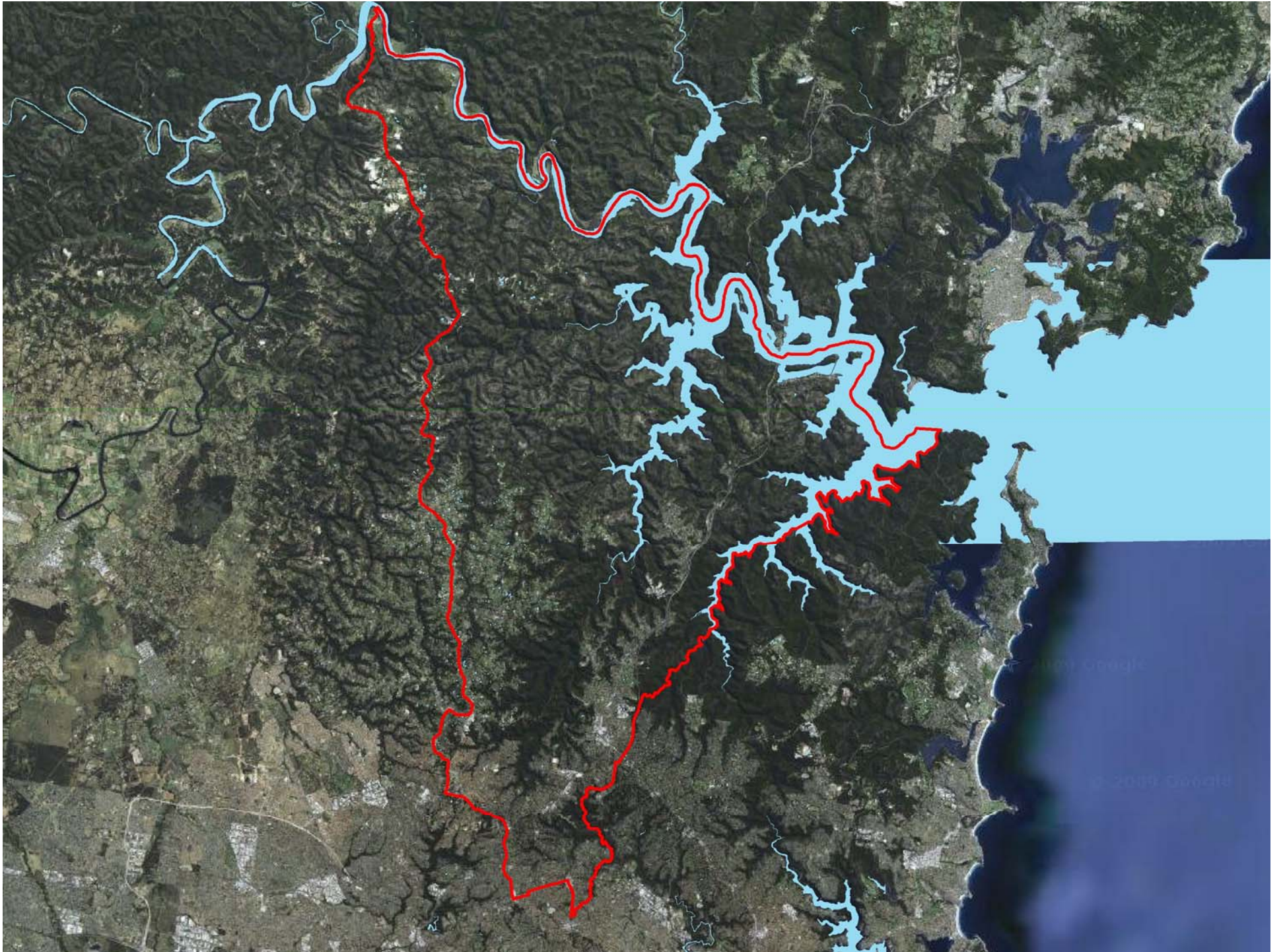


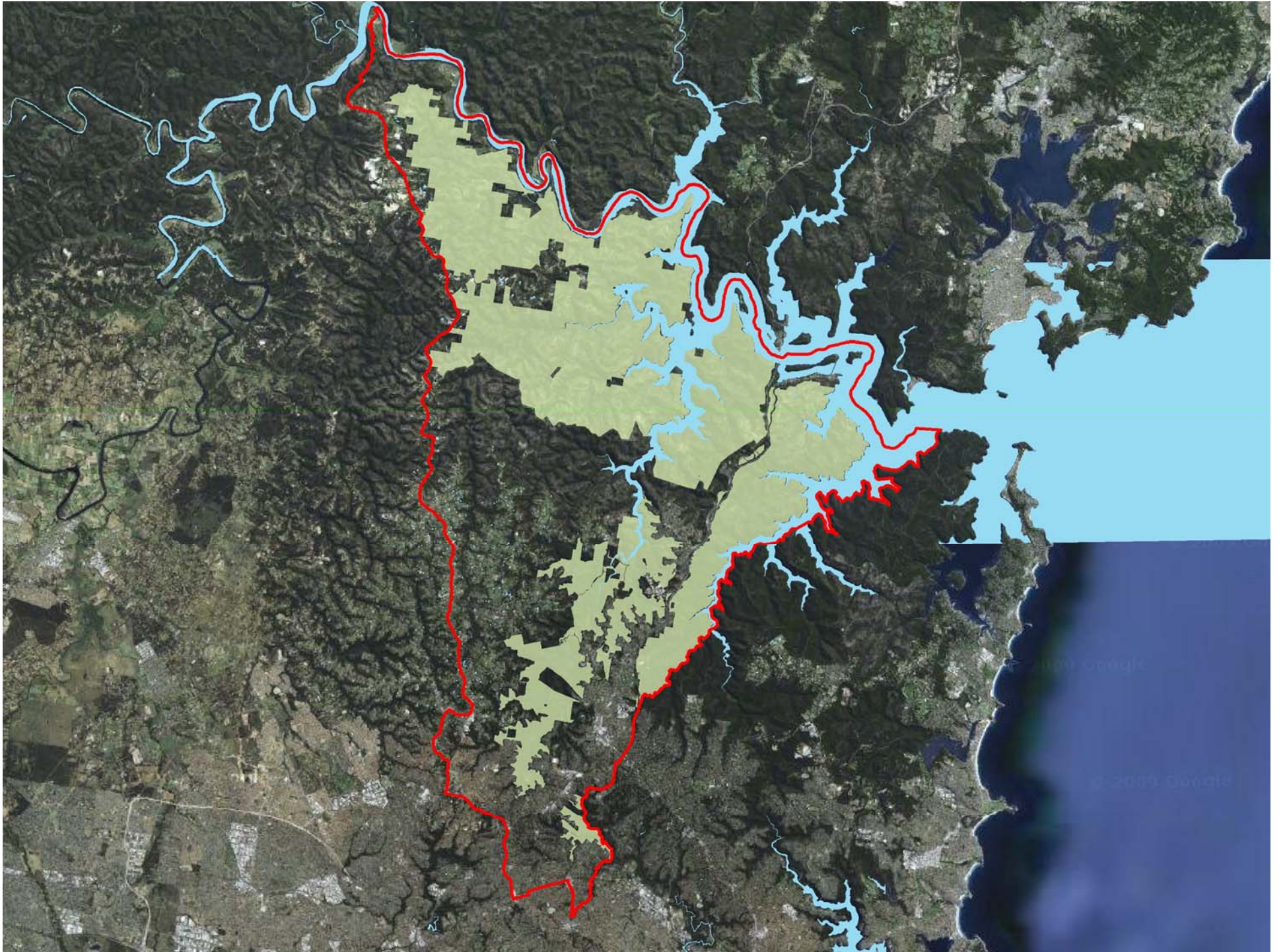


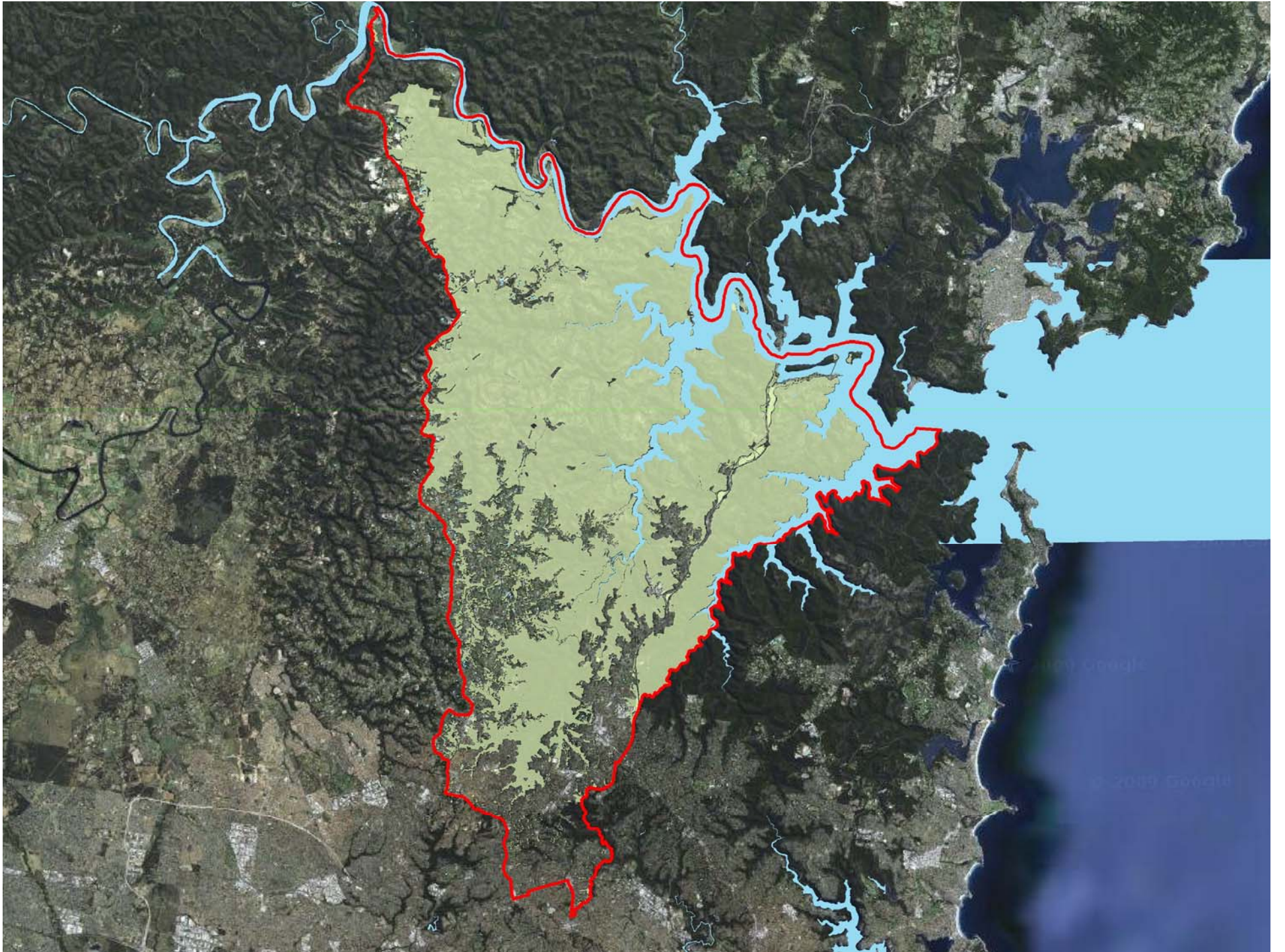
## Managing Natural Assets with the assistance of GIS

David Leggett – Hornsby Shire Council











## Natural Assets

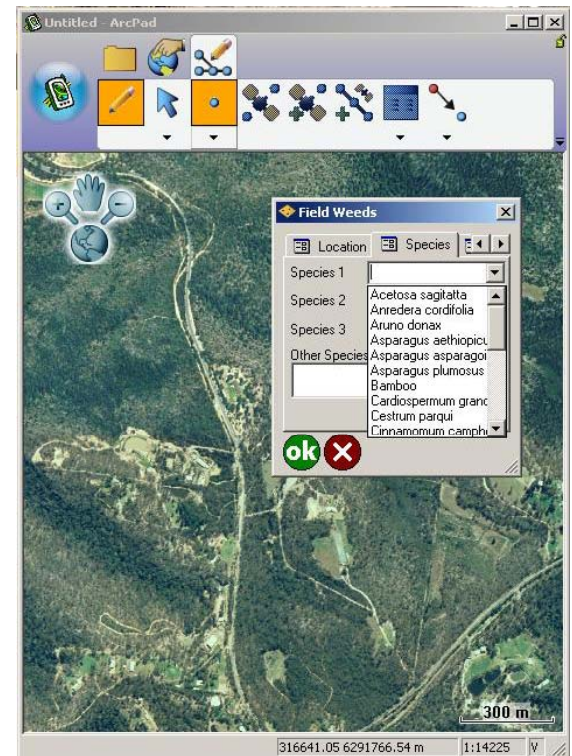
- **Water**
  - Field Data Collection
  - Estuary Water Quality Probes
- **Bushland**
  - Threatened Species and Ecological Community conservation.
  - Bushfire





## Field data Collection

- Field Data Capture Using GPS enabled pocket PC and ArcPad.
- ArcPad Developer used
- Location on Water Ways
- Weed Inspection
- Trail Mapping
- Property Inspections

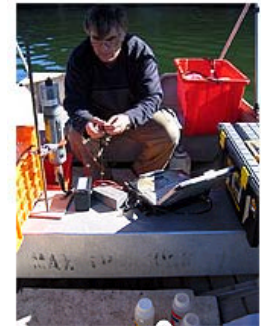




## Estuary Water Quality Probes

- Hornsby Council has 4 Probes located within Estuaries.

- Monitoring Chlorophyll levels
- Warning of Algal Blooms
- GIS used to locate and monitor probes



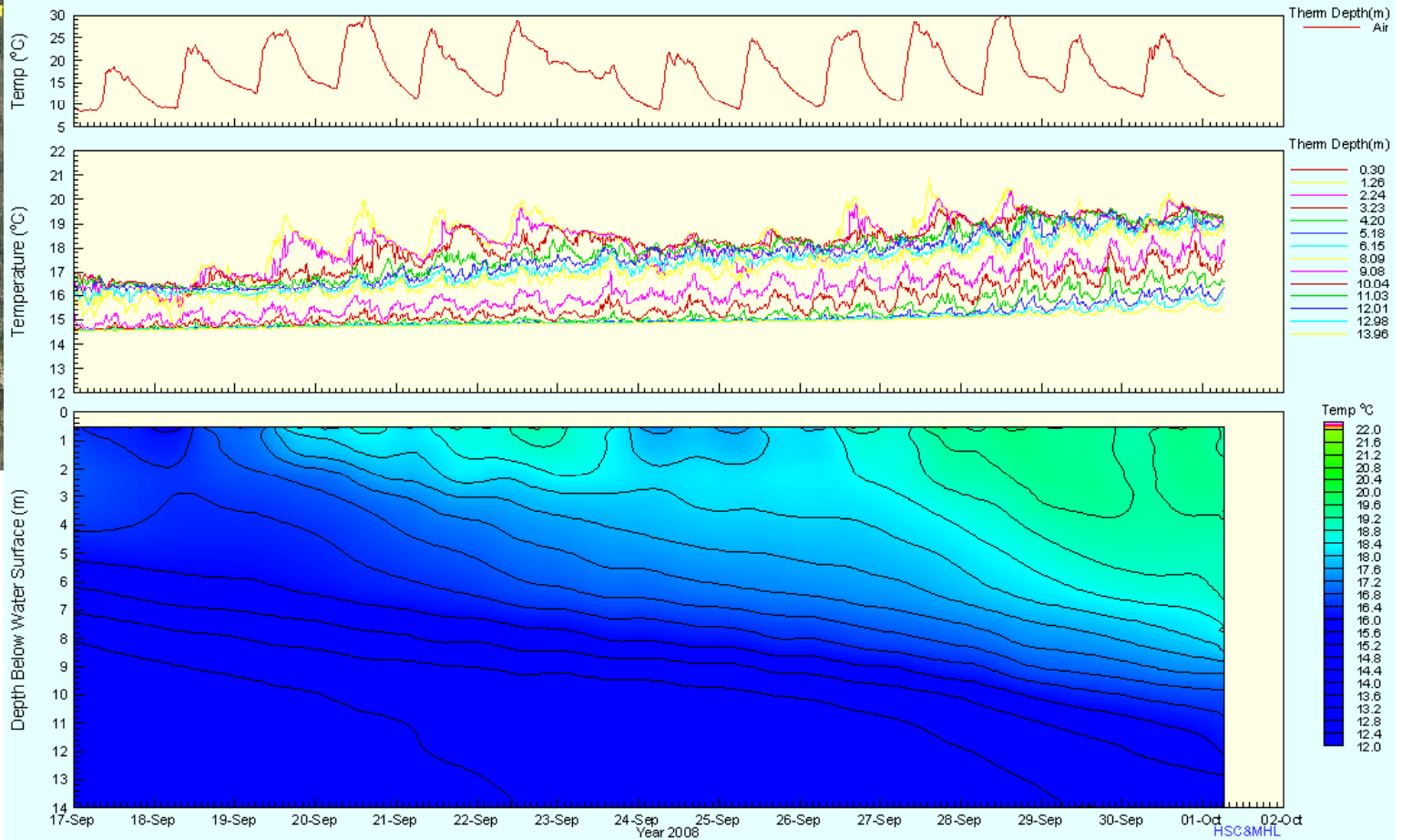
Maintenance being conducted by MHL staff



Chlorophyll Monitoring Probe in Calabash Bay



# Calabash Bay Monitoring Station - MHL Thermistor Chain Data

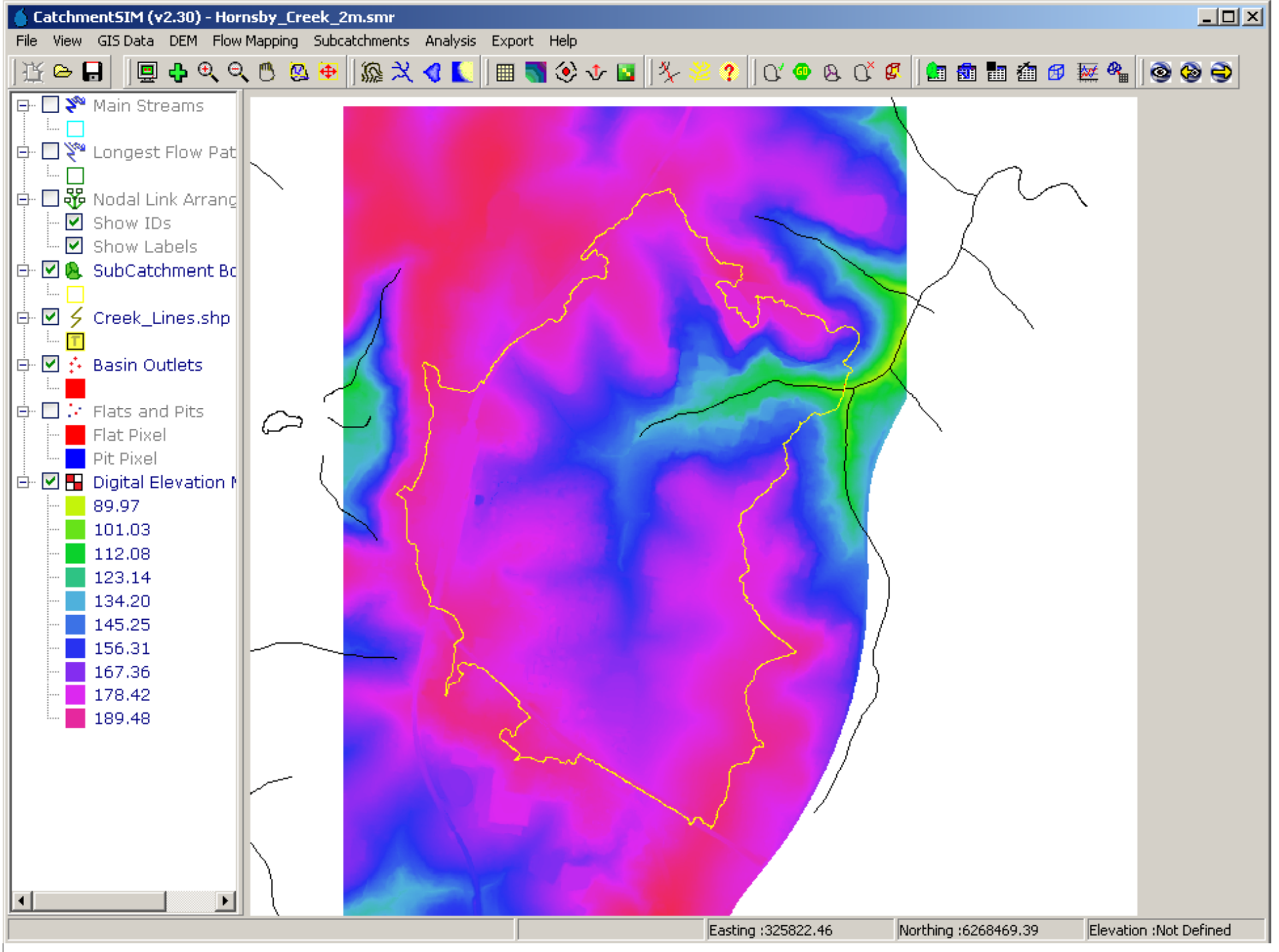




## Catchment Simulation

- CatchmentSim by Catchment Simulation Solutions
- Standalone GIS application designed to utilise terrain information to delineate catchments and prepare hydrologic models.







## Threatened Ecology

- 34 threatened species of Fauna and 42 threatened species of Flora have been recorded in HSC
- 1028.74 Hectares of Endangered Ecological Communities (EEC)
- 15 Different EEC's are present within HSC





- Selection
- Shire Boundary
- House Numbers
- Alt House Numbers
- Proposed Numbers
- Lot Section Numbers
- Lot Numbers
- Strata Plan Numbers
- Plan Numbers
- Threatened Fauna
  - E1
  - E2
  - V
- Threatened Flora
  - E1
  - E2
  - V
- Suburbs
- Railway
- Yellow Lot Boundaries
- Property
- Proposed Cadastre
- Road Names
- Easement Lines
- Easements
- AERIALS\_2009



Address

Unit Number

House Number

House Suffix

Street Name

Suburb

Post Code

New Add ReSelect UnSelect

No records selected

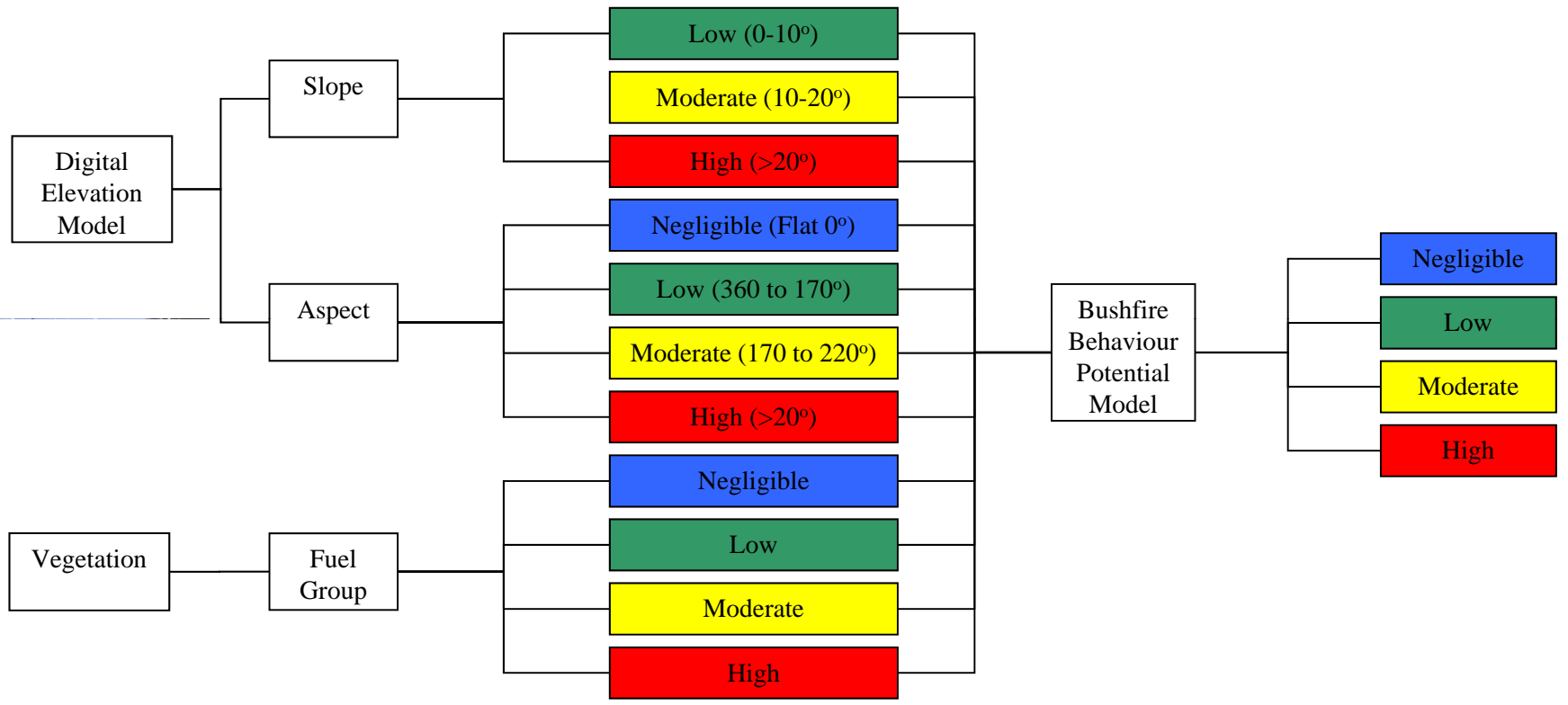


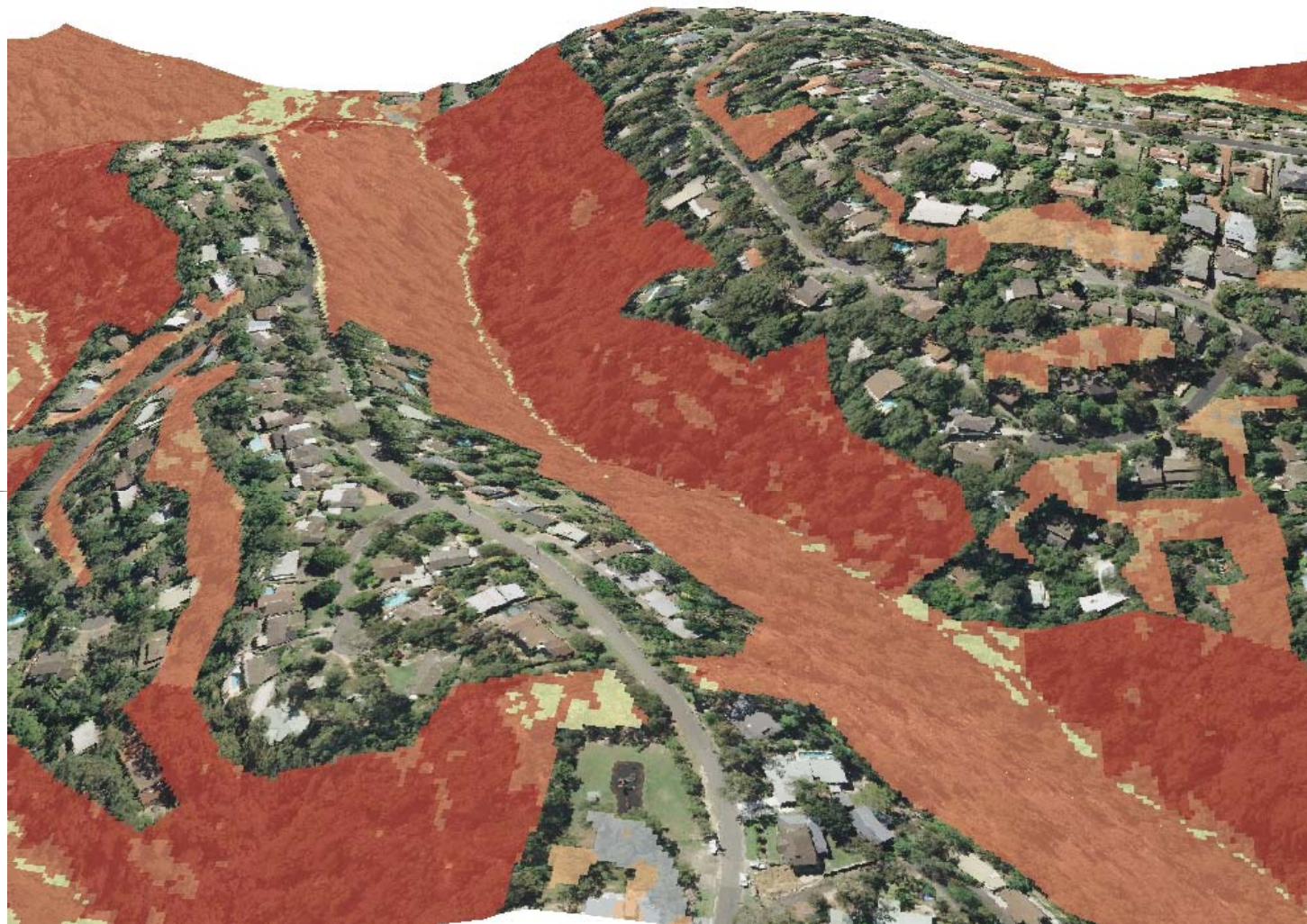
## Bushfire Analysis

- Land Management Agency
- GIS Bushfire Management Decision Support
- Apply CSIRO Bushfire Risk analysis using Vegetation, Slope and Aspect parameters
- Modify by applying APZ prescriptions within PFBP to individual dwellings in the shire.



- Bushfire Behaviour Potential Model - CSIRO





- **Bushfire Behaviour Potential Map**

- Slope
- Aspect
- Vegetation





## Bushfire Analysis

- HSC has a legal responsibility to prevent bushfire spread from any land under our care and control and management.
- Need to know which properties have a required Asset protection Zone within HSC controlled Land
- Therefore we use GIS to calculate;
  - The recommended APZ distance as PBP recommended.
  - Distance from Asset to nearest HSC owned land.
  - Assets are recognised that have a recommended APZ within HSC owned land.
  - Potentially impacted properties are prioritised by applying Bushfire Behaviour Potential levels.

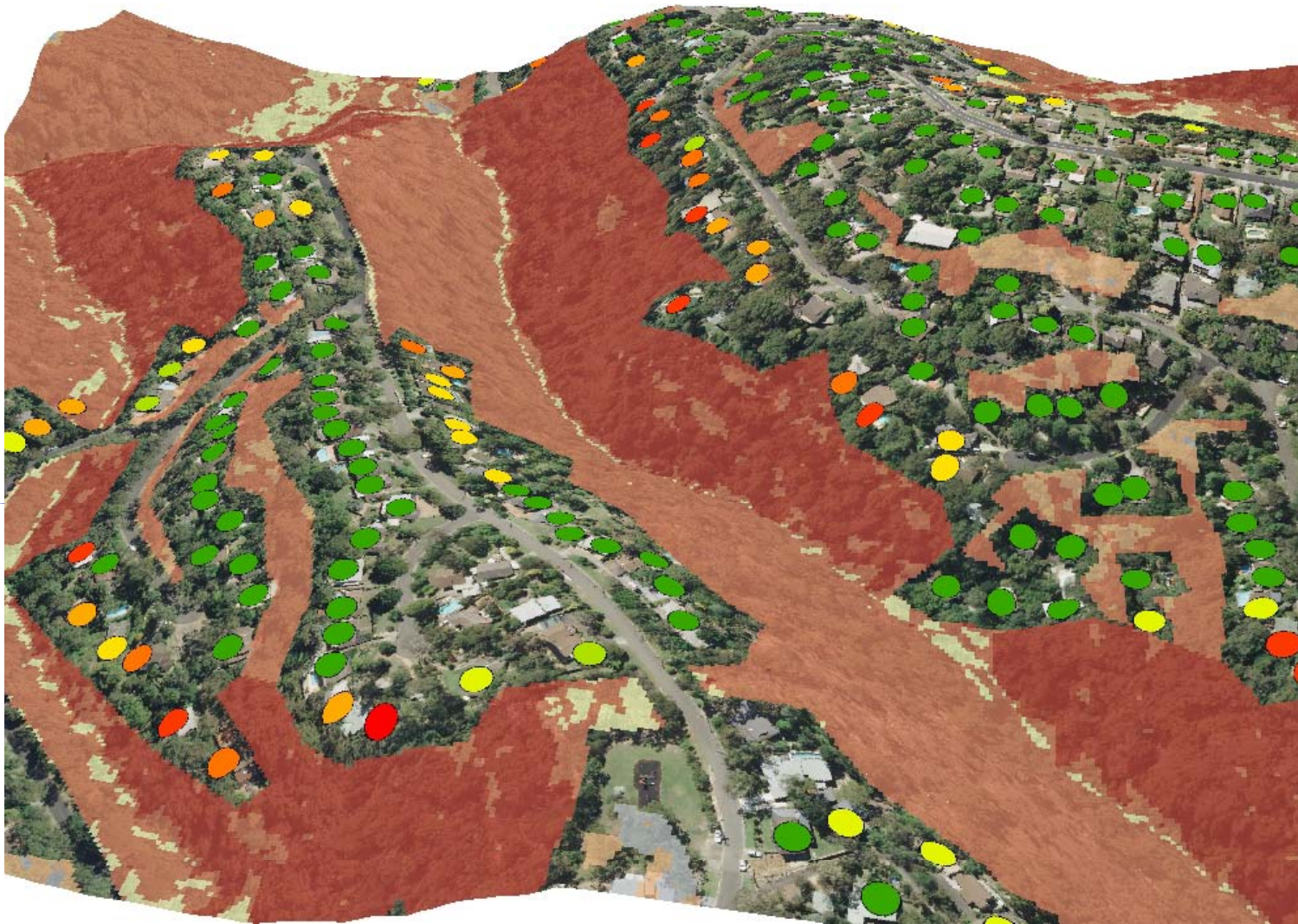




**Table A2.4 Minimum Specifications for Asset Protection Zones (m) for Residential and Rural Residential Subdivision Purposes (for Class 1 and 2 buildings) in FDI 100 Fire Areas ( $\leq 29\text{kW/m}^2$ )**

Vegetation Formation	Effective Slopes				
	Upslope/Flat	>0°-5°	>5°-10°	>10°-15°	>15°-18°
Rainforests	10	10	15	20	25
Forests	20	25	35	50	60
Woodland (Grassy)	10	15	20	25	30
Plantations (Pine)	20	25	30	45	50
Tall Heath (Scrub)	15	15	20	20	20
Short Heath (Open Scrub)	10	10	10	15	15
Freshwater Wetlands	10	10	10	15	15
Forested Wetlands	15	20	25	35	45

$$\text{Required APZ Distance} = \frac{\text{Distance to HSC land} + \text{Bushfire Potential}}{2}$$



HSC Bushfire Priority and Bushfire Behaviour Potential.



## HSC Bushfire Priority

- Could be improved by using Satellite determinations of Assets locations and vegetation type/extent
- Thankyou

