

### **3.0 GEOLOGY, SOILS AND TOPOGRAPHY COMMENTS AND RESPONSES**

This chapter provides a description of the potential impacts to soils, topography and geology from the FEIS Conservation Plan and a comparison of the FEIS Conservation Plan to the DEIS Plan. This discussion is followed by the Comments and Responses on the DEIS. The responses have been updated according to the revisions in the plan since the DEIS. Additionally, responses to comments are provided concerning wastewater treatment received from the Town of Blooming Grove Engineer, Patrick Brady, in a review letter dated June 25, 2007.

#### **3.1 FEIS Conservation Plan**

##### **Grading**

Approximately 34 acres or 43 percent of the site would be graded to accommodate the proposed FEIS Conservation Plan compared with 30.6 acres, or 39 percent for the previous DEIS Plan. Based upon engineering estimates, a total of approximately 41,934 cubic yards of material will be cut and 41,790 cubic yards will be filled in the FEIS Conservation Plan as opposed to the 24,729 cubic yards of material to be cut and 19,225 cubic yards to be filled in the DEIS Plan. The balance of 43 cubic yards can be used in various portions of the site to eliminate the need to transport material off-site. The bulk of the earth cuts would be located in the area of the access road, in the west-central portion and southeastern portion of the property. Grading is also required for the two stormwater detention ponds located in the southern portion of the property and by the north access road.

##### **Steep Slopes**

The project site contains varied topography with more level areas in the southern portion of the site and a broad knoll in the northern portion of the site. The existing topography and construction on slopes has been carefully considered in the development of the FEIS Conservation Plan. The loop access road has been designed to generally follow the contours of the property. Under the current Blooming Grove Code steep slopes are defined in § 235-4 as "Areas with an average slope equal to or greater than 25 percent with a minimum area of 2,000 square feet and a minimum width perpendicular to the contour of 10 feet". Since the project site consists of rolling topography, disturbance of slopes for the construction of roadways and residences is necessary. The site includes 0.23 acres of slopes greater than 25 percent. The project would result in the disturbance of 0.05 acres with slopes over 25 percent, a minor, unavoidable impact. Impacts to slopes greater than 15 percent has been reduced from 2.6 acres to 2.15 acres under the current proposal.

Erosion and sedimentation will be controlled during the construction period by temporary devices in accordance with a Soil Erosion and Sediment Control Plan developed specifically for this site and this project (see Drawings 10-12) as well as the Stormwater Pollution Prevention Plan (SWPPP) located in Appendix D. The plan has been developed by the project engineer Lanc & Tully Engineering & Surveying, P.C. to address erosion control and slope stabilization in accordance with the Erosion and Sediment Control Guidelines in the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities (Permit No. GP-02-01). Both the SWPPP and the Erosion and Sediment Control plan will be implemented during construction to prevent erosion and sedimentation of on and off-site surface waters.

### Sanitary Septic Systems

For the DEIS the project engineer completed extensive deep hole and percolation testing for the future installation of individual sanitary septic systems for the proposed residential lots. This testing was done in June, July, August and October of 2002. Deep hole testing was completed for the DEIS Plan and lot layout on 36 of the 38 lots then proposed.

In response to the new zoning and site plan layout, two additional percolation tests were completed on each of the proposed lots in 2007 for the FEIS Conservation Plan. The percolation testing indicated that there was suitable soil for each of the 37 proposed subsurface sewage disposal systems. Additional deep soil and percolation testing for each of the proposed residential lots will be completed in coordination with the Town Consulting Engineer and the Orange County Department of Health (OCDOH) as part of the review and approval of the subdivision plans. Adequate soils and drainage conditions will need to be demonstrated and confirmed on each of the lots for Town Building Department and OCDOH approval.

### Comments and Responses

**Comment 3-1 (Mr. Fine, Public Hearing Transcript, Lake Blooming Grove, June 23, 2004):**

It is proposed to move 25,000 cubic yards of soil, why are they moving so much away?

**Response 3-1:** *This comment refers to the original DEIS Plan and grading estimates. As described above the FEIS Conservation Plan would result in 143 of net material export. The balance of 143 cubic yards can be used in various portions of the site to eliminate the need to transport material off-site. The estimated amount of excavated soil was based upon the project engineer's evaluation of grading and the amount of required cut and fill. The bulk of the required excavation is related to the proposed roadways and the stormwater management facilities, and the sizing and depth requirements of those basins. During the project's construction, the project engineer and construction manager will attempt to utilize as much of the on-site material as possible.*

**Comment 3-2 (Letter #1 Fine and Associates, Beaverdam Lake Civic Association, June 23, 2004):**

Mottling is shown in all pits and no groundwater was observed. Is this going to be reviewed and evaluated? Has Orange County Department of Health done a field review? Is it true that mottling, a characteristic of seasonal high water table, normally varies by several feet? Would this give an answer as to why mottling was observed within 12 inches from grade and the pits went as far down as 10 feet without water?

**Response 3-2:** *Mottling, or irregular markings with spots of different colors was observed in all of the deep hole test pits on the property. Mottling in soils usually indicates poor aeration and lack of good drainage. Mottling may indicate seasonal fluctuation of the water table, but not necessarily. In certain soils, rainwater may be perched above a more dense soil layer, either a natural dense layer or one caused by historical repeated plowing. Since groundwater was not observed in the deep hole tests, and the mottling was observed relatively close to the surface, it is likely that the soil mottling is the result of perched rainwater and not the result of fluctuating groundwater. The curtain drains are designed to mitigate this drainage condition, and as described in the DEIS, is an accepted engineering practice by the OCDOH.*

*The OCDOH typically reviews the deep soil tests and percolation test data after preliminary approval has been granted. In addition to the testing already completed, supplementary deep soil tests and percolation tests are typically required to be conducted during a joint site inspection with personnel from the OCDOH witnessing the soils testing.*

**Comment 3-3 (Letter #5, James and Donna Sheer, Town of Blooming Grove Planning Board, July 11, 2004, Letter #9, Town of Blooming Grove Planning Board Review, Patrick Brady, July 26, 2004):** A.) It was noticed that the DEIS indicates that only 34 of the 38 lots completed percolation tests. This appears an obvious indication of poor soils. In conjunction with the need for curtain drains, there is no substantive evidence that the soils can properly handle additional sewage. The DEIS states that the 4 lots that failed the percolation tests will be tested in the spring or summer. What is being done to address the winter months? B.) The results of the spring 2004 percolation and deep hole tests should be presented in the final EIS.

**Response 3-3:** *This comment refers to testing done for the DEIS Plan and therefore is no longer relevant. Tests were not completed on four lots due to timing, not due to any specific problems with the soils.*

*New percolation tests have been completed for the FEIS Conservation Plan lots and the results have indicated soils that are suitable for subsurface sewage disposal systems. As discussed above, the designs of the sewage disposal systems and the results of these tests are subject to review and approval by the OCDOH. The use of curtain drains to divert seasonal variations of shallow groundwater is an accepted engineering practice by the OCDOH. As indicated above, the Health Department typically requires that additional deep soil tests and percolation tests be completed during a joint site visit. The Department of Health has the option of requesting additional testing for any tests it deems marginal or not acceptable.*

**Comment 3-4 (Letter #9, Town of Blooming Grove Planning Board Review, Patrick Brady, July 26, 2004):** Would the developers consider an on-site subsurface community disposal system as an alternative to an on-site wastewater treatment plant?

**Response 3-4:** *An on-site subsurface community disposal system is not considered viable for the site given the engineering constraints and the viability of individual subsurface disposal systems.*

**Comment 3-5 (Letter #10 Review Letter, Patrick F. Brady, Town Planning Board Engineer, June 25, 2007) :** I have reviewed the Wastewater Treatment Analysis prepared by Lanc & Tully Engineering and Surveying, P.C. and find there to be adequate means of sanitary disposal for the proposed subdivision, based on the proposed number of lots and proposed number of bedrooms per lot. It should be noted that the proposed analysis provides for a mixed maximum number of bedrooms ranging from 3 to 4 bedrooms. The proposal is for 9 four bedroom dwellings and thirty 2 three bedroom lots.

**Response 3-5:** *Comment noted. The Wastewater Treatment Analysis has been updated to incorporate the 37 proposed lots (30 four-bedroom and 7 three-bedroom) in the FEIS Conservation Plan. The analysis indicates that the soils on each of the proposed lots are adequate to provide sanitary disposal for the proposed development. As indicated above, percolation tests will be completed on each of the lots in*

*coordination with the Town Engineering Consultant and the OCDOH during the Site Plan and subdivision review process.*



**LEGEND**

- AREAS OF SLOPES GREATER THEN 25%
- AREAS OF SLOPES GREATER THEN 25% TO BE DISTURBED

**25% SLOPE DISTURBANCE AREAS:**

AREA 'A'	=	374± SQ.FT.
AREA 'B'	=	442± SQ.FT.
AREA 'C'	=	282± SQ.FT.
AREA 'D'	=	2,062± SQ.FT.
AREA 'E'	=	304± SQ.FT.
AREA 'F'	=	470± SQ.FT.
<b>TOTAL</b>	=	<b>3,934± SQ.FT.=0.09± ACRES</b>

**GRAPHIC SCALE**



( IN FEET )  
1 inch = 300 ft.

**Figure 3-1: Steep Slope Disturbance**  
**Lake Blooming Grove**  
 Town of Blooming Grove, Orange County, New York  
 Source: Lanc & Tully Engineering and Surveying, P.C.  
 April 16, 2008  
 Scale: 1" = 300'