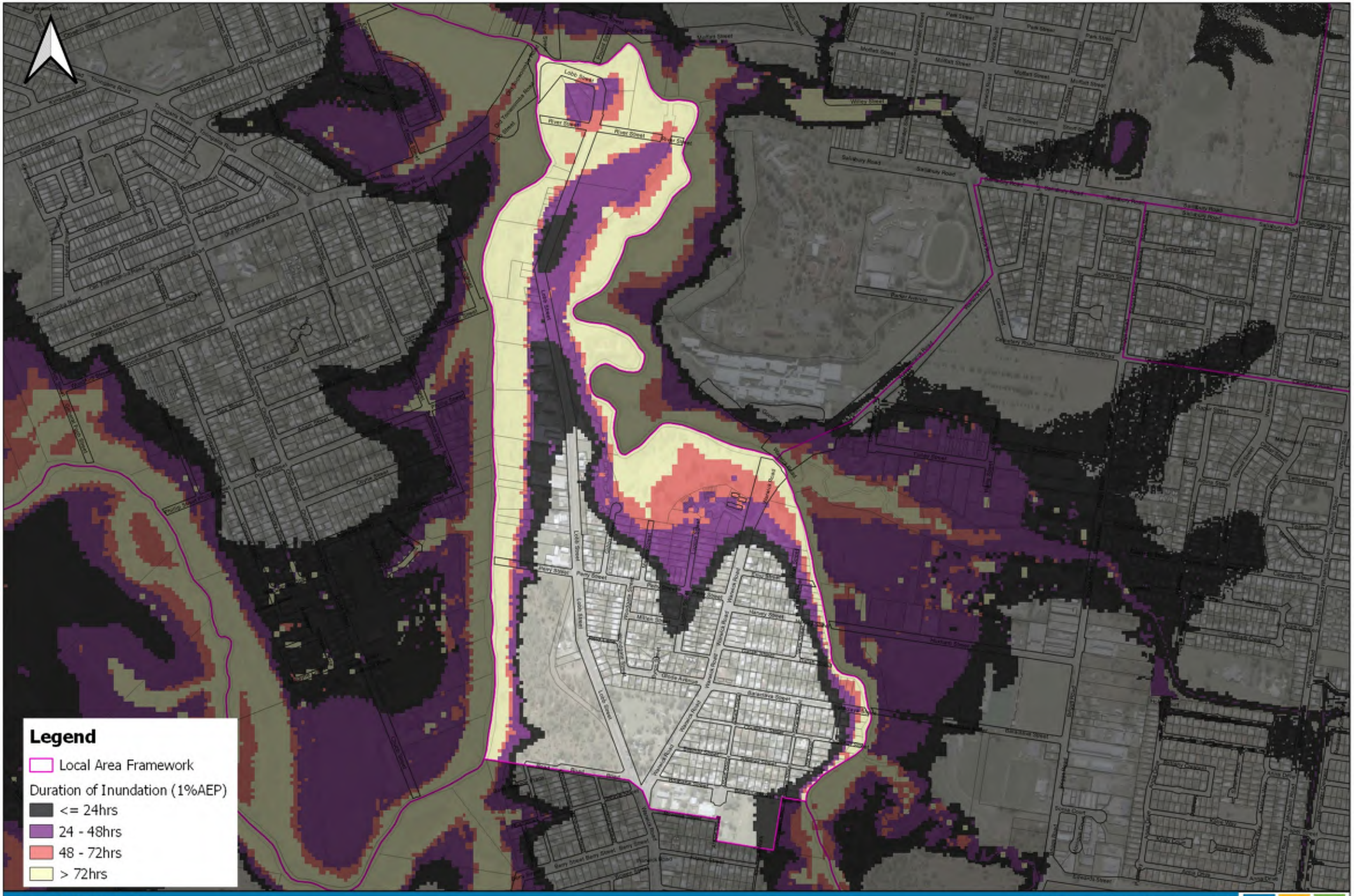
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Water Technology Pty Ltd
Imagery Source: Queensland Globe

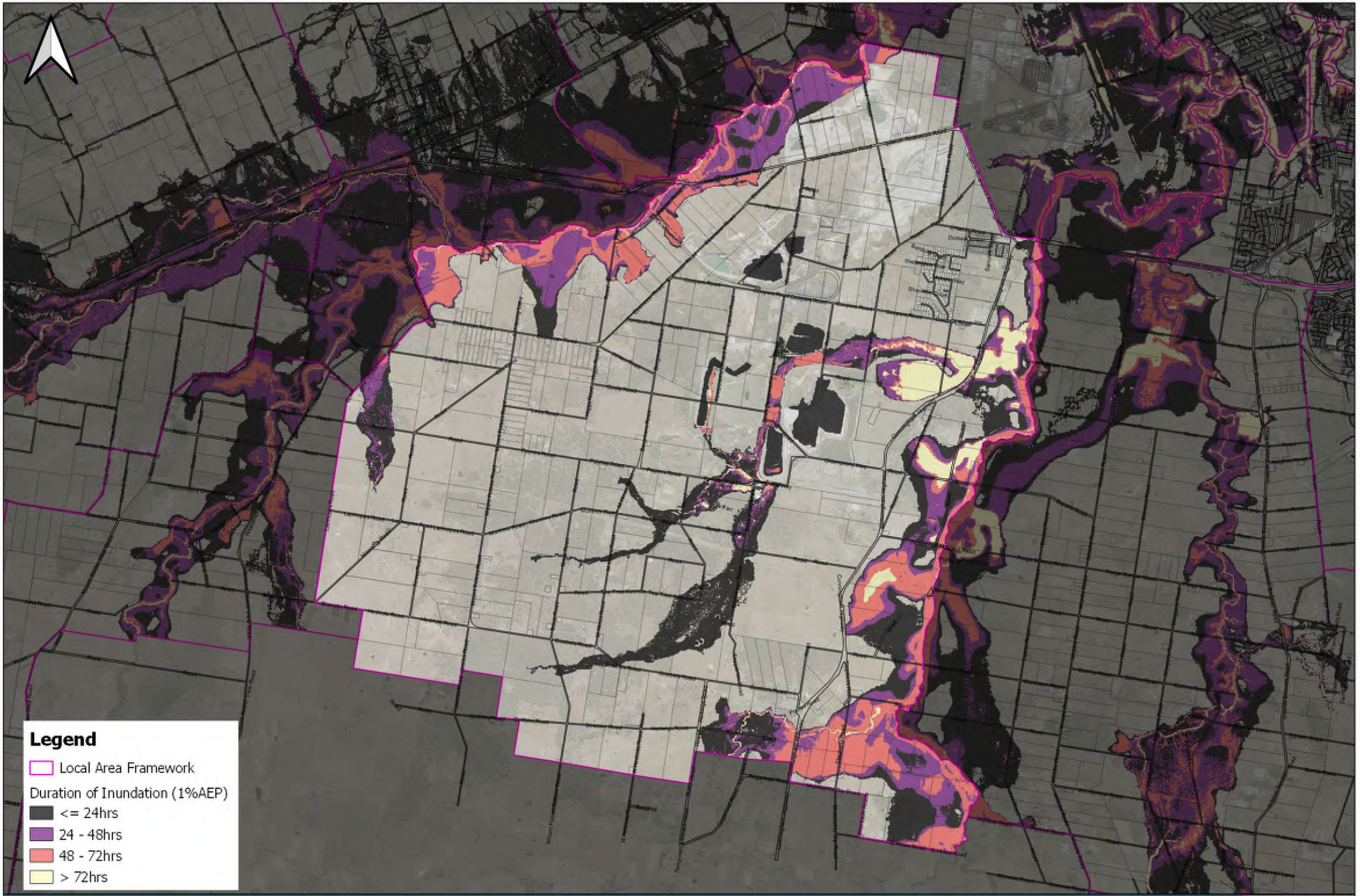
Ipswich Natural Hazard Risk Assessment

Bundamba, Blackstone, Ebbw Vale, Dinmore Local Area Framework


Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
0.7
1.4 km
Ipswich Natural Hazard Risk Assessment
Camira (part) Local Area Framework
WATER TECHNOLOGY


Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
0.6
1.2 km
Ipswich Natural Hazard Risk Assessment
Carole Park Local Area Framework
WATER TECHNOLOGY

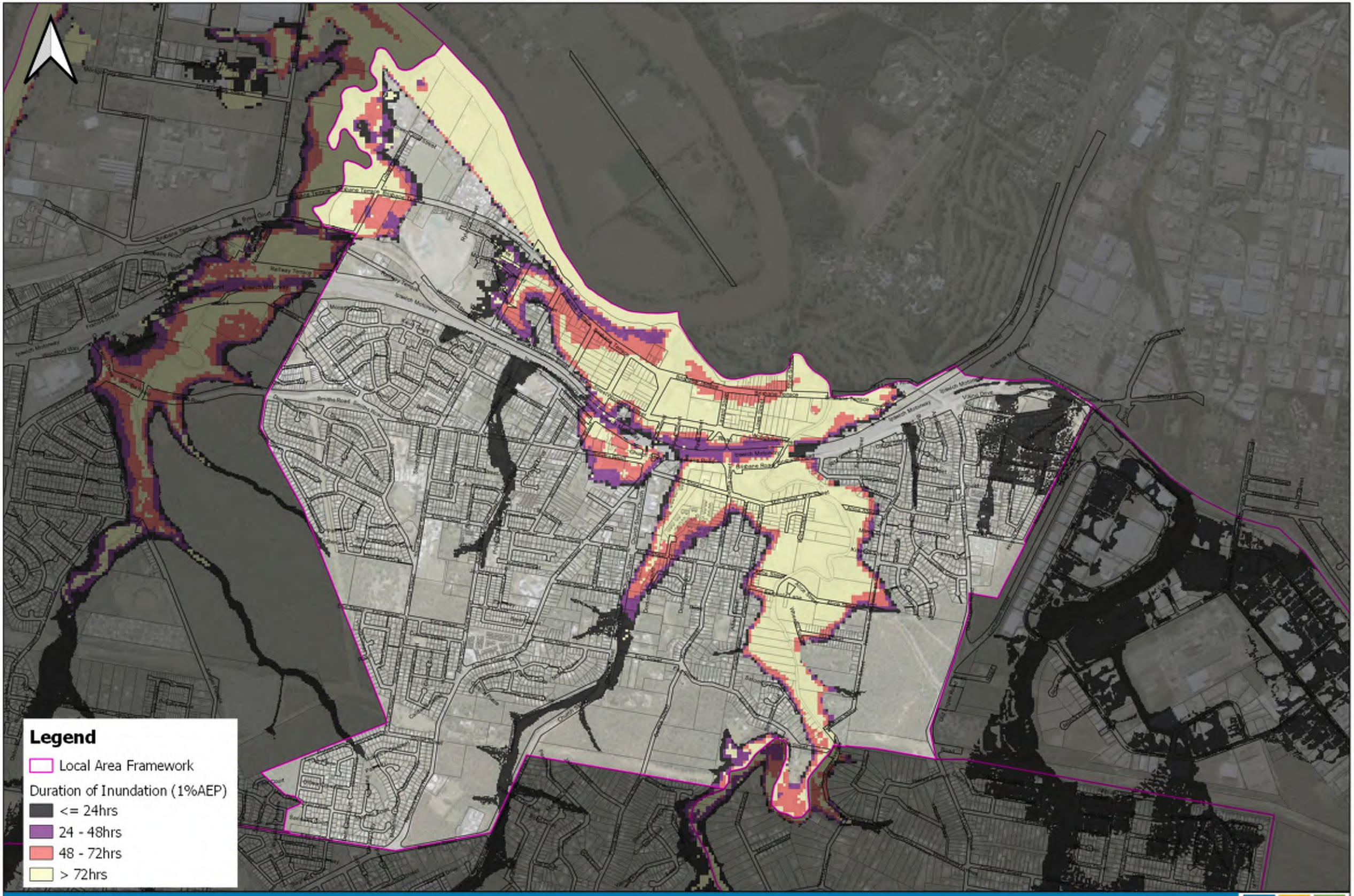

Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
0.4
0.8 km
Ipswich Natural Hazard Risk Assessment
Churchill Local Area Framework
WATER TECHNOLOGY

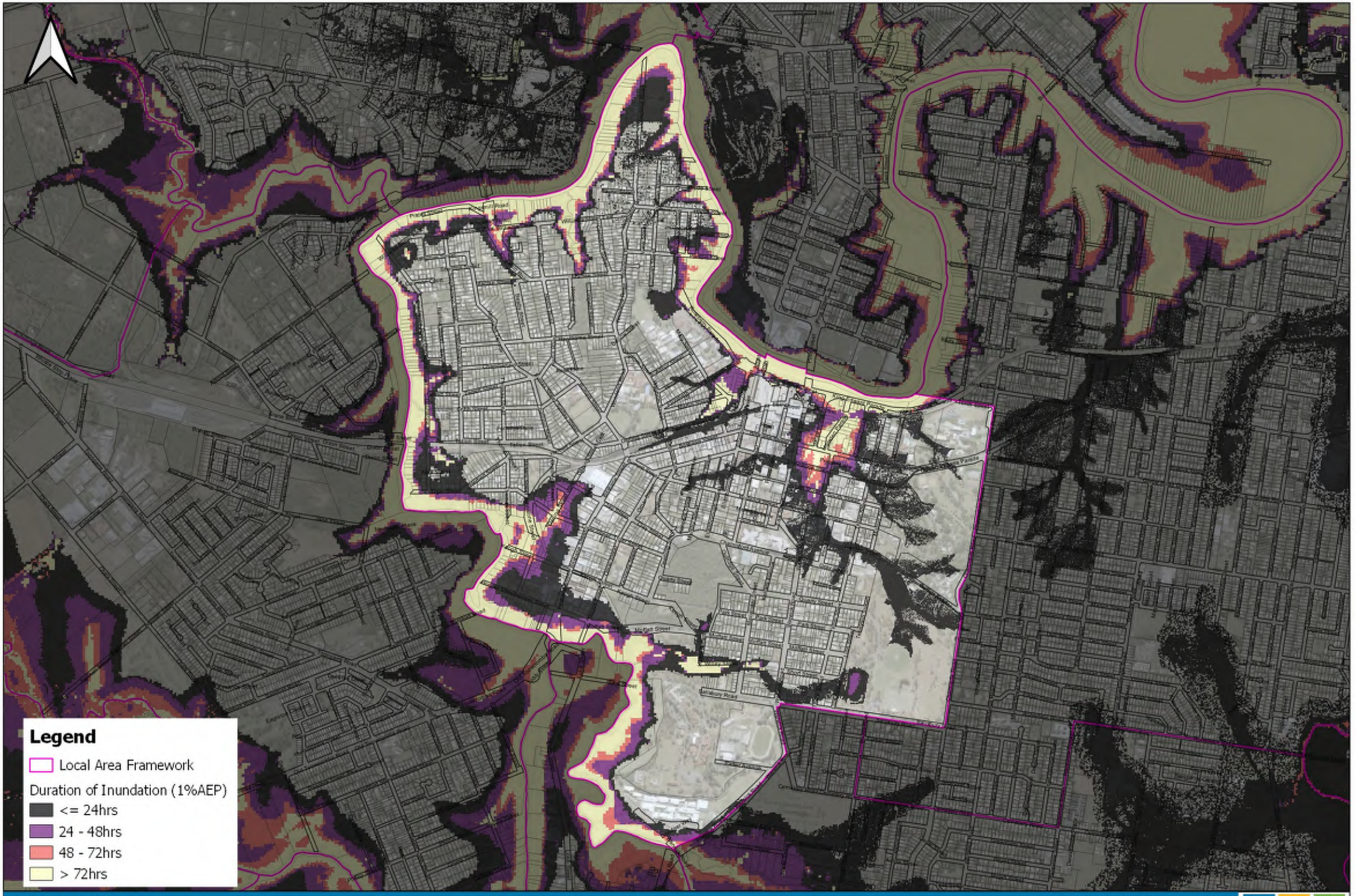


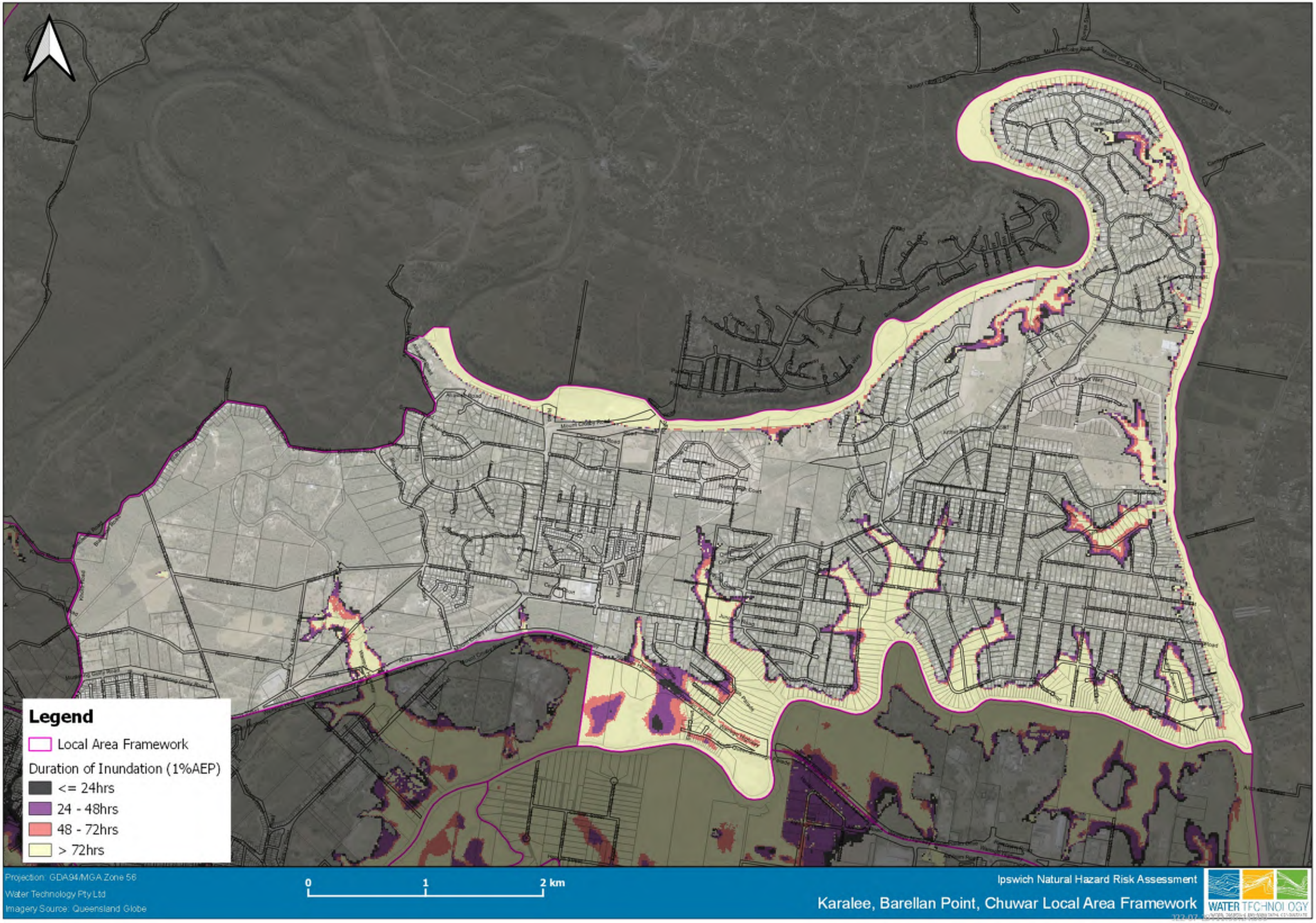
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Water Technology Pty Ltd
Imagery Source: Queensland Globe

Ipswich Natural Hazard Risk Assessment

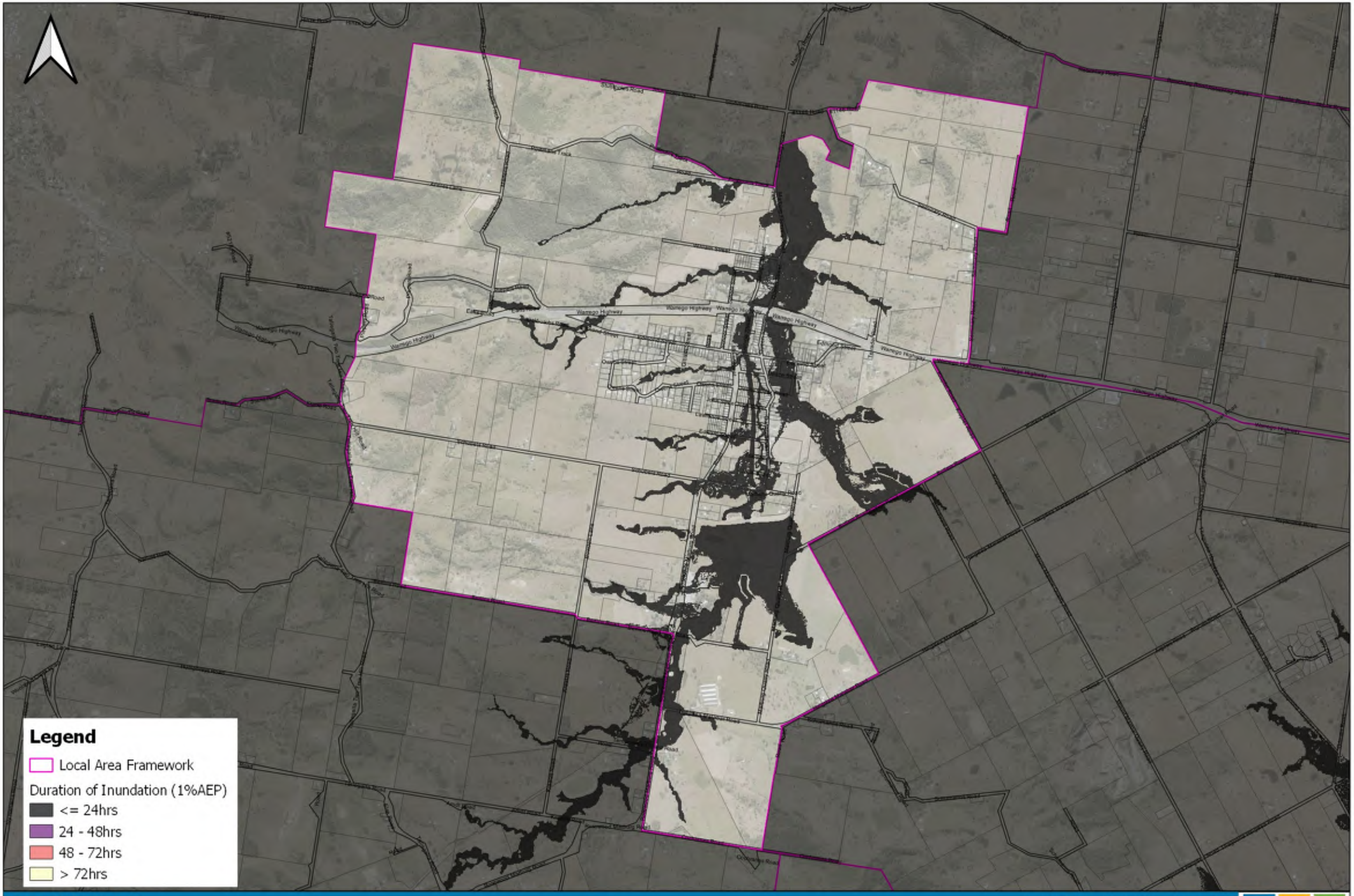
Ebenezer, Willowbank, Jeebropilly, Mount Forbes Local Area Framework

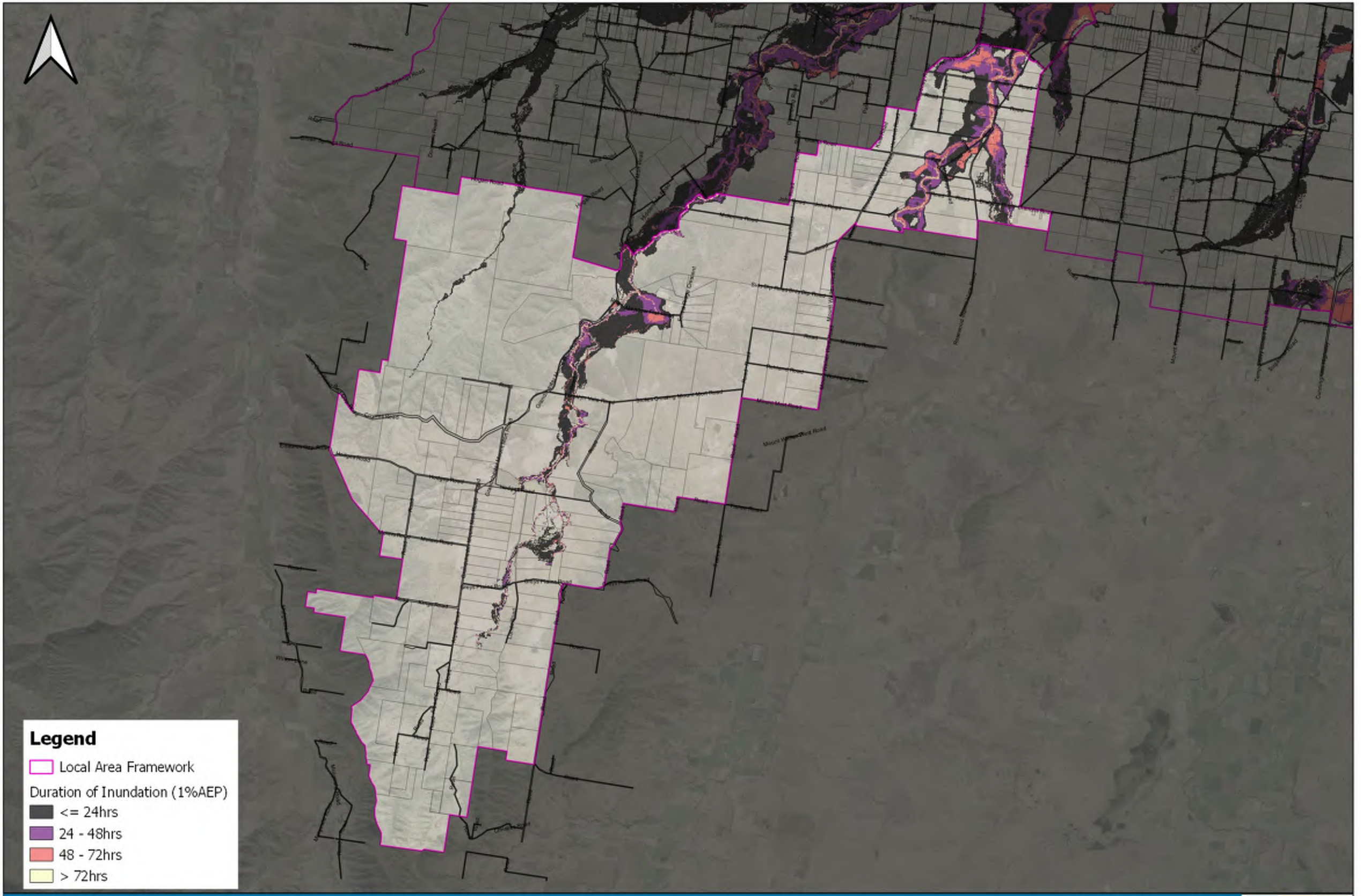

Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
0.8
1.6 km
Ipswich Natural Hazard Risk Assessment
Goodna, Gailes, Camira (part) Local Area Framework
WATER TECHNOLOGY

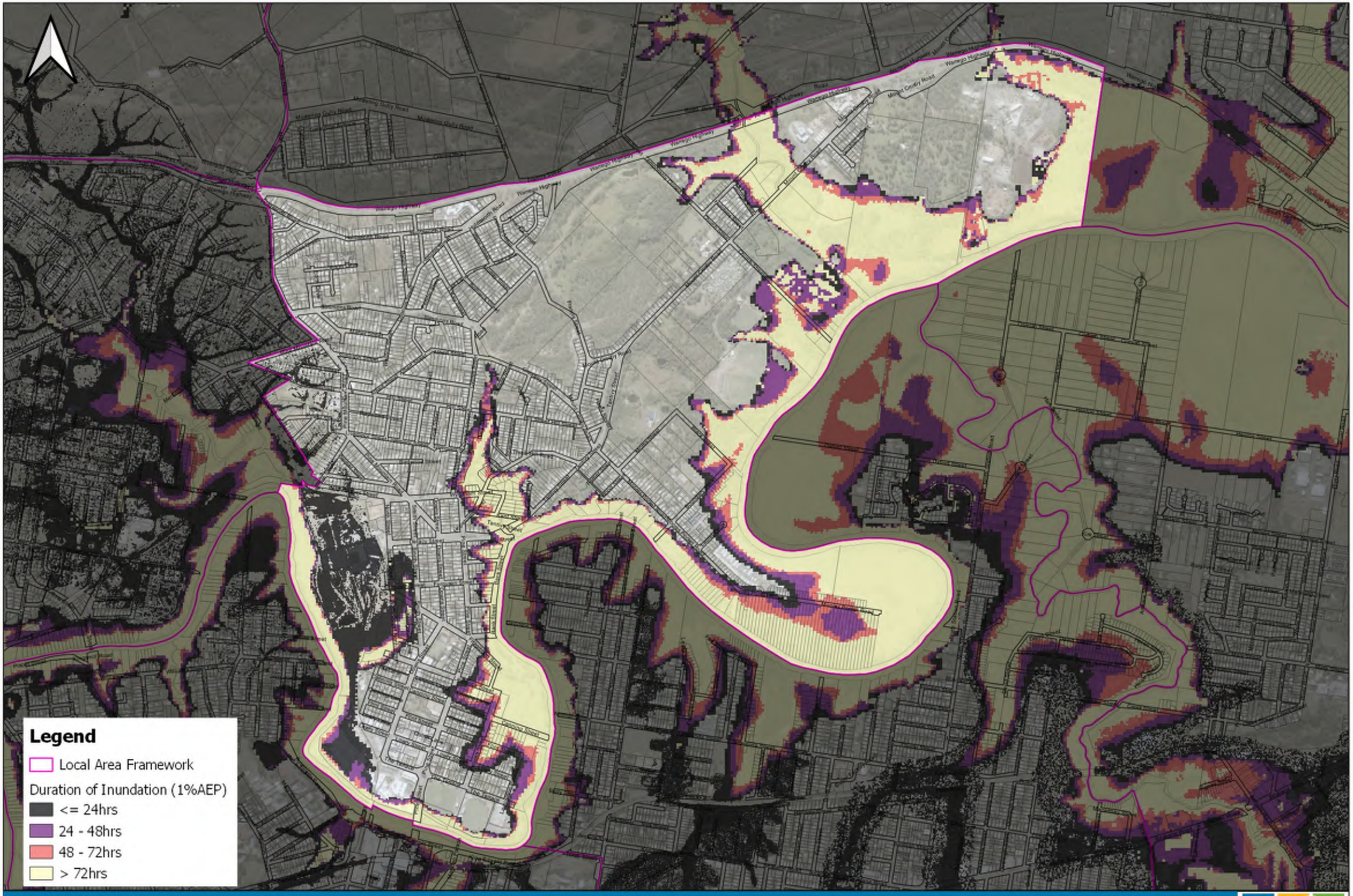

Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
0.8
1.6 km
Ipswich Natural Hazard Risk Assessment
Ipswich Central Local Area Framework
WATER TECHNOLOGY

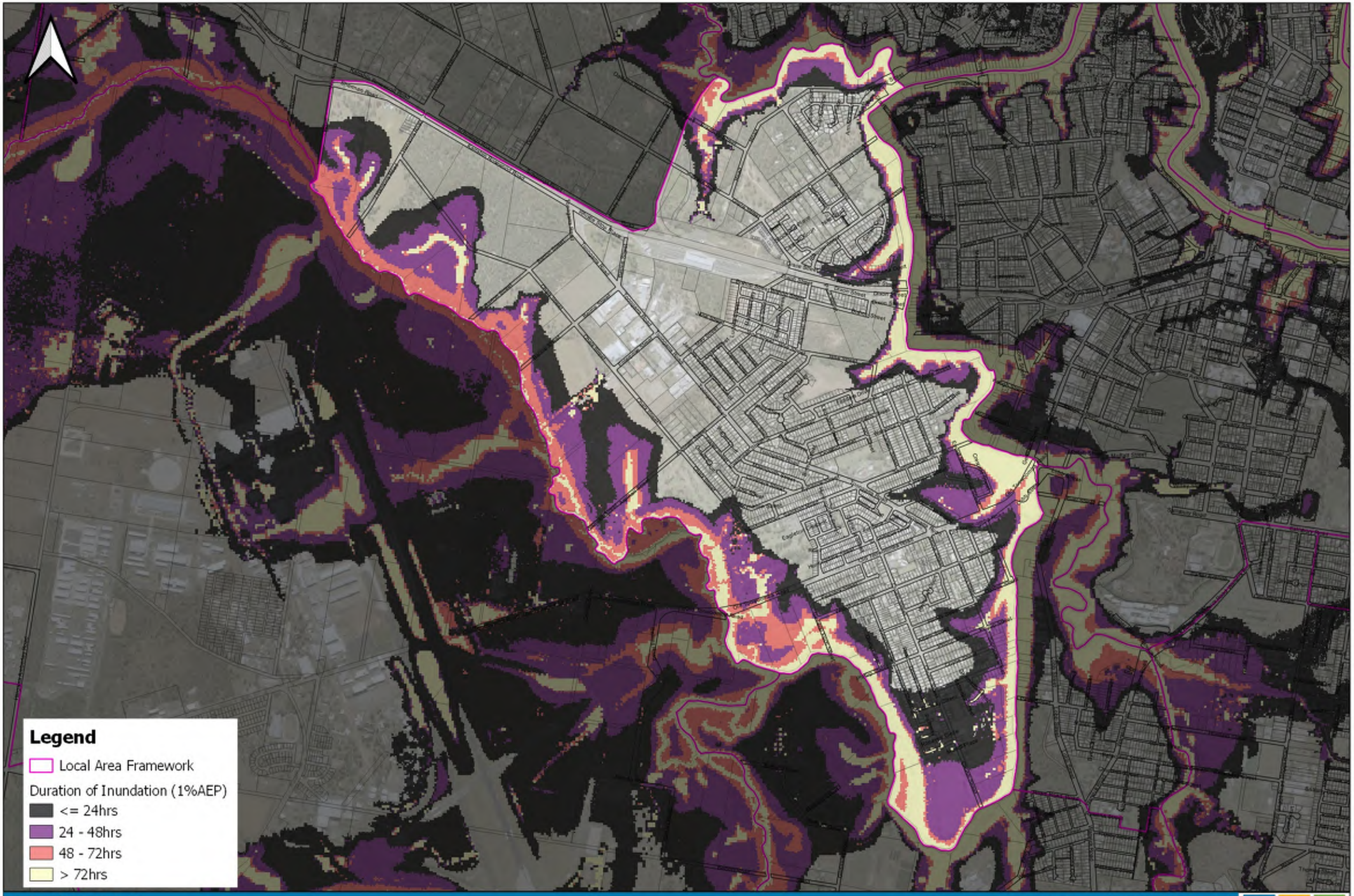

Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
1
2 km
Ipswich Natural Hazard Risk Assessment
Karalee, Barellan Point, Chuwar Local Area Framework
WATER TECHNOLOGY


Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
0.7
1.4 km
Ipswich Natural Hazard Risk Assessment
Karrabin, Blacksoil (part) Local Area Framework
WATER TECHNOLOGY


Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
1
2 km
Ipswich Natural Hazard Risk Assessment
Marburg Local Area Framework
WATER TECHNOLOGY


Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
4
8 km
Ipswich Natural Hazard Risk Assessment
Mount Mort, Lower Mount Walker, Mount Walker West Local Area Framework
WATER TECHNOLOGY


Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
0.8
1.6 km
Ipswich Natural Hazard Risk Assessment
North Ipswich Local Area Framework
WATER TECHNOLOGY


Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
0.9
1.8 km
Ipswich Natural Hazard Risk Assessment
One Mile, Leichhardt, Wulkuraka Local Area Framework
WATER TECHNOLOGY


Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
2
4 km
Ipswich Natural Hazard Risk Assessment
Pine Mountain, Muirlea, Blacksoil (part) Local Area Framework
WATER TECHNOLOGY

Legend

- Local Area Framework

Duration of Inundation (1%AEP)

- <= 24hrs
- 24 - 48hrs
- 48 - 72hrs
- > 72hrs

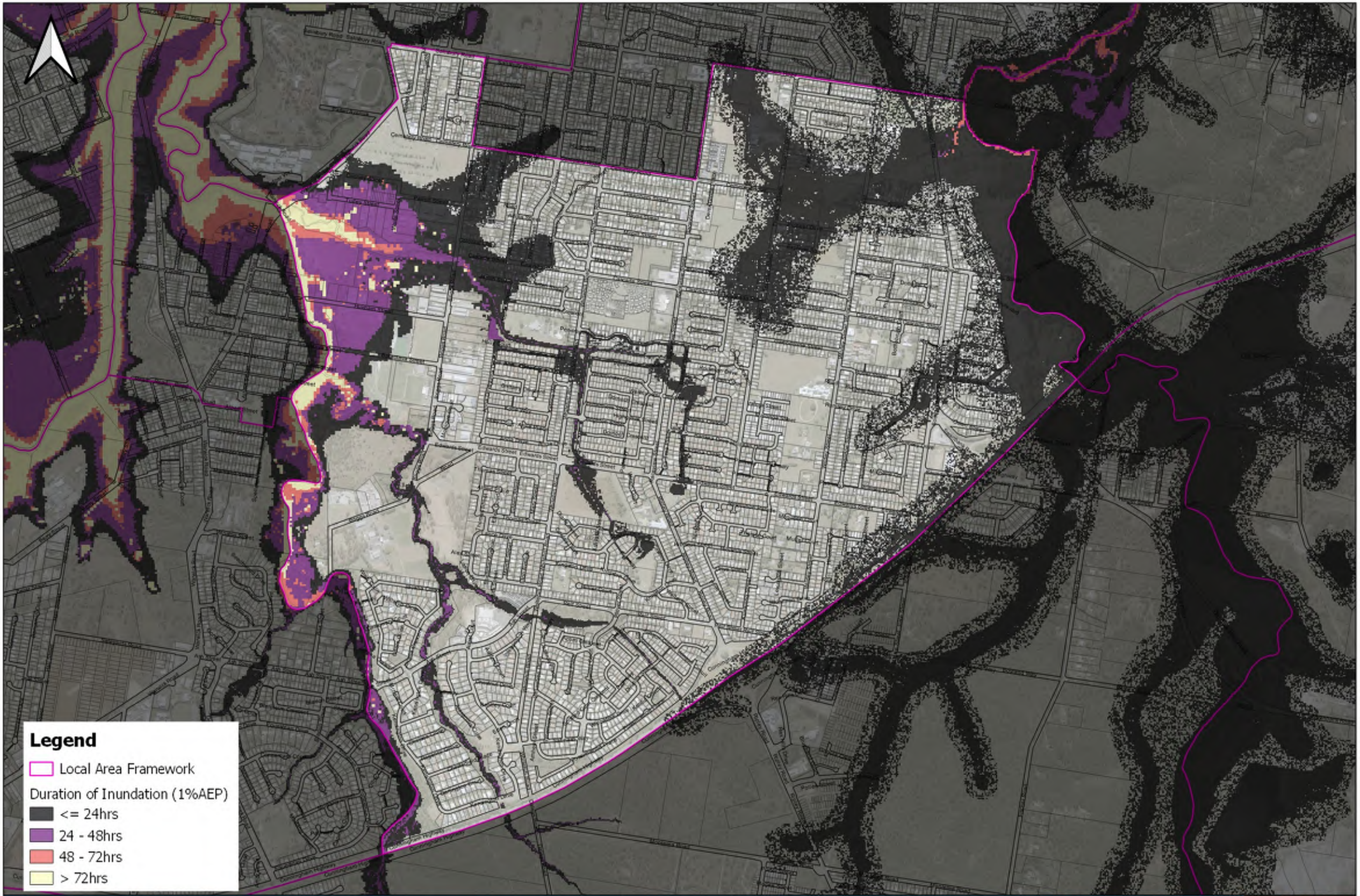
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Water Technology Pty Ltd
Imagery Source: Queensland Globe

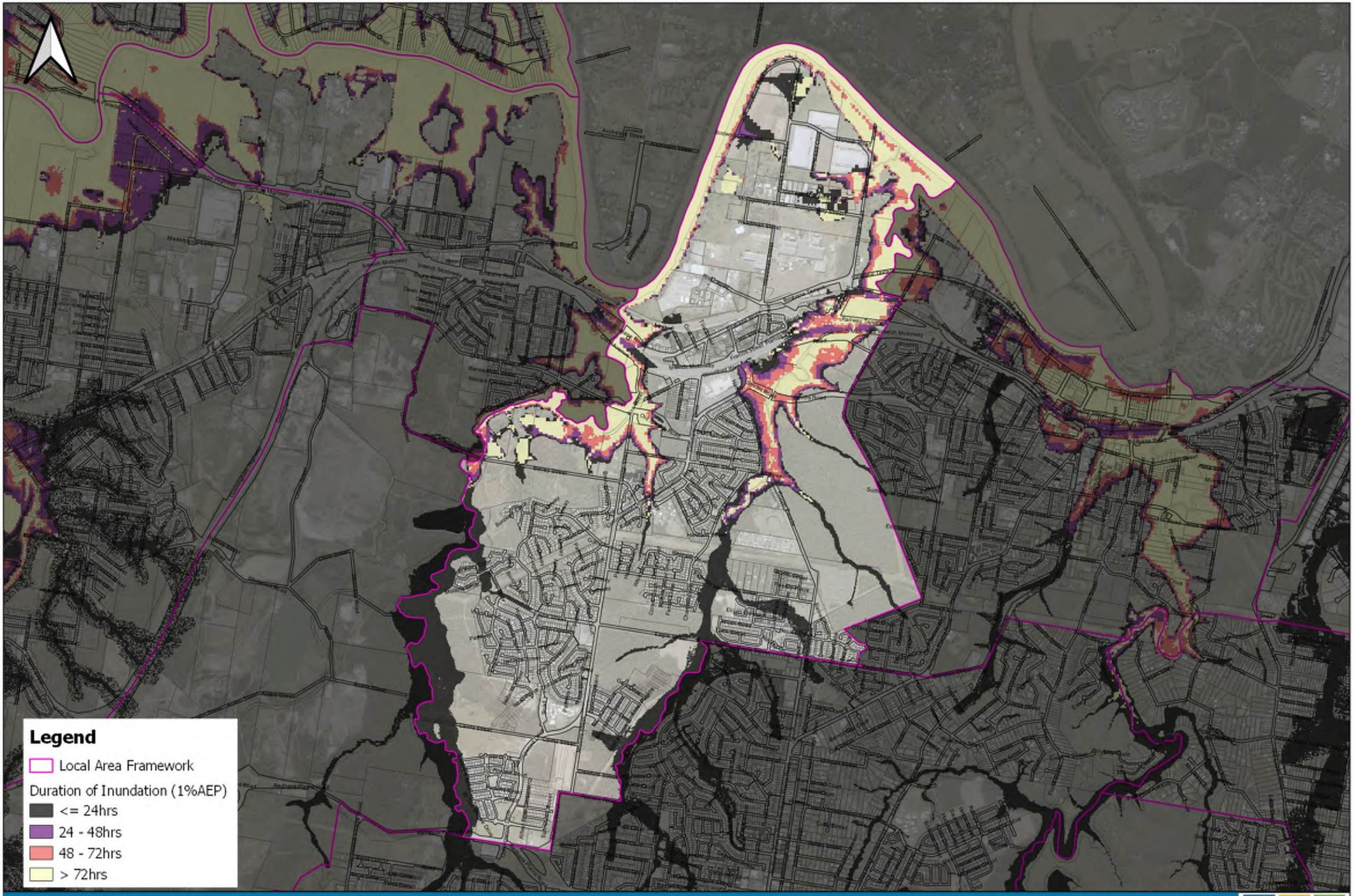
0 4 8 km

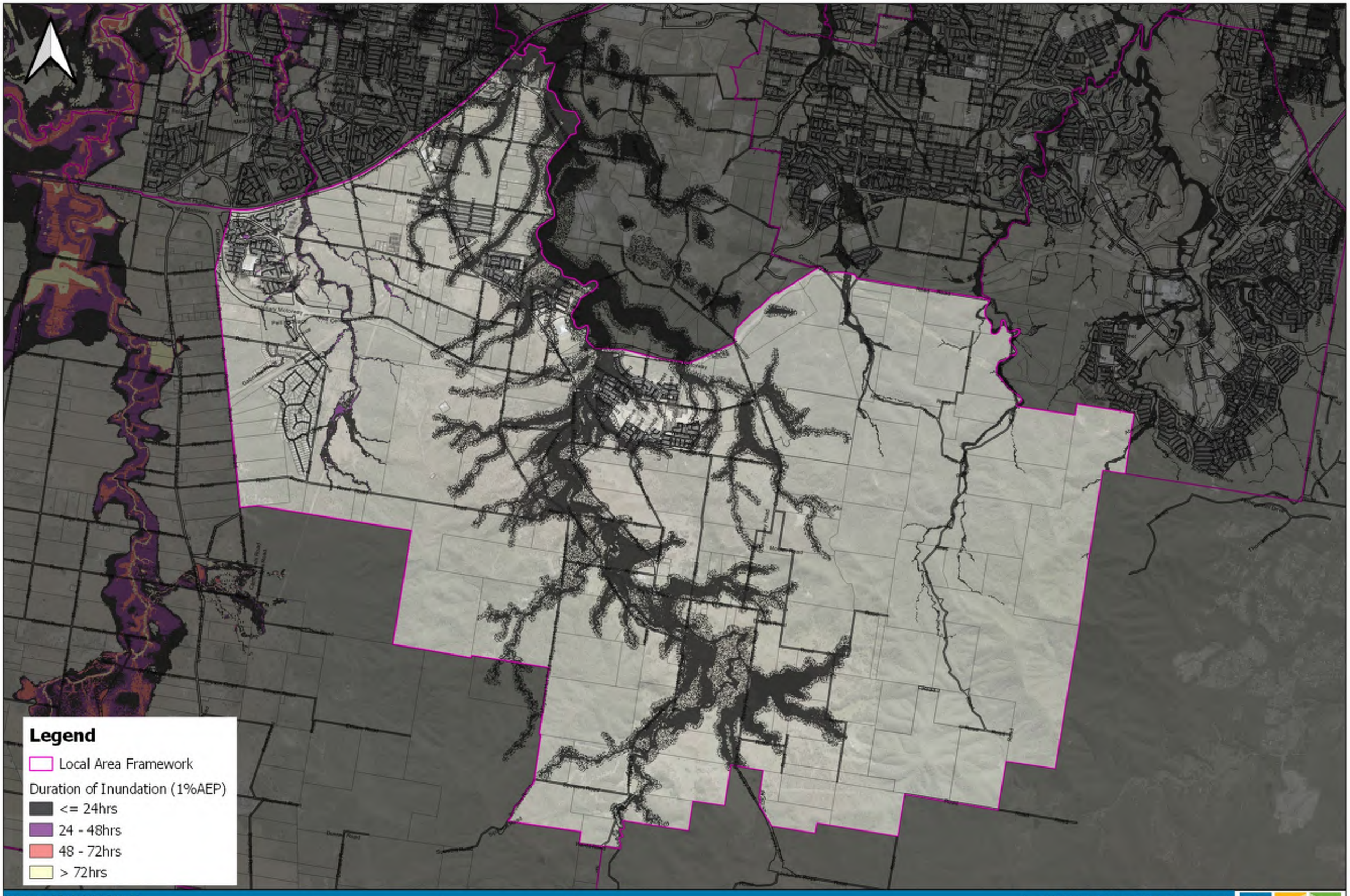
Ipswich Natural Hazard Risk Assessment

Purga (part), Goolman, Peak Crossing Local Area Framework

WATER TECHNOLOGY


Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
0.8
1.6 km
Ipswich Natural Hazard Risk Assessment
Raceview, Flinders View Local Area Framework
WATER TECHNOLOGY

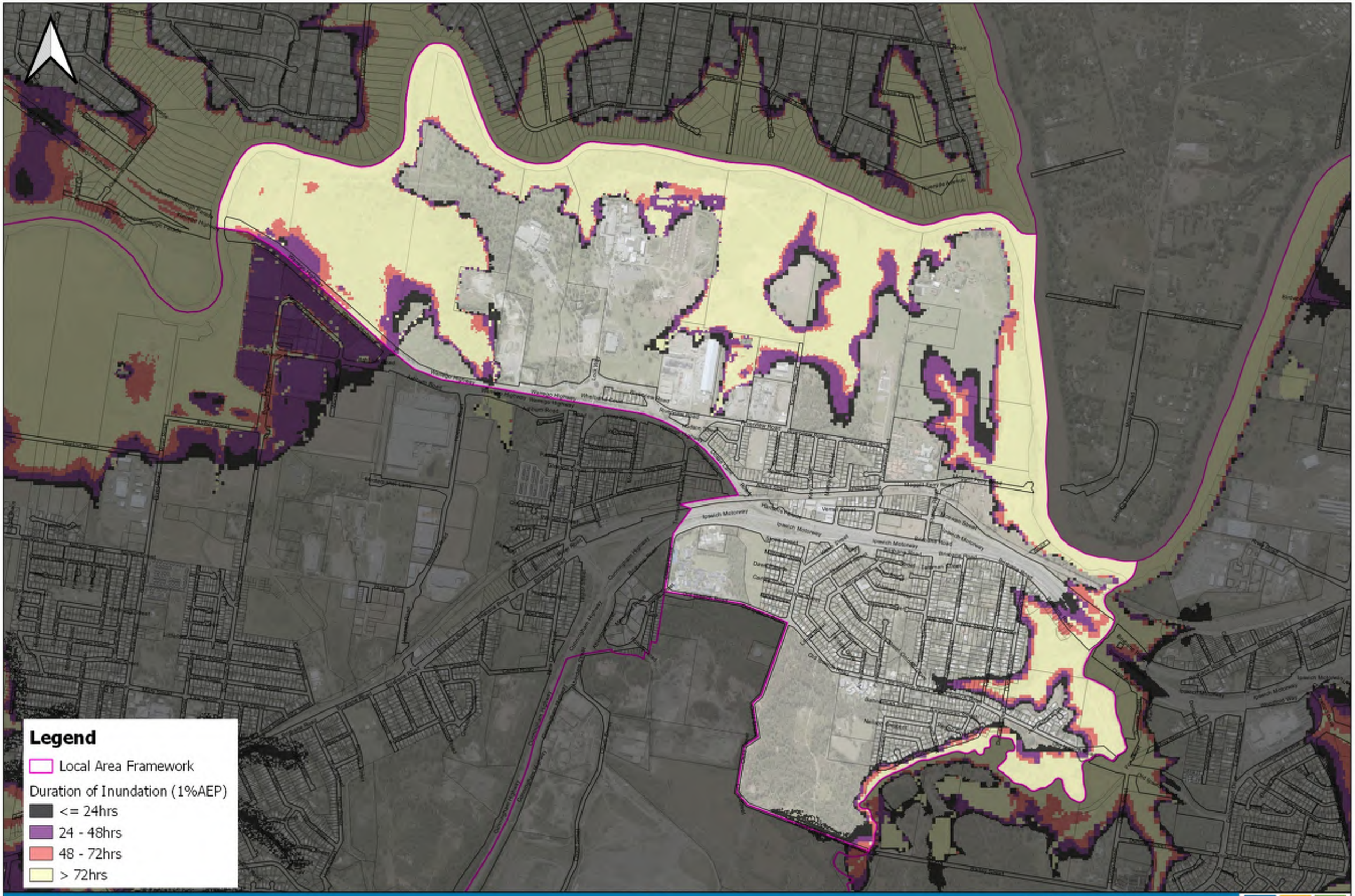

Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
1
2 km
Ipswich Natural Hazard Risk Assessment
Redbank, Collingwood Park Local Area Framework
WATER TECHNOLOGY

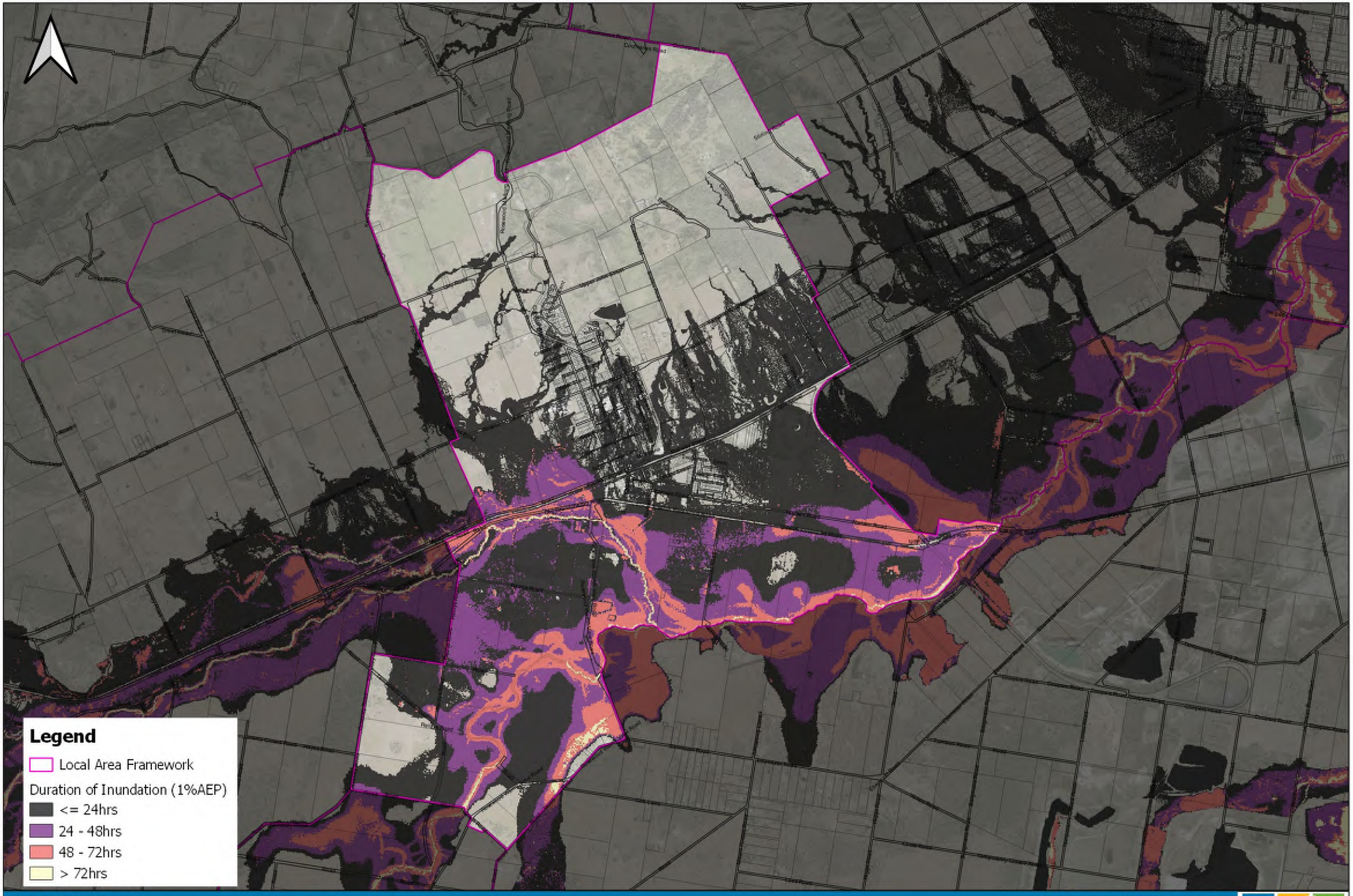


Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe

Ipswich Natural Hazard Risk Assessment

Ripley Valley Local Area Framework

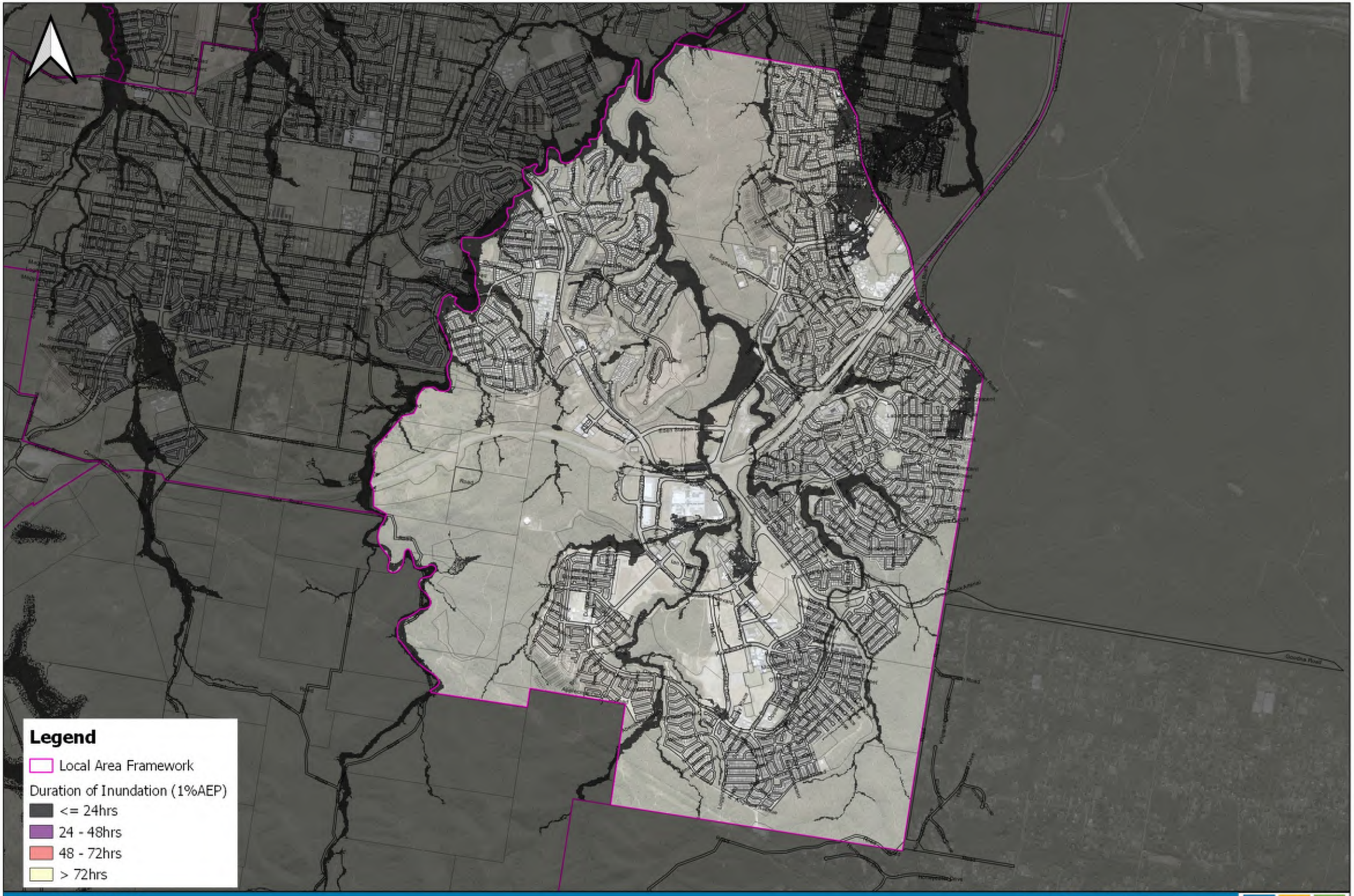

Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
0.8
1.6 km
Ipswich Natural Hazard Risk Assessment
Riverview Local Area Framework
WATER TECHNOLOGY



Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe

Ipswich Natural Hazard Risk Assessment

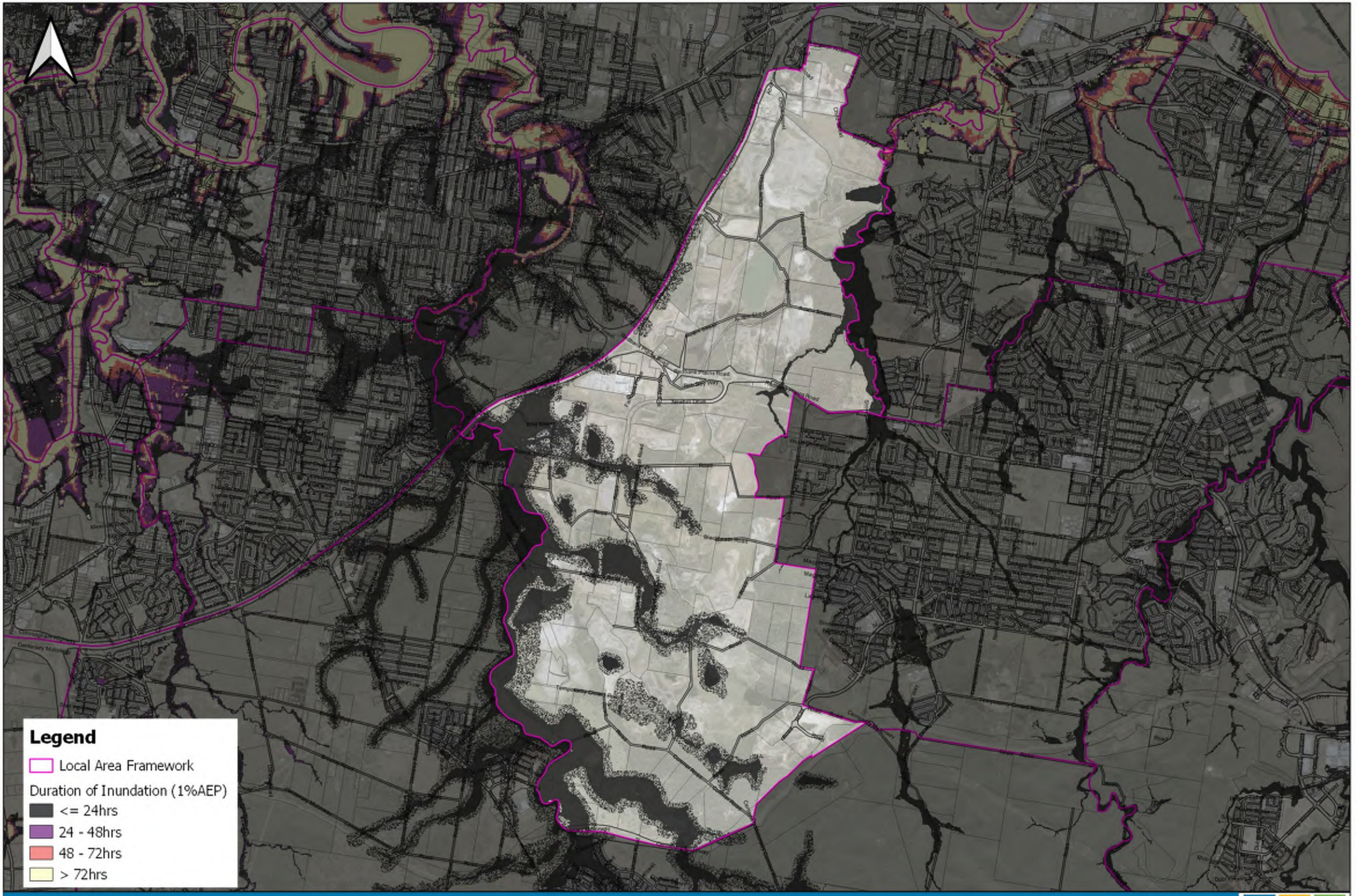
Rosewood Local Area Framework

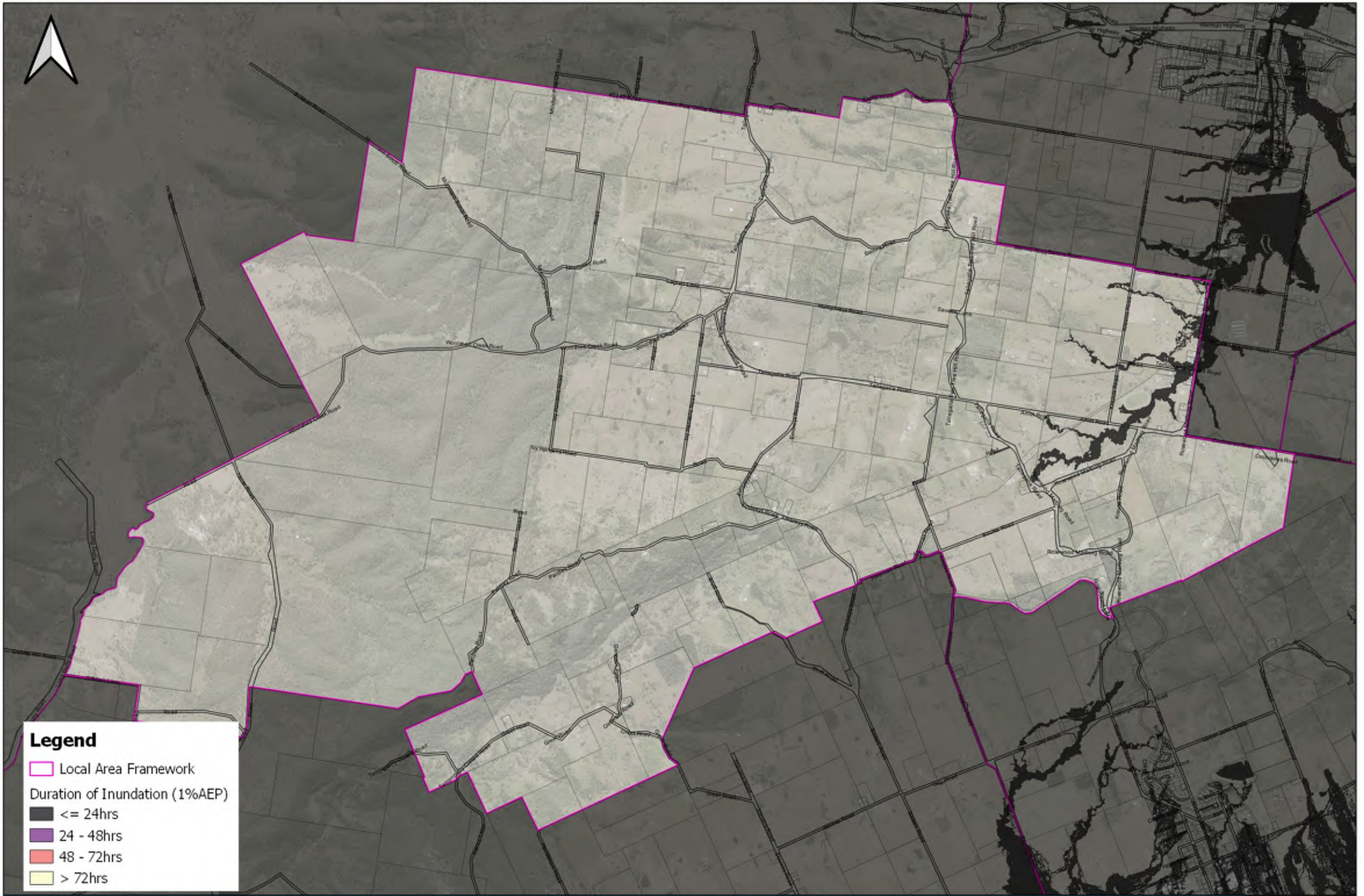


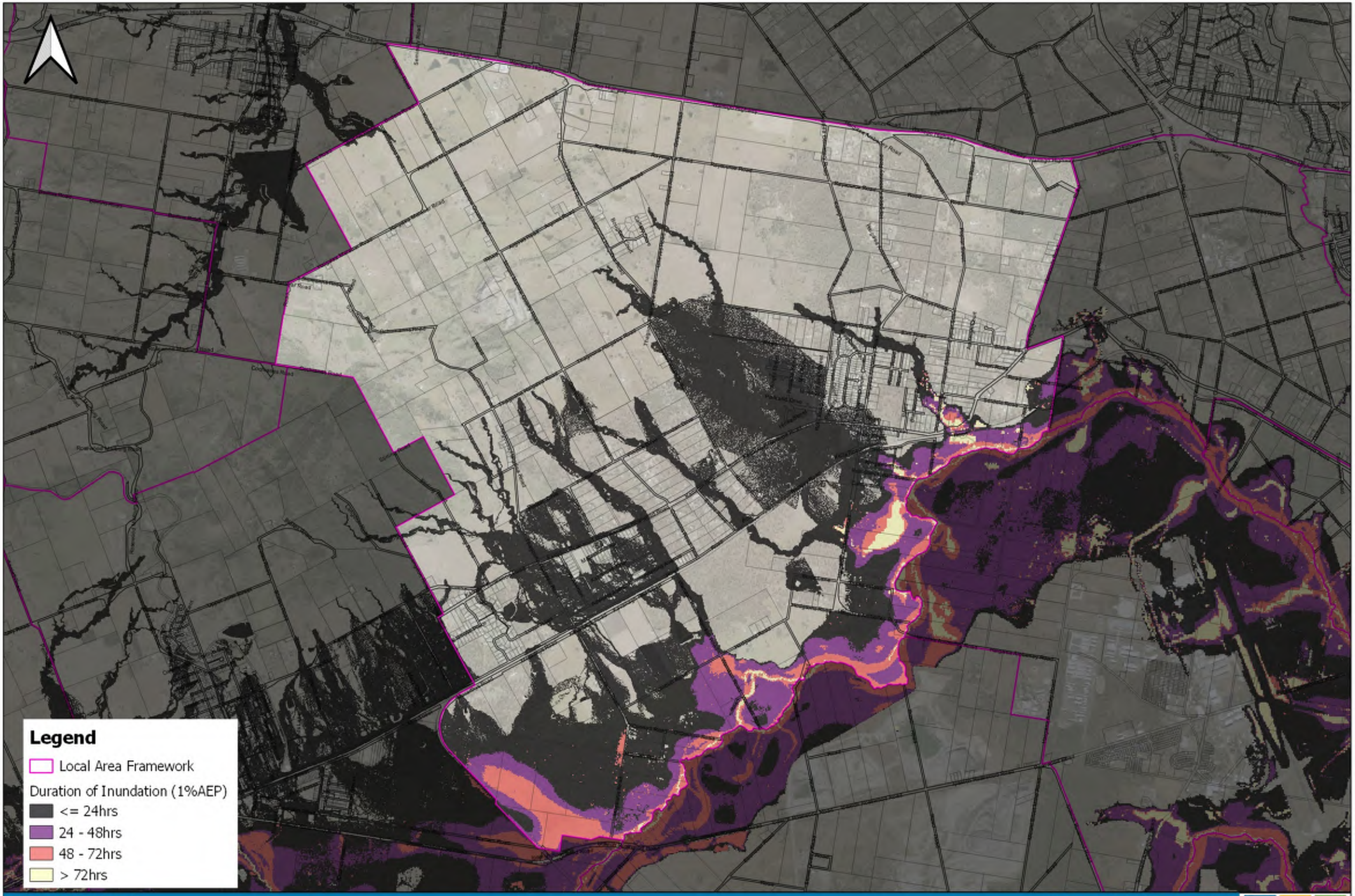
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe

Ipswich Natural Hazard Risk Assessment

Springfield Estate Local Area Framework


Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
1
2 km
Ipswich Natural Hazard Risk Assessment
Swanbank, New Chum Local Area Framework
WATER TECHNOLOGY


Legend
Local Area Framework
Duration of Inundation (1%AEP)
<= 24hrs
24 - 48hrs
48 - 72hrs
> 72hrs
Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe
0
1
2 km
Ipswich Natural Hazard Risk Assessment
Tallegalla, Woolshed, The Bluff Local Area Framework
WATER TECHNOLOGY

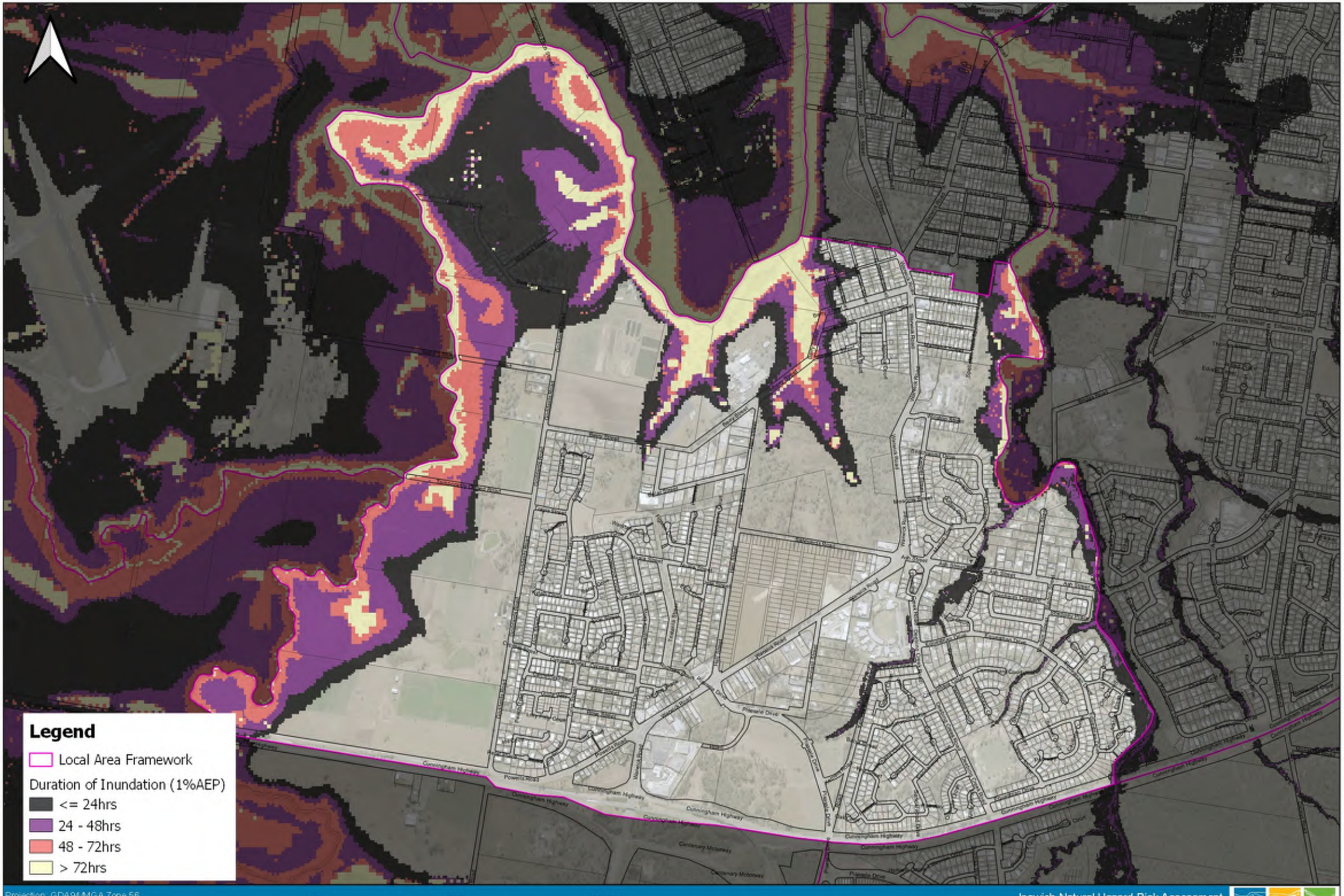


Projection: GDA94/MGA Zone 56
Water Technology Pty Ltd
Imagery Source: Queensland Globe

Ipswich Natural Hazard Risk Assessment

Walloon, Thagoona , Haigslea (part) Local Area Framework

WATER TECHNOLOGY



Ipswich Natural Hazard Risk Assessment

Yamanto Local Area Framework

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APPENDIX E
KEY LAND USE PLANNING CONSIDERATIONS IN THE IICP



E-1 IICP Recommendations in a land use planning context

This section explores the key land use planning considerations in the IICP relevant to this Ipswich Flood Risk Assessment. The following extracts provide further context to the flood risk in Ipswich and applicable land use planning responses.

E-1-1 Flood Resilient Precincts

In section 7.2.4.6.1 the IICP documents considerations for Flood Risk Precincts:

Council may consider the following development control measures that could be applied in the development assessment process for potential works in Flood Resilient Precincts:

- *Overall tolerability/acceptability of the flood risk in the context of the intended use.*
- *A flood risk and emergency management plan (FEMP) may be provided for any application within a Flood Resilient Precinct, noting that the FEMP would be required to assess:*
  - *Exposure, risk and vulnerability of the use and associated users or residents and specifically consider evacuation, flood immunity, flood hazard/risk and mitigation options;*
  - *Impacts on emergency services to respond during flood events;*
  - *Flood islands and isolation risks; and consideration for all events up to the PMF; and*
  - *Preserving pockets of flood storage in areas particularly sensitive to fill and development activity*

E-1-2 Flood Risk Factors

In section 7.3 the five flood risk factors identified in section 4 of the Current and Future Flood Risk chapter have been looked at individually and generalised land use planning responses made:

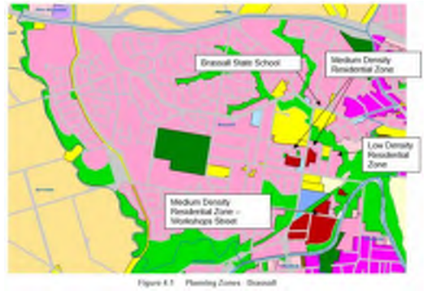
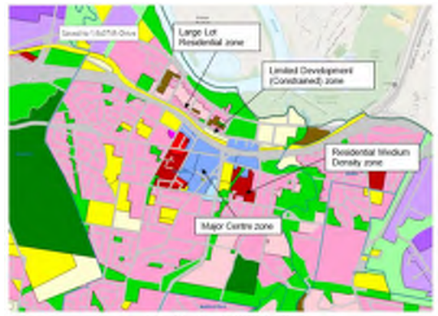
Table E-1 Land use planning responses to Flood Risk Factors (Section 7 of IICP TER)

Flood Risk Factor	Suburbs of interest	Land use planning response
Hydraulic Risk	Brassall, Camira, Rosewood, Goodna, East Ipswich.	Infill Development Site Avoiding any intensification of development in areas mapped in HR1c and HR1b. General avoidance, no works or no filling should occur in these areas to preserve the flow paths and conveyance functions and to avoid intolerable risks. Council has identified Flood Resilient Precincts in the draft new planning scheme that recognise high value infill sites that are subject to intolerable risks. Emergency response and flood resilient building mitigations should be linked to development in these areas. Land uses commensurate with the risks associated with HR4 and HR5 should be permitted subject to no worsening and cumulative impact conditions. Built form and resilient building materials should be considered as an acceptable mitigation response. Revising trigger areas based on lower risk areas such as HR2a, HR3a, HR4 and HR5. Rezoning areas incompatible with the risk to encourage more resilient land uses while avoiding loss of development potential. For example, expanding the use of Limited Development Zone. Greenfield Sites Avoid areas of high hydraulic risk altogether through appropriate zoning. Council may consider including requirements for easements in greenfield areas up to the DFE (1 in 100 AEP plus climate change therefore avoiding greenfield residential development below this extent.
Future Flood Risk	South Ripley, Ipswich CBD, Walloon, Blackstone (on Bundamba Creek), Six Mile Creek;	Preserve pockets of flood storage in the catchment to avoid future flood risk impacts. Avoid filling in the conveyance areas and ensure balance cut/fill is required up to DFE. Maintain flood storage capacity and does not create impacts on sites upstream or downstream, there is normally a request to provide hydraulic and hydrology report demonstrating compliance
TTI	Camira, Brassall, Raceview, Rosewood, Bundamba	No intensification of residential uses in areas where TTI is < 6 hours. For industry, sport and recreation, community facility and other non-residential uses, a requirement for a Flood Risk and Emergency Management Plan (FEMP) to address all emergency management considerations and events up to and including the PMF.
DFI	Goodna, North Booval, Brassall, Karalee, East Ipswich, Bundamba.	Where DFI is <36 hours, avoid vulnerable uses No intensification of residential uses in areas >36 hours up to the limit of the DFE 1% plus climate change where residential development is triggered for assessment. In low hazard, i.e., HR 2a or HR 3a in combination with DFI > 36 hours, built form and resilient building materials should be considered as an acceptable mitigation response For industry, sport and recreation, community facility and other non-residential uses, a requirement for a Flood Risk and Emergency Management Plan (FEMP) to address all economic impacts, emergency management considerations and events up to and including the PMF.
Flood islands	Walloon / Rosewood – Thagoona Haigslea Rd Booval/Bundamba – Jacaranda Drive	No intensification of residential and vulnerable uses Infill Development Sites Emergency response mitigations may improve residual risk, Council may consider responses such as FEMPs linked to new development. Greenfield General avoidance.

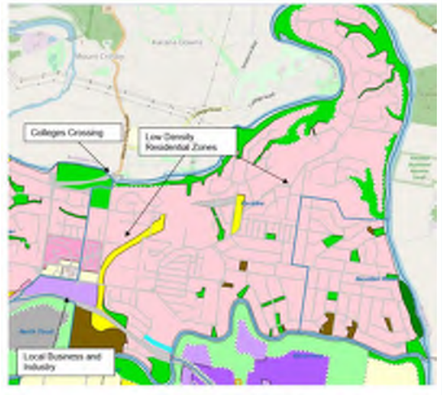
E-1-3 Emergency Management section

In section 10.2 the IICP explores the evacuation routes and road immunity considerations for the top 14 priority suburbs (ranked on building exposure to flood risk factors as per Table 10.2). The following table and mapping has been extracted from the TER and reflects suggested land use planning responses to the known flooding issues in these suburbs:

Table E-2 Land use planning considerations of top 14 suburbs (Section 10 of IICP TER)

Suburb	Evacuation consideration	Land Use Planning Consideration	Specific Areas of Interest
Brassall	Properties generally east and west of Hunter Street exposed to HR1c, HR2c and HR 2b and larger area of HR3c. This pocket would evacuate through Fernvale Road/Pine Mountain Road to Waterworks Road. However, there is a section of road on Hunter Street (adjacent to Brassall State School) that only has a 1 in 2 AEP immunity which inundates rapidly from local flooding (less than 1-hour TTI). Properties to the west of Hunter Street along Haig Street have exposure to a low flood island and long duration of inundation of greater than 36 hours.	Council may consider avoiding intensification of the existing Low Density Residential zone east and west of Hunter Street. Council may consider avoiding intensification of the Medium Density Residential zones, alternatively implementing Flood Resilient Precinct emergency response mitigation responses in the existing Medium Density Residential zone as shown.	Medium Density and Low-Density Residential zones east and west of Hunter Street north of Haig Street. 
	Vehicles travelling south to Coalfalls are heavily constrained along Hunter Street with immunities around 1 in 2 AEP. Furthermore, Workshops Street and Wellington Street have low flood immunity which hinders access to Albion Street and Hancock Bridge.	Council may consider site specific emergency response mitigations that may improve residual risk such as a FEMP and encouraging the use of flood resilient building materials for development applications in the Medium Density Residential Zone Workshops Street.	Medium Density Residential Zones around Workshops Street.
Goodna	High hydraulic risk, low road immunity along Brisbane Terrace compromises access to Ipswich Motorway, Smiths Road or Queen Street compromised. Area. experiences long durations of flooding.	Council may consider avoiding intensification of the existing Large Lot Residential and Low Density Residential Zones as shown by the two shades of pink.	North of Ipswich Motorway Brisbane Terrace.
		Council may consider rezoning areas to encourage more resilient land uses, for example expanding the existing Limited Development (constrained zone) as shown.	North of Ipswich Motorway Brisbane Terrace. 
	Properties in the Bertha / Alice Streets precinct have TTI under 6 hours and long duration of inundation. Access to Queen Street has less than 1 in 100 AEP.	Council may consider site specific emergency response mitigations that may improve residual risk such as a FEMP for development applications in the existing Medium Density Residential Zone.	Bertha Street / Alice Street precinct of Medium Density Residential.
	Goodna CBD is subject to high hydraulic risk and properties have TTI of under 6 hours. Sections of Smiths Road have less than 1 in 1 AEP immunity and Queen Street has approximately 1 in 50 AEP immunity.	Council may consider site specific emergency response mitigations that may improve residual risk such as a FEMP for development applications in the Major Centre	Goodna CBD around Smiths Road and Queen Street.

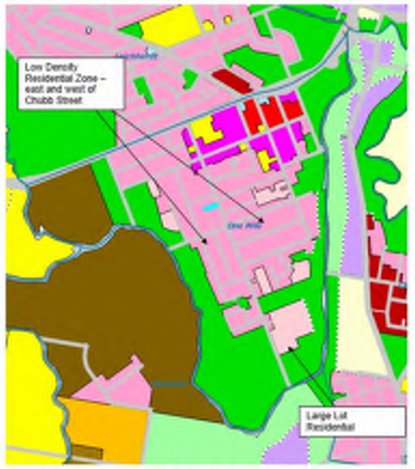
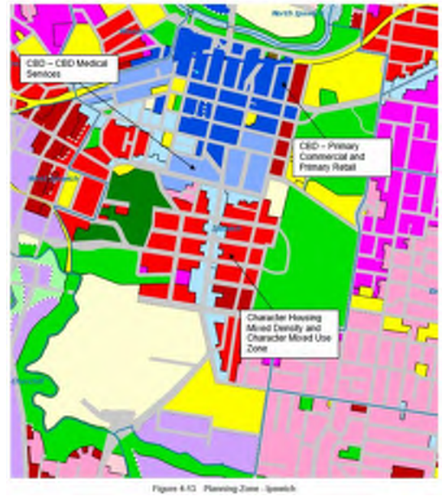
Suburb	Evacuation consideration	Land Use Planning Consideration	Specific Areas of Interest
North Booval	North Station Road is a major road linking properties near the Bremer River to Jacaranda Street and higher ground beyond the PMF. The norther section of this road has better flood immunity (1 in 20 AEP) with longer TTI (12 hours etc).	Council may consider avoiding intensification of the existing the residential and large lot residential zones in this area unless the road is upgraded to 1 in 50 AEP (QUDM recommended level for major roads).	Low density residential zone north east of North Station Road 
	Creek Street has sections of less than 1 in 1 AEP which extends to Gledson Street. Many buildings are exposed to duration of inundation of greater than 36 hours.	Council may consider avoiding intensification of the existing the residential zone north of Creek Street. Council may consider site specific emergency response mitigations that may improve residual risk such as use of resilient building materials and floor levels that offer an area of refuge.	Low Density Residential Zone north of Creek Street
	Sections of Jacaranda Street in North Booval have a 1 in 1 AEP which hinders self-evacuation to the Nimmo Street, Dudleigh Street residential area.	Council may consider site specific emergency response mitigations that may improve residual risk such as a FEMP akin to the Flood Resilient Precincts and encouraging the use of flood resilient building materials for new development in the Medium Density Residential Zone that offer an area of refuge to enable shelter in place strategies.	Medium Density Residential Zone – Nimmo Street, Dudleigh Street.
East Ipswich	Chermside Road is the main evacuation route servicing many properties in East Ipswich to higher ground. There are some sections with less than 1 in 10 AEP immunity and one section less than 1 in 1 AEP.	Council may consider site specific emergency response mitigations that may improve residual risk such as a FEMP akin to the Flood Resilient Precincts and encouraging the use of flood resilient building materials for new development in the Medium Density Residential Zone that offer an area of refuge to enable shelter in place strategies.	Medium Density Residential Zone – Grafton Street, Countess Street.
	Jacaranda Street which can be used as a route to the Cook Street overpass also suffers from low flood immunity (less than 1 in 1 AEP).	Council may consider non intensification of the Low-Density Residential Zone	Low Density Residential use in Callaghan Street, Spengler Street and Marcel Street. 

Suburb	Evacuation consideration	Land Use Planning Consideration	Specific Areas of Interest
	Merrell Street has 1 in 10 AEP flood immunity and buildings exposed to long duration of inundation	Council may consider changing zoning to a more flood resilient land use for example expanding the Recreation use zone to the north or consider Limited development zone to some properties towards the Bremer River.	Low Density Residential use in Merrell Street
Bundamba	Many properties in the north of Bundamba seek higher ground via through River Road which has high flood immunity (1 in 500 AEP). Local roads connecting to this do not (with some sections only having a 1 in 5 AEP immunity).	Council may consider transitioning the current zoning to a more flood resilient land use for example non-residential and non-commercial uses such as industrial units and warehousing that promote the use of flood resilient building materials and built form.	Special Opportunity Zone north Bundamba  Figure 4.5 Planning Zones - Bundamba
	Properties on the southern side of Brisbane Road are exposed to time to inundation of under 6 hours and long duration of inundation. If self-evacuation is possible, occupants would use Lindsay Street, Tibbits Street to access higher ground as these sections of road have higher flood immunity.	Council may consider intensification of the Low Density Residential and Character Housing Zones subject to join the Medium Density Zone to the east. Within this area Council may consider site specific emergency response mitigations that may improve residual risk such as a FEMP akin to the Flood Resilient Precincts and encouraging the use of flood resilient building materials for new development.	Low Density Residential and Character Housing Zones on Lindsay Street and Tibbits Street
	Bergins Hill Road which is a main collector road has very low flood immunity with rapid inundation and would face significant restrictions to any evacuation movement.	Council may consider transitioning the current zoning to a more flood resilient land use for example non-residential and non-commercial uses as access / egress is limited along Bergins Hill Road.	Special Opportunity Zone along Emma Street
Karalee	Large portion of Karalee is situated on a high flood island in large flood events, but many routes are immune beyond the 1 in 100 AEP. Colleges Crossing Bridge has very low immunity which hinders self-evacuation to the north. Sections of the Warrego Highway have low flood immunity impacted by multiple types of flooding. High ground is best accessed to the west towards Brassall; however, one section of the highway only has 1 in 20 AEP immunity.	Council may consider non intensification of the Low Density Residentials Zone in Karalee.	Low Density Residential Zone throughout the suburb  Figure 4.6 Planning Zones - Karalee
	Junction Road in general provides a major thoroughfare as the road runs along a ridge line. There are however some sections impacted by either local or backwater that have 1 in 20 AEP to 1 in 50 AEP immunity.	Council may consider intensifying the Local Business and Industry Zone to more commercial uses as their access / egress to Junction Road is generally ok and large portions of precinct is only affected by PMF.	Local Business and Industry Zone along Junction Road

Suburb	Evacuation consideration	Land Use Planning Consideration	Specific Areas of Interest
Rosewood	Evacuation to the north towards upper John Street is somewhat unhindered.	Council may consider intensifying residential uses in this area out of the floodplain.	Low Density Residential Zone Upper John Street 
	Potential evacuation to the east along Ipswich Rosewood Road is constrained at the Bremer River bridge with less than 1 in 1 AEP immunity at this location. And to the south, the bridge crossing western creek on Rosewood Warrill View Road has low flood immunity and TTI of under 1 hour.	Council may consider non intensification of residential uses and critical infrastructure uses	Low Density Residential Zone and Special Uses zone at School Street
	Rosewood Laidley Road has very low flood immunity on this road is estimated at less than a 1 in 1 AEP event. Self-evacuation from the west part of Rosewood may be affected.	To facilitate intensification of residential uses, there may be a requirement to improve existing transport infrastructure and necessary emergency services in Rosewood. The Urban Investigation Area may provide opportunity to include these facilities. Council may consider as part of development within the Urban Investigation Area in Rosewood the provision or contribution of transport infrastructure and necessary emergency services to facilitate intensification of residential uses.	Urban Investigation Area

Suburb	Evacuation consideration	Land Use Planning Consideration	Specific Areas of Interest
Moores Pocket	There are a number of properties exposed to high HR and TTI of under 6 hours. Self-evacuation can only be achieved by Moores Pocket Road which is a rising road toward the north west.	Council may consider not intensifying residential or vulnerable uses such as retirement facilities in this suburb.	Low Density Residential zone 
Raceview	A section along South Station Road has low flood immunity of 1 in 2 AEP. A small number of properties impacted by HR4 and on a low flood island to the east of South Station Road may have issues self-evacuating to higher ground.	Council may consider not intensifying Low Density Residential Zone.	Low Density Residential Zone – east of South Station Road 
	Sections of Briggs Road have low flood immunity of 1 in 1 AEP.	Council may consider continuing the Business and Industry Zone and as part of development assessment upgrades to road immunity ensure the operation of key transport links such as Briggs Road.	Business and Industry Zone

Suburb	Evacuation consideration	Land Use Planning Consideration	Specific Areas of Interest
Camira	Access to the Centenary Highway along Old Logan Road is basically unhindered with the highway having PMF flood immunity.	Council may consider intensifying the Large Lot Residential Zone as largely flood free and access to critical connections.	Large Lot Residential Zone to the west of Old Logan Road  Figure 4-10 Planning Zone – Camira
	Higher ground can be readily obtained along Old Logan Road or to the high flood island to the east of Old Logan Road.	Council may consider non intensification of Low Density Residential Zone	Low Density Residential Zone to the east of Old Logan Road.
North Ipswich	Evacuation to higher ground to the north along Pine and/or Downs Street, most of these sections of road have longer than 24 hours TTI and immune up to 1 in 100 AEP.	Council may consider intensifying the existing Medium Density Residential to a CBD use such as High Density, Primary Commercial for example. Council may also consider specific emergency response mitigations that may improve residual risk such as a FEMP akin to the Flood Resilient Precincts concept in the new draft planning scheme.	Medium Density Residential zone  Figure 4-11 Planning Zone – North Ipswich
	Many local roads connecting to trunk roads rise have much lower flood immunities.	Council may consider non intensification of residential uses with access road that exhibit low flood immunity.	Character Housing Low Density

Suburb	Evacuation consideration	Land Use Planning Consideration	Specific Areas of Interest
One Mile	Old Toowoomba Road is constrained at the Bremer River crossings of Three Mile Bridge) and One Mile Bridge, the latter has a flood immunity of 1 in 10 AEP.	Council may consider non intensification of residential uses in this suburb.	Low Density Residential Zone – east and west of Chubb Street  Figure 4-12 Planning Zone - One Mile
	Properties in lower sections of Chubb Street exposed to very high HR and duration of inundation. Chubb Street here has low flood immunity of approximately 1 in 10 AEP.	Council may consider rezoning areas to encourage more resilient land uses, for example expanding the existing Limited Development (constrained zone) as shown by the brown zone category.	Large Lot Residential zone
Ipswich	Low flood immunity on East Street hinders approaches to the Trumpy Bridge. Major roads that head west/south west such as Brisbane Street, Limestone Street and Roderick Street are rising roads towards Denmark Hill. Generally, these roads have high levels of flood immunity (1 in 2000 AEP).	Council may consider site specific emergency response mitigations that may improve residual risk such as a FEMP akin to the Flood Resilient Precincts concept in the new draft planning scheme.	CBD and CBD Medical Services zone.  Figure 4-13 Planning Zone - Ipswich
	Access and egress to city to and from the east may be restricted due to combinations. E.g., Brisbane Street has areas impacted by the large overland flowpath through the CBD with immunities as low as 1 in 2 AEP.	Council may consider non intensification of the Residential Medium Density zone.	Residential Medium Density zone at Thorn Street and Milford Street
	Evacuation to the south is more effective along Warwick Road as this road rises to higher ground.	Council may consider intensifying the Character Housing Mixed Density and Character Mixed use zones along the Warwick Road corridor.	Character Housing Mixed Density and Character Mixed use zones along the Warwick Road corridor

Suburb	Evacuation consideration	Land Use Planning Consideration	Specific Areas of Interest
Basin Pocket	Chermside Road is the main route servicing many residential properties in Basin Pocket to higher ground. There are some sections of this road have less than 1 in 10 AEP immunity but egress to higher ground can be achieved vias Blackall Street and Deacon Street. Chermside Road provides a 1 in 100 AEP immunity in general however.	Council may consider site specific emergency response mitigations that may improve residual risk such as a FEMP akin to the Flood Resilient Precincts and encouraging the use of flood resilient building materials for new development in the Medium Density Residential zone that offer an area of refuge to enable shelter in place strategies.	Medium Density Residential Zone – Blackall Street.  Figure 4-14 Planning Zone – Basin Pocket
		Council may consider intensification of the Low-Density Residential Zone.	Low Density Residential use in Deacon Street, Goodwin Street

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