

Tightly Controlled Blasting in Suburban Boston Mall

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Urban blasting is never easy, but when the project involves removal of a broad, rocky hilltop between a shopping mall and local businesses, the work may be in a class by itself.

That's what happened at Danvers, MA, a suburban area along I-95 about 15 minutes north of Boston. R.J. Cincotta, Inc., Waltham, MA, was selected as the general contractor for the preparation of a 12 acre site which will become a new 150,000 square foot warehouse for a major "buying club" company in New England called B.J.'s Warehouse.



The Cincotta firm was responsible for excavation of 130,000 cubic yards of rock, grading, foundations and utilities – a \$3 million contract which also includes construction of a large retention basin. Work commenced in January 1992. Drilling and blasting operations were completed in early April and final completion of the Cincotta contract was scheduled for June 1992.

The Danvers Mall project is the first in which the firm also handled the drilling and blasting. This was carried out by a new subsidiary, Mass Blasting, of Waltham. Twin brothers Ronald and Richard Cincotta supervised the project which was coordinated by Tom Lynch. Mann Snno was Project Superintendent for R.J. Cincotta while **Tim Leslie** (shown) was Chief Blaster for Mass Blasting. There were 27 employees on the project.



The site – at the rear of Endicott Plaza – is almost totally surrounded by buildings. On one side, the entire length of the site runs parallel to, and only 50 feet from, the rear of a major discount department store. Here, a 40-foot high wall was left standing when the mall was built.

Drilling and Blasting

Local Fire Department regulations are stringent for blasting. All shots had to be matted and holes per delay were kept to a minimum. Prior to shooting, a Fire Department representative was present to make certain that all roads through the site were blocked off and proper safety precautions were observed.

Mass Blasting used three Ingersoll-Rand VL140 track drills to drill 3-inch diameter holes on a standard 6 x 6 pattern. Hole depths ranged from eight to 40 feet with an average of seven feet of stemming. Tim Leslie primed each hole with a 2 x 16-inch cartridge of POWER PRIMER dynamite and a MASTERDET electric delay detonator. In wet holes, 2 x 16-inch cartridges of APEX 240 emulsion were loaded up to dry and the hole was topped off with ANFO. Holes were carefully measured before loading. Column buildup was closely monitored using a calibrated loading pole, especially when topping off with ANFO loaded from 50-pound bags. Shot size was limited to 22 holes.



Despite the restrictions and close quarters, Leslie was able to shoot an average of 100-125 holes per day. All shots were seismographed at permanent monitoring locations at the four closest buildings and a “rover” seismograph was used for selective monitoring. Maximum vibration level permitted was two inches per second and shots were analyzed by an independent firm, Vibration Consultants, Inc., of Wakefield, MA.

Most of the rock excavated was granite which underlies the entire site. Surface rock includes some siltstone. Fragmentation was more than adequate despite the high stemming and extensive surface weathering.



Equipment for excavation includes six Cat 235 backhoes, three 25-ton rear dumps, one D8N, one D9N, one D4 and a D4C. Cincotta will crush about 60,000 yards of rock on the site using a Brown-Lenox 24x42 portable crusher capable of crushing 1200 tons per day. About 45,000 tons were used in constructing the retention basin. Explosives were delivered in the

morning by Pioneer Explosives Inc., an ICI Explosives distributor, from its nearby Templeton, MA magazine site. Unused explosives were picked up by Pioneer at the close of the working day. There was no explosives storage on-site. Pioneer’s driver, Al McDonald, an experienced shot service technician, assisted Leslie and Phil Holmes of Mass Blasting in hole loading.

Sales and service to the project were coordinated by Vinnie Thorne, Eastern Regional Technical Sales Rep for ICI Explosives. Thorne worked closely with Tim Leslie in selection of explosives and the initiation system and in developing the production schedules for blasting and excavation.

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