

Soto Norte Project Sociedad Minera de Santander

Location: Bucaramanga, Colombia

Date: 2017 - present

Structure: Mine Access Tunnels

Length: 8.2 miles (13.2 km)
Total Length (Two Bores)

Cross-Section: 26.9 ft (8.2 m) Diameter

Geology: Precambrian gneiss and intrusions of the Santander Massif with sedimentary and volcanic sequences. Limestone, shale, and sandstone (the Andes).

Cost: \$160 Million

Client: Sociedad Minera de Santander

Owner: Sociedad Minera de Santander

Gall Zeidler Consultants (GZ) is providing Minesa technical and advisory support during the early stages of project development. Our work includes the review and assessment of the geotechnical conditions along the tunnel alignment, providing recommendations for the execution of the tunnels, conceptual tunnel support design, development of TBM specifications, assist in the production of procurement documents, as well as, review and assess TBM Supply and TBM Operations proposals. GZ's technical and advisory support will continue during construction.



Figure 1. Geologic Plan View of the Soto Norte Project.

Consulting Services: Tunnel Rock Bolt Design and Geologic Evaluation Review:

Minesa plans to commission the Soto Norte Project to reach a gold deposit located ~34 miles (~54 km) northeast of Bucaramanga, the capital city of Santander. The project aims to produce more than 9 million ounces of gold over a lifetime of approximately 26 years, with an estimated investment of \$1 Billion over the next 5 years, with approximately \$160 million for the construction of the mine access tunnels.

Approximately 4.1-mile-long (6.6 km) twin tunnels are required to reach the gold deposit from the chosen portal area. These tunnels have a parallel alignment for approximately half of the tunnel length, with the upper bore remaining at roughly the same elevation along the alignment. Meanwhile the haulage tunnel will traverse a 10% decline halfway and level out at the bottom of the ore body. Excavation of the twin tunnels will be carried out by a combination of conventional tunneling and Tunnel Boring Machine (TBM) tunneling methods. The conventional tunneling will be implemented over the initial ~500 m of the alignment, followed by TBM excavation up to the end of the alignment.

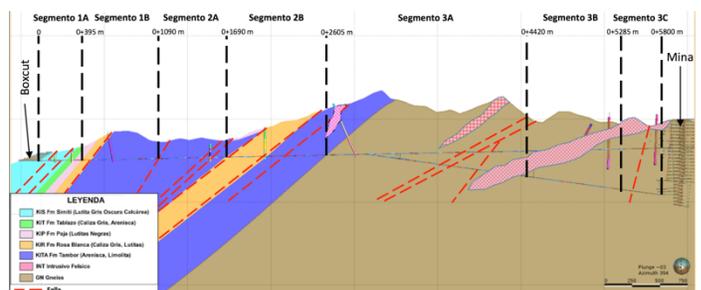


Figure 2. Geotechnical Segments along Tunnel Alignment.