

**Town of Halifax
Zoning Board of Adjustment**

**C.A. Denison Lumber Company and Ashfield Stone, LLC
Application for Conditional Use Permit**

Response to Questions about the Proposed Project

The application provides the following responses to the list of questions previously posed by the ZBA:

Question 1. In terms of the town’s infrastructure, what will be the impact of the truck traffic on the road infrastructure (roads, culverts and bridges) given the frequency of stone transport over the duration of the project?

Response 1. Please see the enclosed Supplemental Memorandum Concerning Proposed Quarry Project.

Question 2. In terms of potential impacts what is the cost of potential repairs and what impact will this have on the Town’s budget and tax rates?

Response 2. Please see the enclosed Supplemental Memorandum Concerning Proposed Quarry Project.

Question 3. Given the proposed route for the trucks hauling stone, there are safety concerns, especially on Stark Mountain Road. How are these to be addressed?

Response 3. Please see the enclosed Supplemental Memorandum Concerning Proposed Quarry Project.

Question 4. Will the Town be required to make improvements to TH52 as a result of this project being permitted?

Response 4. The Applicant does not expect that the Town will be required to make improvements to TH52 as a result of this project. Please see the enclosed Supplemental Memorandum Concerning Proposed Quarry Project.

Question 5. The existing haul road is passable for loaded logging trucks and the construction of the new section of road will be adequate to permit passage of stone-laden flatbed trucks. These trucks have a higher ground clearance than vehicles used within the town by emergency

personnel. Will the road be made passable for emergency vehicles and emergency responders' personal vehicles with ground clearance less than that of trucks?

Response 5. The Act 250 District Commission conducted a site visit last fall. The people that attended the visit drove their own vehicles. Vehicles included pickup trucks, passenger cars, and an emergency response vehicle. In addition, please see details set forth in the enclosed Supplemental Memorandum Concerning Proposed Quarry Project.

Question 6. In terms of the impacts of this project on the character of the conservation district, is the project in conformance with the purpose of the Conservation District as defined by the purpose of the district as stated in the Zoning Regulations and in the Town Plan? For example, see the Halifax Town Plan states (see pg. 21, "Conservation District Recommendations," item #1), "These lands are appropriate for low-intensity recreation, forestry, wildlife habitat, agriculture, hunting, and other open space uses. Development, which creates significant amount of traffic or noise, or which otherwise has an adverse impact on the environment, is undesirable."

Response 6. Please see the enclosed Supplemental Memorandum Concerning Proposed Quarry Project.

Question 7. What measures will be taken to prevent undue adverse impacts (polluting water, emissions of fumes, dust, noise and vibration) on the surrounding property owners?

Response 7. Noise: Section 7 of the Noise Impact Assessment, dated April 2014, provides some recommendations to reduce potential impacts from noise. These recommendations include:

- Maintaining forest within the project area such that the line-of-sight between the proposed operation and neighboring residences remains blocked during the life of the project.
- Using alternative backup alarms to reduce potential impacts of regular tonal backup alarms.

Water: This Project is subject to a number of permits, including three stormwater permits (State Department of Environmental Conservation ("DEC") construction phase, operational phase, and mean-sector general permits), a stream alteration permit, and a federal US Army Corp of Engineers Permit.

- As ZBA question #7 pertains to water, the Project meets the criteria required of the above permits, and as such demonstrates that water quality impacts, if any, will be within the allowable standards set forth by the State DEC as well as the applicable parts of the federal Clean Water Act.

- No blasting is proposed for this site, which avoids the storage and use of blasting chemicals and materials commonly found in other quarries.
- For a discussion on dust management and impacts, please see the following answer to ZBA questions #20 and #21.

Question 8. The expected impacts of noise are defined in a two noise studies. In layman's terms, what is 49 decibels at the nearest neighbor's house?

Response 8. The 49 dBA referenced in the question is the maximum sound level produced by the project with all equipment operating at their maximum output simultaneously. Typical conversational speech produces sound levels between 55 and 60 dBA at a distance of 3 feet. Changes in sound pressure level of 10 dB are generally perceived as a doubling or halving of loudness. So the maximum level of 49 dBA would be approximately half as loud as typical conversation.

Question 9. The noise study does not address the truck noise at the residence on TH52 near the intersection with Highway #2 or for residences along the travel route. What will be the level of truck braking and acceleration noise at this location? What will be the level of noise along the travel route?

Response 9. The Noise Impact Assessment takes into account noise from on-site equipment. Noise emissions from heavy trucks that are involved in interstate commerce are regulated by the federal government, and trucks used for this project would be subject to those regulations.

Noise impacts along the truck route will be limited in terms of frequency and duration. Truck traffic is limited to 2 loads per day or 4 trip ends (1 in and 1 out for each load). A truck travelling at 15 miles per hour covers 22 feet per second. A property with 300' feet of road frontage would have a truck travelling in front of it for no more than a minute per day at 15 miles per hour. At 10 miles per hour the duration increases to 80 seconds per day.

Question 10. The Noise Assessment of April 2014 (exhibit 13) delineates two areas of concentrated loud noise. The area to the south has a truck producing 65 dBA, which does not match the decibel levels shown in Appendix A, Table A2. That table indicates a 109-14 dBA range for a heavy truck accelerating to 20 mph. Why this discrepancy?

Response 10. Table A2 in Appendix A of the Noise Impact Assessment, provides the Sound **Power** Level of the modeled sources, including a heavy truck accelerating to 20 mph. In contrast the results within the main body of the report are Sound **Pressure** Level. The property line standard is a sound pressure level standard. The sound power level is

used to calculate what the sound pressure level would be in a specific environment. A more detailed description of the difference between sound power levels and sound pressure levels is provided in Section 3.2 of the Noise Impact Assessment.

Question 11. The noise study was done with full vegetation cover at the site (no tree clearing) and with leaves on the trees. What would the noise levels be at the property line and at nearest residences during full quarry operation with the site cleared and full foliage, and with the site cleared but no leaves on the trees?

Response 11. The Noise Impact Assessment which includes both **monitoring** and **modeling** of sound levels. The monitoring that is presented in the Noise Impact Assessment was conducted for the purposes of quantifying the sound power level of the proposed equipment. The sound power level is used as an input into the sound propagation model which projects what the sound pressure level from the project will be at neighboring residences. The monitoring was conducted at the site in September of 2013, and there were leaves on the trees at the time of the tests. Given that the type of measurements conducted were in close proximity to the equipment for the purpose of quantifying the sound power level, the foliage at the site would have minimal to no impact on the measured sound levels. In other words, the foliage would not have impacted the measurements.

Since the project area is heavily forested, the attenuation effect from foliage was included in the sound propagation modeling and the projected sound levels presented in the Noise Impact Assessment. This is referenced in Table A3 of the Appendix. The sound pressure levels in the report represent the sound levels at the property line and at the nearest residences during full quarry operations with foliage. Foliage is the summation of leaves, flowers, and branches. According to the ISO 9613-2, the international sound propagation modeling standard used for this project, foliage can be included as an attenuation factor “if it is sufficiently dense to completely block the view along the propagation path.” Thus, even when there are no leaves on the trees in the winter, there is still foliage in the surrounding forest that will block line-of-sight between residences and the project, so accounting for foliage attenuation even when there are not leaves on the trees is appropriate in this case.

Question 12. Excavators with compressor-run jackhammers are commonly used at some quarries. Are there plans to use such equipment at this proposed quarry? If so, what is the noise level?

Response 12: Excavator-mounted rock hammers are not being proposed for this project.

Question 13. Assuming the Town Truck shown in exhibit 16 will not be used to haul stone, what truck will be used to haul the stone and what noise level will they create when braking and accelerating? In the application there is a reference to a flatbed truck. Why not provide a picture of this type of vehicle?

Response 13. The type of truck used in the noise model for on-site noise is classified by the Federal Highway Administration (FHWA) as a heavy truck, which is essentially any truck with three or more axles. FHWA has standard noise emission values for this classification of vehicle and the noise emission values used for this project are provided in Table A2 of the Noise Impact Assessment Appendix. For on-road truck noise, see Response 9 above.

Question 14. What is the size and gross weight (GVWR) of the truck with and without load?

Response 14. The unladen weight of the truck pictured in Exhibit 16 is 27,500 pounds as indicated on the registration (see Exhibit 17). The registered weight is 66,000 pounds. The project can operate with trucks no larger than the truck pictured in Exhibit 16. In addition, the project does not require a dump body because the trucks will be transporting blocks of stone. Some weight reduction can be anticipated if a flatbed truck is utilized.

Question 15. What is the level of emissions from the trucks, in particular for residents on the truck route?

Response 15. All trucks will operate in compliance with current federal emissions regulations which are designed to protect public safety. Truck volume is limited to 2 loaded trucks per day such that only a minimal amount of emissions will be generated.

Question 16. A maximum of four employees at the site is sated in the cover letter in the application package. Will employees need to leave the site frequently during the day or will there be just one arrival and departure per day per employee?

Response 16. It is not expected that employees will need to leave the site frequently throughout the course of a work day. Anticipated trips will be close to one arrival and one departure per employee.

Question 17. The dates of operation are given as April 1 to November 30. During mud season, when the roads are posted, will the proposed quarry be in operation? Who determines when the roads are traversable for both employee vehicles, moving equipment and trucks hauling stone?

Response 17. Trucking will not occur during periods where the roads are unsuitable for travel. The project operator needs to ensure that the employees are safe and that the project equipment will not be damaged. These objectives are consistent with the Town's objectives of not having heavy equipment on the roads when conditions are poor. If the project is in operation when roads are posted, operations would be limited to activity that is consistent with the limits placed on use of the roads. The operator might, for example, want to go to the project to work on maintenance activities or to begin preparing blocks of rock for transport so that they are available when conditions allow for trucking.

Question 18. In exhibit 18, the memo states that rock saw at the site will not operate with the hand rock drill. Therefore, the level of noise is driven by the one generator. Will operations on site be as anticipated?

Question 18. Exhibit 18 correctly indicates that they will not operate at the same time because if they were to operate at the same time a second generator would be required. Each tool requires a power source. If a second generator were proposed it would have had to have been included in the model and the model would have had both tools operating at the same time. The comment in the report was simply meant to indicate that simultaneous operation of the tools is not possible (and not proposed) because there is only one power source.

Question 19. How effective will the final grading plan be in mitigating the expected sound levels? Given that the anticipated sound levels during quarry operation will be considerably higher than the current norm for that environment, can sound levels be mitigated so that they are very faint?

Response 19. We are not quite sure we understand the first question, but would be happy to discuss it further at the hearing. Section 7 of the Noise Impact Assessment, dated April 2014, provides some recommendations to reduce potential impacts from noise.

Question 20. How much schist dust will be generated? How will this dust be managed?

Response 20. Generation of schist dust will occur as part of the stone extraction process. Based on operational information provided by Jerry Pratt, the proposed extraction method for a given block of stone includes drilling 4 holes and making two saw cuts (a back cut and a bottom cut). Assuming two large 54" x 54" x 10'-2" blocks per day, the volume of fines generated per day would be approximately 0.35 cubic yards, or about 9.5 cubic feet.

Operationally, dust control measures will be provided on the drill and saw; wet suppression will be provided on the saw, and either vacuum or mist suppression will be

provided on the drill. Dust collected at the site will be combined with on-site overburden soils to limit runoff volumes.

Runoff from the project quarry site will be intercepted by the proposed stormwater conveyance infrastructure, which then leads to the quarry stormwater treatment pond. Any fines not captured by the above operational management process (which is expected to be a very small percentage of the fines generated on site) will subsequently flow into the pond, where they will be subject to pond settling.

Question 21. Will any of the schist dust be tracked offsite?

Response 21. Tracking of schist dust to off-site locations is not anticipated.

Question 22. At 430 meters, does the site provide significant recharge to aquifers?

Response 22. The quarry, which is located between elevations of 390 and 432 meters above sea level according to the USGS topographic map, does not likely provide significant recharge to aquifers because it appears to be located in a groundwater discharge area, and because the soil and bedrock types at the site have low permeabilities/transmissivity to the flow of water, so that rates of discharge/recharge are limited.

The majority of the soils at the quarry site (Westbury fine sandy loam, Tunbridge-Lyman complex, and Marlow fine sandy loam) are classified by the US Natural Resources Conservation Service as hydrologic groups C and D, which have low permeability rates and produce more runoff rather than groundwater recharge. Note that the permitted stormwater management system (authorization #7130-9015) was designed not to provide groundwater recharge, based on the site characteristics.

The presence of surface water (wetlands, and streams emerging from some wetlands and from non-wetland areas) in the vicinity of the quarry indicates that the area is most likely a groundwater discharge area rather than a significant recharge zone. Also, the sloping, convex topography of the quarry site is indicative of shedding water rather than affording significant recharge.

Most likely, significant aquifer recharge in this region occurs on the higher terrain above the 480-meter elevation.

Question 23. Is there any information about whether the schist quarry will have an impact on ground water/aquifer water quality?

Response 23. Yes, there is information about potential impacts on groundwater and aquifer water quality. The proposed schist quarry would not have any significant impact

on groundwater quality because no chemicals or blasting explosives would be used in the quarrying, and because stormwater runoff would be treated and directed to a surface outfall rather than being infiltrated to groundwater. Because the quarry site is located in an apparent groundwater discharge zone, water is expected to flow into the quarry (as seepage through the quarry walls and floor) rather than being emitted from the quarry into the groundwater.

Question 24. In a highwater event, water runoff to the Green River would feed into the Greenfield public water supply. Is this a public water supply concern?

Response 24. Runoff from the proposed quarry site is subject to both construction phase and operational phase stormwater permits issued by the State DEC Stormwater Program. Site runoff controls meet the requirements of both permits, including State requirements associated with high-water events, and therefore the Project does not pose a risk to the Greenfield public water supply.

Question 25. Is there any proposed maintenance for the ponds when the proposed quarry is not in operation and after the final closing of the quarry (i.e., dredging, filtering)?

Response 25. Regular stormwater pond maintenance inspections are required while the quarry is in operation, with the minimum frequency being once monthly. Excepting times when the site is buried in snow and minimal runoff is occurring, we recommend that monthly inspections to the stormwater infrastructure also occur during the off season. We also recommend inspections to the stormwater infrastructure occur following large precipitation events whenever they occur.

Per the conditions of the quarry reclamation plan, the quarry site will eliminate impervious areas, be regraded to return the site to sheet-flow conditions, and revegetated. This includes the filling and/or elimination of site stormwater conveyances (swales and pipes). Once reclamation is complete, the proposed stormwater system will be discontinued, and will be subject to stormwater permit termination. Until the permits are terminated (with State approval), the ponds will require annual inspections. Per the conditions of the stormwater permits, any maintenance observed to be necessary as part of the annual inspections will need to be done shortly after the time of inspection.

The ponds should be inspected and maintained as necessary prior to winter shut-down. Generally speaking, stormwater pond maintenance is not anticipated to be required during the off season.

Question 26. Will there be a runoff that will make its way down to the north from road construction and site operation approximately 500 feet to Deer Park Brook?

Response 26. As mentioned in the response to ZBA question #7, this project is subject to both construction phase and operational phase stormwater permits issued by the State DEC. Runoff from the site needs to meet strict criteria in order to stay in compliance with the permit conditions. Both construction phase and operational phase controls have been designed to meet the criteria of the State stormwater permits. Proposed stormwater controls are depicted on the site plans. All stormwater is treated per the requirements of the Vermont State Stormwater Manual prior to the time when it leaves the detention pond.

Question 27. Will there be any regularly scheduled site monitoring, maintenance, or visits during those months of the year when the quarry is not in operation?

Response 27. Please refer to the response to ZBA question # 25.

Question 28. What type of site and/or access road security is planned to forestall unauthorized access during periods when the quarry is not active?

Response 28. There is an existing gate at the intersection with TH 52. An additional gate will be installed where the proposed access road intersects the existing access road near the quarry area.

Question 29. Plan Sheet C-7 shows the Extraction Limits. Where are the documents for the reclamation plan?

Response 29. The Reclamation Plan RP-1, dated December 19, 2014, is attached.

Question 30. Is the proposed \$10,000 escrow amount sufficient for reclamation? How was this figure calculated?

Response 30. The Applicant believes that the proposed reclamation amount is sufficient. We reviewed other permits for similar projects to assist in calculating the figure. The proposed reclamation escrow is the same amount as what was approved for a project in Randolph, Vermont of similar overall size (a copy of the permit is enclosed). Both projects involve the removal of rock in a manner that will not result in a hole in the ground. Neither project involved the sale or transport of overburden. Both projects proceed in a 'reclaim as you go' manner. Onsite equipment will be used to complete reclamation. In summary, reclamation is undertaken as the project proceeds, all of the dirt required for reclamation is onsite and it will stay there, all of the necessary equipment

is onsite. The design of the project reduces the end-of-project work required to reclaim because reclamation will be an ongoing effort.

Question 31. In the Natural Resource Assessment (Exhibit 8) there is discussion of how the project will avoid direct impacts on bear, deer and moose habitat. What will be the impacts of the project on the habitat for the range of fauna and flora in the Conservation District?

Response 31. For purposes of evaluating impacts to fauna and flora per the Town Plan policies, the Applicant interprets that the suite of species and habitat for such fauna and flora is defined by those discussed in the “Natural Areas” and “Fish and Wildlife” sections (pages 32-34 of the Town Plan). From this, fauna would include rare, threatened, or endangered animal species, large predators and herbivores. The Fish and Wildlife Section notably includes Fisheries associated with the Green River and East Branch of the North River, deer wintering areas, and bear habitat. Flora reviewed under the town plan would include rare, threatened, or endangered plant species. As such, the Applicant offers the following assessment in response to this question:

- The Project site does provide habitat for a range of plant species common to forested and actively management forestland in the region, as well as common terrestrial and avian wildlife found in this habitat.
- There are no rare, threatened, or endangered animal or plant species known from the Project site. There are also no natural areas within the project site as identified by the Town Plan.
- Important large fauna that has been identified as using, or potentially using the site include: white-tailed deer, black bear, and bobcat. The Project will incorporate impact mitigation elements for the important habitat identified for each.
- The Project will not impact fisheries associated with either the Green or North Rivers. The Project has worked with the VT Fish and Wildlife Division and the VT ANR to design the Project to minimize impacts to surface waters.
- As described in the Natural Resource Assessment (Exhibit 8), much of the Project, including the proposed extraction site occurs within a recent cutover. It has been recognized that the current regenerative nature of the cutover is providing wildlife food and cover source value for a range of terrestrial fauna, including deer and bear, other smaller mammals, and various songbirds that commonly use such habitat. This habitat type, although valuable to local wildlife while regenerative conditions occur, is artificial, temporal, and can be created through proper forest management techniques readily, and therefore should not warrant review of impacts. However, the project will be constructed within the area of this cutover. It is expected that similar regenerative habitat conditions will occur surrounding the developed/active portions of the extraction site and also within other portions of the overall tract where forestry operations are active, which can be used by the same suite of fauna as does now.
- Also, the level of activity at the extraction site, combined with the seasonally-limited use period, will not be dissimilar from active forestry operations and is expected to result in

limited indirect impact on fauna that are currently accustomed to this level of activity in such habitat.

Question 32. As stated in the introduction, relevant portions of the Zoning Regulations and of the Town Plan are not reference in the applicant's application package. For example, the Halifax Town Plan (pg 5, #16) states that one of its goals is "To discourage uncoordinated or incompatible development that may jeopardize or overburden public or private investment, or damage the town's resources, rural character, and overall quality of life." Why have these relevant sections(s) not been addressed in the application package?

Response 32. Please see the enclosed Supplemental Memorandum Concerning Proposed Quarry Project.