

Briswest Precinct 4

Underground mine remediation and dynamic compaction for a major industrial precinct development at Swanbank, South East Queensland.



3

Historic Collieries Remediated

2

Open Cut Pits Dynamic Compacted

7,500+ m

Total Meters Drilled

29,000 m²

Dynamically Compacted

PROJECT OVERVIEW

Briswest Precinct 4 at Swanbank, South East Queensland, is a major industrial land development on former coal mining land covering several hectares. The site overlays a network of historic underground colliery workings across three separate mine systems, as well as two open cut coal pits. These legacy ground conditions posed significant geotechnical risk to the proposed industrial lot development, requiring comprehensive remediation before any surface infrastructure could be safely constructed.

THE CHALLENGE

The underground colliery workings were predominantly collapsed, presenting subsidence and surface void risk that made the land unbuildable without remediation. Drilling from surface to depths of up to 70 metres was required to locate and characterise the collapsed workings across three separate colliery footprints. The collapsed void zones were treated using targeted grout permeation to form grout blocks within the rubble-filled workings, with grout cones constructed at each borehole location to provide a competent, interlocked ground mass. Borehole camera and sonar inspection verified grout distribution and fill at each treatment point. Simultaneously, two open cut pits had been progressively backfilled with uncontrolled fill of variable density and compressibility, requiring dynamic compaction across 28,868 m² to bring the ground to a trafficable, developable standard. Works were coordinated progressively across an active development precinct alongside bulk earthworks and civil contractors on adjacent lots.

PROJECT SNAPSHOT

CLIENT
Briswest

DEVELOPER
Rogan Development Solutions

LOCATION
Swanbank, South East Queensland

OUR SERVICES PROVIDED
Underground Mine Remediation (Drilling and Grouting)
Dynamic Compaction

MINE REMEDIATION SCOPE
3 historic collieries remediated •
223 grout cones constructed
7,543 m drilled
1,921.5 m³ grout delivered
Borehole camera inspection

DYNAMIC COMPACTION SCOPE
28,868 m² area improved
10 m deep raft of improvement
625 primary / 599 secondary points

DRILLING DEPTH
Up to ~70 m below surface

VERIFICATION
302 UCS tests
57 post-compaction CPT tests •
Borehole camera inspection
Monitoring holes

GROUT MATERIAL
Concrete grout



Our Solution



MINE REMEDIATION (DRILLING AND GROUTING)

DGSA deployed its specialised small-diameter drilling rig to install boreholes at a systematic grid pattern across all three colliery footprints, drilling to depths of up to 70 metres below surface. The workings were predominantly collapsed, so targeted grout permeation was used to form grout blocks within the rubble-filled void zones at each borehole location.

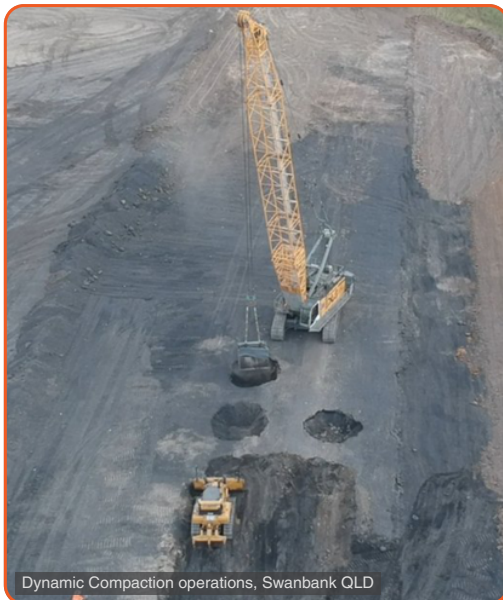
Grout cones were constructed at each treatment point by pumping grout through the borehole, permeating and interlocking within the collapsed workings to create a competent, stable ground mass. Monitoring holes provided post-grouting camera inspection confirming grout distribution and fill. UCS testing of grout samples verified mix strength compliance throughout.



Drilling operations, Swanbank QLD



Grouting operations, Swanbank QLD



Dynamic Compaction operations, Swanbank QLD

DYNAMIC COMPACTION (DC)

Two historical open cut coal pits within Precinct 4 had been progressively backfilled over many years with uncontrolled fill of variable density, compressibility and thickness. Across a combined treatment area of 28,868 m², this fill was unsuitable in its existing state for industrial lot development.

DGSA mobilised its dynamic compaction crane with a 25t primary pounder to densify the backfill to a 10 m deep raft of improvement, followed by a 20t ironing pounder pass to produce a uniform, trafficable surface. Pre and post-compaction CPT tests confirmed improvement to the specified design criteria, enabling confident progression of civil and infrastructure works.

OUTCOME

DGSA's combined mine remediation and dynamic compaction programme successfully de-risked the Briswest Precinct 4 development footprint. All three historic colliery systems were remediated using targeted grout permeation and grout cone construction within the collapsed workings, verified by borehole camera inspection, monitoring holes and UCS tests at each treatment location. The 28,868 m² dynamic compaction programme brought both open cut pit footprints to a uniform, competent bearing standard, confirmed by 57 pre and post-treatment CPT tests. Works were completed within programme, enabling Briswest to progress lot development across the full precinct on schedule.