

September 14, 2018

Dear Windham Town Council,



I have several concerns about the quarry proposed for the vicinity of Forest Lake. I have a summer cottage on the lake at 25 Lakeside Drive. I have been coming to Forest Lake for 50 years, ever since I met my wife, formerly Eleanor Langford, in 1968 when we were college students. Her father built the cottage in the 1950's, so we have a long term and deep interest in protecting and preserving Forest Lake. I have a background in environmental science and have included a brief resume which is attached to this letter.

Windham is blessed with enviable natural resources, largely in the form of lakes. The future for Windham is a bright one, and as population increases in southern Maine and summers warm up, the demand on our lakes for recreation and for development will increase as well. Windham's future is not going to be in mineral extraction, but in the protection and preservation of high quality water resources.

The quarry plan as proposed is very superficial, and although it mentions careful development and alludes to taking care of environmental problems as the quarry operates, but really isn't a plan at all. It is more of a statement. A site development plan must outline exactly how the developer will protect the environment. Without a detailed plan, it is impossible for the town to regulate the quarry since the developer has given no specifics. A "trust me to do the right thing" plan is not enforceable since there is little environmental protection specified in the plan.

I have noted several areas of concern below.

#### SITE RUNOFF

The plan as submitted states that vegetation and soil will be removed from the site before mining operations begin. Vegetation and soils hold back rainfall and slowly release water over a period of time. Bare rock has no water retention time, and the project will be large enough to generate a considerable amount of water that will run off the site. I was not able to find any detailed plans to hold back or adequately treat any water that will run off the site, such as retention or sedimentation ponds.

Large volumes of water are often reported as acre-feet, which makes it easy to calculate the total volume of water involved in a project. An acre foot is equivalent to one foot of water covering an acre of land. An acre-foot

contains 325,851 gallons of water. Assuming the eventual existence of a quarry 70 acres in size and a two-inch rainfall event such as a thunderstorm, approximately 4 million gallons of water will run off the 70 acre quarry after a two-inch rain event.

Most of us have trouble conceiving of 4 million anything. To put it into perspective, a backyard swimming pool 20 feet by 40 feet by 4 feet average depth contains 30,000 gallons of water. That means that the equivalent of 133 backyard swimming pools of the above dimensions will run off the quarry after a two-inch rain event.

To compound the problem, part of the site has slopes approaching 15% (see the soils map submitted by the proponents). Slopes accelerate velocity of runoff. Everyone has seen videos of flood events following heavy rain on slopes cleared of vegetation by wildfires in California. While no direct comparison of the different events is possible, water moving down a hill is a powerful force that I did not see addressed in the proposal. People living downslope might be interested in knowing they have been protected by a detailed site runoff plan.

Fast moving water scours soils as it moves downhill, picking up naturally occurring nutrients and soil particles. This nutrient-rich silt not only makes water cloudy but encourages the growth of algae. Millions of gallons of runoff over time will have a very negative impact on Forest Lake, reducing property values and recreational opportunities. Over the life of the project, the volume of runoff from the quarry could be in the hundreds of millions or even billions of gallons. At the present time, network news media report that the State of Florida is facing enormous water pollution problems of this nature which are affecting tourism and even the gubernatorial election. This problem could be repeated, although on a much smaller scale, at Forest Lake.

## TRAFFIC

According to the proposal for the quarry, as many as 50 trucks per hour would access the facility. I assume that 50 trucks in means 50 trucks out per hour. Assuming that the distance from Blackstrap Road to the quarry entrance is 1.5 miles, and the average travel speed of a dump truck would be 15 miles per hour, a round trip from Blackstrap Road to the quarry and back to Blackstrap Road would take about 12 minutes. Each of the trucks would be on the road for 12 minutes. If you set up a lawn chair along the route a truck would pass by you, going one way or another, about every 40 seconds or so, although with some variation around that average.

That volume of traffic is overwhelming. The road would become loud and dangerous, and depending on the season, a dusty or muddy mess. No one living along it or even near it would feel comfortable driving it or walking it or letting their kids ride bikes on it. The entire area would go from residential to industrial. The proponent has not done a traffic survey, but even without a survey it is clear that nothing would be the same.

## BLASTING

The proposal calls for site blasting. Forest Lake is largely fed by springs. Blasting, even at the surface, is well known to have the ability to change the discharge and volume of springs. The report did not specify what per cent of Forest Lake's water enters the lake by springs, but it seems that given the small size of the feeder streams it may be substantially spring fed. Any change to the springs would affect the lake. A study of the springs involved in Forest Lake's watershed should be performed by the applicant and approved by the town before any blasting takes place.

There is also no noise study. Blasting does create noise disturbances. Without a noise survey of existing noise level it is impossible to judge what effects the blasting would have on the neighboring properties. Noise surveys are normally done in both winter and summer since both the ambient noise levels and sound propagation at those times is so different. Without a noise survey and more details about the blast schedule it is impossible to assess the impacts of the quarry on noise, except that there is the potential for a good deal of noise that doesn't exist now.

## IN CLOSING

The Town of Windham's future prosperity is tied more closely to the health of its lakes than any other single resource. All its lakes, whether large or small, deserve the same level of environmental protection. I urge the town to require the applicant to submit detailed and quantifiable plans before giving out any permit. Better still, the project should be denied based on the lack of impact details and the potential for serious damage to the lake and area property values. My experience has shown that once a resource is degraded it is nearly impossible to bring it back to its original state.

Sincerely,



Mike Donovan. 802 999 4744

25 Lakeside Drive, Windham, ME 04062 (summer)

176 Belvidere Street, St Johnsbury, VT 05819. (not summer)

BRIEF PROFESSIONAL BIOGRAPHY OF MIKE DONOVAN (JAMES MICHAEL DONOVAN)

1970 BA UNIVERSITY OF NEW HAMPSHIRE

1972 MS MARINE BOTANY UNIVERSITY OF NEW HAMPSHIRE  
THESIS: ENVIRONMENTAL IMPACTS OF UNDERWATER SAND AND GRAVEL MINING IN THE GULF OF MAINE

1972-1974 ECOLOGIST, ECOLOGY & ENVIRONMENT, BUFFALO NY  
ALASKA PIPELINE, NORTHERN BORDER TRANSCONTINENTAL PIPELINE

1974-1980 ENVIRONMENTAL PROJECT MANAGER, SARGENT AND LUNDY ENGINEERS, CHICAGO  
NUCLEAR POWER PLANT DESIGN AND LICENSING, UNITED STATES AND THE MIDDLE EAST (IRAN)

1980-1989  
ENVIRONMENTAL PROTECTION SPECIALIST, RURAL ELECTRIFICATION ADMINISTRATION, WASHINGTON DC  
REGULATED ELECTRIC POWER GRID ACROSS THE UNITED STATES

1989-1996  
PRINCIPAL SCIENTIST, STONE AND WEBSTER ENGINEERS, BOSTON  
NATURAL GAS PIPELINE PROJECT MANAGEMENT

1996-2001  
ENVIRONMENTAL CONSULTANT, AIRPORT EXPANSION PROJECT

2001-PRESENT  
SCIENCE FACULTY, ST JOHNSBURY ACADEMY, VT