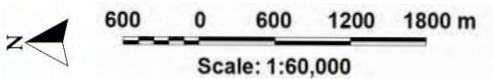


REFER TO
FIGURE 3.5 SHEET 2
FOR DETAILS

URANQUINTY

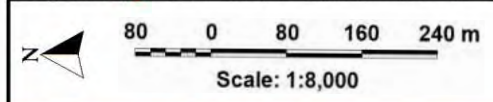
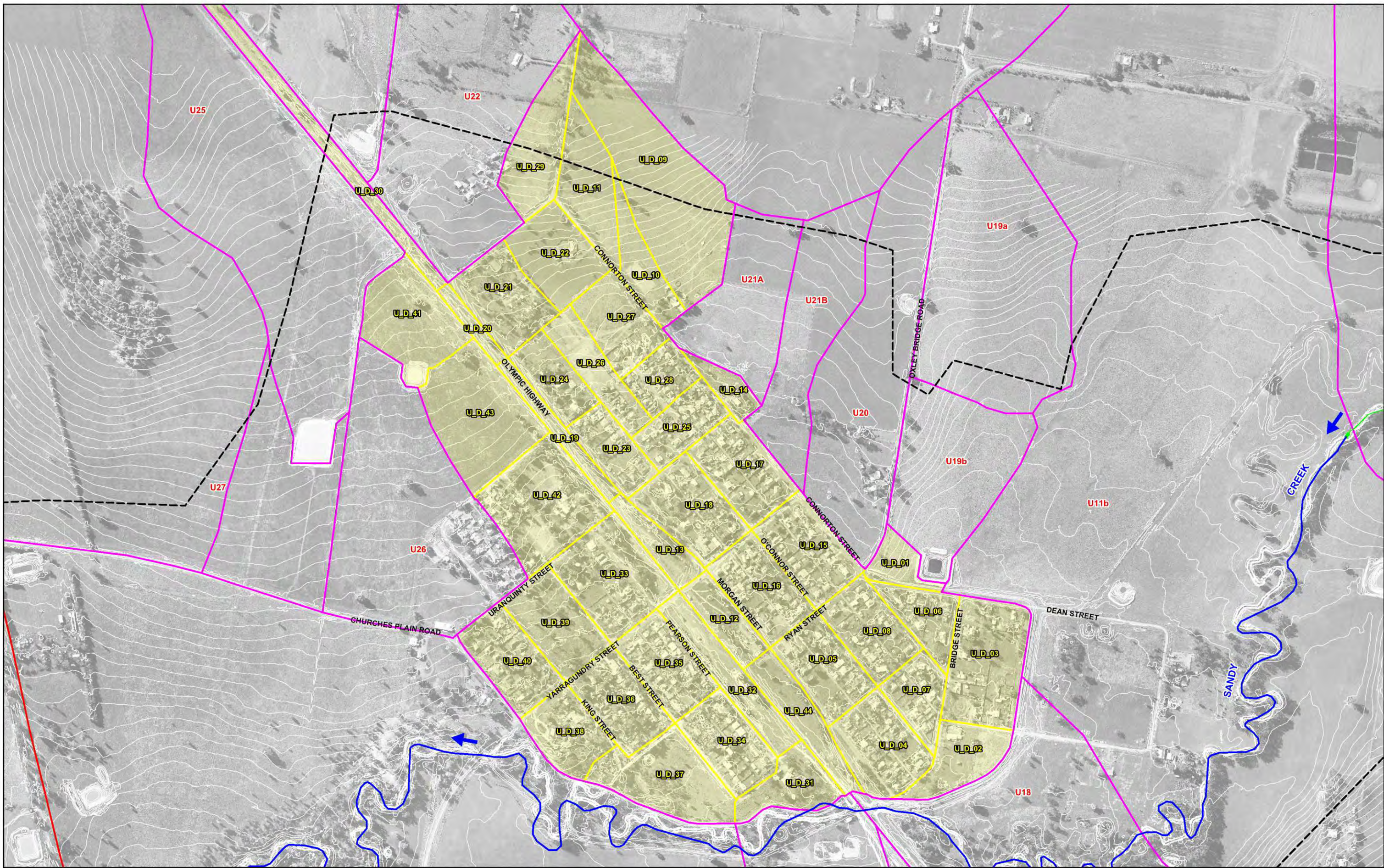


LEGEND

- Study Catchment
- Two-Dimensional Boundary
- DRAINS Sub-Catchment
- RAFTS Sub-Catchment and Identifier
- RAFTS Sub-Catchment Link

**TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DEVELOPMENT AND TESTING OF FLOOD MODELS**

Figure 3.5
Sheet 1 of 2

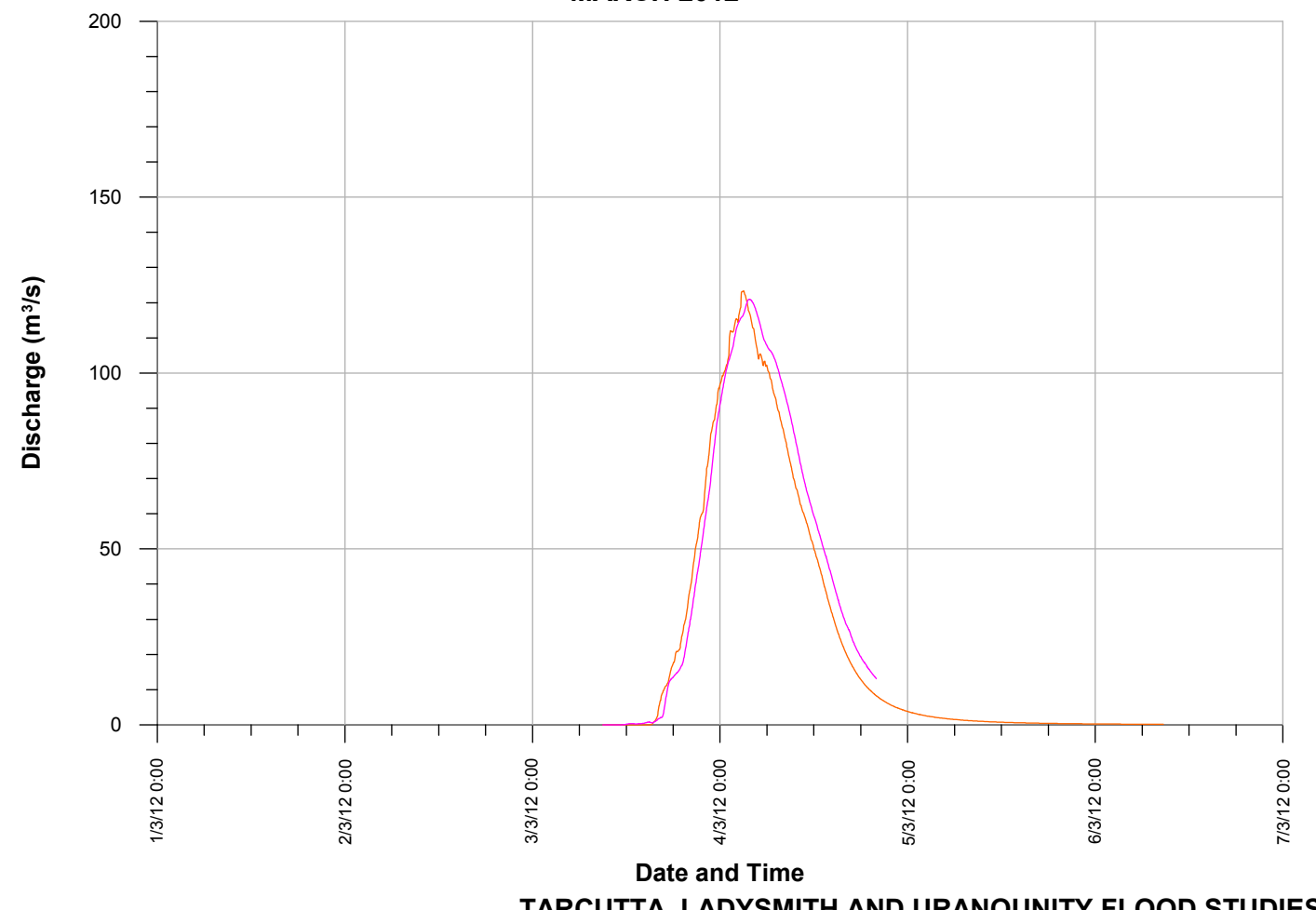
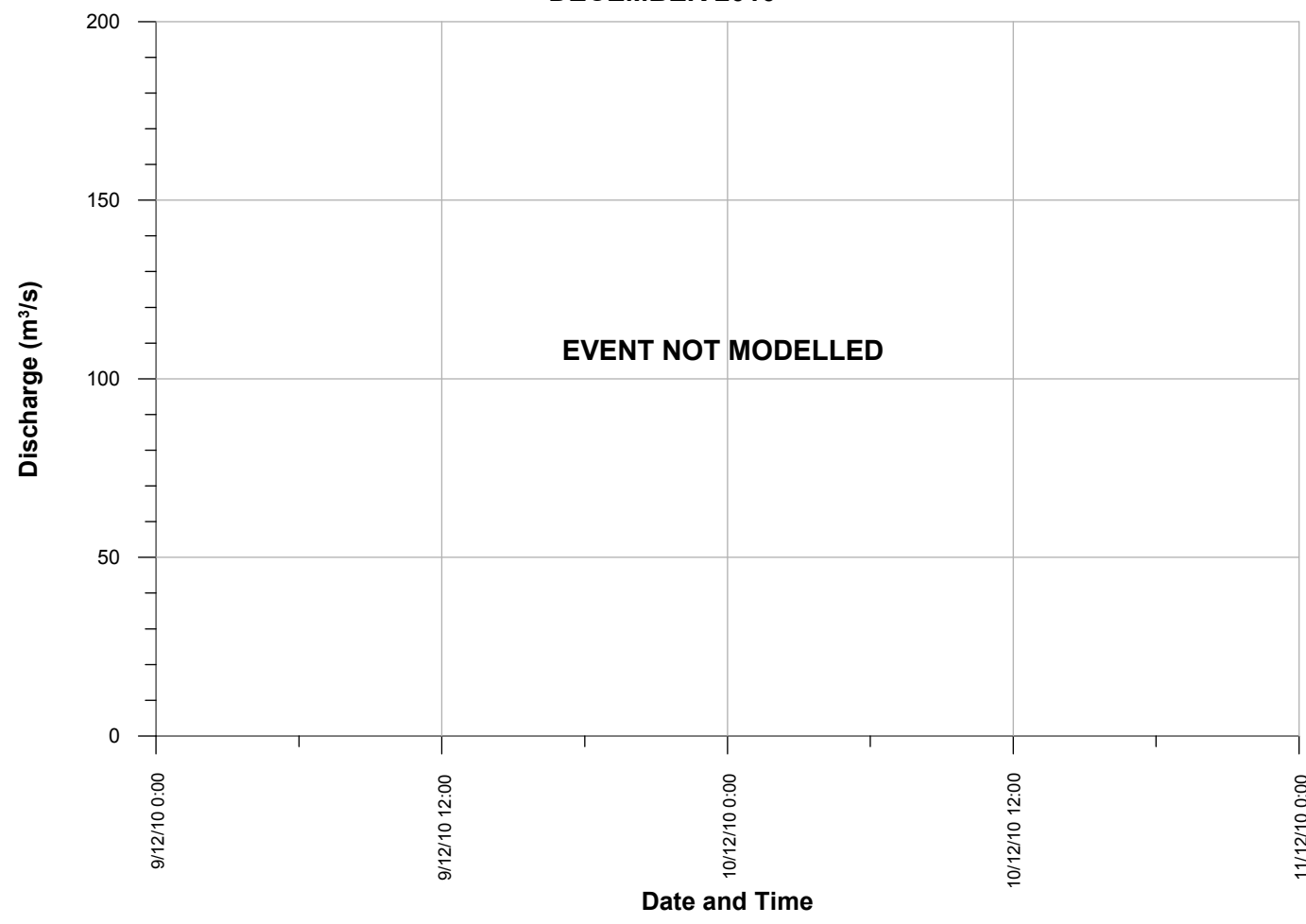
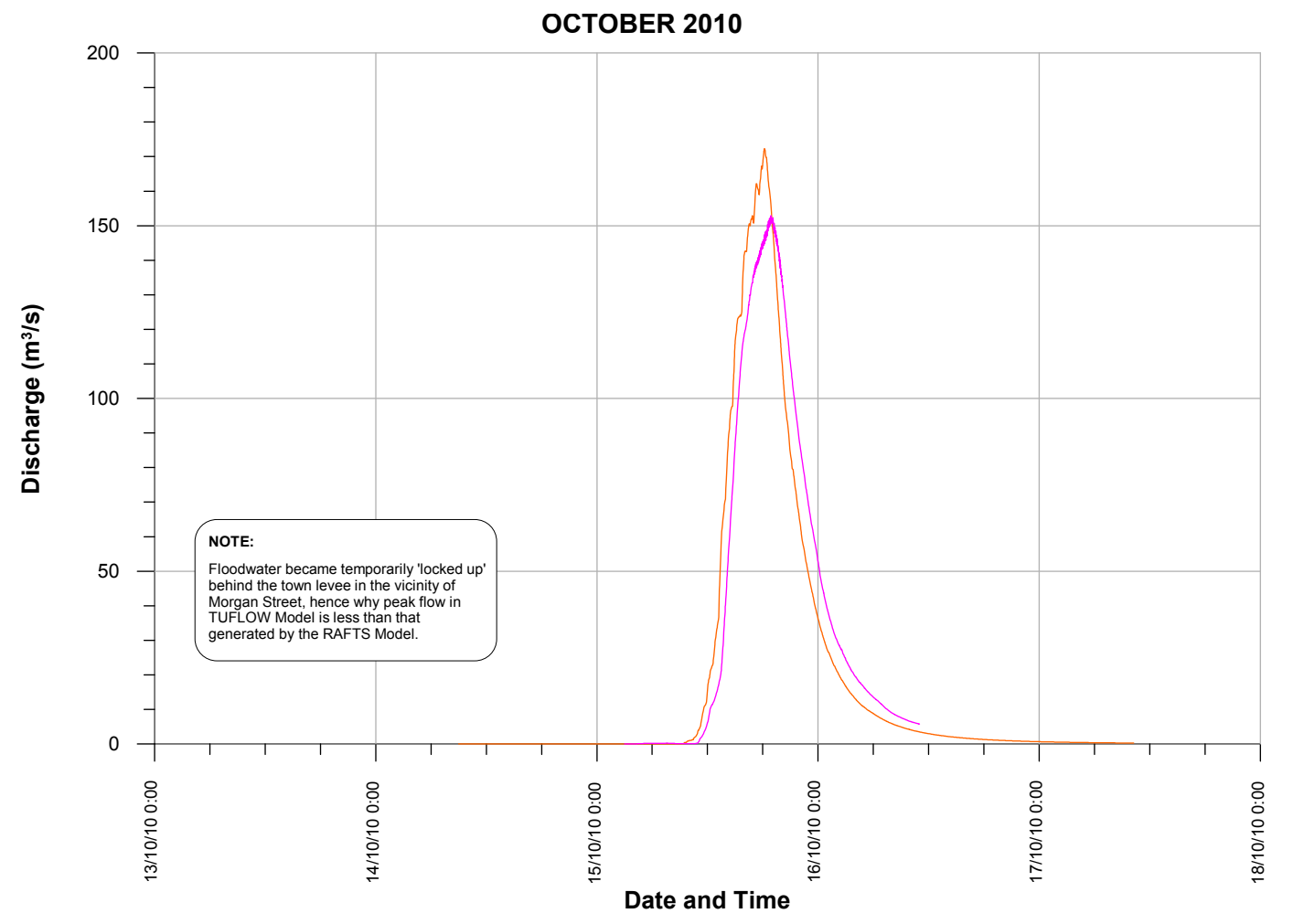
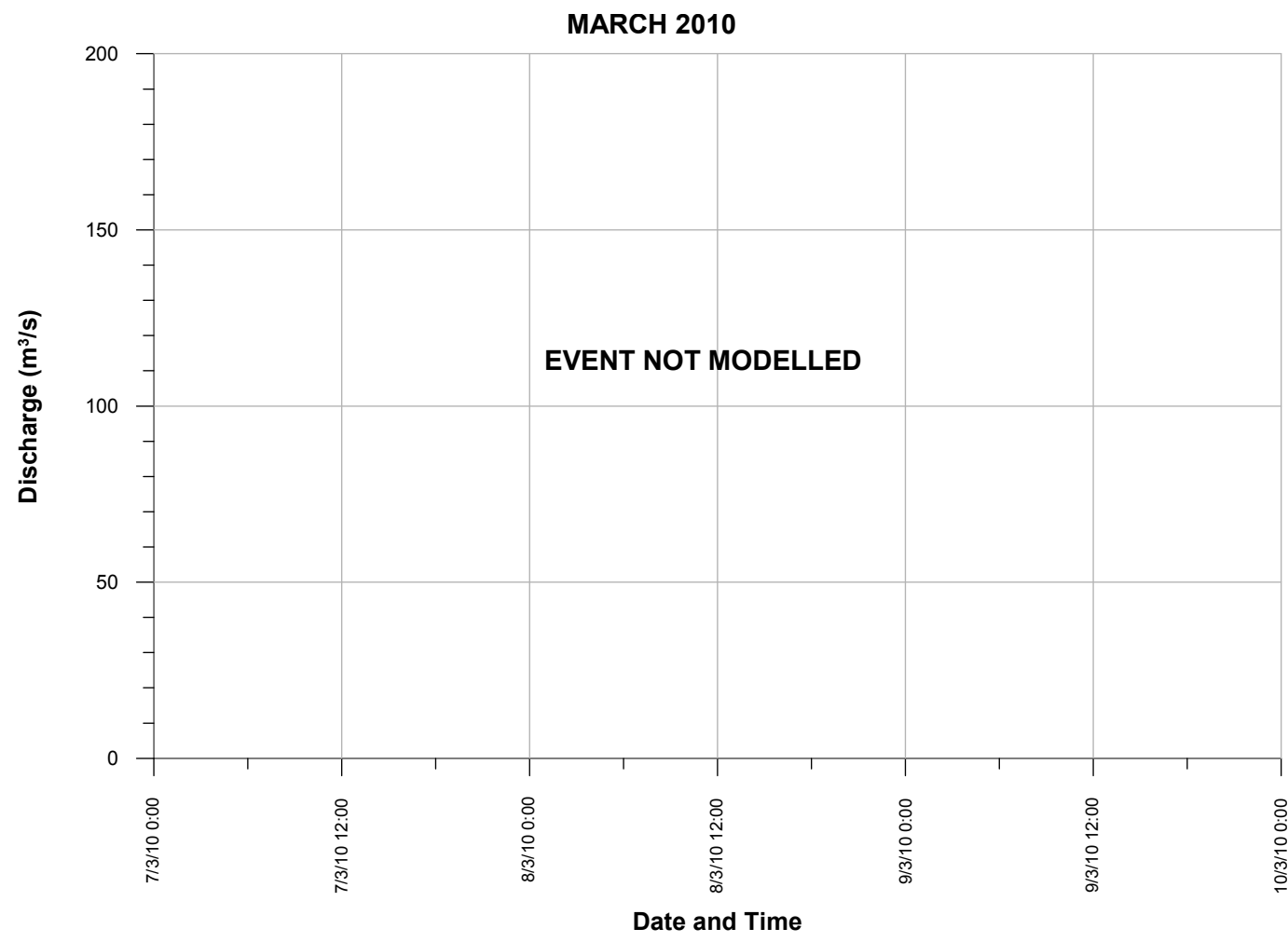


LEGEND

- Study Catchment
- Two-Dimensional Model Boundary
- U_D_40 DRAINS Sub-Catchment and Identifier
- U18 RAFTS Sub-Catchment and Identifier
- RAFTS Sub-Catchment Link

**TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DEVELOPMENT AND TESTING OF FLOOD MODELS**

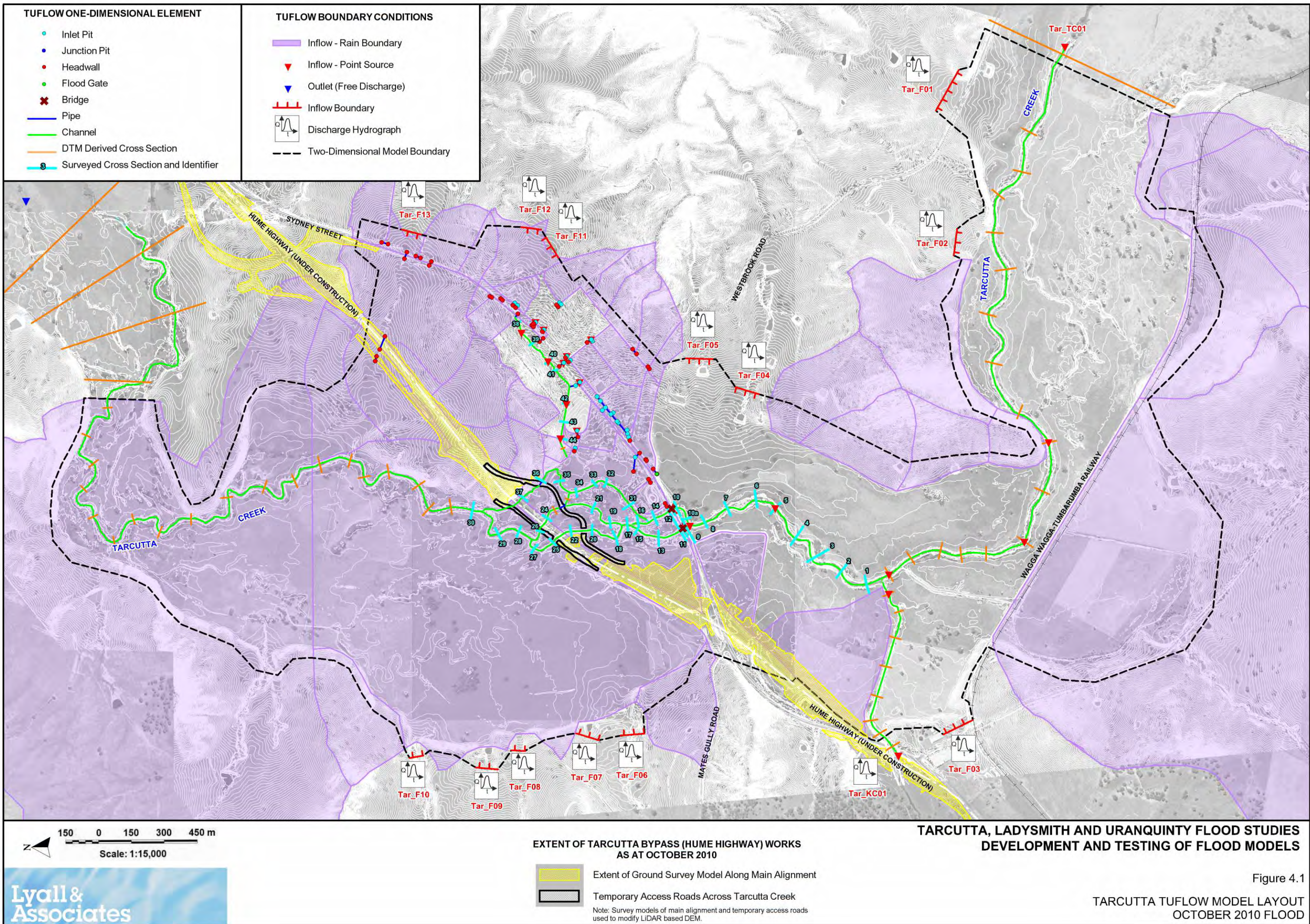
Figure 3.5
Sheet 2 of 2



LEGEND
— Modelled Hydrograph (RAFTS)
— Modelled Hydrograph (TUFLOW)

**TARCUTTA, LADYSMITH AND URANQUITY FLOOD STUDIES
DEVELOPMENT AND TESTING OF FLOOD MODELS**

Figure 3.6
SANDY CREEK HISTORIC FLOWS AT OLYMPIC HIGHWAY



TUFLOW ONE-DIMENSIONAL ELEMENT

- Inlet Pit
- Junction Pit
- Headwall
- Flood Gate
- ✕ Bridge
- Pipe
- Channel
- DTM Derived Cross Section
- Surveyed Cross Section and Identifier

TUFLOW BOUNDARY CONDITIONS

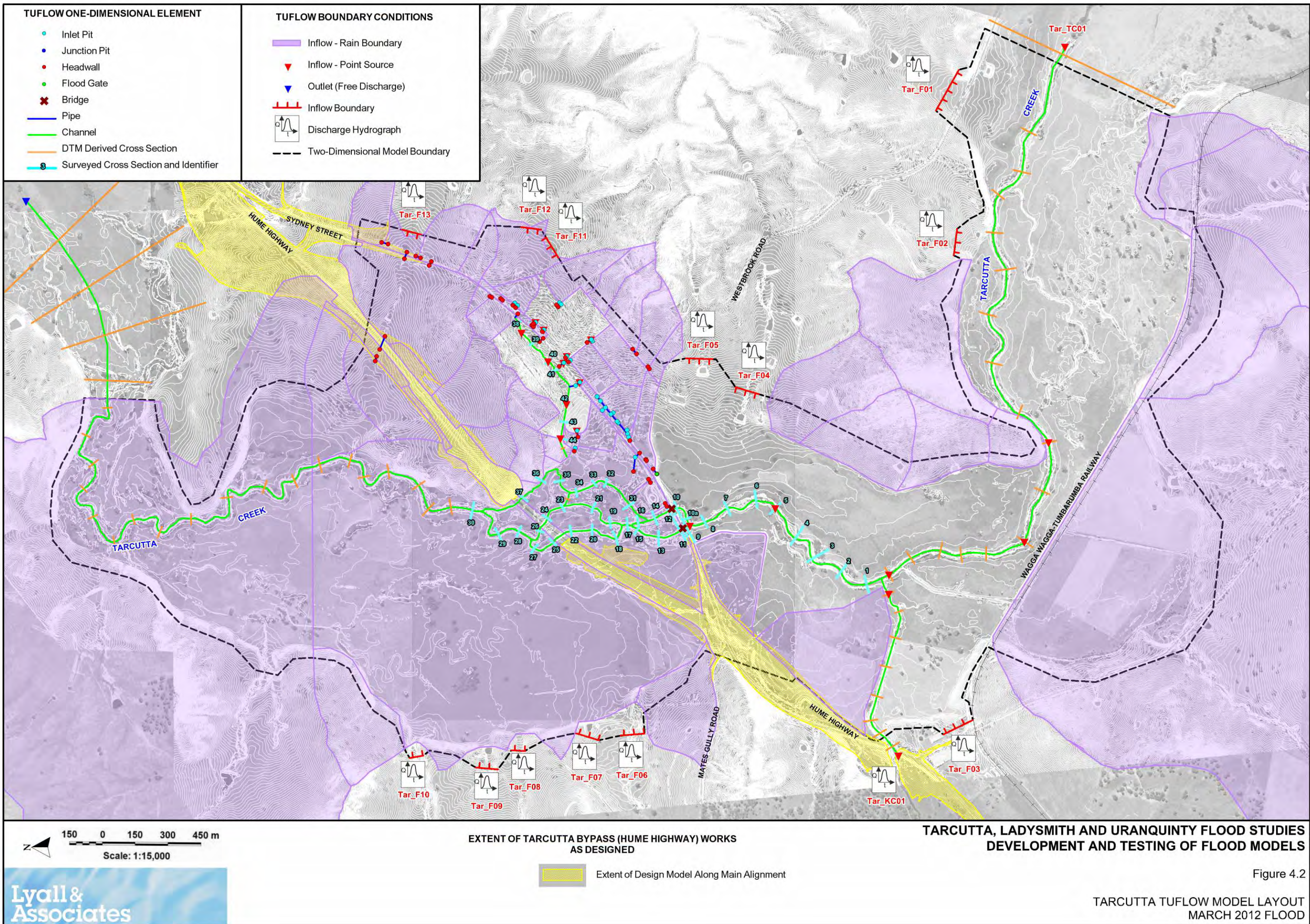
- Inflow - Rain Boundary
- ▼ Inflow - Point Source
- ▼ Outlet (Free Discharge)
- Inflow Boundary
- Discharge Hydrograph
- Two-Dimensional Model Boundary

150 0 150 300 450 m
Scale: 1:15,000

EXTENT OF TARCUTTA BYPASS (HUME HIGHWAY) WORKS AS AT OCTOBER 2010

- Extent of Ground Survey Model Along Main Alignment
 - Temporary Access Roads Across Tarcutta Creek
- Note: Survey models of main alignment and temporary access roads used to modify LiDAR based DEM.

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES DEVELOPMENT AND TESTING OF FLOOD MODELS



TUFLOW ONE-DIMENSIONAL ELEMENT

- Inlet Pit
- Junction Pit
- ▲ Headwall
- Flood Gate
- ✕ Bridge
- Pipe
- Channel
- DTM Derived Cross Section
- Surveyed Cross Section and Identifier

TUFLOW BOUNDARY CONDITIONS

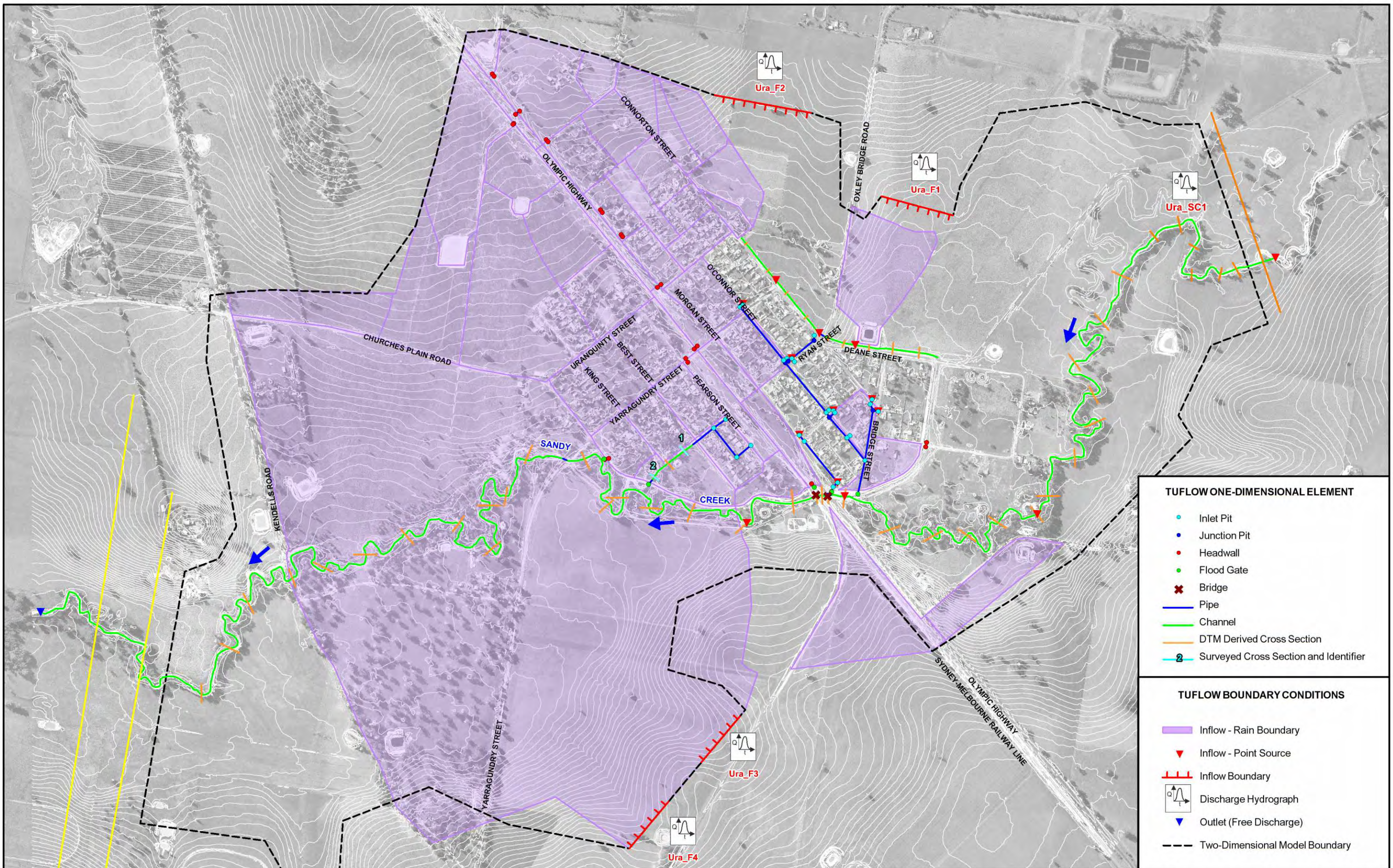
- Inflow - Rain Boundary
- ▲ Inflow - Point Source
- ▼ Outlet (Free Discharge)
- ▲—▲—▲— Inflow Boundary
- Discharge Hydrograph
- Two-Dimensional Model Boundary

EXTENT OF TARCUTTA BYPASS (HUME HIGHWAY) WORKS AS DESIGNED

Extent of Design Model Along Main Alignment

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES DEVELOPMENT AND TESTING OF FLOOD MODELS

Figure 4.2



TUFLOW ONE-DIMENSIONAL ELEMENT

- Inlet Pit
- Junction Pit
- Headwall
- Flood Gate
- ✕ Bridge
- Pipe
- Channel
- DTM Derived Cross Section
- 2 Surveyed Cross Section and Identifier

TUFLOW BOUNDARY CONDITIONS

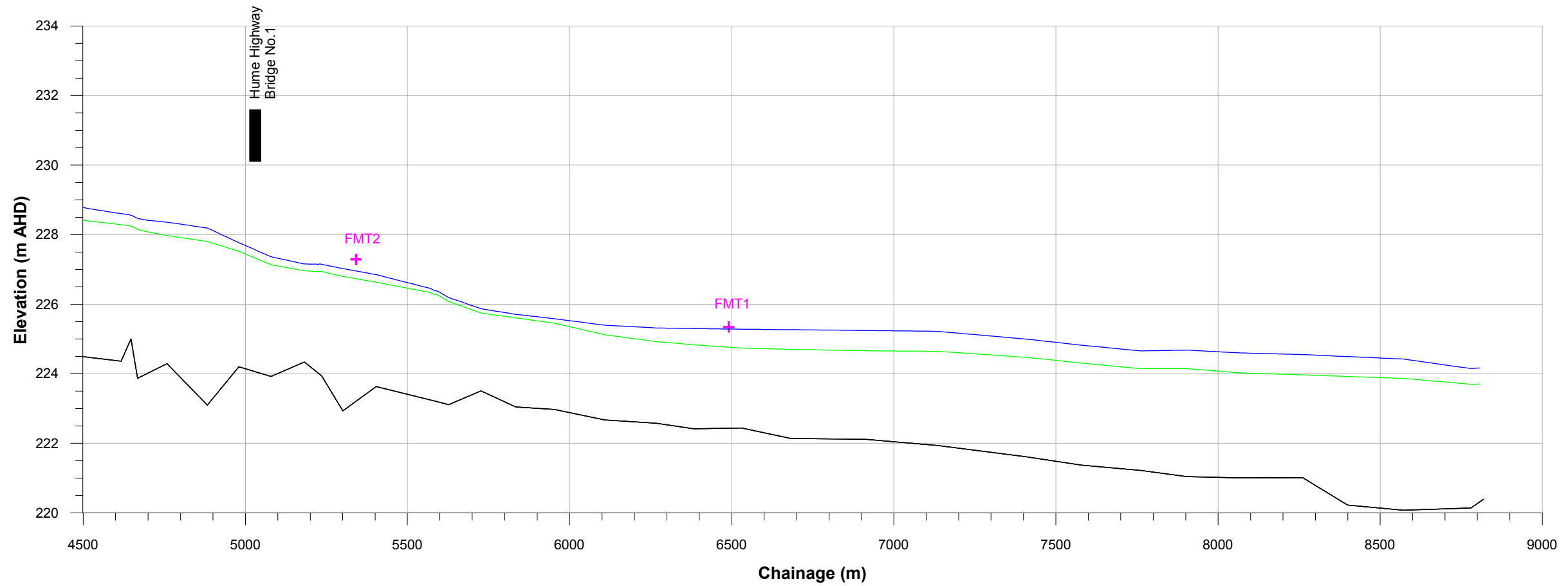
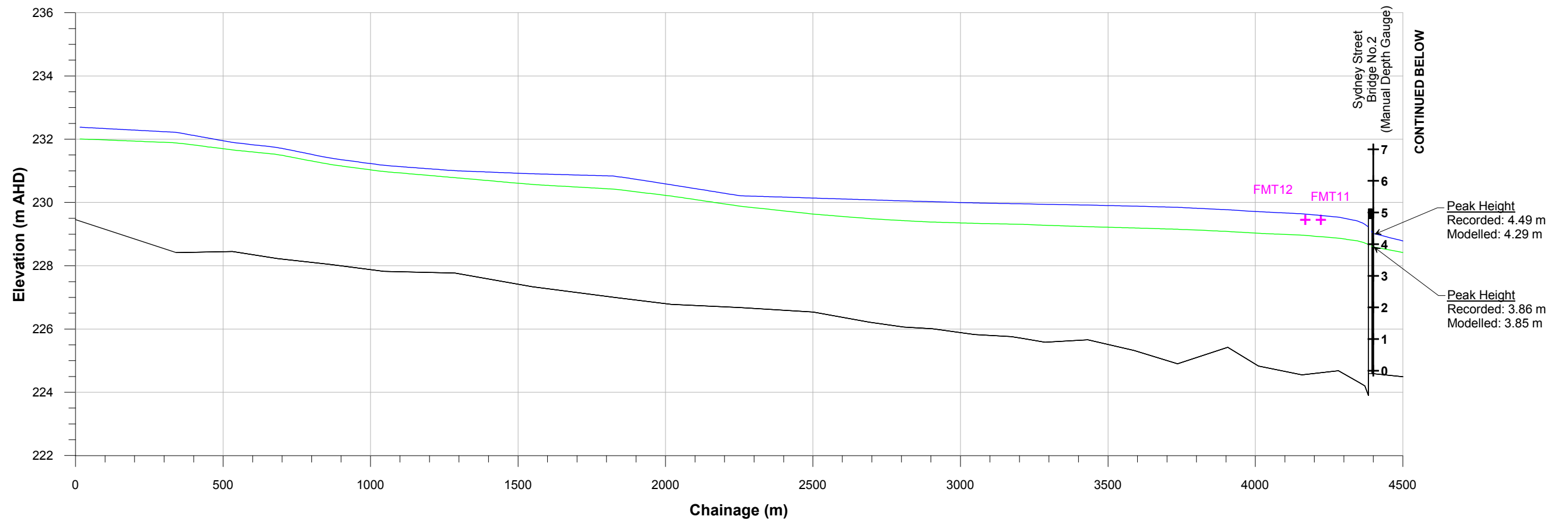
- Inflow - Rain Boundary
- ▼ Inflow - Point Source
- |—|—| Inflow Boundary
- Discharge Hydrograph
- ▼ Outlet (Free Discharge)
- Two-Dimensional Model Boundary

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

**TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DEVELOPMENT AND TESTING OF FLOOD MODELS**

Figure 4.4

URANQUINTY TUFLOW MODEL LAYOUT



- LEGEND**
- + October 2010 Flood Marks
 - (Blue) October 2010 Flood
 - (Green) March 2012 Flood

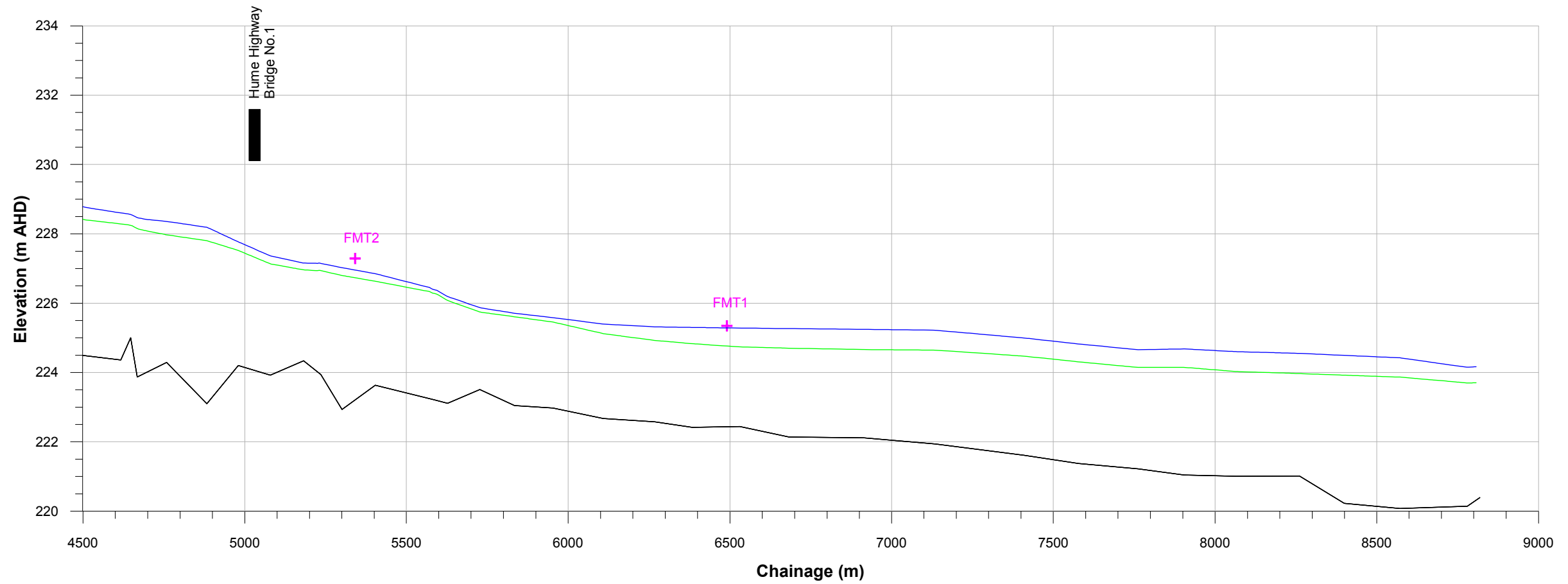
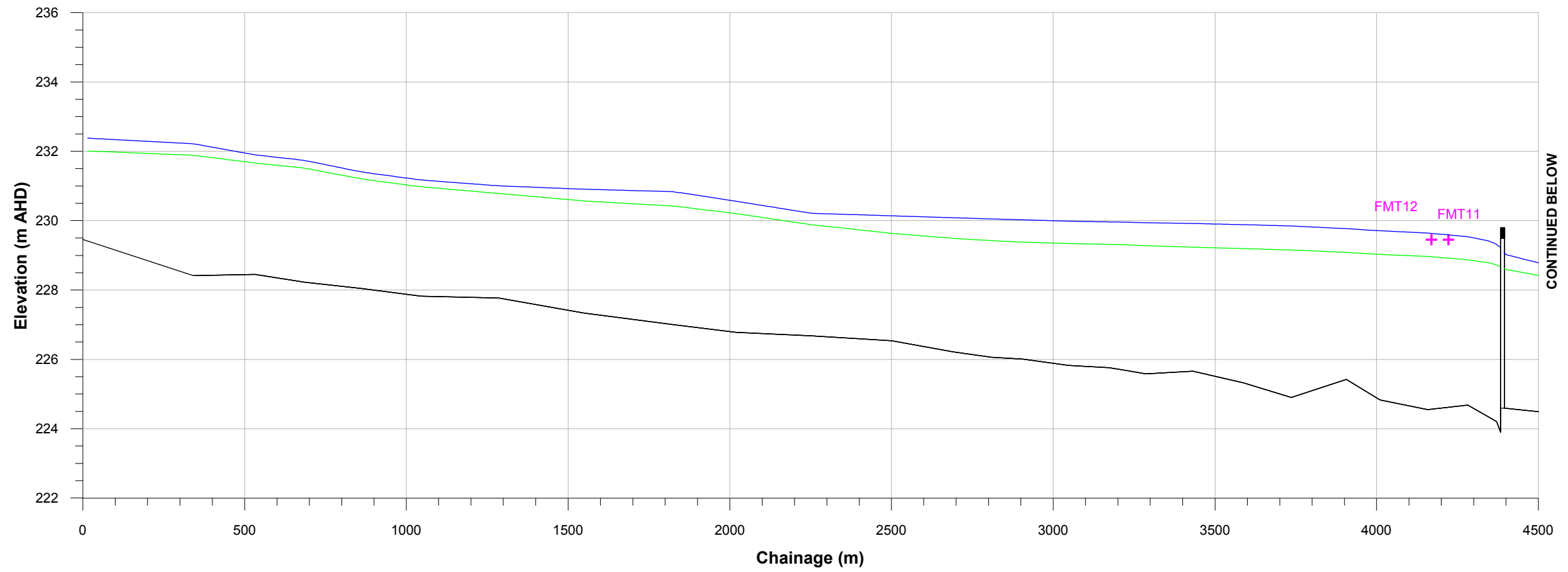
NOTE:
Only flood marks located along the main arm of Tarcutta Creek shown.

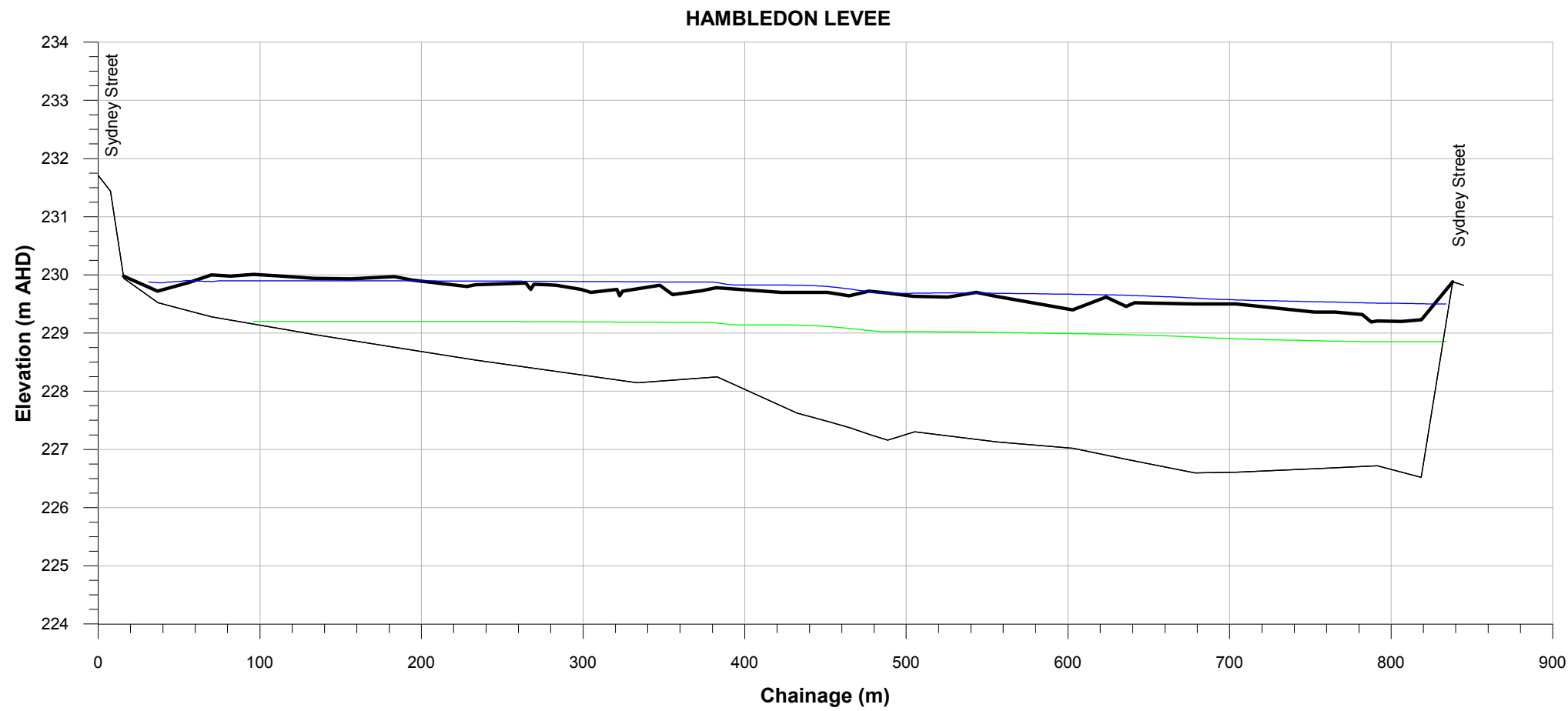
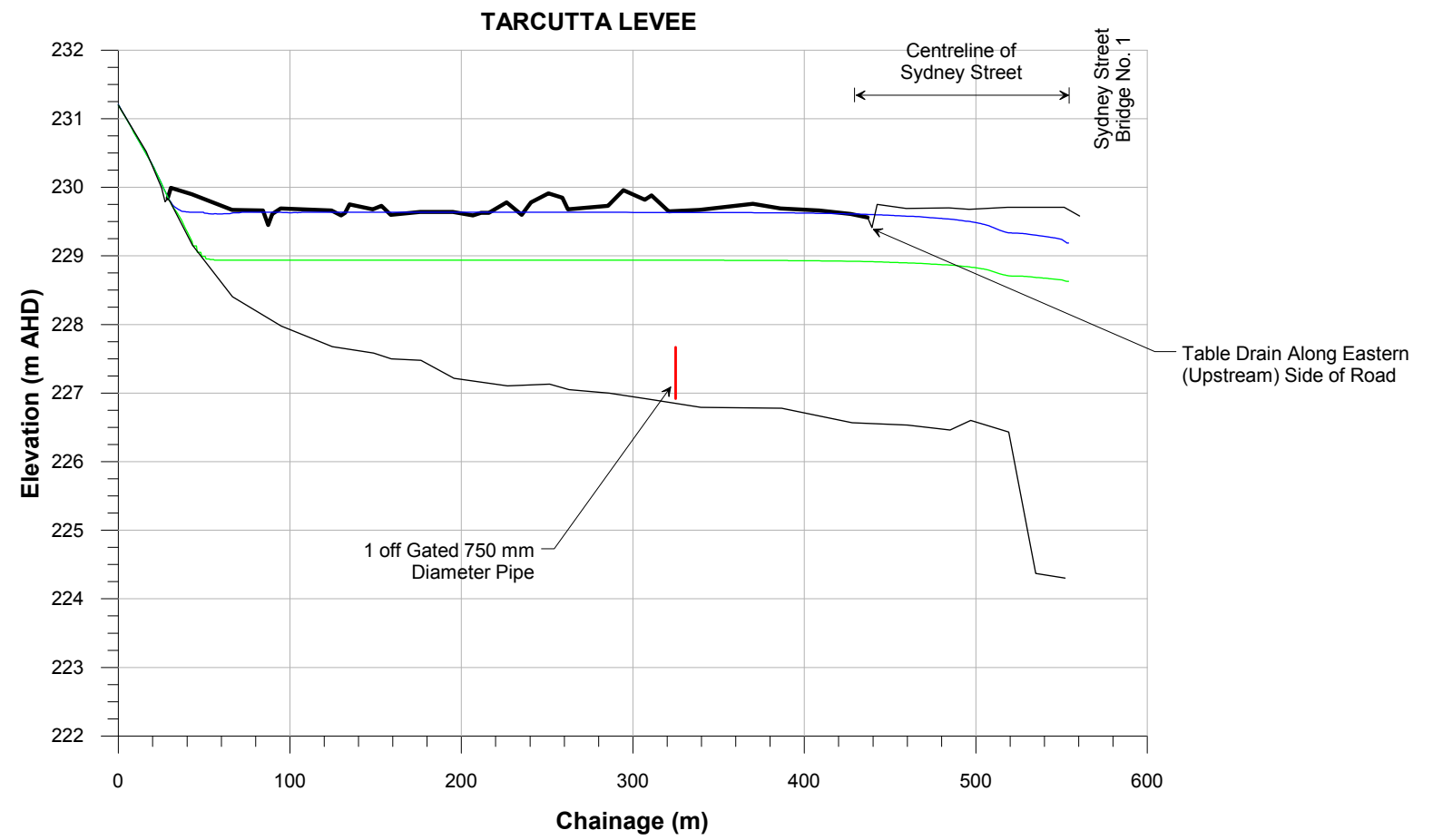
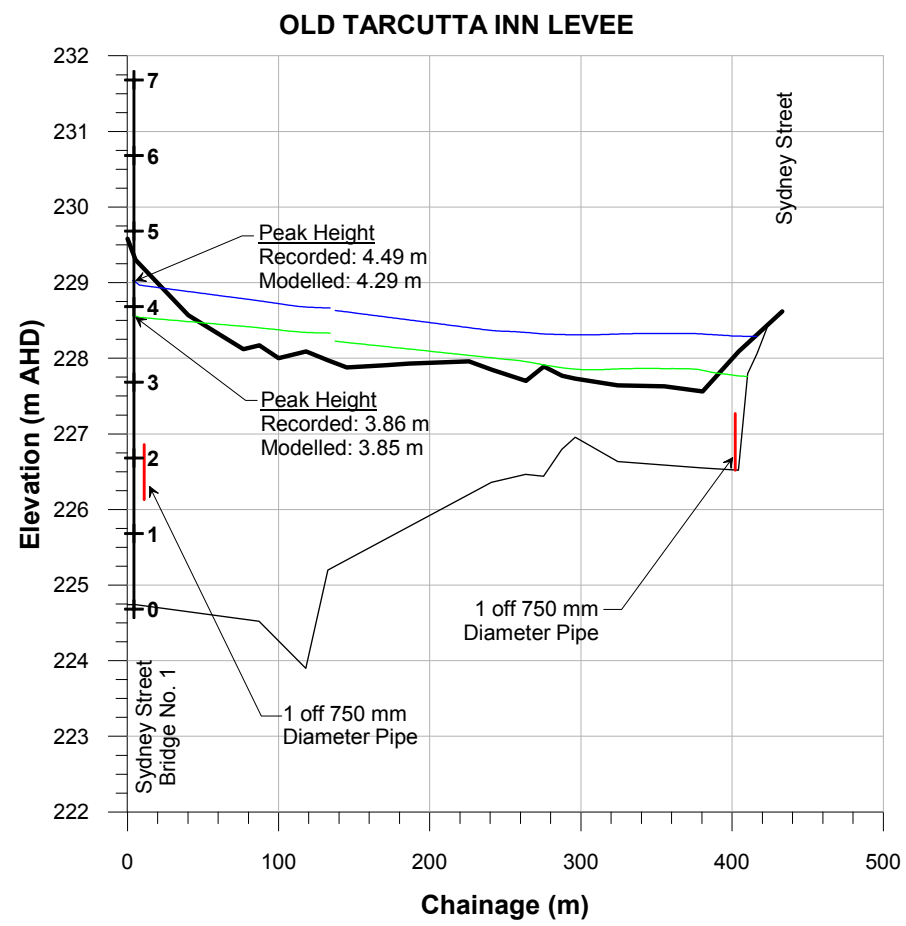
**TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DEVELOPMENT AND TESTING OF FLOOD MODELS**

Figure 4.5

TARCUTTA CREEK HISTORIC WATER SURFACE PROFILES





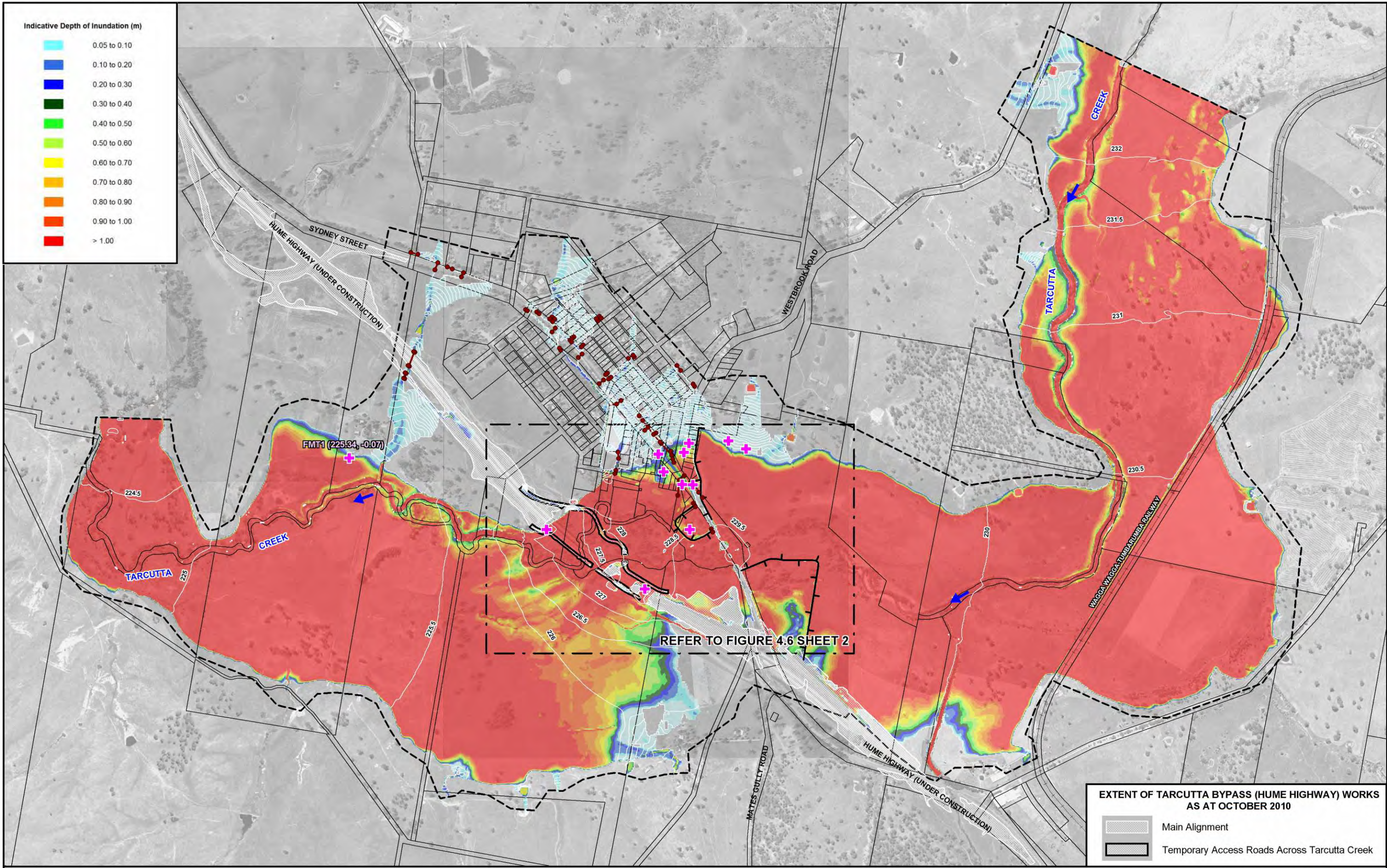


**TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DEVELOPMENT AND TESTING OF FLOOD MODELS**

Figure 4.5
Sheet 2 of 2

TARCUTTA CREEK HISTORIC WATER SURFACE PROFILES



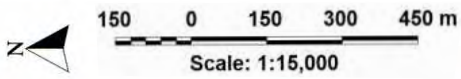


Indicative Depth of Inundation (m)

Cyan	0.05 to 0.10
Light Blue	0.10 to 0.20
Blue	0.20 to 0.30
Dark Blue	0.30 to 0.40
Green	0.40 to 0.50
Light Green	0.50 to 0.60
Yellow	0.60 to 0.70
Orange	0.70 to 0.80
Red-Orange	0.80 to 0.90
Red	0.90 to 1.00
Dark Red	> 1.00

EXTENT OF TARCUTTA BYPASS (HUME HIGHWAY) WORKS AS AT OCTOBER 2010

Grey shaded area	Main Alignment
Black dashed line	Temporary Access Roads Across Tarcutta Creek



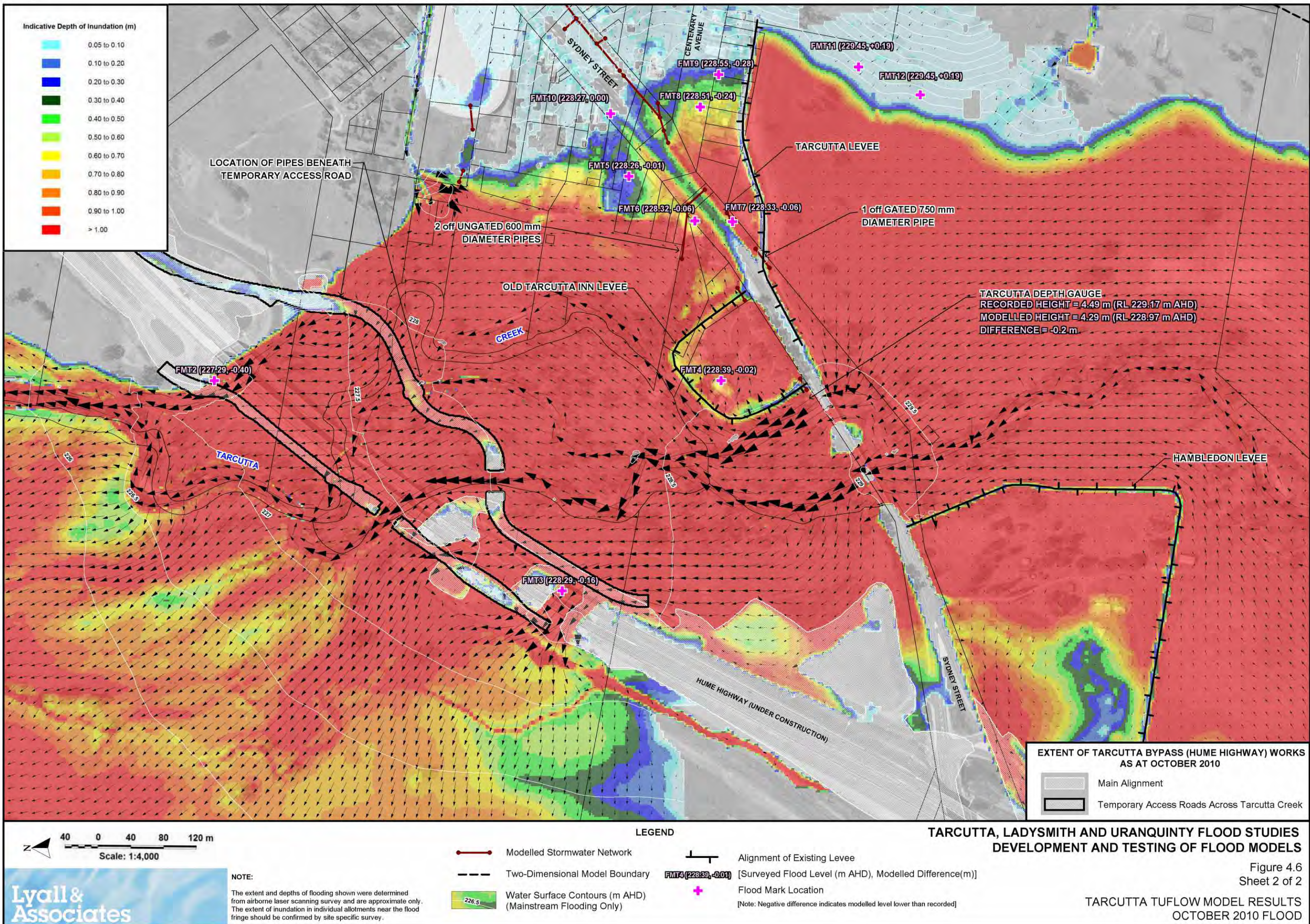
NOTE:
The extent and depths of flooding shown were determined from airborne laser scanning survey and are approximate only. The extent of inundation in individual allotments near the flood fringe should be confirmed by site specific survey.

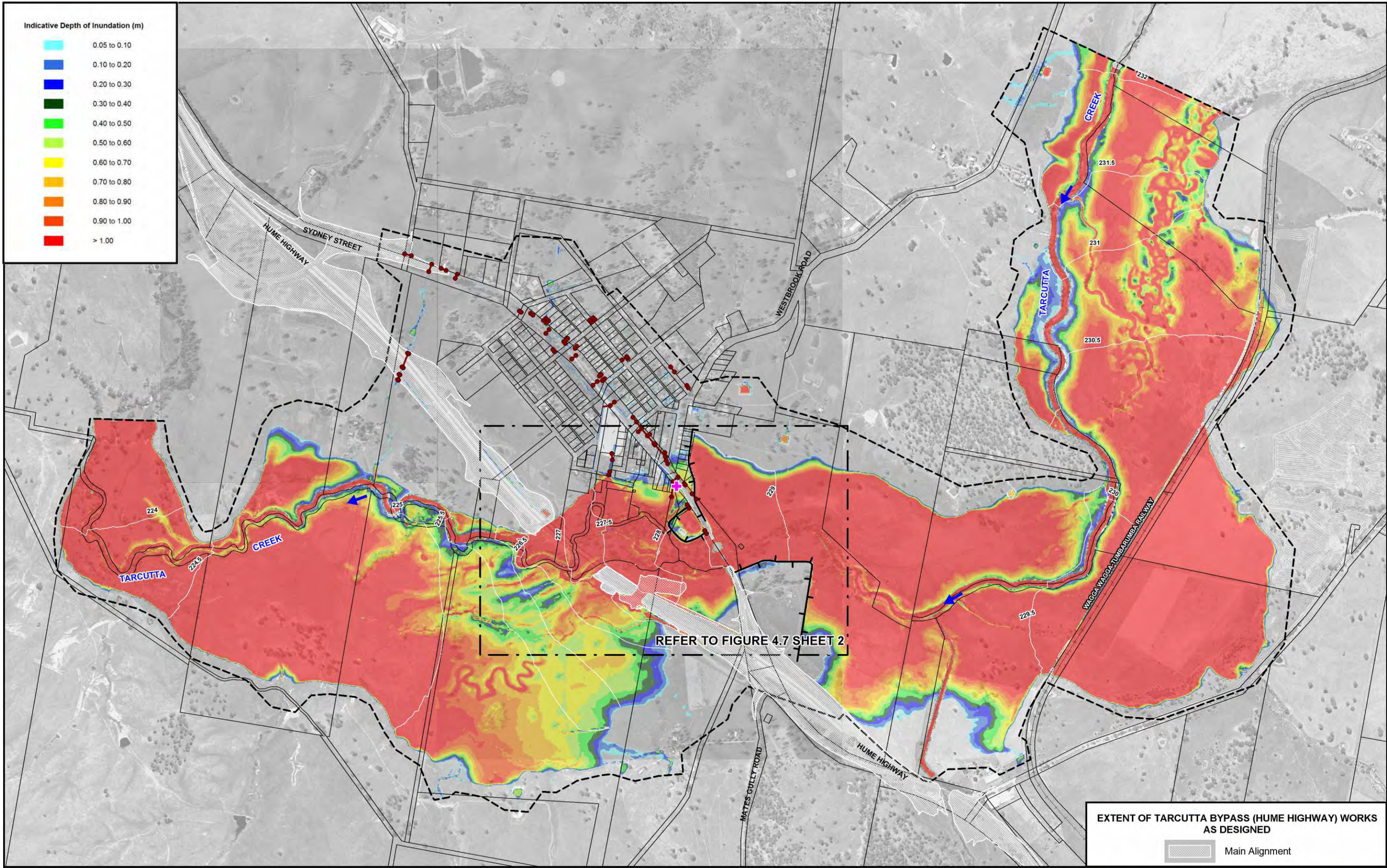
LEGEND

Red line with dots	Modelled Stormwater Network
Black dashed line	Two-Dimensional Model Boundary
Blue line	Alignment of Existing Levee
Green line with 'FMT1 (225.34, -0.07)'	[Surveyed Flood Level (m AHD), Modelled Difference(m)]
Pink cross	Flood Mark Location
	[Note: Negative difference indicates modelled level lower than recorded]
Green contour line with '226.5'	Water Surface Contours (m AHD) (Mainstream Flooding Only)

REFER TO FIGURE 4.6 SHEET 2

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES DEVELOPMENT AND TESTING OF FLOOD MODELS





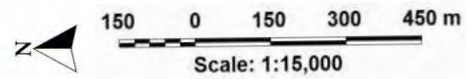
Indicative Depth of Inundation (m)

- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.30
- 0.30 to 0.40
- 0.40 to 0.50
- 0.50 to 0.60
- 0.60 to 0.70
- 0.70 to 0.80
- 0.80 to 0.90
- 0.90 to 1.00
- > 1.00

REFER TO FIGURE 4.7 SHEET 2

EXTENT OF TARCUTTA BYPASS (HUME HIGHWAY) WORKS AS DESIGNED

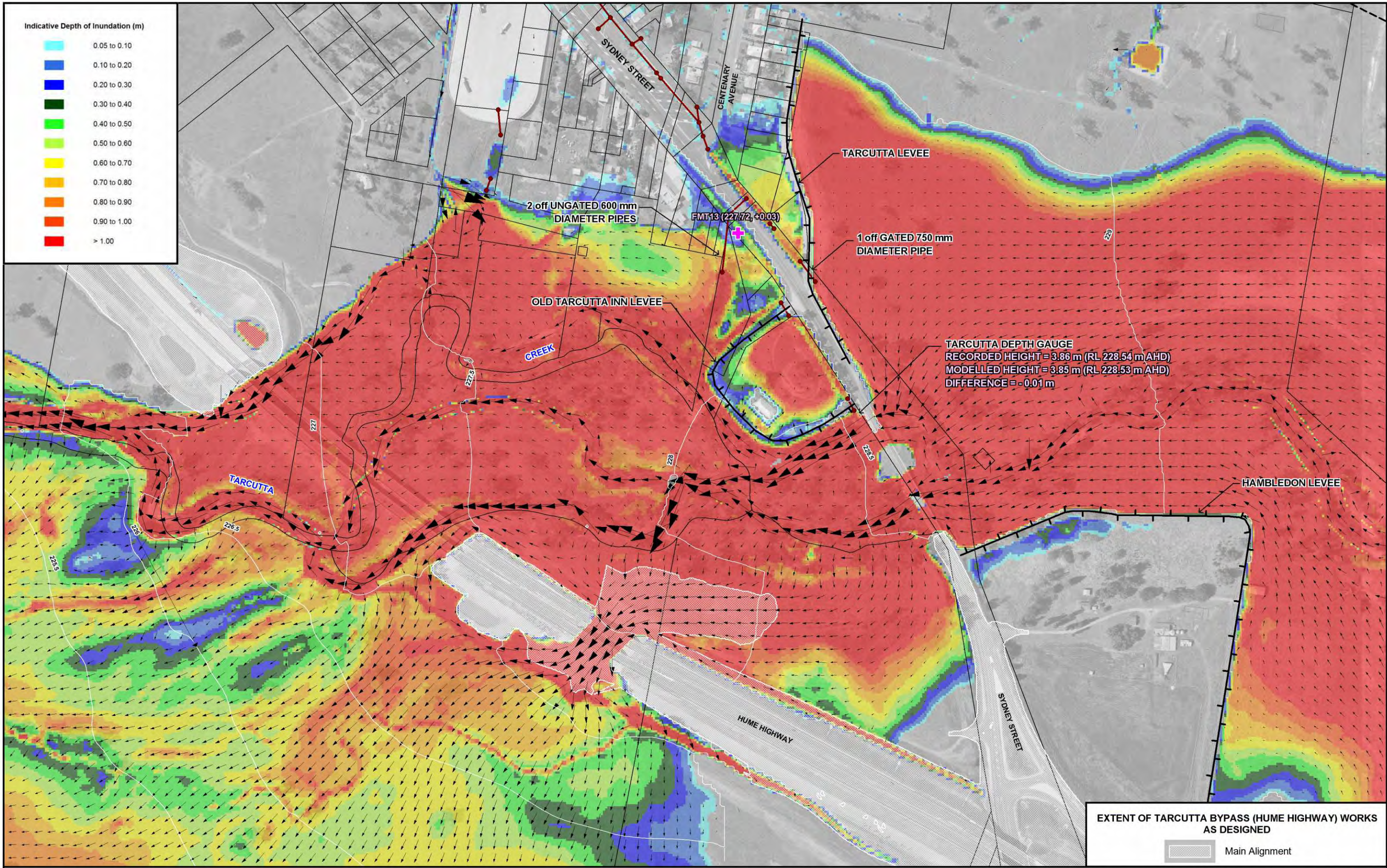
Main Alignment



LEGEND

- Modelled Stormwater Network
- + Flood Mark Location
- Two-Dimensional Model Boundary
- Alignment of Existing Levee
- 230.5 Water Surface Contours (m AHD) (Mainstream Flooding Only)

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.



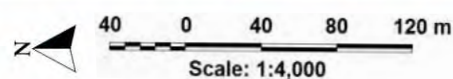
Indicative Depth of Inundation (m)

- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.30
- 0.30 to 0.40
- 0.40 to 0.50
- 0.50 to 0.60
- 0.60 to 0.70
- 0.70 to 0.80
- 0.80 to 0.90
- 0.90 to 1.00
- > 1.00

TARCUTTA DEPTH GAUGE
 RECORDED HEIGHT = 3.86 m (RL 228.54 m AHD)
 MODELLED HEIGHT = 3.85 m (RL 228.53 m AHD)
 DIFFERENCE = -0.01 m

EXTENT OF TARCUTTA BYPASS (HUME HIGHWAY) WORKS AS DESIGNED

Main Alignment

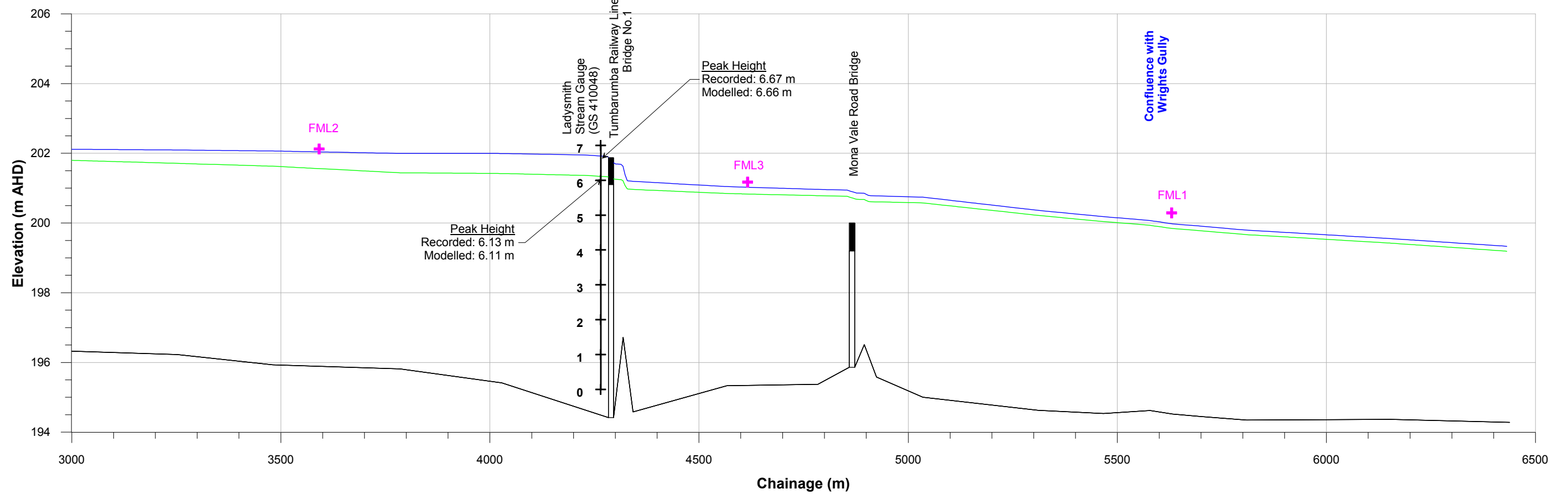
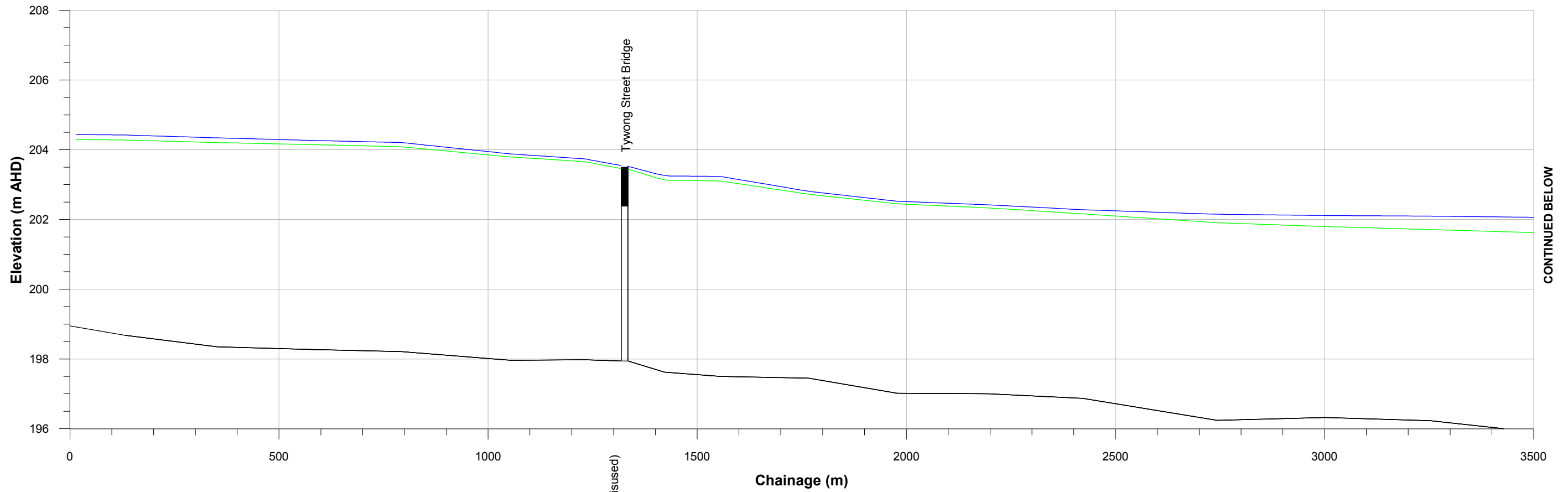


LEGEND

- Modelled Stormwater Network
- - - Two-Dimensional Model Boundary
- Water Surface Contours (m AHD) (Mainstream Flooding Only)
- |— Alignment of Existing Levee
- FMT13 (227.72, +0.03) [Surveyed Flood Level (m AHD), Modelled Difference(m)]
- + Flood Mark Location [Note: Negative difference indicates modelled level lower than recorded]

TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
 DEVELOPMENT AND TESTING OF FLOOD MODELS

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**
- + October 2010 Flood Mark
 - October 2010 Flood
 - March 2012 Flood

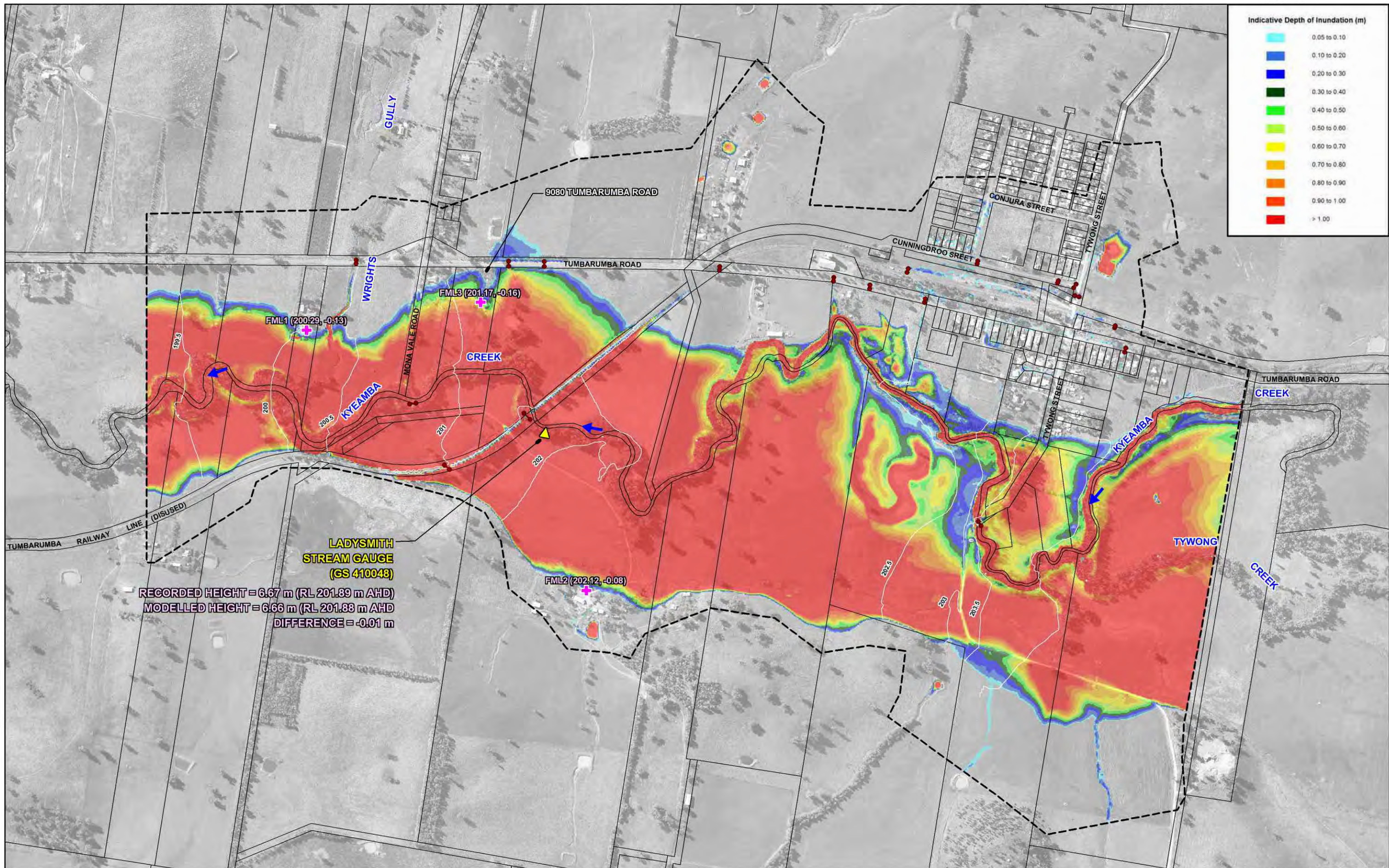
**TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DEVELOPMENT AND TESTING OF FLOOD MODELS**

Figure 4.8

KYEAMBA CREEK HISTORIC WATER SURFACE PROFILES



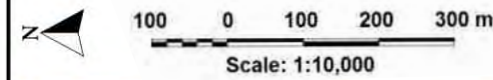
- NOTES:**
1. Only flood marks located along main arm of Kyeamba Creek shown.
 2. Location of Ladysmith stream gauge approximate only.
 3. Gauge zero on Ladysmith stream gauge = 195.224 m AHD



Indicative Depth of inundation (m)

Light Blue	0.05 to 0.10
Blue	0.10 to 0.20
Dark Blue	0.20 to 0.30
Green	0.30 to 0.40
Light Green	0.40 to 0.50
Yellow	0.50 to 0.60
Orange	0.60 to 0.70
Red-Orange	0.70 to 0.80
Red	0.80 to 0.90
Dark Red	0.90 to 1.00
Red	> 1.00

**LADYSMITH
STREAM GAUGE
(GS 410048)**
 RECORDED HEIGHT = 6.67 m (RL 201.89 m AHD)
 MODELLED HEIGHT = 6.66 m (RL 201.88 m AHD)
 DIFFERENCE = -0.01 m



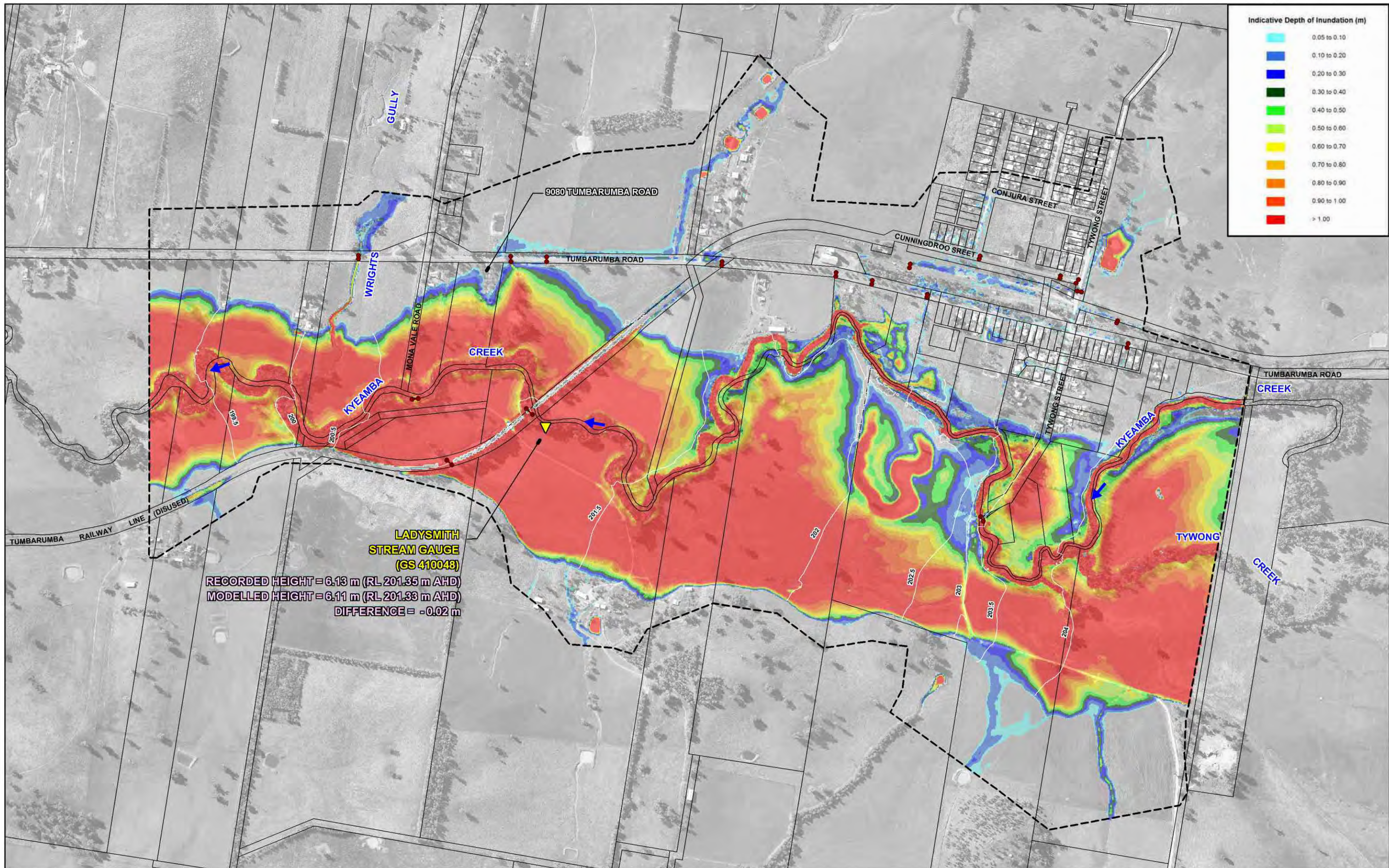
Lyall & Associates

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

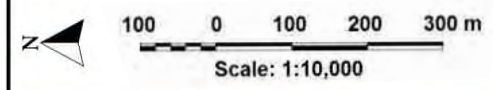
- Modelled Stormwater Network
- Two-Dimensional Model Boundary
- Water Surface Contours (m AHD) (Mainstream Flooding Only)
- FML2 (202.12, -0.01)** [Surveyed Flood Level (m AHD), Modelled Difference(m)]
 Flood Mark Location
 [Note: Negative difference indicates modelled level lower than recorded]

**TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
 DEVELOPMENT AND TESTING OF FLOOD MODELS**



Indicative Depth of inundation (m)	
Light Blue	0.05 to 0.10
Blue	0.10 to 0.20
Dark Blue	0.20 to 0.30
Green	0.30 to 0.40
Light Green	0.40 to 0.50
Yellow	0.50 to 0.60
Orange	0.60 to 0.70
Red-Orange	0.70 to 0.80
Red	0.80 to 0.90
Dark Red	0.90 to 1.00
Red	> 1.00

**LADYSMITH
STREAM GAUGE
(GS 410048)**
 RECORDED HEIGHT = 6.13 m (RL 201.35 m AHD)
 MODELLED HEIGHT = 6.11 m (RL 201.33 m AHD)
 DIFFERENCE = -0.02 m



LEGEND

- Modelled Stormwater Network
- Two-Dimensional Model Boundary
- Water Surface Contours (m AHD) (Mainstream Flooding Only)

**TARCUTTA, LADYSMITH AND URANQUINTY FLOOD STUDIES
DEVELOPMENT AND TESTING OF FLOOD MODELS**



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.

Figure 4.10