

**Carolina Drilling, Inc.
326 Railroad St.
Mocksville, NC 27028**

January 23, 2024

Customer: Gaines

**Project: Atherstone development
Drilling and blasting for sewer line**

SAFETY PROCEDURES FOR BLASTS

All operations for transporting, handling, and loading explosives shall observe applicable industry standards *and* regulations as defined by the appropriate city, county, state, or federal governing agency. All blast events will be conducted in such a manner that complies with all safety cautions, procedures, or regulations of the applicable city, county, state, or federal governing agency. This includes, but is not limited to: clearing the blast zone, guarding the blast area, and vehicular or pedestrian traffic control. No explosives will be stored on site.

TEST BLASTS

Initial blasts shall be evaluated as test blasts, with analysis of monitored blast effects to be used for revision of blast design (if necessary) for subsequent blasting. Monitoring data will be evaluated on a continuing basis throughout the blasting phase, so that blast design alterations can be implemented if such need is indicated.

BLAST SITE DIMENSIONS

Blasts will consist of approximately 24-200 holes. The depth of rock is somewhat variable (4-12ft). Approximately 450 cubic yards of material is expected to be blasted on this project.

DRILL PATTERN

The proposed pattern is to drill 3.5" diameter boreholes with a 5 feet by 5 feet staggered pattern.

BLASTS REQUIRED

Several blasts over a few days period will be required for this project.

EXPLOSIVES LOADING & INITIATION

The type of explosives to be used will be Riohit 250MS 2.5" x 7, Riodin HE 2 x16 and ANFO for the main charges in each borehole, initiated with an appropriate detonating booster charge. The main charges weigh approximately 2.5 to 3.5 pounds per foot and the total charge per hole will be decided on proximity to nearest dwellings, site specific conditions and as determined by the drill depth of boreholes. Booster charges can be cast boosters or other cap-sensitive charge, the choice of which will be the discretion of the blaster in charge. The type of delay system will be Zipdet DD 25/500. The sequence will be 25ms. The maximum of explosives on any one delay period will be 20 lbs.

This project is expected to require 900 lbs of explosives. The blast will utilize approximately 5 lbs to 20 lbs of explosives per delay depending on the proximity to nearest dwellings.

As one means to control ground movement, sufficient inert stemming material will be loaded at the top of each borehole, beginning below the depth where competent rock was encountered. Stemming height will be determined by the discretion, experience and judgment of the blaster in charge, and site-specific conditions for each shot.

GROUND CONTROL

All blasts shall have sufficient cover of natural soil materials so as to prevent excessive movement of material from the blast zone or project site. Sufficient cover will be determined by the experience and judgment of the blaster in charge. The overburden on this project is 0-10 feet. The blaster will include in their consideration such factors as rock type, geologic conditions, borehole depth, charge weight, and any other relevant, site-specific conditions for each shot. If the blaster in charge determines there is not sufficient natural cover, additional soils should be placed atop the blast zone according to the blaster's instructions. In certain circumstances, artificial matting could be required, also according to the blaster's determination.

MONITORING BLAST EFFECTS

Seismic monitoring will be conducted by an independent third party, S&ME. Seismographs will be placed at the nearest residence to blast site.

BLAST WARNING SIGNALS

Warning signals for each blast will be as follows:

Three long sounds of horn five minutes prior to the blast.
Two short sounds of horn one minute before the blast.
One long sound of horn for all clear after the blast.

BLAST RECORDS

A record of each blast will be kept with the date, time, location, total amount of explosives, maximum explosive charge weight per delay and where necessary seismograph records identified by instrument number and location. These files will be kept in Carolina Drilling, Incs office at: 326 Railroad St. Mocksville, NC 27028