

The Upper South East Dryland Salinity & Flood Management Program

Developing New Knowledge

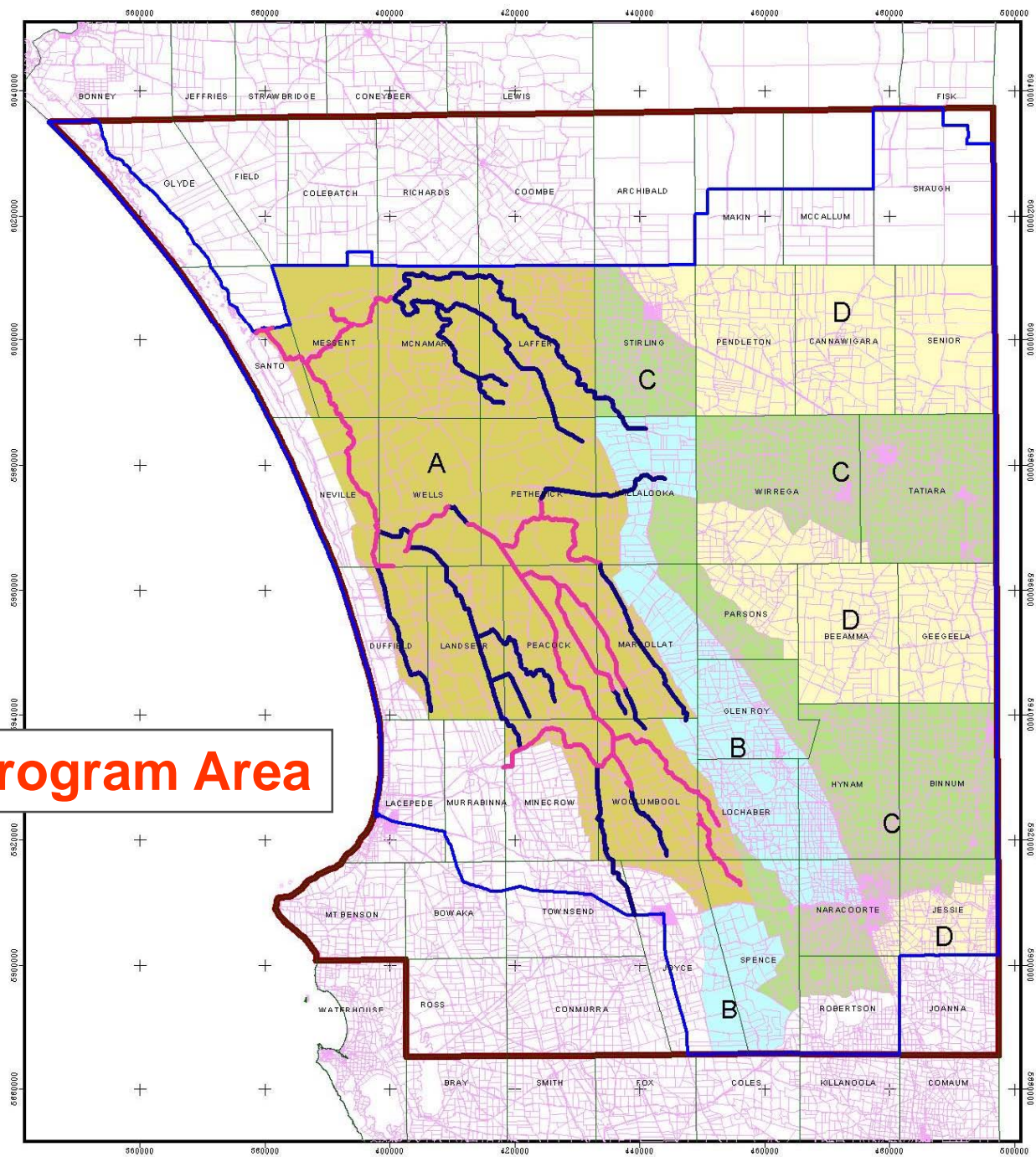
20 November 2008



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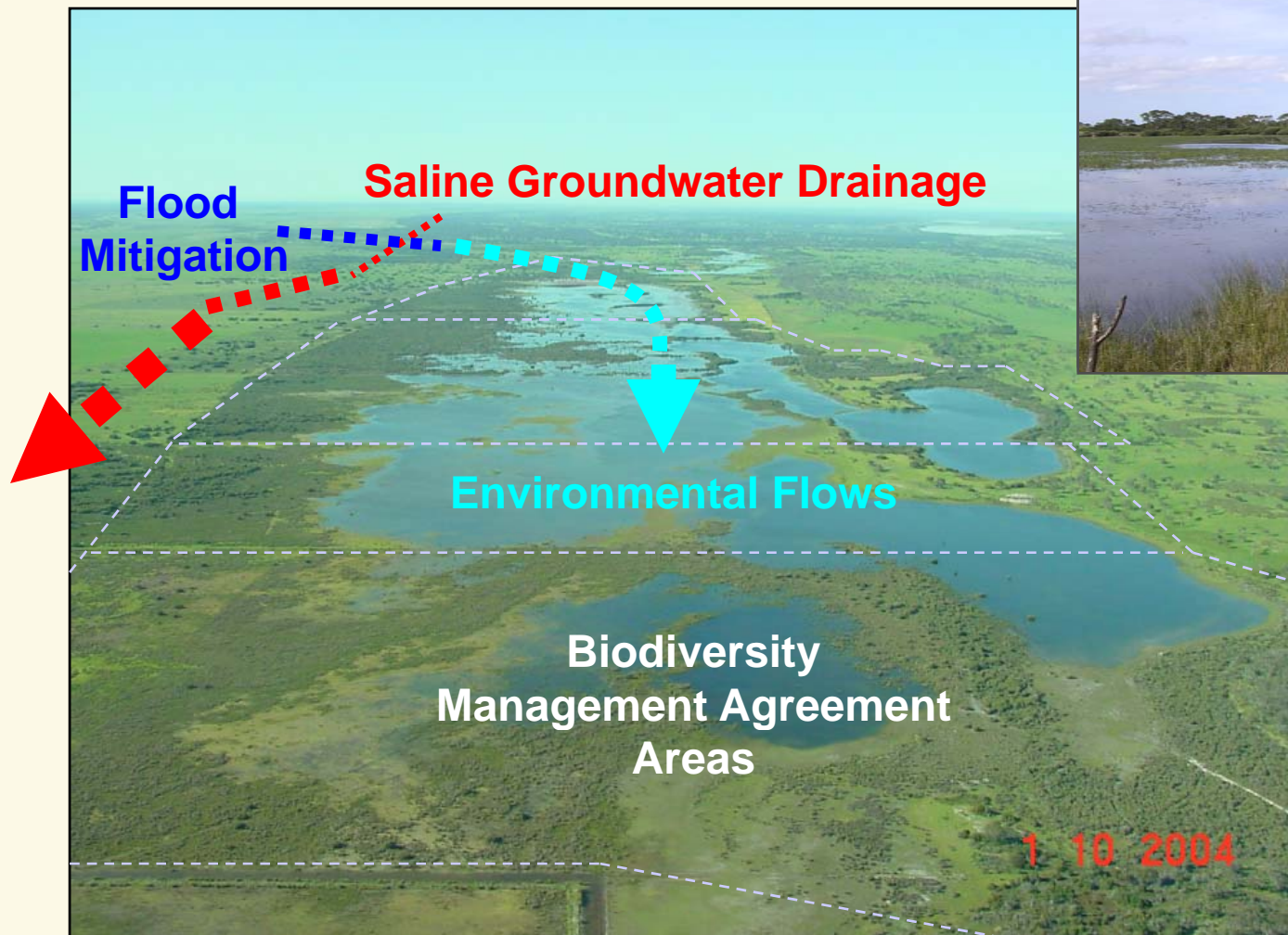
USE Program Area



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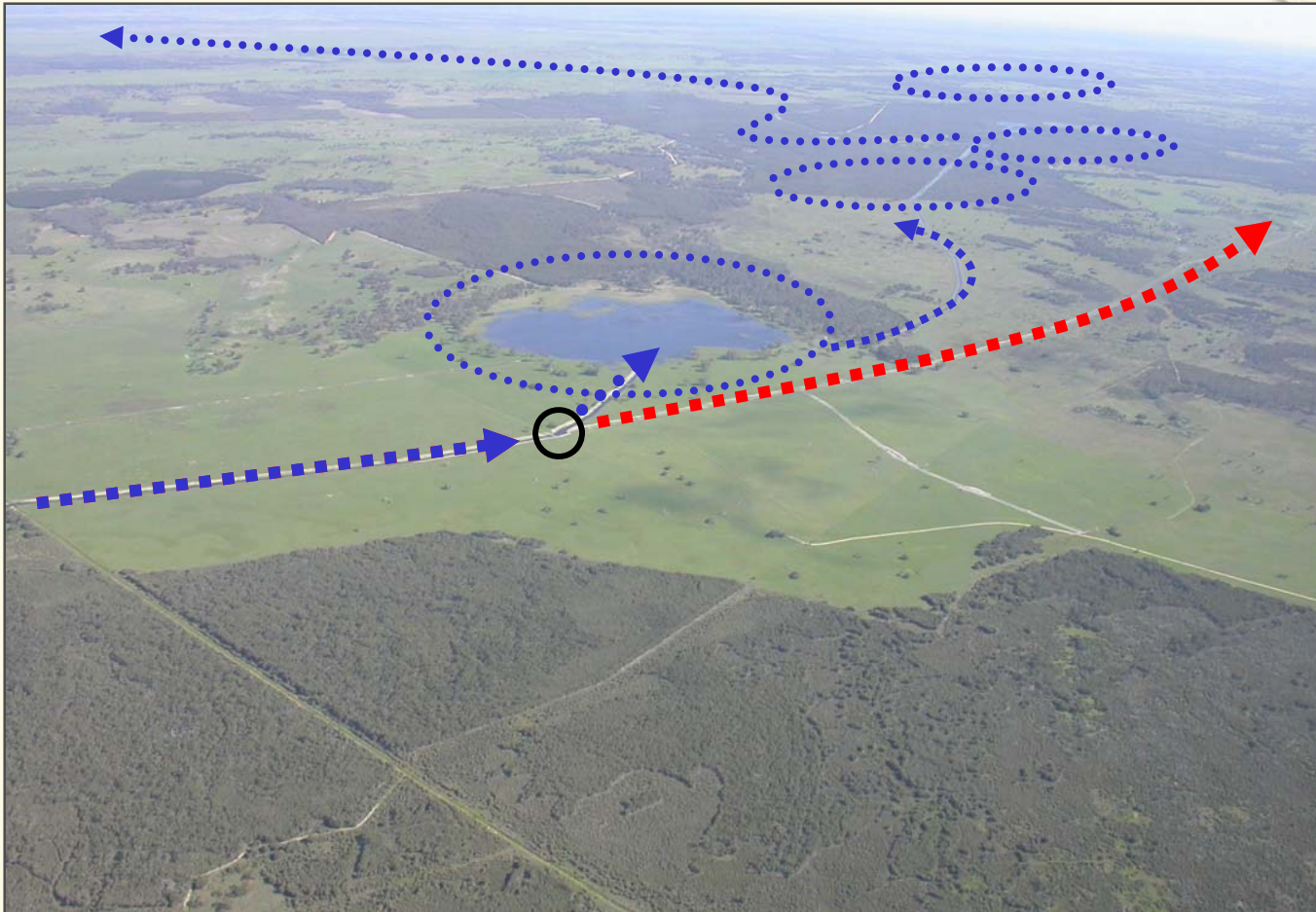


Engineering and Ecological Solutions



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Adaptive Management In Action



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**How do we apply this approach
to something as large and
complex as the USE region?**

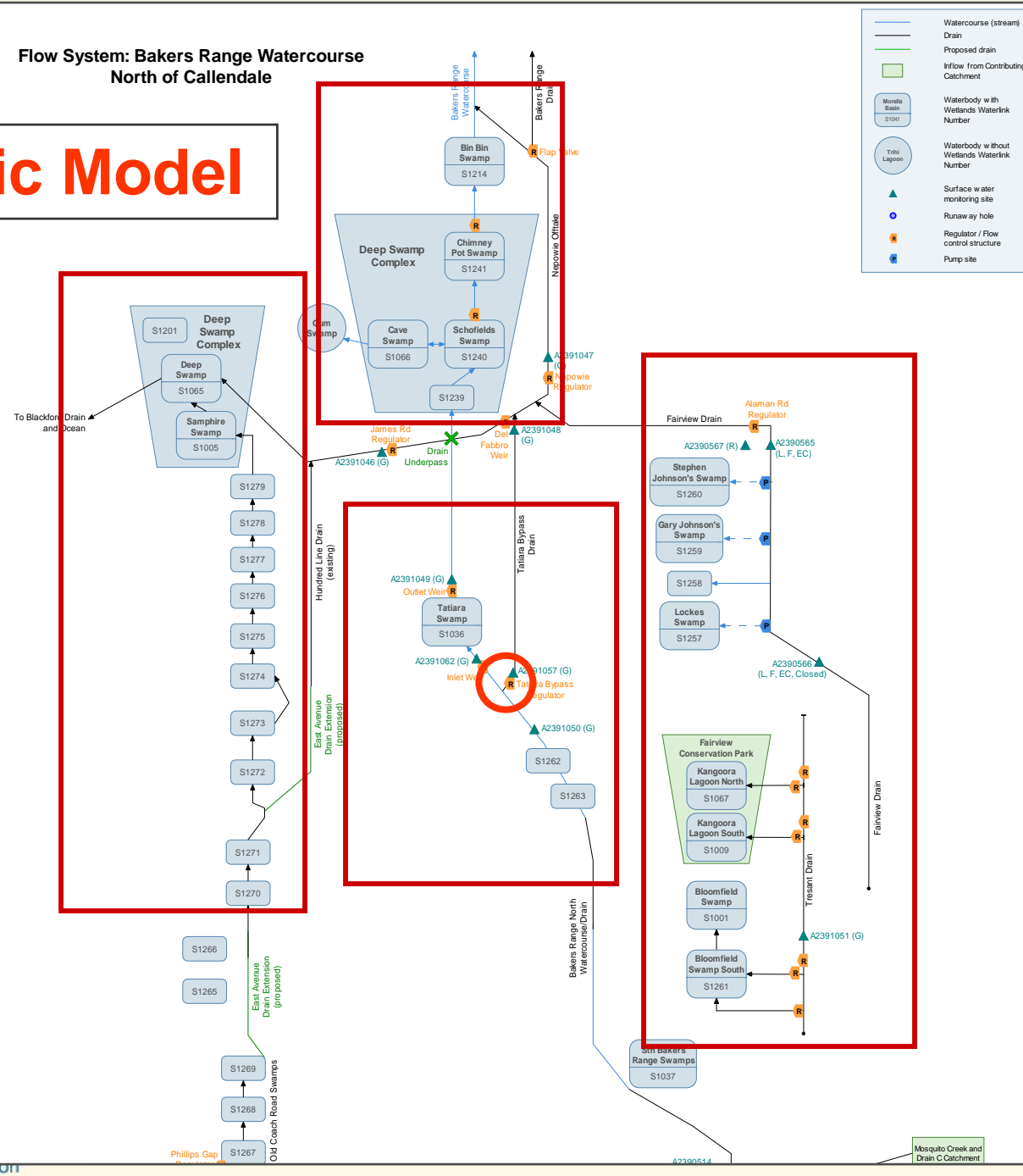


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Systemic Model

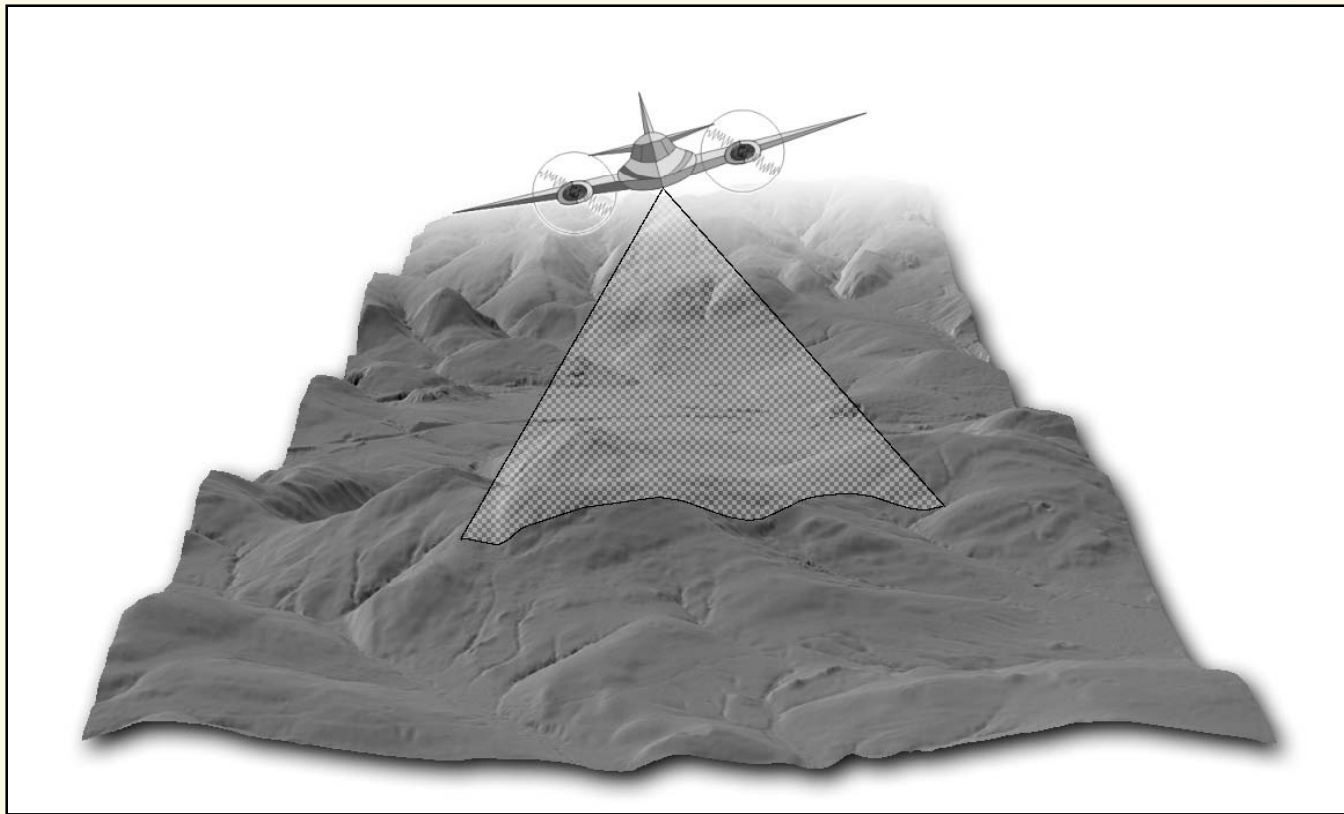
Flow System: Bakers Range Watercourse North of Callendale



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LiDAR - Li**g**ht **D**etection **A**nd **R**anging

Also sometimes called Laser Imaging Detection and Ranging

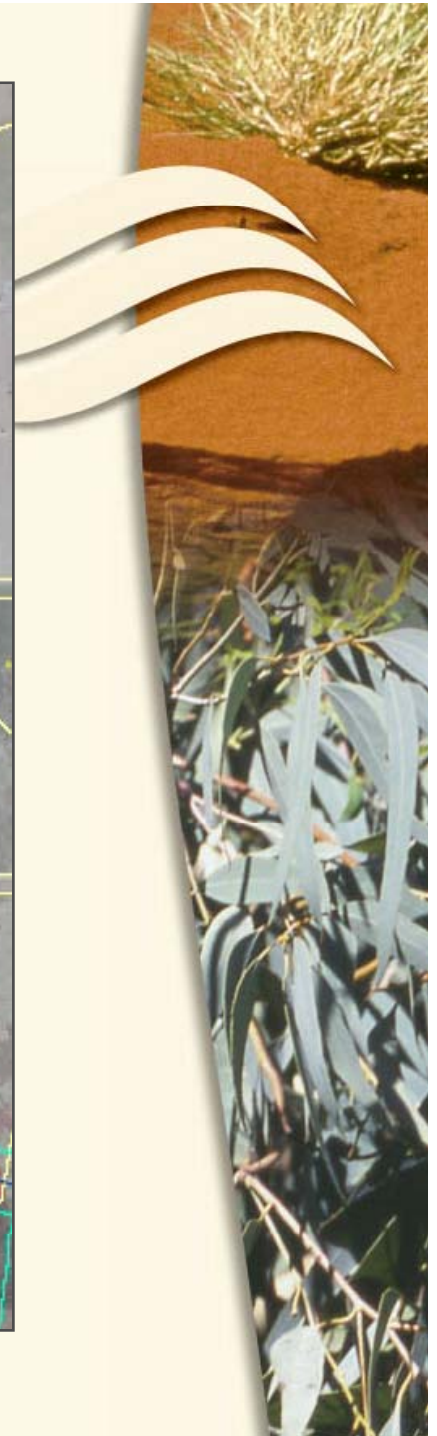
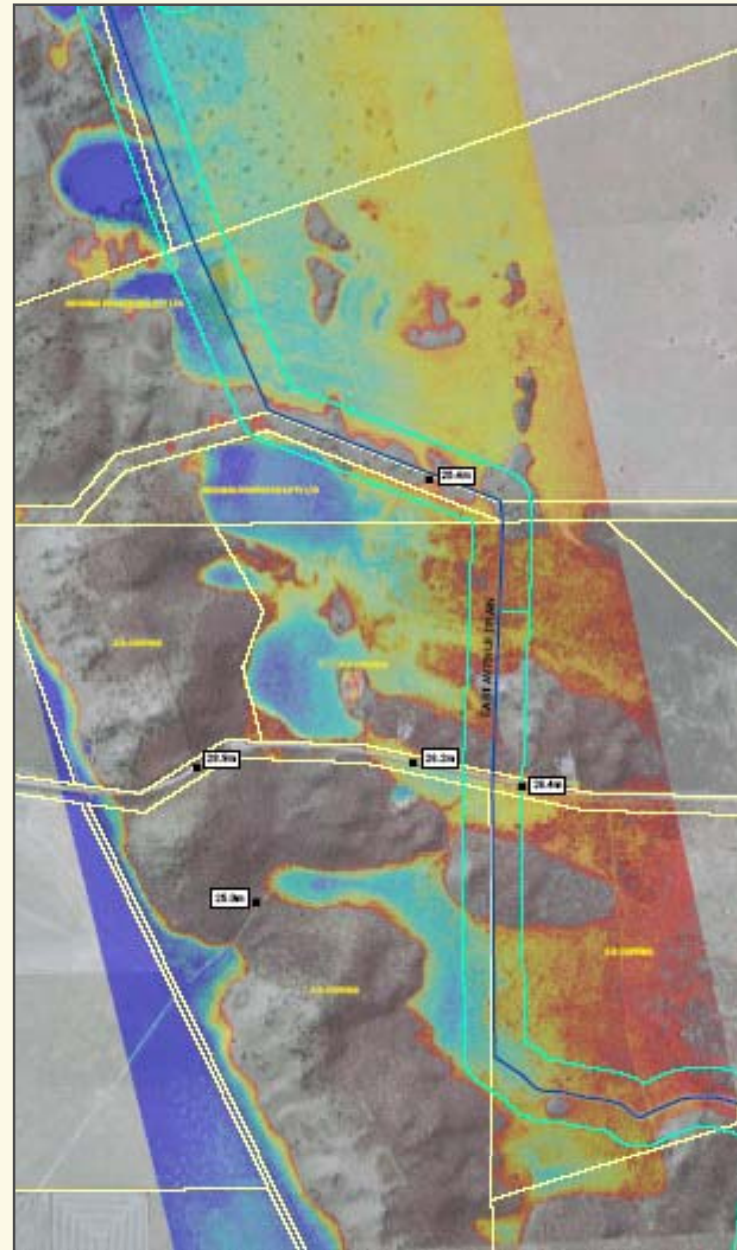
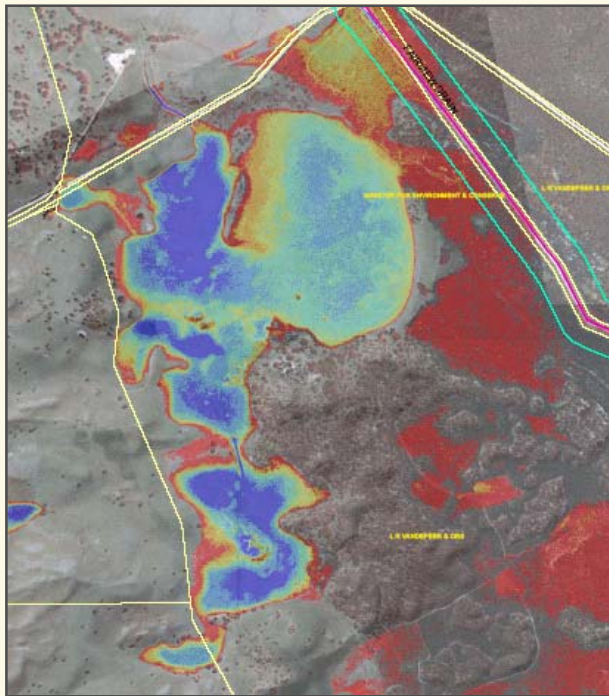


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Micro-topography

Functional Attributes of System Components



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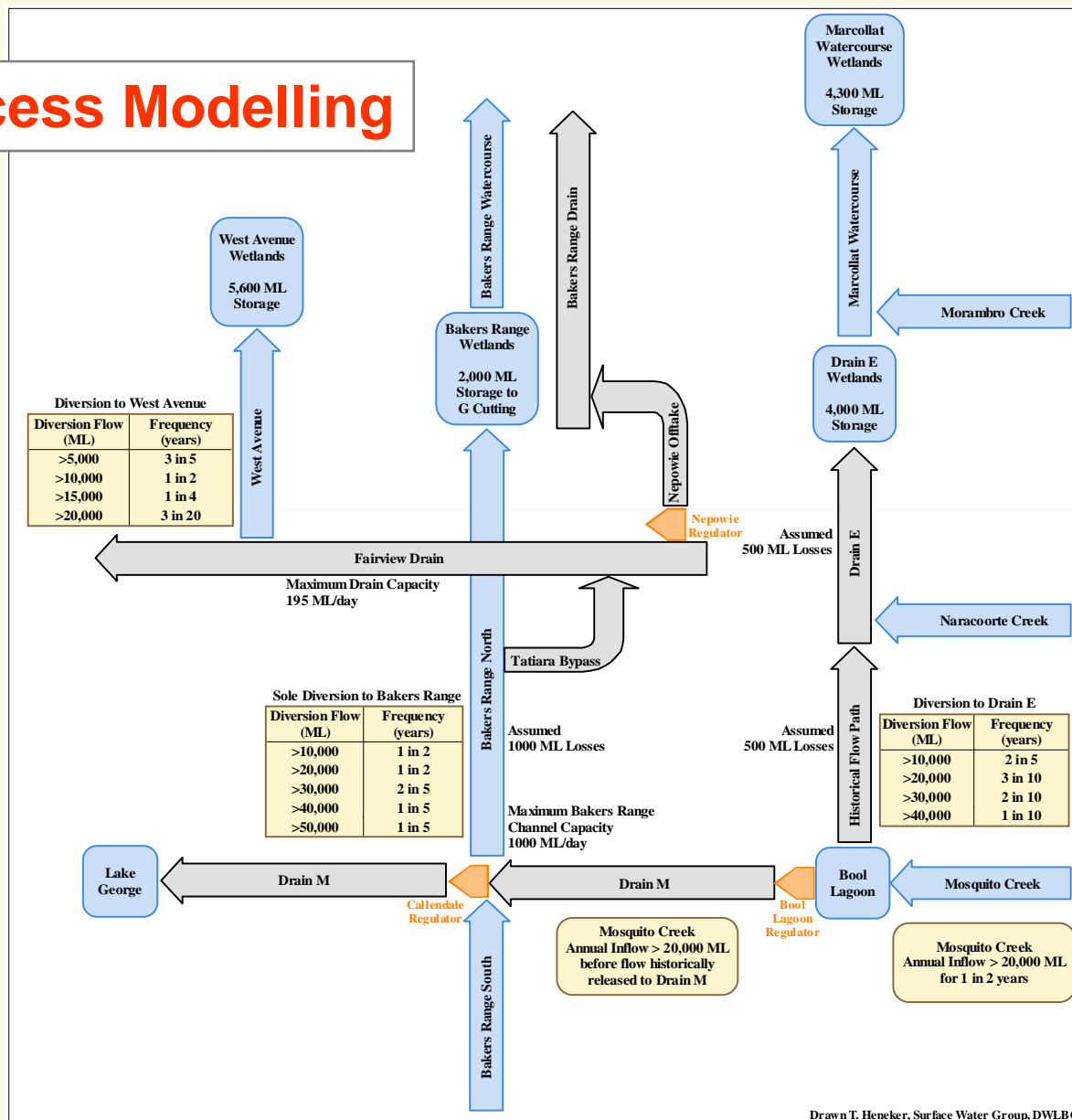
Natural Asset Inventory



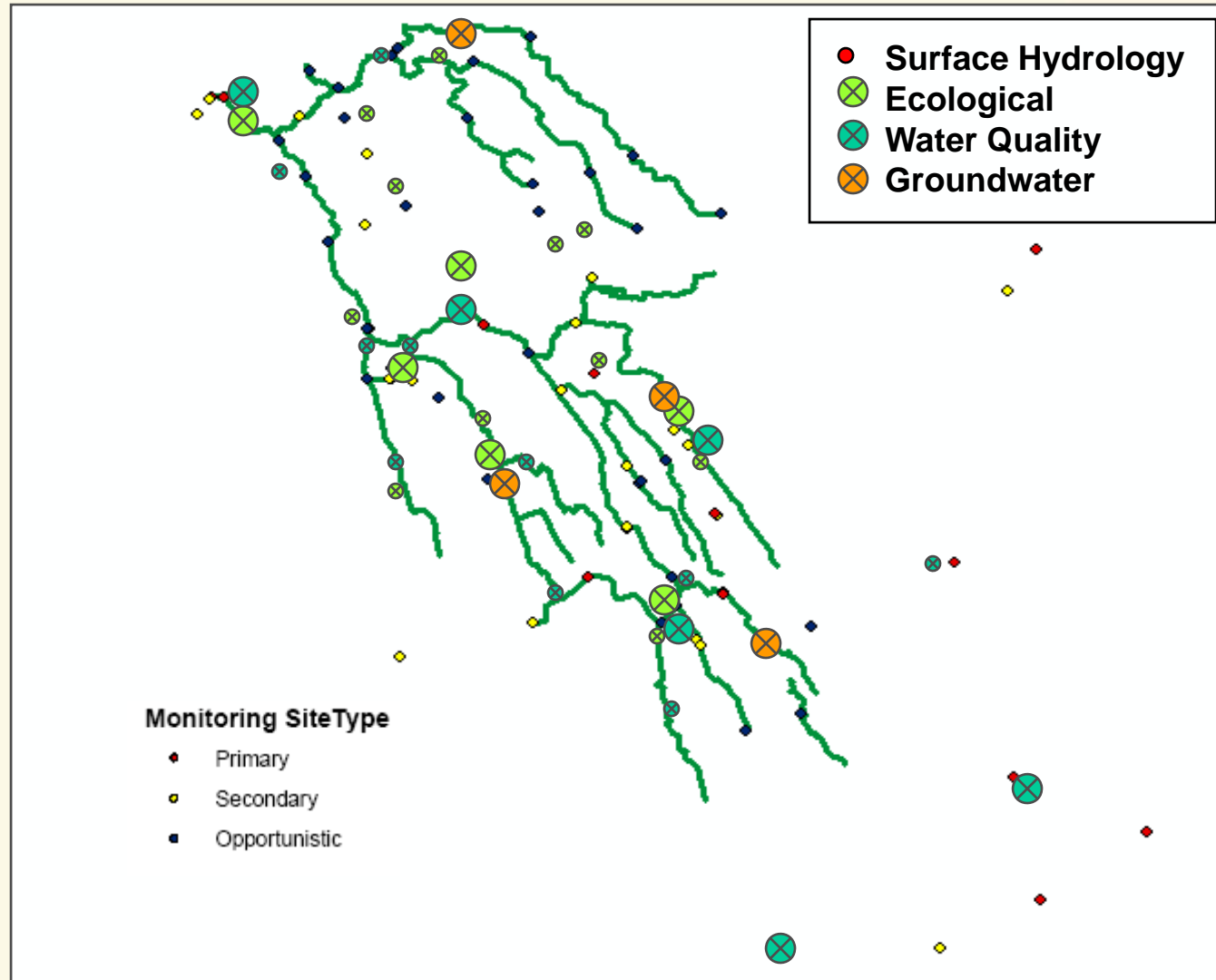
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Process Modelling



Integrated Monitoring Program



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Telemetered Data-Loggers

Wetland Hydrology

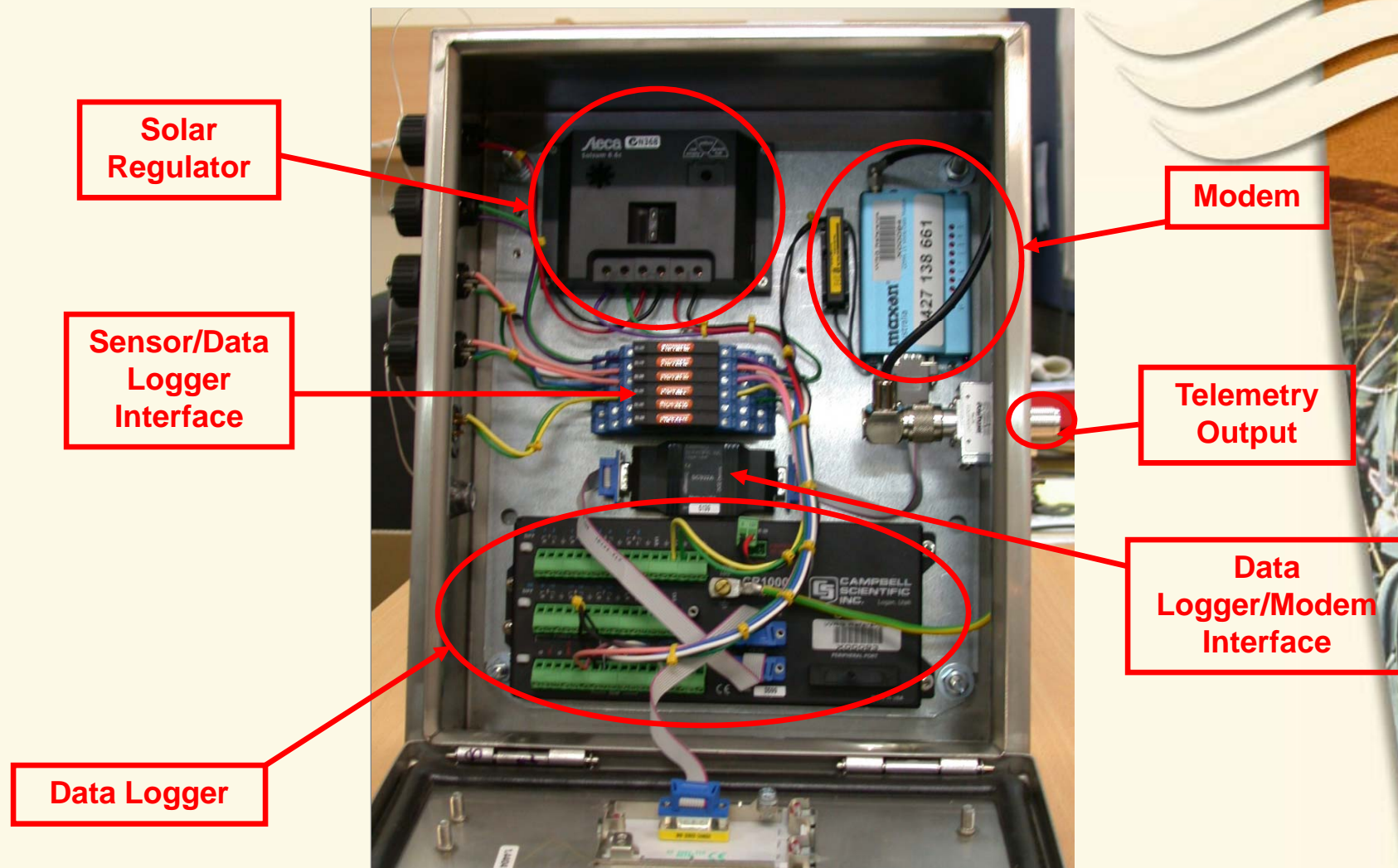


Groundwater



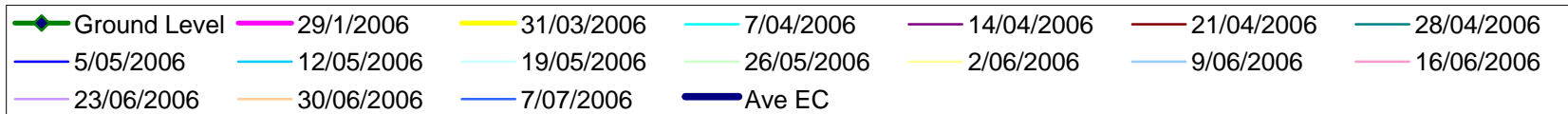
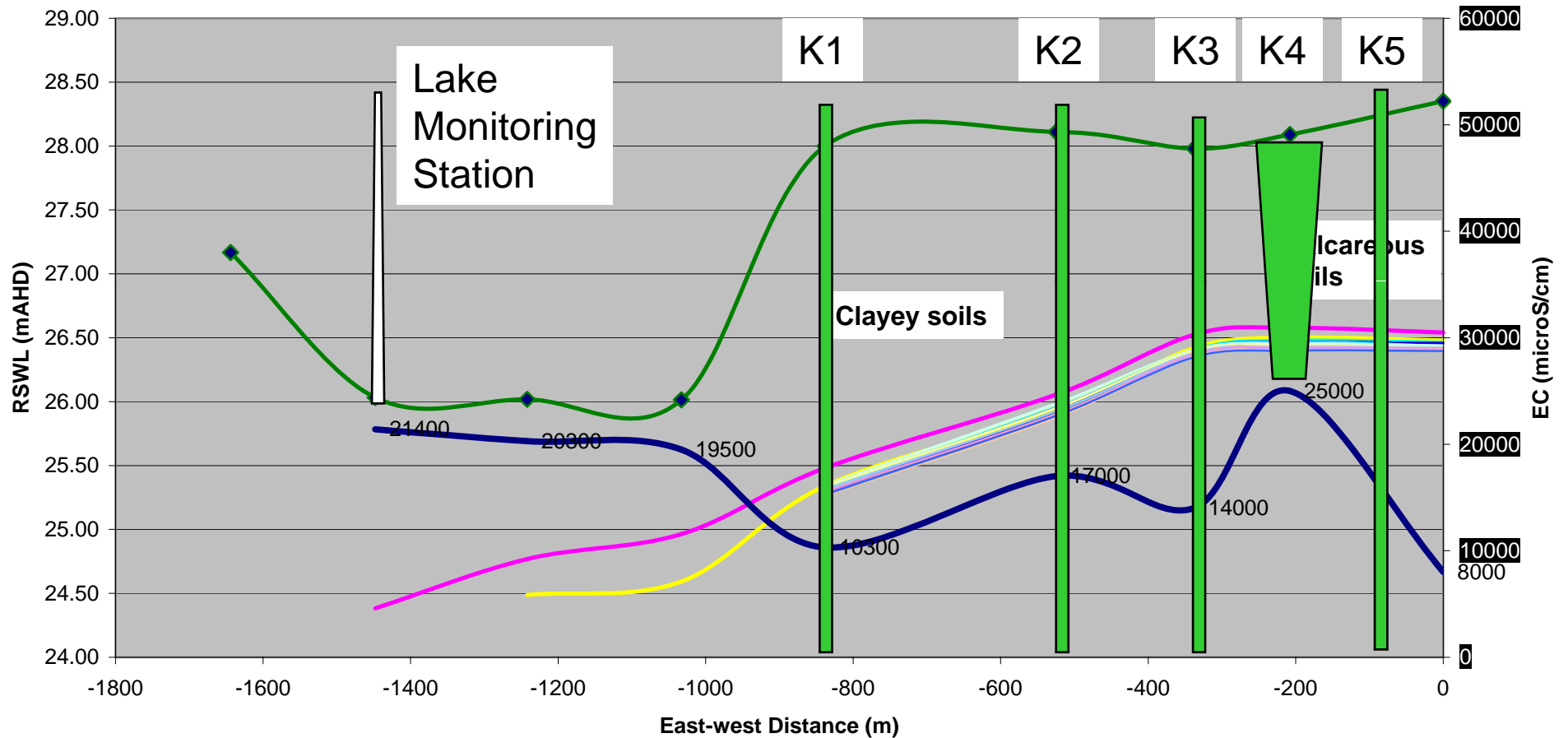
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Instrumentation Interfacing

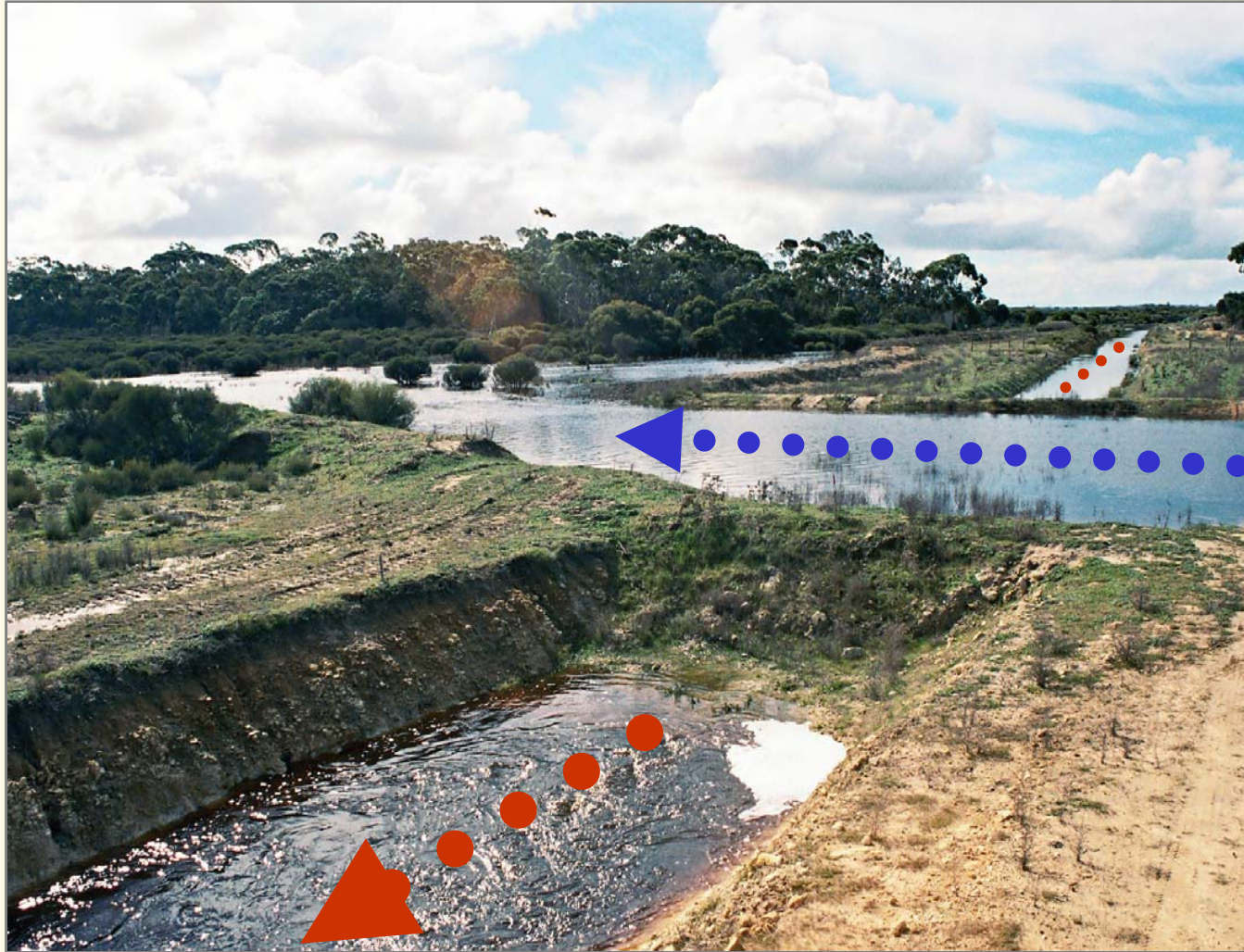


Sophisticated Data Analysis & Interpretation

Kyeema EC vs WL



Sophisticated Flows Planning & Manipulation



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Operations

Past Flow Regime

Current Flow Regime

Purpose of Regulator

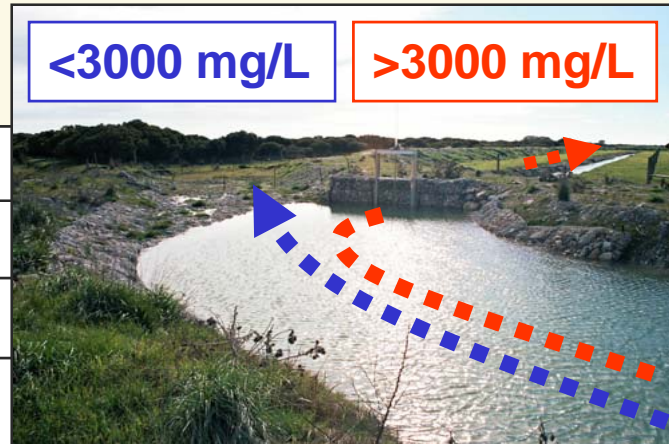
Water Management Guidelines

A. Default position is that surface water flows northward across the overpass structure into the Mandina-Cortina Complex and the regulator on the drain remains open to confine saline groundwater to the drain for disposal via the Kercoonda S-bend.

B. Trigger: level in Bonneys Camp North reaches 14.1m AHD or Litigation Lane Swamps require freshwater surge to remove silt. **Quantity:** approximately 500ML is required. **Quality:** <3,000mg/L. **Frequency:** 1 in 10 if flow from West Avenue doesn't perform function. **Timing:** Likely to be September-October but need to remain flexible according to rainfall conditions.

C. Quality: currently <6,000mg/L, (would prefer <4,000mg/L) **Frequency:** <6,000mg/L on an irregular 'as-needs' basis to supplement inundation late in season if required (eg to support established Ibis breeding cycle), such that total salinity of wetland water would be between 3,000mg/L and 5,000mg/L. If source water <4,000mg/L then on a regular basis (1 in 2). **Timing:** September-October. **Duration:** 4 weeks of flow.

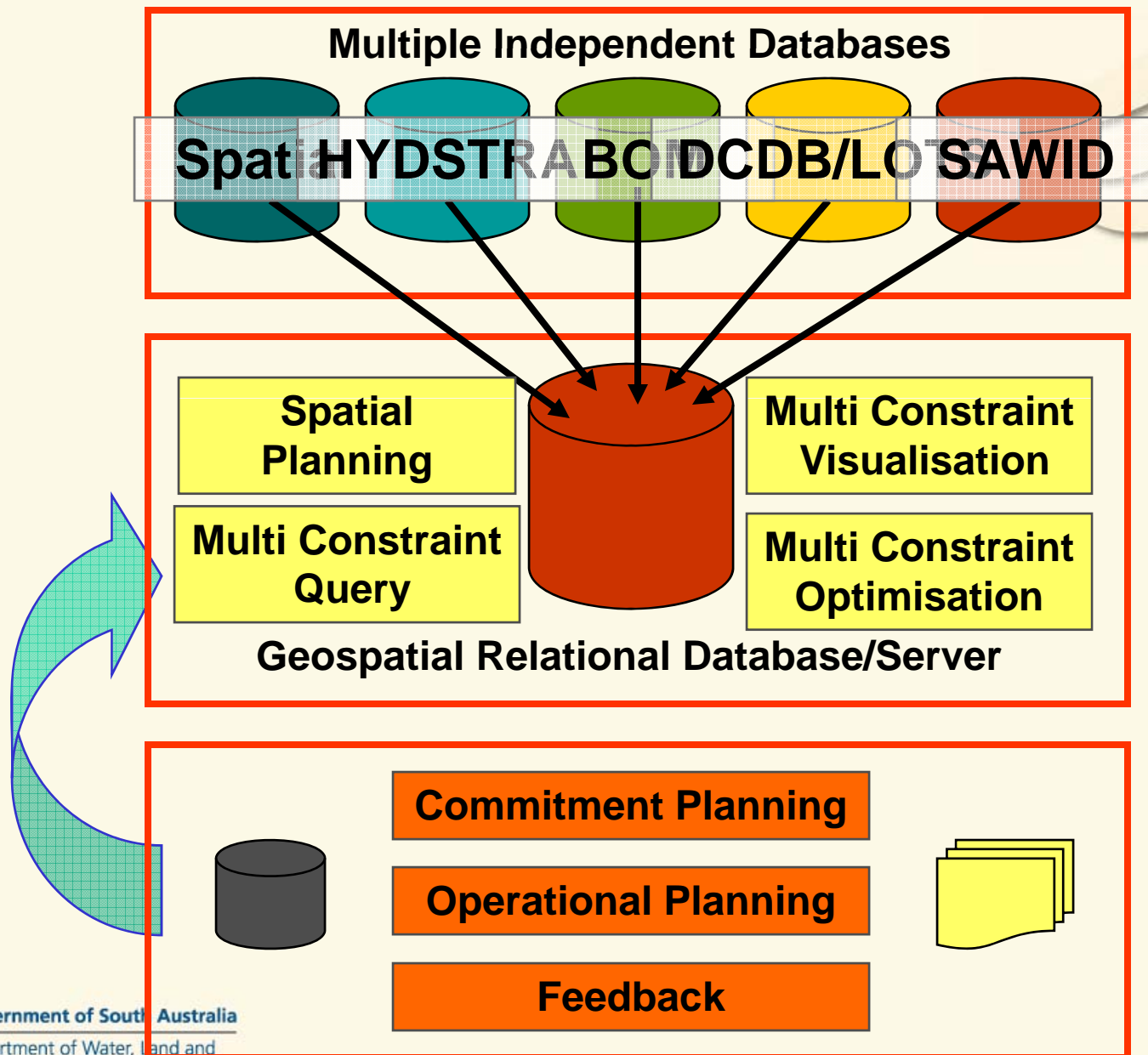
D. Trigger: Messent is inundated and likely to exceed 10.5m AHD, and/or flow volumes likely to exceed storage capacity of BRW wetlands. **Frequency:** 1 in 20 is predicted. **Timing:** August-October. **Quality:** <3,000mg/L but likely to be <1,500mg/L.



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Resource Optimisation Framework



Knowledge Development Through Focussed Research

1. Partnerships with academic institutions
2. Adopt the role of industry supervisor to academic research projects
3. Be closely involved in the development of research scope and objective setting
4. Understand that academic research has medium to long term delivery timeframes – *the value is in its application to adaptive management not immediate issues*
5. Establish your research agenda, partnerships projects early



Some Limitations & Opportunities

1. Academic framework and requirements
2. In close partnerships research can be made very applied
3. Compromise of direction and control
4. Work outside the square
5. Medium to long term – *the value is in its application to adaptive management not immediate issues*
6. Meet and work with very clever people of many disciplines – and *if you're on the ball you might just be able to recruit them*

