TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES

DESIGN FLOOD MODELLING

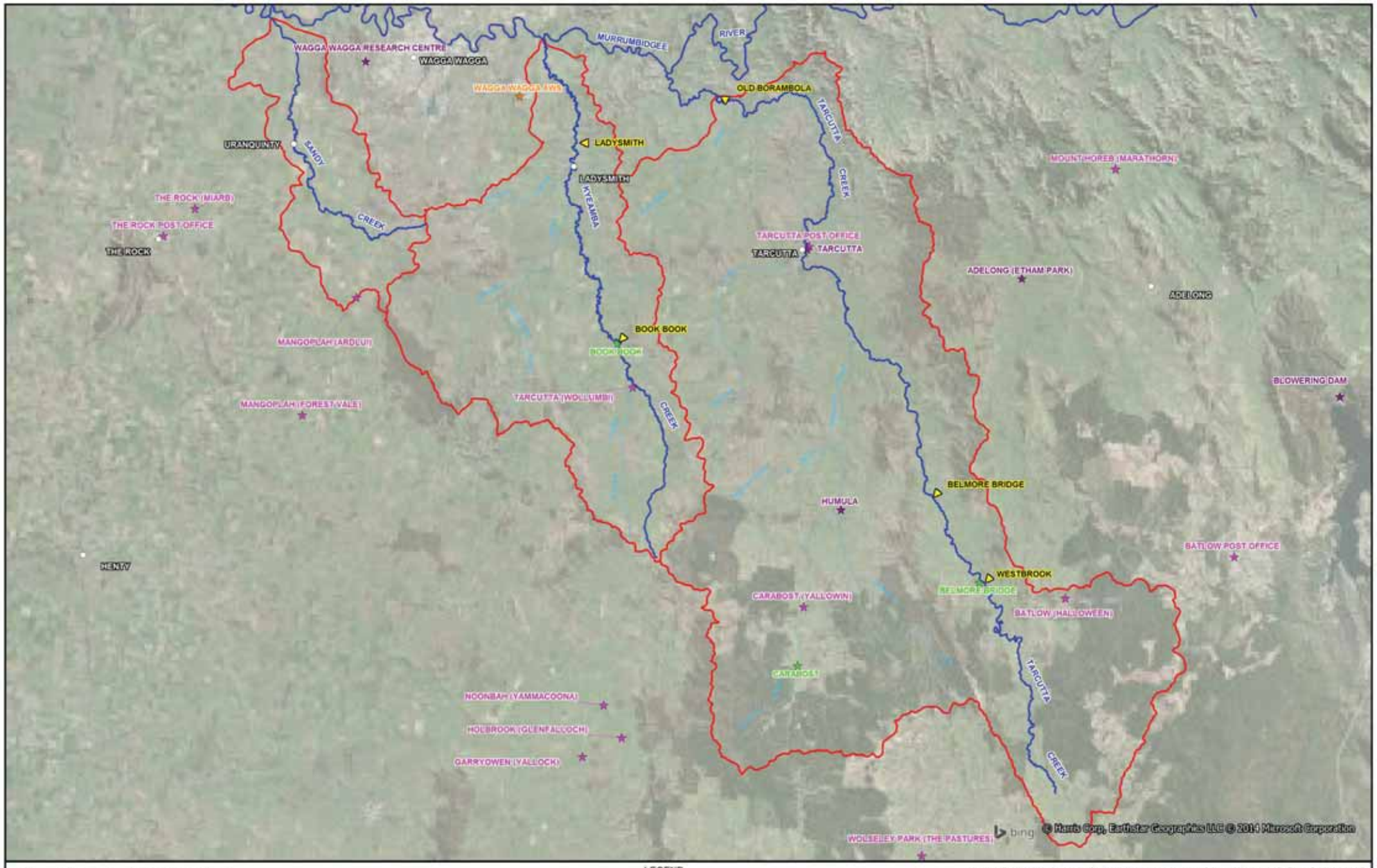
VOLUME 2 – FIGURES AND APPENDICES

FINAL REPORT

NOVEMBER 2014

Job No: DM304 File: TLUFS_V2_DFM_003.doc	Date: November 2014 Rev No: 2.1	Principal: SAB Authors: BWL/SAB

LIST OF FIGURES



N

3000 0 3000 6000 9000 m

Scale: 1:300,000

LEGEND

- Stream Gauge
- Daily Rain Gauge
- Pluviograph Station
- All Weather Station (AWS)
- BoM Flood Warning Network
- Study Catchments

NOTE:

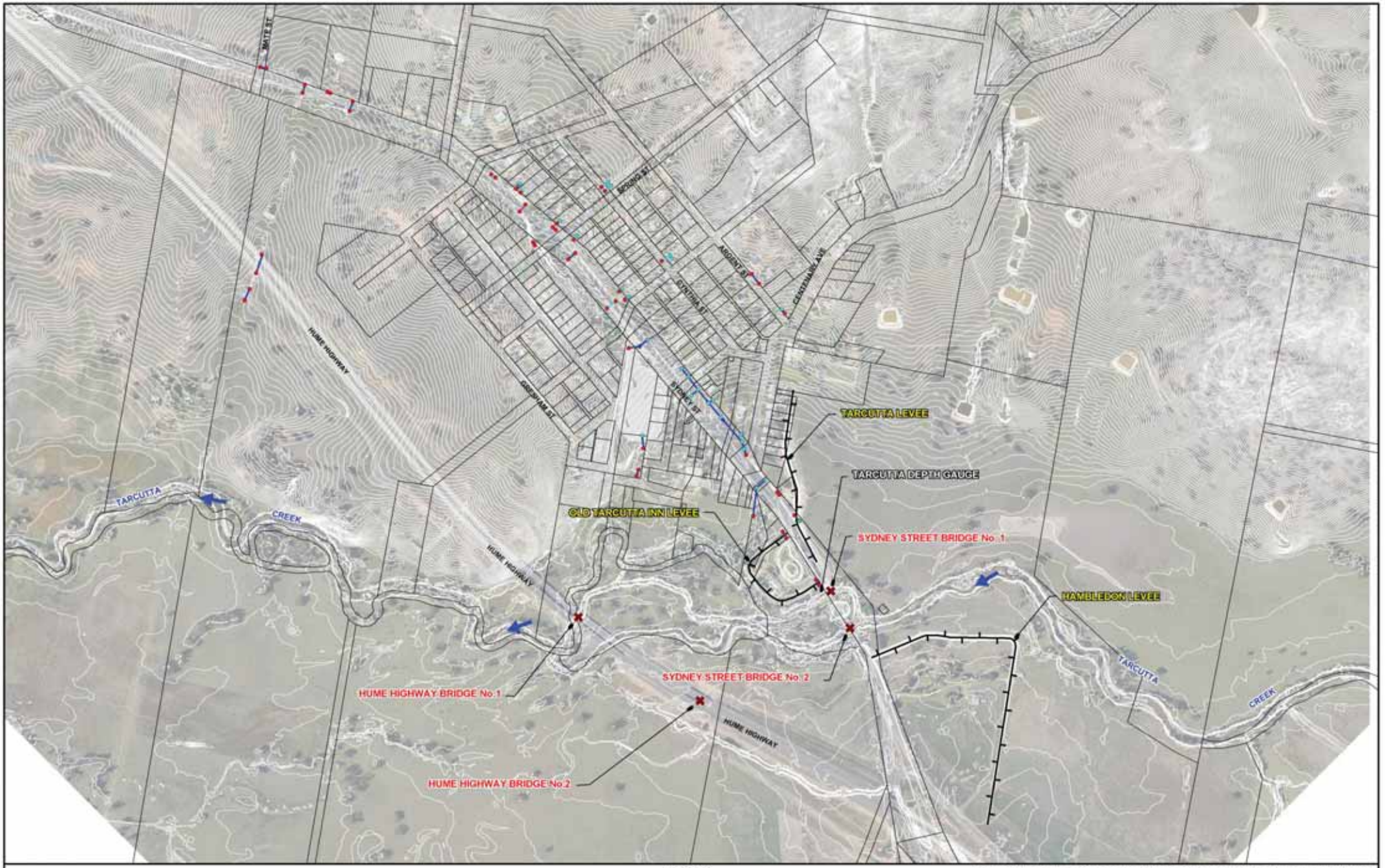
Note co-ordinates of Belmore Bridge rain gauge as per advice received from BoM.

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 1.1

CATCHMENT PLAN

Lyall & Associates



Lyall & Associates

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 1.2

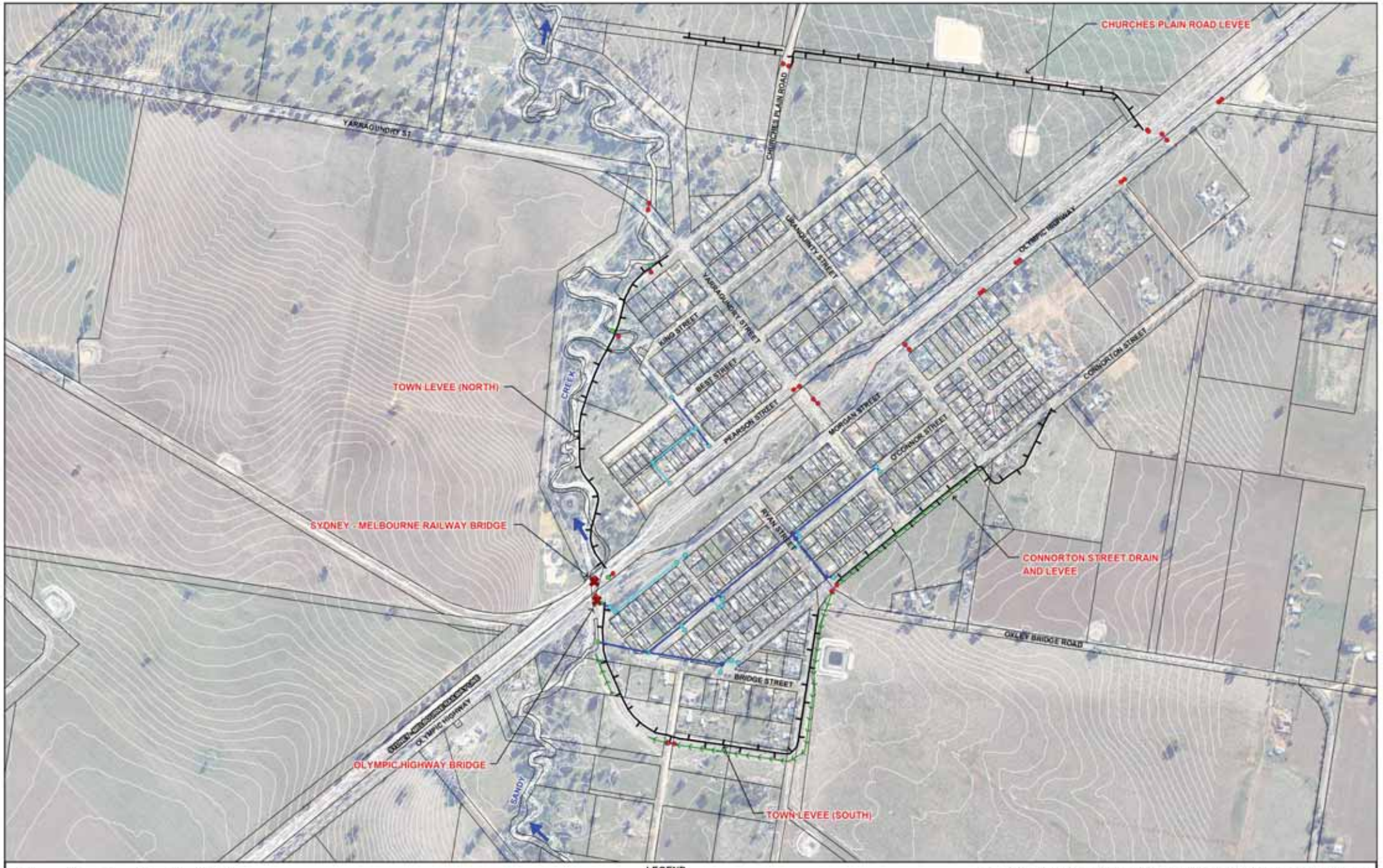
TARCUTTA DRAINAGE PLAN

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 1.3

LADYSMITH DRAINAGE PLAN

Lyall & Associates

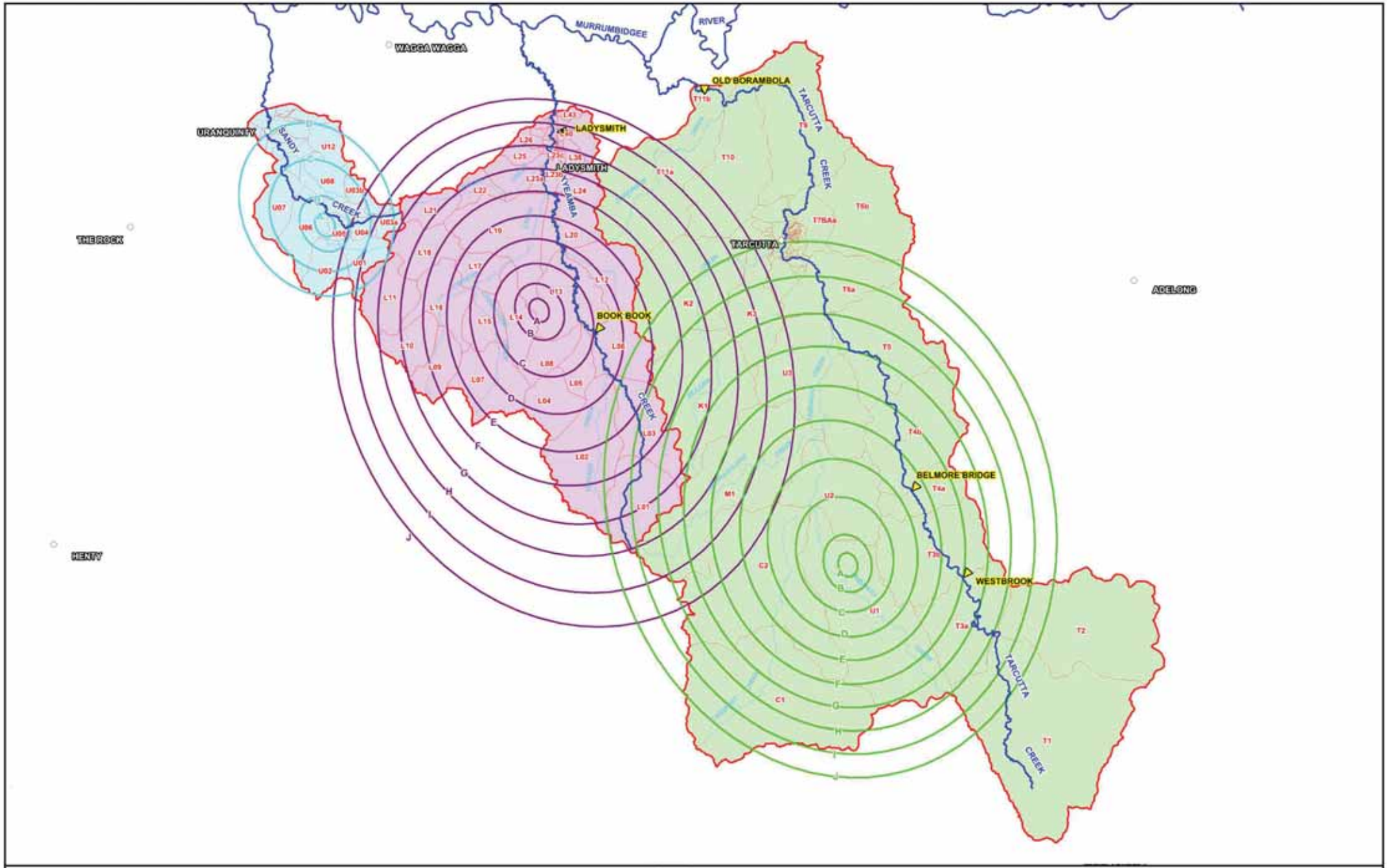


TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 1.4

URANQUINTY DRAINAGE PLAN

Lyall & Associates

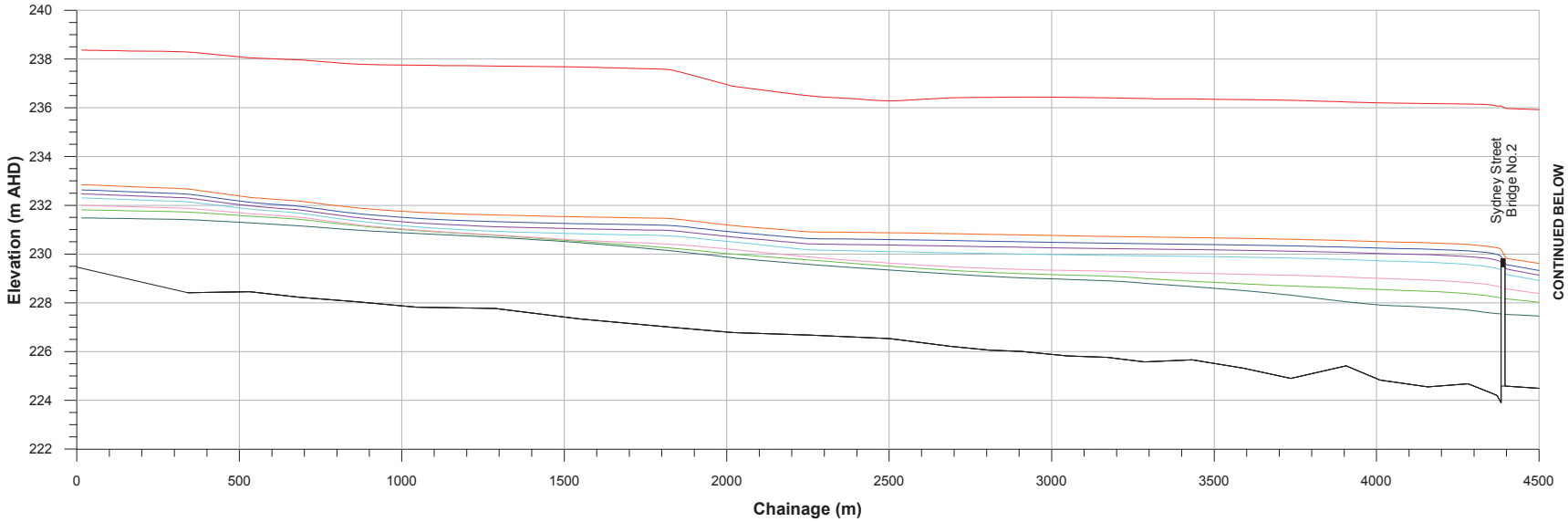


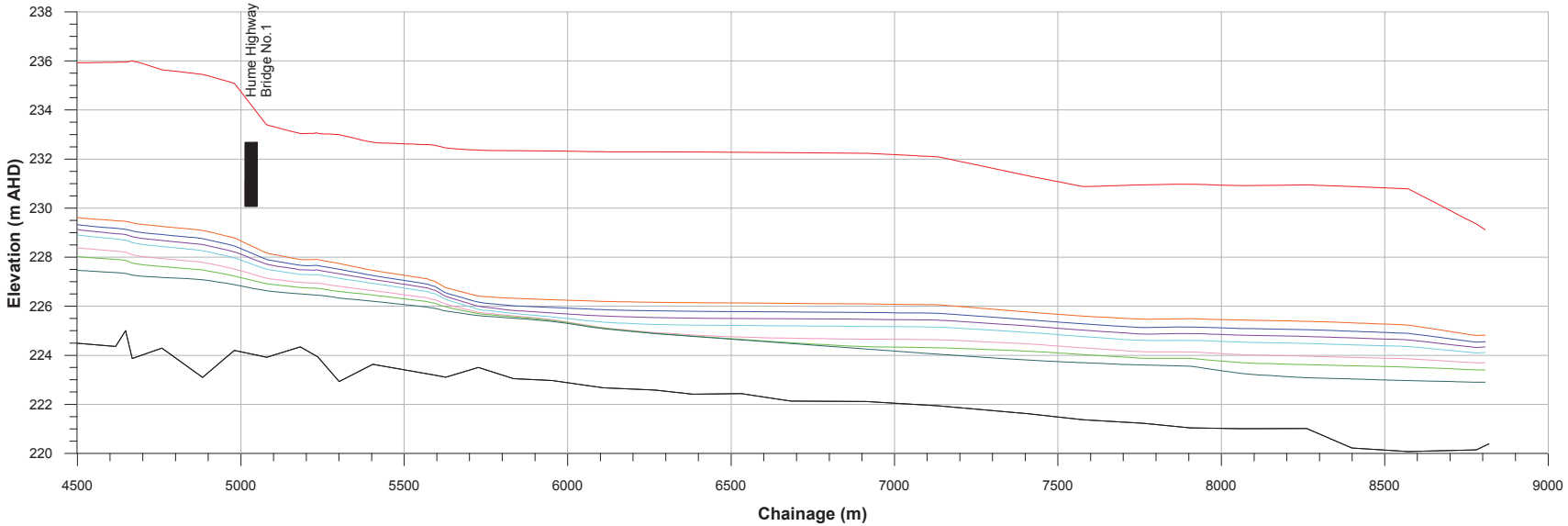
TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 2.1

EXTENT OF CATCHMENT SPECIFIC PMP ELLIPSES

Lyall & Associates





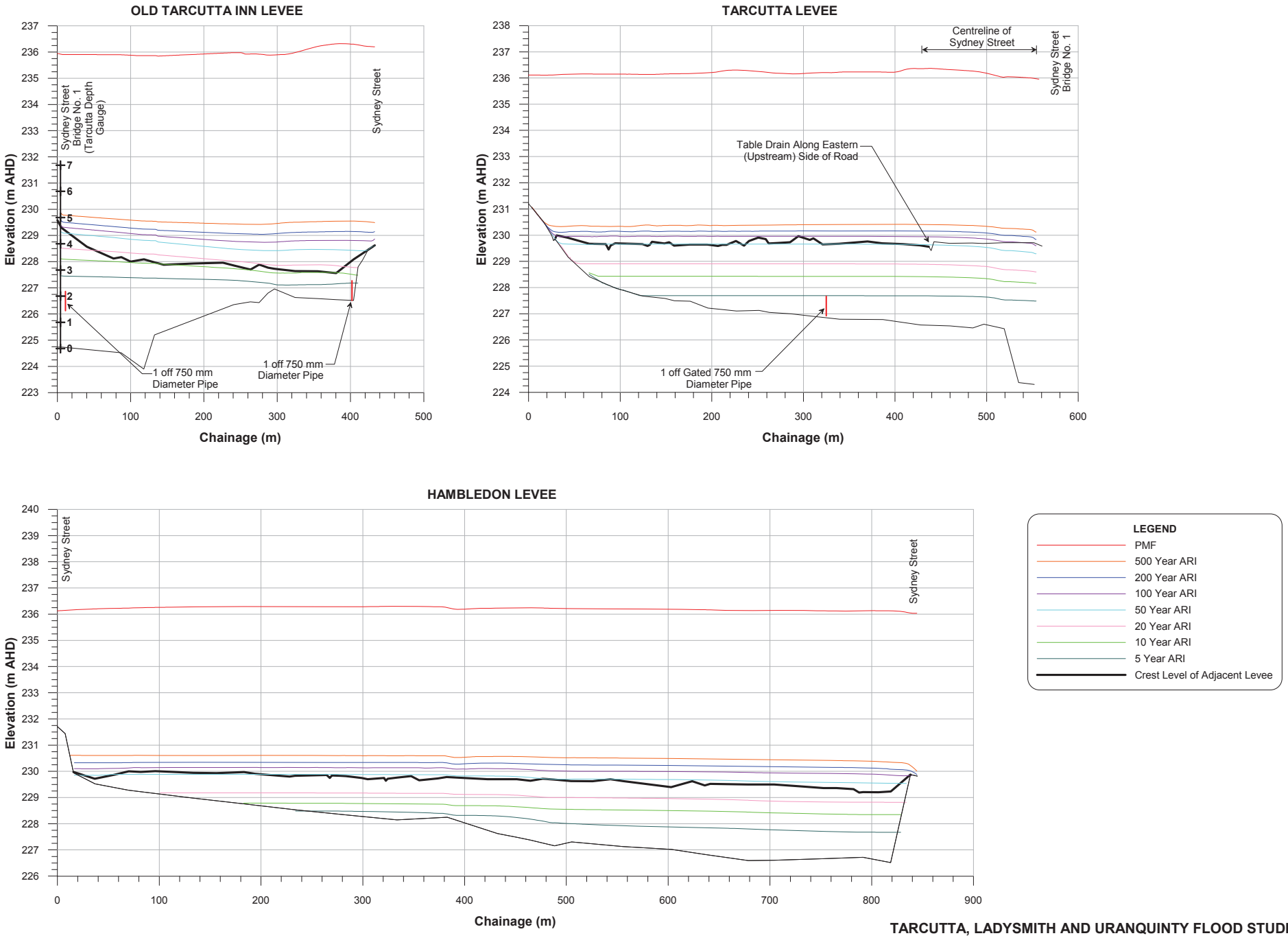
LEGEND

- PMF
- 500 Year ARI
- 200 Year ARI
- 100 Year ARI
- 50 Year ARI
- 20 Year ARI
- 10 Year ARI
- 5 Year ARI

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 3.1
Sheet 1 of 2

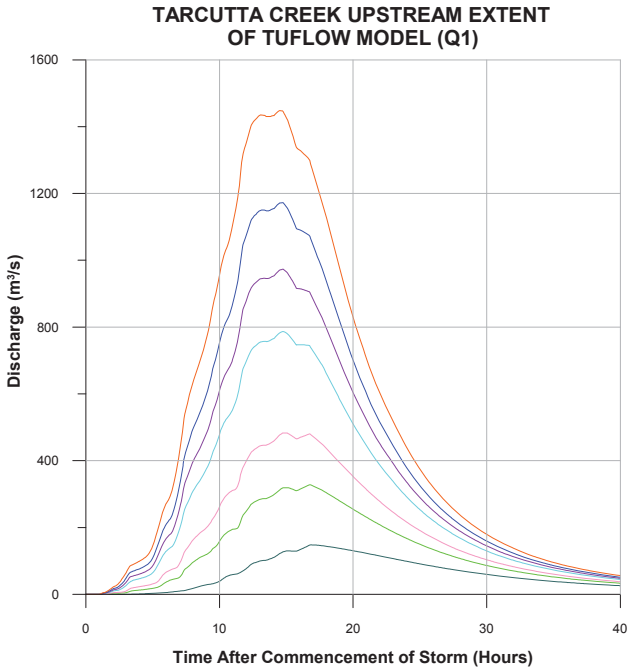
DESIGN WATER SURFACE PROFILES
TARCUTTA CREEK

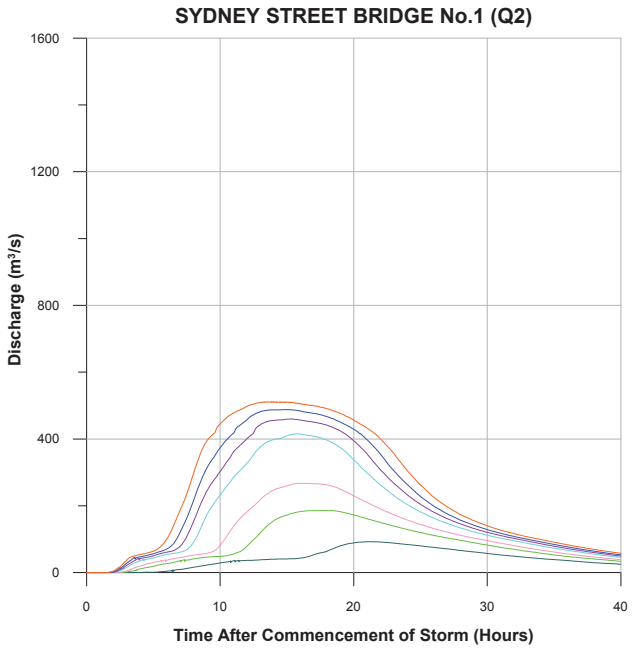


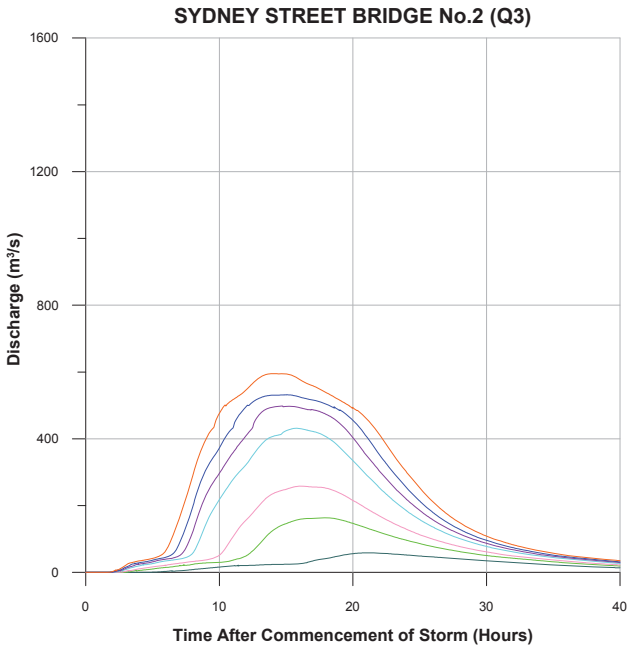
TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

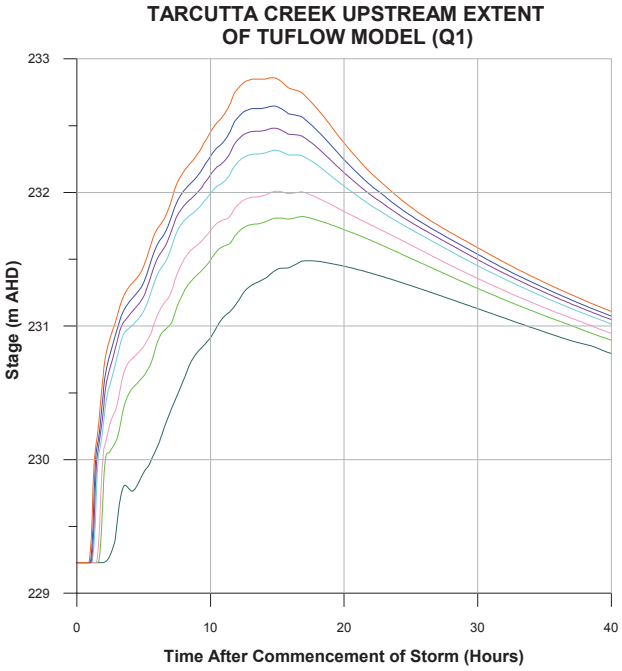
Figure 3.1
Sheet 2 of 2

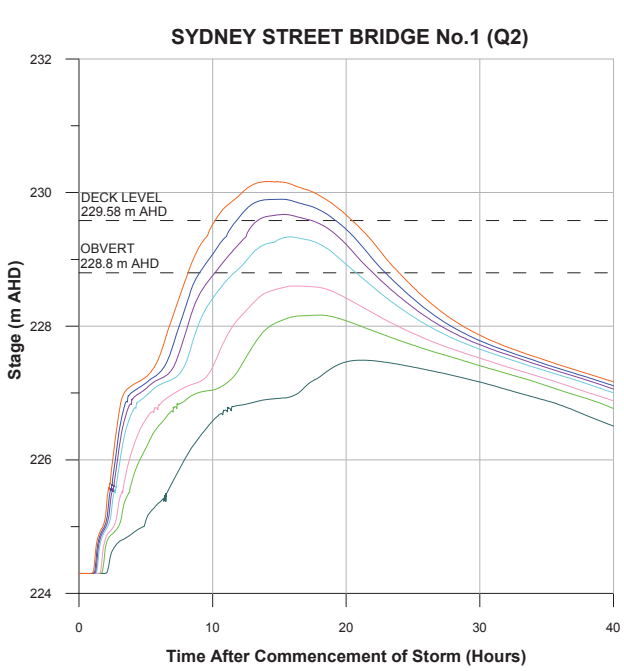
DESIGN WATER SURFACE PROFILES
TARCUTTA CREEK

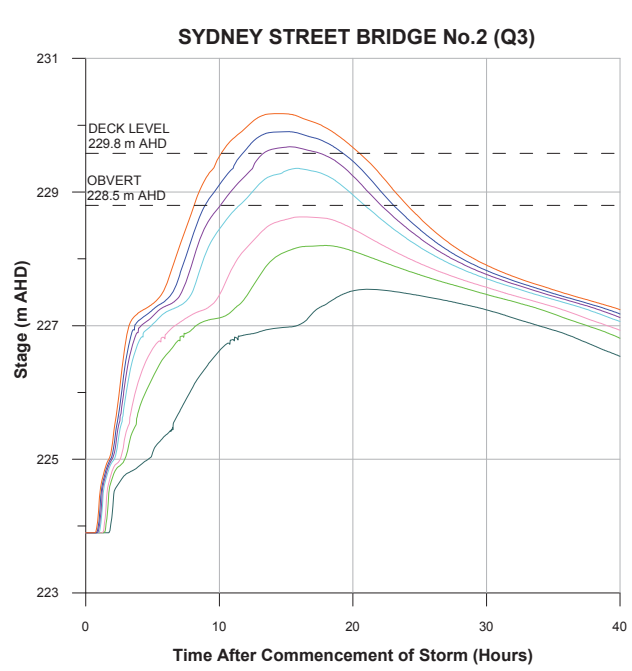


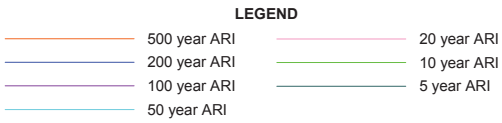












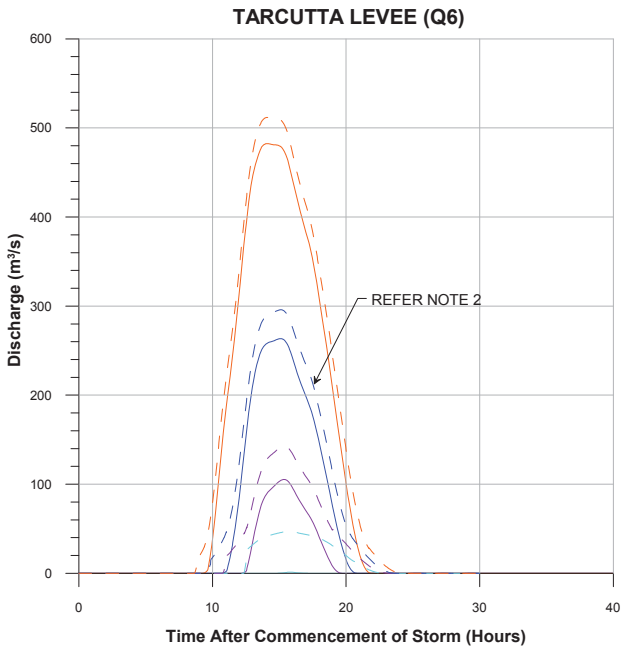
NOTE:

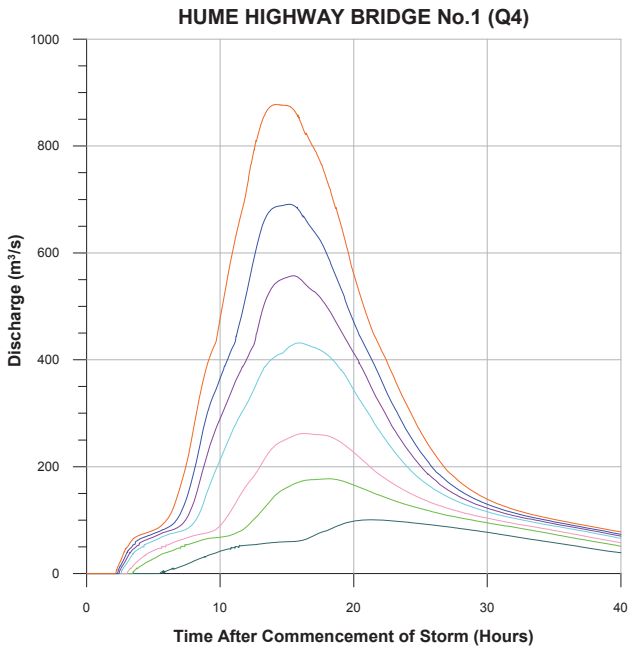
Refer Table A1 of Appendix A for storm durations of hydrographs at selected locations.

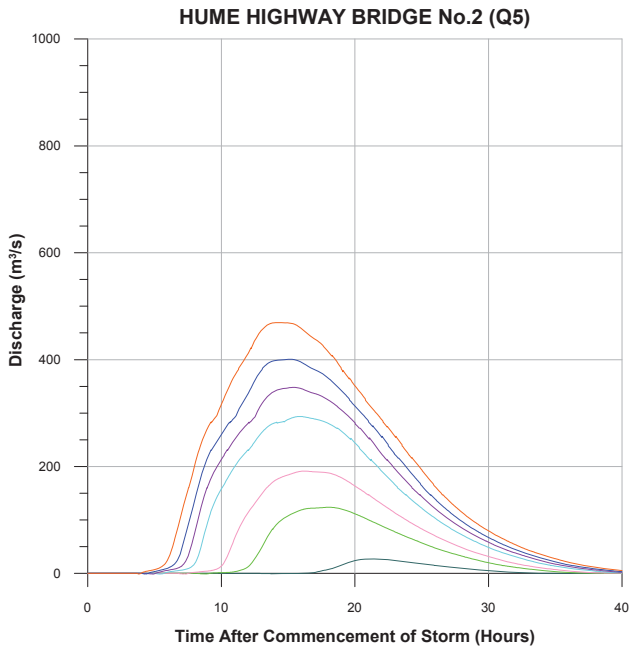
TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUIDES
DESIGN FLOOD MODELLING

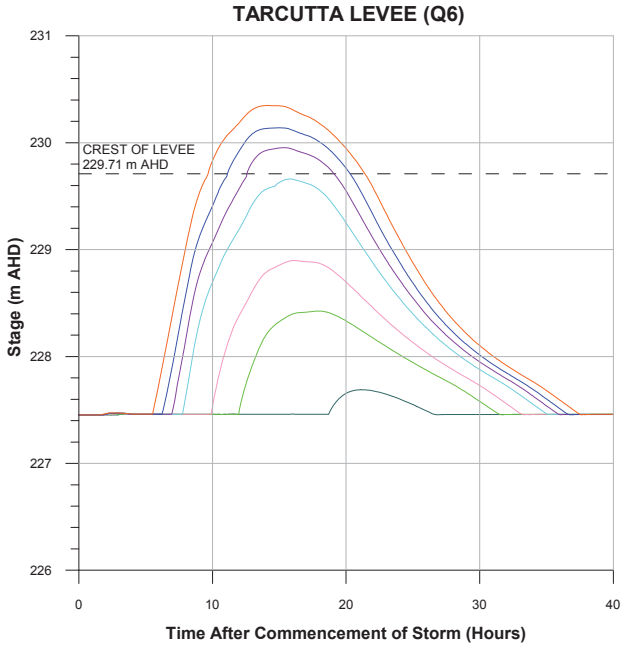
Figure 3.2
Sheet 1 of 2

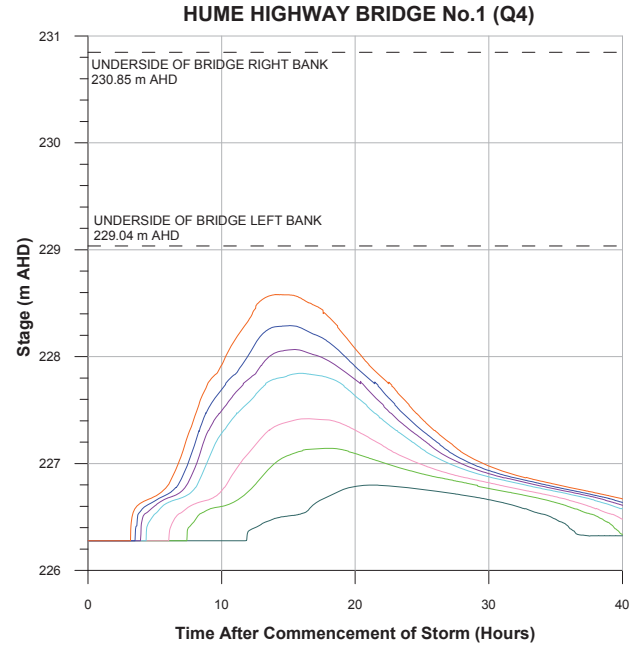
STAGE AND DISCHARGE HYDROGRAPHS - DESIGN FLOOD EVENTS
TARCUTTA CREEK

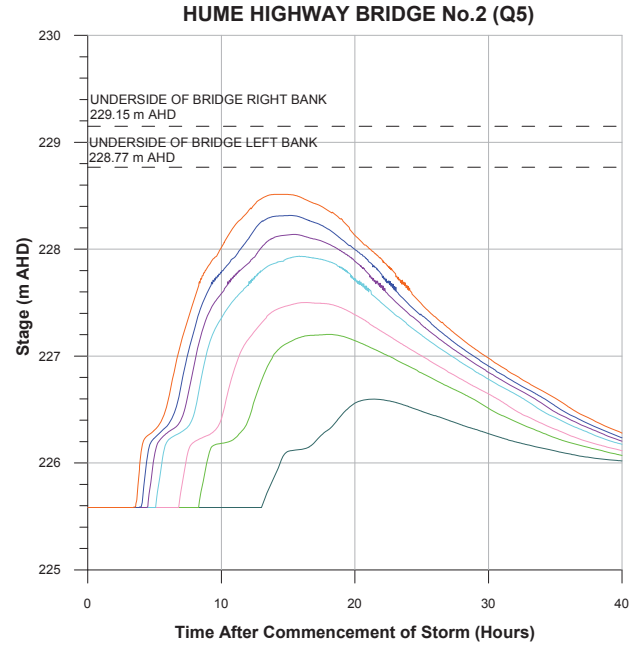


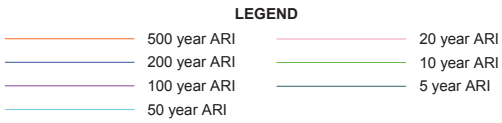












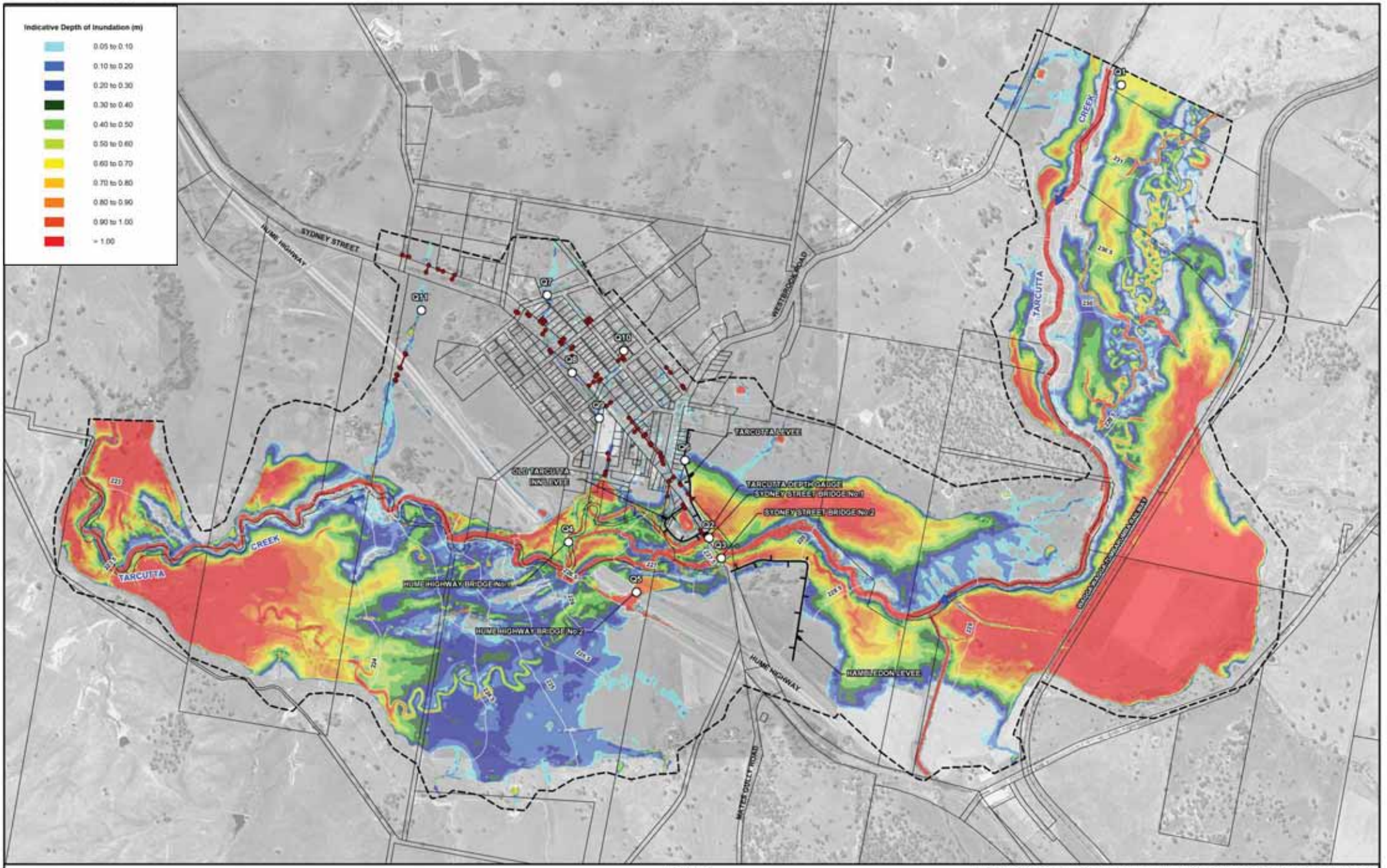
NOTE:

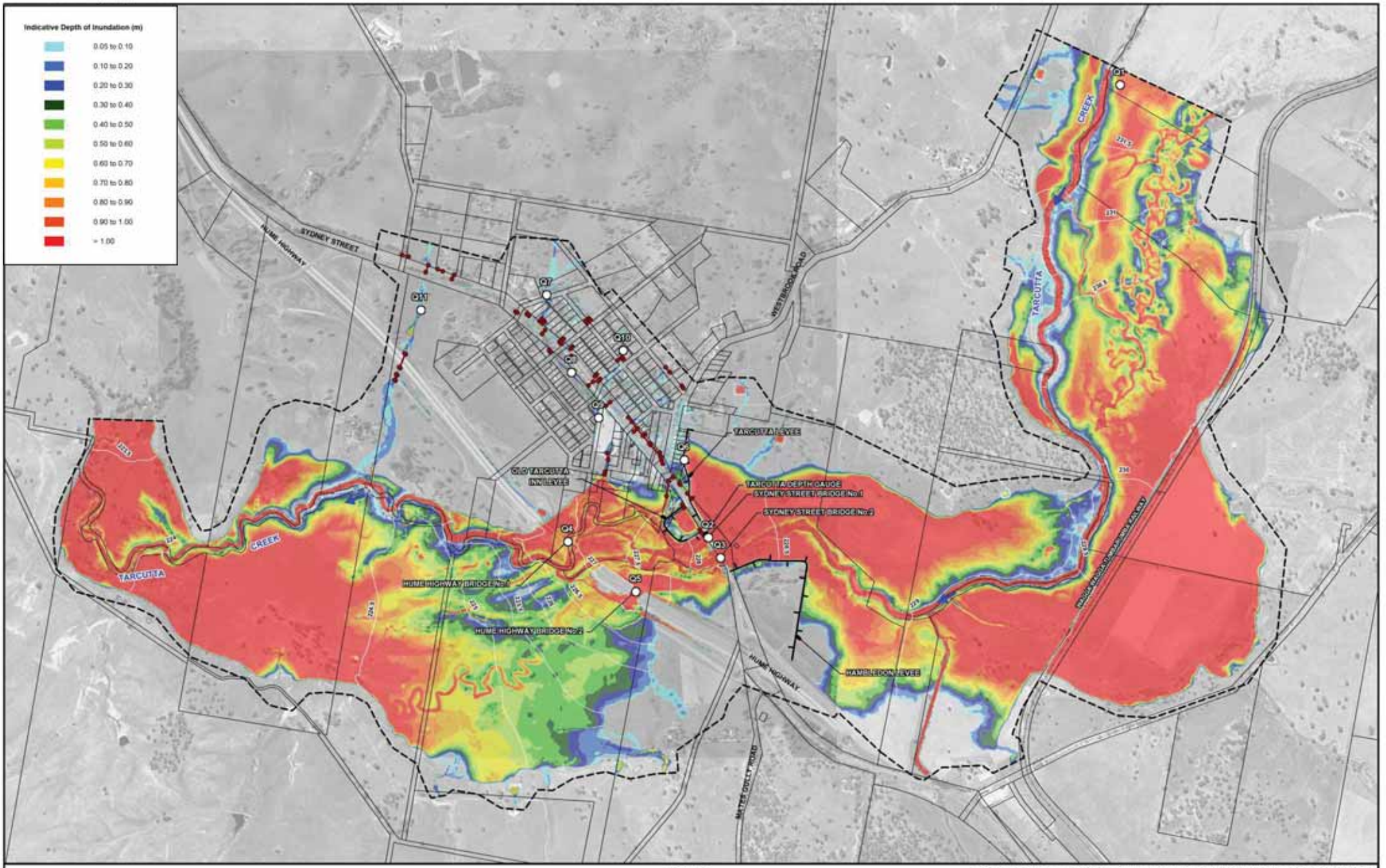
1. Refer Table A1 of Appendix A for storm durations of hydrographs at selected locations.
2. Dashed lines represent flow over levee when failure occurs.

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUIDES
DESIGN FLOOD MODELLING

Figure 3.2
Sheet 2 of 2

STAGE AND DISCHARGE HYDROGRAPHS - DESIGN FLOOD EVENTS
TARCUTTA CREEK

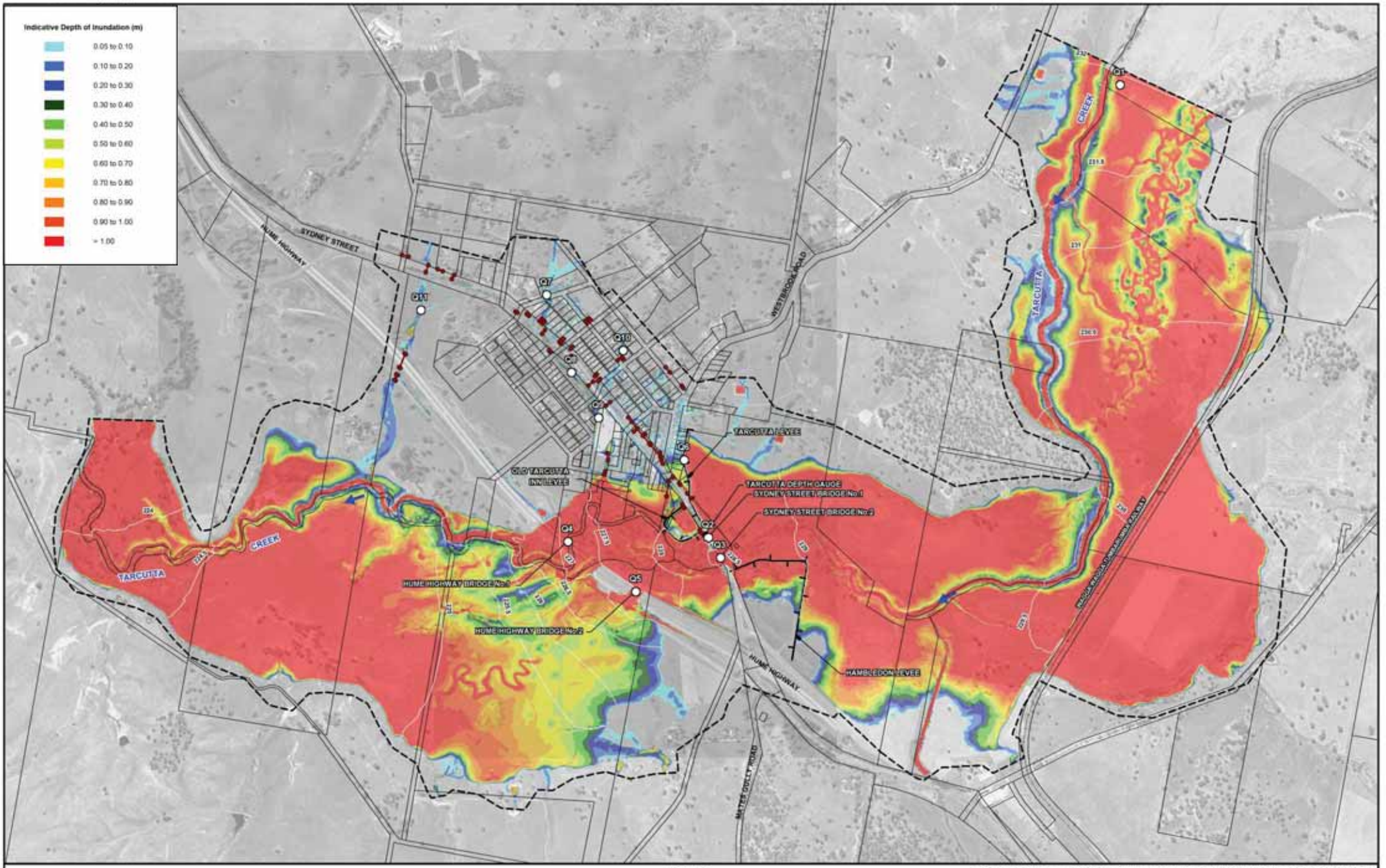




TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 3.4

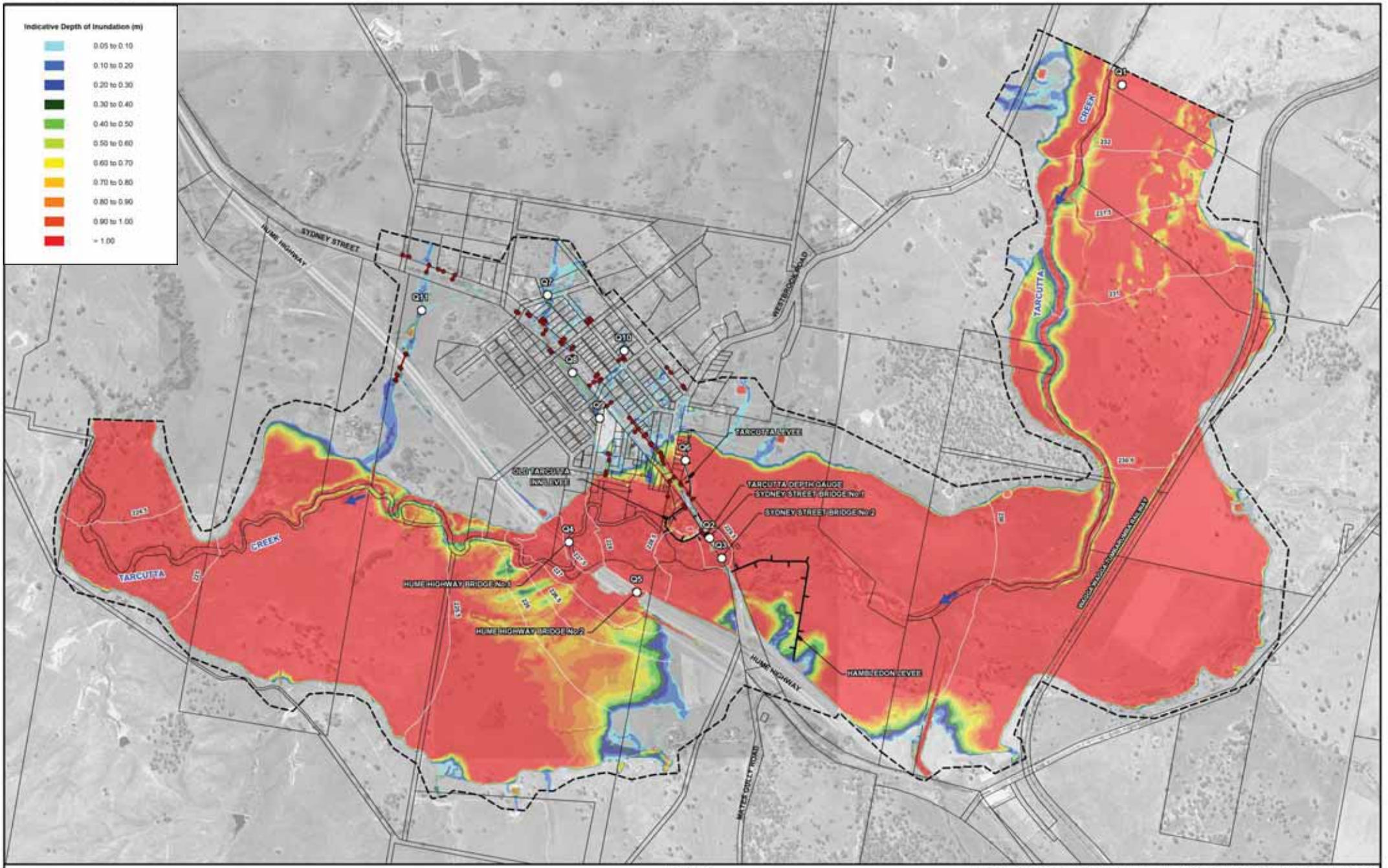
TARCUTTA TUFLOW MODEL RESULTS
10 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 3.5

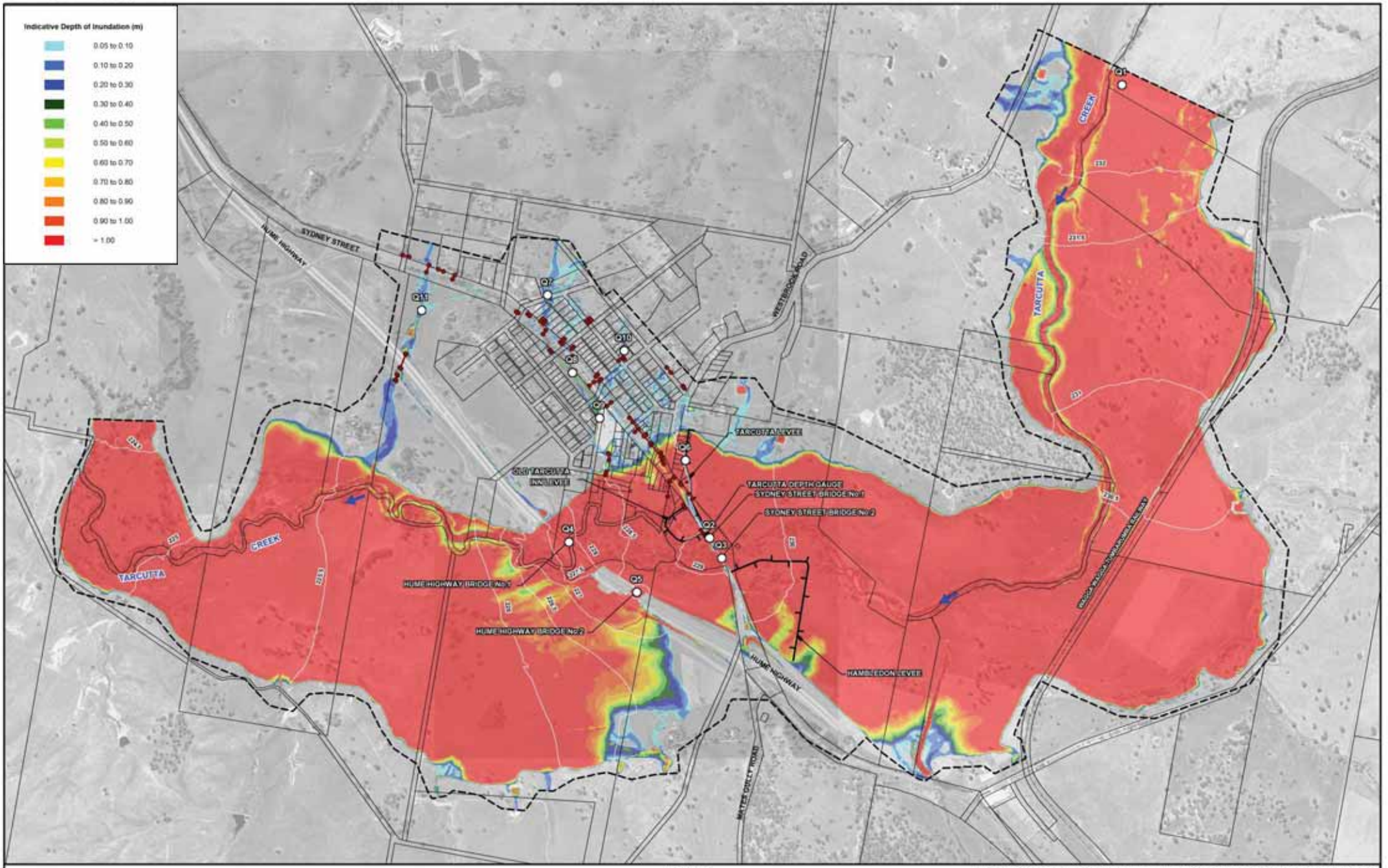
TARCUTTA TUFLOW MODEL RESULTS
20 YEAR ARI

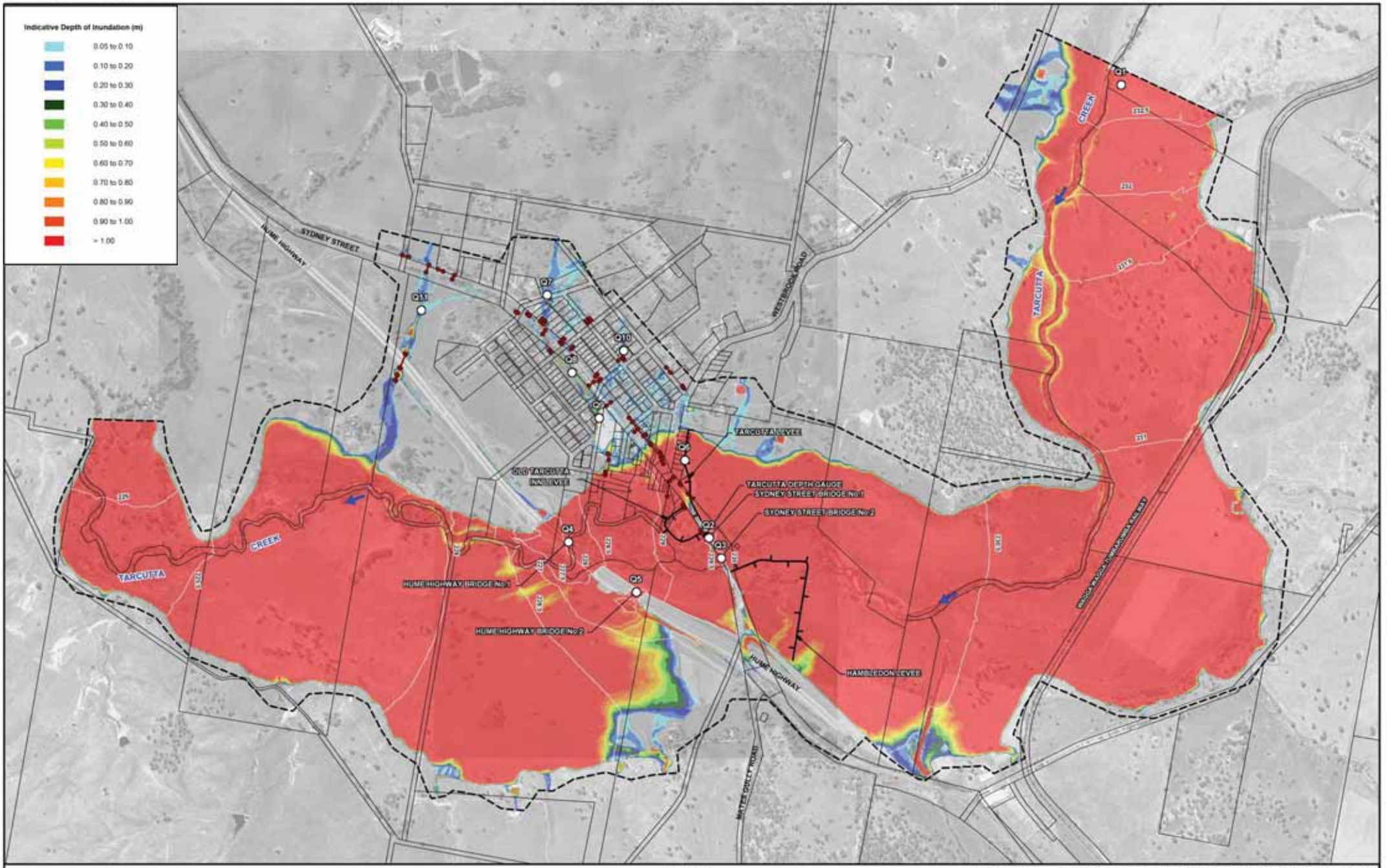


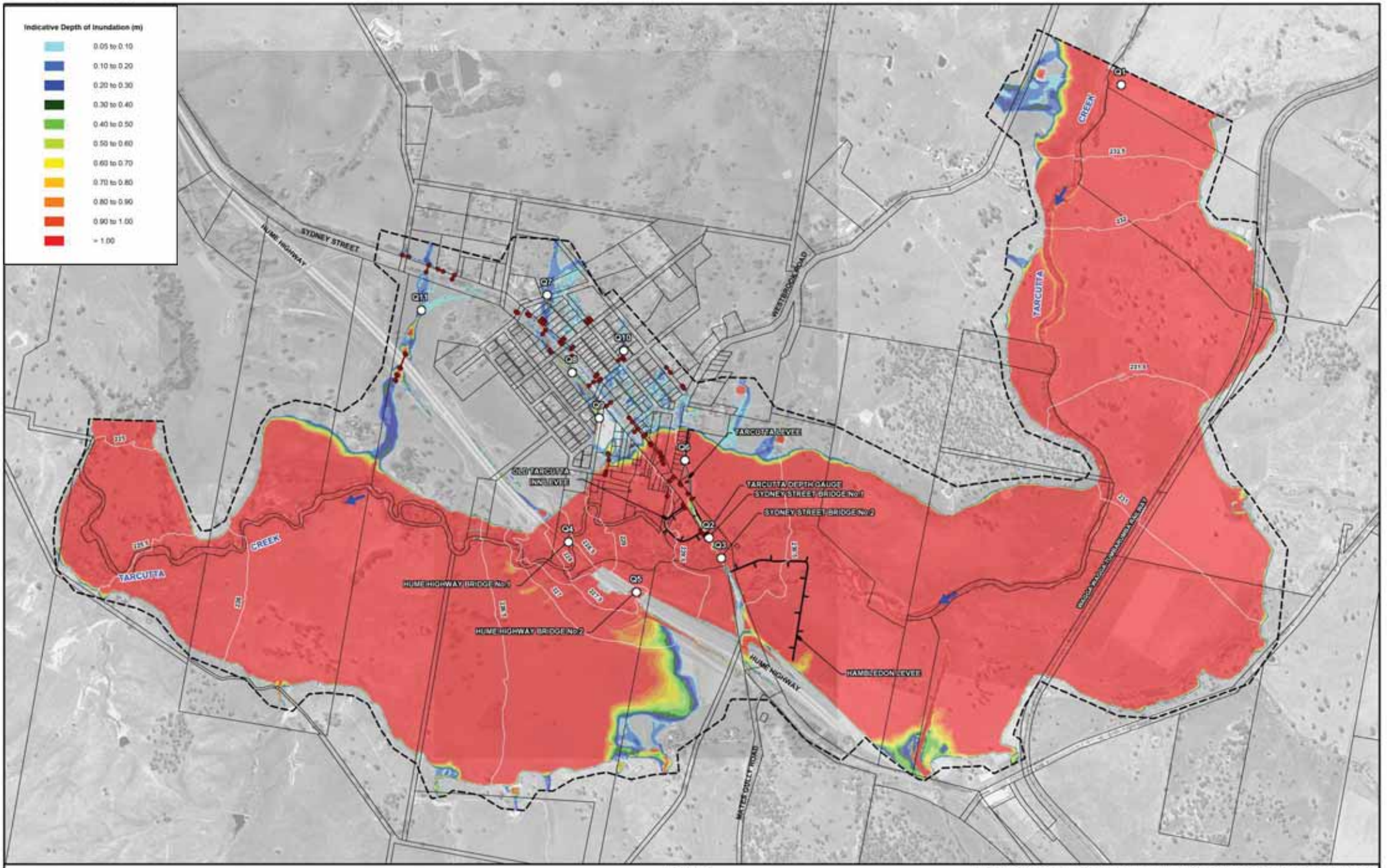
TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 3.6

TARCUTTA TUFLOW MODEL RESULTS
50 YEAR ARI







150 0 150 300 450 m

Scale: 1:15,000

NOTE:

The extent and depths of flooding shown were determined from airborne laser scanning survey and are approximate only. The extent of inundation in individual allotments near the flood fringe should be confirmed by site specific survey.

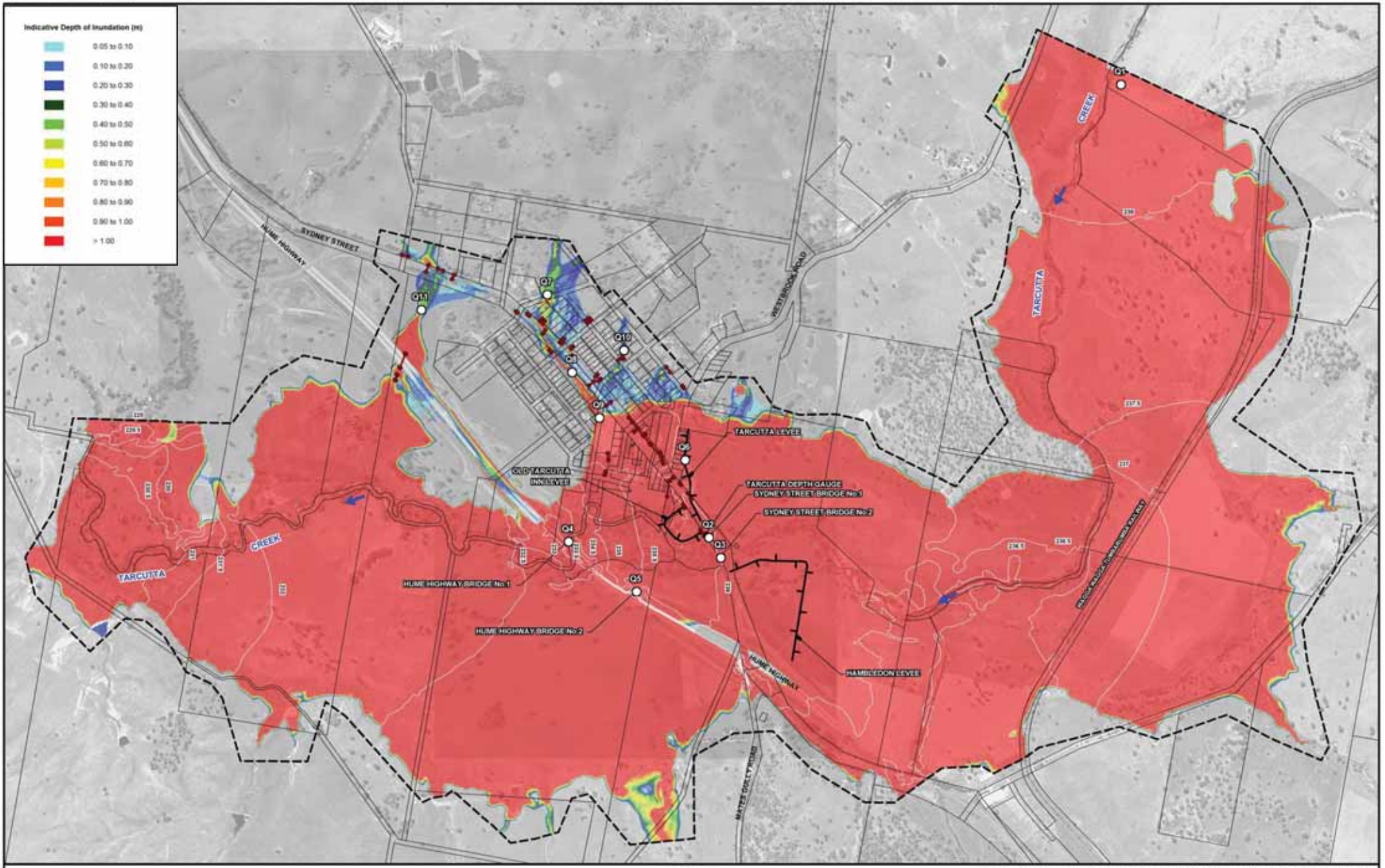
LEGEND

- Modelled Stormwater Network
- Two-Dimensional Model Boundary
- Water Surface Contours (m AHD) (Mainstream Flooding Only)
- Alignment of Existing Levee
- Peak Flow Locations and Identifier (Refer Table A1 in Appendix A)

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 3.9

TARCUTTA TUFLOW MODEL RESULTS
500 YEAR ARI



150 0 150 300 450 m

Scale: 1:15,000

NOTE:

The extent and depths of flooding shown were determined from airborne laser scanning survey and are approximate only. The extent of inundation in individual allotments near the flood fringe should be confirmed by site specific survey.

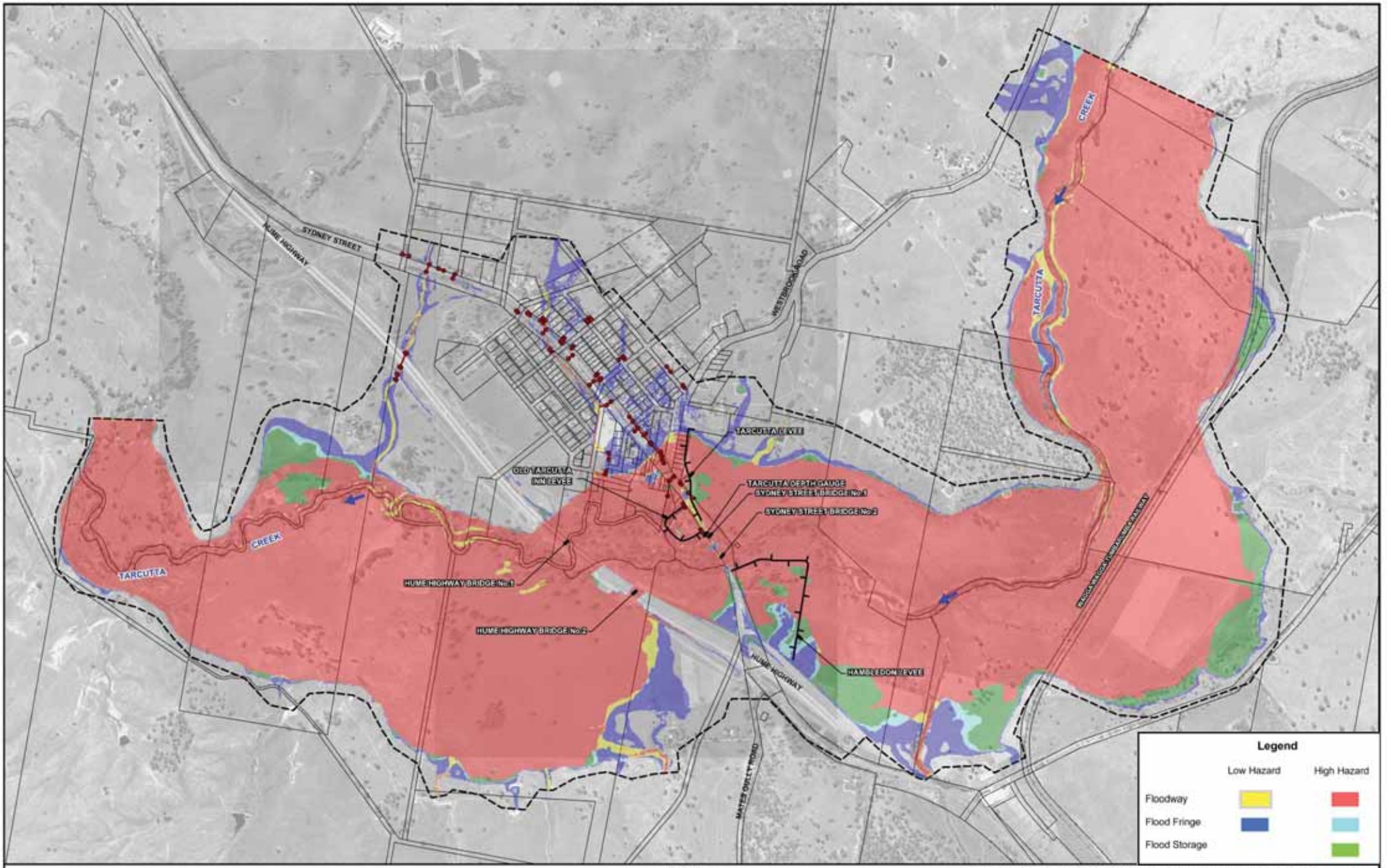
LEGEND

- Modelled Stormwater Network
- Two-Dimensional Model Boundary
- Water Surface Contours (m AHD) (Mainstream Flooding Only)
- Alignment of Existing Levee
- Peak Flow Locations and Identifier (Refer Table A1 in Appendix A)

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 3.10

TARCUTTA TUFLOW MODEL RESULTS
PMF



150 0 150 300 450 m

Scale: 1:15,000

LEGEND

Modelled Stormwater Network

Alignment of Existing Levee

Two-Dimensional Model Boundary

NOTE:

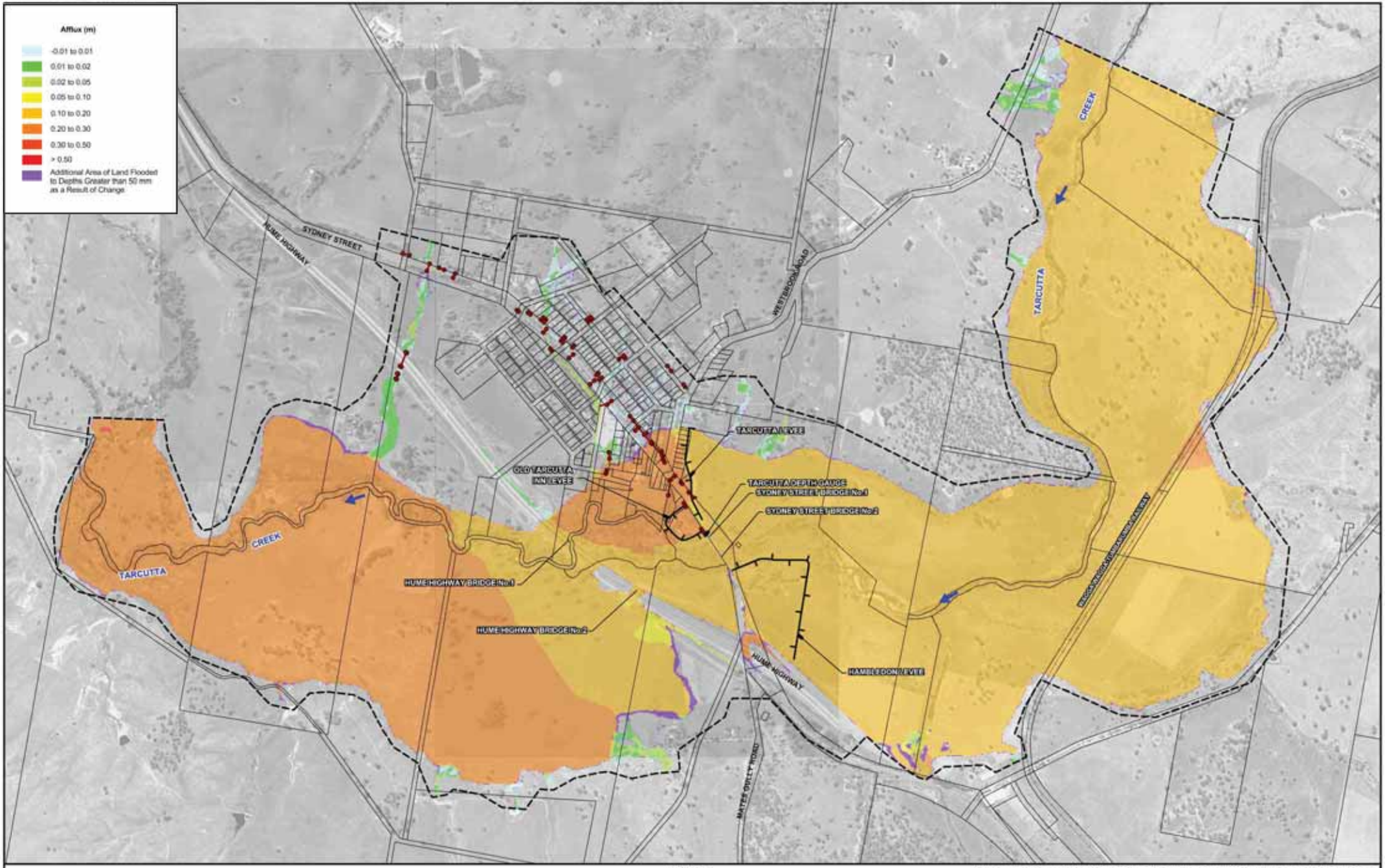
The extent of flooding shown was determined from airborne laser scanning survey and are approximate only. The extent of inundation in individual allotments near the flood fringe should be confirmed by site specific survey.

Lyall & Associates

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 3.11

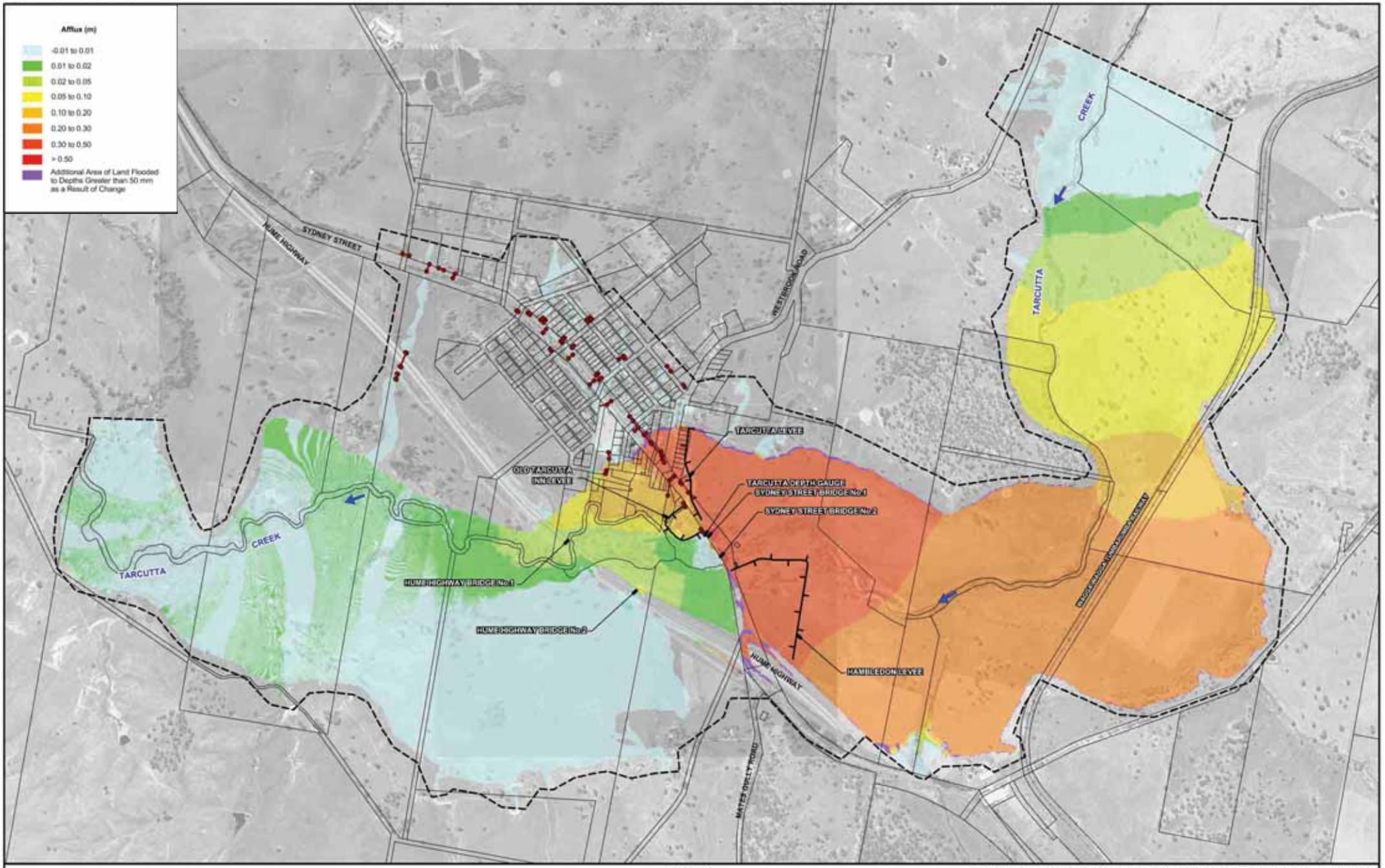
TARCUTTA PROVISIONAL FLOOD HAZARD AND HYDRAULIC CATEGORISATION OF FLOODPLAIN
100 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 3.12

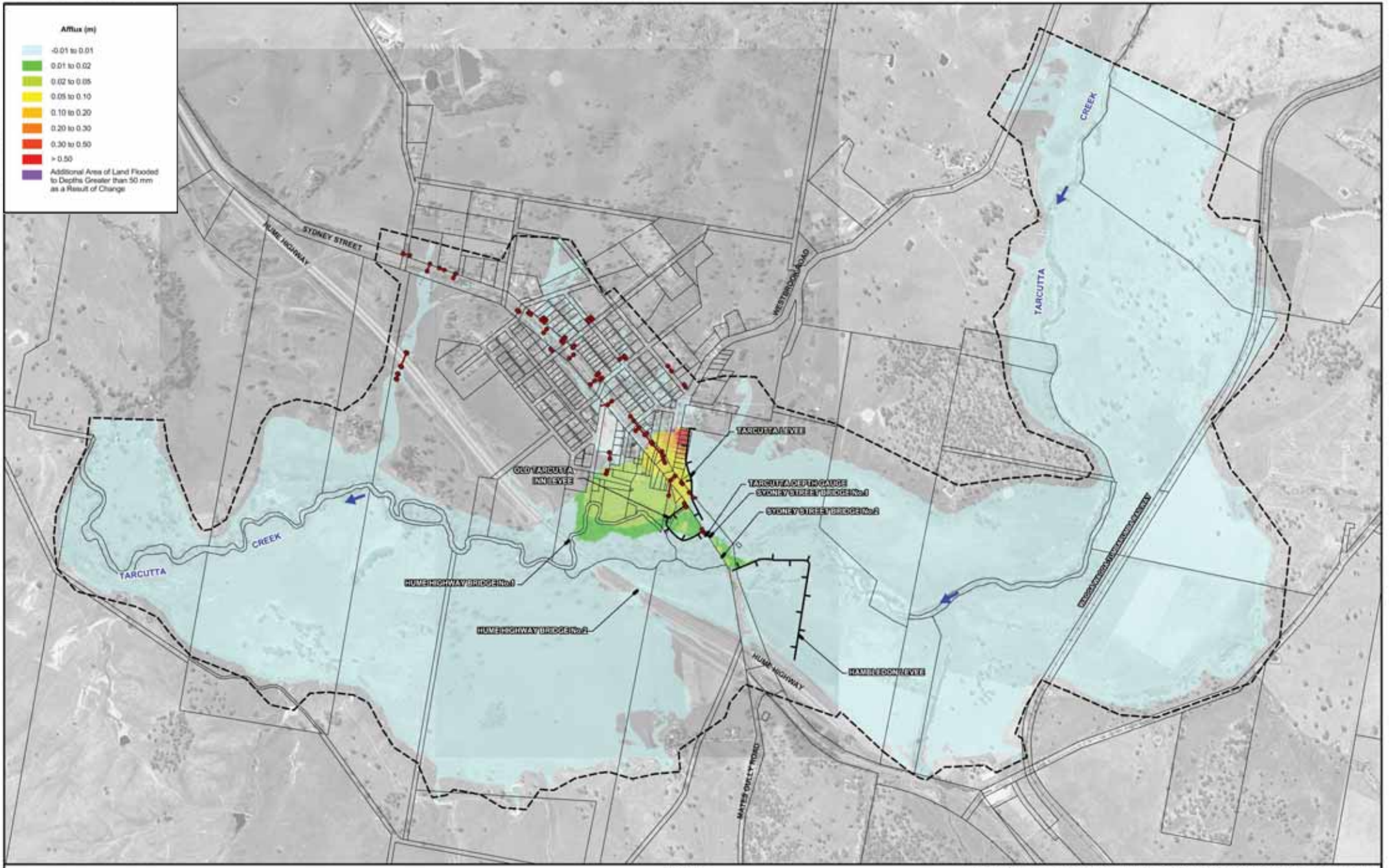
SENSITIVITY OF FLOOD BEHAVIOUR AT TARCUTTA TO 20% INCREASE IN HYDRAULIC ROUGHNESS VALUES
100 YEAR ARI 18 HOUR STORM



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 3.13

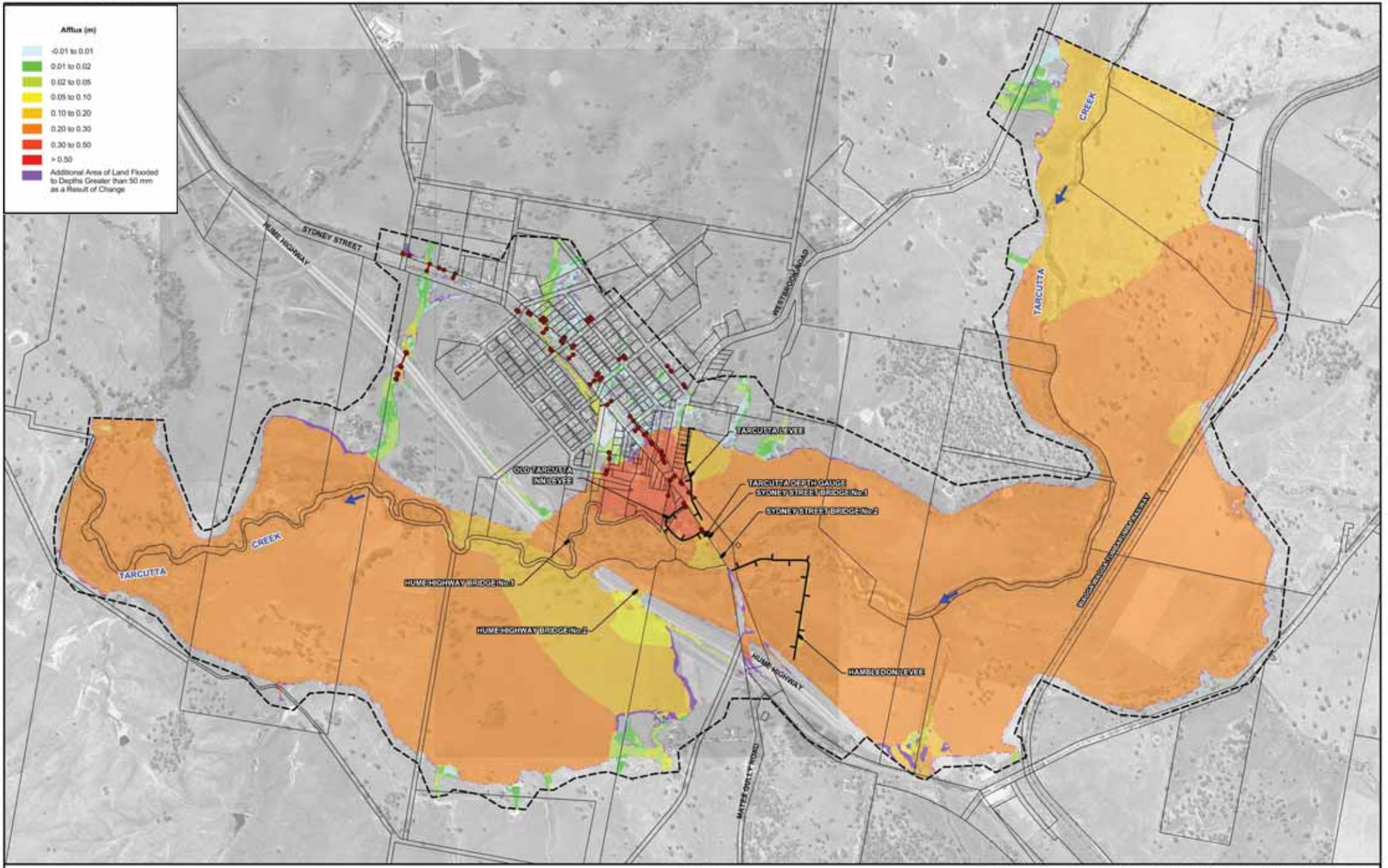
SENSITIVITY OF FLOOD BEHAVIOUR AT TARCUTTA TO A PARTIAL BLOCKAGE OF MAJOR HYDRAULIC STRUCTURES
100 YEAR ARI 18 HOUR STORM



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 3.14

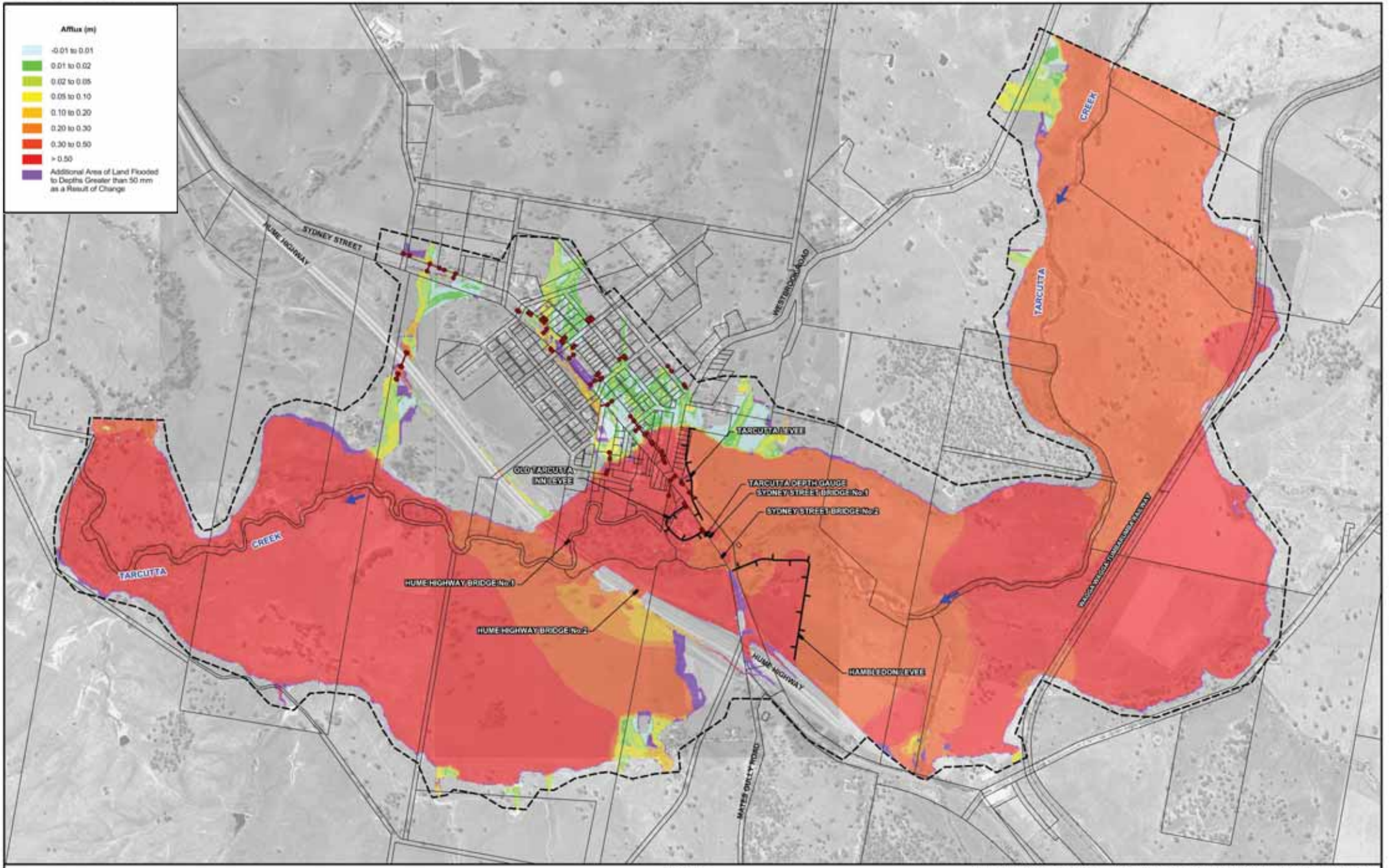
SENSITIVITY OF FLOOD BEHAVIOUR AT TARCUTTA TO LEVEE FAILURE
100 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 3.15

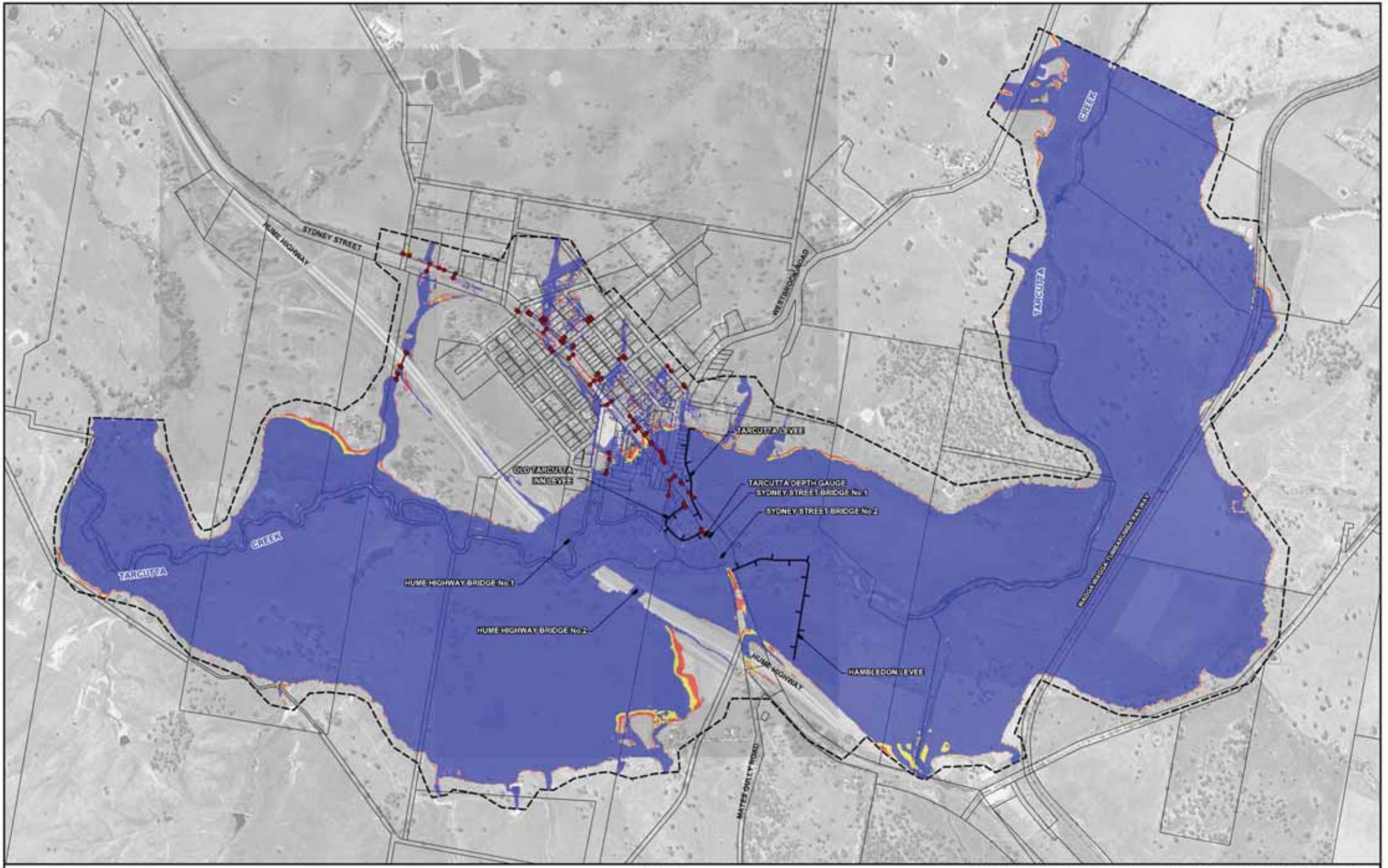
SENSITIVITY OF FLOOD BEHAVIOUR AT TARCUTTA TO 10% INCREASE IN RAINFALL INTENSITY
100 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 3.16

SENSITIVITY OF FLOOD BEHAVIOUR AT TARCUTTA TO 30% INCREASE IN RAINFALL INTENSITY
100 YEAR ARI

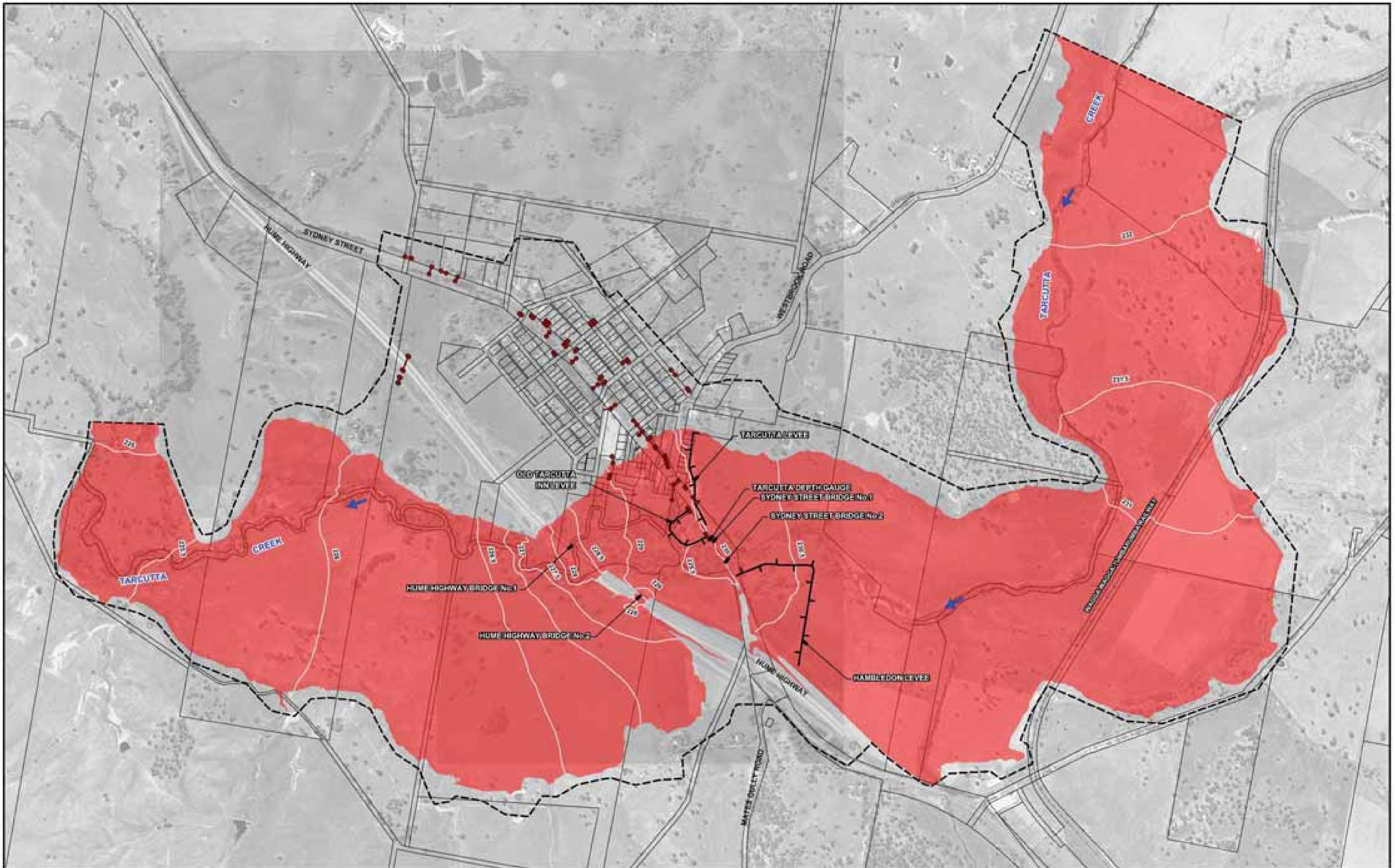


Lyall & Associates

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 3.17

IMPACT OF INCREASED RAINFALL INTENSITIES ON EXTENT OF FLOODING AT TARCUTTA
100 YEAR ARI



LEGEND

- Modelled Stormwater Network
- Two-Dimensional Model Boundary
- Alignment of Existing Levee
- Interim Flood Planning Area (FPA) and resulting Flood Planning Level (FPL) (m AHD)

NOTE:

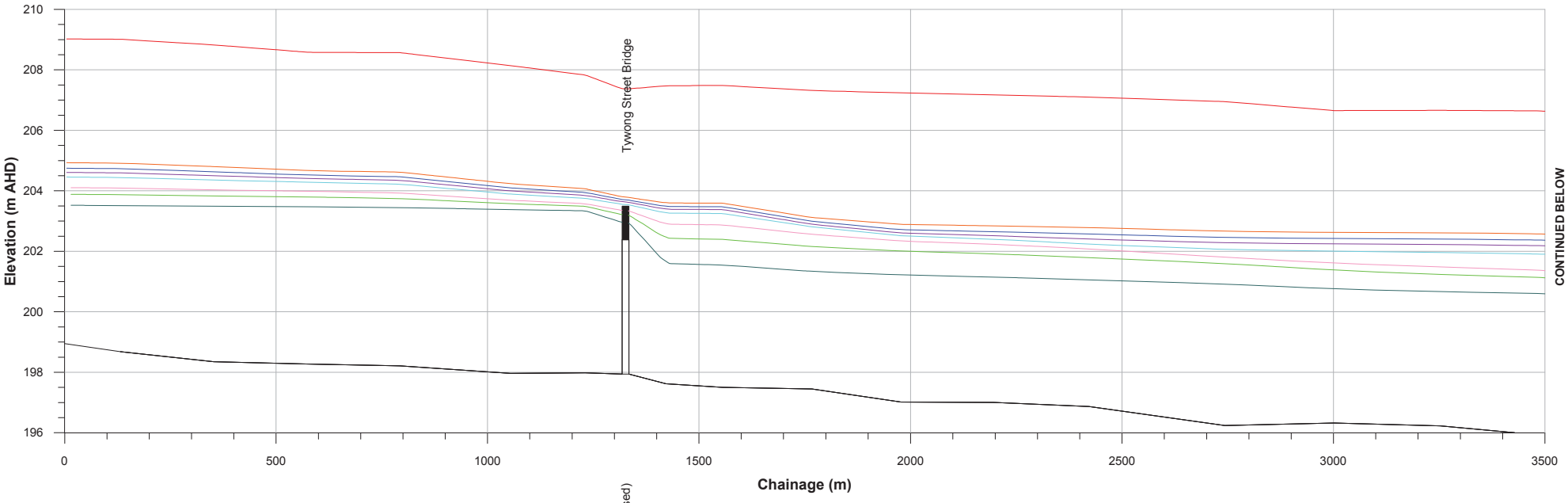
The extent of flooding shown was determined from airborne laser scanning survey and are approximate only. The extent of inundation in individual allotments near the flood fringe should be confirmed by site specific survey.

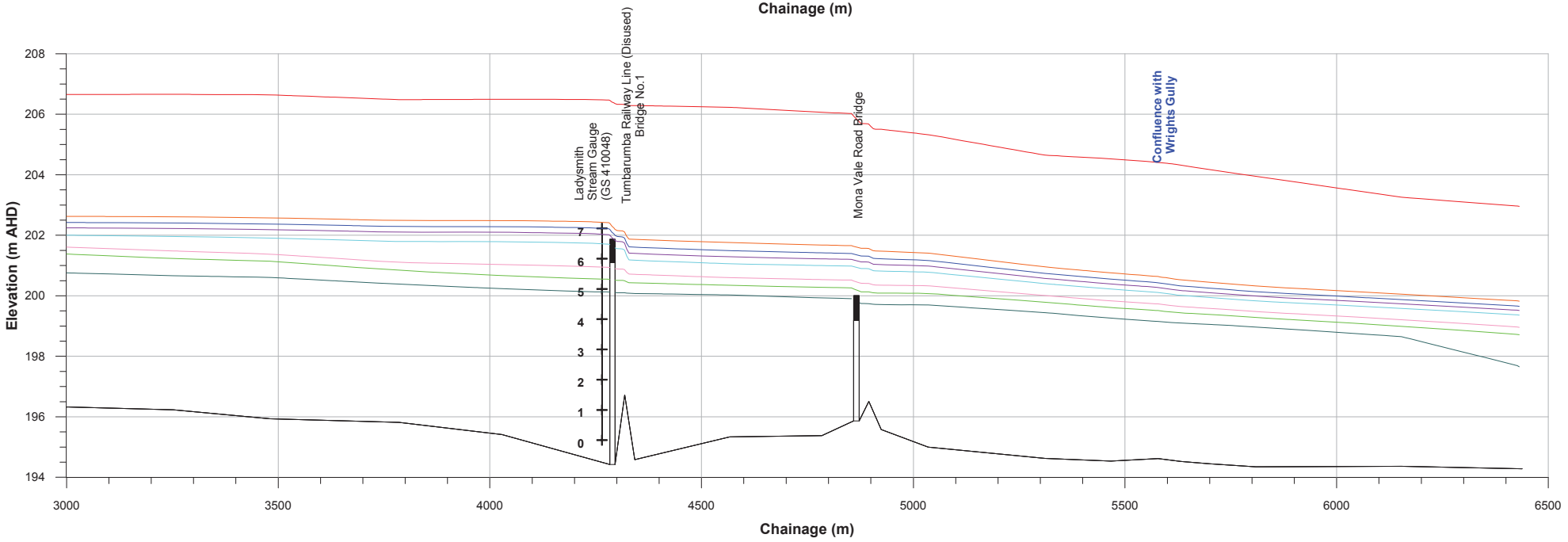
Lyall & Associates

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 3.18

INTERIM FLOOD PLANNING AREA AT TARCUTTA
MAIN STREAM FLOODING ONLY





LEGEND

- Probable Maximum Flood
- 500 Year ARI
- 200 Year ARI
- 100 Year ARI
- 50 Year ARI
- 20 Year ARI
- 10 Year ARI
- 5 Year ARI

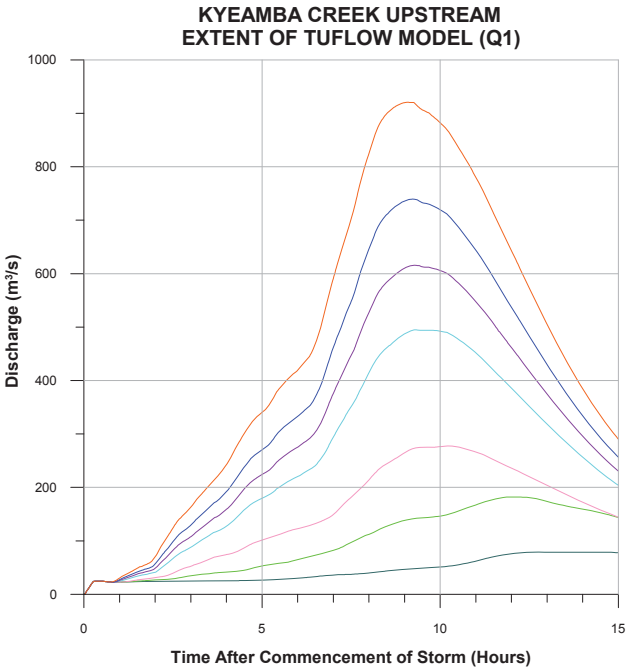
Notes

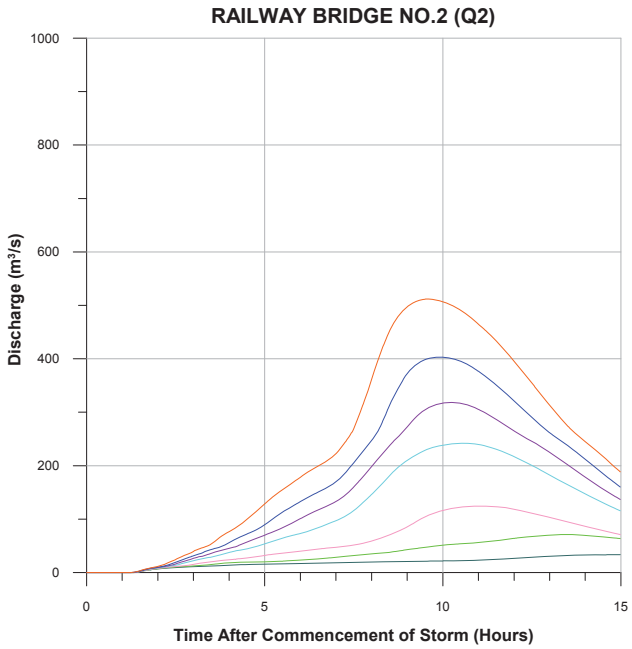
1. Location of Ladysmith stream gauge approximate only.
2. Gauge zero on Ladysmith stream gauge = 195.224 m AHD

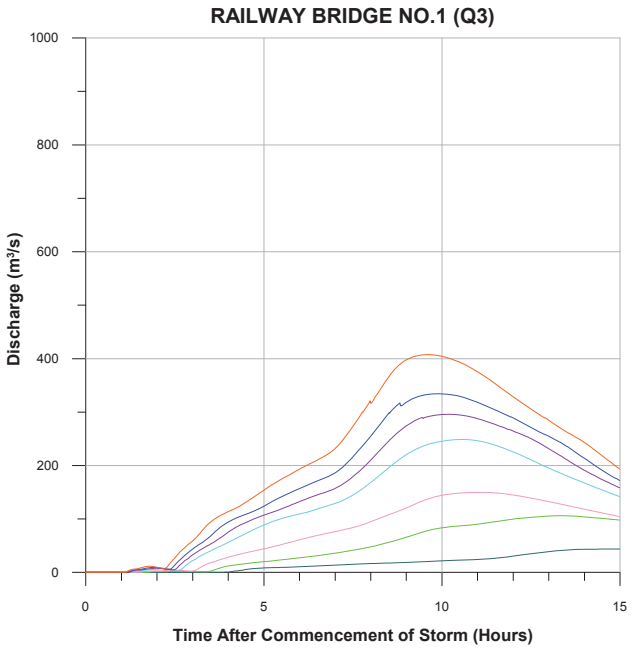
TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

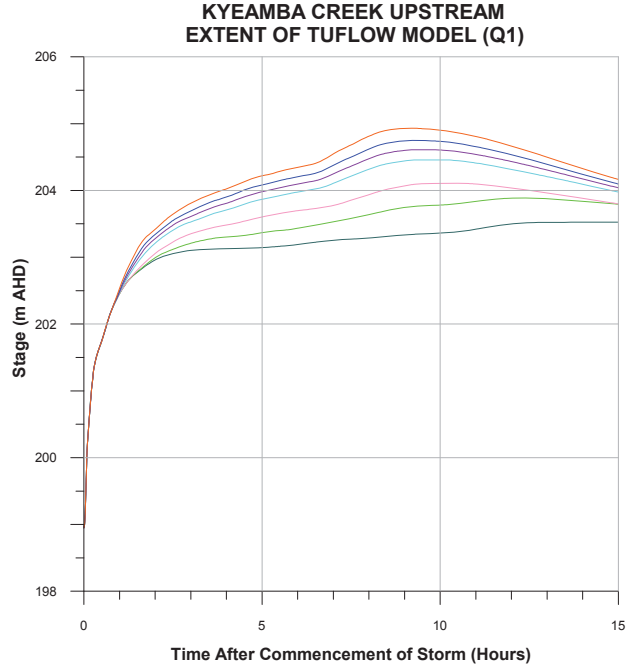
Figure 4.1

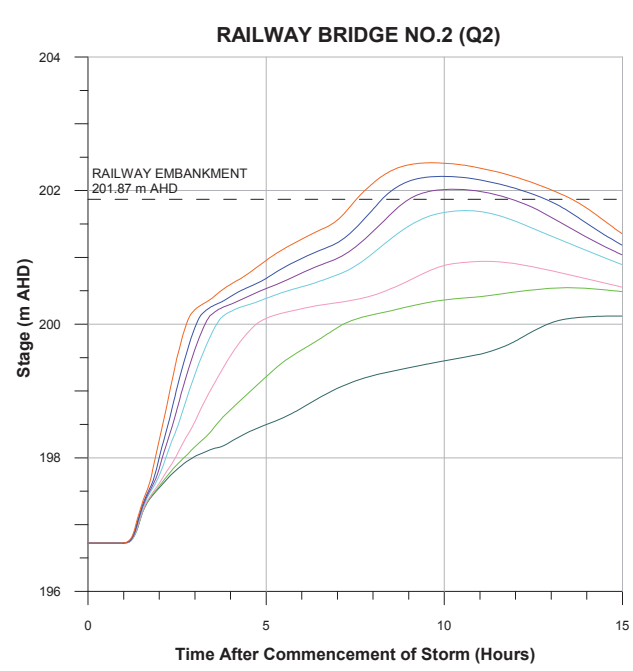
DESIGN WATER SURFACE PROFILES
KYEAMBA CREEK

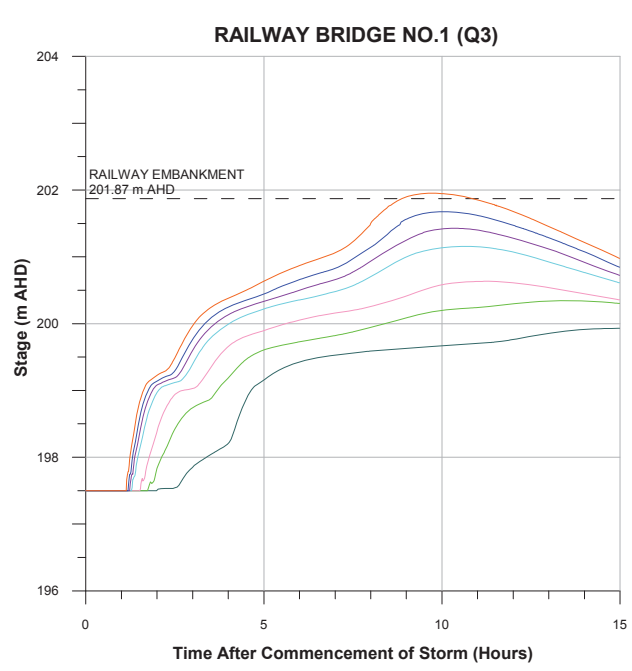


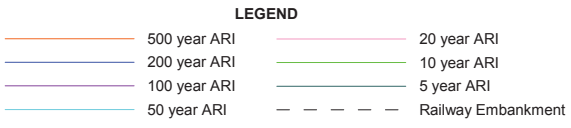












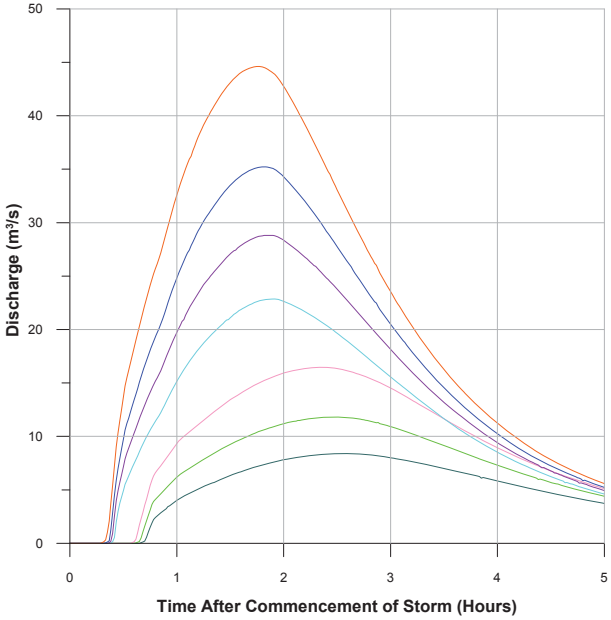
NOTE:

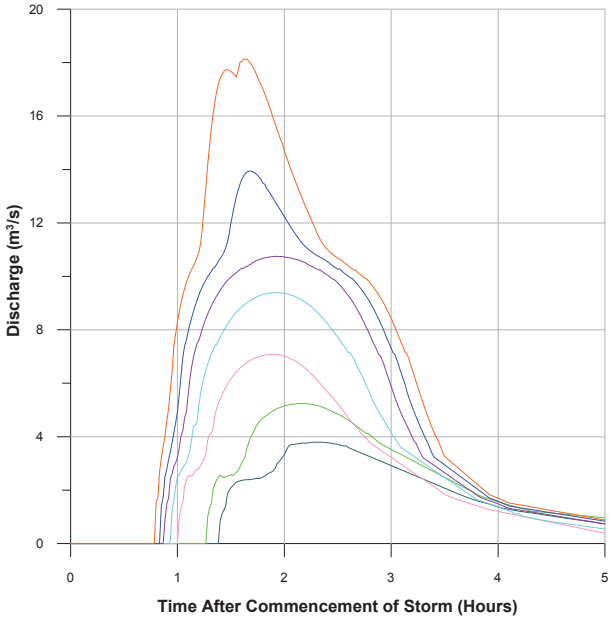
1. Discharge hydrographs of Railway Bridge No.2 include surcharge over railway embankment east of Railway Bridge No.2.
2. Discharge hydrograph at Railway Bridge No.1 include surcharge over railway embankment west of Railway Bridge No. 2.
3. Refer Table A2 of Appendix A for storm durations of hydrographs at selected locations.

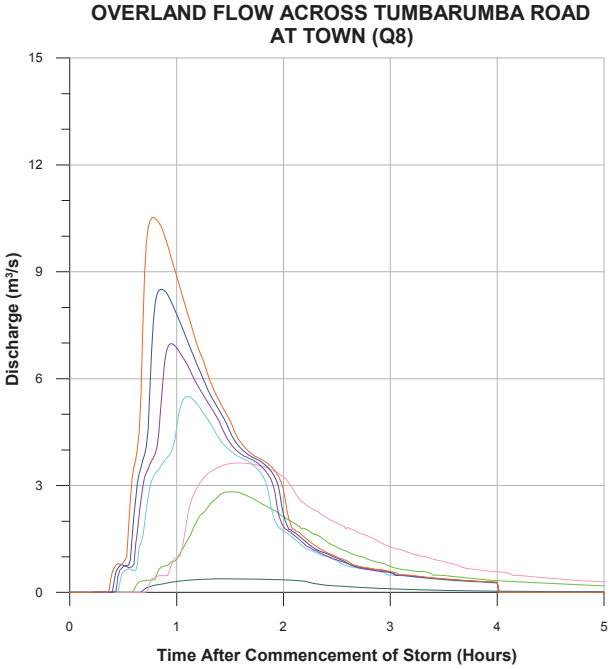
TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUIDES
DESIGN FLOOD MODELLING

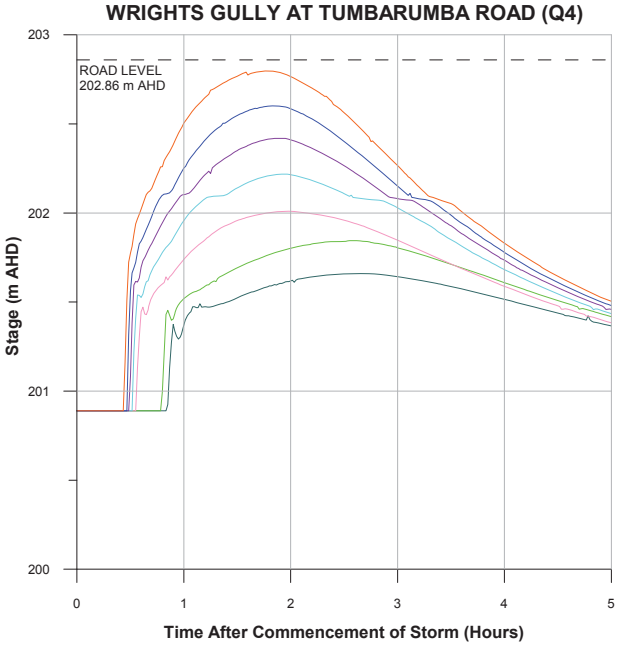
Figure 4.2
Sheet 1 of 2

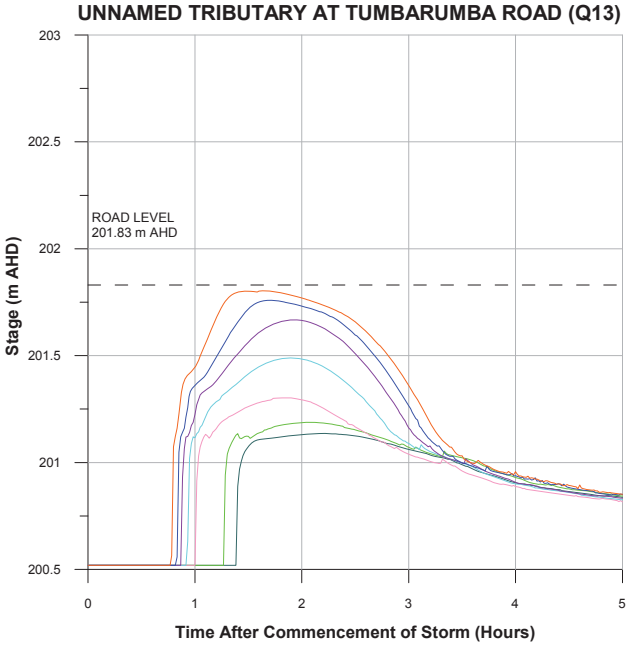
STAGE AND DISCHARGE HYDROGRAPHS - DESIGN FLOOD EVENTS
KYEAMBA CREEK

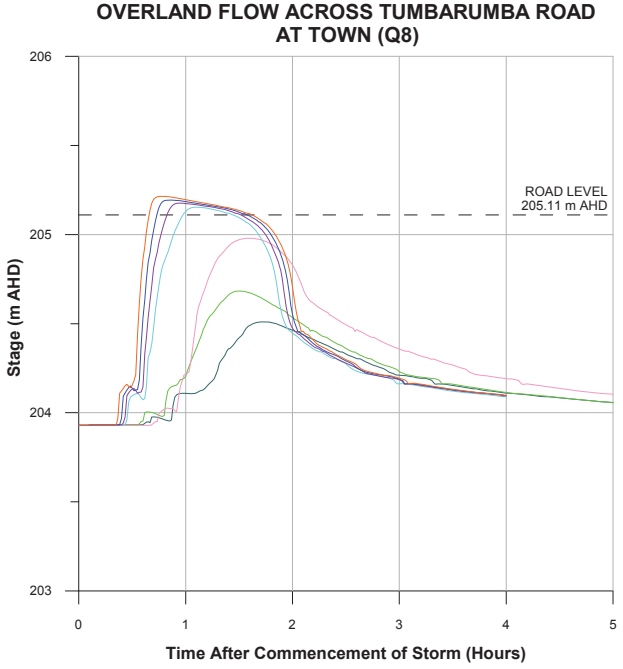


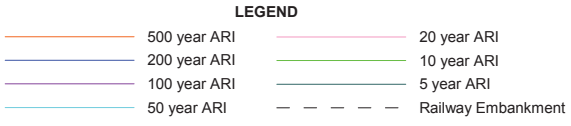












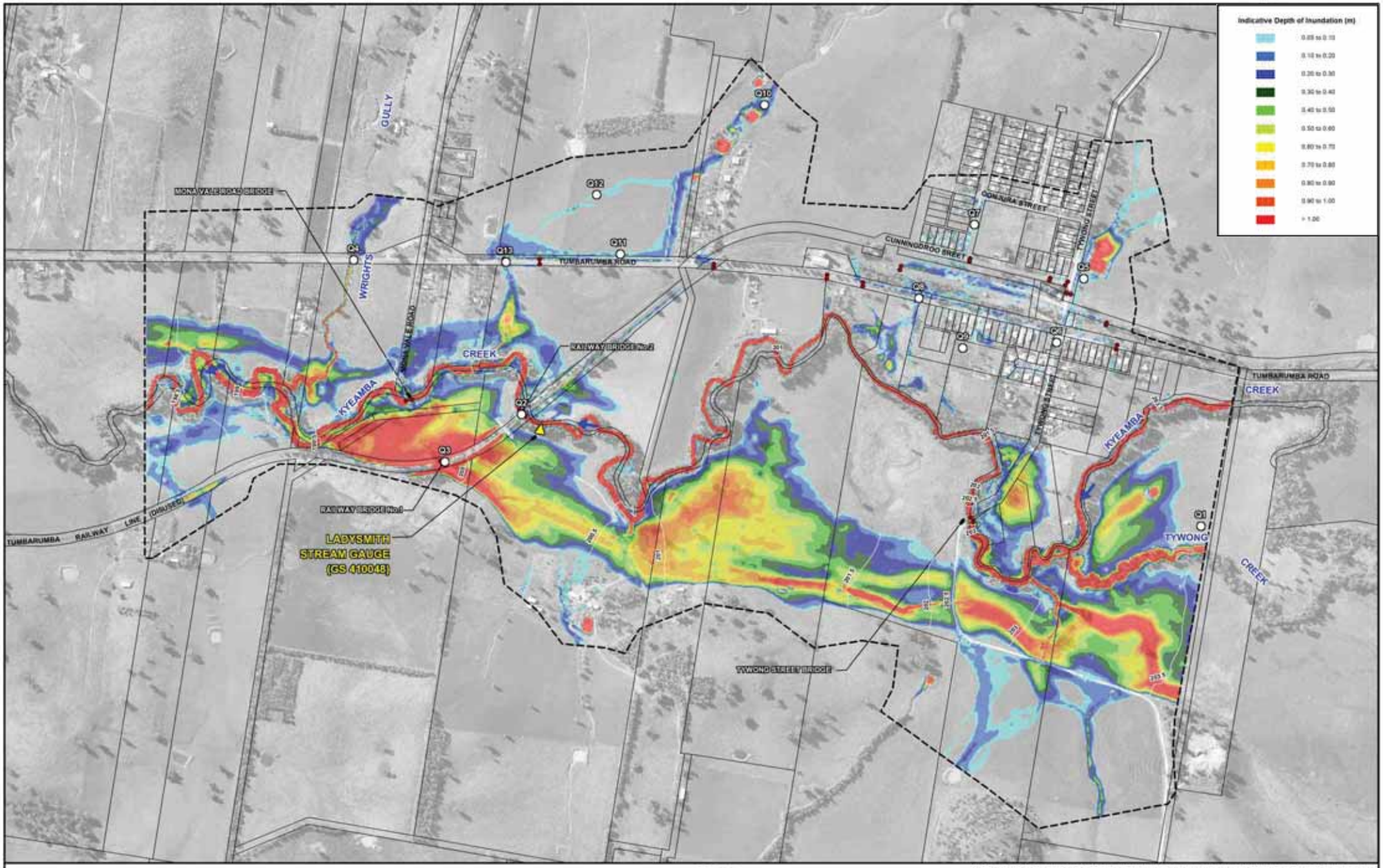
NOTE:

Refer Table A2 of Appendix A for storm durations of hydrographs at selected locations.

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUIDES
DESIGN FLOOD MODELLING

Figure 4.2
Sheet 2 of 2

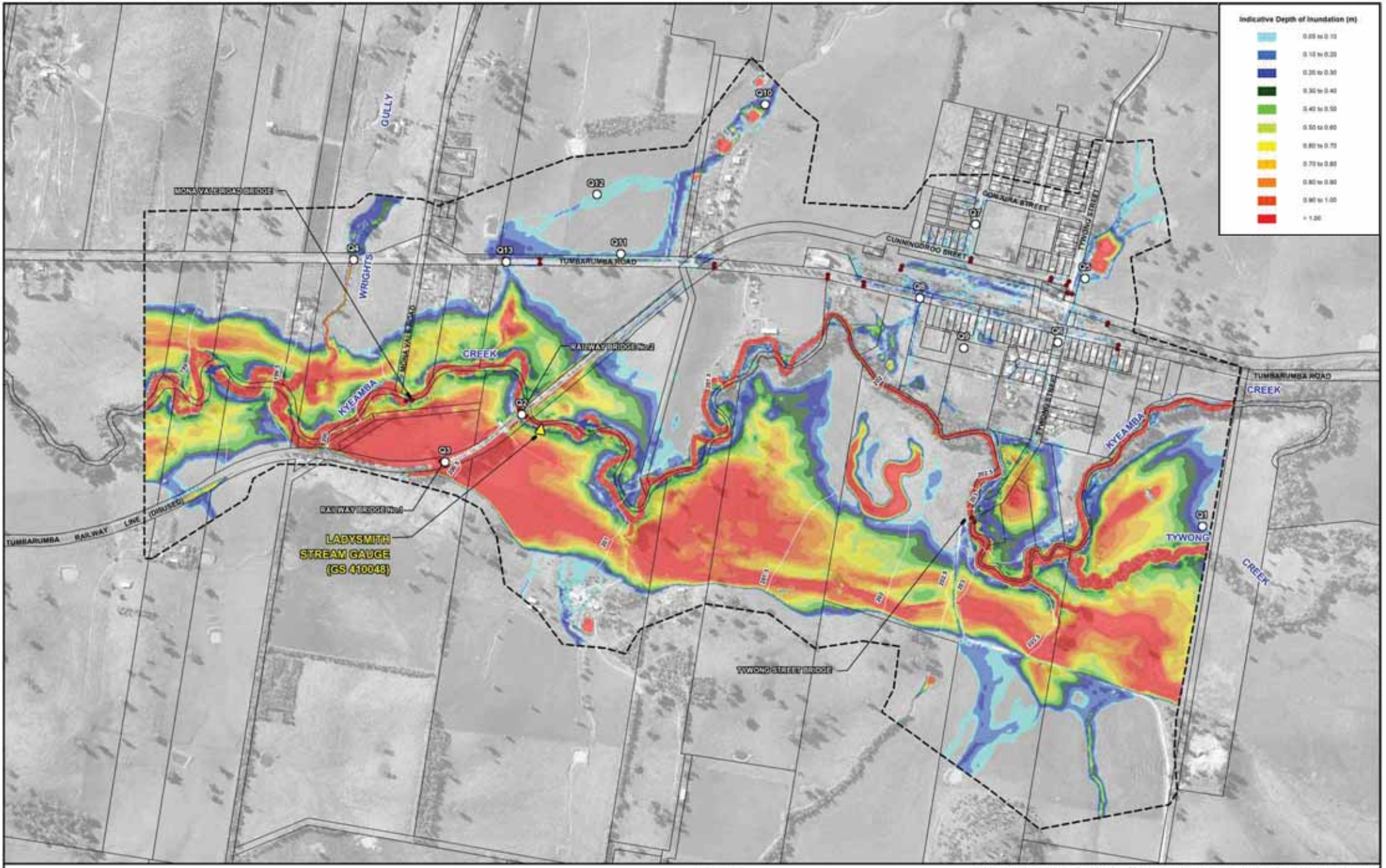
STAGE AND DISCHARGE HYDROGRAPHS - DESIGN FLOOD EVENTS
KYEAMBA CREEK



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 4.3

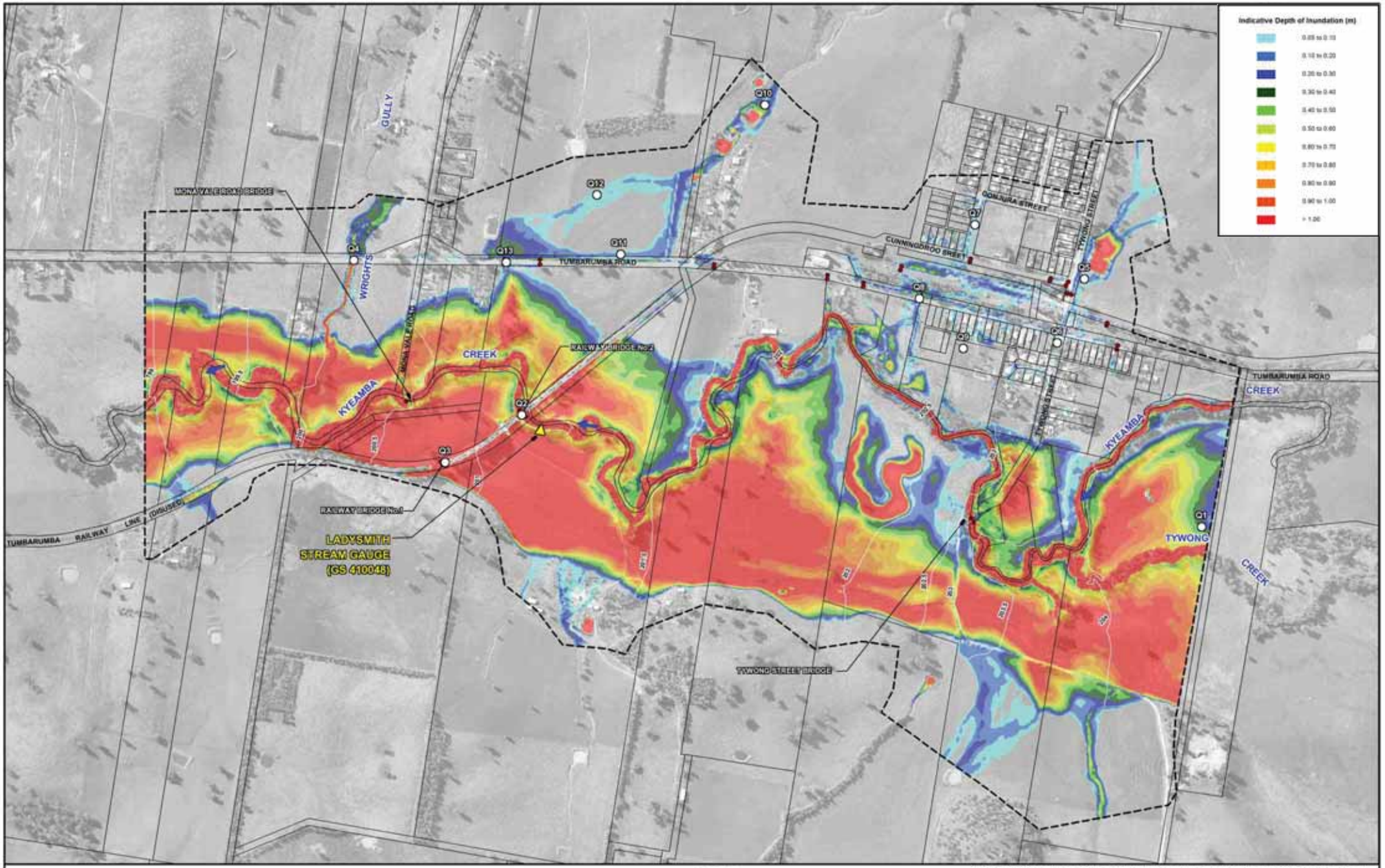
LADYSMITH TUFLOW MODEL RESULTS
5 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 4.4

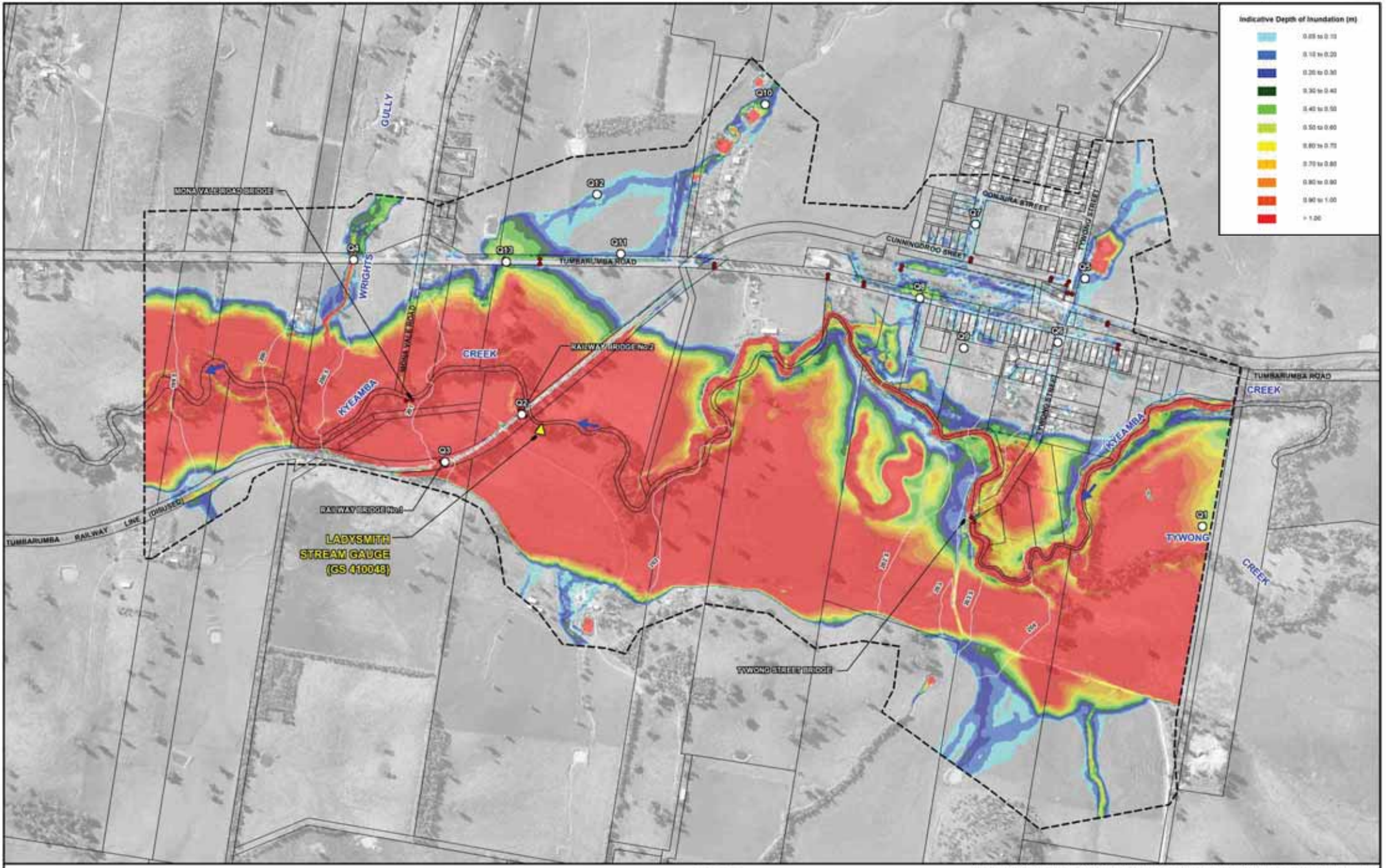
LADYSMITH TUFLOW MODEL RESULTS
10 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 4.5

LADYSMITH TUFLOW MODEL RESULTS
20 YEAR ARI



100 0 100 200 300 m

Scale: 1:10,000

Lyall & Associates

NOTE:

The extent and depths of flooding shown were determined from airborne laser scanning survey and are approximate only. The extent of inundation in individual allotments near the flood fringe should be confirmed by site specific survey.

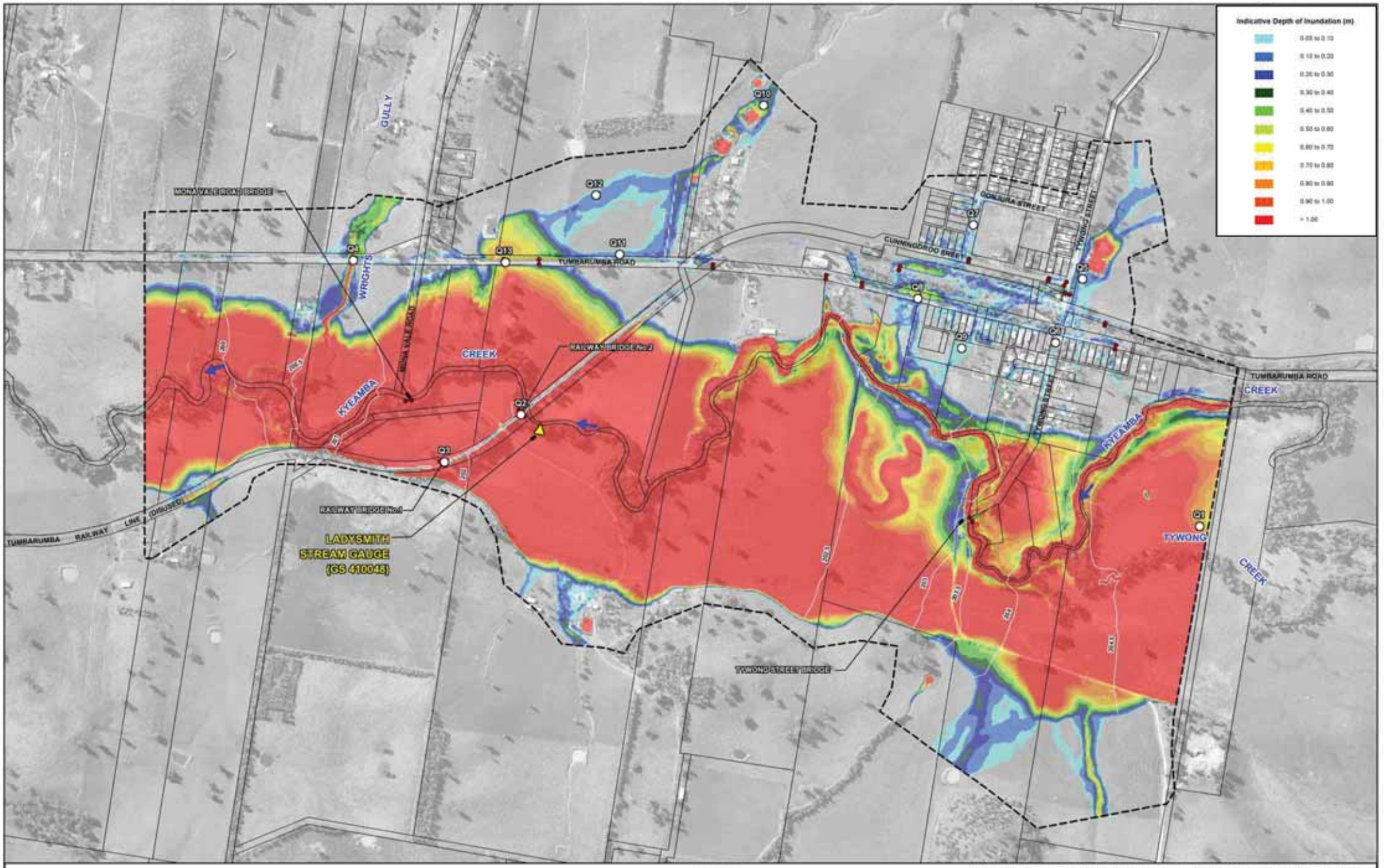
LEGEND

- Modelled Stormwater Network
- Two-Dimensional Model Boundary
- Water Surface Contours (m AHD) (Mainstream Flooding Only)
- Peak Flow Locations and Identifier (Refer Table A2 of Appendix A)

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 4.6

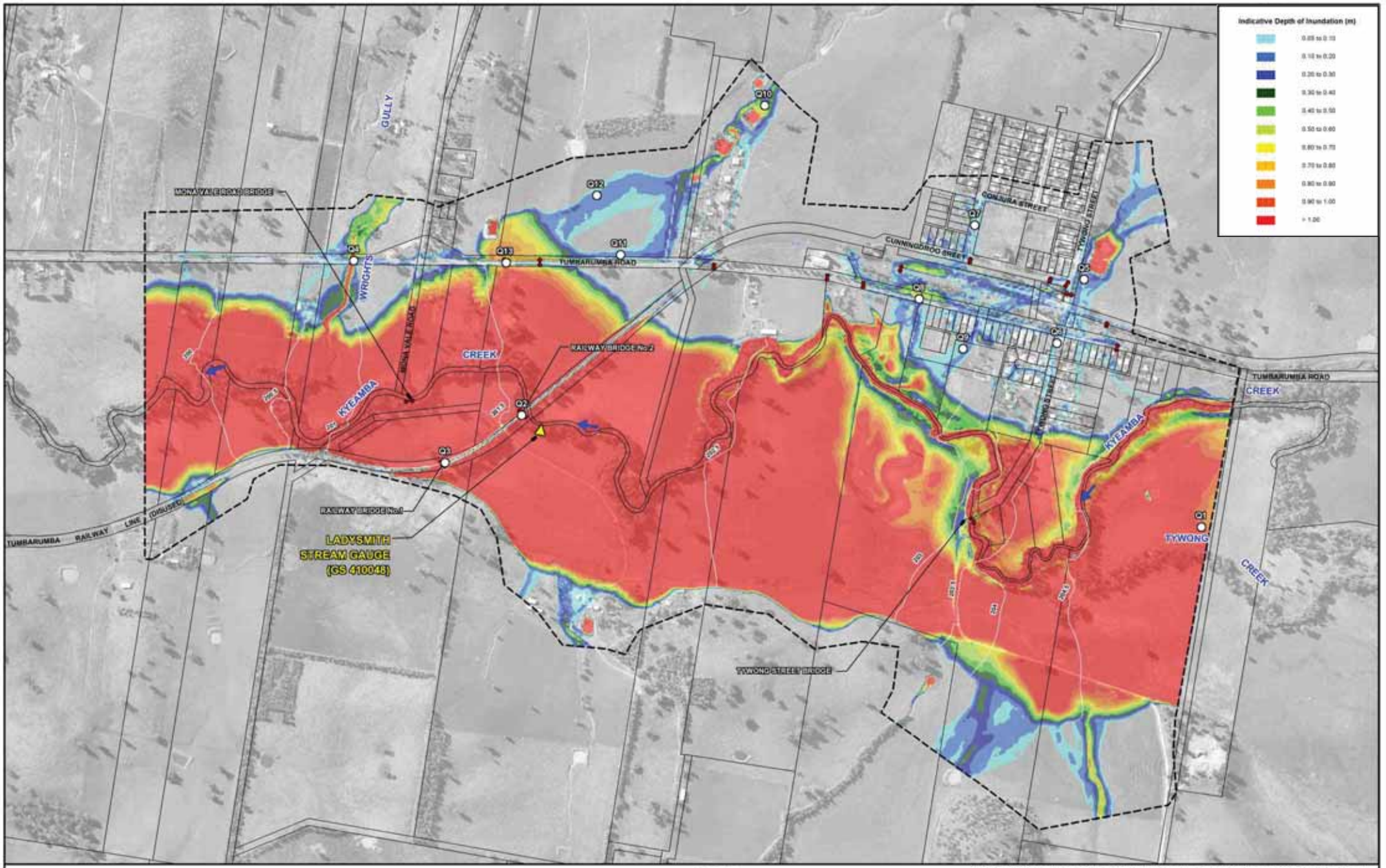
LADYSMITH TUFLOW MODEL RESULTS
50 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 4.7

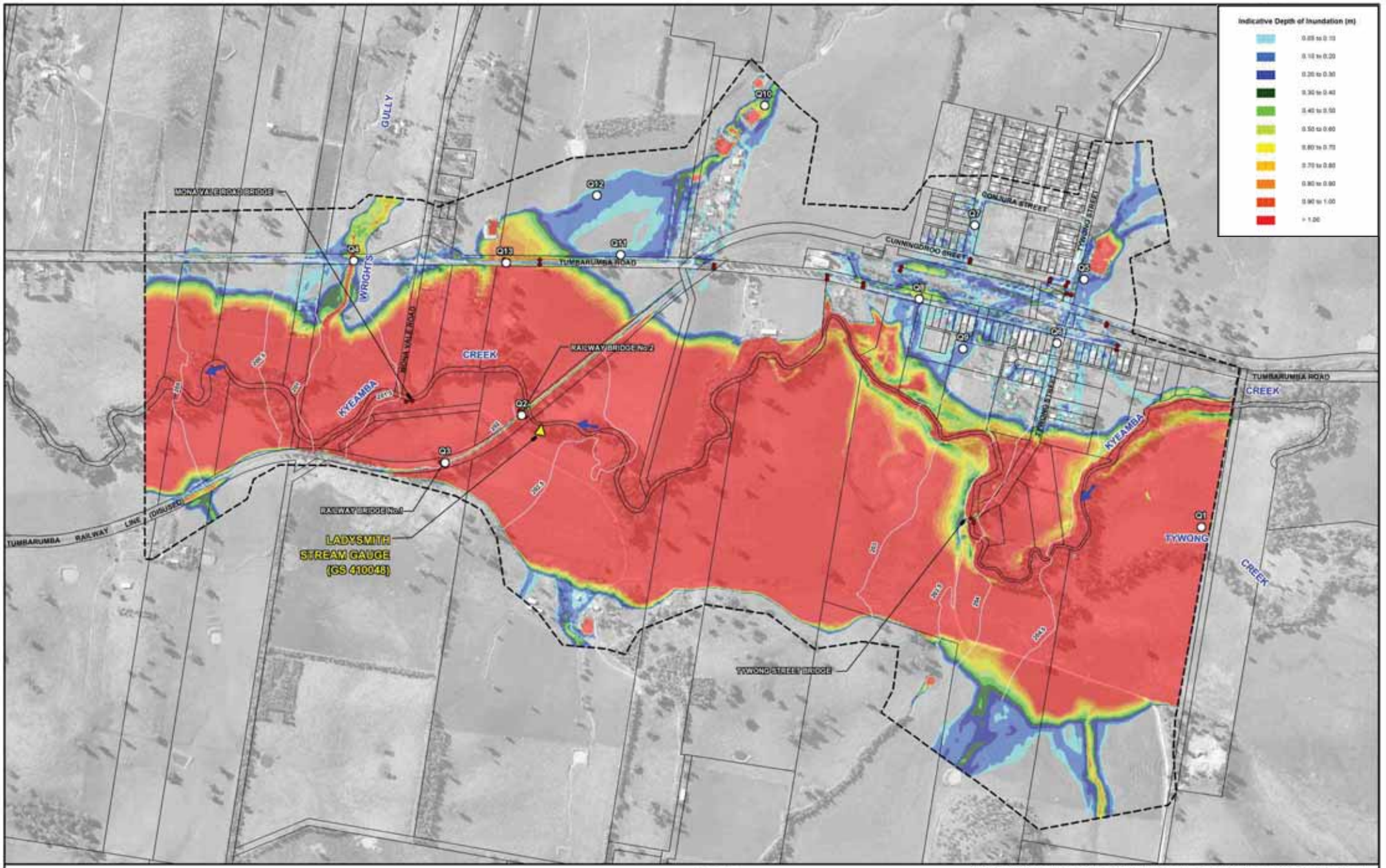
LADYSMITH TUFLOW MODEL RESULTS
100 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 4.8

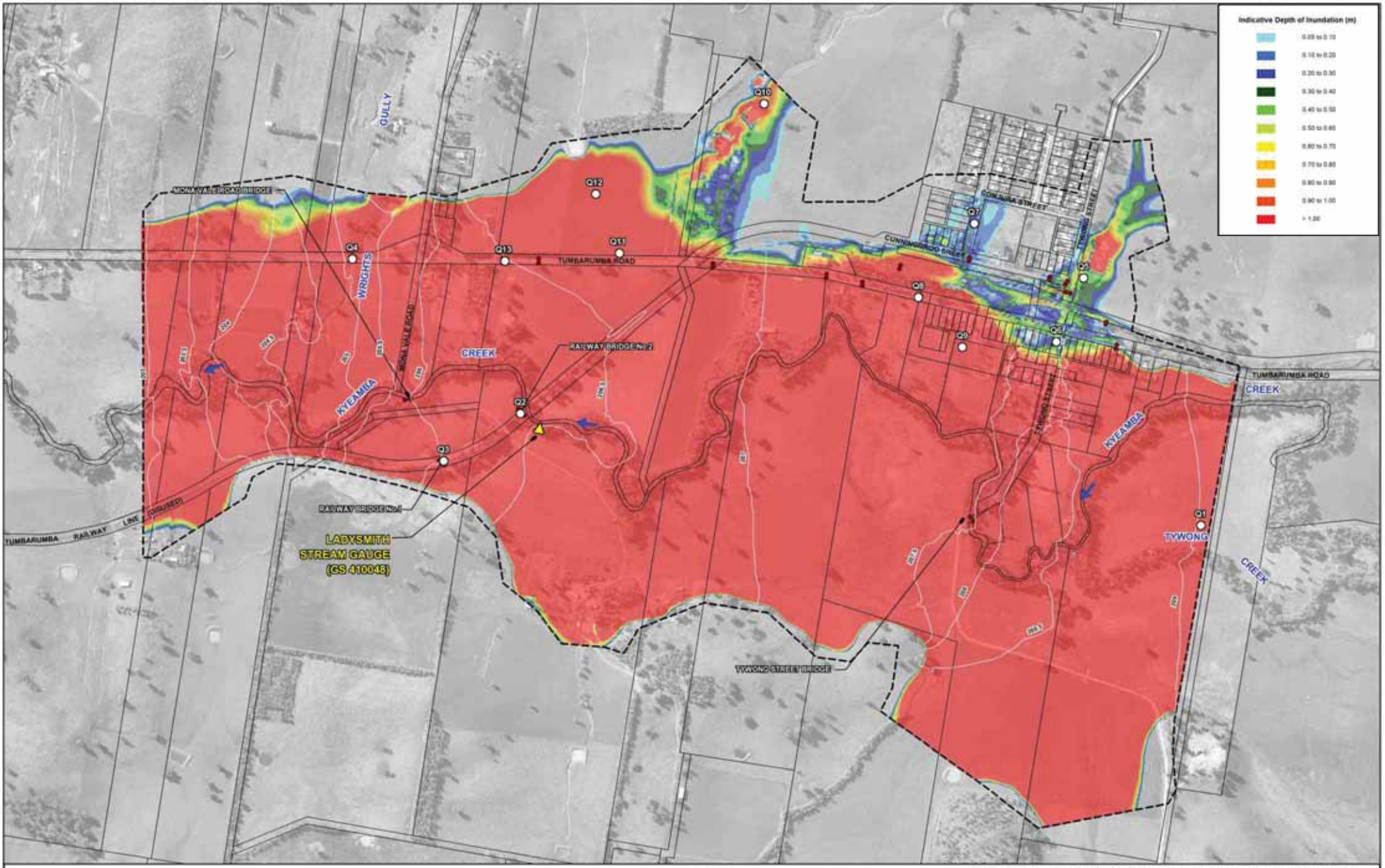
LADYSMITH TUFLOW MODEL RESULTS
200 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 4.9

LADYSMITH TUFLOW MODEL RESULTS
500 YEAR ARI

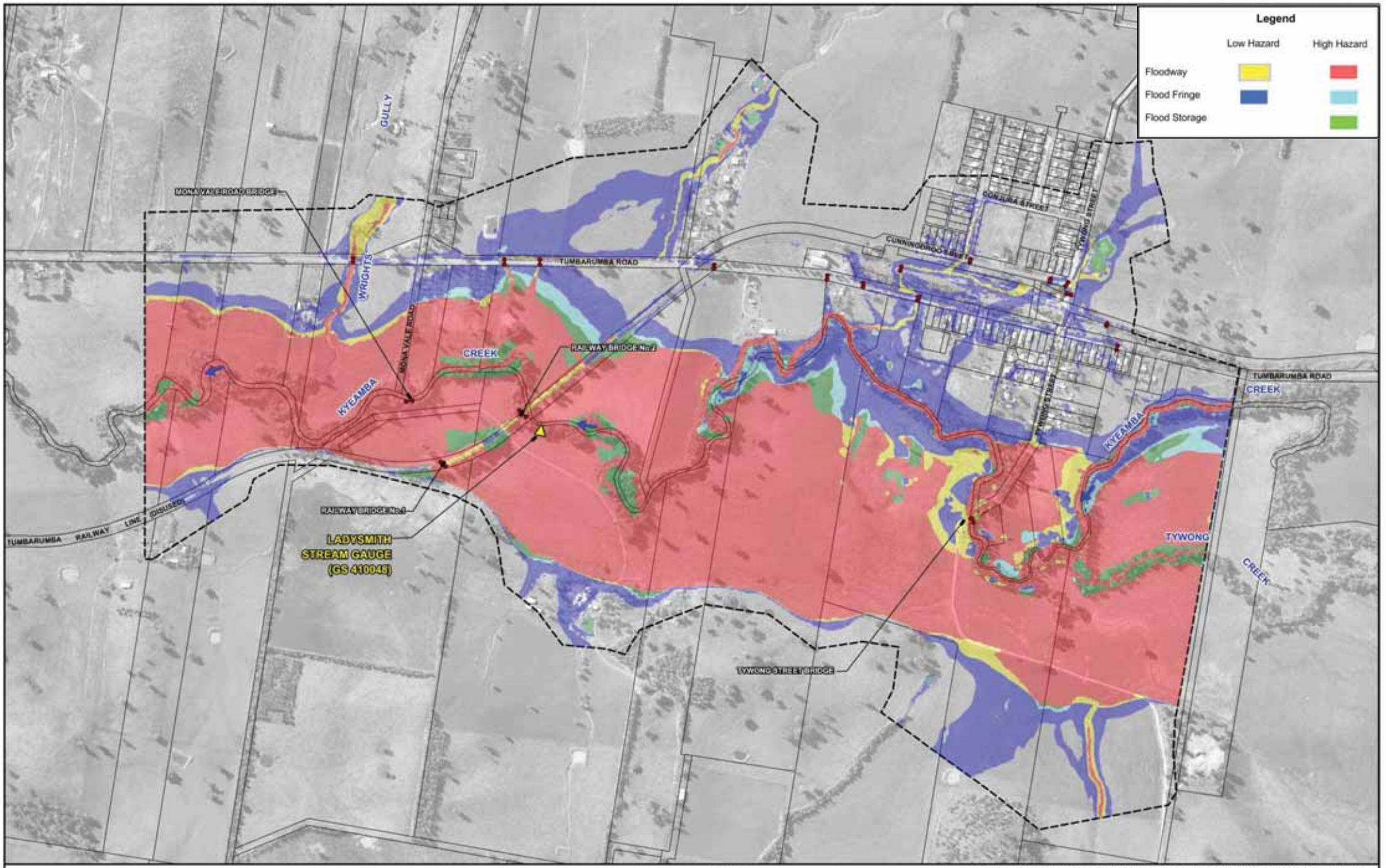


TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 4.10

LADYSMITH TUFLOW MODEL RESULTS
PMF

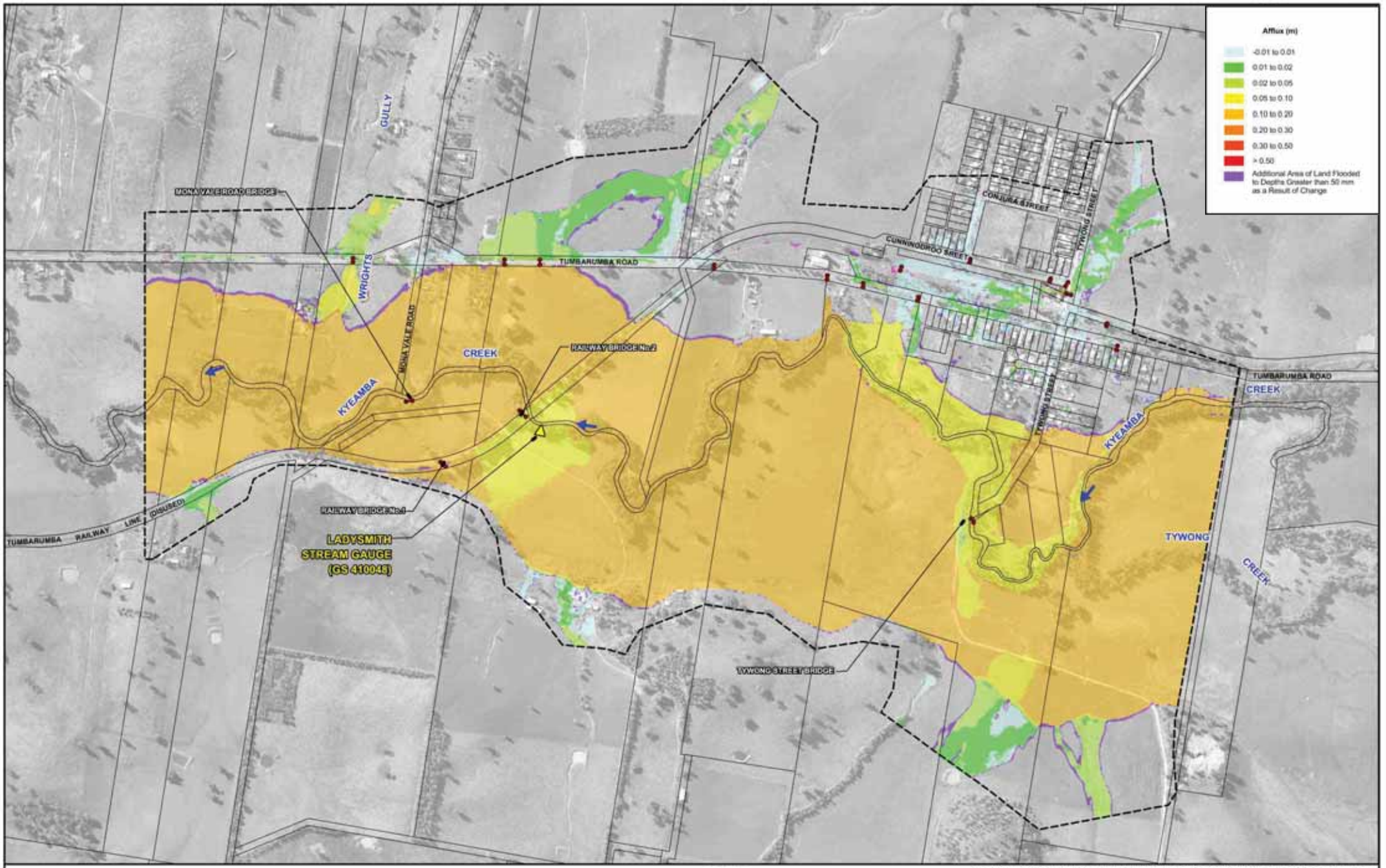
Lyall & Associates



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 4.11

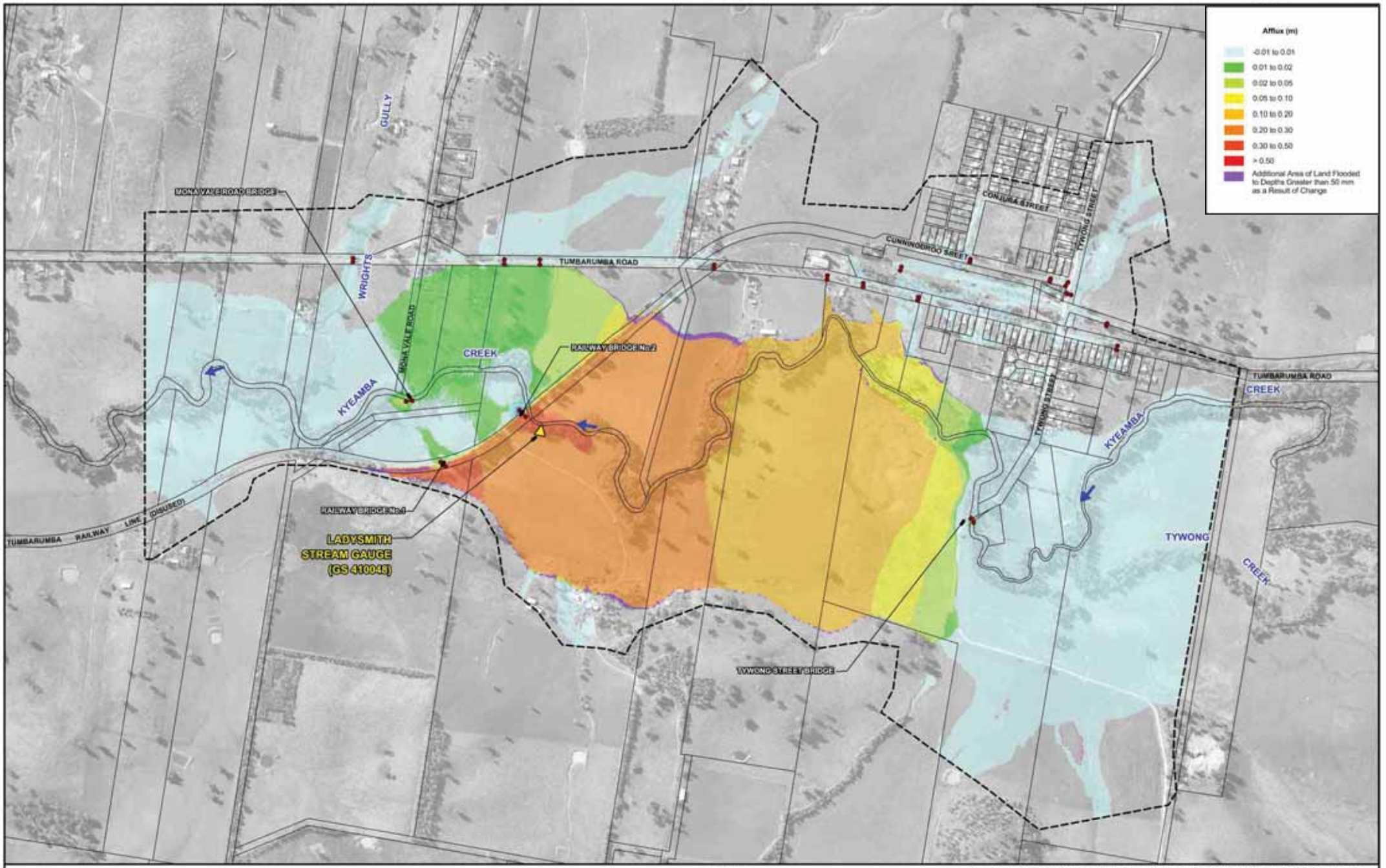
LADYSMITH PROVISIONAL FLOOD HAZARD AND HYDRAULIC CATEGORISATION OF FLOODPLAIN
100 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 4.12

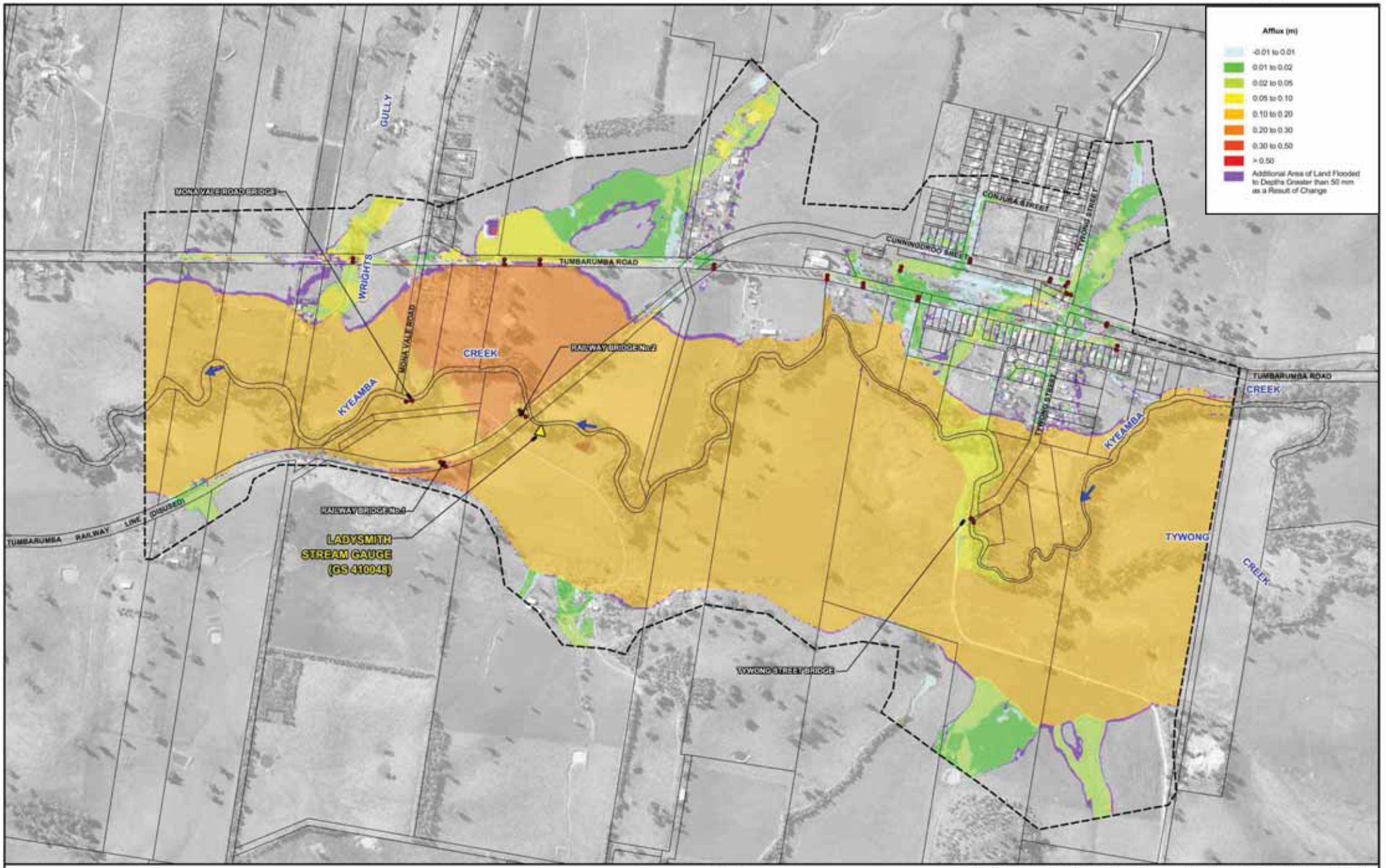
SENSITIVITY OF FLOOD BEHAVIOUR AT LADYSMITH TO 20% INCREASE IN HYDRAULIC ROUGHNESS VALUES
100 YEAR ARI 6 HOUR STORM



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 4.13

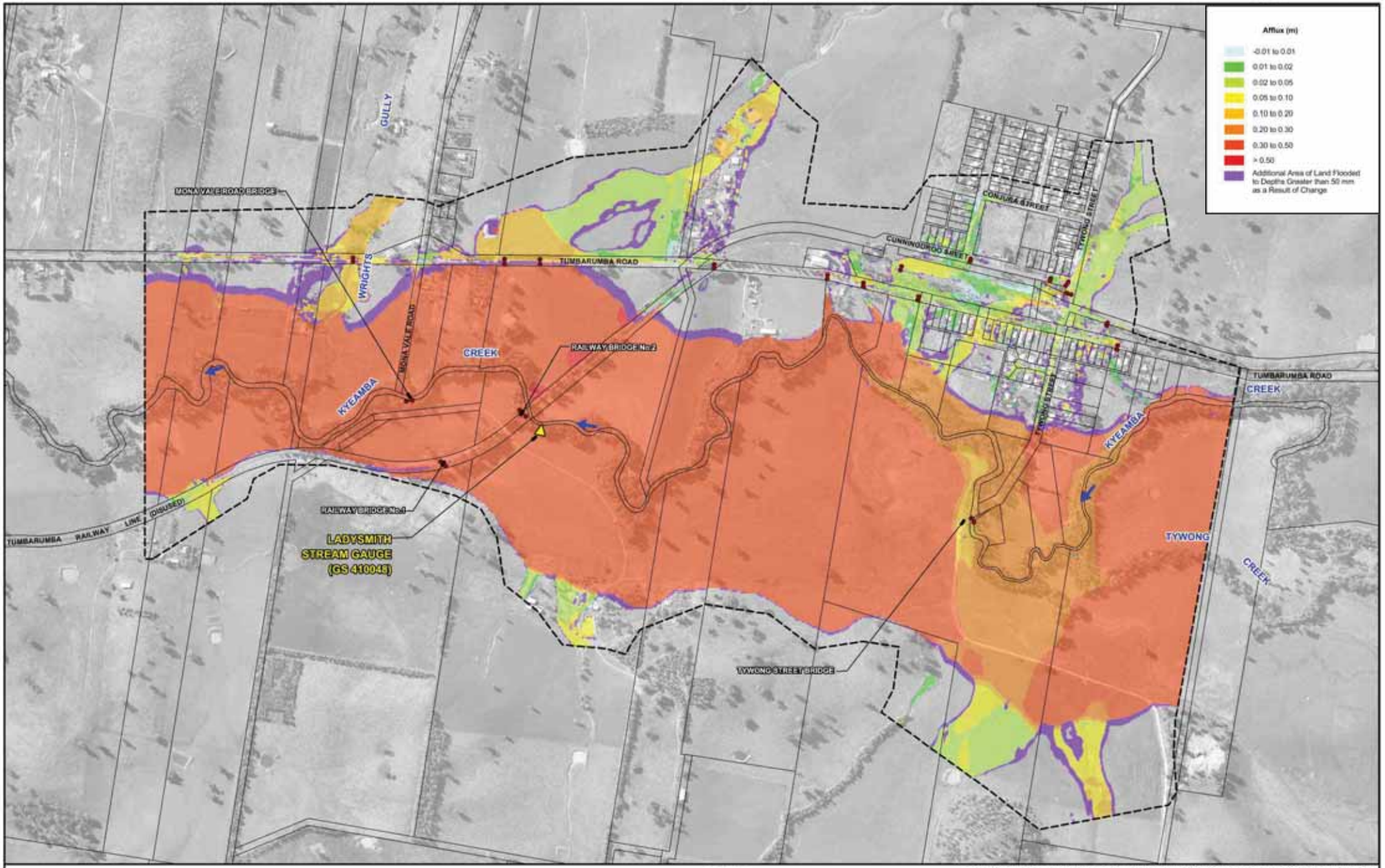
SENSITIVITY OF FLOOD BEHAVIOUR AT LADYSMITH TO A PARTIAL BLOCKAGE OF MAJOR HYDRAULIC STRUCTURES
100 YEAR ARI 6 HOUR STORM



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 4.14

SENSITIVITY OF FLOOD BEHAVIOUR AT LADYSMITH TO 10% INCREASE IN RAINFALL INTENSITY
100 YEAR ARI

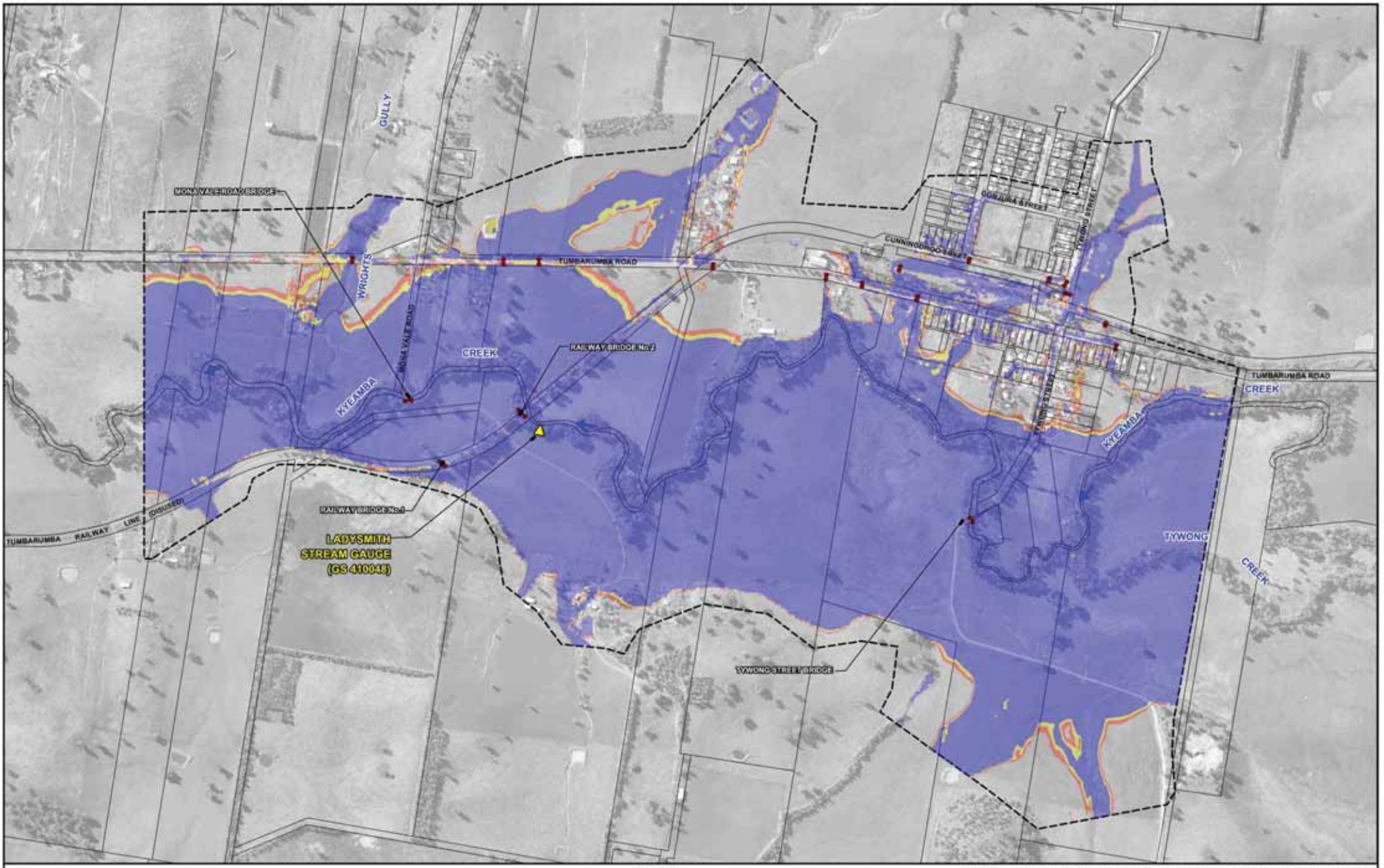


Lyall & Associates

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 4.15

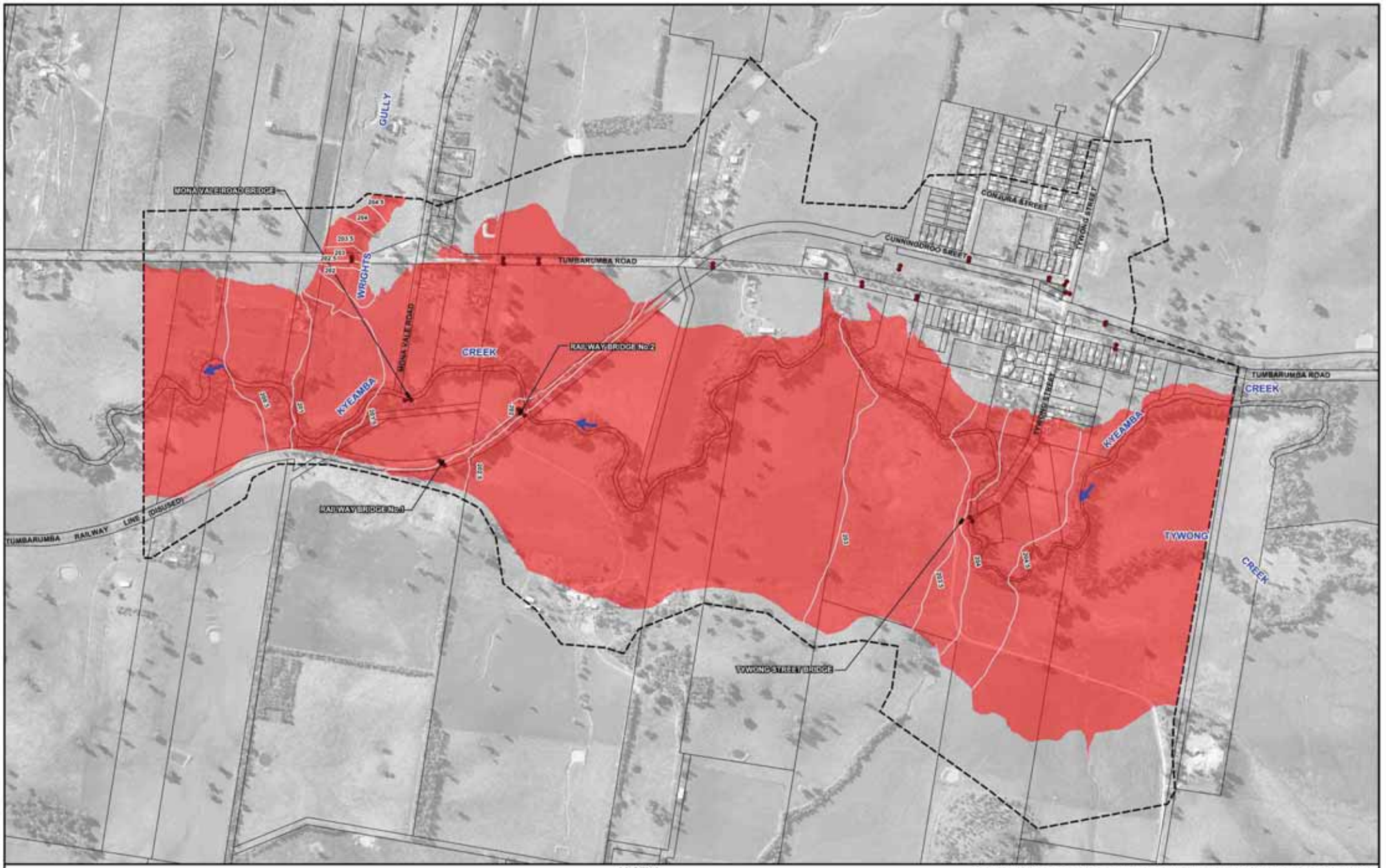
SENSITIVITY OF FLOOD BEHAVIOUR AT LADYSMITH TO 30% INCREASE IN RAINFALL INTENSITY
100 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 4.16

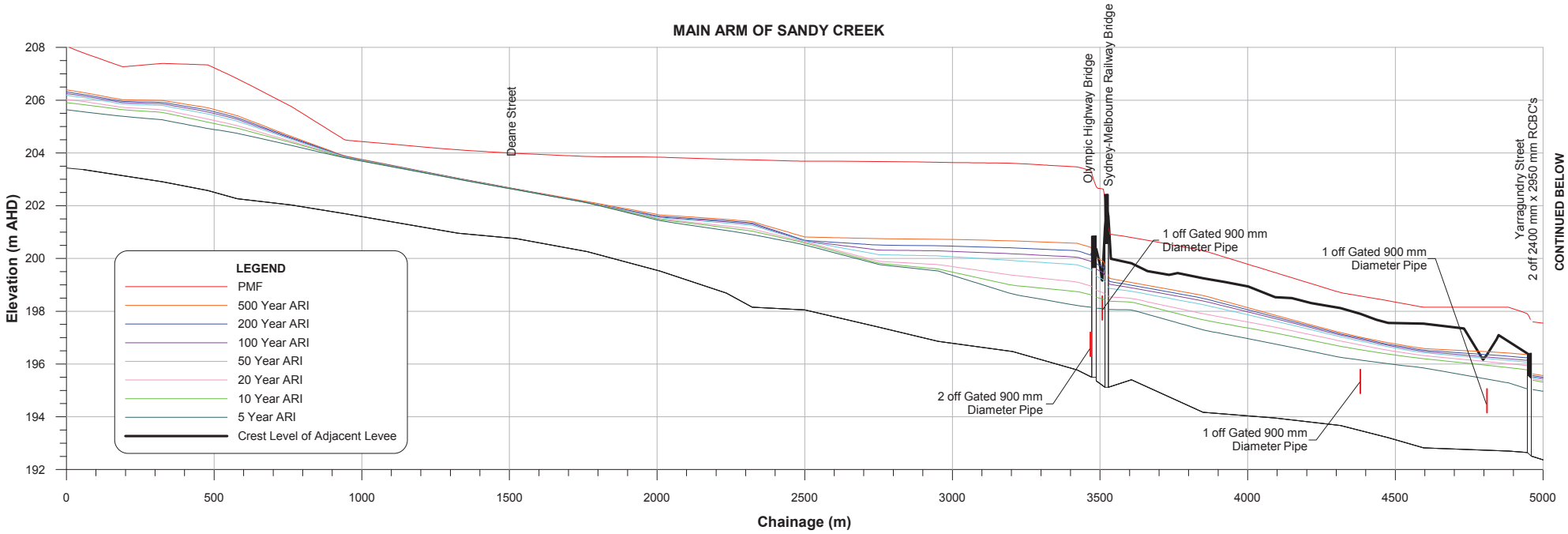
IMPACT OF INCREASED RAINFALL INTENSITIES ON EXTENT OF FLOODING AT LADYSMITH
100 YEAR ARI

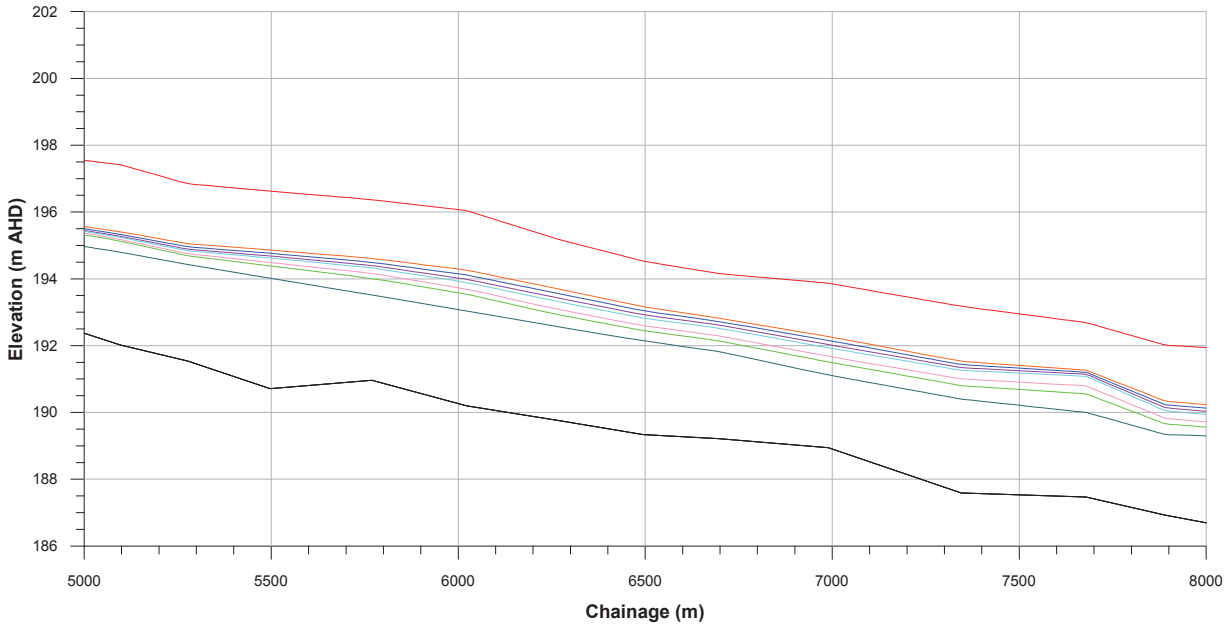


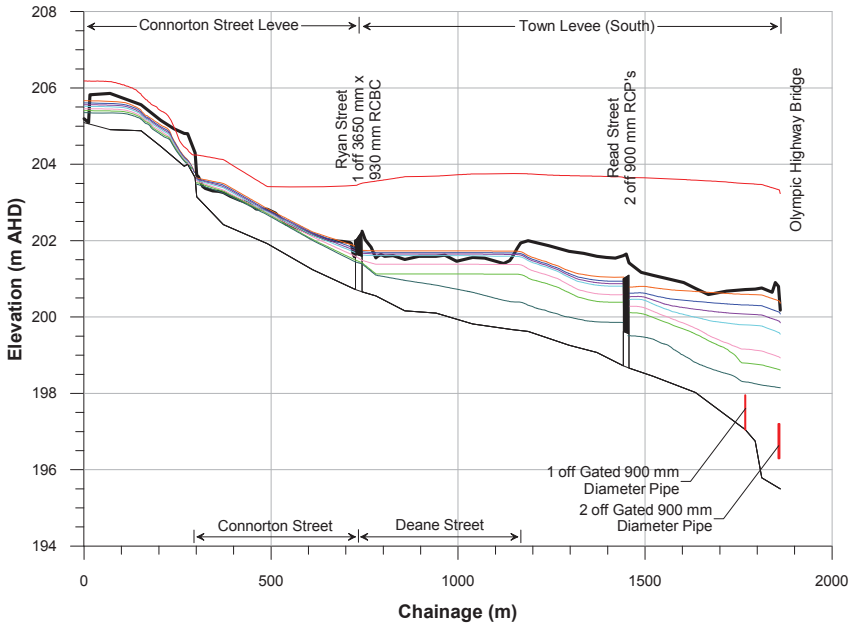
TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 4.17

INTERIM FLOOD PLANNING AREA AT LADYSMITH
MAIN STREAM FLOODING ONLY



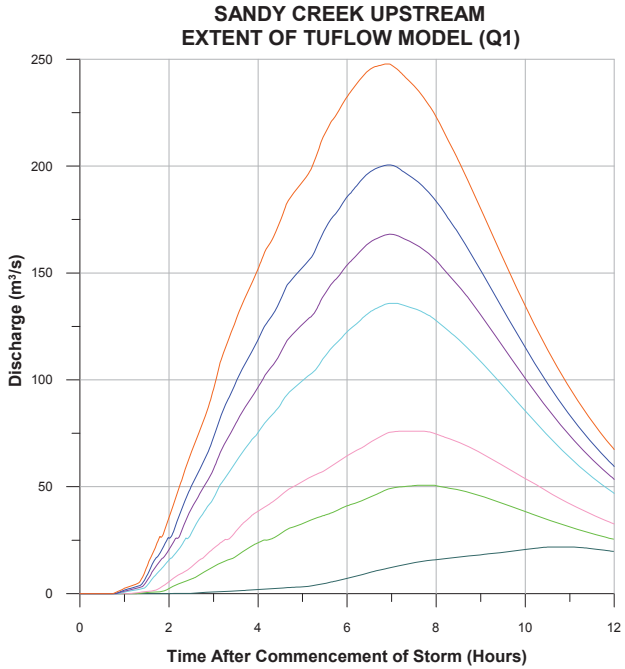


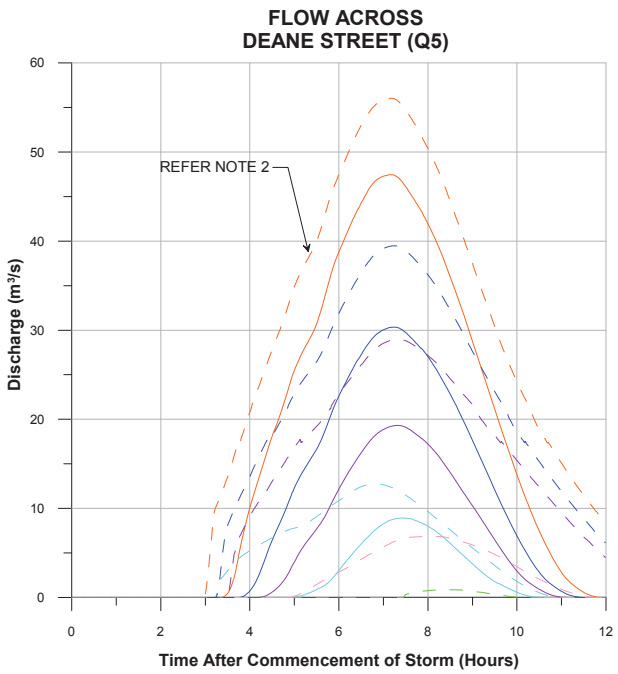


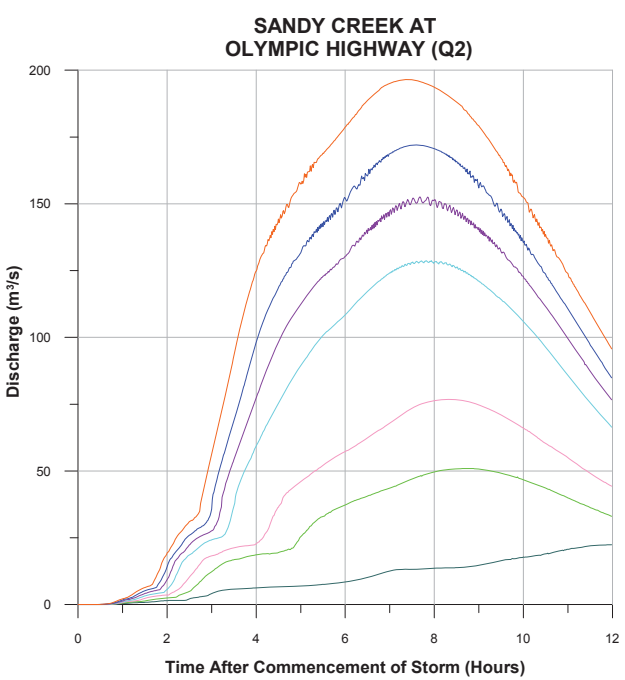
TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

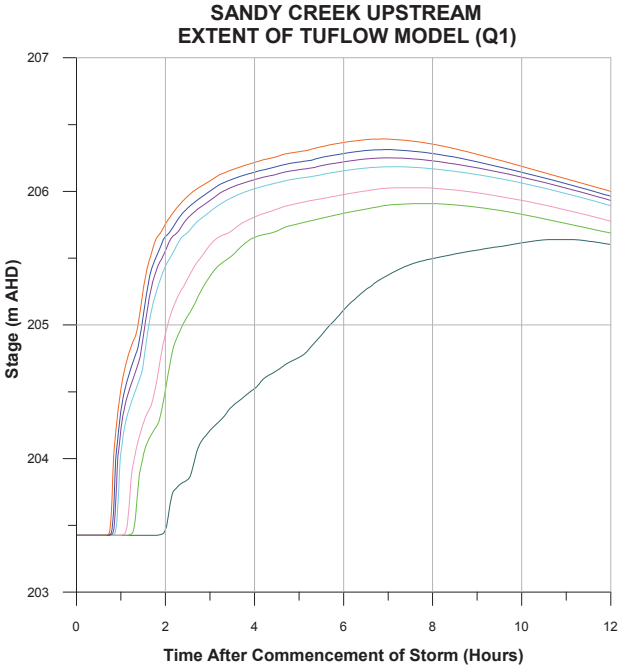
Figure 5.1

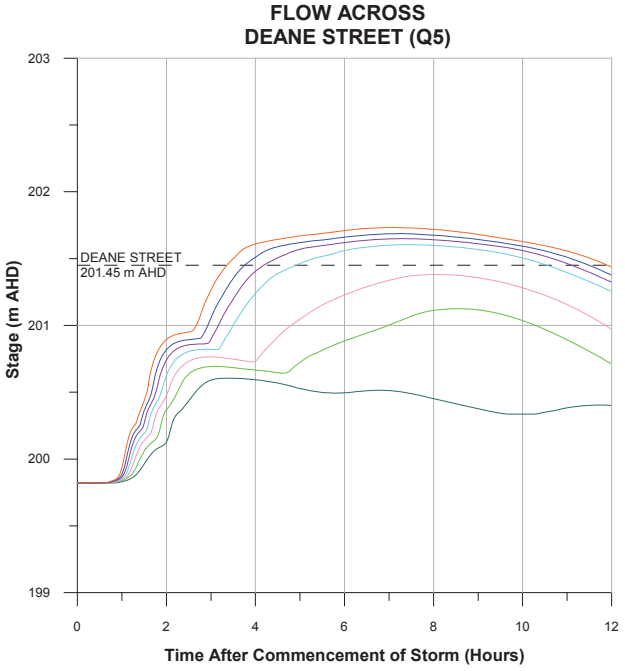
DESIGN WATER SURFACE PROFILES
SANDY CREEK

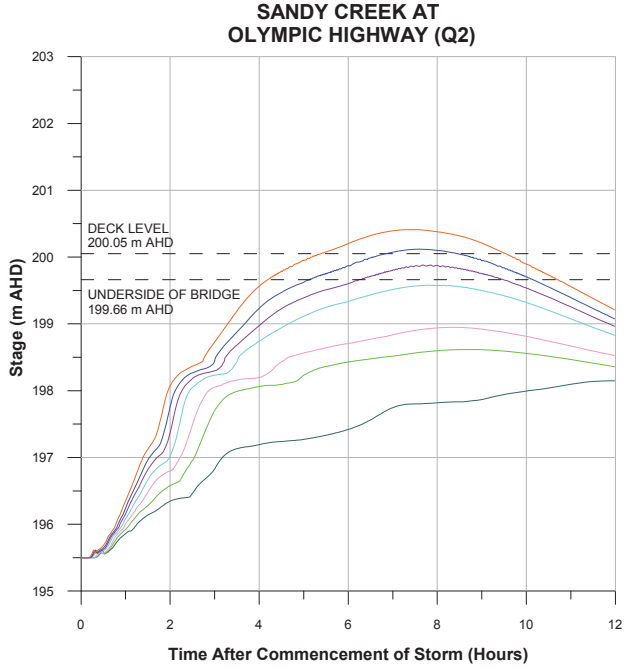












LEGEND

- 500 year ARI
- 200 year ARI
- 100 year ARI
- 50 year ARI
- 20 year ARI
- 10 year ARI
- 5 year ARI

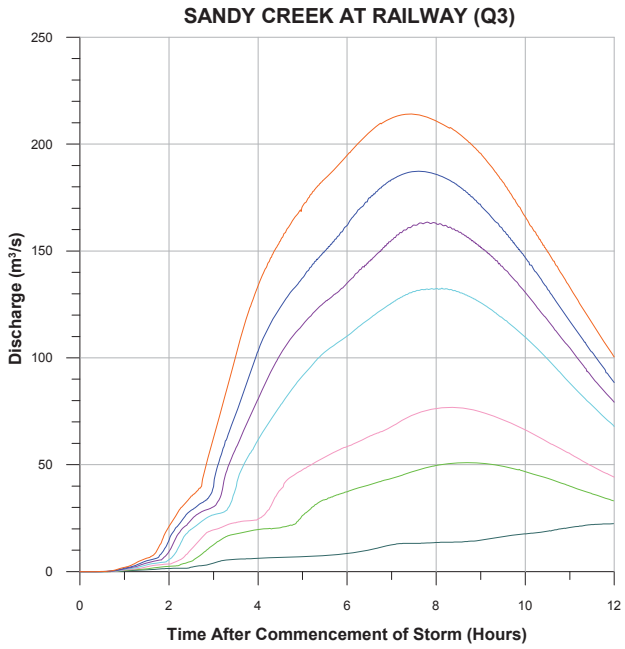
NOTE:

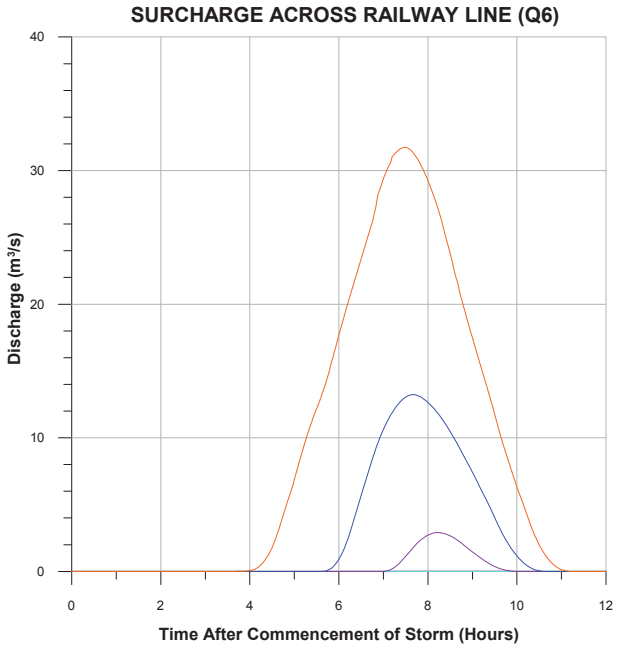
1. Refer Table A2 of Appendix A for storm durations of hydrographs at selected locations.
2. Dashed lines represent flow over levee when failure occurs.

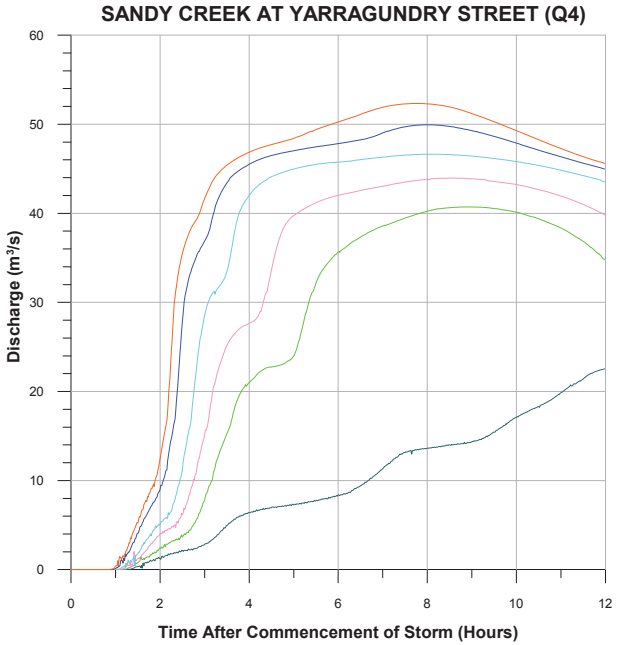
TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUIDES
DESIGN FLOOD MODELLING

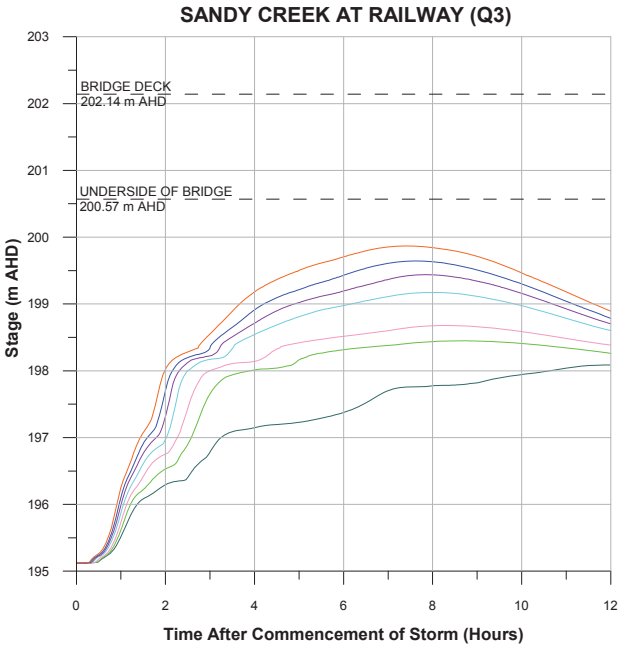
Figure 5.2
Sheet 1 of 2

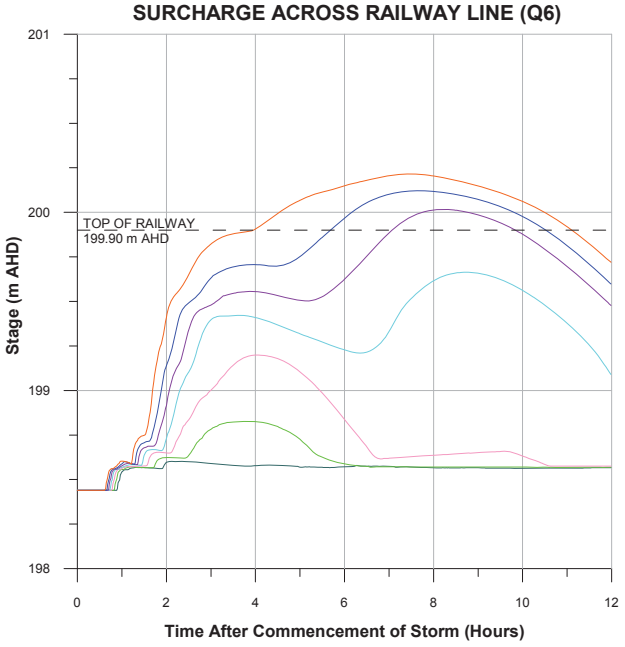
STAGE AND DISCHARGE HYDROGRAPHS - DESIGN FLOOD EVENTS
SANDY CREEK

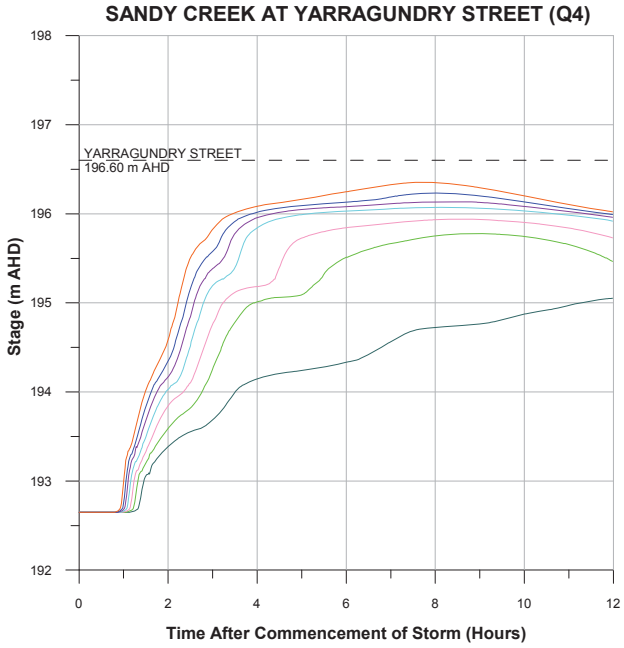


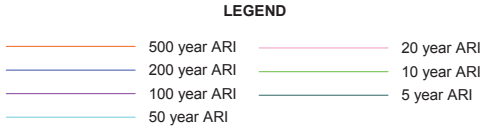












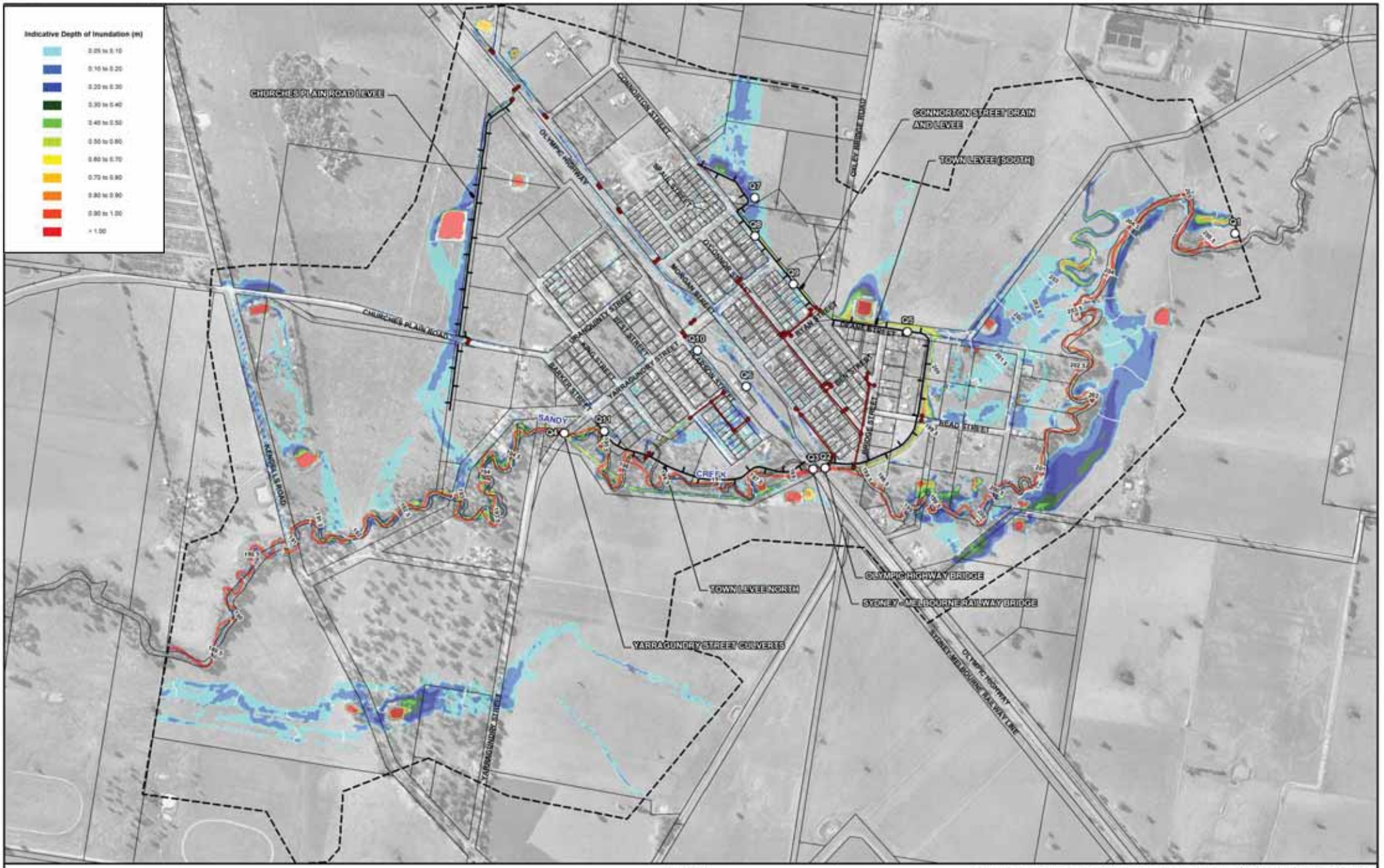
NOTE:

Refer Table A2 of Appendix A for storm durations of hydrographs at selected locations.

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUIDES
DESIGN FLOOD MODELLING

Figure 5.2
Sheet 2 of 2

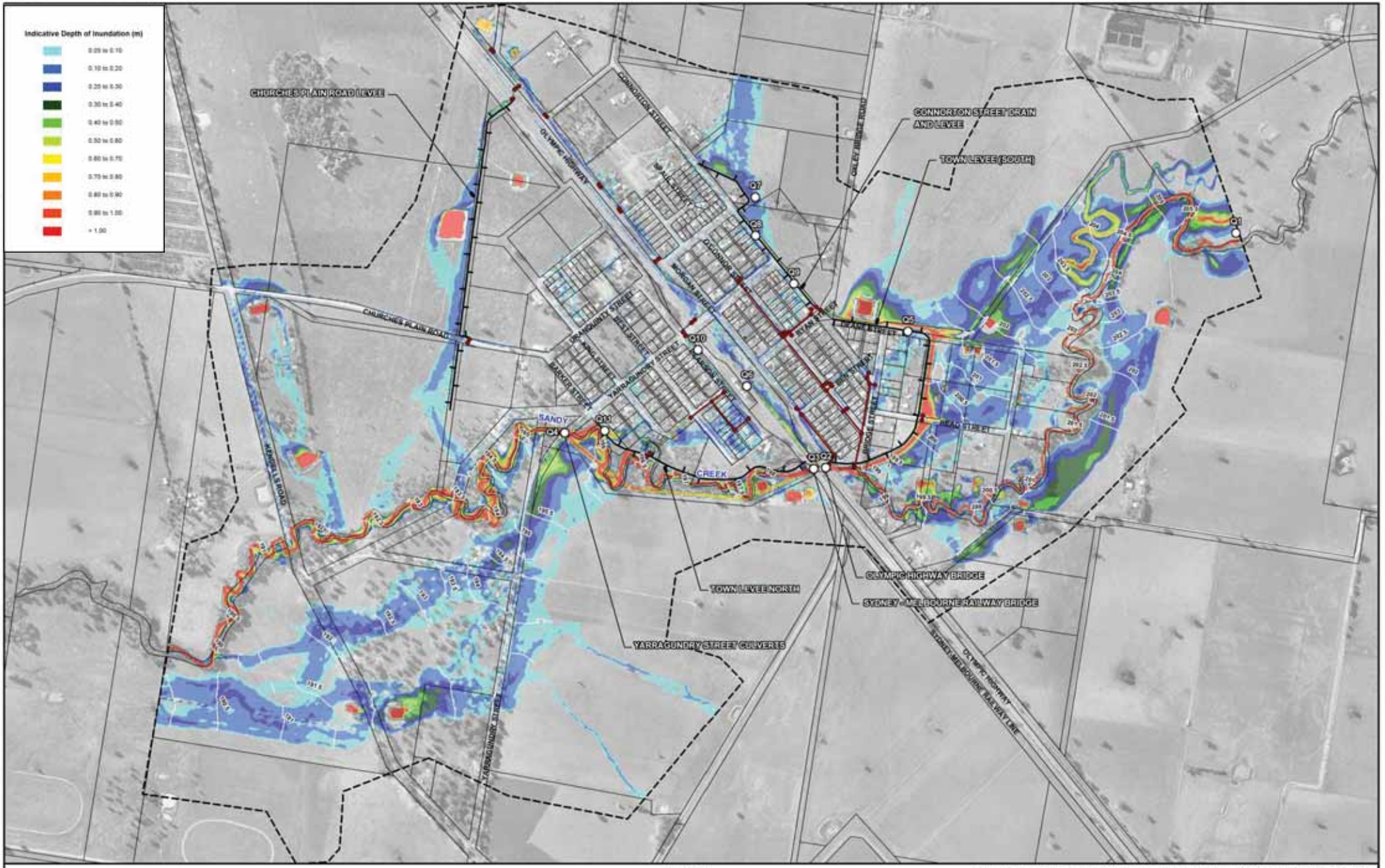
STAGE AND DISCHARGE HYDROGRAPHS - DESIGN FLOOD EVENTS
SANDY CREEK



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 5.3

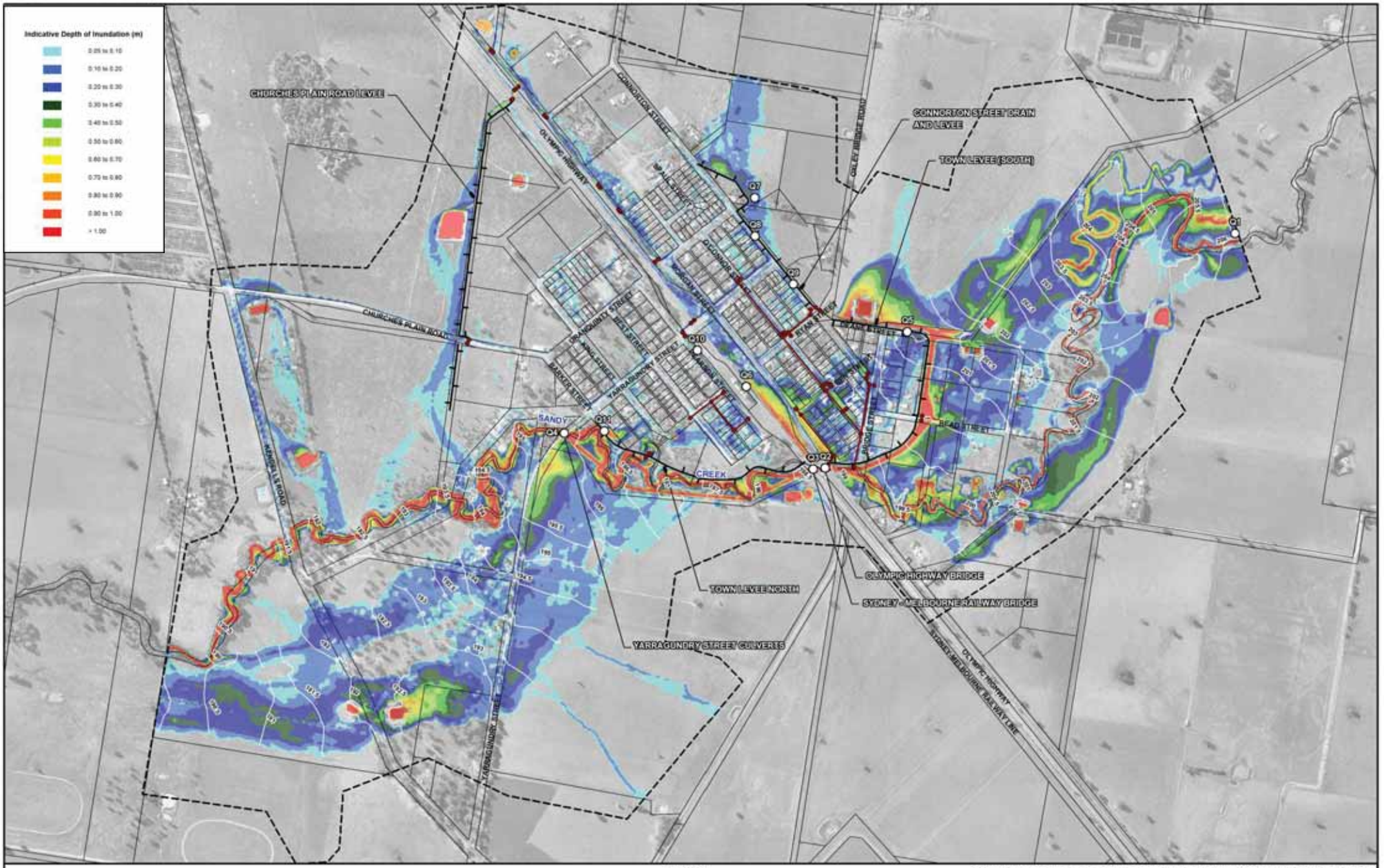
URANQUINTY TUFLOW MODEL RESULTS
5 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 5.4

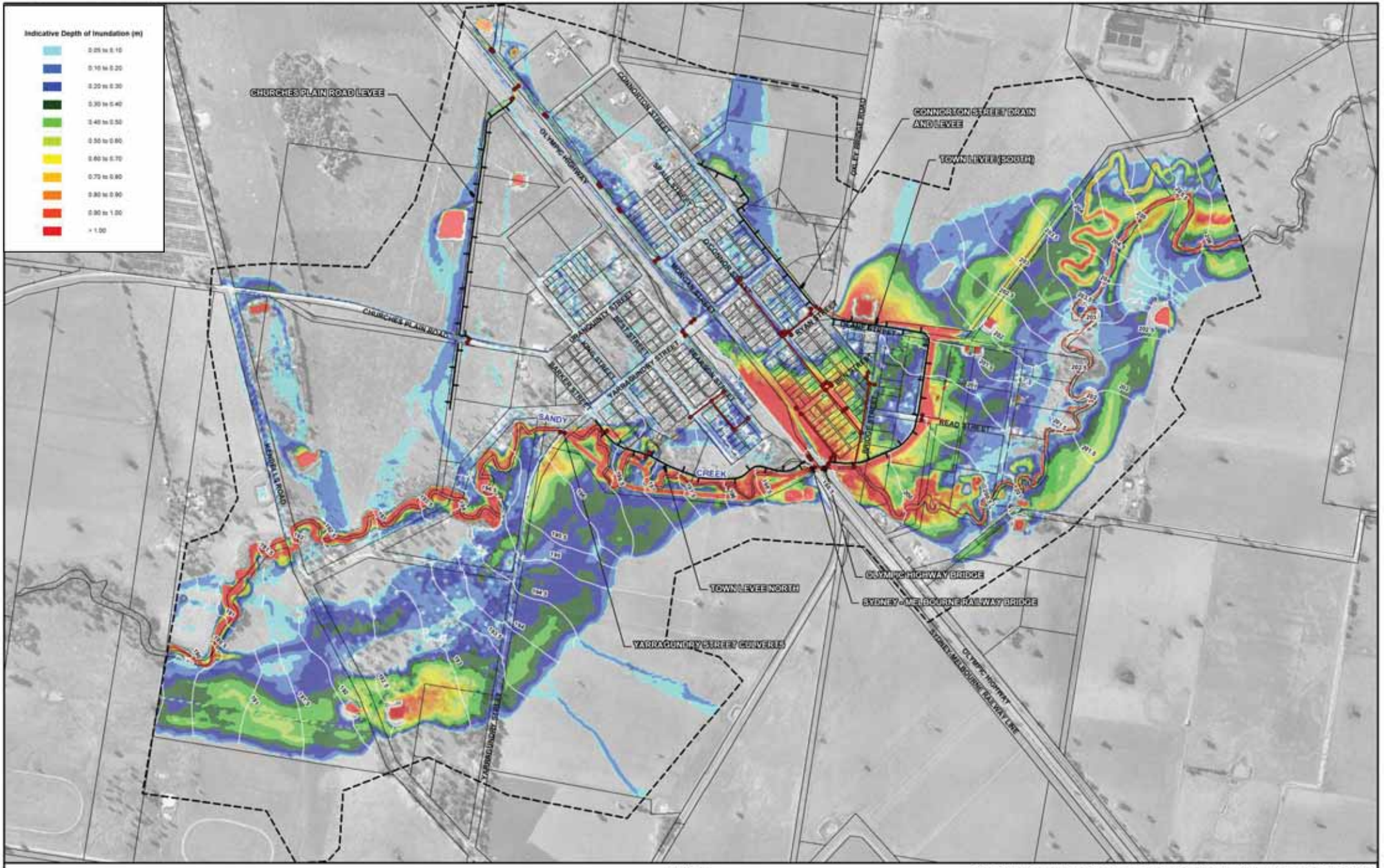
URANQUINTY TUFLOW MODEL RESULTS
10 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 5.5

URANQUINTY TUFLOW MODEL RESULTS
20 YEAR ARI



NOTE:

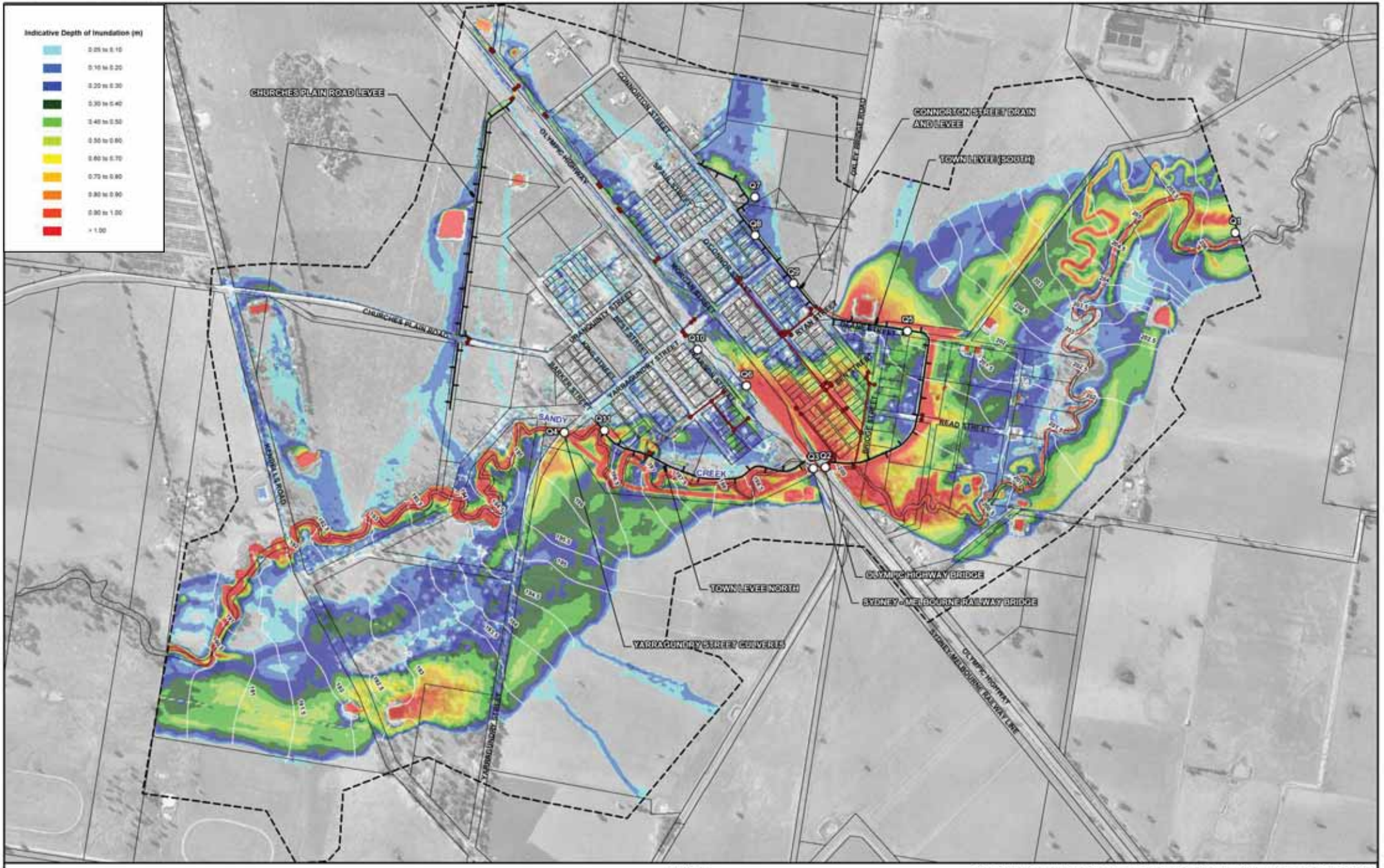
The extent and depths of flooding shown were determined from airborne laser scanning survey and are approximate only. The extent of inundation in individual allotments near the flood fringe should be confirmed by site specific survey.

Lyall & Associates

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 5.6

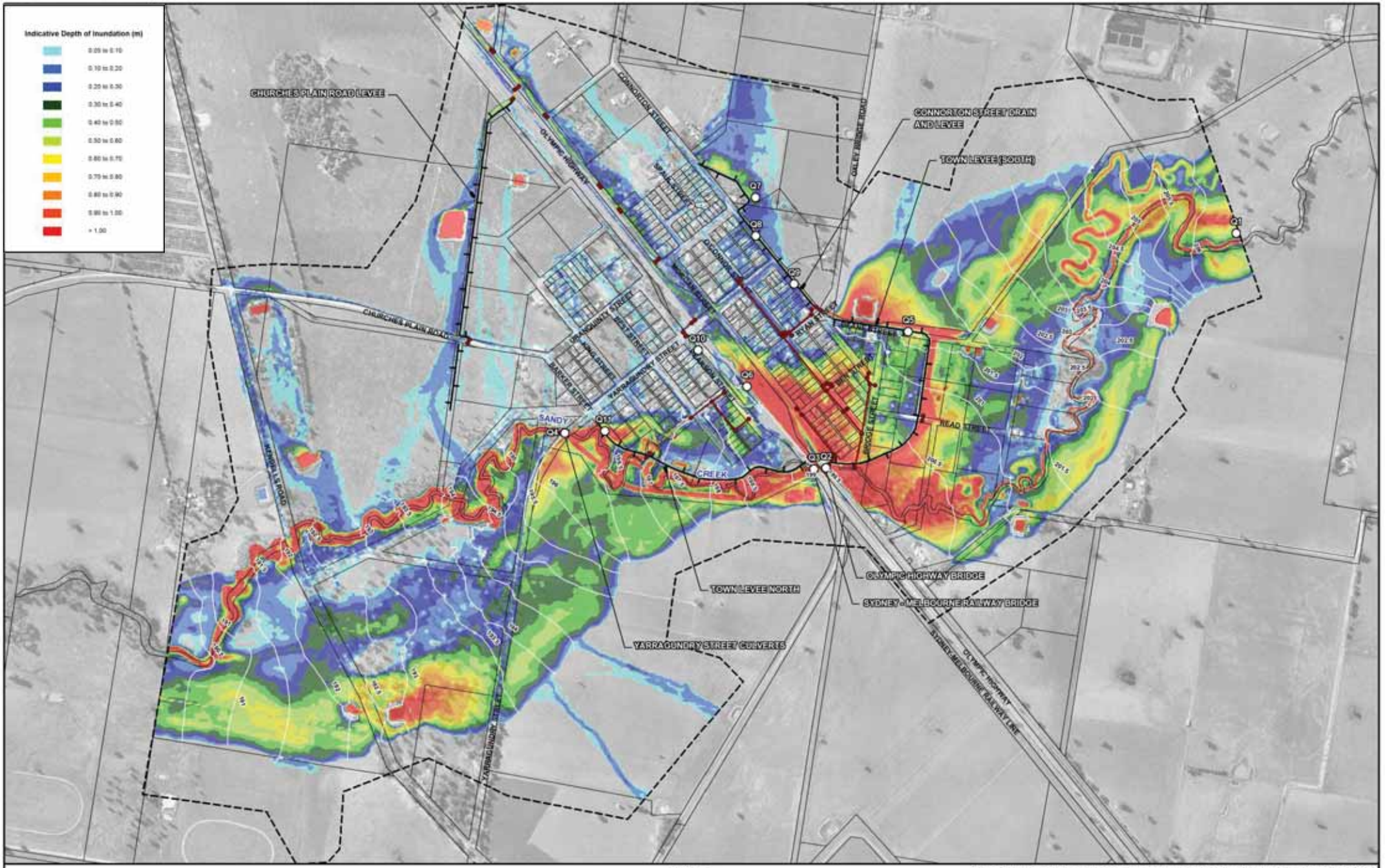
URANQUINTY TUFLOW MODEL RESULTS
50 YEAR ARI

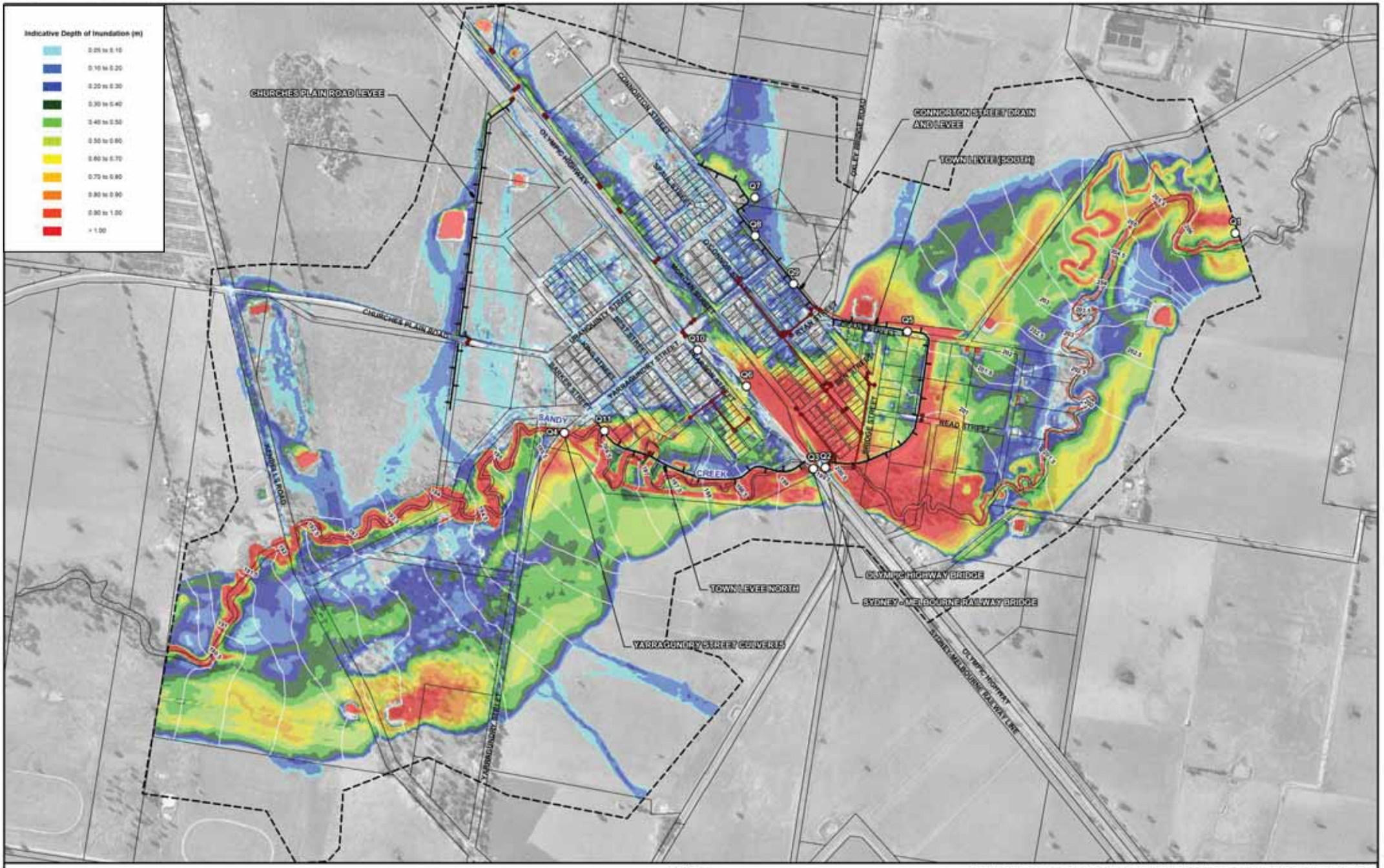


TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 5.7

URANQUINTY TUFLOW MODEL RESULTS
100 YEAR ARI

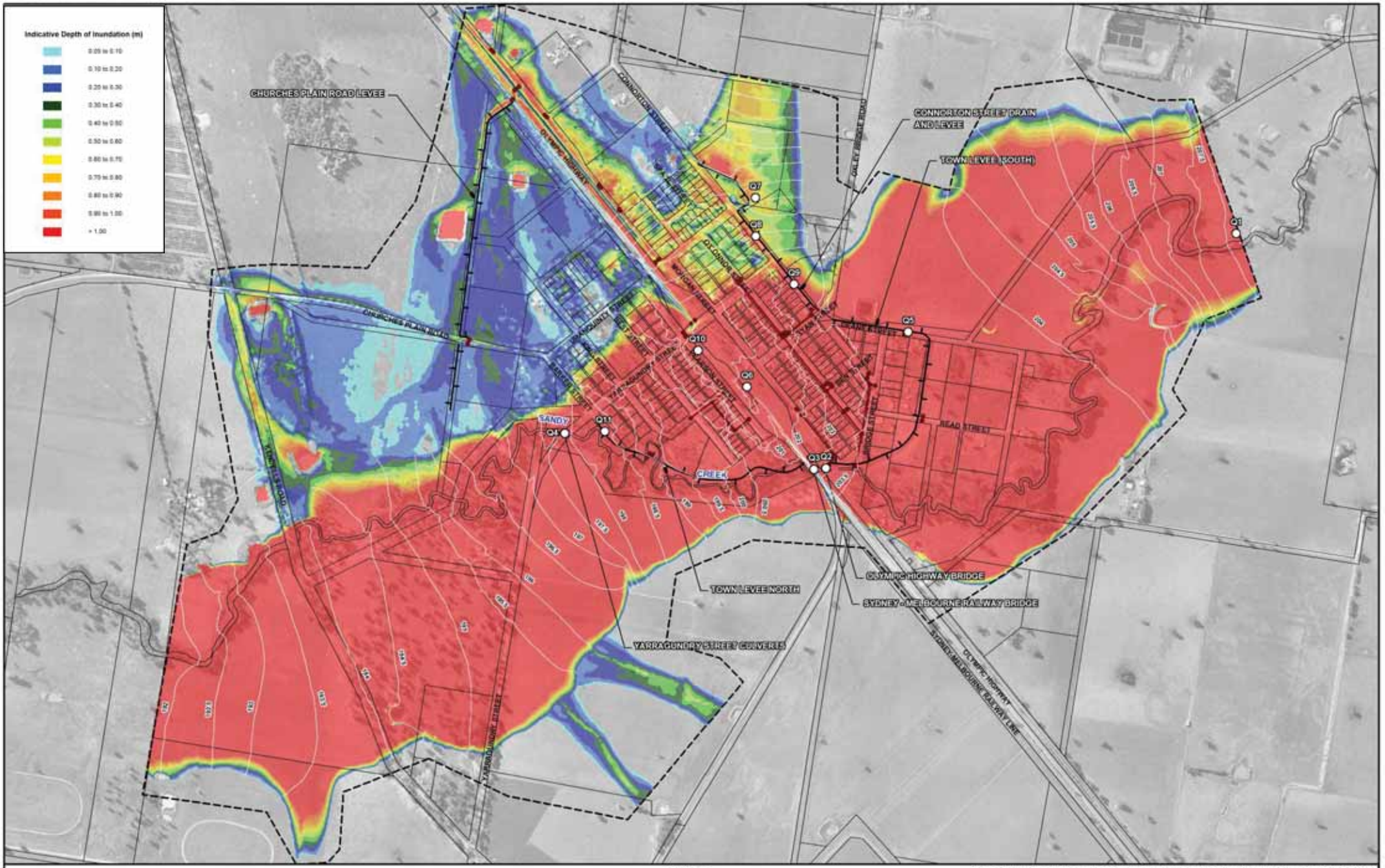




TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 5.9

URANQUINTY TUFLOW MODEL RESULTS
500 YEAR ARI



Lyall & Associates

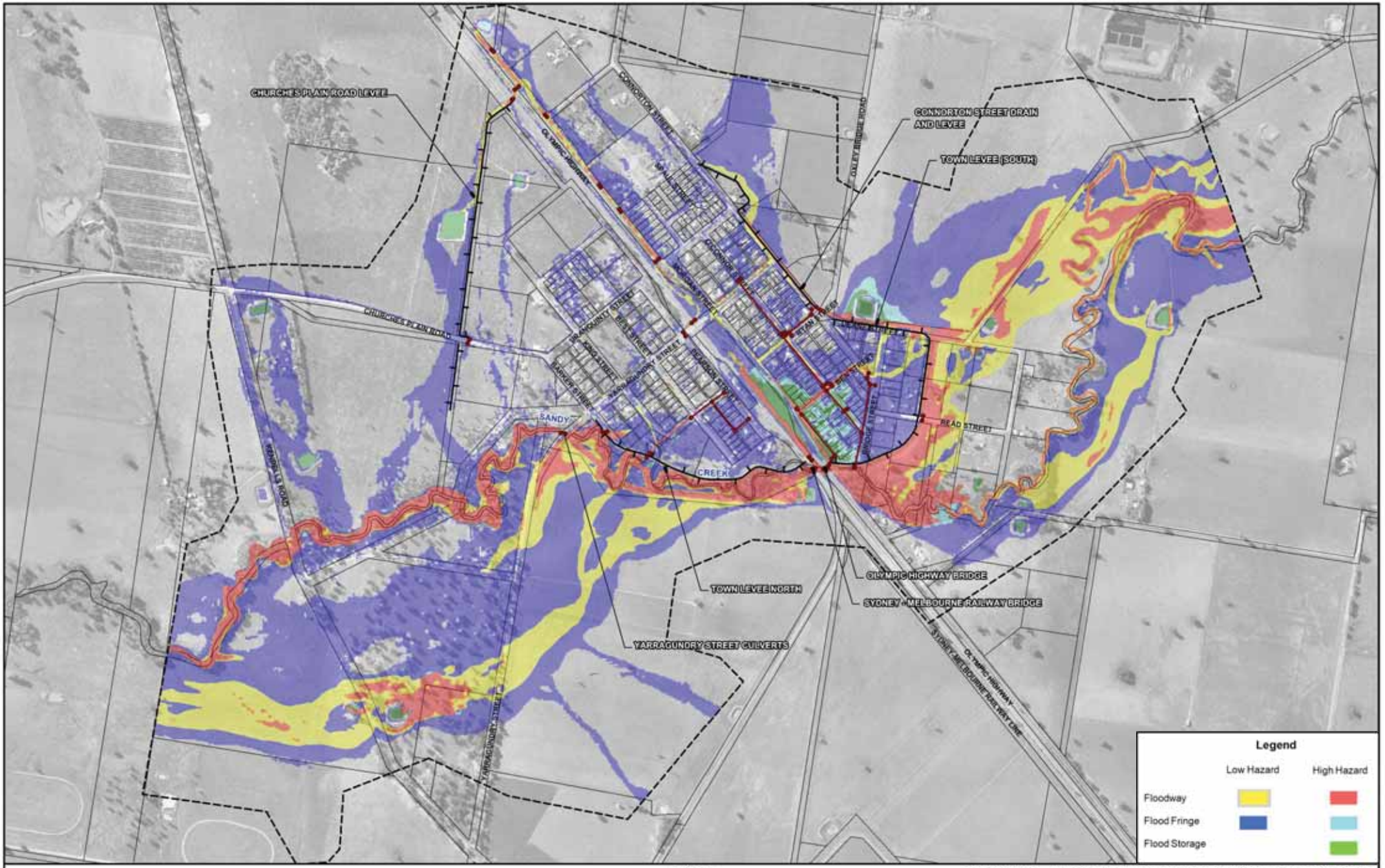
NOTE:

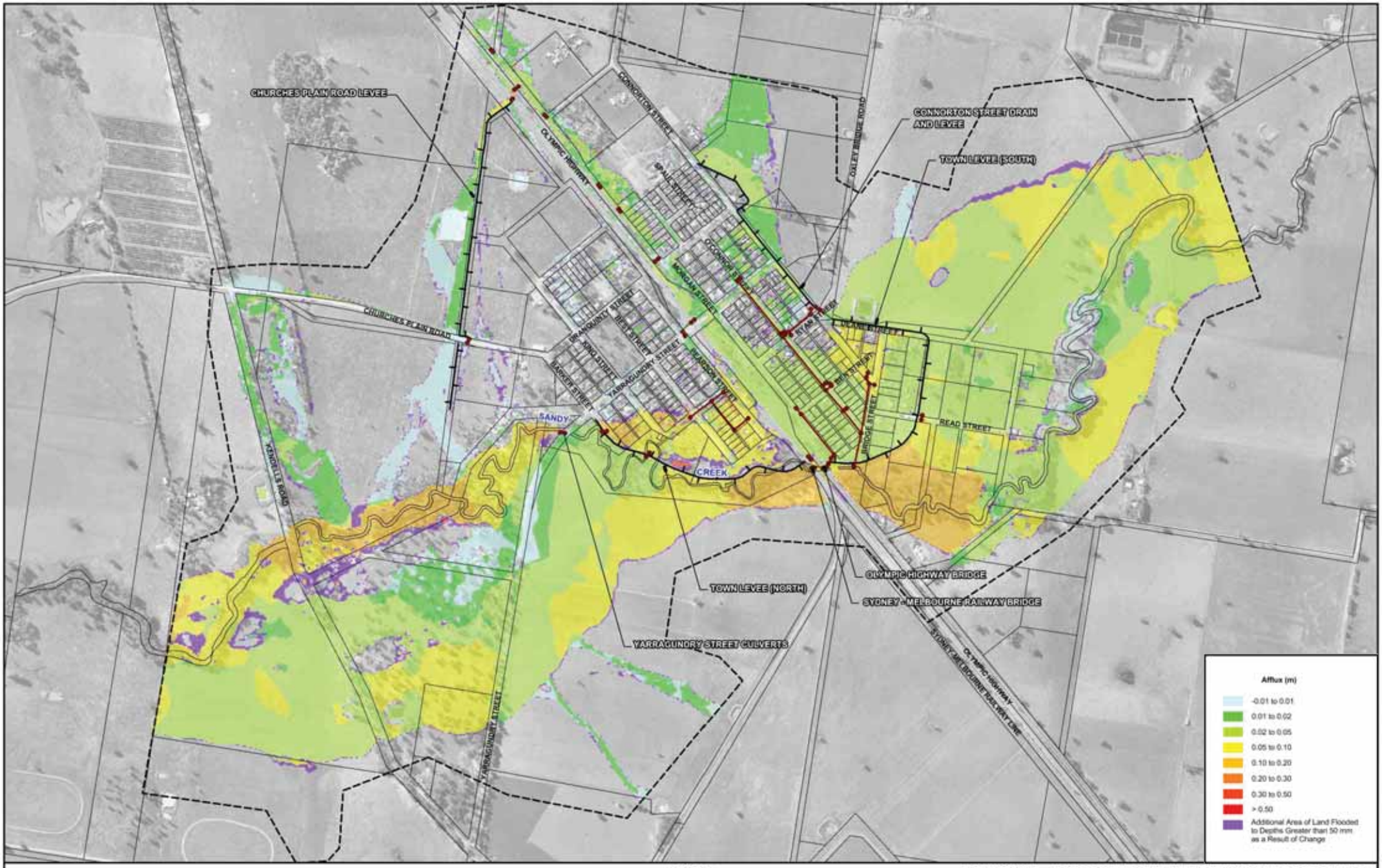
The extent and depths of flooding shown were determined from airborne laser scanning survey and are approximate only. The extent of inundation in individual allotments near the flood fringe should be confirmed by site specific survey.

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 5.10

URANQUINTY TUFLOW MODEL RESULTS
PMF





120 0 120 240 360 m

Scale: 1:12,000

LEGEND

Modelled Stormwater Network

Alignment of Existing Levee

Two-Dimensional Model Boundary

NOTE:

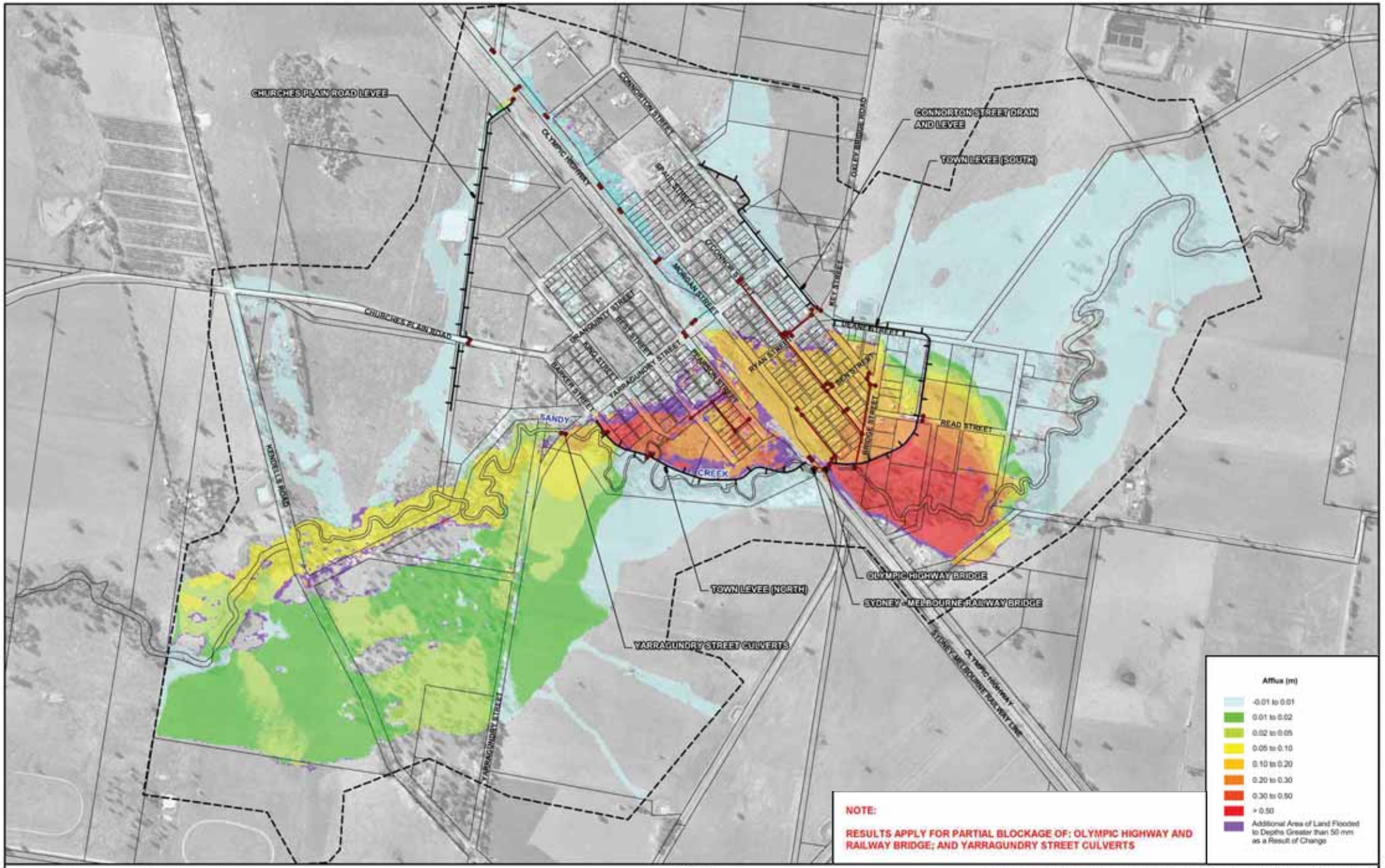
The extent of flooding shown was determined from airborne laser scanning survey and are approximate only. The extent of inundation in individual allotments near the flood fringe should be confirmed by site specific survey.

Lyall & Associates

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 5.12

SENSITIVITY OF FLOOD BEHAVIOUR AT URANQUINTY TO 20% INCREASE IN HYDRAULIC ROUGHNESS VALUES
100 YEAR ARI 6 HOUR STORM

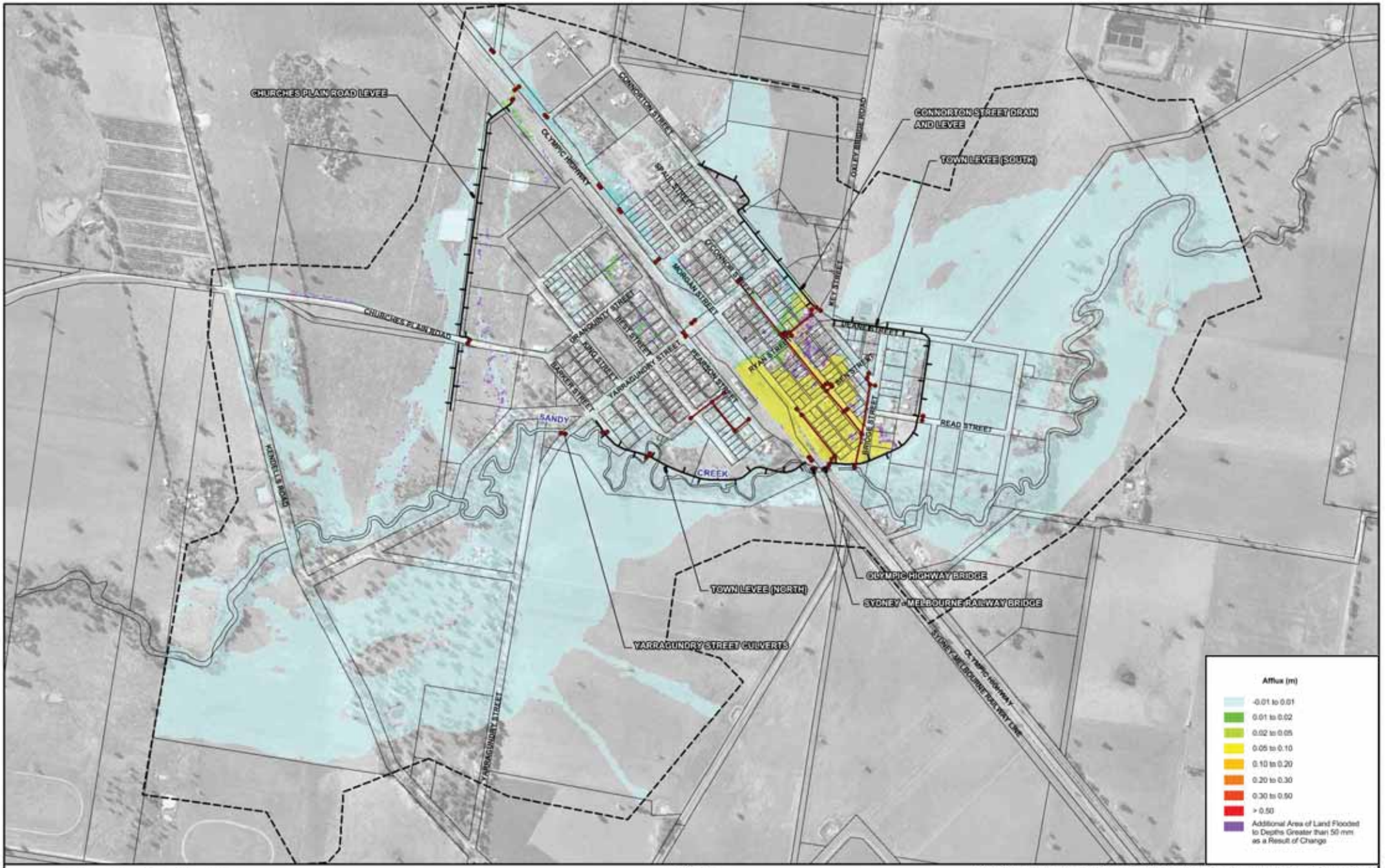


Lyall & Associates

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 5.13
(Sheet 1 of 2)

SENSITIVITY OF FLOOD BEHAVIOUR AT URANQUINTY TO A PARTIAL BLOCKAGE OF MAJOR HYDRAULIC STRUCTURES
MAIN STREAM STRUCTURES ONLY - 100 YEAR ARI 6 HOUR STORM



120 0 120 240 360 m

Scale: 1:12,000

LEGEND

Modelled Stormwater Network

Alignment of Existing Levee

Two-Dimensional Model Boundary

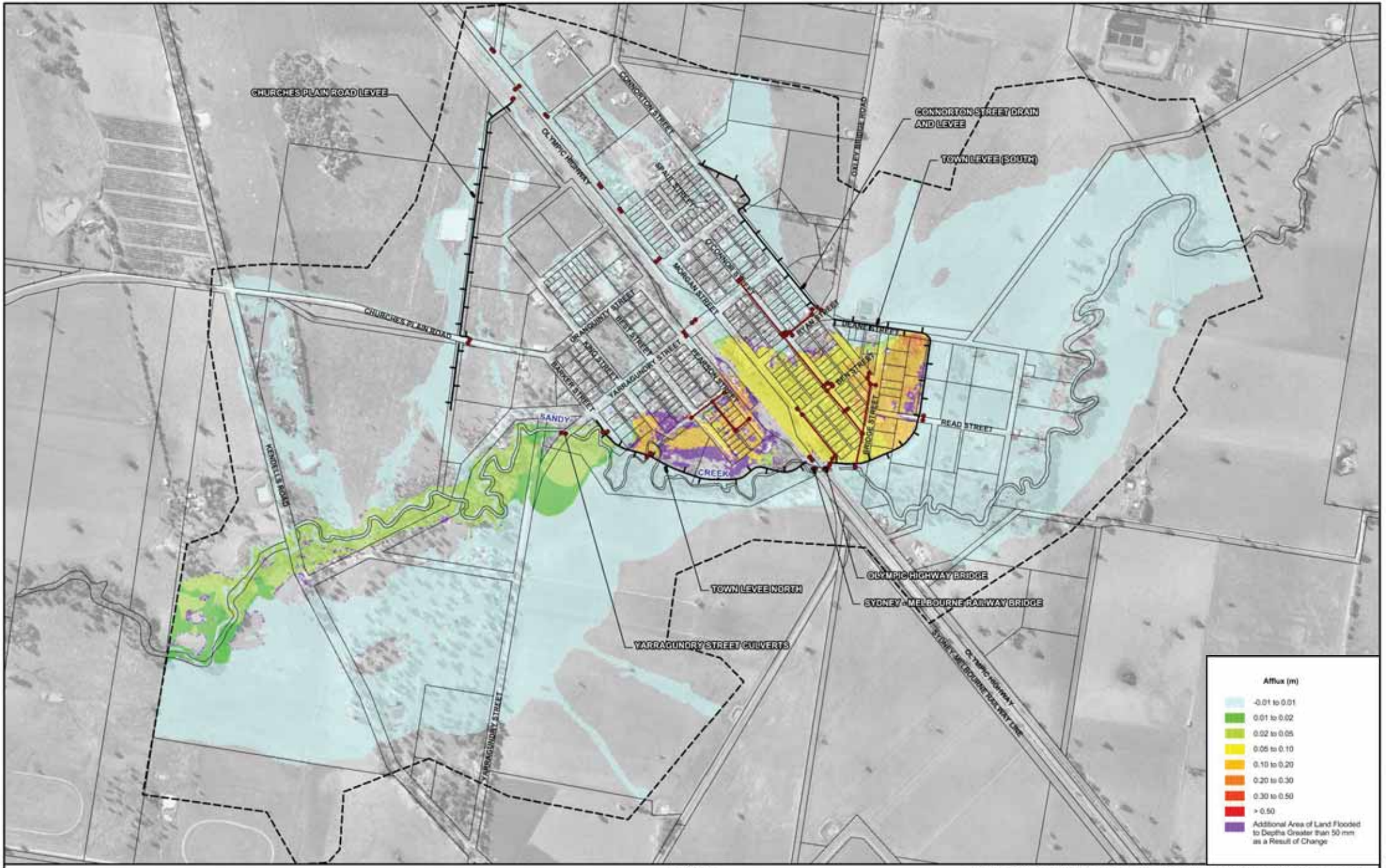
NOTE:
The extent of flooding shown was determined from airborne laser scanning survey and are approximate only. The extent of inundation in individual allotments near the flood fringe should be confirmed by site specific survey.

Lyall & Associates

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 5.13
(Sheet 2 of 2)

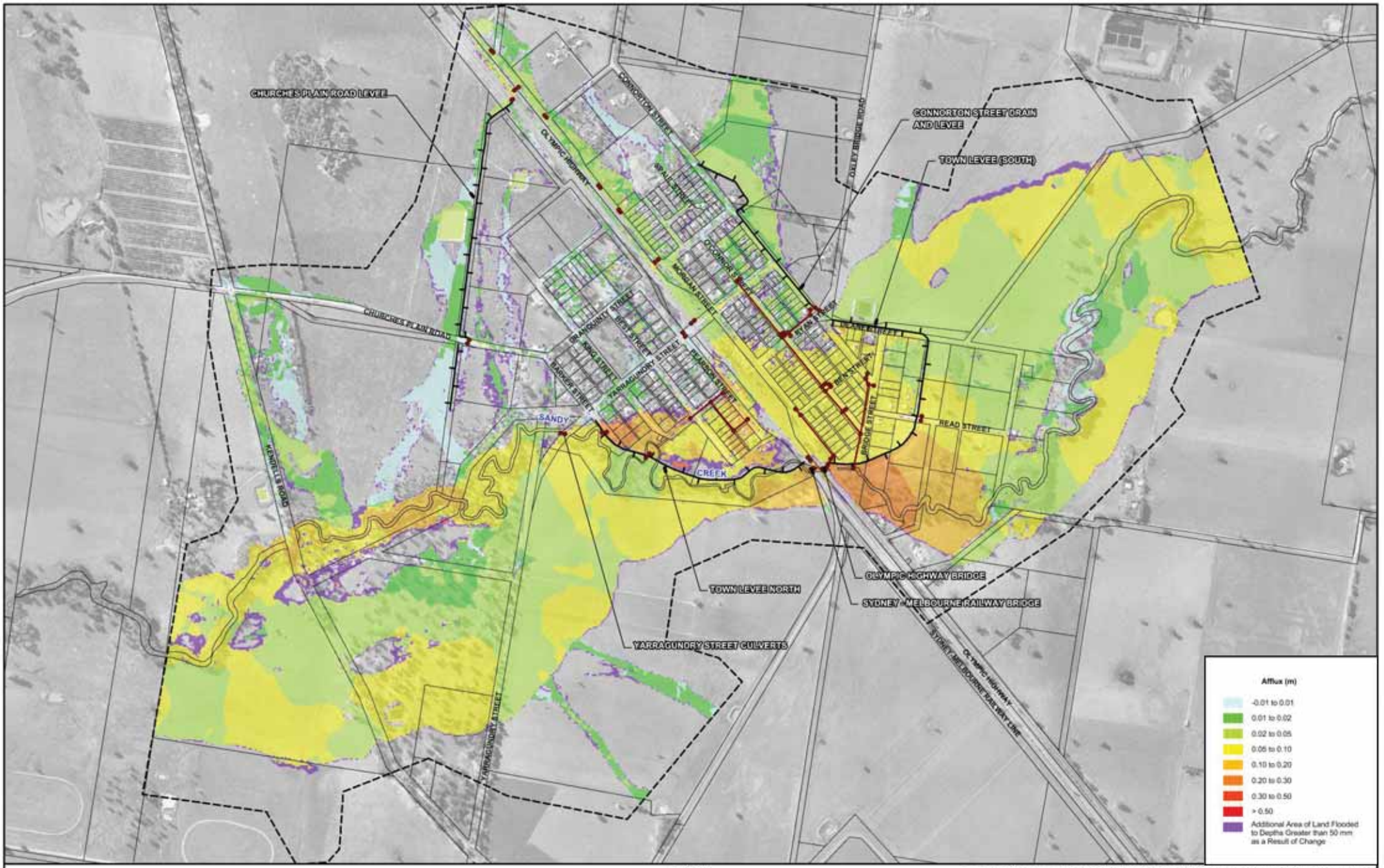
SENSITIVITY OF FLOOD BEHAVIOUR AT URANQUINTY TO A PARTIAL BLOCKAGE OF RYAN - KEY STREET CULVERT ONLY - 100 YEAR ARI 2 HOUR STORM



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 5.14

SENSITIVITY OF FLOOD BEHAVIOUR AT URANQUINTY TO LEVEE FAILURE
100 YEAR ARI



120 0 120 240 360 m
Scale: 1:12,000

LEGEND

Modelled Stormwater Network

Alignment of Existing Levee

Two-Dimensional Model Boundary

NOTE:

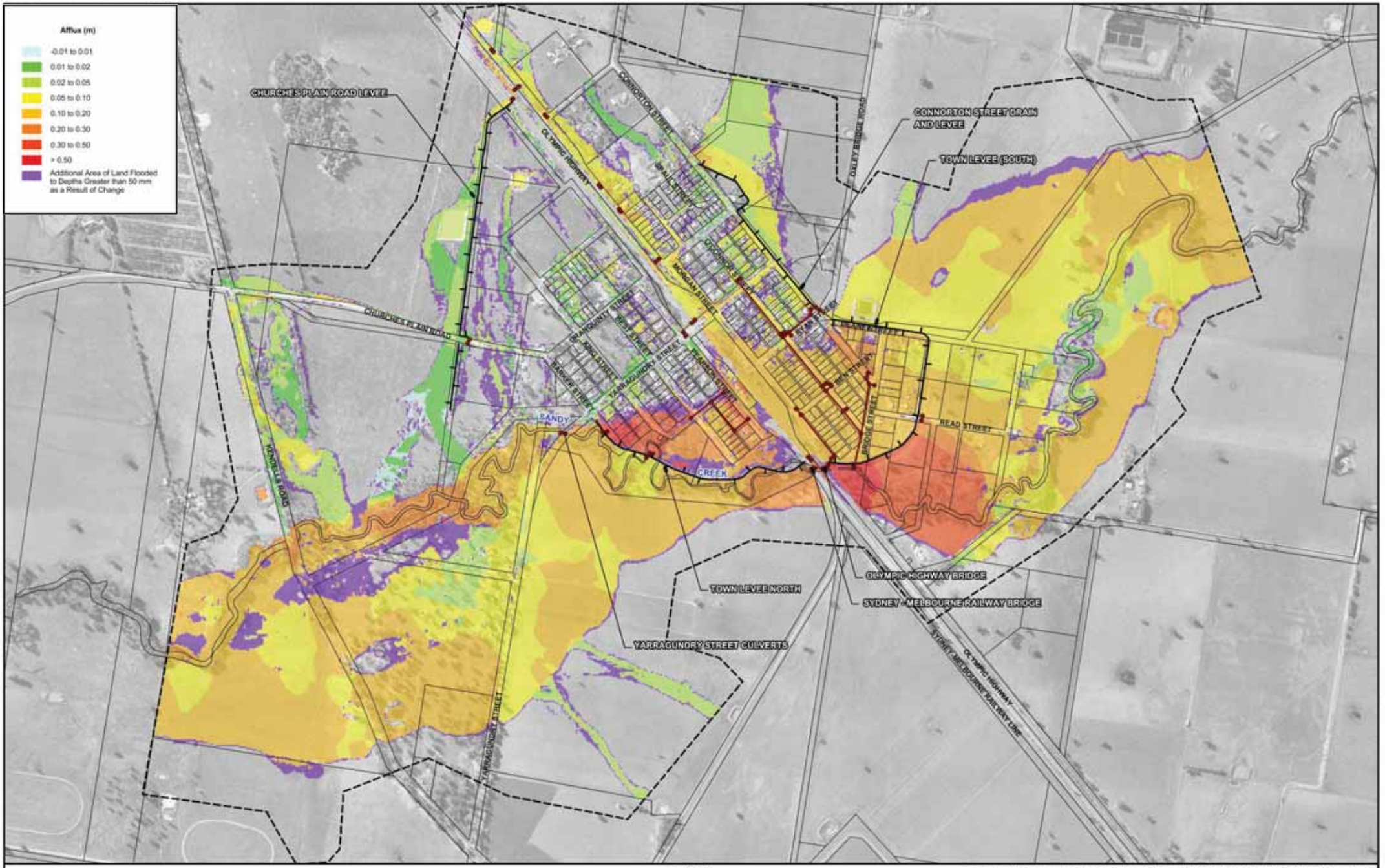
The extent of flooding shown was determined from airborne laser scanning survey and are approximate only. The extent of inundation in individual allotments near the flood fringe should be confirmed by site specific survey.

Lyall & Associates

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 5.15

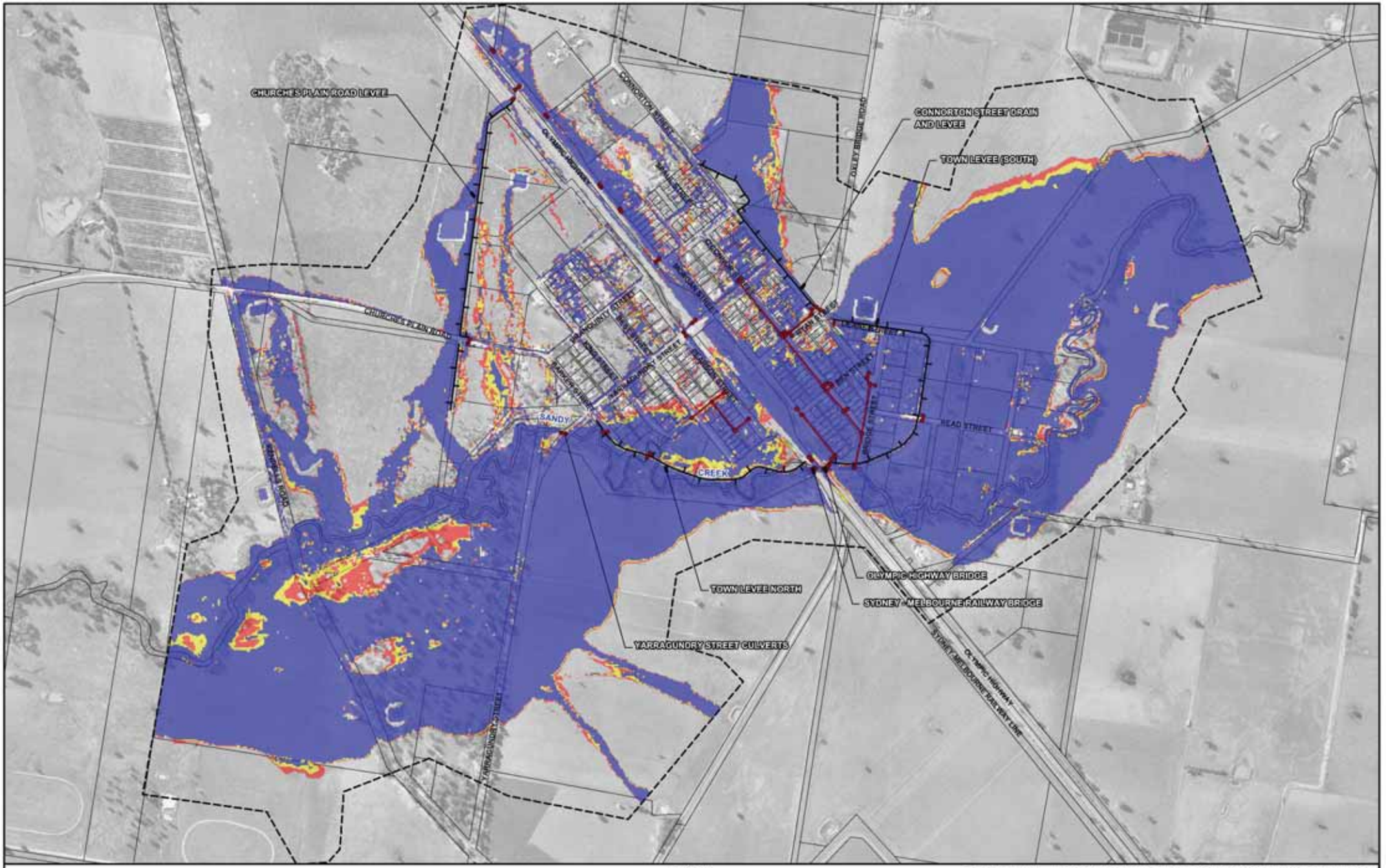
SENSITIVITY OF FLOOD BEHAVIOUR AT URANQUINTY TO 10% INCREASE IN RAINFALL INTENSITY
100 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 5.16

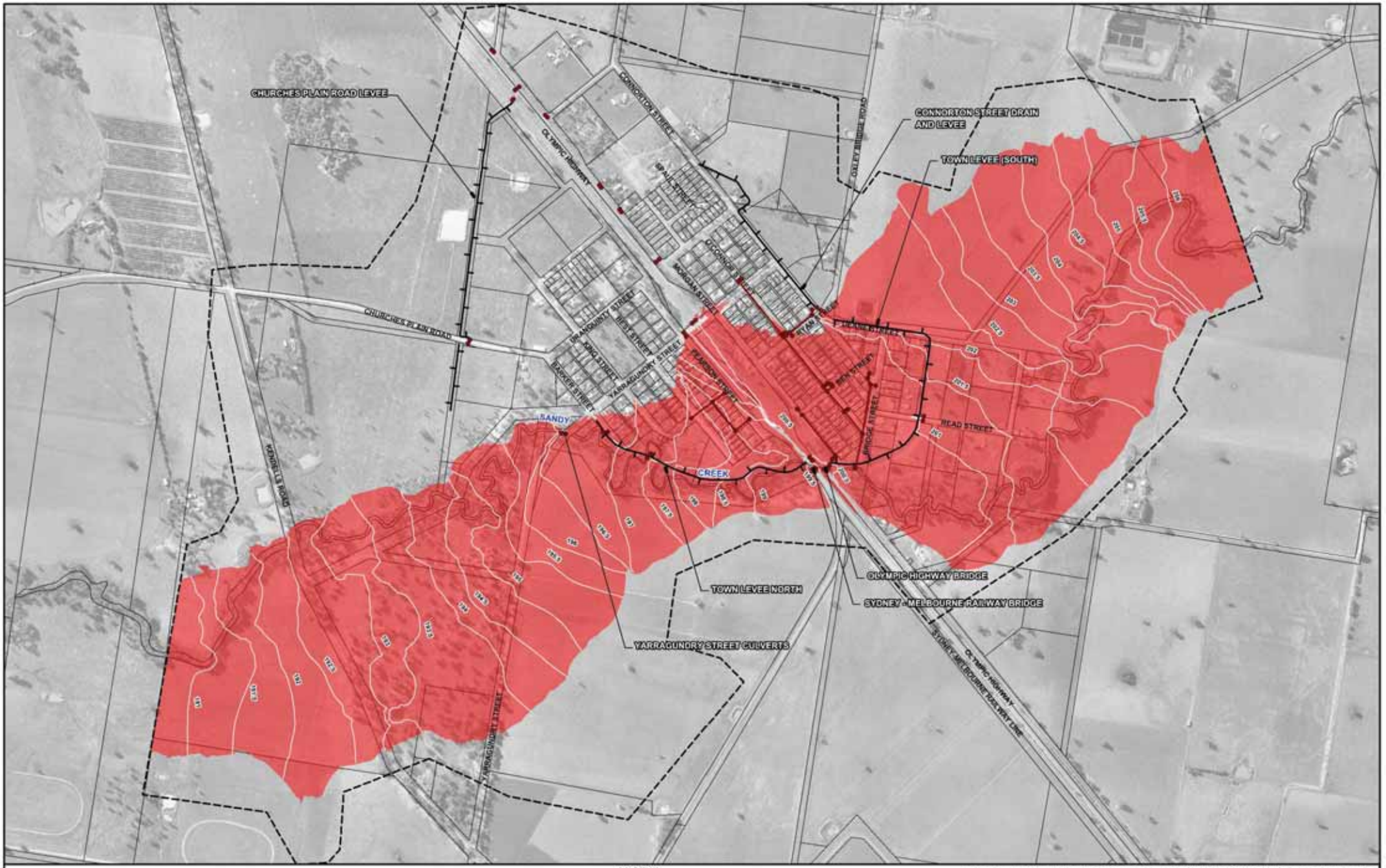
SENSITIVITY OF FLOOD BEHAVIOUR AT URANQUINTY TO 30% INCREASE IN RAINFALL INTENSITY
100 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 5.17

IMPACT OF INCREASED RAINFALL INTENSITIES ON EXTENT OF FLOODING AT URANQUINTY
100 YEAR ARI



TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DESIGN FLOOD MODELLING

Figure 5.18

INTERIM FLOOD PLANNING AREA AT URANQUINTY
MAIN STREAM FLOODING ONLY

APPENDIX A
PEAK HISTORIC AND DESIGN FLOOD FLOWS

TABLE A1
TARCUTTA PEAK HISTORIC AND DESIGN FLOOD FLOWS[1]

Peak Flow Location Identifier [2]	Tributary	Location	Historic Flood Events		Design Flood Events															
					5 year ARI		10 year ARI		20 year ARI		50 year ARI[3]		100 year ARI[3]		200 year ARI[3]		500 year ARI[3]		PMF	
			October 2010	March 2012	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]	[Q]	[R]	[S]	[T]	[U]
Q1	Tarcutta Creek	Upstream Extent of Model	871	492	148	1080	328	1080	483	1080	787	1080	973	1080	1,173	1080	1,448	1080	12,550	180
Q2	Tarcutta Creek	Sydney Street Bridge No. 1[4]	444	268	92.2	1080	187	1080	268	1080	415 [405]	1080	459 [453]	1080	488 [482]	1080	512 [505]	1080	-	-
Q3	Tarcutta Creek	Sydney Street Bridge No. 2[5]	460	260	58.5	1080	164	1080	258	1080	432 [400]	1080	498 [466]	1080	532 [504]	1080	595 [571]	1080	-	-
Q4	Tarcutta Creek	Hume Highway Bridge No. 1	482	263	100	1080	177	1080	262	1080	432	1080	577	1080	691	1080	878	1080	-	-
Q5	Tarcutta Creek	Hume Highway Bridge No. 2	306	198	27.2	1080	124	1080	191	1080	294	1080	348	1080	401	1080	469	1080	-	-
Q6	Tarcutta Creek	Tarcutta Levee[6]	0.3	0.0	0.0	-	0.0	-	0.0	-	1.2 [47.0]	1080	106 [143]	1080	264 [296]	1080	482 [512]	1080	-	-
Q7	Overland Flowpath	Toonga Street	1.5	0.3	1.8	180	2.5	180	3.7	180	5.1	60	6.5	60	8.1	60	10.3	60	50.2	15
Q8	Town Channel	Downstream Spring Street	2.0	0.4	2.0	180	2.9	180	4.3	180	6.1	60	7.8	60	9.7	60	12.1	60	-	-
Q9	Town Channel	Adjacent to Truck Stop	2.3	0.4	2.1	180	3.0	180	4.4	180	6.0	60	8.0	60	10.0	60	12.7	60	-	-
Q10	Overland Flowpath	Upstream Cynthia Street	0.2	0.0	0.2	180	0.3	180	0.4	180	0.6	60	0.7	60	0.8	60	1.1	60	-	-
Q11	Unnamed Tributary	Downstream Sydney Street	1.5	0.3	1.9	180	2.5	180	3.6	180	4.9	60	6.2	60	7.3	60	9.6	60	11.4	15

1. Peak flows less than 100 m^3/s have been quoted to the first decimal place in order to show minor differences.
2. Refer relevant figures in **Volume 2** for peak flow locations.
3. Values in brackets [ ] represent levee failure conditions.
4. Peak flow includes flow through bridge structure and flow over Sydney Street between midpoint between Sydney Street Bridge No. 1 and 2 and the commencement of Old Tarcutta Inn Levee.
5. Peak flow includes flow through bridge structure and flow over Sydney Street between Hume Highway and midpoint between Sydney Street Bridges No. 1 and 2.
6. Peak flow includes flow across levee and flow across Sydney Street between commencement of Old Tarcutta Inn Levee and commencement of Tarcutta Levee.

TABLE A2
LADYSMITH PEAK HISTORIC AND DESIGN FLOOD FLOWS[1]

Peak Flow Location Identifier [2]	Tributary	Location	Historic Flood Events		Design Flood Events															
					5 year ARI		10 year ARI		20 year ARI		50 year ARI		100 year ARI		200 year ARI		500 year ARI		PMF	
			October 2010	March 2012	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]	[Q]	[R]	[S]	[T]	[U]
Q1	Kyeamba Creek	Upstream Extent of Model	481	382	79.1	540	182	540	277	360	495	360	616	360	739	360	921	360	9,350	180
Q2	Kyeamba Creek	Railway Bridge No. 1[3]	474	384	33.4	540	71.2	540	125	360	242	360	318	360	403	360	512	360	5,695	180
Q3	Kyeamba Creek	Railway Bridge No. 2[4]			44.0	540	106	540	150	360	249	360	296	360	334	360	408	360	3,380	180
Q4	Wrights Gully	Tumbarumba Road	-	-	8.4	180	11.8	180	16.4	180	22.9	120	28.8	120	35.2	120	44.6	120	500	180
Q5	Overland Flow	Tywong Street upstream of Railway Line	-	-	2.0	120	2.7	180	3.8	60	6.0	60	7.7	60	9.6	60	12.2	60	-	-
Q6	Overland Flow	Tywong Street downstream of Railway Line	0.0	0.1	0.2	180	0.3	180	0.4	60	0.7	60	0.9	60	1.3	60	1.7	60	-	-
Q7	Overland Flow	Tarcutta Street upstream of Railway Line	-	-	0.5	25	0.7	25	1.1	25	1.6	25	2.1	25	2.6	25	3.1	25	-	-
Q8	Overland Flow	Flow at Tumbarumba Road	-	-	0.4	180	2.8	180	3.6	120	5.5	60	7.0	60	8.5	60	10.5	60	-	-
Q9	Overland Flow	Overland Flow downstream of Tumbarumba Road	-	-	0.2	180	0.3	180	0.5	120	0.9	60	1.9	60	3.1	60	4.5	60	-	-
Q10	Unnamed Tributary	Upstream Extent of Model	0.0	1.4	2.7	180	3.7	180	5.1	120	6.9	60	8.7	60	11.0	60	14.0	60	95	180
Q11	Unnamed Tributary	Western Flow Split	0.0	1.8	3.0	180	3.7	180	4.7	120	6.2	60	7.1	60	8.4	60	10.1	60	-	-
Q12	Unnamed Tributary	Eastern Flow Split	0.0	0.1	0.7	180	1.3	180	2.0	120	3.5	60	4.7	60	6.1	60	8.0	60	-	-
Q13	Unnamed Tributary	Tumbarumba Road	-	-	3.8	180	5.2	180	7.1	120	9.4	120	10.7	120	13.9	120	18.1	120	-	-

1. Peak flows less than 100 m^3/s have been quoted to the first decimal place in order to show minor differences.
2. Refer relevant figures in **Volume 2** for peak flow locations.
3. Discharge hydrographs of Railway Bridge No. 2 include surcharge over railway embankment east of Railway Bridge No. 2.
4. Discharge hydrograph at Railway Bridge No. 1 include surcharge over railway embankment west of Railway Bridge No. 2

TABLE A3
URANQUINTY PEAK HISTORIC AND DESIGN FLOOD FLOWS[1]

Peak Flow Location Identifier [2]	Tributary	Location	Historic Flood Events		Design Flood Events													
					5 year ARI		10 year ARI[3]		20 year ARI[3]		50 year ARI[3]		100 year ARI[3]		200 year ARI[3]		500 year ARI[3]		PMF	
			October 2010	March 2012	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)	Peak Flow (m^3/s)	Critical Storm Duration (minutes)
[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]	[Q]	[R]	[S]	[T]	[U]
Q1	Sandy Creek	Upstream Extent of Model	172	123	21.8	540	50.7	360	76.0	360	136	360	168	360	201	360	248	360	2,640	180
Q2	Sandy Creek	Olympic Highway Bridge[4]	153	121	22.4	540	51.0	360	76.8	360	129	360	153	360	172	360	197	360	-	-
Q3	Sandy Creek	Sydney - Melbourne Railway Bridge[4]	164	124	22.4	540	51.0	360	76.8	360	132	360	164	360	187	360	214	360	-	-
Q4	Sandy Creek	Yarragundry Street Culvert[4]	47.8	46.3	22.7	540	40.7	360	43.9	360	46.6	360	47.9	360	49.9	360	52.3	360	-	-
Q5	Overland Flow	Flow Across Deane Street (Town Levee (South))	19.9	6.0	0.0	-	0.0 [0.9]	360	0.0 [6.9]	360	8.9 [20.4]	360	19.3 [28.9]	360	30.4 [39.5]	360	47.5 [56.1]	360	-	-
Q6	Overland Flow	Flow Across Sydney-Melbourne Railway Line	2.8	0.0	0.0	-	0.0 [0.0]	-	0.0 [0.0]	-	0.0 [2.9]	360	2.9 [10.7]	360	13.2 [19.2]	360	31.7 [35.5]	360	-	-
Q7	Overland Flow	Behind 80 Connorton Street	6.9	4.2	4.2	180	5.9	360	8.0	360	11.4	120	14.3	120	17.6	120	22.3	120	133	180
Q8	Overland Flow	Flow Across Connorton Street	-	-	<0.1	180	1.3 [1.4]	360	2.0 [2.1]	360	3.4 [3.7]	120	5.1 [5.3]	120	6.3 [6.4]	120	8.6 [8.7]	120	-	-
Q9	Overland Flow	Flow Across Connorton Street	-	-	0.4	180	0.5 [0.5]	360	1.1 [1.5]	360	1.7 [1.9]	120	3.0 [3.1]	120	4.0 [4.3]	120	5.4 [5.7]	120	-	-
Q10	Overland Flow	Pearson Street Channel	2.2	0.8	1.2	180	2.3	180	2.6	180	2.7	120	2.9	90	3.0	120	3.2	120	-	-
Q11	Overland Flow	Flow Across Town Levee (North)	1.3	0.2	0.1	180	0.2 [0.3]	180	0.3 [0.9]	180	1.0 [2.8]	360	1.6 [10.7]	360	11.7 [20.3]	360	31.8 [38.2]	360	-	-

1. Peak flows less than 100 m^3/s have been quoted to the first decimal place in order to show minor differences.
2. Refer relevant figures in **Volume 2** for peak flow locations.
3. Values in brackets [ ] represent levee failure conditions.
4. Denotes peak flow through structure only.