



Longwall 2010



# Centennial Coal

***Clarence Colliery – Subsidence Management***

Allison Golsby

Hunter Valley  
October 2010

FUTURE POWER

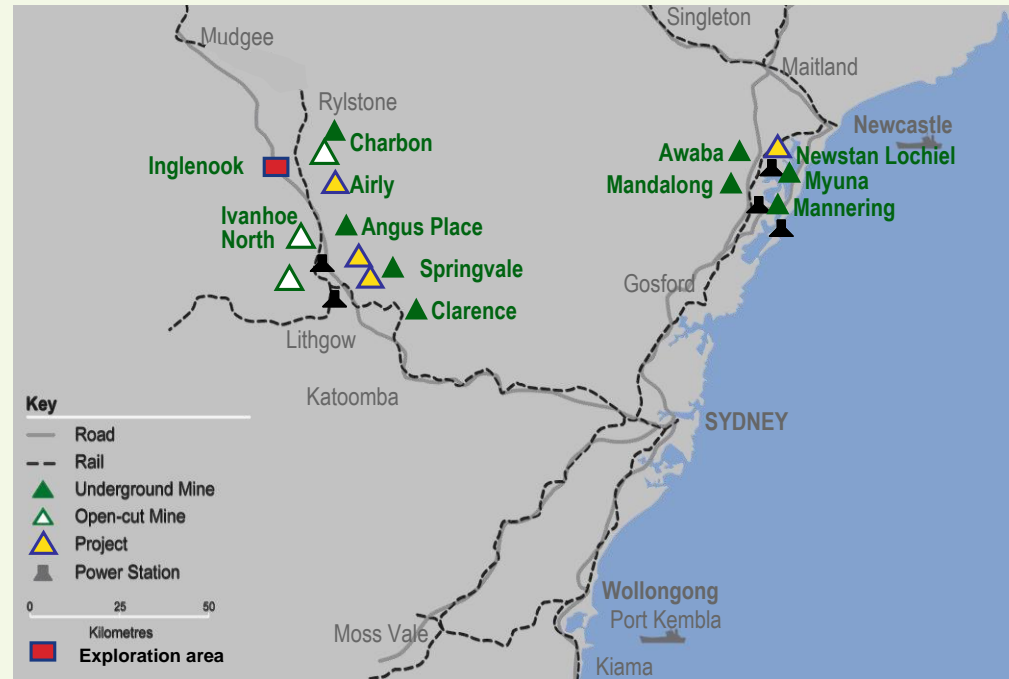


Centennial Coal

# Clarence Colliery

## Location

- **Western Coal Fields approximately 10km east of Lithgow**
- **One of nine of Centennial Coal's underground operations**
- **Rail connection to Port Kembla Coal Terminal**



# The Resource

**Clarence has a production capacity of up to 2.1 million tonnes per annum using three continuous miners.**

**Clarence, currently operates a section, or panel, using a continuous miner, a mobile bolter unit, and 3 shuttle cars.**





# Cutting the coal

- **The Clarence partial pillar extraction system**
- **A high capacity continuous haulage mining system (Joy 4FCT) has been installed replacing 3 shuttle cars, and a feeder.**



# Clarence Colliery

## Seam Characteristics

- Mines the Katoomba Seam
- Exports low ash thermal coal
- Generally competent sandstone roof and strong floor

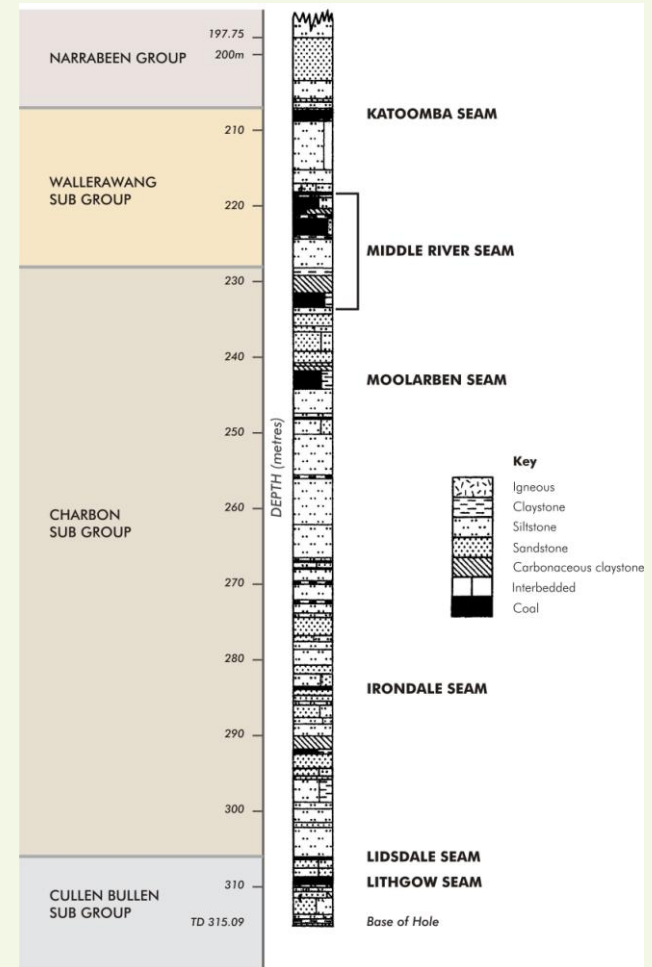




# The Petrology

## Seam Characteristics

- Averages 2.4m to 4.0m high
- Seam gradient dips at an average of  $1^{\circ}$  to the ENE. Localised rolls occur around geological structure
- Cover depth is generally less than 200m but reaches 270m
- Small geological faults exist in the projected mining panels



# Mining Method - Historical

**600 Panels Mining Area**

**900 Panels Mining Area**

**700 Panels Mining Area**

**Drifts and Pit Bottom**

**800 Panels Mining Area - Future**



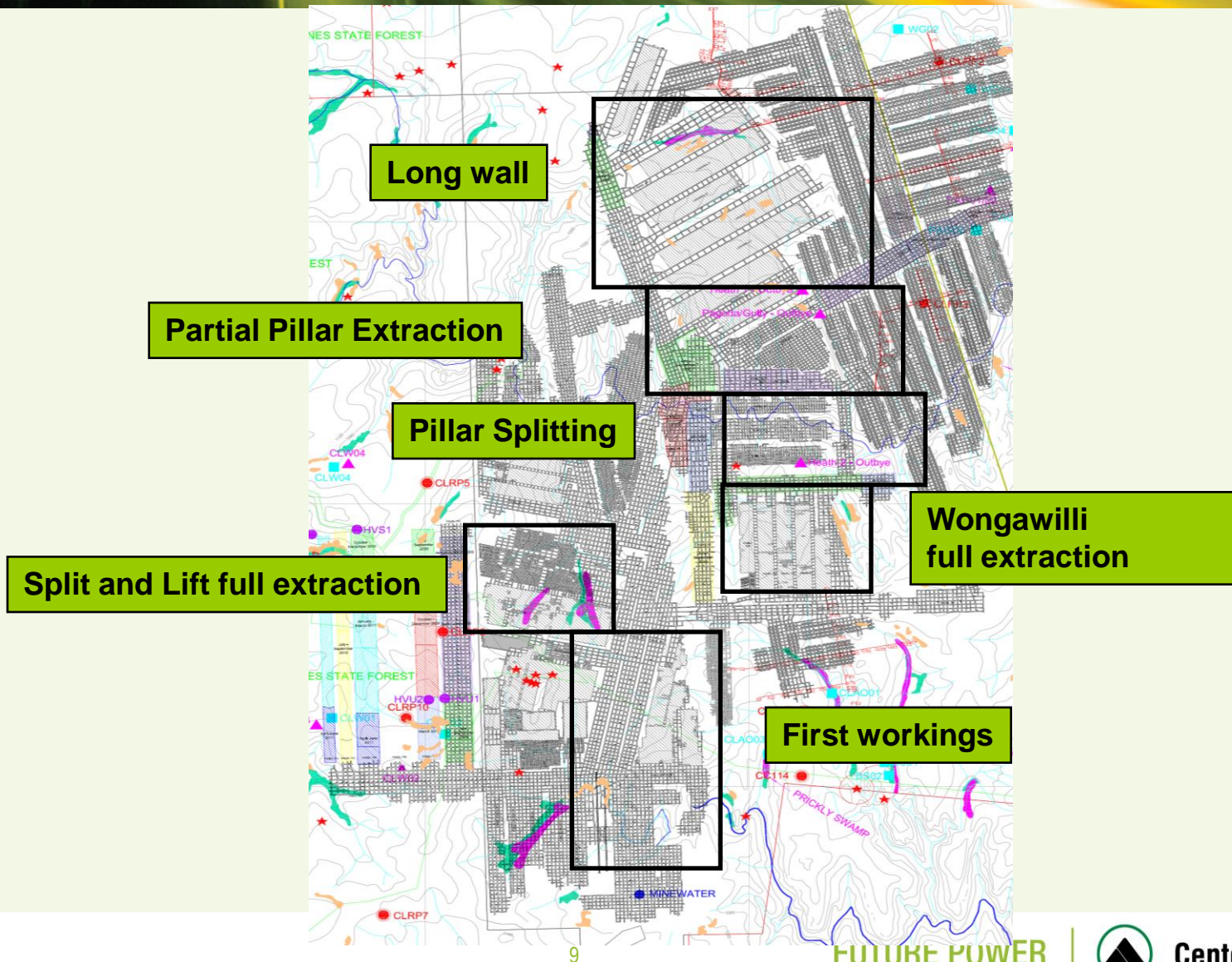
VER



**Centennial Coal**



# Mining Method - Current

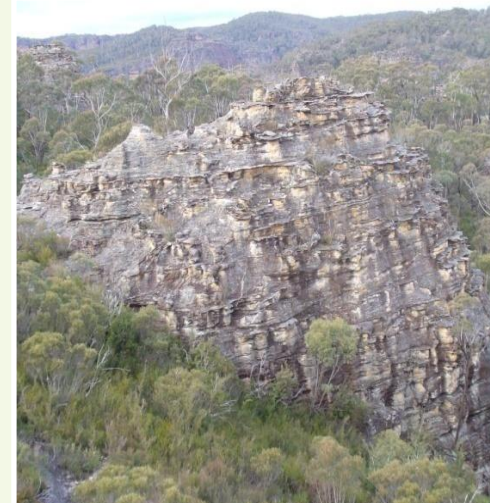




# Mine Design

## Design Criteria

- **Subsidence Management Plan – Mine design Driver**
- **Maximise resource recovery without fracturing the overburden**
- **Mitigate groundwater inflow and disturbance to aquifers**
- **Minimise surface subsidence under sensitive features**





# What is Subsidence?

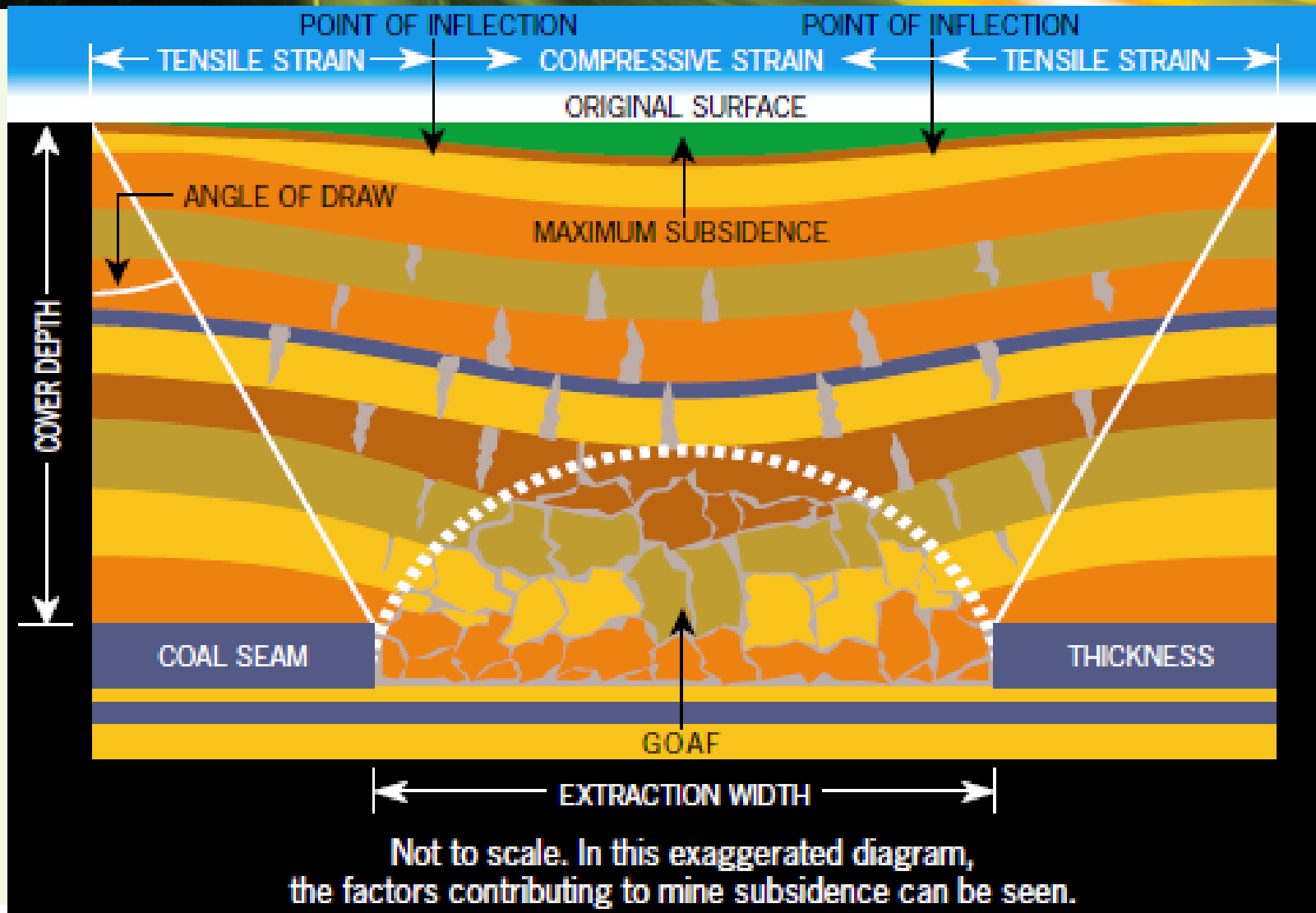
## Subsidence

- Lowering or settling down of the lands surface

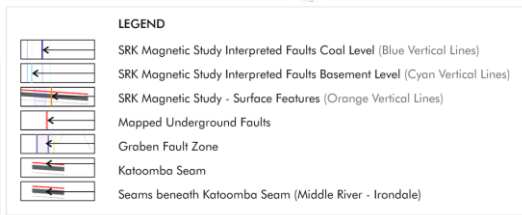
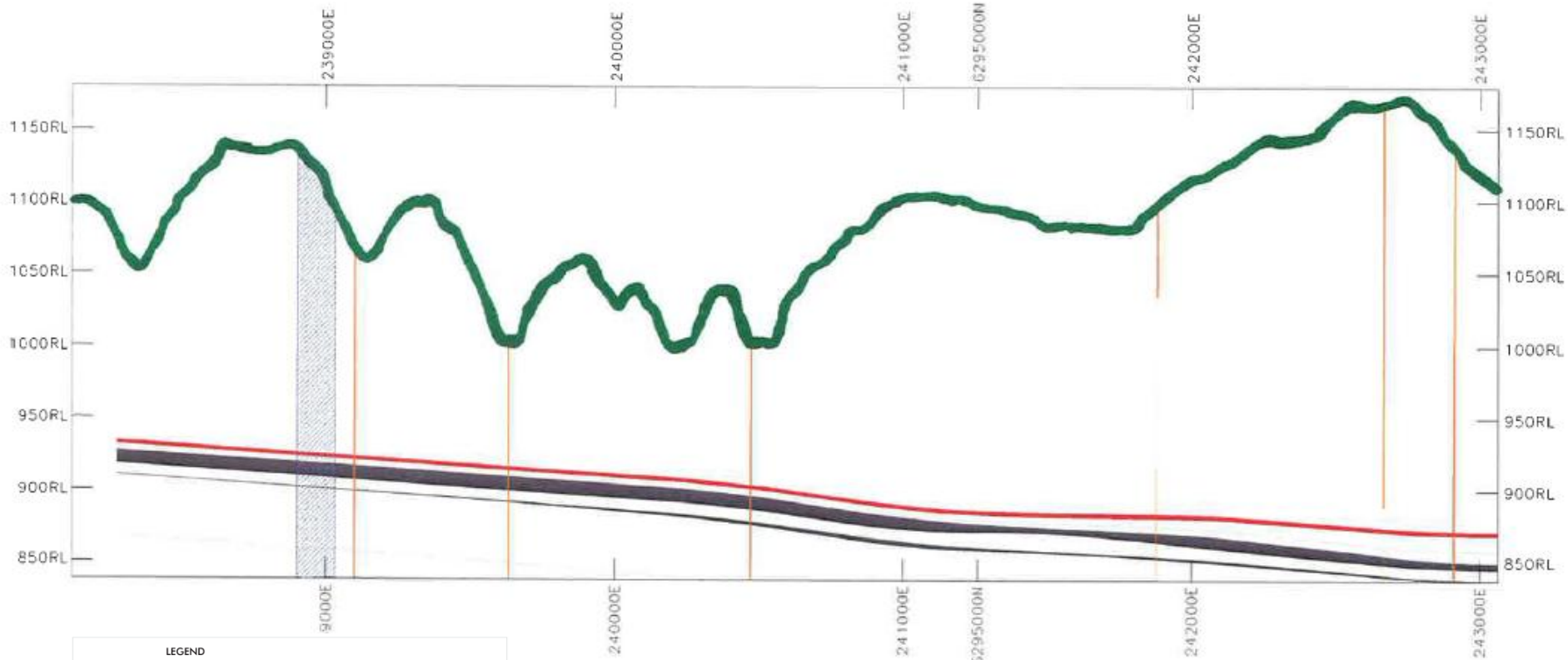




# What influences Subsidence?



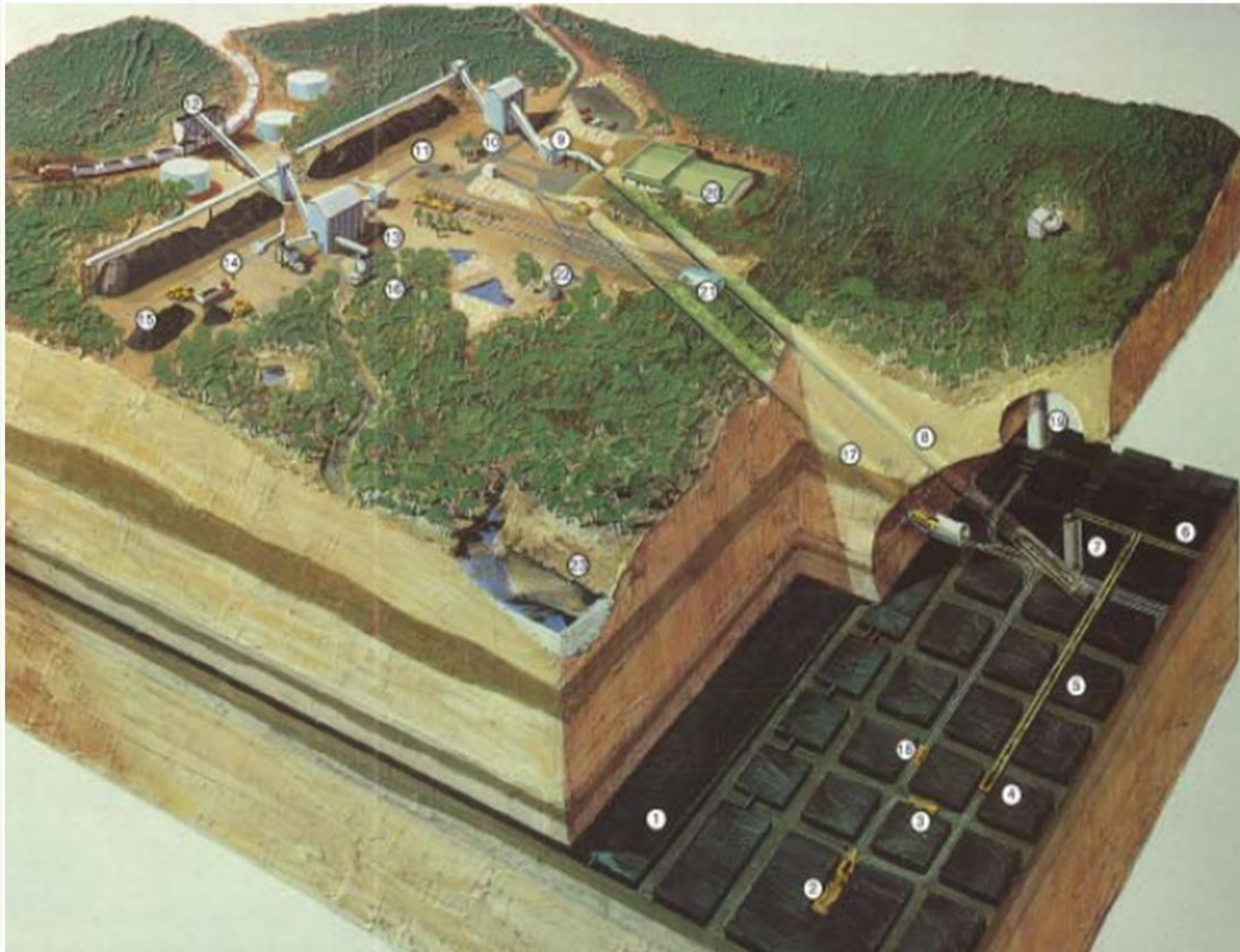
# Mine Design



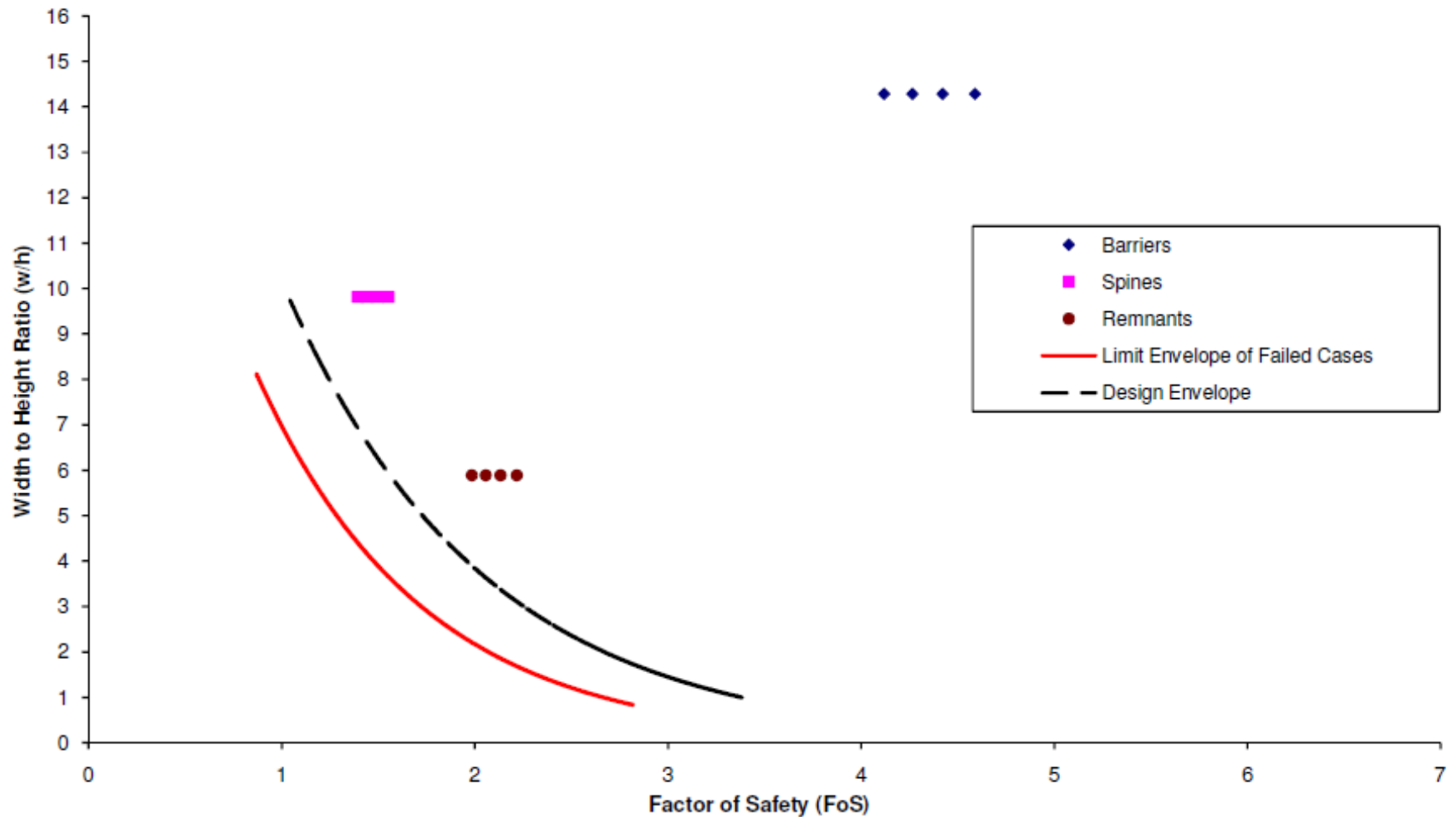
SMG Consultants. Section 1 Over proposed workings (2006)



# Mine Design



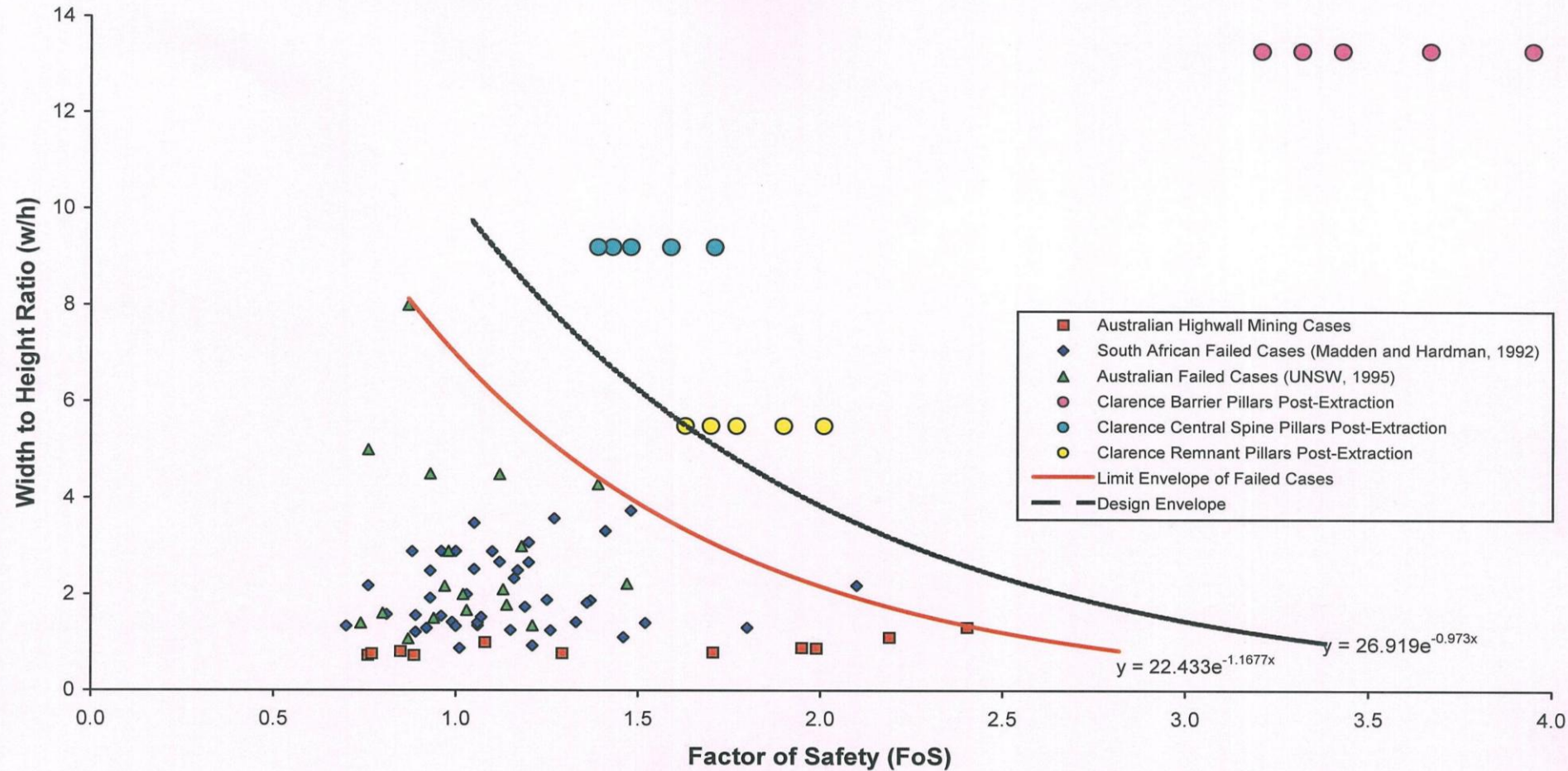
# Pillar Design



Strata Engineering (2008)



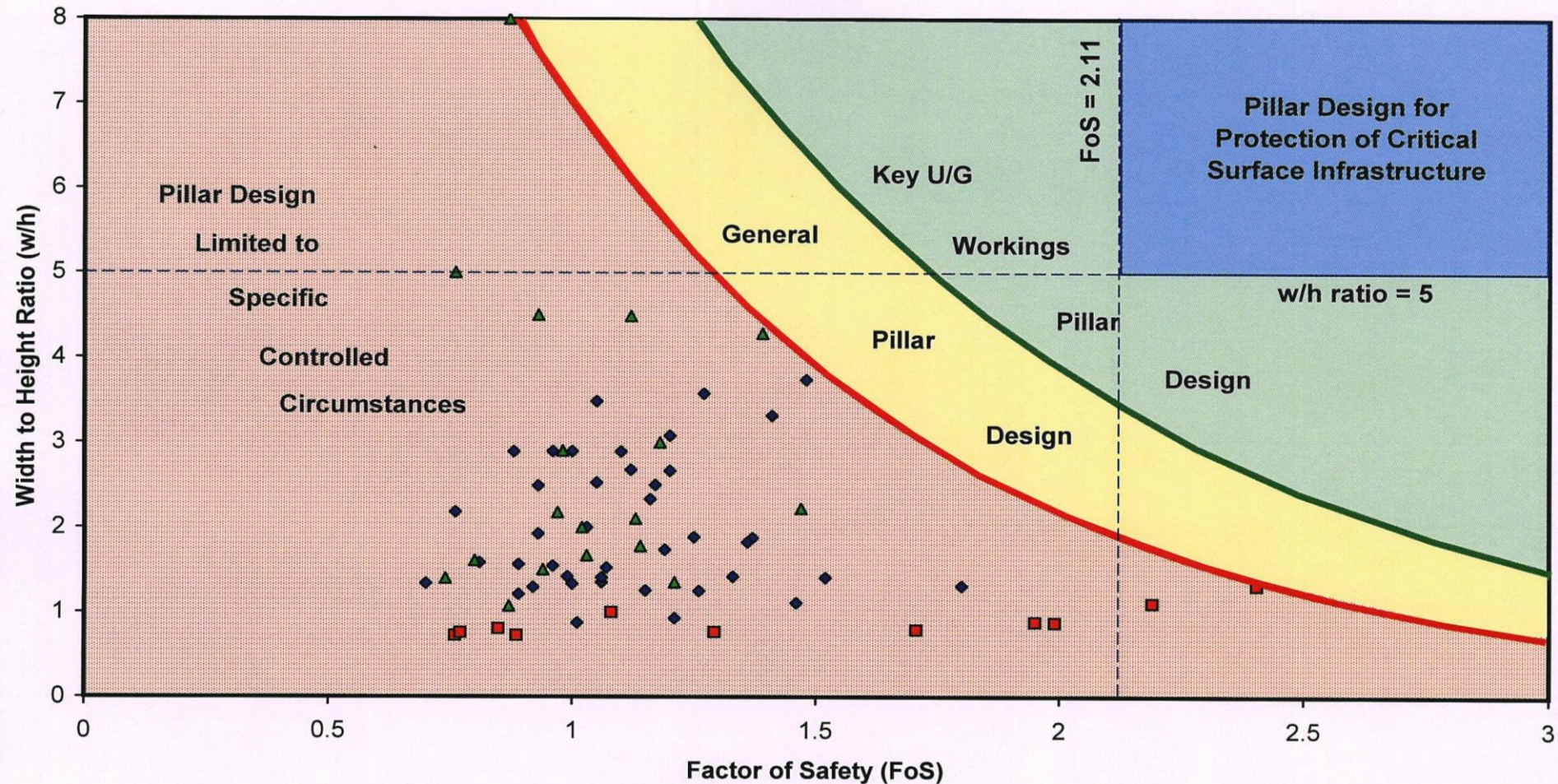
# Pillar stability



Strata Engineering (2005)



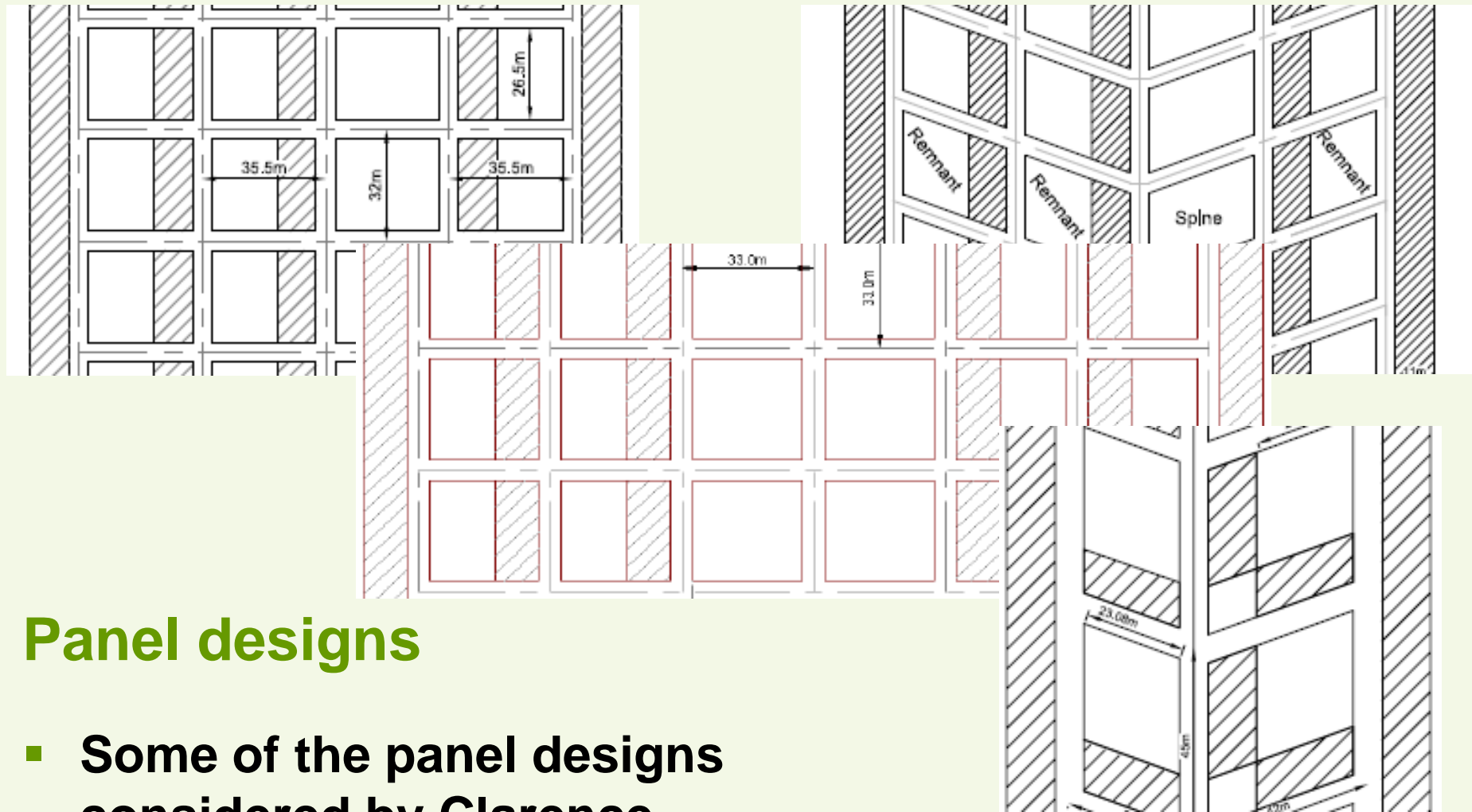
# Pillar stability



Strata Engineering (2005)



# Panel designs



## Panel designs

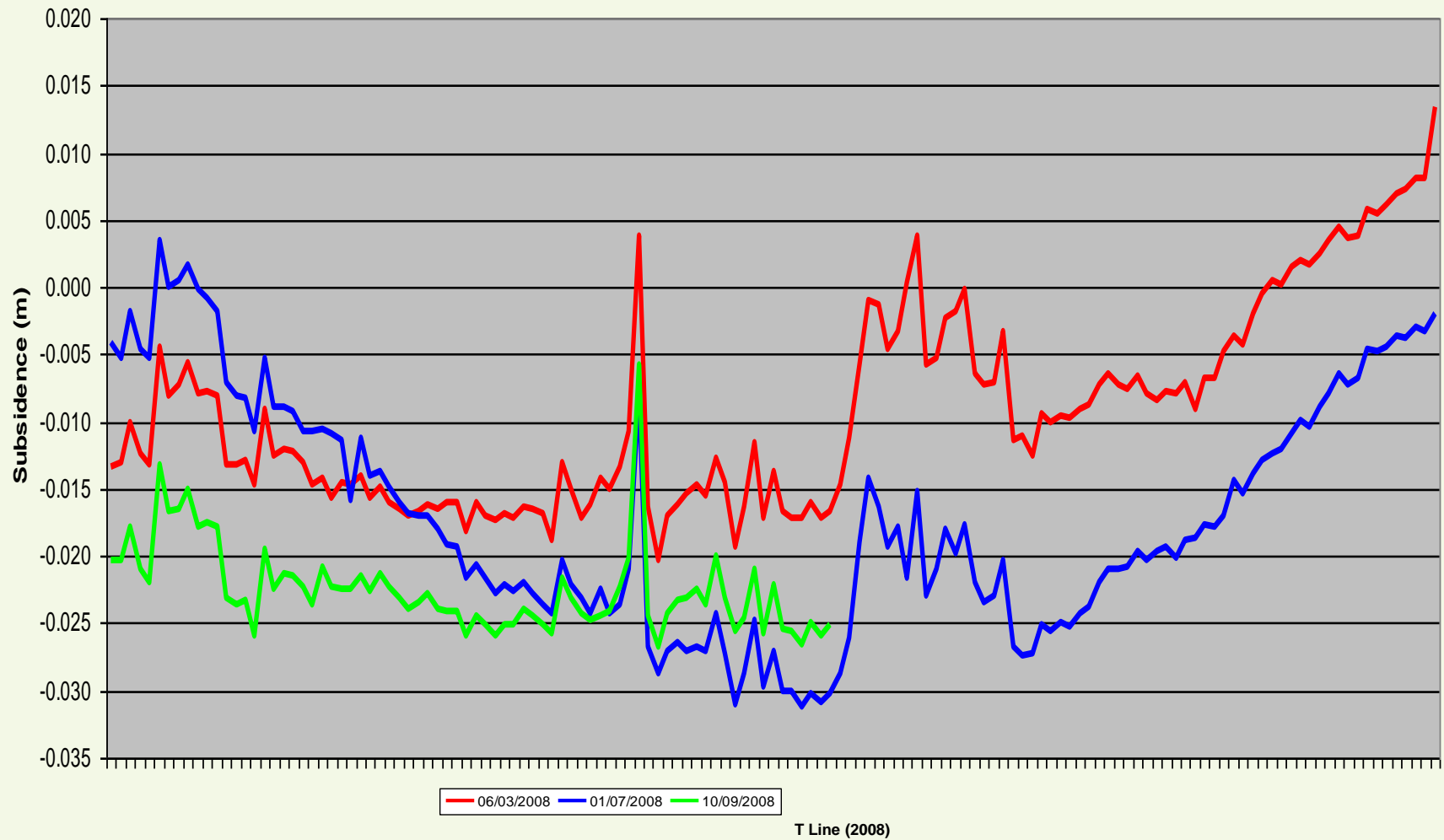
- Some of the panel designs considered by Clarence



The floor plan shows a symmetrical layout with a central vertical corridor. Rooms are numbered 54 through 83. Key features include:

- Classrooms:** Rooms 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83.
- Common Areas:** Rooms 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83.
- Specialized Rooms:** Rooms 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83.

# Subsidence





# Our Results





# Questions

## Any Questions





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# **Centennial Coal**

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**Thank you.**

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