



Precision Trenching & Drilling owner Rob Johnson in front of their Tesmec TRS 1100.

by Rita Tubb ■ Managing Editor

# Rock Trenching

Solves Hard Rock Soil Condition Problems

With more and more rigorous restrictions against the use of dynamite and blasting, rock trenching versus the process of drilling, blasting and excavating has gained momentum. While rock trenching is not new, contractors with rock trenching expertise are called on to handle challenging projects in problem areas. And that's precisely how Precision Trenching & Drilling L.L.C. of Broomfield, CO, became involved in a project at Red Feather Lakes, CO.

An area contractor, charged with installing 30,000 feet of eight-foot deep, 30-inch wide trench in hard rock soil conditions in Red Feather Lakes, felt that progress on the project was too slow using traditional blasting and track-hoe excavating techniques and called on Precision Trenching & Drilling to complete the project.

When Precision Trenching & Drilling arrived on the job, they knew it presented some challenges. The original contract called for installing 30,000 foot of trench to accommodate a 4-inch diameter water main and a 6-inch diameter sewer main.

## Pristine location

The job was located on a 100-acre site in a remote and pristine area of Red Feather Lakes that housed a Girl Scout camp. The facility had been purchased by the Girl Scouts in 1932 and designated the Magic Sky Facilities. It had four small lodge cabins and a larger Magic Sky Lodge facility. All are located in an area with an abundance of Ponderosa Pines.

The Ponderosa Pines average 100 to 160 feet in height, with some exceeding 180 feet. The trees range from two to four feet in diameter, with the rate of growth depending upon altitude, soil, temperature and rainfall.

Most Ponderosas grow, mature and survive for about 125 years before they are lost to natural causes such as rot, insect damage, fires or wind throw. Occasionally, a lone specimen will survive for nearly 200 years.

Given the beauty of these trees, it is not surprising that the owners did not want any tree damage to occur during the installations.

While the original contractor had completed roughly two-thirds or 20,000 feet of the trenching on the job, 10,000 feet of trench remained to be cut.

Ron Johnson, owner of Precision Trenching & Drilling, said that the job presented some challenges. "We had to carefully negotiate the route of the trench in order to preserve the trees. Also, we encountered some steep terrain near the cabins.

"Nevertheless," he continued, "Once the Tesmec TRS 1100 trencher began work, the productivity achieved proved impressive. The savings were indisputable when the actual result of the two methods – blast and excavate versus rock trenching – were compared," (Figure 1).

## Quieting skeptics

While it was expected the rock trencher could reduce the massive equipment and labor requirements on the job, Johnson

noted some of those involved were skeptical that the rock trencher could cut the hard rock.

In citing actual advantages the trencher provided, Johnson said major cost savings were realized from the considerable reduction in time that it took to complete the job. Material and time savings also occurred because the trenched spoil was suited for use as direct bedding and backfill.

In discussing other advantages, he noted that the trencher leaves a level trench bottom of fine material which allowed the plastic pipe being installed to be laid without bedding. "We were able to push the fine material that was wind-rowed next to the trench back into the trench to bed the lines. The balance of the spoil was then compacted over the lines," he said. "This made restoration considerably easier and quicker as less ground was disturbed and it required less time and effort to restore the site to its original condition."

Johnson said that because the job was carried out over the Thanksgiving and Christmas holidays it took about eight weeks to complete. Nevertheless, over the course of the project, the trencher consistently cut about 450 feet of rock a day. In the end, it was a win-win situation for everyone involved, says Johnson. Use of the trencher cut overall costs, helped expedite the project, and the owners benefited by eliminating damage to area trees and the loss of aesthetics.

## FOR MORE INFORMATION

### Rock trenchers:

Tesmec, (800) 851-5102, tesmec.com

### Trenching contractor:

Precision Trenching & Drilling,

(303) 469-5904

Figure 1

### Cost Comparison

	Blast & Excavate	Rock Trencher	Savings
Equipment units required	10	5	50%
Estimated monthly rental costs	\$95,200	\$53,000	44%
Crew required	11	4	64%