From: Bev Edwards [mailto:nadesha@msn.com]
Sent: Monday, April 11, 2016 4:26 PM
To: Monroe, Pamela
Subject: SEC - Infrastructure set backs

Dear Ms. Monroe,

Attached is the document on "Set backs", written by Chris Mackensen from Temple, NH at the request of the company under contract with the SEC in its examination of "Set back" recommendations from the public.

As mentioned in my phone message, Mr. Mackensen had to abruptly leave on a business trip where he would not be assured of reliable computer access. So, before completing his own edits for the document, he asked if I would provide the necessary remaining edits and send it off to you. He may also choose to make some additions when he returns.

Thank you for your assistance with this process.

Beverly Edwards
Chair, Temple Energy Committee
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SEC Setbacks

Preamble:

For reasons of setbacks, as the New Hampshire Site Evaluation Committee (NHSEC) is empowered by The Legislature, and, as The Legislature recognizes, the selection of sites for energy facilities may [or will] have significant impacts on and benefits to the following: the welfare of the population, private property, the location and growth of industry, the overall economic growth of the state, the environment of the state, historic sites, aesthetics, air and water quality, the use of natural resources, and public health and safety.

Accordingly, The Legislature finds that it is in the public interest to maintain a balance among those potential significant impacts and benefits in decisions about the siting, construction, and operation of energy facilities in New Hampshire; that undue delay in the construction of new energy facilities be avoided; that full and timely consideration of environmental consequences be provided; that all entities planning to construct facilities in the state be required to provide full and complete disclosure to the public of such plans; and that the state ensure that the construction and operation of energy facilities is treated as a significant aspect of land-use planning in which all environmental, economic, and technical issues are resolved in an integrated fashion.

Also in alignment with the above, pursuant to (but not limited to) RSA 674 *et seq*: For the purpose of promoting the health, safety, or the general welfare of the community, the local legislative body of any city, town, or county in which there are located unincorporated towns or unorganized places is authorized to adopt or amend zoning ordinance (inclusive of setbacks, in spirit, intent and letter of law) under the ordinance enactment procedures of RSA 675:2-5 *et seq*.

see also http://www.gencourt.state.nh.us/rsa/html/LXIV/674/674-16.htm

In short, Local or State Ordinance require setbacks explicitly in alignment with the goals or requirements of RSA 674:16 *et seq.*, RSA 162-H *et seq.* ENV-A 1400 *et cetera*, for health, safety, or the general welfare of the community and other contingencies listed above.

Definitions:

Natural gas	Includes methane
Fracked gas	May also include (mostly) methane
Hydraulically-fractured gas	See also, Fracked gas
BTEX	Benzene, Toluene, Ethylene, Xylene -- known carcinogens at specific concentration levels or volatile chemicals of grave concern

General Provisions

The invalidity of any provision, sentence, paragraph, etc. of the foregoing shall not affect the validity of any other provision.

Considerations

Because New Hampshire is part of the ISO-NE grid, the Need for any infrastructure proposed by any applicant must be considered with a New England regional analysis inclusive of any official statements or studies from authorities in other states of New England, inclusive of funding sources for any studies and notation of interested parties or stakeholders. Studies should be conducted by disinterested parties. This should include any distributors operating within the State that may slough off prior agreements or contracts that may create stranded costs to others in the Region or entire project scope, in order to enjoin with any project being proposed within this purview of the NHSEC.

At the time of writing, New Hampshire has 63 power generation stations and is a net exporter of electricity, of which export is expected to decline due to declining demand as Massachusetts increases their energy efficiency and renewable energy programs, as illustrated and noted in Appendix A, Graph #3 of the OEP 10 Year State Energy Strategy.

Energy efficiency and peak shaving demand side measures are identical to adding infrastructure, as in the Governor's words, (paraphrased, and as used elsewhere): "the least expensive kilowatt is the one that is never used [or generated]."

Setbacks determined by the methods below, shall consider the largest or worst-case setbacks from each method below as the setback for siting of pipeline, compressor stations, and ancillary equipment used for infrastructure projects, coupled with temporary or permanent appurtenances for all phases of planning, construction, operation and decommissioning:

Setbacks For the environment of the state:

<TBD>

Setbacks For the historic sites of the state:

The State’s historic sites may contain fragile antique artifacts; for example, the Temple Glass Works dating back to the 1700s, listed within the National Historic Places, as located by the Wapack trail.

Of concern is blasting or heavy construction near fragile or sensitive historic sites. Artifacts and site disturbance can be compromised with large blasting events or heavy machinery nearby.

Historic sites may also contain, Indigenous People’s sites of spiritual or religious significance.
e. Historical, Cultural, Archeological. Because the preservation of historic resources is very important to the Town of Temple, the Applicant shall be required to:

i. Inventory and map all historically significant sites located within two thousand (2000) feet of the proposed LWES project area, including stone walls, structures, roadways, and cellar holes.

ii. Provide a plan outlining how the Applicant proposes to minimize the impact of construction and ongoing operation of the Project on those sites.

As a condition of approving the Applicant's Historical, Cultural, Archeological protection plan, the Planning Board may require specific setbacks of Project structures or roadways from significant sites and/or other actions that protect or restore items of historic significance.

Historical, Cultural, Archeological Inventory and Resource Map prepared by NH licensed land surveyor, and Applicant's plan to minimize impact of Project construction and operation on these sites.

<define setback in terms of sufficient amount of feet away from sites>

Setbacks for the air and water quality:

Blasting is generally deprecated, especially when alternatives to blasting exist, to maintain the State's welfare of the population, private property, the water quality, public health and general safety. This is evident with possible catastrophic damages to private drinking water wells and aquifers: changes in water flow rates, concentration changes in arsenic and other contents of water quality, contamination with perchlorate (a byproduct of blasting) *et cetera,* are of concern.

Pipelines can also be a conduit for the conveyance of contaminates from one aquifer to another.

In general, 200 feet setbacks, as is typical, may not be adequate. Additional setbacks may be required. Contamination of any aquifer can result in multiple well contingencies. Pipeline routes should avoid aquifers wherever possible. Contamination does not adhere to setbacks, or political boundaries. Applicant must seek alternatives to blasting for these fragile areas and well heads.

If degradation or contamination of any well, spring, or water resource is found to have occurred, the Applicant shall be considered in violation of Water Permit(s) and subject to the provisions of the Enforcement.

The Applicant is responsible for all costs associated with water-quality testing and corrective action if necessary.

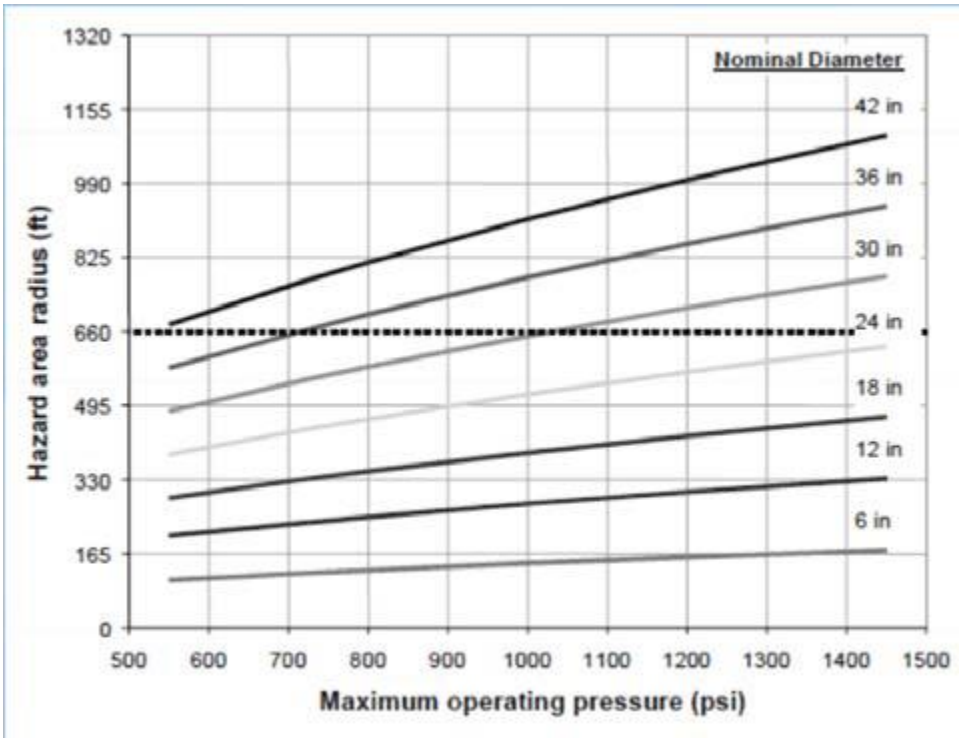
Setbacks For the public health and safety:

Explosion:

One example of many:

Falfurrias Texas, in Brooks County, a town of about 5,000 (about the same size as New Ipswich, NH): August 3, 2015 -- 150 homes evacuated by officials for a ½ mile surrounding a Kinder Morgan pipeline.

Yet setbacks for health and safety of ½ a mile would be “off the chart” below in terms of known pipeline diameters and operating pressures….



Brooks County Sherriff Martinez: evacuations were prompted due to fears prevailing winds could carry the gas over residences, possibly igniting or causing illness. Martinez said [at the time, that] he did not know which company owns the affected pipeline or what may have caused the rupture.

Two people suffered minor injuries and were taken to the hospital.

“…and TGP is working with its shippers to minimize any reduction in service and anticipates no loss of service to residential customers," Melissa Ruiz, spokesperson of Kinder Morgan.

This is practical experience, empirical result and exact outcome regardless of regulation or setbacks.

Setbacks, General information required:

Applicant, shall state their safety record, inclusive of all studies and numbers used to derive safety record statistics or statements, including funding sources for all studies and numbers presented, derived or inferred. Applicant shall additionally render their safety record in terms of number of incidents per year, amortized and averaged out to monthly incidents.

In the case of a seemingly unlikely, yet plausible gas release, or explosion Event, applicant shall hypothesize outcomes for forest fire, and in the case where other infrastructure, schools, places of worship or spiritual endeavor, reservoirs, historical sites *et cetera* are co-located, nearby or adjacent (per an Event based upon NTSB, DOT known ramifications for an Event, design size now and future, or boiler plate rating -- whichever is most severe), outcomes of demise for those infrastructures or sites.

Applicant shall also provide gas volumetric calculations (including conversions to BTUs available for combustion) with operating pressures furthest from any valve closure point (at operating temperature, 55 degrees Fahrenheit, and also expected stagnant temperature if the top of pipeline is above the municipality or general state engineering guideline frost line, given average winter temperatures for the regions). Assume the pipeline or compressor(s) as a storage vessel at these various temperatures, pressures, and volumetric size with gas available for an Event.

Provide setbacks and design paradigms (see also, below: Heavy Construction Guideline or Regulations) to minimize loss in these Event(s), using motif such as "global minima" within rigorous analysis for each property or infrastructure encumbered within the Project for such an Event. Include rerouting alternatives to arrive at global minima.

Pipeline Setback:

As DOT claims that 900 feet on either side of a pipeline is in the blast zone typical for such an Event, all structures, wells, schools, places of worship, co-located adjacent infrastructure (for runs longer than 900 feet) *et cetera*, shall enjoy a setback of 900 feet from any pipeline.

Compressor Station Setback:

Note prior explosions: 17 compressor station fires or explosions since 2011 in US.

Electrically operated compressor station may not have any significant difference in explosion ramifications.

Air Quality:

- PURPOSE: As setbacks are evident for the safety, enjoyment, and other paradigms afforded by law, the foregoing is included to preserve quality of life, peace and tranquility, and protect the natural environment. Residents shall be protected from adverse health effects from exposure to excessive air quality emissions from commercial and industrial development by regulating air quality standards.
- BASELINE: develop a baseline condition, for air quality or composition, with assistance from other agencies, and issue guidance that incorporates requirements for an acceptable environmental assessment of a project.

Pipeline setbacks or mitigations:

Valves and other pneumatics shall not be actuated by pressurized pipeline gas as this constitutes air quality situations with the foregoing.

Compressor Station setbacks or mitigations:

- For non-electrical, fuel fired engine or turbine compressors also with “blow downs” (also known as “blow offs”) emissions not captured, describe emissions in tonnage per year for all chemical emissions usual and typical interest to the EPA, RSA125-I *et cetera*.
    - Please note that natural or hydraulically-fractured gas may contain approximately 90% to 95% methane: other chemicals and naturally occurring gases (noble or otherwise) are

known to be included, especially with dehydration processes that can add BTEX or other chemicals to the gas.
    - Describe all dehydration processes in use by Applicant that can be utilized for gas processing or distribution for project. Include all dehydration technologies used now or future.
- Correlate the above to concentrations, given terrain and weather patterns inclusive of inversion prone areas (empirically observed by Residents or, by official declination of NHDES or other officiating body of Government) , including instantaneous peaks capable of delivery over one hour integration period and typical average.
- Correlate the above to epidemiology studies using same methodologies embodied in appendices of peer-reviewed scientific study
- Correlate the above to an average expected cost increase burden to healthcare, if any, hypothesized or empirically observed
    - From baseline data collected over all New England seasons surrounding the proposed site(s) and setbacks for health surveys and air quality (inclusive of FERC 10 km intrigued surrounding areas of interest for compressor stations): Include any expected rate increases of asthma, nose bleeds, Emergency Department/Room visits, heart-attack induced events from PM2.5, and so-on
    - Heart-attack rates can be elevated from short-term peaking PM2.5 exposure as little as 1 hour when levels are below NAAQS thresholds. NAAQS is therefore not adequate. See enclosed peer-reviewed research.
- Describe other fluids or gasses collected on the premises of the Operator or operations encumbered by this Application. Assume hurricane scenario where fluids collected are at risk. Describe protections, guarantees and liabilities provided by Applicant to prevent release into sensitive areas.
- Describe cleanup efforts, bonds, for any accident of the above, regardless if *force majeure*.

As such, there is known adverse epidemiology as listed above for 12,000 horsepower compressor station of three miles surrounding (see enclosures). Setbacks shall be the same 3 miles for compressor stations of same construction type. Larger compressor stations without additional mitigations shall require larger, proportional setback.

Sound / Noise:

Ambient Air Sound, Nuisance, Noise:

Compressor Station Setback:

DEFINITIONS: The following terms shall have the meanings indicated:

“Adverse Noise Impacts” - Disturbances that interfere with: customary speech and communications both indoors and outdoors, telephone conversations, reading, tasks requiring concentration, listening to music or television, and sleep.

“Background Sound Pressure Level” – The Sound Pressure Level represented without engines, turbines, compressors, blow-downs (blow-offs), valves, emergency generators, ancillary equipment of construction vehicles / activities in operating condition and when man-made and natural intrusive sounds are at a minimum. The intent of this definition is to exclude Sound Pressure Level contributions from intermittent noises such as traffic and emergency vehicles, and from seasonal natural sounds such as tree frogs and crickets that are not present year round.

“Health” - State of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

“Impact(s)” - Includes any effect on the environment, including sound and visual impacts such as changes in sound pressure, noise and light in the environment.

“Leq” - The equivalent continuous Sound Pressure Level that has the same acoustic energy for a constant Sound Pressure Level as for a fluctuating or intermittent level in the same period of time.

“Natural Environment” – Includes navigable waters, waters of a contiguous zone, ocean waters and any other surface water, groundwater, drinking-water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction of the United States, including wildlife, ecosystems, and habitat, and historical, cultural, recreational and archeological resources.

“Noise” – Any unwanted sound or any sound that is not part of the natural environment.

“Octave Band” - A band of sound covering a range of frequencies such that the highest is twice the lowest, as defined in ANSI Standard S1.11.

“One-Third Octave Band” - A band of sound covering a range of frequencies such that the highest frequency is the cube root of two times the lowest, as defined in ANSI Standard S1.11.

“Public Infrastructure” – Roadways, culverts, and bridges maintained by the Town(s) or State of New Hampshire.

“Sound Power Level” - Lw. Ten times the logarithm to the base ten of the ratio of the sound power radiated by the source to a reference sound power, expressed in decibels (dB). The reference sound power is 1 picowatt (pW).

“Sound Pressure Level” - Lp. Twenty times the logarithm to the base ten of the ratio of a given sound pressure to a reference sound pressure of 20 micro Pascals (uPa), expressed in decibels (dB).

“Project” – Any aspect of Applicant’s proposed infrastructure including, but not limited to, compressor stations, their ancillary equipment, construction vehicles or activity thereof, valves actuated in such a manner that creates Noise or gas release in actuation, pipelines, communications systems and

structures, or any other appurtenances not normally present in the absence of Applicant's proposed infrastructure

C. REQUIREMENTS:

Construction and maintenance activities shall be organized and timed to minimize Impacts on residents and wildlife from noise, disruption (including disruption of wildlife habitat), and the presence of vehicles and people. Construction and maintenance, unless there is an imminent threat to life or property, shall be performed only in weekdays between the hours of 7 AM and 6 PM.

Any construction equipment or parts (used or unused) kept on site shall be stored indoors except during periods of construction, maintenance, and repair.

Sound Pressure Level Limits and Measurement:

Many rural communities enjoy sound pressure levels approaching 20dBA. This is approximately 34 times (!) quieter than the Federally allowed 55dBA sound pressure level. In other words, the Federal limit of 55dBA is 34 times louder than usual background noise required and enjoyed by rural communities, and folks who left the city for quality of life pursuant to RSA 162.

For rural communities, the intent of this section is to preserve the quiet rural environment and to provide protection from Excessive Sound Pressure Levels that cause adverse Impacts to public Health, Welfare, and Well-being. As the existing Background Sound Pressure Levels in rural communities are usually less than 30 dBA. Annoyance due to Noise, as measured by community surveys, is the consequence of activity interference. Sound Pressure Level limits are based on the recommended guidelines found in the United States Environmental Protection Agency's document Information On Levels Of Environmental Noise Requisite To Protect Public Health And Welfare With An Adequate Margin of Safety, 550/9-74-004, March 1974 and include levels requisite to protect against activity interference.

These Sound Pressure Level limits are consistent with the World Health Organization (WHO) night-noise guidelines for exposure to noise during sleep, found in the following documents: Night Noise Guidelines (NNLG) For Europe, 2007 and ISBN 978 92 890 4173 7, 2009.

These Sound Pressure Level limits are also in alignment with peer-reviewed health issues presented in enclosed materials, regarding pregnancy, cardiovascular, sleep deprivation and so-on.

a. Sound Pressure Levels produced by the Project shall not exceed 33 dBA (Leq 10 minute) anywhere at any time on a Non-Participating Landowner's property.

b. Greater noise constraints may be imposed if such constraints are necessary to protect the public health, safety, and welfare of the community.

c. Any model used to predict Noise shall use the following parameters:

The prediction model shall use the Manufacturer's highest sound-power levels, as measured using standard IEC 61400-11 (edition 2.1, dated November 2006), which shall be submitted in 1/3 octave band for frequencies 31.5 to 8000 Hz. Test reports performed for the same model(s) proposed for the Project shall be submitted in full.

Attenuations (zero) for ground cover, must include all New England Seasons, terrain, resonant or amphitheater type structures or geography

There shall be no attenuation (zero) for foliage, since trees have no leaves from November to April.

Add a plus-5-dB design margin to the predicted Sound Pressure Levels to account for variations in atmospheric propagation due to refraction (the bending of sound waves in the atmosphere due to changes in air temperature or wind gradient).

Ground absorption values used in the modeling software shall be set to 0 for water and hard concrete or asphalt surfaces and 0.5 for all other surfaces.

d. Noise measurements shall be taken with the Project turned on and turned off to determine any Background Noise to be accounted for. The Applicant shall cooperate by shutting Project Compressor Stations off and turning them on during acoustic testing at times required by the acoustic monitoring personnel.

e. The wind velocity at the sound measurement microphone shall not exceed 2 m/s (4.5 mph) during measurements of Background Sound Pressure Level, and the maximum wind speed at the microphone for noise measurements during Project Compressor Station operation shall not exceed 4 m/s (9 mph).

a. Except as specifically noted otherwise, sound measurements shall be conducted in compliance with the most recent version of the American National Standards Institute (ANSI) Standard S12.18-1994 "Outdoor Measurements of Sound Pressure." Sound data shall be recorded with both dBA filtering and unfiltered down to 0.5Hz. Wind speeds shall be logged simultaneously with Sound Pressure Level data.

b. Sound Pressure Level meters and calibration equipment shall comply with the most recent version of ANSI Standard S1.4 "Specifications for General Purpose Sound Pressure Level Meters," and shall have a calibration traceable to the National Institute of Standards and Testing (NIST) performed within the preceding 24 months.

c. Noise measurements shall be taken at locations and times when the Project (Compressor Stations, ancillary equipment *et cetera*) is clearly audible and dominating the acoustical environment. All unattended measurements shall consider the Project as dominating the acoustical environment. Baseline measurements before construction or during project planning stages shall be video graphed and correlated by date/time-stamp to sound measurements.

e. The acoustic-monitoring personnel shall determine if extraneous sounds such as those made by insects, frogs, or other wildlife are contributing to the measured Leq Sound Pressure Level and remove their contributions either by relocating the measurement microphone to a spot not affected by such

sounds or conducting testing at dates and times when such sounds are not present. The acoustic-monitoring personnel may correct the Leq Sound Pressure Level using full or 1/3 octave band analysis to subtract Project “off” levels from Project “on” levels, and by removing data in 1/3 octave bands from the Leq computation that are contaminated by extraneous sounds.

f. The wind velocity at the sound-measurement microphone shall not exceed 2 m/s (4.5 mph) during measurements of Background Sound Pressure Level, and the maximum wind speed at the microphone for noise measurements during turbine operation should not exceed 4 m/s (9 mph).

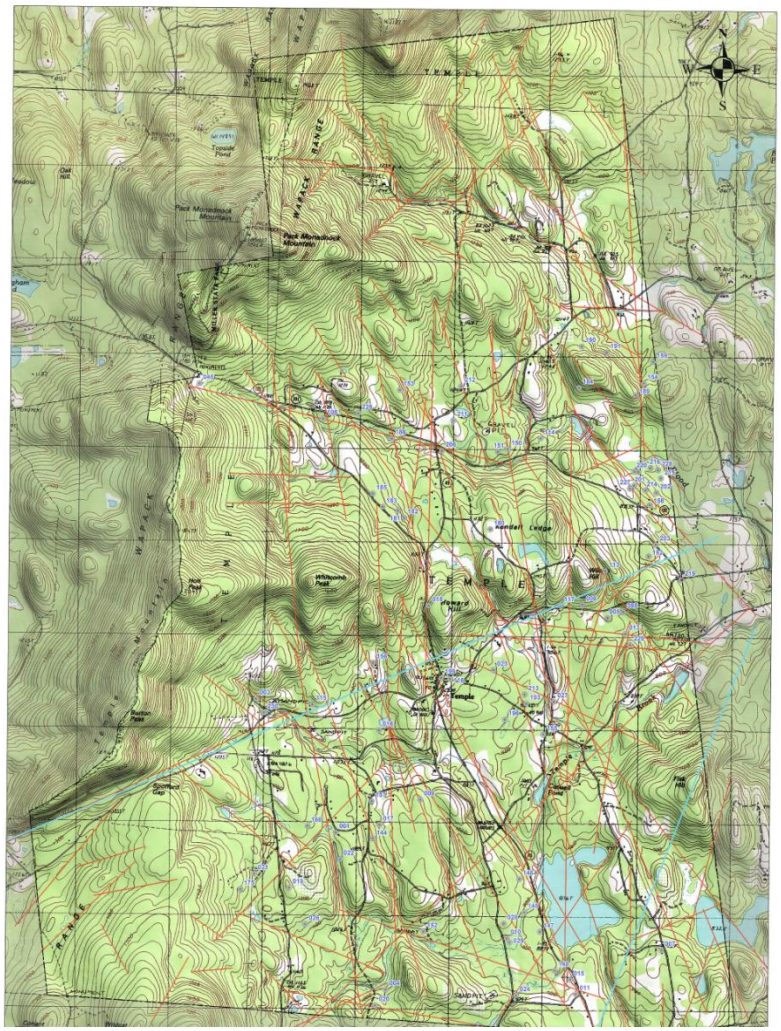
g. During Project testing the atmospheric profile shall be Pasquill Stability Class E or F preferred, Class D as alternate inclusive of maximum power output.

Study and setbacks:

Acoustically coupled:

Noting that acoustic energy is coupled and conducted through soil, and granite (other rock / soil types). Passive intermodulation distortion (PIM) occurs when acoustic energy (conducted or otherwise) of a particular "carrier" frequency, is confronted with a non-linear structure, such as fissures, cracks and other structures. The resultant modulation provides new and different (vibratory) frequencies additionally of concern to schools and academic pursuit, religious, worship or spiritual activities, residents, agriculture, farm animals, humans, and so-on.

For example, cracks and fissures apparent (in red)



Pipeline Setback:

Acoustic coupling and conduction, with resultant PIM, shall be modeled, using detailed land-based survey of soil and granite or rock content, with aerial stereo photographic methods as supporting information.

Compressor Station Setback:

Especially with multiple motors or engines (regardless if electrically-powered or otherwise), intermodulation products and distortions, in addition to any (low frequency vibratory or other) carrier frequencies are apparent at the source and available for acoustic coupling and conduction into other PIM structures and paradigms.

Setbacks shall be determined by modeling to render appropriate siting and locations for compressor stations given existing structures nearby.

Electromagnetic Spectrum setbacks

Communications Interference:

Any Project shall be sited and operated so that it does not interfere with television, telephone (including cellular and digital), microwave, satellite (dish), navigational, or radio reception to neighboring areas. The Applicant shall provide certification from a NH licensed Professional Engineer confirming that the proposed project will not interfere with television, telephone (including cellular and digital), microwave, satellite (dish), navigational, or radio reception to neighboring areas. The Applicant shall be responsible for the full cost of any remediation necessary to provide equivalent alternate service or to correct any problems. Remedies may include relocation or removal of the Project. The Applicant of the Project shall respond within five business days to any request for a communications interference investigation by a property owner within the Project Boundary and a 12-mile radius beyond the Project Boundary. Testing shall commence within ten working days of the request. The Applicant is responsible for mitigating within ten working days from determination of interference cause attributed to the operation of the Project.

General Heavy Construction Guidelines or Regulations:

Purpose:

Regulations, inclusive of setbacks:

A: Provide for the safe and attractive development of the site and guard against such conditions as would involve danger or injury to health, safety, or prosperity by reasons of (1) Inadequate Drainage or conditions conducive to flooding of the property or that of another. (2) Inadequate protection for the quality of groundwater. (3) Undesirable and preventable elements of pollution such as noise, smoke, particles, or any other discharge into the environment which might prove or does incur episodes harmful to persons, structures, or adjacent properties. (4) Inadequate provision for fire safety, prevention and control.

B: Provide for the harmonious and aesthetically pleasing development of the municipality and its environs.

C: Provide for open spaces and green spaces of adequate proportions.

D: Require the proper arrangement and coordination of streets within the site in relation to other existing or planned streets or with features of the official map of the municipality.

Procedures:

Many applicants for gas pipeline projects want to be "good neighbors." To fulfill this explicit request, the following is required. (Please note: Our licensed professional engineers have implemented and executed every one of the forgoing methods for siting, operating and construction methods.)

In the foregoing, the applicant shall bear all costs of review including:

1. Notification of abutters.

2. Fees.
3. Costs of special investigations, studies, town's consulting engineers, etc.
4. Expert testimony for experts of the Public, Municipalities and NHSEC requirements

Submission Requirements:

A. Existing Data and Information:

1. Location of site including names and addresses of owners of record, the applicant or developer, the engineer or surveyor.
2. List of current names and addresses of abutters.
3. Two (2) mylars and four (4) paper copies of the site plan, the scale of the map (to be no greater than 1"=100'), North arrow and Date. Maximum size of each drawing is 22" x 34".
4. Vicinity sketch showing location of site in relation to the surrounding public street systems.
5. The surveyed boundary lines of the area included in the site(s). Location and width of all existing roads, driveways, and easements shall be shown.
6. copies of any existing or proposed easements, covenants or deed restrictions regardless of eminent domain condemnation.
    a. Include all stone walls (ancient, antique or otherwise) in drawing, maps, mylars, deeds etc.
    b. Include all maple tree locations proposed for cutting operations in the same
    c. Include nearby indigenous peoples' or other historically relevant monuments, districts inclusive of spiritual or religious significance and their distance from any site(s) proposed by applicant
7. Existing grades, drainage systems, structures and topographic contours at intervals not exceeding 5'.
8. Shape, size, height and location of existing structures and wells (springs, aquifers, waters) located on the site and within 200' of any pipeline survey area (to include temporary road access, pipe yards etc., and any areas of operation for applicant), and within 3 miles of any compressor station site meeting or exceeding boiler plate rated 6,000 horsepower.
9. Natural features including watercourses and waterbodies, various types of vegetation and topographic features.
10. Soils data as certified by the County Soil Conservation Service.
11. Vernal pool structures with locations on maps, mylars, etc. inclusive of fern, flora and fauna identified by land-based survey (aerial survey not admissible due to inability for identification of above fauna species).
12. Weather Data for the past 10 years, especially inclusive of most recent 3 years, and previous declarations of NHDES ozone alerts and weather inversion.

B. Proposed Development:

1. Proposed grades, drainage systems, structures, and topographic contours at intervals not exceeding 5'. Include steep terrain and mitigations thereof for apropos pipeline or compressor station development.
2. Shape, size, height, and location of the proposed structures including expansion of existing structures, with typical elevations and floor plans, inclusive of exhaust stacks and ancillary equipment of any kind (now or future). Include proposed streets, driveways, parking spaces, loading areas, sidewalks and their dimensions shall be shown.
3. Design and location of all proposed utilities including but not limited to water supply, waste disposal, septic tanks and leach field systems.
4. Location, type and size of all proposed landscaping, screening, etc.
5. Provisions for control of erosion and sedimentation, both temporary and permanent.
6. Provision for fire safety, prevention and control inclusive of fire breaks; design criteria must include dry seasons in Spring and Autumn especially including dry leaves recently fallen from deciduous trees.
7. Storm water drainage plan showing existing and proposed methods of handling storm water run-off based on a 20 year flood storm frequency.
8. Location of all building setbacks required.
9. Copies of all applicable state approvals and permits.

General Standards and Requirements:

The following general standards and requirements shall govern the review and implementation.

1. The proposed use, building design and layout shall meet the provisions of ordinance, subdivision regulations, and the intent of any master plan for given encumbered municipalities.
2. The proposed use and design layout will be of such a location and in such size and character that it will be in harmony with the appropriate and orderly development of the surrounding area.
3. The proposed use and design layout will be of such nature that it will make vehicular or pedestrian traffic no more hazardous than is normal for the area involved.
4. The land indicated on the plan shall be of such a character that it can be used for building purposes without danger to public health or welfare.
5. The proposed use shall provide for open spaces and green spaces of adequate proportions.
6. The proposed use shall provide for the adequate or appropriate requirement of protection for groundwater.
7. The landscape shall be preserved in its natural state insofar as is practical by minimizing tree (especially maple trees) and soil removal. Site preparation is to be conducted with minimal disturbance to existing vegetation. Stripped topsoil is to be piled and reused on the site where needed. A minimum of 4" of topsoil is to be placed on the disturbed area. The site shall be adequately landscaped by means of natural undisturbed vegetation or features, or ground cover, shrubs or trees as appropriate.
8. Grading and filling must be conducted to minimize the alteration of surface and subsurface drainage to, toward, or across abutting properties, unless the written consent of the abutting owner is obtained.

9. Exposed storage areas, exposed machinery installations, service areas, truck loading areas and similar accessory uses and structures shall be subject to such setbacks, screen plantings or other screening and buffering methods as shall reasonably be required to prevent these areas from being incompatible with the existing or contemplated environment and surrounding properties.
10. Appropriate buffers or screening as deemed necessary by the NHSEC or local Planning Board(s) shall be maintained, in good faith for good neighbors (as proposed by applicants, typically) or installed to provide privacy and noise reduction to residential areas abutting non-residential sites of development.
11. Water supply and sewage disposal systems must be adequately sized to meet the needs of the proposed use under the regulations of the N.H. Water Supply and Pollution Control Division. It shall be the responsibility of the developer, his or her agent to provide adequate information to prove the area of the lot is adequate to permit the installation and operation of an individual sewerage disposal system. The developer shall be required to provide the necessary percolation tests and submit such tests together with the proposed plan to the State of N.H. Water Supply and Pollution Control Division for its consideration and approval. Such approval must be given before site plan approval can be given.
12. Sufficient off-street parking, loading / unloading, and pedestrian accommodations must be provided so as not to impede on public streets or adjacent properties.
13. Outdoor lighting is restricted to that which is necessary for advertising, safety and security of the development and shall not glare on abutting properties, public highways or streets. Indirect lighting may be used on signs advertising goods or services offered on the premises. Moving, fluttering, blinking, or flashing lights or signs are not permitted, as may also be in alignment with many local regulations.
14. Approval of the N.H. Department of Public Works and Highways or Town Highway Department for any required driveway permits or curb cuts.

Performance Bond

The NHSEC may (or should, or will) require the posting, prior to final approval of any plan, of a bond or escrow agreement in such amount as is approved by The NHSEC or local Planning Board(s) as being reasonably necessary to ensure completion of all improvements required as conditions of approval of such a plan, in such form as may be approved by the NHSEC, Planning Board(s) and Town(s) Counsel(s).

Waiver

Upon a request from an applicant or upon a motion of any regular member, the NHSEC, Board(s), *et al*. may vote to waive, in whole or in part, the requirements of the section titled **Submission Requirements** when the proposed site plan involves either no structural changes or only minor structural expansion, or when, in the majority opinion of the NHSEC, Board(s) *et al*., the literal enforcement of the regulation would create an unnecessary hardship, due to unique characteristics of the site in question, and such waiver would not adversely compromise the purpose or intent of the site plan review regulation.

Construction:

Large Scale Infrastructure Construction, Utility Transmission and Distribution Construction, and Industrial Construction; as performed by trades defined in OSHA Major Group 16 (OSHA Website).

This section applies to the Construction Site, all Lay Down and Staging Areas.

Definition of Terms:

Large Scale: Projects which cause the disturbance of 3 acres (or more) of real property, public or private.

Infrastructure Construction: Construction of technical structures such as; roads, bridges, tunnels, water supplies, sewers, electrical grids, natural gas supply and telecommunications.

Utility Transmission and Distribution Construction: Construction of facilities required to facilitate the transmission and distribution of Natural Gas, Electrical Power, Water and Telecommunications.

Industrial Construction: Construction of Warehouses, Manufacturing Plants, Electrical Generation Facilities, Natural Gas and Petroleum Plant facilities and other Product Production facilities.

Planning and Design

1. No Construction will be allowed within the town limits by Owners or Contractors with previous willful or unintentional OSHA Violations or Contract Defaults.
2. No Construction will be allowed within the town limits by Owners or Contractors whose principals, officers or owners have been convicted of a felony in NH or any other state.
3. The Project Design must be performed by a New Hampshire registered and licensed Professional Engineer. Surveys must be performed by a New Hampshire registered or licensed Professional Land Surveyor of New Hampshire.
4. Design Plans must conform to all New Hampshire and Town(s) Building Codes, Ordinances and Permitting.
5. Design and Construction must conform to all Federal, State and Local Regulations with regard to all Environmental regulations, guidelines and best practices, including but not limited to Air, Water, Soil, Light, Noise, Hazardous Material Handling and Disposal.
6. All Project Designs must include a detailed Safety Plan including but not limited to: Standard Operating Procedures (SOPs) for construction segments; traffic maintenance; worker and Public Safety.
7. All Construction Plans are subject to review and approval by the Town(s) Planning Board(s), Town(s) Select Board(s), Town(s) Engineer(s) and Road Agent(s).
8. Five (5) Complete Sets of Design Plans and Project Construction Specifications shall be submitted for approval. This will also include a progress schedule indicating the major items of construction.
9. All applicable permits and an approved set of construction documents must be maintained on site and be available for review by all State, Local Officials and Public or their designated representatives.
10. A Bond will be required to be posted by the contractor prior to the beginning of construction.

11. The Owner and Contractor must carry all necessary Insurance of adequate value and will include the Town(s) as a rider on all Policies at no cost to the Town(s). The Town(s) will be held harmless in all matters relating to the proposed project.
12. Construction of the project will not begin until all necessary and applicable permits for the entire project have been obtained for construction.
13. During Construction, an up to date construction progress report shall be prepared by the contractor (weekly: required) and provided to the Town(s) Engineer(s) and/or Select Board(s) for their use. The progress report will be submitted as a hard copy (5 Copies) to the Town(s) Offices on the Monday following the conclusion of the construction week. This will include an updated progress schedule of the major items of construction.
14. At the completion of the construction, fully updated and completed sets (5 sets) of As-Built Plans and construction specifications (5 Copies) shall be submitted to the Town(s) Engineer(s) and/or Select Board(s). Submission of the documents shall take place no later than 30 days after project completion. No Certificate of Occupancy (C of O) will be issued or bond released until this requirement is met.
15. A Landscape Design Plan in keeping with the rural character of the Town(s) is required within the borders of the facility and extending to the Project Limit Lines. Vegetative Screening at the fence line is expected as a minimum.
16. Building exteriors must be of a character that is unobtrusive in a rural setting or setting becoming of the surrounding community Type.
17. Sound Pressure Levels in "rural" locations produced by facility operations shall not exceed 33 dBA (Leq 10 minute) anywhere at any time measured at the facility property line. All exhausts on any equipment shall be equipped with sound suppression equipment to meet this condition.
18. All equipment exhausts shall meet Federal and State EPA requirements with regard to equipment exhaust emissions coupled with recent and current peer-review study as allowed by NHDES.
19. The proposed project shall meet or exceed any Town(s)' nighttime Dark Sky requirements.

Clearing and Grubbing Phase

1. All necessary tree trimming and cutting must be performed by a certified arborist.
2. Proceeds of all cash crop trees removed by the contractor to be paid to the Town(s) timber tax (or Property Owner).
3. All stumps are to be removed offsite, legally disposed of and the holes filled (and compacted) with suitable clean, non manufactured fill which matches the existing surrounding soil in all respects.
4. All Clearing and Grubbing debris must be removed offsite and legally disposed of.
5. Topsoil shall be stripped prior to excavations stockpiled and stored to prevent losses caused by pile erosion by wind or water, for use in restoration phase.
6. Prior to clearing and grubbing, suitable environmental protection must be in place at the limits of the proposed construction and in the construction zone.

Construction Phase

1. All Construction will at a minimum adhere to NH State, County, Town and Local Construction Standards and existing Construction Specifications.
2. Construction Equipment will be inspected for leaks by the Independent Environmental Engineer prior to moving on site. The Owner/Contractor will have sufficient means on site at all times to control and clean up accidental spills. All substandard construction equipment will immediately be removed from the site and Town(s) limits. This applies to all equipment from Mobilization through Demobilization and for equipment using Town(s) Roads for through passage.
3. Excavation of rock may not be accomplished with explosives. Rock Cutter, Trencher, Saw or Hydraulic Excavator mounted Hammer shall be used for rock excavation.
4. No trench longer than 100 feet may be left open overnight or on weekends and holidays.
5. All open trenches must have safety fence installed adjacent to both sides of the trench for public and worker safety.
6. All OSHA Regulations related to Construction and Jobsite Safety will be strictly adhered to and monitored by an independent Safety Consultant paid for by the contractor. The Independent Safety Consultant will have complete authority to order the cessation of construction as necessary. No construction will take place in the town unless the safety consultant is present on the project within the Town borders. Safety stand downs will be conducted following the occurrence of a safety violation, near-miss or accident. The Independent Consultant reports to the Town(s)' designated Engineer or Select Board.
7. Environmental protections and controls in accordance with NHDOT specifications will be employed during the construction of the project. Environmental compliance will be monitored by an independent Environmental Consultant paid for by the contractor. The Environmental Consultant will have complete authority to stop work on the project if the required protections and controls are not regularly maintained as per NHDOT standards or are missing. Work will not be allowed to continue until the protections and controls are fully restored. No construction will take place in the Town unless the environmental consultant is present on the project within the town borders. The Independent Consultant reports to the Town's designated Engineer and/or Select Board.
8. All construction roadways must be completely removed from the project within the town borders at the completion of the installation phase and prior to restoration. Restoration of the areas disturbed by the construction roadways will be restored to the Town's Engineer, Road Agent and/or Select Board's satisfaction.
9. No construction is permitted on Holidays, weekends and/or nights within the town borders. No overnight road closures or detours are permitted. No Overnight deliveries are permitted.
10. Dewatering is not allowed except by permit. Discharge of dewatering systems will be accomplished through filtered settling basins as designed by the project environmental engineer (NH registered/licensed P.E.) in accordance with Federal, State, Local requirements and standards.
11. Jacking or Boring for installation of conduits, pipelines, etc. must cross roadways perpendicularly and must be designed fully by a NH registered/licensed Professional Engineer.
12. Directional Boring (Drilling); Road crossings shall be perpendicular to the roadway line of travel. The depth of crossing for roads shall be 12 feet below wearing course finished grade. The drill

path surface grade during this operation shall be constantly monitored for evidence of fracking (drilling mud appearing at the road surface or other surfaces along the drill route). In the event of fracking, the bore will stop and the fracked material immediately cleaned up and removed offsite to a lined landfill. Drill fluids exclusive of the bore and receiving pits shall be collected in Adler type Frac Tanks, the fluids recycled and reused or disposed of in a lined landfill. Water used for this operation shall be potable drinking quality water. If Fracking occurs the Directional Bore (Drill) will be abandoned and sealed.

13. Directional Boring (Drilling) under water crossings and wetlands shall be at a depth of 25 feet below grade for wetlands and water crossing beds. The Drill path shall be constantly monitored for the evidence of Fracking. Any unexplained loss of Drilling Fluid or evidence of fracking either on the wetland or water body surface will be cause for the operation to immediately stop and the fracked fluid to be cleaned up and removed offsite to a lined landfill. The Bore (Drill) will be abandoned and sealed. Drill fluids exclusive of the bore and receiving pits shall be collected in Adler type Frac Tanks, the fluids recycled and reused or disposed of in a lined landfill. Water used for this operation shall be potable drinking quality water.
14. During Concrete Construction, Redi Mix delivery truck washout will not be allowed on ground surfaces that will permit slurry runoff to adjacent ground surfaces. Washouts, after hardening, will be removed from site and the town limits and legally disposed of. It will not be used as backfill or road base material.
15. Care will be used when coating concrete forms that no form release agent (form oil) shall be spilled or dripped on any ground surface. This also applies to post poured concrete cures and coatings.
16. Excavated or milled road material will not be used as backfill or road base material. It will be removed from the site and town limits and legally disposed of.
17. Oil shall not be mixed with fill materials to create a subbase for roadways, temporary or permanent.
18. Imported Backfill will match the existing surrounding soil in all respects. Site Soil samples will be obtained prior to construction and soils lab tested for gradation, pH and all other qualities. Imported Soil for backfill will meet these test requirements. The Owner/Contractor will gather the samples under the supervision of the independent Engineering Consultant. The Lab results will be furnished to the Independent Engineer directly by the lab. The Engineer will furnish copies of the lab results to the Owner/Contractor for his use in locating a borrow source. Samples taken at the borrow pit will be under the direct supervision of the independent Engineer and provided to the Soils Lab for testing. Test Reports for the borrow sample(s) will be provided by the lab to the independent Engineer who will share them with the Owner/Contractor. The approved borrow source will then be marked at the source, identifying it as material for the project. Borrow fill brought on site will be accompanied by a scale or volume ticket provided by the source. Copies of these tickets will be contained in the AS-Built documents furnished to the town. This Borrow fill will contain no chemicals, Bituminous Concrete, Portland Cement Concrete, Hazardous Materials or other contamination and will not be a manufactured soil material.

19. Temporary Pavement will be Hot Mix Binder Course Asphalt only. All Trenches across roaends will be backfilled and compacted to 95% proctor and Temp Paved at the end of each work day. Jetting will not be permitted for compaction. Temp Asphalt will be compacted with a 5 Ton Roller (minimum).
20. All Roadways within the town used by the Owner/Contractor for delivery of Labor, Equipment and materials to the site will be video graphed by the Owner/Contractor in conjunction with the Town(s) Road Agent / Engineer prior to the start of construction. Both parties shall retain a copy of the video. Damage to the wearing course, road base or other appurtenances to the roadway during the period of construction shall be repaired by the Owner/Contractor to the satisfaction of the Town(s) Road Agent / Engineer. Repair of the roadway shall be in kind. Any Bridges that the Owner / Contractor deems part of the routing needed for delivery of labor, equipment and materials to the project shall be inspected by a NH registered structural engineer prior to any passage for soundness. The structural engineer will be designated by the Town Select Board in conjunction with the Town Road Agent / Engineer and paid for by the Owner / Contractor. Should any bridge be deemed insufficient, that route will not be used for delivery. The Town is under no obligation to and will not repair any bridge deemed insufficient for the Owner / Contractors purpose. The structural engineer will report directly to the Town Board of Selectmen (hereafter BOS).
21. Trenches across Town Roads shall be restored in kind with the binder and wearing courses each receiving an eighteen (18) inch cutback from the trench and previous course layer upon completion of the trench restoration, an additional one (1) inch thick wearing course shall be applied to the entire roadway from nearest intersection to nearest intersection. All public and private drives shall be adjusted to meet this new wearing course, providing a smooth transition from the existing drives. Public and private drives shall be milled or notched to provide the transition. This paving shall be performed to the satisfaction of the Town(s) Road Agent / Engineer.
22. Traffic Control Devices employed on and around Town Roads shall conform to the FWHA Manual of Uniform Traffic Control Devices (MUTCD) and shall be maintained in a clean and undamaged condition during the construction of the project.
23. All Sanitary and product piping shall be hydrostatically tested prior to intended use. Testing pressures will follow industry standards. Water for testing may not be drawn from the town aquifers. In addition, test water shall be collected in Frac type tanks, removed from the town and legally disposed of outside of the town borders.
24. Buy American; Federal Acquisition Regulations or equivalent: The Owner / Contractor shall make a good faith effort to purchase construction materials, components and equipment manufactured in the United States.
25. The Owner / Contractor shall make a good faith effort to employ local labor and craftspeople, where possible, in the construction of the project.

Restoration Phase

1 At the conclusion of the construction phase, the roadways within the Town borders used for construction or delivery of labor, equipment and materials shall again be video graphed by the Owner/Contractor in conjunction with the Town's Road Agent / Engineer. Any and all damage to the roads shall be assessed by the Town Road Agent / Engineer. Roads damaged by the Owners /Contractors use for construction or delivery of labor, equipment and materials to the project will be repaired by the Owner/Contractor to the complete satisfaction of the Town Road Agent / Engineer. Roads will be repaired / replaced in kind. All roads damaged and repaired will receive a new one inch (1") compacted thickness wearing course of Bituminous Asphalt. The Asphalt wearing course shall meet the specifications of the NHDOT for high friction wearing course asphalt paving. The wearing course installation shall extend over the entire route of passage usage by the Owner/Contractor. Paving limits will be assigned and marked by the Town Road Agent / Engineer in conjunction with the Owner / Contractor. Any traffic markings will be replaced as necessary and will conform to NHDOT specifications with regard to permanent reflective pavement markings. Non-Plowable markers shall also be replaced as necessary and will also conform to NHDOT Specifications. Appurtenances shall also be evaluated and repaired / restored as necessary.

2 At the conclusion of the construction phase, the bridges along the route(s) will again be inspected by the structural engineer. This inspection will be paid by the Owner / Contractor. The Structural Engineer will report directly to the Town BOS. Any and all damage discovered during this inspection will be repaired by the Owner / Contractor at no cost to the town and to the satisfaction of the NH registered structural engineer, the Town Road Agent / Engineer and the Town BOS.

3 Should the Project Owner / Contractor require ongoing yearly usage of the Town roadways to continue operation / production of his or her endeavor, the roadways / bridges will be assessed yearly for damage due to the Owner's / Contractor's operations. All assessed damages will be repaired at the Owner's / Contractor's expense. The yearly inspection of the roadways, bridges and appurtenances will take place in the springtime of the year to allow a construction season for the damage to be corrected. Damage assessment will be performed by the Town Road Agent. All repairs will be made to the satisfaction of the Town Road Agent. Prior to granting a permit to construct, The Project Owner / Contractor will agree to this provision in contract with the Town. Failure to do so will result in the project becoming non-permitable and non-constructible within Town borders. This provision will remain in effect for the life of the operational use / production. It will continue for one year beyond the date for which use / production ceases. Repair / Restoration performed during this period will be considered Final Repair / Restoration. A Bond will be in place to ensure this provision is completed yearly.

4 The Owner / Contractor, at the completion of his or her use of the facility will, prior to quitting the site, decommission and remove all structures and infrastructure related to the project in a manner consistent with demolition practices as outlined by Federal and State Environmental Protection Regulations. Should the Owner / Contractor during the life of the use / production sell or transfer ownership of the facility / property to another party, all Heavy Construction General Conditions herein described shall transfer to the new owner / contractor and shall be binding upon the new owner / contractor. Under no circumstances is demolition debris to remain within the town borders. In the event the proposed new owner / contractor will not or cannot agree to these provisions, no transfer of property / facility shall be permitted and the facility / property will be

decommissioned. A Bond in the amount necessary for the Jurisdiction to contract for the removal of the facility, should the Owner / Contractor abandon the site, will be provided by the Owner / Contractor and will be held by the Authority having Jurisdiction.

5 Restoration of grass areas shall be by weed free seed of a type native to the town and region. Seed, mulch, fertilization and watering shall be consistent with NHDOT specifications. Maintenance of the grass area will be continuous to ensure restored growth.

6 Trees planted during this phase will be native species only and be of a four (4) inch minimum caliper. Trees shall be maintained and watered consistent with NHDOT specifications.

7 Non Organic pesticides and herbicides (pesticides or herbicides with organic-chemistry bases or constituents) will not be used during any phase of construction or post construction maintenance.

8 Drainage runoff from the site to adjacent properties and /or public thoroughfares is not permitted.