

SECTION 02202

ROCK REMOVAL

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Removal of discovered rock during excavation.
- B. Use of explosives to assist rock removal.

1.02 RELATED WORK

- A. Section 02205 - Excavation and Backfilling.

1.03 REFERENCES

- A. NFPA 495 - Code for the Manufacture, Transportation, Storage, and Use of Explosive Materials.

1.04 QUALITY ASSURANCE

- A. Seismic Survey Firm: Company specializing in seismic surveys with five years documented experience.
- B. Explosives Firm: Company specializing in explosives for disintegration of subsurface rock with five years documented experience.

1.05 REGULATORY REQUIREMENTS

- A. Conform to state, DEP and PA DOT codes for explosive disintegration of rock.
- B. Obtain permits from authorities having jurisdiction before explosives are brought to site or drilling is started.

1.06 SUBMITTALS:

- A. Submit two (2) copies of blaster's license to the Engineer.
- B. Provide a descriptive procedure of either mechanical or blasting methods to the Engineer for review. Indicate all safety measures to be in effect during blasting operations.
- C. Provide daily blasting reports to the Engineer.
- D. Provide Blasting Bond if required.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Rock (Definition): Solid mineral material with a volume in excess of 1/2 cu yd or rock that cannot be removed by a hydraulic excavator with a minimum manufacturer's operating weight of 41,000 pounds, 118 flywheel horsepower at 1800 rpm (Caterpillar E200 B EL equivalent or larger) and minimum 3 foot wide heavy duty bucket with rock teeth.
- B. Explosives: Type recommended by explosives firm following seismic survey and required by authorities having jurisdiction.
- C. Delay Devices: Type recommended by explosives firm.
- D. Blasting Mat Materials: Type recommended by explosives firm.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify sites conditions and note irregularities affecting work of this Section.
- B. Beginning work of this Section means acceptance of existing condition.

3.02 ROCK REMOVAL - MECHANICAL METHOD

- A. Excavate for and remove rock by the mechanical method.
- B. Cut away rock at excavation bottom to form level bearing.
- C. Remove shaled layers to provide sound and unshattered base for footings.
- D. In utility trenches, excavate to 6 inches below invert elevation of pipe and to a width shown on the Contract Drawings or 24" total width if not specified.
- E. Remove excavated material from site.
- F. Correct unauthorized rock removal in accordance with backfilling and compaction requirements of Section 02225.

3.03 ROCK REMOVAL - EXPLOSIVES METHODS

- A. Rock, if any, may be removed by light blasting, to the extent permitted or directed, with explosives of such power and in such quantities and positions as will neither crack nor damage the rock upon or against which masonry is to be built, and as will neither crack nor damage nearby existing structures. Blasting will not be permitted within fifteen (15') of existing masonry or within 5 feet (5') of any water or sewer pipeline. Whenever, in the opinion of the Engineer, further blasting is likely to injure the rock upon or against which the masonry may be built; or is

- likely to damage existing structures, related works, or new construction, blasting shall be discontinued and the excavated rock shall be continued by wedging and barring, by paving breaker, or other approved methods.
- B. Blasting shall be conducted so as not to endanger persons or property, and whenever required, blasts shall be covered or otherwise satisfactorily confined. Contractor shall be held responsible for and shall make good any damage caused by blasting or accidental explosion.
 - C. Blasting for excavation will be permitted only after securing the written permission of the Authority. The Authority reserves the right to regulate the time of blasting. All handling of explosives and blasting operations shall be done by a workman qualified for this work and so licensed.
 - D. All blasting shall be conducted and governed by rules and regulations outlined by Pennsylvania DER in Title 25, Article IV, Chapter 21, entitled "Storage, Handling, and Use of Explosives".

END OF SECTION