



APEX
CLEAN ENERGY

Heritage Wind, LLC

Preliminary Blasting Plan

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Apex Clean Energy
310 4th Street NE, Suite 200
Charlottesville, VA 22902

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1.0 PROJECT DESCRIPTION

The Heritage Wind Energy Facility (hereafter referred to as Project) is a utility scale wind farm project proposed by Heritage Wind, LLC (the Applicant), a wholly owned subsidiary of Apex Clean Energy. The Project includes the construction and operation of up to 35 wind turbines, access roads and collection lines, a meteorological tower, an operations & maintenance building, a collection substation, and a point of interconnection substation in the Town of Barre, Orleans County NY.

2.0 REQUIREMENTS FOR PROJECT

This is a preliminary plan. A Final Blasting Plan will be prepared by Apex and/or its contractor to account for final design and geotechnical analysis. The Final Blasting Plan will be reviewed and approved prior to implementation of blasting activities. Geotechnical borings will be conducted as determined necessary by a professional engineer to allow foundation design to be finalized for the turbine and substation locations, and possibly also the meteorological tower location, depending on the selected site.

Although mechanical excavation with a pneumatic hammer or large ripper may be possible for bedrock encountered, particularly the upper few feet, in some cases blasting may be required. In these cases, blasting will likely generate less noise and take less time. At the time of construction, the Applicant will determine where blasting may be needed, and the extent required, considering noise impacts, construction schedule and costs, the volume of rock encountered, the hardness of the rock encountered, required safety precautions, and other factors.

3.0 BLASTING OPERATIONS

Where blasting is deemed necessary, the final blasting plan shall be submitted to (and approved by) the NYS Department of Public Service (DPS), in writing. Blasting shall be performed only after approval has been given by the construction manager for such operations and must comply with the following provisions, as well as other conditions established by the DPS. Blasting operations will be performed by a blaster who is fully licensed and insured for the transportation, use, and handling of explosives in accordance with all applicable federal, State and local requirements. Blasting permits will be applied for as required from local authorities.

Any blasting operations will adhere to applicable New York State statutes and regulations governing the use of explosives. The State regulations are contained in 12 NYCRR Part 39 and in Industrial Code Rule 53, and include such requirements as: licensing of operators; magazine (explosive storage) certification; and procedures for conducting operations in a safe manner. All pertinent safety regulations and standards shall be applied as required for safety, security and other related details for any blasting deemed necessary. Additional applicable safety regulations include:

- Code of Federal Regulations A.T.F. Title 27.
- New York State Industrial Code Rule 53.
- Directive 495 standards of the National Fire Protection Association (NFPA).
- Occupation Safety and Health Administration (OSHA) standards, 29 CFR 1926.900 - 1926.914 and 1910.109.

- New York State Industrial Code Title 12- Part 39.
- Article 16 of the Labor Law of the State of New York.

3.1 General Procedures

In addition to the provisions identified in 29 CFR 1926.900, the following is a list of general procedures to be followed should blasting occur during Project construction.

4.0 STORAGE OF EXPLOSIVES

The storage of explosives shall be in accordance with applicable requirements of the United States Bureau of Alcohol, Tobacco, and Firearms and New York State Department of Labor. The storage area of all explosive materials shall be located on the site at a location approved by the supervising blasting engineer of the blasting subcontractor. Caps or other detonating devices will not be stored with Class A explosives. An accurate running inventory of all explosives and blasting agents stored at the Project shall be maintained: two copies shall be maintained - one at the magazine (storage area) and one in the main Project construction office which shall be at least 50 feet from the magazine. The designated storage site, explosive transporting vehicles, and areas where explosives are being used shall be clearly marked and will display the required warning signs. A daily tally of all explosives delivered, used and stored will be maintained at the main Project construction office.

5.0 TRANSPORTATION OF EXPLOSIVE MATERIALS

All vehicles/vessels transporting explosive materials shall display all placards, lettering, and/or numbering required. Only authorized persons will transport and handle the explosives as designated by the authority of those licensed for this purpose, vehicles transporting explosive materials shall not be left unattended.

6.0 HANDLING OF EXPLOSIVE MATERIALS

There shall be no smoking, open lights, or fire of any kind within 50 feet of any area where explosives are being handled. No source of ignition, except necessary means to light fuses or fire electric detonators, shall be permitted in an area containing loaded holes. Containers of explosive materials shall be opened only with non-sparking tools or instruments. Metal slitters may be used for opening fiberboard boxes, paper bags or plastic tubes. After loading of a blast is completed, all excess explosive materials and detonators shall be removed to a safe location or returned at once to the storage area, observing the same rules as when being conveyed to the blasting area.

Operations involving the handling or use of explosive materials shall be discontinued and personnel moved to a safe area during the approach or progress of a thunderstorm or dust storm; controls will be established to prevent accidental discharge of electric blasting caps from extraneous electricity.

7.0 VIBRATION AND DAMAGE CONTROL

Blasting operations in or adjacent to residences, buildings, structures, utilities or other facilities shall be carefully planned with full consideration for all forces and conditions involved.

Prior to blasting at each site, a pre-blast survey will be conducted. The pre-blast survey will inspect the blast area, and adjacent areas with 500'. The survey will document existing conditions and will include, but not be limited to: buildings/structures, water supply wells, utilities (above and below ground) within 500' of blasting locations. The survey will include written documentation as well as photographic documentation of existing conditions.

The minimum amount of blasting material shall be used to effectively fracture the competent rock for the excavation depth. Independent monitoring of vibration and air concussion levels shall be carried out by the contractor during all blasting operations.

The maximum allowable air-blast at any inhabited building not owned or controlled by the developer may not exceed 128 decibels peak when measured by an instrument having a flat response (+ or - 3 decibels) over the range of 5 to 200 hertz.

The maximum allowable air-blast at an uninhabited building not owned or controlled by the developer may not exceed 128 decibels peak when measured by an instrument having a flat response (+ or - 3 decibels) over the range of 5 to 200 hertz. Depending on building use (or lack thereof), the allowable air-blast may increase to 140 decibels peak.

8.0 DRILLING AND LOADING

All drill holes shall be sufficiently large to freely allow for the insertion of the explosives. Drilling and loading operations shall not be carried on in the same area. Drilling shall be separated from loaded holes by at least the depth of the loaded hole but in no case less than 50 feet. The loading or loaded area shall be kept free of any equipment, operations, or persons not essential to loading; no vehicle traffic shall be permitted over loaded holes; the blast site shall be guarded or barricaded and posted with danger signs to restrict unauthorized entry. No holes shall be loaded except those to be fired in the next round of blasting; after loading, all remaining explosive materials and detonators shall be immediately returned to an authorized magazine; no explosive materials or loaded holes shall be left unattended at the blast site at any time. Cartridges shall be primed only in the number required for a single round of blasting.

9.0 FIRING

Adjacent Property owners will be notified in advance of the commencement of construction by written notice. Such notice will describe construction operations sequences, including blasting, and will describe availability of updated construction schedules and provide contact information for concerns. Warning signs shall be provided at points of access to blasting areas.

Blasting operations immediately adjacent to overhead power lines, meteorological towers communications lines, utility services, or other structures shall not be carried on until the operators and/or owners have been notified and measures for safe control have been taken.

Prior to the firing of a shot, all persons in the danger area shall be warned of the blast and ordered to a safe distance from the area. Blasts shall not be fired until it is certain that

every person has retreated to a safe distance and no one remains in a dangerous location. Prior to the firing of a shot, a competent flag person shall be posted at all access points to danger areas.

Blasting machines shall be tested prior to use and periodically thereafter as prescribed by the manufacturer. Blasting machines shall be operated, maintained, and inspected as prescribed by the manufacturer.

All loading and firing shall be directed and supervised by one designated person who is licensed in New York State to handle explosives. The contractor or its subcontractor shall use sufficient stemming, matting or natural protective cover to prevent fly rock from leaving property owned or under control of the permittee or operator or from entering protected natural resources or natural buffer strips. Crushed rock or other suitable material must be used for stemming when available. Native gravel, drill cuttings or other material may be used for stemming if no other suitable material is available.

If a blast is to be initiated by detonating cord, the detonating cord must be covered by crushed rock or other suitable cover to reduce noise and concussion effects.

Blasted rock or boulders may be broken into a well graded mixture of the size recommended by the geotechnical engineer, and utilized in the nearest appropriate location (e.g., access roads). Should blasting occur, the procedure shall consist of implementing line control to full depth and then the use of controlled blasting techniques in one or more benches to create minimum breakage outside the line control but create maximum rock fragmentation within the target area. Prior to blasting, the applicable regulatory concerns/requirements shall be met.

10.0 POST-BLASTING

Following blasting operations, no explosive materials shall be abandoned. All refuse from explosive loading such as empty box paper, and fiber packing shall be burned at an approved location.

A record of each blast, including seismographic data, must be kept for at least one year from the date of the last blast by the general contractor, its subcontractor (if appropriate) and the Applicant, and must be available for inspection during normal business hours. The blast record shall contain, at a minimum, the following data:

- Name of blasting company or blasting contractor;
- Location, date and time of blast;
- Name and signature of blaster;
- Type of material blasted;
- Number and spacing of holes and depth of burden or stemming;
- Diameter and depth of holes;
- Type of explosives used;
- Total amount of explosives used;
- Maximum amount of explosives used per delay period of 8 milliseconds or greater;

- Maximum number of holes per delay period of 8 milliseconds or greater;
- Method of firing and type of circuit;
- Direction and distance in feet to the nearest structure (both owned and not owned) by the project developer;
- Weather conditions, including such factors as wind direction and cloud cover;
- Height or length of stemming;
- Amount of mats or other protection used;

At the completion of blasting, a post-blast survey will be conducted of the same facilities (structures, foundations, water supply wells, utilities, etc.) as documented during the pre-blast survey. Findings inconsistent with those reported during the pre-blast survey will immediately be provided to the contractor/subcontractor/Applicant, and will be documented in writing and photographs. Depending on the nature (and source) of the inconsistency, specific corrective actions will be developed in consultation with the affected party, and will set forth the method, procedures, and timing of implementation.

Safety Signals

All blasting operations shall use the following safety signals:

(1) WARNING SIGNAL - a one-minute series of long audible signals 5 minutes prior to blast signal;

(2) BLAST SIGNAL - a series of short audible signals 1 minute prior to the shot;

and

(3) ALL CLEAR SIGNAL - a prolonged audible signal following the inspection of blast area. Prior to blasting, necessary precautions for the protection of persons and adjoining property will be established. Such precautions shall include the following:

- A blasting mat will be placed over the blasting surface. The blasting mat will remain in place until all shots are fired in the blasting zone.
- Appropriate signs will be erected in the area of blasting activities.
- Notification of blasting at the site will be published in newspapers prior to the blasting schedule.
- A storm alert monitoring device will be used by the blasting contractor to detect any electrical build-up in the atmosphere at the blast area while using electrical caps.
- Special care will be taken with detonating cords and connectors to protect from the impact of falling rocks or other impeding objects.
- Vehicles equipped with radio transmitters and portable 2-way radios will not be permitted within 100 feet of blasting operations.

11.0 BLASTING HOURS

Blasting will occur only in daylight hours between 7 AM and 7 PM. Blasting will not occur on holidays.

13.0 COORDINATION WITH LOCAL SAFETY OFFICIALS

The Applicant and its contractors will work closely with local safety officials to apprise them of construction schedules, including blasting, and will coordinate with emergency facilities such as area hospitals and transportation services. Additional detail on emergency service coordination can be found in the Applicant's Emergency Action Plan.