

3.1 GEOLOGY, SOILS, TOPOGRAPHY COMMENTS AND RESPONSES

Comment 3.1-1 (Letter #5: John F. Konefal, President, Wanaksink Lake Club, Inc.): Our second concern is regarding the 'Rock Hill Center' construction. Rock Hill is literally on rock ledge. To develop the land for buildings, blasting of the rock ledge is inevitable. Our dam is in close proximity to the proposed construction site which gives cause for concern that any rock blasting could move, crack, shake or destroy our dam. Mr. Connery, you have made the inspection of our dam and if you recall, it is well constructed and well maintained. But, nearby blasting may cause rock strata to shift causing unnecessary complications to our dam.

***Response 3.1-1:** Extensive research has been conducted over the last 40 years on the effects of blasting on structures and wells by the Office of Surface Mining (OSM) (part of the US Department of the Interior), universities and private groups.¹ Ground vibrations from blasting, measured as Peak Particle Velocity (PPV), is typically the major concern for potential off-site damage. Research has led to the development of vibration standards and techniques to greatly reduce the risk of off-site impacts. Currently, a PPV of 0.5 inches per second is commonly used as a vibration standard to avoid off-site damage (this can be equated to the vibrations of a loaded truck or bus passing within 50 or 100 feet of an observer).*

Several factors contribute to ground vibration at a given location. These factors include; 1) the weight or volume of the explosive, 2) blast configuration (drilled holes, open face, etc.), 3) geology and soil overburden, and 4) distance between the blast and the point of concern (house or well). According to information provided by the Oregon Department of Transportation (DOT), distance and the amount of explosive are the most influential factors related to vibrations. While the distance between the blasting site and an off-site structures cannot be controlled, the amount of explosive and its configuration can be controlled by the blasting contractor. Carefully controlled test blasting, with monitoring by seismographs will be used to assess vibrations in the specific rock type and geologic setting at the project site. The test blasting will then be used to design the amount and configuration of the required blasting, thereby minimizing the potential for damage. Properly designed and executed blasting events will not result in damage to off-site structures.

A blasting plan limiting peak particle velocity will be adhered to by the blasting contractor and set forth in the construction documents. A blasting agreement with a summary of operations to address any Town concerns will also be provided as a condition of site plan approval. The blasting contractor will carry the appropriate insurance as required by law.

In addition, the Applicant has agreed to provide insurance as necessary and to comply with all regulations regarding blasting that are connected with this application, not the independent actions of others.

Comment 3.1-2 (Letter #6: Peter J. Connery, P.E., NYSDEC, October 30, 2008.): I share your concerns with the blasting that, if it occurs, will be in close proximity to the dam. I recommend that you make your concerns known to the Town Board and the Town of Thompson Planning Board. Blasting permits are typically under the town's jurisdiction. One condition that could be requested is for a ground vibration-monitoring program be in place when

¹ Rock Blasting and the Community, Oregon Department of Transportation

the developer is blasting, with appropriate safeguards to protect the dam. If this condition is established, the developer should be required to provide an engineering report that presents the finding of the monitoring program after the blasting has been completed.

Response 3.1-2: *The Applicant has no objection to such conditions. As such, a ground vibration monitoring plan will be developed for the area surrounding the dam and a report documenting the findings will be generated. In addition, the Applicant will conduct pre-blast inspections of all buildings and structures on properties immediately adjacent to the project site.*

Comment 3.1-3 (Letter #7: John F. Konefal, President, Wanaksink Lake Club, Inc.): For your information, Wanaksink Lake was formerly known as Fowlwood Pond and has an 'Earthen Darn' with a concrete spillway to allow water to escape the lake. When waters are released from the lake the flow travels down Fowlwood Brook through portions of Glen Wild and finally to the Neversink River. The dam is classified as a 'large' size; class 'C', high hazard structure by the Department of Environmental Conservation (DEC). The impoundment capacity is 5,800 acre feet or about 1.8 billion gallons of water. The spillway was reconstructed in 1926 and again in 1976. We have worked hard to maintain the good condition of our dam and regular inspections have resulted in consistently excellent engineer and DEC ratings for the construction and maintenance of the dam.

Our first very serious concern related to the dam has to do with the effects of blasting. If blasting was to take place in the Glen Wild area, which is approximately 1 mile away from the Wanaksink Lake dam, our dam's spillway could be damaged. In the 1970's blasting was undertaken in the Neversink River area and two house foundations at Wanaksink Lake were cracked. If the spillway were cracked or broken we would likely lose about a billion gallons of water downstream causing destructive conditions for surrounding homes, businesses and ecosystems. Flooding would likely be similar to that of the Westbrookville floods on Pine Kill Road in 2004 and 2005. For this reason there should be absolutely no blasting in such close proximity to our dam, a DEC class 'C' high hazard structure. The results could be catastrophic for Wanaksink Lake and those communities downstream.

If the Town mistakenly authorizes blasting, a ground vibration-monitoring program, as recommended by the DEC, should be incorporated. Reporting of the monitoring should be afforded to both the Town and Wanaksink Lake. Although the system will only show an after effect of blasting, it is still better than no warning for the possibility of damage to the dam and potential spillway hazards. In addition, it is imperative that a \$1,000,000 bond be mandated by the Town, for the entire duration of the development, to cover any and all damages to the Wanaksink Lake Club Inc., or for any property owned by the Wanaksink Lake Club Inc., caused by the developers' actions.

Response 3.1-3: *Refer to Response 3.1-1 and 3.1-2.*

Comment 3.1-4 (Letter #10: Susan Roth, AICP, Hudson Valley Planning and Preservation, December 9, 2008 and Susan Roth, Public Hearing, December 10, 2008): The preparation of the site should be phased in coordination with the development of the property so that wide expanses are not clear cut and graded until construction is ready to begin. Construction on slopes of 20% should be avoided to a greater extent in order to reduce the erosion potential.

Response 3.1-4: *Phasing will be coordinated to disturb no more than five acres at a time in compliance with state law. Erosion and sediment control measures will be in place to control erosion potentials. The Town of Thompson code does not restrict development on slopes of 20 percent or greater. It should be noted that under the proposed site plan, a small portion of the development will occur in areas with slopes of 20 percent or greater.*

Comment 3.1-5 (Letter #10: Susan Roth, AICP, Hudson Valley Planning and Preservation, December 9, 2008): At the bottom of page 3.1-1 and in table 3.1-3, the DEIS provides an analysis of slopes that are below and above 20%. With avoidance of the areas noted in Map 1, it is likely that the erosion potential will be lessened. Neighbors downhill from the site in the direction of the Neversink River have expressed a concern that drainage from the developed site may accelerate erosion and flooding on their property.

Response 3.1-5: *As documented in the SWPPP developed for the Proposed Action and as required by State Law, the rate of stormwater runoff in the developed condition will not exceed that of the current condition. Also, erosion control measures must be in place during the entire term of construction and until such time as the site is fully stabilized. As such, the likelihood that runoff from the project site will impact properties down gradient of the project site is very low.*

Comment 3.1-6 (Letter #10: Susan Roth, AICP, Hudson Valley Planning and Preservation, December 9, 2008): On page 3.1-13, the DEIS mentions that the cut and fill will result in the moving of 426,919 cubic yards of material on site. This is equal to about 21,346 20-yard trucks of material. This seems like an excessive amount of material, even after considering the size of the site. A layout that provides more protection of the wooded area as noted may help to reduce this impact, since this area also corresponds with the more steeply sloped areas.

Response 3.1-6: *Under the action proposed in this FEIS, the anticipated cut and fill quantities have been balanced under full build out. This project will no longer require that earthwork material to be transported on or off the project site.*

The cut and fill volumes will not be balanced at the completion of Phase 1; rough numbers are 207,000 and 140,000 cubic yards, respectively. The Erosion and Sediment Control Plan has been updated and now includes an outline of the area where the contractor is to place all Phase 1 excess material. Protection measures for the stockpiled materials are included in the Erosion and Sediment Control Plan (Drawing C-107 of the Plan Set). While the Applicant anticipates that there will be no excess or deficit of material upon the completion of the project, a similar analysis will be performed for all future phases.

Comment 3.1-7 (Letter #10: Susan Roth, AICP, Hudson Valley Planning and Preservation, December 9, 2008 and Susan Roth, Public Hearing, December 10, 2008): Section 3.1.2 on page 3.1-11 indicates that blasting may be required to complete this project. The Wanaksink Lake Club expressed its concern that blasting may have an impact on the Wanaksink Dam, and could result in damage or failure of the dam. With preservation of the steeper portions of the site, blasting is likely to be lessened.

Response 3.1-7: *Refer to Response 3.1-1.*

Comment 3.1-8 (Letter #14: James Gollner & Mutsumi Gollner, December 30, 2008):

Looking at the site map of the proposed development, it seems there will be some construction on our [downhill] side of the hilltop ridge which runs along the back of our properties. We are concerned that this will result in the loss of trees and other vegetation which help to hold the soil in place and promote on-the spot drainage. And related to that, we are concerned about the likely erosion of the hillside which can occur as a result of the clearing of the trees and undergrowth vegetation up above us.

Response 3.1-8: All areas of proposed construction will have erosion and sediment control measures in place throughout the construction period to mitigate the potential for erosion and sedimentation. Upon completion of the project all disturbed areas will either be re-vegetated or be comprised of impervious surfaces (rooftops, roads, etc.). All runoff from impervious surfaces will be conveyed to stormwater management facilities for treatment and controlled release as documented in the project related Storm Water Pollution Prevention Plan included in Appendix F herein. Refer to response 3.1-4.