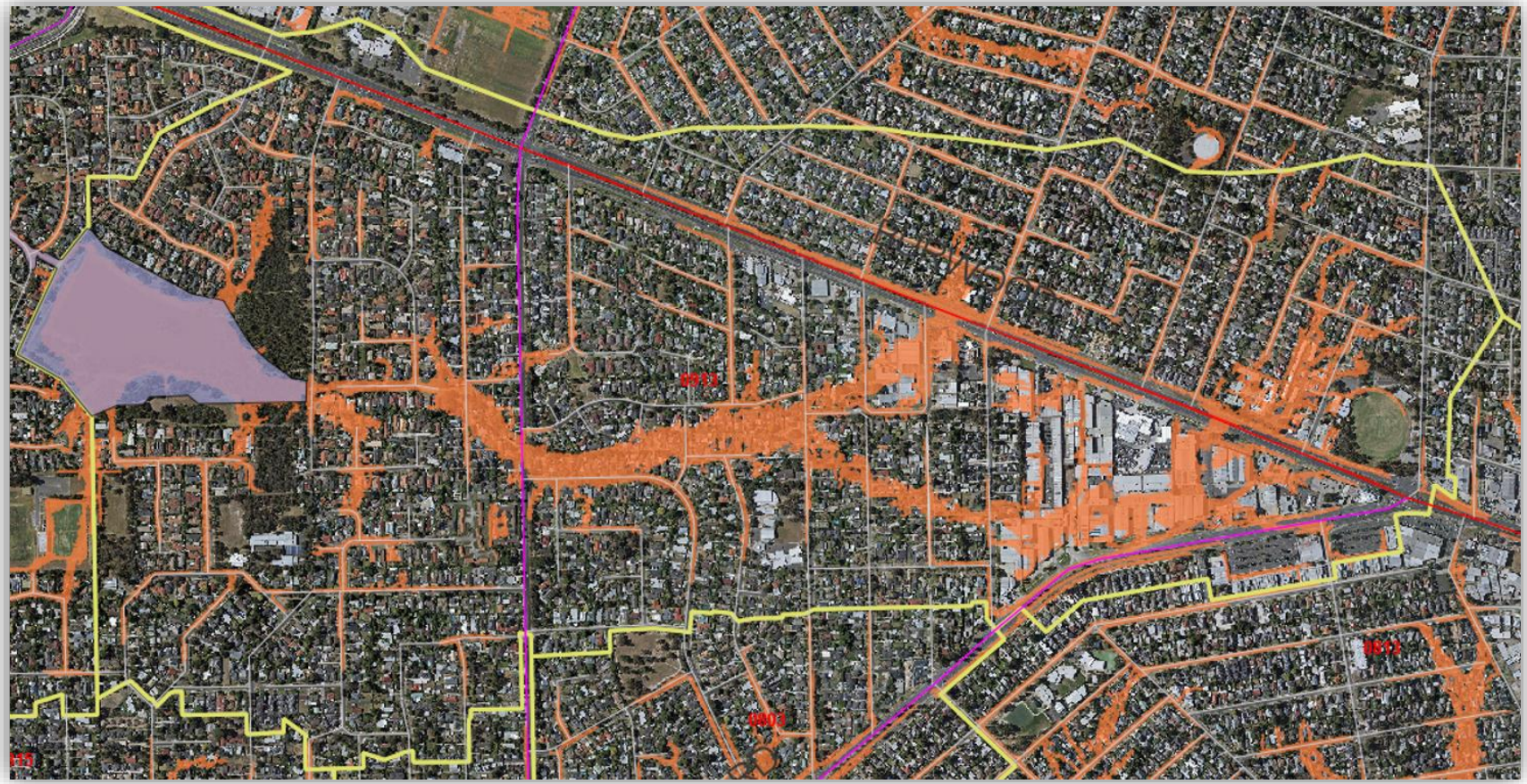
From Catchment to Property

Reducing flood impacts with a distributed approach

– one size does not fit all –



Case Example: Sub-Catchment 913 – Ferntree Gully

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Flood affected properties, Burwood Hwy & FTG Road

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Dobson's Street Reserve – Park Retro Fit

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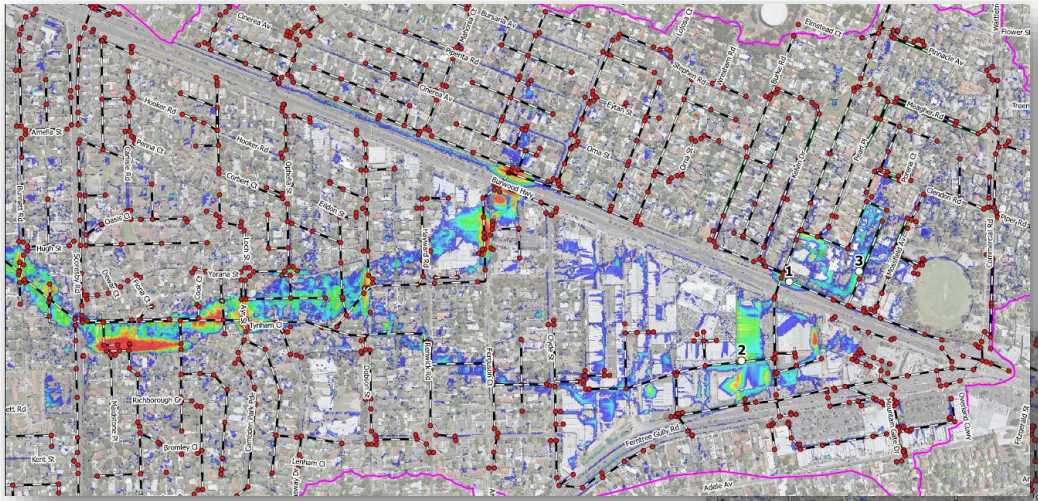

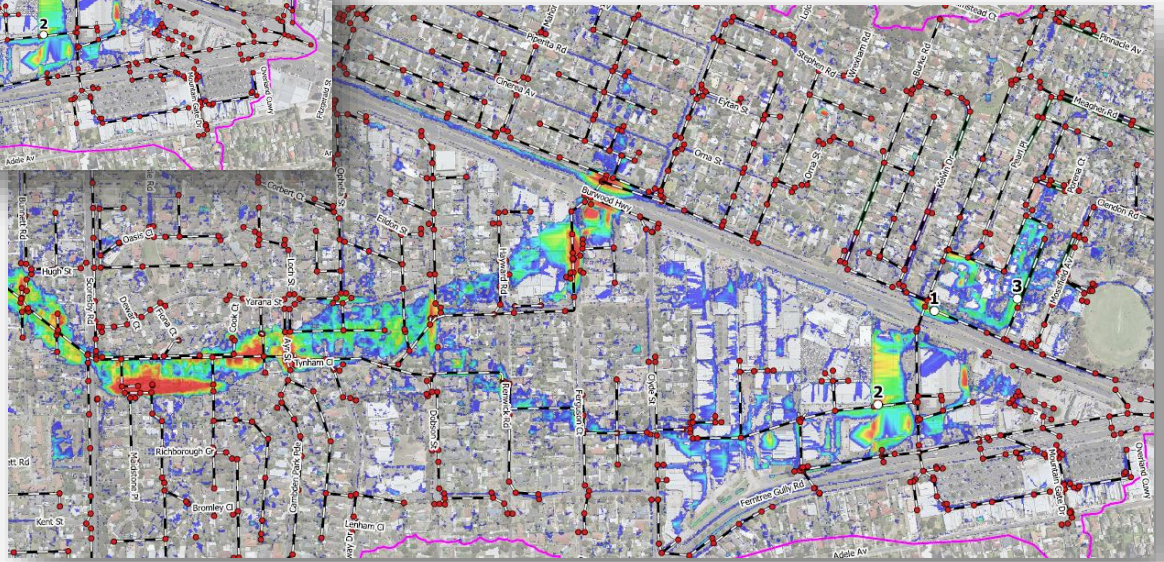

If you opt for pipe upgrades to match material life of the asset…i.e. above best practice

Benefit?

…no discernible difference to extents under CC

16% intensity factor applied to model runs to account for climate change…

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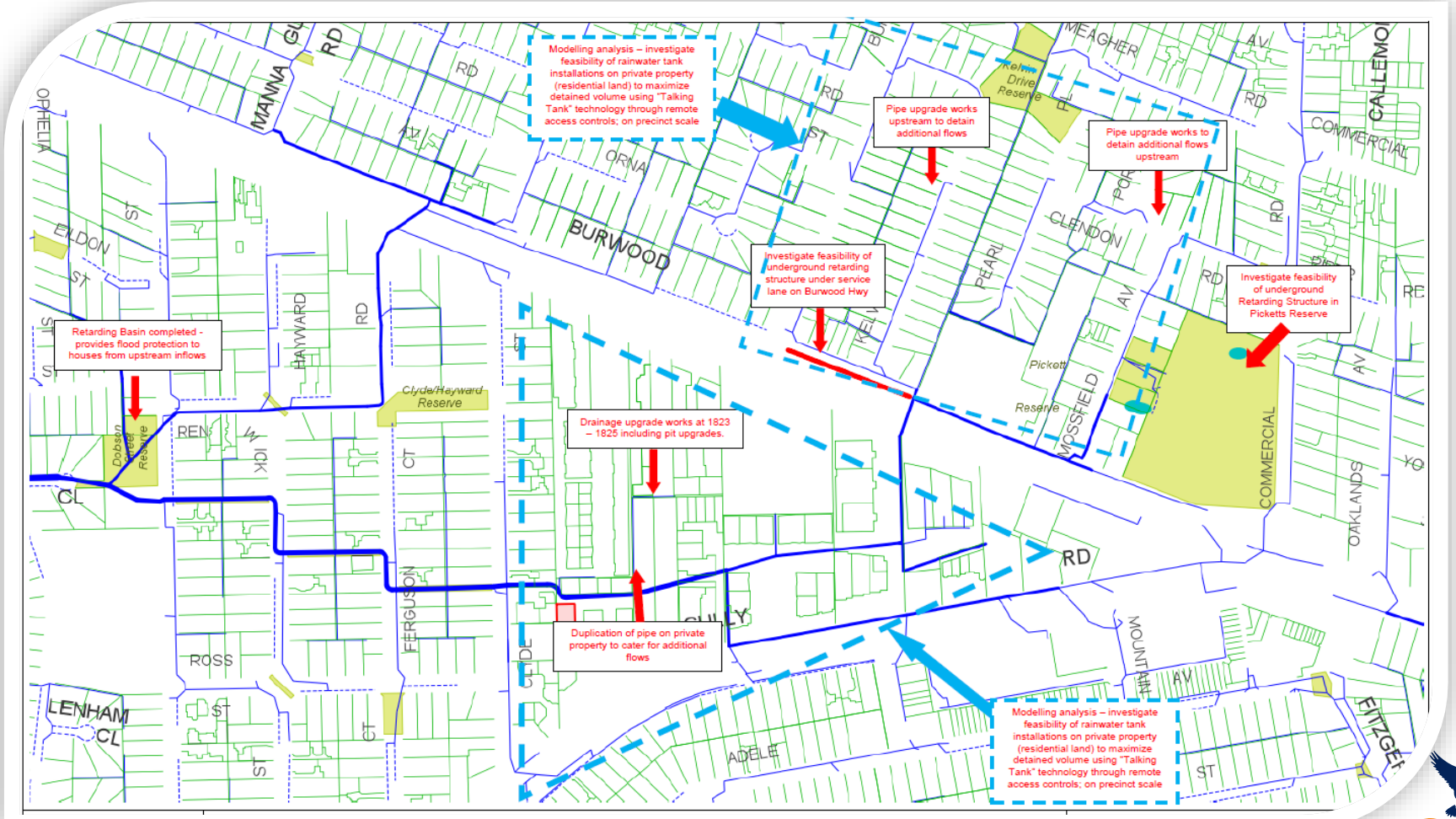

Flood Mitigation – a *distributed* approach

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Talking Tanks & Roof Catchments

OneBox Units:

- BoM interactive – pending storm (supply)
- Smart meter – 'learns' household usage behaviour (demand)
- Airspace in tanks maintained for flood storage
- Reduces localised flooding & pressure on pipe network
- Tanks remotely emptied before storm

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Modelling Criteria – Assumptions

- Tank capacity 4,500L for each property
- Uptake of houses within the catchment 80%
- % of tanks in service 90%
- Area of the roof connects to tank 60%
- Guttering capacity – ignored
- 2 hr duration storm considered

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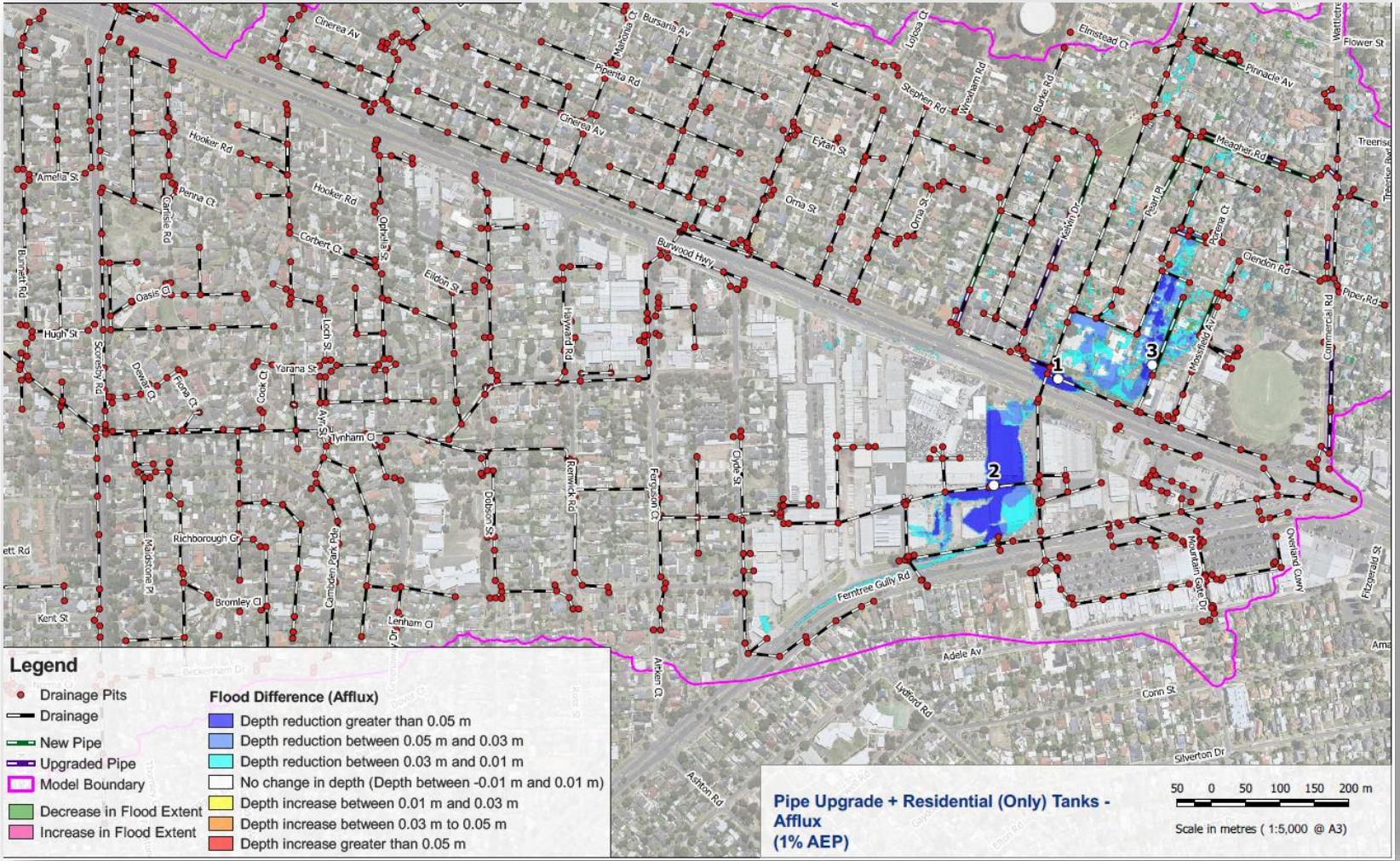

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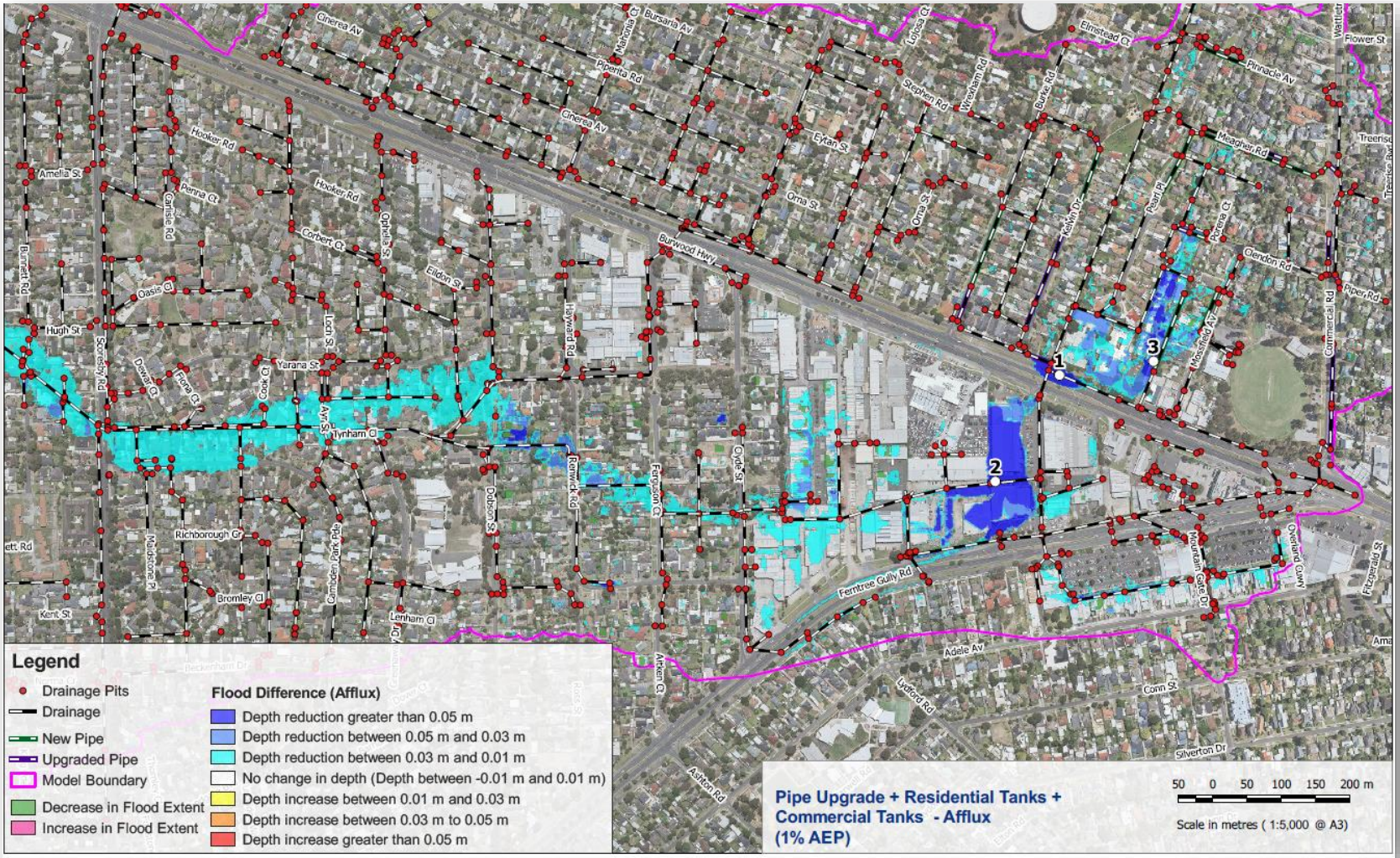
Legend
Drainage Pits
Drainage
New Pipe
Upgraded Pipe
Model Boundary
Decrease in Flood Extent
Increase in Flood Extent
Flood Difference (Afflux)
Depth reduction greater than 0.05 m
Depth reduction between 0.05 m and 0.03 m
Depth reduction between 0.03 m and 0.01 m
No change in depth (Depth between -0.01 m and 0.01 m)
Depth increase between 0.01 m and 0.03 m
Depth increase between 0.03 m to 0.05 m
Depth increase greater than 0.05 m
Pipe Upgrade + Residential Tanks + Commercial Tanks - Afflux (1% AEP)
50 0 50 100 150 200 m
Scale in metres (1:5,000 @ A3)
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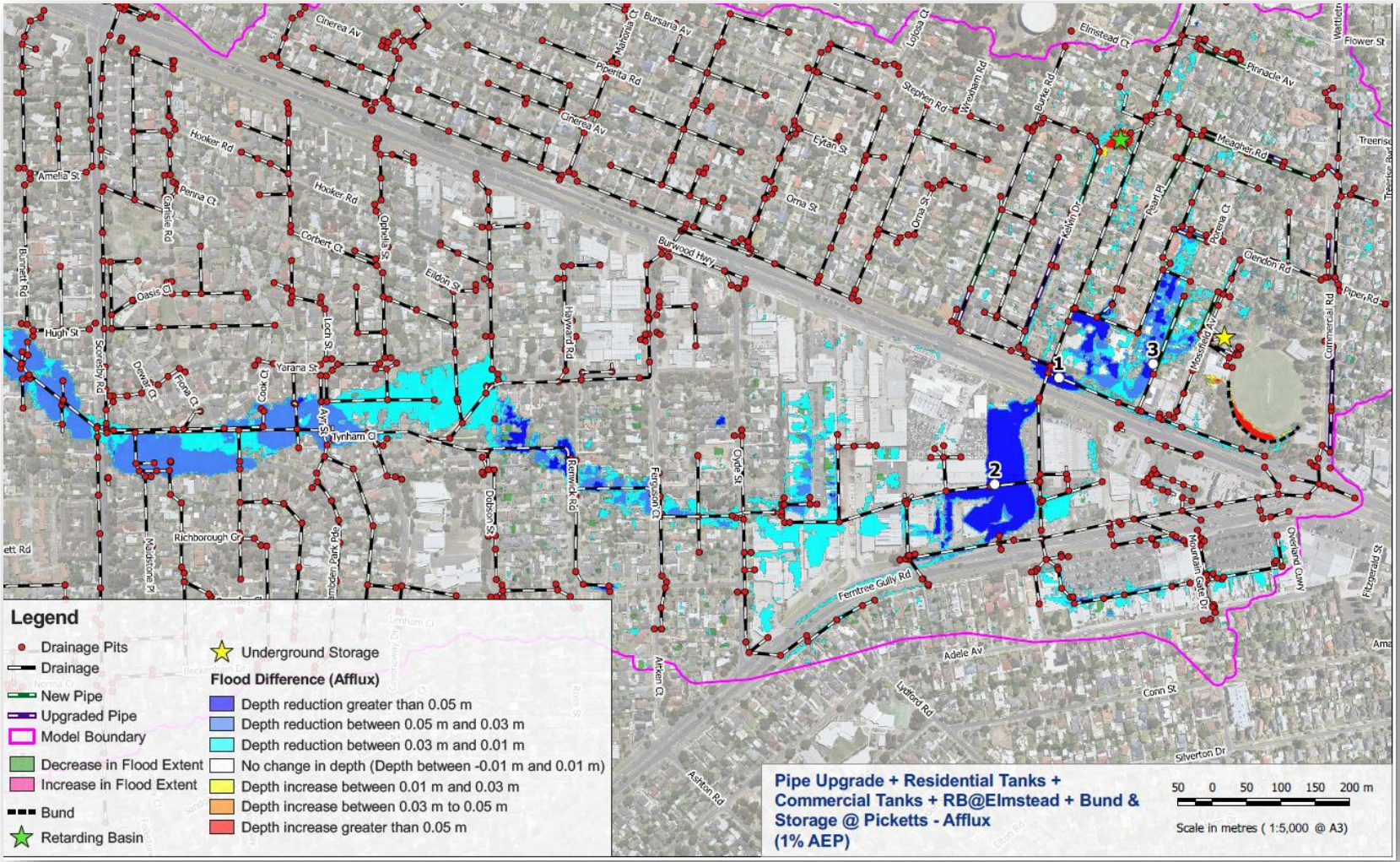

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Challenges going forward….

- Significant portion is held in private ownership
- Getting community on-board for tanks - remotely monitored – will be “interesting”
- Size of the proposed tank (4,500L)
- Getting the correct message out to community through communications strategy
- Cost of the tanks, ownership of the assets and maintenance responsibilities
- Future Scheme Amendment *may* look to TT as a requirement in flood affected hotspots

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Key Findings

- A package of solutions, at various scales – in a “train” – achieves adaptive SW mgmt. for flooding, water conservation & water quality
- Pit and Pipe upgrades are not the only way to manage for flooding
- Tank retrofits work best in combination – residential AND industrial
- Low demand for SW in industrial areas shows real value of Tank Talk's remote access capabilities
- Beat CC impacts - Upgrade pipe diameters for the material life of the asset…not just current ‘best practice’

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Thank You

Sainath Tavate & Caroline Carvalho

Integrated Stormwater Team

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Image: Ferny Creek during an event – immediately upstream of project area

Project Partners

South East Water – healthy water for life

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