

ALNA BLASTING ORDINANCE
FOR THE
TOWN OF ALNA, MAINE

ENACTED: March 29, 2025
Date

EFFECTIVE: March 29, 2025
Date

ATTESTED BY: Sarah Perkins
Signature

ATTESTED BY: Sarah Perkins
Print Name

Town Clerk
Title

Affix Seal

ALNA BLASTING ORDINANCE

Section 1: Applicability; Intent and Purposes of this Ordinance.¹

A. Applicability.

This ordinance shall apply to all blasting operations. Any person, corporation, or other legal entity intending to conduct a blasting operation must comply with the notice and record provisions of this ordinance set forth in Section 5, Section 4(B), and Section 8.

In addition, any person, corporation, or other legal entity intending to conduct any of the following categories of blasting operation must first submit an application and obtain Planning Board approval pursuant to the provisions of this ordinance:

- (1) Any blasting operation, other than a production blasting operation, with a blasting area of 1 acre or more;
- (2) Any production blasting operation with a blasting area of 1/2 acre or more; and
- (3) Any blasting operation with a blasting area of any size located within 250 feet of any structure on an adjacent parcel of land not owned by the applicant proposing such blasting.

B. Conflicts; Effect of Other Regulations. This ordinance does not replace or negate federal and/or state requirements pertaining to explosives. Nothing herein shall relieve the user of explosives from complying with any state or federal laws relative to the use of explosives. The requirements of this ordinance are in addition to any other ordinances, regulations, and laws. Where different standards are contained elsewhere, the more restrictive standards shall apply, except that this ordinance shall control with respect to application submission requirements, procedural requirements, or enforcement provisions.

C. Intent and Purposes. Blasting is a common, longstanding, and generally accepted activity in the production of various stone and gravel products in the mining and quarrying industries. It is also regularly employed in site preparation for building construction, and occasionally in farming. To avoid possible negative consequences that may derive from unregulated blasting, the Town of Alna establishes this ordinance. This ordinance establishes specific standards for blasting operations, notice requirements, instrument monitoring requirements of blasting operations, and a permit process for blasting operations. It is intended to:

- (1) Minimize the effects of airblast overpressure, ground vibration, dust, and

¹ Definitions of terms used herein can be found in Section 13.

noise associated with blasting which may be detrimental to the enjoyment of life, property, and the conduct of business for those individuals affected;

- (2) Provide standards that will prevent permanent damage to the geologic, hydrogeologic, and wildlife resources and ecological balance in the region outside the immediate blast area;
- (3) Protect the quality of life and the homes of residents, neighborhoods, property, groundwater, surface water, wildlife resources, scenic beauty and/or businesses, all lying outside the approved work area and potentially affected by the blasting; and
- (4) Be effectively and efficiently administered without causing undue financial and administrative hardship to blasting operators.

Section 2: Authority; Administration.

- A. Authority. This ordinance is enacted pursuant to Article VIII, Part Second, of the Maine Constitution, 30-A M.R.S.A. § 3001 *et seq.*, and any other enabling statutes. This ordinance constitutes and may be known and cited as the “Alna Blasting Ordinance.”
- B. Administration. This ordinance shall be administered by the Planning Board of the Town of Alna.

Section 3: Permit Required; Applications; Hearings; Fees; Bond and Insurance; Permit Expiration.

A permit from the Planning Board shall be required for all blasting operations identified in Section 1.A.(1), (2), and (3) and shall be obtained prior to conducting any blasting with explosive devices or materials.

- A. Applications. Applications for a permit may be obtained in the Town Office or on the Town website.
- B. Submission Requirements. Applications for blasting permits shall contain the following information:
 - (1) The name, address, email address and phone number of the applicant.
 - (2) The name, address, email address and phone number of the property owner.
 - (3) The Town of Alna Tax Assessor’s map and lot number(s) for the parcels identified in the application.
 - (4) The name, address, email address and phone number of the person responsible for the blasting operation.

- (5) The locations of the proposed blasting activity.
 - (6) The estimated total number of cubic yards of material, not including overburden, to be removed by blasting.
 - (7) An estimate of the number of blasts required to remove the specified amount of material.
 - (8) A description of the blasting operation for which the blasting is being undertaken.
 - (9) Adjacent land uses.
 - (10) The location of adjacent structures and distance to those structures.
 - (11) The projected dates that blasting is to be undertaken.
 - (12) Any other information deemed necessary by the Planning Board.
- C. Written Decision. Upon a determination by the Planning Board that an application is complete for processing, the Planning Board shall review and act upon the application within 90 calendar days. The Planning Board must issue a written decision to approve, approve with conditions, or deny the application based on the performance standards contained in Section 6. The applicant must be notified in writing by first-class mail within 10 days of the decision.
- D. Public Hearing. A public hearing shall be held on all blasting applications.
- (1) The applicant shall send a notice of public hearing to all property owners within 1,000 feet of the boundary lines of the property for which a permit is requested, by first class certified mail, return receipt requested, at least 10 days prior to the date of the public hearing. The notice must contain the date, time, and location of the public hearing and a general description of the proposal. A list of names and mailing addresses of the recipients of said notice shall be provided to the Planning Board as part of the application.
 - (2) Notification of the public hearing shall also be given by the Planning Board or its designee in a newspaper of local publication twice, the first time being at least two weeks prior to the date of the public hearing and the second time at least one week prior to the date of the public hearing. The cost of these publications shall be paid by the applicant upon demand by the Town of Alna.
- E. Fees. All applications for blasting permits shall be accompanied by a fee according to the fee schedule established by the Alna Select Board.
- F. Bond and Proof of Insurance.

- (1) The Planning Board may require, as a condition of approval, the applicant and/or the blaster to post a blasting operator surety bond that guarantees that the blasting operator will comply with all applicable laws and regulations, including this ordinance, that explosives will be handled safely, and that the public will be compensated if the blaster fails to detonate explosives safely. The bond shall be in such form and amount as determined by the Planning Board or its designee.
- (2) The applicant shall present proof of liability insurance with a policy limit of not less than \$2,000,000 combined single limit per occurrence for production blasting, and \$1,000,000 combined single limit per occurrence for other blasting.

G. Permit Expiration. Permits shall expire 365 days from the date of approval.

Section 4: Performance Standards.

Blasting operations requiring Planning Board approval pursuant to Section 1. A must comply with the following performance standards. The burden of proof rests on the applicant.

A. State Law Compliance. Except as specifically set forth in Section 4.A.(1), (2), and (3) below, the blasting standards in 38 M.R.S.A. § 490-Z(14), as they may be amended from time to time, shall apply to the blasting operation.

- (1) The stricter of the standards set forth in this Section 4 or in 38 M.R.S.A. § 490-Z(14) shall apply. If 38 M.R.S.A. § 490-Z(14) is amended to be less restrictive than the standards set forth in this Section 4, such amendments shall not apply.
- (2) All notices sent to the Maine Department of Environmental Protection (the "DEP") pursuant to 38 M.R.S.A. § 490-Z(14) shall simultaneously be sent to the Town Clerk of the Town of Alna.
- (3) Waivers or variances granted by the DEP shall not be binding on the Town unless a comparable waiver is granted by the Planning Board pursuant to Section 10.B.
- (4) A valid DEP permit must be submitted to the Planning Board for any blasting operation requiring such permit pursuant to 38 M.R.S.A. § 490-Z(14).

B. Hours of Detonation.

- (1) Hours of detonation for production blasting operations shall be no earlier than 10:00 a.m. or later than 1:00 p.m. Monday through Friday inclusive.
- (2) Hours of detonation for all blasting operations other than production

blasting operations, and for drilling in preparation for both production and non-production blasting operations shall be no earlier than 8:00 a.m. or later than 4:00 p.m. Monday through Friday inclusive.

- (3) In no case shall blasting or drilling occur on weekends or the following legal holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Veterans Day, Thanksgiving and Christmas.
- C. Wildlife and Plant Protection. The blasting operation shall not impair, disturb, or displace any federal or state-listed rare, threatened or endangered form of animal or plant life; nor shall the blasting operation destroy or impair any wildlife habitat that could be avoided by modification of the proposed operation. A written or electronic communication from the Maine Department of Inland Fisheries and Wildlife, concerning animal life, and the Maine Department of Agriculture, Conservation & Forestry, Natural Areas Program, concerning plant life, indicating that the blasting operation will not impair, disturb, or displace, nor endanger, or destroy such animal or plant life in any significant way shall be *prima facie* evidence of such determination.
- D. Surface Water and Groundwater Protection. The blasting operation shall not impair or degrade groundwater or surface water quality.-
- (1) Water quality and quantity shall be documented by pre-blast and post-blast surveys in the nearest well not owned by the applicant located within 250 feet from the property line and/or by any other means and testing sources identified by the Planning Board. Post-blast testing shall be done no sooner than 24 hours and no later than 48 hours following a blast. Turbidity in wells tested shall be no greater than that which existed prior to the blasting as established in the pre-blast survey if such survey has been completed.
 - (2) No blasting operation shall cause excavation or extraction to occur within 5 feet of the seasonal high ground water table, except as follows.
 - (a) For any blasting operation operating pursuant to a permit or approval granted by the Planning Board prior to the effective date of this ordinance, no such blasting operation shall cause excavation or extraction to occur within 2 feet of the seasonal high ground water table.
 - (3) The applicant shall submit a site-specific groundwater and surface water quality monitoring plan that specifies the locations, timing, and parameters to be measured as part of pre-blast and post-blast testing. At a minimum, water quality testing parameters shall include turbidity, blasting chemicals, volatile organic compounds and semi-organic compounds, metallic metals, radon, specific conductance, sodium, chloride, iron, manganese, nitrate, nitrite, PFAS, pH, Ammonia and perchlorate.

- (4) Where the Planning Board determines that a blasting operation may impact groundwater or surface water or drinking water supplies, the applicant shall perform such additional pre-blast and post-blast water quality tests or hydrogeological studies as the Planning Board determines is necessary for the applicant to develop a water quality monitoring program in order to monitor any adverse impacts of the operation on the quality or quantity of surface water, groundwater, and drinking water supplies. Testing shall not be required if all of the abutting property owners refuse access to their property or decline such testing in writing.
 - (5) Explosive products shall be selected that are appropriate for site conditions and safe blast execution, and that have adequate water resistance to minimize the potential for groundwater contamination.
 - (6) Muck piles (the blasted pieces of bedrock) and rock piles shall be managed so as to reduce the potential for surface water and groundwater contamination including by removing the muck pile from the blast area as soon as practicable and by managing the interaction of blasted rock piles and stormwater to prevent contamination of surface water and groundwater.
- J. Qualified Blaster. All blasting operations shall be conducted by a blaster who is licensed and insured for the transportation, use, and handling of explosives and by experienced, trained, and competent personnel who understand the hazards involved and have demonstrated knowledge of safety requirements and current applicable regulations.
- K. Blasthole Loading Practices. The following blasthole loading practices shall be followed:
- (1) Drilling logs shall be maintained by the driller and communicated directly to the blaster. The logs shall indicate the depths and lengths of voids, cavities, and fault zones or other weak zones encountered, as well as surface water and groundwater conditions.
 - (2) Explosives shall be managed on-site so that they are either used in the borehole, returned to the delivery vehicle, or placed in secure containers for off-site disposal.
 - (3) Spillage around the borehole shall be placed in the borehole or cleaned up and returned to an appropriate vehicle for handling or placement in secured containers for off-site disposal.
 - (4) Loaded explosives shall be detonated immediately and shall not be left in the blastholes overnight, except when safety or weather requires detonation to be postponed.
 - (5) Loading equipment shall be cleaned in an area where wastewater can be

contained and disposed of in a manner that prevents release of contaminants to the environment.

- (6) Explosives shall be loaded to maintain good continuity in the column load to promote complete detonation. Industry accepted loading practices for priming, stemming, decking, and column rise need to be attended to.

Section 5: Notices.

- A. All production blasting operations shall have notices of such blasting published in a newspaper of local publication and mailed by first class certified mail, return receipt requested, to all property owners within 1,000 feet of the boundary lines of the applicant's property where blasting is proposed, at least 10 days prior to the intended date of the commencement of blasting. The notice shall include, at minimum, the anticipated dates and times of each blast; a description of the blasting signals to be used during the operation; and an address, e-mail, and telephone number where property owners may request further information and notification. Any property owner requesting further information or notification shall be instructed in the notice to do so in writing to the person conducting the blasting operation.
 - (1) Prior to any blast, the person responsible for the blast shall inform all property owners who have made a request to the applicant in writing to be so informed of the impending blast. Such notification shall be given by telephone 24 hours prior to the blast stating the time of the blast within one hour. Signs shall be posted on the day of blasting along public roads that there will be blasting.
- B. Any person intending to perform blasting not requiring a permit pursuant to Section 1.A. shall notify the CEO, the Town Clerk, and all abutting property owners that a blast is planned. Such notification shall be received at least 24 hours prior to the planned detonation and shall give the time (within two hours), location where blasting is to be done; the amount of explosives to be used; and the name, e-mail, telephone number, and business address of the person responsible for the blasting operation. Additional notification shall be received at least one hour prior to the planned detonation and shall give the time (within 30 minutes). The notification may be given orally to the CEO and the Town Clerk.

Section 6: Instrumentation.

All seismographs used for compliance with this ordinance shall meet the following minimum specifications:

- A. Seismic frequency range: two to 200 Hz (\pm three \pm Hz).
- B. Acoustic frequency range: two to 200 Hz (\pm one \pm db).
- C. Particle velocity range: 0.02 to 4.0 inches per second.

- D. Sound range: 110 to 140 dB linear.
- E. Transducers: three mutually perpendicular axes.
- F. Recording: provide time-history of waveform.
- G. Calibration: be laboratory calibrated as often as necessary, but at least once every 12 months according to manufacturer's recommendations.

Section 7: Inspection and Monitoring.

The CEO or their designee may conduct tests and observe any blasting operations, and for any blasting operation approved by the Planning Board may also order that additional ground vibration and airblast overpressure measurements using approved instrumentation be made by the blaster to ensure that the performance standards specified in Section 4 are not exceeded.

Section 8: Record.

The blaster shall maintain a record of each blast. All records shall be retained for at least three years following cessation of the blasting operation, shall be available for inspection by the CEO upon request, and shall contain the following minimum data:

- A. The name of the blaster and, if different, the person responsible for the blasting operation.
- B. The location, date, and time of the blast.
- C. The name, signature and social security number of blaster.
- D. The type of material blasted.
- E. The number and spacing of holes and depth of burden or stemming..
- F. The diameter and depth of holes.
- G. The types of explosives used.
- H. The total amount of explosives used.
- I. The maximum amount of explosives per delay period of eight milliseconds or greater.
- J. The maximum number of holes per delay period of eight milliseconds or greater.
- K. The method of firing and type of circuit.
- L. The weather conditions (including such factors as wind direction, cloud cover, etc.).

- M. The height or length of stemming.
- N. The type of mats or other protections, if used.
- O. The type of detonators used and delay periods used.
- P. The exact location of each seismograph and the distance of each seismograph from the blast.
- Q. The seismograph and airblast readings, when measured, and from where measured.
- R. The name and signature of the person operating each seismograph.
- S. The names of the person and the firm analyzing the seismographic data.
- T. **If DEP shall, from time to time, require the maintenance of additional data, the blaster shall provide such additional data to the Planning Board.**

Section 9: Compliance schedule.

- A. Blasting operations lawfully in existence at the time of adoption of this ordinance may continue to operate pursuant to the previous applicable laws, rules, and permit approvals for a period of six months from the effective date of this ordinance. Thereafter, all preexisting blasting operations shall comply with the provisions of this ordinance.
- B. A complete review of all activities under this ordinance shall be undertaken by the CEO and the Planning Board 12 months after adoption of this ordinance to determine if the provisions of this ordinance are adequate and reasonable to achieve their intended purposes. The results of this review shall be reported to the Alna Select Board.

Section 10: Exceptions; Waivers of Submission Requirements and Performance Standards.

- A. Emergencies. Blasting operations are exempt from the permitting requirements of this ordinance if the Code Enforcement Officer (“CEO”), after consultation, if reasonably practicable, with the Select Board, determines that the blasting operation is necessary due to an emergency. Emergency situations may include, but are not limited to, blasting to install utilities damaged by weather events or blasting to correct a misfire of explosives in an otherwise permitted blast event.
- B. Waivers. Petitions for a waiver from one or more of the application submission requirements in Section 3.B or the performance standards in Section 4 of this ordinance may be made to the Planning Board as part of any application submitted under this ordinance. Any waiver granted hereunder shall be in writing, shall enumerate any conditions upon which said waiver has been granted, and,

for waivers of a performance standard, shall specify a reasonable time that the waiver shall be applicable.

- (1) The Planning Board may grant a waiver of a submission requirement if the Planning Board determines that the submission is not necessary for the Planning Board to determine an application's compliance with the requirements of this ordinance.
- (2) The Planning Board may grant a waiver of one or more performance standards only if:
 - (a) The blasting operation will involve a limited number of blasts at a specific site and cannot be completed in a manner that would comply with this ordinance because of circumstances beyond the control of the applicant or landowner;
 - (b) No other reasonable alternative is available to the applicant; and
 - (c) The applicant represents, and the Planning Board finds, that the blasting operation will not pose a safety risk or danger to the public.

As part of granting a waiver of one or more performance standards, the Planning Board may prescribe any conditions that it deems necessary to avoid or minimize the adverse effects of the blasting operation upon the community.

Section 11: Violations and Penalties.

The CEO is responsible for enforcing the provisions of this ordinance and the conditions of any permit or approval issued hereunder. The submission of false information required by this ordinance or the violation of this ordinance or the violation of any condition attached to a permit granted under this ordinance shall constitute a land use violation. The CEO may conduct site inspections to ensure compliance with all applicable laws, and all conditions attached to permits and approvals under this ordinance. The CEO shall investigate all written complaints of alleged violations of this ordinance. If, after investigation, the CEO finds that a provision of this ordinance or a condition of a permit or approval issued hereunder has been violated, the CEO must give written notice of the violation to the violator, indicating the nature of the violation and ordering any action necessary to abate it. If, after notice and demand, a violation has not been abated, the CEO shall refer the matter to the Alna Select Board, which may institute in the name of the town of Alna any and all actions and proceedings that the Select Board deems necessary or appropriate to prevent, correct, restrain, or abate any violation of this ordinance. Any person who violates any term of a permit or approval or any provision of this ordinance is subject to such fines, penalties, actions and orders as are authorized by 30-A M.R.S.A. § 4452. A fine or penalty may be imposed for each violation. Each day that a violation continues constitutes a separate offense.

Section 12: Severability.

If any provision of this ordinance is declared unconstitutional or held invalid by a court of competent jurisdiction, it shall not affect any other section, clause, or provision thereof, but the same shall remain in full force and effect.

Section 13: Definitions.

As used in this ordinance, the following terms shall have the meanings indicated:

A. AIRBLAST

An airborne shock wave resulting from detonation of explosives. "Airblast" may be caused by burden movement or the release of expanding gas into the air. "Airblast" may or may not be audible.

B. APPLICANT

The owner or other individual, corporation or other business entity who or which applies for the legal right to conduct blasting at real property which it has the legal right to use and is responsible for managing and conducting blasting operations.

C. BLAST SITE

The area where explosive material is handled during the loading of drilled blastholes, including the perimeter formed by the loaded blastholes and 50 feet in all directions from loaded blastholes [see 38 M.R.S.A. § 490-W(5)].

D. BLASTER

An applicant who has been granted a Planning Board permit to conduct a blasting operation.

E. BLASTING

The use of explosives for the purpose of producing an explosion to demolish structures or to fragment rock for mining, quarrying, excavation or construction.

F. BLASTING AREA

The horizontal surface area of any proposed blast site and the immediate surrounding area actively affected by blasting operations. "Blasting area" includes all land that is stripped, cut, graded, grubbed, filled, bulldozed, or excavated during site preparation and all land from which rock is proposed to be removed in connection with a blasting operation, and land on which excavated rock is proposed to be temporarily or

permanently stored.

G. BLASTING OPERATION

Any demolition, excavation, construction, or quarry operation involving blasting, including processes conducted in association with site or other preparation for blasting, and the detonation of explosives. A production blasting operation is a type of blasting operation.

H. DECIBEL

The unit of sound pressure commonly used to measure airblast from explosives. The decibel scale is logarithmic.

I. EXPLOSIVES

Any substance, chemical compound, or mechanical mixture that is commonly used for the purpose of producing an explosion to fragment rock for mining, quarrying, excavation, and construction. Initiation devices (detonator, detonating cords, etc.) are also included under this definition.

J. GROUND VIBRATION

Shaking of the ground caused by blasting. Ground vibrations are to be measured along three principal axes (x, y, z); namely, transverse, vertical, and longitudinal, all of which are subject to the performance standards herein.

K. GROUNDWATER

Water beneath the earth's surface often between saturated soil and rock that supplies wells and streams.

L. HERTZ (Hz)

A term used to express the frequency of ground vibrations and airblast. One "hertz" is one cycle per second.

M. PARTICLE VELOCITY

A measure of ground vibration describing the velocity at which a particle of ground vibrates when excited by a seismic wave. It is measured in inches per second.

N. PRODUCTION BLASTING OPERATION

Any demolition, excavation, construction, or quarry operation involving repetitive blasting for the primary purpose of extracting or removing natural materials for commercial sale, barter, or exchange.

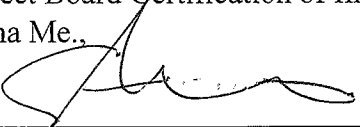
O. QUARRY

The property designated in the application and permit where rock is excavated for the purpose of extracting or removing natural materials for commercial sale, barter, or exchange.

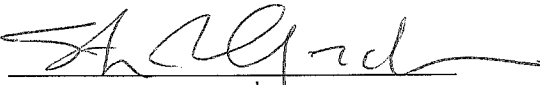
P. SEISMOGRAPH

An instrument that measures and may supply a permanent record of earthborn vibration induced by blasting.

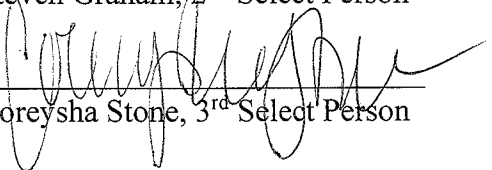
Select Board Certification of final version of the Alna Blasting Ordinance for the Town of Alna Me.,



Nick Johnston, 1st Select Person

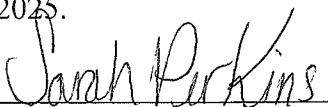


Steven Graham, 2nd Select Person



Coreysha Stone, 3rd Select Person

Attest: A true copy of an ordinance entitled the Alna Blasting Ordinance for the Town of Alna Me., as certified to me by the municipal officers of Alna on the 19th day of March, 2025.



Alna Town Clerk: Sarah Perkins

§490-Z. Performance standards for quarries

14. Blasting. The applicant must ensure that the blasting is conducted in accordance with Title 25, chapter 318.

A. The owner or operator shall use sufficient stemming, matting or natural protective cover to prevent flyrock from leaving property owned or under control of the owner 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 only if no other suitable material is available. [PL 1995, c. 700, §35 (NEW).]

B. The maximum allowable airblast at any inhabited building not owned or controlled by the developer may not exceed 129 decibels peak when measured by an instrument having a flat response (+ or - 3 decibels) over the range of 5 to 200 hertz. [PL 1995, c. 700, §35 (NEW).]

C. The maximum allowable airblast at an uninhabited building not owned or controlled by the developer may not exceed 140 decibels peak when measured by an instrument having a flat response (+ or - 3 decibels) over the range of 5 to 200 hertz. [PL 1995, c. 700, §35 (NEW).]

D. Monitoring of airblast levels is required in all cases for which a preblast survey is required by paragraph F. The department may waive the monitoring requirement if the owner or operator secures the permission of affected property owners to increase allowable airblast levels on their property and the department determines that no protected natural resource will be adversely affected by the increased airblast levels. [PL 1995, c. 700, §35 (NEW).]

E. 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. [PL 1995, c. 700, §35 (NEW).]

F. A preblast survey is required for all production blasting and must extend a minimum radius of 1/2 mile from the blast site. The preblast survey must document any preexisting damage to structures and buildings and any other physical features within the survey radius that could reasonably be affected by blasting. Assessment of features such as pipes, cables, transmission lines and wells and other water supply systems must be limited to surface conditions and other readily available data, such as well yield and water quality. The preblast survey must be conducted prior to the initiation of blasting at the operation. The owner or operator shall retain a copy of all preblast surveys for at least one year from the date of the last blast on the development site.

(1) The owner or operator is not required to conduct a preblast survey if the department determines that no protected natural resource within the limits of the otherwise required survey is likely to be affected by blasting and production blasting will not occur within 2000 feet of any building not owned or under the control of the developer.

(2) The owner or operator is not required to conduct a preblast survey on properties for which the owner or operator documents the rejection of an offer by registered letter, return receipt requested, to conduct a preblast survey. Any person owning a building within a preblast survey radius may voluntarily waive the right to a survey.

(3) The owner or operator is not required to conduct a preblast survey if the owner or operator agrees to design all blasts so that the weight of explosives per 8 millisecond or greater delay does not exceed that determined by the equation $W=(D/D_s)^2$, where W is the maximum allowable weight of explosives per delay of 8 milliseconds or greater, D is the shortest distance between any area to be blasted and any inhabitable structure not owned or controlled by the developer and D_s equals 70 ft./ $(lb.)^{1/2}$. [PL 2005, c. 158, §15 (AMD).]

G. Blasting may not occur in the period between sundown and sunrise the following day or in the period between 7:00 p.m. and 7:00 a.m., whichever is greater. Routine production blasting is not

allowed in the daytime on Sunday. Detonation of misfires may occur outside of these times but must be reported to the department within 5 business days of the misfire detonation. Blasting may not occur more frequently than 4 times per day. Underground production blasting may be exempted from these requirements provided that a waiver is granted by the department. [PL 1995, c. 700, §35 (NEW).]

H. Sound from blasting may not exceed the following limits at any protected location:

Number of Blasts Per Day	Sound Level Limit
1	129 decibels
2	126 decibels
3	124 decibels
4	123 decibels

[PL 1995, c. 700, §35 (NEW).]

I. The maximum peak particle velocity at inhabitable structures not owned or controlled by the developer may not exceed the levels established in Table 1 in paragraph K and the graph published by the United States Department of the Interior in "Bureau of Mines Report of Investigations 8507," Appendix B, Figure B-1. The department may grant a variance to allow ground vibration levels greater than 2 inches per second on undeveloped property not owned or controlled by the applicant if the department determines that no protected natural resource, unusual natural area or historic site will be adversely affected by the increased ground vibration levels. If inhabitable structures are constructed on the property after approval of the development and prior to completion of blasting, the developer immediately must notify the department and modify blasting procedures to remain in compliance with the standards of this subsection. [PL 1995, c. 700, §35 (NEW).]

J. Based upon an approved engineering study, the department may grant a variance to allow higher vibration levels for certain buildings and infrastructures. In reviewing a variance application, the department shall take into account that the standards in this paragraph and paragraph I are designed to protect conventional low-rise structures such as churches, homes and schools. In cases of practical difficulty, the department may grant a variance from paragraph I if it can be demonstrated that no adverse impacts on existing infrastructures or protected natural resources, unusual natural areas or historic sites will result. [PL 1995, c. 700, §35 (NEW).]

K. Table 1 of this paragraph or the graph published by the United States Department of the Interior in "Bureau of Mines Report of Investigations 8507," Appendix B, Figure B-1 must be used to evaluate ground vibration effects for those blasts for which a preblast survey is required.

(1) Either Table 1 of this paragraph or the graph published by the United States Department of the Interior in "Bureau of Mines Report of Investigations 8507," Appendix B, Figure B-1 may be used to evaluate ground vibration effects when blasting is to be monitored by seismic instrumentation.

(2) Blasting measured in accordance with Table 1 of this paragraph must be conducted so that the peak particle velocity of any one of the 3 mutually perpendicular components of motion does not exceed the ground vibration limits at the distances specified in Table 1 of this paragraph.

(3) Seismic instruments that monitor blasting in accordance with Table 1 of this paragraph must have the instrument's transducer firmly coupled to the ground.

(4) An owner or operator using Table 1 of this paragraph must use the scaled-distance equation, $W=(D/D_s)^2$, to determine the allowable charge weight of explosives to be detonated in any 8 millisecond or greater delay period without seismic monitoring, where W is equal to the maximum weight of explosives, in pounds, and D and D_s are defined as in Table 1 of this paragraph. The department may authorize use of a modified scaled-distance factor for

production blasting if the owner or operator can demonstrate to a 95% confidence level, based upon records of seismographic monitoring at the specific site of the mining activity covered by the permit, that use of the modified scaled-distance factor will not cause the ground vibration to exceed the maximum allowable peak particle velocities of Table 1 of this paragraph.

(5) Blasting monitored in accordance with the graph published by the United States Department of the Interior in "Bureau of Mines Report of Investigations 8507," Appendix B, Figure B-1 must be conducted so that the continuously variable particle velocity criteria are not exceeded.

The owner or operator may apply for a variance of the ground vibration monitoring requirement prior to conducting blasting at the development site if the owner or operator agrees to design all blasts so that the weight of explosives per 8 millisecond or greater delay does not exceed that determined by the equation $W=(D/Ds)^2$, where W is the maximum allowable weight of explosives per delay of 8 milliseconds or greater, D is the shortest distance between any area to be blasted and any inhabitable structure not owned or controlled by the developer and Ds equals 70 ft./lb.^{1/2}. As a condition of the variance, the department may require submission of records certified as accurate by the blaster and may require the owner or operator to document compliance with the conditions of this paragraph.

The following is Table 1.

Distance versus Peak Particle Velocity Method

Distance (D) from the blast area (feet)	Maximum allowable peak particle velocity (Vmax) for ground vibration (in./sec.)	Scaled-distance factor (Ds) to be applied without seismic monitoring
0 to 300	1.25	50
301-5000	1.00	55
Greater than 5000	0.75	65

L. A record of each blast, including seismographic data, must be kept for at least one year from the date of the last blast, must be available for inspection at the development or at the offices of the owner or operator if the development has been closed, completed or abandoned before the one-year limit has passed and must contain at a minimum the following data:

- (1) Name of blasting company or blasting contractor;
- (2) Location, date and time of blast;
- (3) Name, signature and social security number of blaster;
- (4) Type of material blasted;
- (5) Number and spacing of holes and depth of burden or stemming;
- (6) Diameter and depth of holes;
- (7) Type of explosives used;
- (8) Total amount of explosives used;
- (9) Maximum amount of explosives used per delay period of 8 milliseconds or greater;
- (10) Maximum number of holes per delay period of 8 milliseconds or greater;
- (11) Method of firing and type of circuit;
- (12) Direction and distance in feet to the nearest dwelling, public building, school, church or commercial or institutional building neither owned nor controlled by the developer;
- (13) Weather conditions, including factors such as wind direction and cloud cover;

- (14) Height or length of stemming;
- (15) Amount of mats or other protection used;
- (16) Type of detonators used and delay periods used;
- (17) The exact location of each seismograph and the distance of each seismograph from the blast;
- (18) Seismographic readings;
- (19) Name and signature of the person operating each seismograph; and
- (20) Names of the person and the firm analyzing the seismographic data. [PL 1995, c. 700, §35 (NEW).]

M. All field seismographs must record the full analog wave form of each of the 3 mutually perpendicular components of motion in terms of particle velocity. All seismographs must be capable of sensor check and must be calibrated according to the manufacturer's recommendations. [PL 1995, c. 700, §35 (NEW).]

N. If any blasting activity exceeds the standards in this subsection, the department must be notified within 48 hours of the blast event. Notification must include the name of the blasting operator, the location, date and time of the blasting event and a description of the specific occurrence that is in noncompliance with this subsection. Use of explosives at the quarry may be suspended by the department until the cause of the noncompliance is identified and appropriate steps are implemented to reduce, prevent or eliminate reoccurrence. [PL 2007, c. 297, §10 (NEW).]

O. Prior to blasting, the owner or operator shall develop and implement a plan that provides an opportunity for prior notification of a planned blast for all persons located within 1,000 feet of the blast site. Notification may be by telephone, in writing, by public notice in a newspaper of general circulation in the area affected or by other means identified in the plan. The plan must be in writing and available for inspection by the department. [PL 2007, c. 297, §11 (NEW).]

[PL 2007, c. 297, §§10, 11 (AMD).]

15. Lighting. Lighting must be shielded from adjacent highways and residential areas. [PL 2007, c. 616, §8 (NEW).]

SECTION HISTORY

PL 1995, c. 700, §35 (NEW). PL 1997, c. 364, §23 (AMD). PL 1999, c. 468, §17 (AMD). PL 1999, c. 556, §35 (AMD). PL 1999, c. 652, §10 (AMD). PL 2005, c. 158, §§11-15 (AMD). PL 2005, c. 561, §4 (AMD). PL 2007, c. 290, §12 (AMD). PL 2007, c. 297, §§10, 11 (AMD). PL 2007, c. 364, §3 (AMD). PL 2007, c. 616, §§6-8 (AMD). PL 2009, c. 293, §6 (AMD).

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