

ORDINANCE:
GOVERNING BLASTING AND/OR EXPLOSIVE DEMOLITION:

SECTION I: PURPOSE:

It is declared to be in the best interest of the health, safety and general welfare of the Town of Windham and its residents to enact the following regulations governing blasting, explosive demolition or other use of explosives within the Town of Windham.

SECTION II: AUTHORITY:

This Ordinance has been enacted pursuant to the statutory authority granted to the Town of Windham by RSA 31:39.

SECTION III: DEFINITIONS:

For the purpose of this Ordinance, the following words and phrases, when used herein, shall be construed as follows:

- A) Town – Town of Windham, New Hampshire.
- B) Board – Board of Selectmen of the Town of Windham.
- C) Explosives – Those materials that are either chemically or otherwise energetically unstable, or produce a sudden expansion of the material usually accompanied by the production of heat and large changes in pressure (and typically also a flash and/or loud noise) upon initiation including but not limited to: dynamite, any explosive compound of which nitroglycerin forms a part, fulminate in bulk or dry condition, blasting caps, detonating fuses, black powder, and ammonium nitrate/fuel oil (ANFO).
- D) Peak Particle Velocity (PPV) - A measurement of maximum ground vibration, in any of the three mutually perpendicular components of particle velocity.
- E) Seismic Measuring Equipment – Shall be that equipment utilized to measure ground effects of blasting and or explosive detonation which may include but is not limited to: creepmeters, seismographs, seismometers, strainmeters, or magnetometers.
- F) Blasting Log – A detailed written record of the type, amount, depth of explosives and other blasting details submitted to the Town of Windham. The NHDOT Section 203 Blasting Log or equivalent should be submitted in metric or English.
- G) Blasting Administrator – Person(s) appointed by the Selectmen to administer and enforce the Blasting Ordinance.

H) Structure/Habitable Structure – A “structure” as used herein shall be anything which is built or constructed on a property (i.e. property improvements) including activity for which a building permit or site permit is required such as foundations, driveways, roadbeds, parking lots, swimming pools, wells, waste disposal systems and utility installations. A “habitable structure” is a structure which persons are occupying or may occupy, including residential dwellings, commercial and industrial buildings, garages, sheds, barns, and storage buildings.

SECTION IV: BLASTING PERMITS APPLICABILITY:

- A) No person shall engage in blasting or detonation of explosive materials within the Town of Windham without first obtaining a permit to conduct such operations from the Blasting Administrator of the Town.
- B) Blasting permits may be issued for blasting operations with the following maximum vibration limits as measured outside the nearest habitable structure from the blasting site: PPV of 13mm/s or 0.50 in/s at frequencies below 40 Hz. and 25 mm/s or 1.0 in/s at frequencies up to 100 Hz or greater.
- C) Applicants for blasting permits must submit a completed application form containing all the information specified and required within this Ordinance.

SECTION V: APPLICATION FORM:

- A) A properly executed application form shall be submitted to and approved by the Blasting Administrator for all blasting permits, prior to commencement of any blasting or detonation. The application form shall be developed and approved by the Board of Selectmen.
- B) Approval of the blasting permit will not relieve the Applicant of full and complete responsibility for the results of the blasting operations. The Applicant also has full responsibility for the accuracy and adequacy of the blasting plan when implemented in the field.
- C) The application form shall require the following information:
 - 1. Name, address, and daytime phone number of the Applicant.
 - 2. A copy of license issued by the State Police to the Applicant along with proof of identification, under RSA 158:9-b.
 - 3. Name, address, experience, qualifications, and daytime phone number of blasting supervisor.
 - 4. A copy of blasting supervisor’s Certificate of Competency issued by the State Police pursuant to RSA158:9-h.
 - 5. The tax map number and physical location where blasting is to be conducted, as well as the date of detonation.

6. A map or plan at a scale not greater than 1" = 200' depicting the approximate location of the proposed blasting/detonation, and all properties within 500 feet for a 30 day blasting permit, 750 feet for a 60 day blasting permit, and 1000 feet for a 90 day blasting permit.
7. A list of the owners of all such properties identified, together with a notation as to whether such properties are improved by a structure, and the type of occupancy (i.e., residential, commercial, industrial).
8. A letter of permission from the property owner of the blasting site.
9. Evidence of general liability and property damage insurance issued by a carrier authorized by the State of New Hampshire Insurance Commissioner to do business in New Hampshire in amounts not less than the following: 1) two million dollars (\$2,000,000) combined single limit per occurrence for a 30 day duration permit; 2) four million dollars (\$4,000,000.) for a 60 day duration permit, and; 3) six million dollars (\$6,000,000.) for all permits for greater than 60 days duration. All liability insurance companies supplying policies per this Ordinance shall have at least a double A (AA) Moody Bond rating.
10. The Applicant shall submit the following information to the Blasting Administrator or his/her authorized representative, at least two weeks prior to commencing drilling and/or blasting operations:
 - a. Sequence and schedule of production blast rounds, including the general method of developing the excavation, lift heights, starting locations, estimated starting dates, estimated rates of progress, etc.
 - b. Written evidence of the licensing, experience, and qualifications of the blaster who shall be directly responsible for the loading and firing of each shot.
 - c. Name, experience, and qualifications of the person responsible for designing and directing the Applicant's blasting operation.
 - d. Name, experience, and qualifications of the person to be used to conduct pre-blast condition surveys.
 - e. Name, experience, and qualifications of the person to be used in monitoring blast vibration.

SECTION VI: FEE:

All permit applications shall be accompanied by the proper application fee as established by the Board of Selectmen in accordance with RSA 41:9 a.

SECTION VII: PERMIT DURATION:

- A) There are three categories of blasting permits based on the cubic yards of materials to be blasted and length of time to complete the blasting operations as follows:
 - 1. A 30-day permit is required for smaller blasting operations, such as swimming pools and house foundations, where a total aggregate of zero (0) to four thousand (4,000) cubic yards of blasted material are removed from the ground. Blasting activities such as drilling and blasting are expected to be finished within 30 days. Such permit shall expire at the end of 30 days from issuance, unless otherwise revoked hereunder.
 - 2. A 60-day permit is required for larger blasting operations where a total aggregate of four thousand (4,000) to fifteen thousand (15,000) cubic yards of blasted material are removed from the ground. Blasting activities such as drilling and blasting are expected to be finished within 60 days. . Such permit shall expire at the end of 60 days from issuance, unless otherwise revoked hereunder.
 - 3. A 90-day permit is required to for the largest of blasting operations, such as road construction, where a total aggregate of more than fifteen thousand (15,000) cubic yards of blasted material is removed from the ground. These large blasting operations are expected to take over 60 days to complete the drilling and blasting activities. Such permit shall expire at the end of 90 days from issuance, unless otherwise revoked hereunder.
- B) Successive or renewed permits are permitted, provided application information is updated and a new application fee is paid.
- C) After a second renewal, submission of a written impact evaluation of the site and potentially affected properties may be required by the Blasting Administrator, dependent upon the type of the original permit that was issued.
- D) A permanent record of all permits issued under this Ordinance will be kept in the Planning and Development Department.

SECTION VIII: MINIMUM STANDARDS OF CONDUCT:

Unless more stringent provisions are contained herein, the conduct of all blasting or explosive detonations shall be governed by the standards in New Hampshire Code of Administrative Rules, Saf-C Section 1600, et seq.

SECTION IX: LOCAL REQUIREMENTS:

In addition to any other requirements of State law, the following additional requirements shall apply to blasting activity within the Town of Windham:

- A) General: All blasting operations, including the storage and handling of explosives and blasting agents, shall be performed in accordance with the applicable provisions of this Ordinance and all other pertinent Federal, State, and local regulations. Whenever explosives are used, they shall be of such character and in such amounts as are permitted by the State and local laws and ordinances, and all respective agencies having jurisdiction over them.
- B) Pre-blast Condition Survey: Prior to conducting any blasting, the Applicant or their agent shall conduct a pre-blast condition survey of all existing structures and conditions on the site, adjacent to the site, and within the following radius: 1) 500 feet for smaller blasting operations requesting a 30 day permit, or; 2) 750 feet for larger blasting operations requesting a 60 day permit, or; 3) 1000 feet for 90 day permits for the largest blasting projects.

This survey shall extend to such structures or conditions as may be affected by the Applicant's construction operations. At a minimum, pre-blast condition surveys shall be performed on all structures, including homes, foundations, driveways, roadbeds, swimming pools, wells, and mobile homes, within the areas described above. The Applicant, as well as the owner of the property being surveyed, shall sign all such surveys once completed. If a property owner, for whatever reason, refuses to allow for the conducting of a pre-blast survey or to sign a pre-blast survey form, then the Applicant shall note this on the form. The Applicant shall make at least three in-person attempts and at least one certified mail notice over a 14 day time period to contact an owner to explain the need for such surveys.

1. The pre-blast structural inspection condition survey shall consist of a written description of the interior and exterior condition of each of the structures examined. Descriptions shall locate any existing cracks, damage, or other defects, and shall include such information so as to make it possible to determine the effect, if any, of the construction operations on the defect. Where significant cracks or damage exist, or for defects too complicated to describe in words, photographs shall be taken. A good quality videotape survey with appropriate audio description of locations, conditions, and defects can be used in lieu of a written form. This survey shall be kept for a minimum of seven (7) years and be made available to the Blasting Administrator upon request. In addition, copies of the completed survey and videos shall be delivered to each property owner free of charge within 14 days.
2. The individual person conducting the survey shall give written notice to the owner of the property concerned, as well as to any tenants of the property. The notice shall state the dates on which surveys are to be made. Copies of all notices shall be provided to the Blasting Administrator.
3. Upon completion of all earth/rock excavation and blasting work, the Applicant shall conduct a post-blast survey of any properties, structures, and conditions for which complaints of damage have been received or damage claims have been filed. Notice shall be given to all interested parties so that they may be present during the final examination. Records of the final examination shall be distributed the same as the original pre-blast condition survey.
4. All costs associated with condition surveys shall be borne by the Applicant.

- C) Seismic Measuring Devices: Prior to conducting any blasting, the Applicant or their agent shall identify the two closest structures to the blasting site not owned by the owner of the blast site and request written permission from the Owner(s) thereof to install and monitor seismic measuring equipment. The Applicant shall make four (4) attempts to obtain such permission. The fourth and final attempt shall be made in writing via certified mail and, if unsuccessful, the seismic measuring equipment shall be installed between the structure and the blast location as close as reasonable to the structure. An explanation of the reason for such location shall be made on the vibration monitoring report for such structure and the PPV shall be extrapolated to the structure using standard relations. Prior to conducting any blasting, seismic measuring equipment shall be installed as described above. The Blasting Administrator may require additional measuring devices when necessary to protect property. If an owner refuses to allow for or waives the placement of seismic measuring equipment, the Applicant shall note this on the vibration monitoring report.
1. All costs associated with analysis and monitoring shall be borne by the Applicant.
- D) Map of Operations: The Applicant shall provide a vicinity map and plan, locating the blast site, blast area, and the locations of all measuring devices required hereunder.
- E) Additional Surveys / Seismic Devices: The Town, through its Blasting Administrator or Board of Selectmen, reserves the right to require additional condition surveys and/or placement of seismic measuring equipment on properties farther than specified should the need arise due to complaints or other causes. Further, the Town reserves the right to require geological surveys of the area around the blasting location should conditions warrant such analysis. Such additional requirements may be prerequisites to obtaining any permit renewals.
- F) Timing of Blasting Operations: Blasting and/or detonation shall be conducted only between the hours of 10:00 am and 3:00 pm, and shall not be permitted on Saturdays, Sundays or town observed holidays.
- G) Blast Vibration Control and Monitoring: The Applicant shall be required to comply with the blasting vibration limits established by the applicable State of New Hampshire rules and regulations. The Town reserves the right to impose lower maximum vibration limits. See, Section IV (B).
- H) Vibration Monitoring Instrumentation: All vibration monitoring instrumentation proposed for use on the project by the Applicant shall comply with the following requirements:
1. Measure, display, record, analyze, and print three-component ground motion and measure, display, record and print air pressure with specification equal to or better than the following:

<u>Range</u> :	0.01-10 in/s
<u>Resolution</u> :	seismic, 0.005 in/s acoustic, 1 db
<u>Sample Rate</u> :	1024 Samples/s

<u>Frequency Response:</u>	0-250 Hz, flat within 3 db
<u>Trigger Source:</u>	seismic and/or acoustic
<u>Trigger Level:</u>	seismic, programmable, 0.02-2.00 in/s acoustic, programmable, 100-129 db, Linear weighting scale
<u>Record Time:</u>	1-10 s plus 0.5 s pre-trigger
<u>Storage Capacity:</u>	100 1-sec events at 1024 samples/s

2. Measure the three (3) mutually perpendicular components of particle velocity in directions vertical, radial, and perpendicular to the vibration source. Full wave forms must be recorded.
 3. All seismographs used on the project shall display the date of the most recent calibration. Said calibration must have occurred within the last twelve (12) months and been performed to a standard traceable to the National Institute of Standards and Technology.
- I) Report of Monitoring Results: Within forty-eight (48) hours of each blast, the Applicant, or their authorized representative, shall submit to the Blasting Administrator in writing the following items:
1. Details of the round as shot to include the information shown on the sample blasting log (see, Section III (F)).
 2. Results of the blast monitoring at each instrument location, including the following:
 - a. Date and time of blast
 - b. Location of blast
 - c. Operator name and signature
 - d. Distance of seismograph from blast in feet
 - e. Listing of the maximum values of the three components of peak particle velocity, PPV (in/s), acceleration, PPA (g), displacement, PPD (in), time on the record at which the PPV occurs (ms), peak vector sum, PVS (in/s) and time on record at which the PVS occurs, peak sound pressure level, PSPL (psi) and time on record at which the PSPL occurs (ms), and the PSPL frequency (Hz)
 - f. Seismograph manufacturer, model, serial number, calibration date
 - g. Trigger settings
 - h. Software manufacturer, name, version used for download and/or analysis
 - i. Full waveform plots of three seismic components and acoustic component
 - j. Plot displaying OSM and USBM RI8507 analysis

- k. If the seismic ground vibration or air overpressure, or both ground vibration and air overpressure caused by the Applicant's blasting operation equals or exceeds either the limits established by the State of New Hampshire or the maximum limits imposed by the Town, which ever being more restrictive, the operations shall cease and the permit may be revoked by the Blasting Administrator.
- J) Notice and Warning Signals: Adequate warnings shall be given to all personnel in proximity to the blast site at least three minutes in advance of each blast. The Applicant shall use sirens or horns or both sirens and horns with sufficient intensity such that they can be heard for a minimum distance of 1,000 feet.
1. The Applicant shall notify the Windham Police dispatchers not less than one (1) hour before the scheduled time of blast or explosion with the address of the blasting site, the total pounds of explosives and the number of charged holes.
 2. The Applicant shall publish a notice in a local paper no later than one week prior to blasting operations noting the place, date of blasting operations, and estimated number of days of blasting.
 3. The Applicant shall notify all property owners within the required areas by certified US Mail, one week prior to blast, of the following information: the place, date and duration of the blasting operation. Blasting operations and activities lasting longer than 90 days requiring a permit renewal shall re-notify the properties owners by mail and local paper publication.
- K) Flyrock Control: Before the firing of any blast in areas where flying rock or debris may result in personal injury or damage to property, the rock to be blasted shall be covered with approved blasting mats, soil, or other equally serviceable material to prevent flyrock.
- L) Responsibility for Blasting Operations: Review of the Applicant's blasting submittals by the Town of Windham, the Blasting Administrator or their authorized representative will not relieve the Applicant of his/her responsibility for the accuracy, adequacy, and safety of the blasting; for exercising proper supervision and field judgment; for preventing damage to structures; and for producing results in accordance with the State of New Hampshire regulations and NHDOT Specifications. The Applicant shall be solely and completely responsible for the safety of all persons and properties during the performance of his/her work. The Applicant shall take whatever measures it deems necessary, in addition to the requirements herein, to protect the safety of persons and property, both at the construction site and away from the site. The Applicant shall have full and complete responsibility for the handling, discharging, or settling of any and all damage or annoyance claims resulting from the blasting activities on the project. Any monitoring and/or review of the Applicant's procedures and performance conducted by the Town of Windham, the Blasting Administrator's Office or their authorized representative shall not relieve the Applicant of his/her responsibility for safety at and away from the site, or for preventing damage to adjacent structures or property.

- M) Blasting Monitoring: The Blasting Administrator reserves the right to visit any blasting sites to monitor the operation. The Blasting Administrator may also confer with other town departments or private blasting consultants for advice or assistance in the review or monitoring of a blasting site. The Blasting Administrator may require a Fire Department work detail to standby a site for safety or monitoring duties. The cost of a Fire Department work detail or any other private consultants necessary for enforcement of these regulations will be at the Applicant's expense.
- N) Dust Control: During and after the firing of any blast, dust control shall be in place to control the dust from the blast and the removal of the blasted rock and dirt. Dust migration from blasting operations, including rock removal and rock processing, to adjacent properties shall be controlled and kept to a minimum. Dust control plans and procedures shall be submitted with all blasting permit applications and approved by the Blasting Administrator.
- O) Site and Environmental Monitoring: Prior to undertaking any blasting, the Applicant of a 60 or 90 day blasting permit shall set up an escrow account to pay for geological and ground water monitoring consultants hired by the Town to oversee the blasting operations. The Applicant, Town consultants and the Blasting Administrator shall review the Applicant's blasting plan to determine what type of monitoring will be required to test the ground water quality and blasting procedures during blasting operations. The cost of this monitoring shall be paid for by the Applicant and/or the owner of the property.

SECTION X: NO STORAGE OF EXPLOSIVES OR BLASTING AGENTS:

The overnight storage of explosives or blasting agents, whether supervised or not, is not allowed in the Town. Loaded explosives shall have twenty-four hour supervision and be guarded overnight when conditions or circumstances delayed the blast and the Blasting Administrator has approved the overnight delay in blasting.

SECTION XI: REVOCATION OF PERMIT:

A permit issued hereunder may be revoked by the Blasting Administrator for just cause including but not limited to: failure to conduct operations in accordance with the standards herein resulting in property damage that does or has the potential to exceed the amount of liability insurance held by the Applicant; lapse or revocation of the State license, or the institution of proceedings (civil, criminal, or administrative) by the State for violation of applicable State law or regulations. Revocation of permission to perform blasting operations in Windham may result in the loss of all blasting permits for one year. An Applicant who has had a permit revoked may apply for a re-issuance to the Board of Selectmen who shall hold a public hearing on said request and, following same, determine whether or not a permit shall be reissued. The Applicant requesting the permit shall provide a detailed report to the Blasting Administrator outlining why they believe said permit should be issued along with any other information requested by the Blasting Administrator.

SECTION XII: APPEAL:

Any person who is denied a permit, or has such permit revoked, may request a hearing before the Board. Appeals shall be made in writing within ten (10) days to the Board of Selectmen, who shall hold a hearing within thirty (30) days to render a decision. The decision of the Board shall be final.

SECTION X: WAIVERS:

The Board of Selectmen may waive the application of these regulations with respect to any particular case when, in its opinion the enforcement thereof would do **manifest injustice**, and the Applicant has proven that the same degree of public health, safety and environmental protection required under these regulations can be achieved without strict application of a particular provision(s).

SECTION XII: EFFECTIVE DATE:

This Ordinance shall be effective upon passage at Town Meeting.

Adopted by Official Ballot Vote: March 11, 2008