

# **VEGETATION & WETLAND**

## **CHAPTER SIX**

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The Bald Hill property is 70.8± acres in size and includes 2.39± acres of wetlands and 7.87± acres of 100' wetland buffer area. The site includes a portion of a stream known as Tributary 25 of the Ramapo River which runs from the north to the south at the front of the property. The stream continues south across Route 105. The wetlands on the site are generally associated with the stream as shown on Map #10A. The relationship between the proposed project and the existing wetlands is shown on Map #10 with enlargements shown on Map #10B, 11, 12, 13, and 14. The SEIS Plan (112 units) includes a stream crossing of Tributary 25 and small wetland disturbances for the proposed town road at the smallest, thinnest portion of the wetland where the southern loop connects. The roadway has been redesigned to minimize the amount of wetland and buffer area disturbance required for the project. The current plans require disturbance of 0.07± acres of wetland and 2.05± acres of wetland buffer disturbance.

The wetlands on-site are regulated by the Town of Monroe and the Army Corps of Engineers (ACOE). The 100' buffer on-site is regulated only by the Town of Monroe. No permit is required by the ACOE because the disturbance of less than 0.10± acres is covered under a Nationwide Permit. A Town of Monroe Wetland Permit is required for both the wetland and buffer disturbance. A copy of the Town of Monroe Wetland Permit Narrative follows this page.

Proposed development of the Bald Hill Estates site will require a new crossing of Tributary 25. Tributary 25 is a tributary of the Ramapo River and flows in a generally north to south direction through the eastern third of the site. The stream enters the site at the northeasterly property line and exits the site near the southeasterly property line through a twin box culvert beneath County Route 105.

Tributary 25 has been studied by detailed methods by the Federal Emergency Management Agency and has a defined floodplain and floodway, which has been adopted by the Town of Monroe. Base flood elevations have been mapped by FEMA and are indicated on the water surface elevation profile and Flood Insurance Rate Map (FIRM) as defined by the Town of Monroe Flood Insurance Study.

Two floodplain models and two floodway models were previously prepared for the Draft Environmental Impact Study to illustrate the hydraulic effects of the construction of a new crossing on Tributary 25 and demonstrate compliance with regulations promulgated by the Federal Emergency Management Agency (FEMA). The models were prepared by utilizing the United States Army Corps of Engineers (USACE) hydraulic analysis software HEC-RAS. One floodplain and one floodway model were prepared for existing conditions and one floodplain and one floodway model were

prepared for the proposed conditions, which includes the proposed stream crossing. Peak discharges found in the effective Town of Monroe Flood Insurance Study were utilized in all four hydraulic models.

The existing conditions floodplain model was created utilizing topography that was compiled by aerial photogrammetry. Utilizing the existing conditions floodplain model, an existing conditions floodway model was prepared that matched the effective floodway limits from the Town of Monroe Flood Insurance Study. The proposed stream crossing was included in the existing conditions floodplain and floodway models to create proposed conditions models. To determine the proposed stream crossing's effect on the floodway elevation, the same floodway limits that were determined in the existing conditions model were replicated in the proposed conditions model. The results indicated that the floodplain model yields zero increase in the 100-year water surface elevation on the adjacent property and zero increase in the floodway water surface elevation.

The previously proposed stream crossing design configuration consisted of a single 20 foot wide, 9 foot high concrete box culvert including approximately 18 inches of stream material placed on the bottom of the box culvert to replicate natural streambed conditions. The installation of this material results in a culvert which has an effective size of 20 feet by 7 ½ feet, resulting in an effective conveyance area of 150 square feet.

The output of these previously prepared HEC-RAS models was included as an Appendix to the drainage report, which was included in the Draft Environmental Impact Statement. These analyses demonstrated that the installation of a 9' x 20' concrete box culvert will conform to requirements promulgated by FEMA.

As requested by the Town of Monroe Planning Board's Engineering Consultant, additional hydrologic and hydraulic analyses have been prepared and included in the Supplemental Environmental Impact Statement.

The effective date of the original Town of Monroe Flood Insurance Study was June 1, 1981. The effective date of the currently effective Town of Monroe FIS is February 23, 2001, although additions to the 2001 revision include only the addition of hydrologic and hydraulic analyses of Palm Brook. There were no revisions to streams analyzed in the original study in the 2001 revision.

Since the publication and adoption of the 1981 version of the Town of Monroe Flood Insurance Study by FEMA and the Town of Monroe, the contributing drainage area of Tributary 25 has undergone significant development within the Village of Kiryas Joel. This development has likely resulted in higher peak discharge rates on Tributary 25 than those published in the effective Flood Insurance Study.

Leonard Jackson Associates has performed hydrologic analyses for drainage basins within the Village of Kiryas Joel, including Forest Brook and Tributary 25. The point of

interest utilized for these studies was the Tributary 25 crossing of Route 17, which is just upstream of the proposed stream crossing on the Bald Hill Estates site. Included in this Supplemental Environmental Impact Study is a HEC-1 hydrologic analysis model prepared for these drainage basins.

The calculated 100-year peak discharge on Tributary 25 at the Route 17 crossing is 1740 cfs with a contributing drainage area of 2.1 square miles. As a point of comparison, the published effective 100-year peak discharge on Tributary 25 at its confluence with the Ramapo Creek in the Town of Monroe FIS is 440 cfs with a contributing drainage area of 2.9 square miles.

The proposed conditions hydraulic analysis was run utilizing this revised 100-year peak discharge of 1740 cfs to determine the effect of the previously proposed stream crossing on the hydraulic profile of Tributary 25. When the 9' by 20' concrete box culvert is modeled, the culvert is flowing full. Low flow through the culvert with available freeboard is the desirable condition in this situation. Providing freeboard would allow for the possibility of future increases in peak rates of runoff.

An iterative process was undertaken to determine the revised culvert configuration that would pass the increased peak discharge under low flow conditions, while also providing at least 2 feet of freeboard.

Through this iterative process it was determined that twin box culverts, 11 ½ feet high by 12 feet wide, would satisfy these conditions. As previously proposed, 1 ½ feet of native material would be placed on the bottom of the culvert to replicate the natural stream channel. The installation of this material results in an effective open area of 10 feet by 12 feet in each culvert, providing a total conveyance area of 240 square feet. Approximately 2 ½ feet of freeboard is provided by this culvert configuration.

### **Vegetation & Wetland Comment #1**

*If you have wetlands, where are they on that map? (PH 4/5/05)*

Response: The wetland areas that have been identified are primarily located along the stream corridor and indicated on the plans.

### **Vegetation & Wetland Comment #2**

*We have no record of a local wetland permit application being filed for this application. It does not make sense to have any statutory land use hearings (site plan, special permit, subdivision) in the absence of a local wetland permit hearing, and based on these comments, some changes will need to be made to the plans. But any permit application should be made to comply with the requirements of Chapter 56, and should focus on the wetland functions. There should also be explicit consideration of the potential indirect effects on wetlands, including on disruption of drainage flows currently feeding the same. (GA 5/3/05)*

Response: The wetland consultant has prepared an application to the Army Corps of Engineers (ACOE) for a Jurisdictional Determination. A Wetland Permit Application will be submitted to the Town of Monroe.

An application will be made for all permits required by the revised plan.

### **Vegetation & Wetland Comment #3**

*The first area where documentation is lacking is in regard to endangered and threatened species. The agency file search letters obtained (stated on Page 4-2) from the NYSDEC Natural Heritage Program and the U. S. Fish & Wildlife Service used to verify that no rare species have been documented on a parcel should be included in the Correspondence Appendix to the DEIS. In addition, the text should reference the location of these letters. These letters are also used to provide a qualified answer to Question 11 (Part 1 – A) of the Environmental Assessment Form. If the current file search letters are more than one year old, is recommended that updated agency file search letters be obtained as part of the EIS process. (LMS 6/10/05)*

Response: These programs no longer respond to written requests. The DEIS includes a biological inventory of the site indicating there are no rare, endangered, or threatened species on the site.

#### **Vegetation & Wetland Comment #4**

*The second area where documentation is lacking refers to specimen trees. The Scoping Document cites a "tree plan" and attention to be focused on "specimen" trees. Aside from a statement on Page 4-4 ("The white oaks tend to be the larger specimens."), there is no tree plan or other depiction of the location or number of large trees on the site. It is unclear from the Impacts section if any effort will be made to retain the identified large white oaks or other specimen trees on the site. (LMS 6/10/05)*

Response: The property is generally uniformly wooded. A Tree Survey for the 60' no disturbance zone is included as Map #17A. The focus to date has been to preserve large wooded areas as much as practicable.

#### **Vegetation & Wetland Comment #5**

*The shrub and tree planting list presented on Page 4-15 (Mitigation Measures) is focused on indigenous species per the Scoping Document. (LMS 6/10/05)*

Response: Comment noted.

#### **Vegetation & Wetland Comment #6**

*The observed and anticipated wildlife lists reflect the species that would be expected in Orange County. The assessment of the 17-year locust as specified in the Scoping Document has been completed. The "expected" lists for amphibians and reptiles are brief, but are supported by the lack of ponds or lakes on or adjacent to the site. (LMS 6/10/05)*

Response: Comment noted.

#### **Vegetation & Wetland Comment #7**

*The effects of the nearby road network on limiting mammal movements should be mentioned on Page 4-14. (LMS 6/10/05)*

Response: Comment noted.

#### **Vegetation & Wetland Comment #8**

*The wetlands text and accompanying map (Figure 4-1) adequately characterize the on-site wetlands and watercourses. The date of the USACE Inspection should be included on Page 4-6 and the wetland delineation data sheets should be included as an appendix to the DEIS. (LMS 6/10/05)*

Response: Revised plans were sent to ACOE on June 9, 2005 for the Jurisdictional Determination.

**Vegetation & Wetland Comment #9**

*The type of road crossing to be used over the stream (bridge or culvert) should be specifically noted in the text on Pages 4-7 and 4-15. (LMS 6/10/05)*

Response: It is anticipated that a precast concrete box culvert will be utilized for the proposed stream crossing. (See text at the beginning of this chapter.)

**Vegetation & Wetland Comment #10**

*The USACE Nationwide Permit that will be invoked for the wetland disturbance should be noted on Page 4-15, and conformance with the 2002 New York District Regional Conditions should be stated. (LMS 6/10/05)*

Response: Nationwide Permit #39 – permits up to 0.1 acres of wetland to be filled. The New York District special condition reduces the linear length of stream disturbance from 300 to 200 linear feet. The proposed disturbance is consistent with the Nationwide Permit and New York Regional Conditions.

**Vegetation & Wetland Comment #11**

*It should also be noted on Page 4-15 that a disturbance of less than 0.1 acre requires a post-construction notification to USACE within 30 days of the work in a regulated area.(LMS 6/10/05)*

Response: Comment noted.

**Vegetation & Wetland Comment #12**

*Figure 5-1 (Typical Section of Stream Crossing) that illustrates the proposed 50-ft culverted section of the streamcourse. The sketch does not illustrate the statement “restore existing stream channel through culvert” shown on this figure, but it does show a flat surface consisting of “18-in. of natural onsite soils (and) top course river stones.” While sufficient for SEQR review, we are concerned about the potential for the scouring of fine-grained materials and later coarser materials from the culvert. The Applicant should state how erosion and scour will be minimized. (LMS 6/10/05)*

Response: The applicant proposes a box culvert.