



Geotechnical consulting, research and instrumentation for mining and civil industries.

## Numerical Modelling Analysis

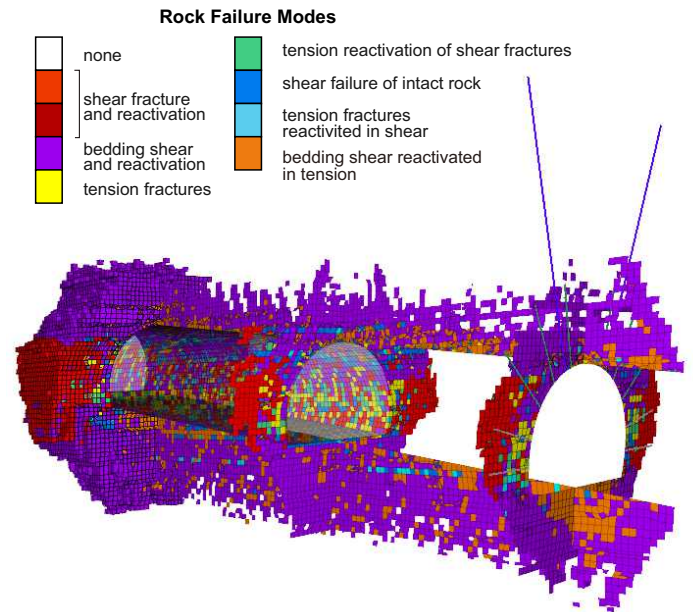
### Underground 3D Roadway Development through Complex Inclined Strata

SCT (SCT Operations Pty. Ltd.) demonstrates enhanced numerical capability towards assessing the ground response formed around an underground roadway during development. This is achieved by incorporating over 30 years of rock mass and reinforcement behaviour into our design process that builds on an extensive suite of proprietary constitutive models that run on the Itasca FLAC3D modelling environment.

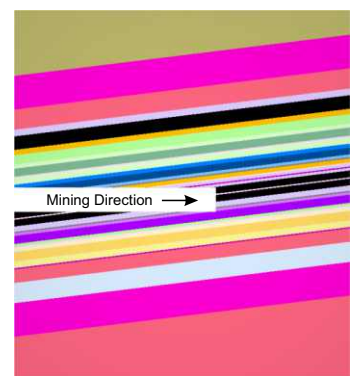
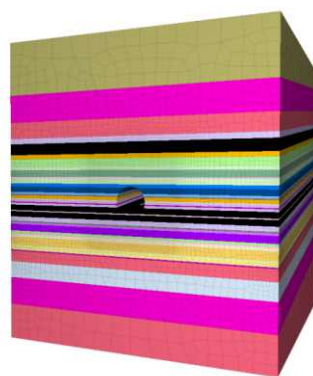
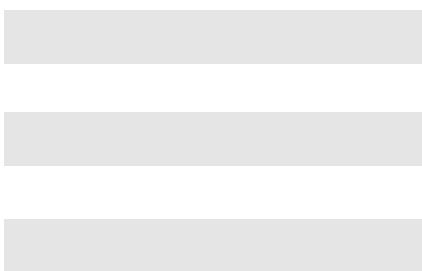
SCT consultants were recently asked to perform geotechnical assessment of a proposed roadway located at 997m depth and advancing through strata inclined at 7 degrees. The roadway is 5m wide, arched profiled and supported by an arrangement of pretensioned cable bolts, rock bolts, rib bolts and meshing.

A progressive development cycle process was directly incorporated into the modelling solution scheme which was configured to assume utilisation of conventional roadheader mining machinery. This importantly ensured derived outputs produced during simulation accurately followed the stress and rock failure pathways that are expected to occur in the real world.

Output from the model identified the height of fracturing to be within the zone controlled by the primary rock and cable bolting system. Where appropriate our 3D roadway development simulations can be numerically applied towards the optimisation of reinforcement placement studies and/or exploring the potential impacts of alternative development cycle arrangements – therefore making them particularly relevant to the civil, underground hard-rock and coal mining industries.



### FEATURES



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| COAL   |
| COALCY |
| CY40   |
| CY45   |
| CY50   |
| CY60   |
| CY65   |
| CY70   |
| CYSS55 |
| CYSS65 |
| CYSS70 |
| CYST70 |
| LSS60  |
| LSS75  |
| LSS85  |
| LSS90  |
| SSCY75 |
| ST50   |
| ST65   |
| ST70   |
| STCY78 |