



BRANXHOLM - DERBY FLOOD MAP

20 Year Annual Exceedance Probability Map Based on ISIS2D Modelling 2019

General
This map shows the extent of floods likely to be experienced in a 5% AEP (or 1:20 year event ARI) for the median or 50% probability; it is based on flows shown in the table below.

This map may be used for emergency management assessments as the best information available at the time of publication. For general purposes the 5% AEP or 1:20 flood levels can be described here as the median flood discharge value +/- 0.5 metres; users may also be able to access the GIS flood layers if authorised by Council Officers.

Flood Frequencies
An AEP or annual exceedance probability of 5% or 1:20 is the probability on average that a given flood height will be equalled or exceeded in any one year. Another term is ARI or Average Recurrence Interval; this is the average period between events of a nominated size. The table shows the chance of a given AEP event occurring in a nominated period.

Annual Exceedance Probability (AEP)	Probability of flood magnitude being exceeded in a 20 or 50 year period	
	20 Year Period	50 Year Period
5% (20 Year ARI)	64%	92%
2% (50 Year ARI)	33%	64%
1% (100 Year ARI)	18%	39%
0.5% (200 Year ARI)	10%	22%

Flood Discharge Values
The following table contains the flood discharge flow values in m³/sec, derived for Branhholm and Derby in August 2018. The values printed in bold red are those estimated at Branhholm, Derby and Moorina by the RORB model, where 'CC' denotes the climate change discharge estimate for the 1% AEP flood. The major sub-catchment outputs of RORB were used as inputs to the hydrodynamic model to generate a flood surface for this map.

It should be noted that the AEP or ARI associated with a particular discharge will change with time due to additional recorded data altering the flood frequency estimate or through climate change. However the flood level associated with a particular discharge and depicted on the map will only change if flood plain conditions change as a result of flood plain modification, vegetation increase or decrease or further calibration data becoming available. Further calibration data for higher flood levels than those currently available could produce different modelled levels for higher discharges.

AEP	ARI in Years	Average Peak Flood Discharges Generated from Flood Frequency Analysis & Modelling		
		Branholm	Derby	Moorina
5%	20	276	337	360
2%	50	309	457	487
1%	100	417	566	603
1%CC	100CC	520	800	837

Flood Surface
Flood surface levels can be determined from direct measurement by surveying in the levels in the aftermath of a flood and then assigning an AEP to the flood surface or by hydraulic modelling with mathematical models. Both approaches require flood frequency analysis or hydrological modelling to determine the flood's AEP.

Council will continue to refine the map as more information becomes available, but for now it is the best estimate available for the 5% AEP flood surface.

The map is based on the following report: Derby - Branhholm Flood Study, Hydrology & Hydraulics for Dorset Council by Hydrodynamica March 2019.

Legend

- Flood Height
- 20 Year Flood AEP
- Property Titles
- National/State Highway
- Arterial/Sub Arterial Road
- Collector Road
- Local Road
- Watercourse



Coordinate System GDA 1994 MGA Zone 55
Base data from theLIST, © State of Tasmania



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