A. INTRODUCTION

During any large construction project, there is the potential for environmental impacts, such as soil erosion, traffic, noise, vibrations, and dust. This chapter discusses the various activities that would be involved in constructing the proposed project. The potential for significant adverse impacts is evaluated, together with the techniques and procedures that would be employed to avoid or minimize such impacts.

B. SUMMARY OF THE CONSTRUCTION PROGRAM

The proposed project involves the construction of 232 detached single-family homes, 68 attached townhomes and associated recreational amenities and other facilities including a clubhouse, swimming pool, tennis courts, putting greens, walking trails, roadways, and stormwater management basins. It is estimated that construction of the proposed project would take about three years to complete from the initial groundbreaking to occupancy of the new residences and structures.

As with any large-scale construction project, the initial construction effort would be focused on establishing access roadways and construction staging areas, followed by the development of Phase I roadways and infrastructure (including water, sewer, stormwater, electrical, and other utility systems), clearing of lots and construction areas, and ultimately, development of individual lots and structures.

As set forth in Chapter 3.5, "Topography and Soils," all construction activity would be subject to strict compliance with an Erosion and Sediment Control Plan and Stormwater Pollution Prevention Plan (SWPPP) that would dictate how the construction activities of land clearing and grading would be managed to quickly stabilize disturbed land areas and minimize erosion potential. Similarly, all required site plan and other permit conditions that may effect construction activities as set forth in the project's ultimate approval by the Town and other agencies would be incorporated into construction sequencing and activities.

PROJECT PHASING

Construction of the proposed project would take place in three phases. Construction phasing is shown on Figure 4-1. The initial construction effort would be focused on establishing access roadways and construction staging areas, followed by the development of Phase I roadways and infrastructure (including water, sewer, stormwater, electrical, and other utility systems), clearing of lots and construction areas, and ultimately, development of individual lots and structures. To avoid and minimize temporary impacts from initial clearing and grading activities, an Erosion and Sediment Control Plan and a Stormwater Pollution Prevention Plan would be implemented. (see Figure 4-4). Phase one is the largest phase in the amount of earthwork required and number of units to be constructed. It is anticipated that this phase of the project will be completed in 24

months. It is anticipated that the construction of Phases 2 and 3 will be completed in 12 months each. It is expected that the site will be completely stabilized with final landscaping and lawns within 5 years after construction begins.

The phasing plan was developed to maximize efficiency of the earthwork operations and to minimize the removal or importation of material required for construction. Based on a preliminary Cut/Fill report, it is estimated that the overall earthwork for this project would essentially be balanced producing 340,250 cubic yards of cut and 345,740 cubic yards of fill (see Figure 4-2). The phasing plan includes stockpile areas for top soil and reserves of excess material required throughout the project. With careful earthwork planning the movement of material into and out of the site would be minimized reducing the potential for double handling of material.

The proposed phasing plan also considers the existing drainage areas on site to ensure that each of the detention basins can be constructed first and utilized to receive stormwater runoff from the disturbed areas. At the onset of each phase, the respective detention facility(s) would be graded to act as a sediment basin to confine and mitigate soil erosion off-site and to receive stormwater runoff from the disturbed areas of the site.

Within each of the phases, development areas would be delineated to limit disturbance to 5-acres at any given time. Due to the significant amount of cut material that would be generated in the major excavation area along Lazy Lane and distributed to the other areas on site, the applicant would seek a variance from the NYSDEC GP 02-01 to extend the limit of disturbance to 10 acres during excavation of this area.

The Phasing Plan will be submitted to the New York State Department of Environmental Control to ensure compliance with General Permit (GP) 02-01.

SITE PREPARATION

During the first few months of the construction period, site preparation would take place. This activity would entail the clearing of vegetation and the installation of erosion control measures per the Erosion and Sediment Control Plan and the approved Stormwater Pollution Prevention Plan (SWPPP). The erosion control measures that would be undertaken as part of this project would at a minimum include placement of perimeter silt fencing, stabilized stone construction entrances, and temporary sedimentation basins. See Chapter 3.5 “Topography and Soils” for additional details on the Erosion and Sediment Control Plan and the approved Stormwater Pollution Prevention Plan (SWPPP).

In addition, prior to the start of roadway construction, an 80 foot strip along the alignment of the construction access would be cleared and grubbed and a construction staging area would be created. The first few months of construction of each phase would be the most intensive months, requiring clearing and grading. Most, if not all, of the equipment would be maintained on-site, and parking for employees would be provided on-site.

SITEWORK

The three year site work period would include a range of activities such as the construction of a roadway network, common spaces, and homes, as well as the installation of utilities and other infrastructure. The construction sequencing for such activities involves clearing of the existing vegetation followed by the placement of erosion controls. After placement of erosion controls, earthwork operations would commence by using cut and fill techniques (where earth is removed

or "cut" to lower an elevation and used elsewhere on site to raise ground elevation) in order to establish rough grades. Prior to attaining final subgrade elevations, the on-site utilities would be installed, including water mains, drainage facilities, and electric service. The installation of the drainage system would also include all water quality and detention facilities. Once the infrastructure is installed, the facilities would be inspected and tested where applicable based on approval agency requirements. Once inspections and testing are completed, the contractor would proceed with establishing subgrade elevations. The pavement sections would then most likely be installed up to the binder course of asphalt until the majority of heavy construction is completed on the building. At this point, the water quality and detention areas would be functioning as designed.

As the proposed project is constructed, Route 416 and Eager Road would provide access to the site. All construction vehicles would use these roads to gain access to the site. During the construction period, the project would be fenced off and access to the site would be restricted to construction vehicles and workers. While construction activities are largely expected to be contained on site, it is possible that at certain times the activity would require partial road closings to install utility lines or other infrastructure. These closures would be coordinated with and approved by Town officials and NYSDOT to minimize vehicular and pedestrian disruption. A Maintenance and Protection of Traffic Plan (MPT) would be developed for the project.

During on-going site work, the building foundations and framework would proceed simultaneously.

C. POTENTIAL IMPACTS OF CONSTRUCTION

TEMPORARY EFFECTS ON THE PROJECT SITE

As described in more detail in Chapter 3.5, "Topography and Soils," construction of the proposed project would initially involve the clearing, grading, and excavating of soil and rock in order to prepare the site for development. To avoid and minimize temporary impacts from this activity, an Erosion and Sediment Control Plan and SWPPP would be implemented to protect areas outside of the disturbance zone (see Figures 4-3 and 4-4). The SWPPP would be prepared in accordance with the new Phase 2 Stormwater Regulations and would require monitoring of the site by a person trained in erosion control. The site would be inspected after each rainfall event, and any repairs to the erosion control facilities would be done if needed. The site monitor would also be responsible for keeping records of site inspections as required by the plan. The SWPPP would be covered under the SPDES general permit (Permit No. GP-02-01) for stormwater discharge. By following the Erosion and Sediment Control Plan and SWPPP and proper construction sequencing, any potential impacts from soil erosion would be mitigated.

Soil erosion and sediment control measures to be implemented would include, but are not necessarily limited to, the following items:

- To protect adjacent wetlands, temporary straw bale dykes, swales, and silt fencing would divert stormwater to a temporary sediment basins constructed throughout the project site;
- Silt fences will also be used throughout the project site for redundant erosion protection;
- Temporary swales would also be used throughout the project site to divert stormwater to sediment control ponds;
- Swales, ditches, and sediment basins would be stabilized with grass, hay, or cobbles;

- Additional temporary sediment control basins would be constructed on-site as appropriate;
- Temporary seeding of slopes and disturbed areas until final grading and stabilization can occur; and
- Permanent erosion control measures, such as permanent ground cover to stabilize the surface and detention ponds in order to control stormwater, would be implemented.

TRAFFIC AND TRANSPORTATION

Construction of the proposed project would create daily construction-related traffic to and from the project site, including workers, delivery of materials and equipment, and if necessary truck removal of excavation materials from the project site. Construction workers would be instructed to travel to and from the project site via NYS Route 416 (not Eager Road). Workers would generally use Eager Road only along the short segment of roadway between NYS Route 416 and the construction driveway that provides access to the site.

The number and type of vehicles would vary depending on the phase of construction. During land clearing, grading, and excavation, the primary activity would be limited to that specific equipment (which would remain on-site during the land preparation phase) and the workers operating the equipment and generally working on the initial effort. However, since the earthwork for this site is essentially balanced, off-site truck traffic would generally be limited.

During the core building phase, foundation work would primarily involve concrete delivery to the site, concurrent with delivery and staging of the other building elements (e.g., framing and roofing material, etc.) that would be used in the buildings. As noted above, it is assumed that staging areas for concrete trucks and all materials delivery and storage would be accommodated on site. During interior construction, trucks would be delivering building materials, such as drywall, electrical equipment, and other supplies and equipment.

Because all parking and staging can be accommodated on site, there is anticipated to be no queuing of construction related traffic on study area roadways, no street closures, no parking off-site, and therefore no significant adverse impacts related to the construction of the proposed project.

Construction on-site is proposed to occur between 7 AM and 6 PM on weekdays and from 8 AM to 5 PM on Saturday. The Town code does not specify hours for construction activity. Delivery times would be arranged and determined in consultation with the Town in order to minimize their impact on residents and businesses in the area and to ensure timely construction of the proposed project.

Tracking pads would be installed at all construction driveways, and if necessary, construction vehicles will be washed down to remove dust prior to leaving the project site. Final traffic management and project site plan approvals will be determined by the Town of Hamptonburgh.

AIR QUALITY

The principal air quality impact associated with construction activities is the generation of fugitive dust, which can vary widely in terms of volume and size of particulate matter generated. Fugitive dust is associated with earth moving, such as site grading, filling, and excavation for foundations. A large proportion of the fugitive dust generated by construction activities would be of relatively large particle size, and would be expected to settle to the ground within a short distance from the construction site and not significantly affect nearby buildings or people.

To minimize these problems, the following erosion and dust control measures would be followed during construction:

- Construction sequencing which would limit the area of disturbed or exposed soil at any one time;
- Phasing grading operations so that only the areas needed for a particular construction activities are disturbed;
- Installing truck mats which would clean the trucks' tires prior to leaving the project site
- Watering of exposed areas during dry periods;
- Using drainage diversion methods (silt fences) to minimize soil erosion during site grading.

Moreover, since most of the project related construction activities would be set back well over 100 feet from Eager Road and Route 416 and more than 750 feet from the closest residence to the east and 200 feet to the south, any dust or vehicle emissions would largely be limited to the project area and would not impact adjacent properties. As mentioned above, all construction traffic would be expected to use Route 416, which is a major roadway and truck route. Since, this area is already experiencing vehicle (including truck) traffic, the construction traffic traveling to and from the project site would not be a significant increase over present conditions. By controlling the amount of dust and vehicle emissions that would result from construction of the proposed project, and ensuring that nearby properties would not be greatly affected by such emissions, no significant adverse air quality impacts would be expected to occur.

NOISE

Construction of the proposed action would typically generate noise and vibration from construction equipment, construction vehicles, worker traffic, and delivery vehicles traveling to and from the project site. Noise levels caused by construction activities would vary widely, depending on the phase of construction—demolition, excavations, foundation, construction of the structures, etc.—and the specific task being undertaken. All construction activities would be conducted in full compliance with existing regulations, including local day and hour construction limitations and would be limited to between 7 AM and 6 PM on weekdays and from 8 AM to 5 PM on Saturday.

Local, state, and federal requirements mandate that certain classifications of construction equipment and motor vehicles be used to minimize adverse impacts. Thus, construction equipment would meet specific noise emission standards. Usually, noise levels associated with construction and equipment are identified for a reference distance of 50 feet, as shown in Table 4-1.

Table 4-1
Typical Noise Emission Levels For Construction Equipment

Equipment Item	Noise Level at 50 Feet (dBA)
Air Compressor	81
Asphalt Spreader (paver)	89
Asphalt Truck	88

Backhoe	85
Bulldozer	87
Compactor	80
Concrete Plant	83[(1)]
Concrete Spreader	89
Concrete Mixer	85
Concrete Vibrator	76
Crane (derrick)	76
Delivery Truck	88
Diamond Saw	90[(2)]
Dredge	88
Dump Truck	88
Front End Loader	84
Gas-driven Vibro-compactor	76
Hoist	76
Jack Hammer (Paving Breaker)	88
Line Drill	98
Motor Crane	93
Pile Driver/Extractor	101
Pump	76
Roller	80
Shovel	82
Truck	88
Vibratory Pile Driver/Extractor	89[(3)]

Notes:

[1] Wood, E.W., and A.R. Thompson, Sound Level Survey, Concrete Batch Plant; Limerick Generating Station, Bolt Beranek and Newman Inc., Report 2825, Cambridge, MA, May 1974.

[2] New York State Department of Environmental Conservation, *Construction Noise Survey, Report No. NC-P2*, Albany, NY, April 1974.

[3] F.B. Foster Company, Foster *Vibro Driver/Extractors, Electric Series Brochure*, W-925-10-75-5M.

Sources: Patterson, W.N., R.A. Ely, And S.M. Swanson, *Regulation of Construction Activity Noise*, Bolt Beranek and Newman, Inc., Report 2887, for the Environmental Protection Agency, Washington, D.C., November 1974, except for notated items.

Significant noise levels typically occur nearest the construction activities, and may reach as high as 90 A-weighted decibels (dBA) under worst-case conditions. The level of noise impacts at local receptors would depend on the noise characteristics of the equipment and activities involved, the hours of operation, and the location of sensitive noise receptors. Noise levels would decrease with distance from the construction site. Increased noise levels due to construction activity can be expected to be most significant during the early construction phases such as clearing and excavation, which would be relatively short in duration (approximately three to four months).

Moreover, since most of the project related construction activities would be set back well over 100 feet from Eager Road and Route 416 and more than 750 feet from the closest residence to the east and 200 feet to the south, increased noise levels would largely be limited to the project area and would not impact adjacent properties. Although, it is possible that there would be elevated noise levels at the property line, these levels would diminish with distance from the property, such that impacts on the nearest residences would not be significant.

As mentioned above, all construction traffic would be expected to use Route 416, which is a major roadway and truck route. Since, this area is already experiencing vehicle (including truck) traffic, the noise from construction traffic traveling to and from the project site would not be a significant increase over present conditions.

Construction operations, for some limited time periods, would result in temporary increased noise levels that may be intrusive and may significantly increase ambient noise levels. However, as with air quality, the noise impacts would be temporary and at a distance from any receptors; and thus would not be expected to affect any residential neighborhoods. Therefore, because these noise effects would be temporary in nature and would typically occur during daytime hours no significant adverse noise impacts would be expected to occur.

EXCAVATION ACTIVITIES

Construction of the proposed project would require re-grading and may require rock removal. Excavation for the proposed project would require depths sufficient to construct all building footings and foundations. The appropriate technique for excavation and would be determined using ground-penetrating radar prior to commencement of construction activities to detect the depth and extent of any bedrock. Likely methods for removing bedrock material, if necessary, include shovel extraction, rock ripping, drilling, and blasting. Each of these methods produce varying levels of vibrations and noise that could create a temporary noise effects. In particular, the sustained noise from rock ripping and the rock crusher could adversely impact the quality of life for residents in the vicinity. All pertinent Best Management Practices and construction regulations would be followed to ensure the safety of construction workers, the general public, and neighboring properties.

BLASTING

As part of the construction of the proposed project, approximately 115 acres of soil will be disturbed. Based on the preliminary geotechnical investigation of the on-site soils and USDA soil survey maps, it is expected that bedrock is approximately 10 feet below the overburden. Based on the proposed site grading (see Figure 4-5), approximately 4 acres of the site may require blasting for the construction of roads and foundations. It is estimated that approximately 45,000 cubic yards of rock may be excavated (see Figure 4-6). Blasting will only occur in those locations where other forms of excavation, such as ripping, chipping, or cutting are not a feasible alternative to the use of explosives. All blasted material is proposed to be recycled on site and used for roadway bedding and structural fill.

Should blasting be required, it would be carried out in conformance with all local, state, and federal regulations. Schedules for blasting and rock ripping (day, hour, and duration) would be provided to the Town and limited to Monday through Saturday during normal working hours. In conjunction with final construction plans, an appropriate blasting program would be finalized.

Under proper supervision and control, rock blasting would be accomplished safely with no significant adverse impact on the public and nearby properties. Blasting vibrations could potentially affect structures within 200 feet of the blasting zone. The closest point of potential rock removal for foundation placement to a neighboring property is approximately 150 feet from the property line, in the southernmost part of the proposed development, as shown in red on the left (southern) side of Figure 4-6. The nearest structure on an adjacent property is approximately 225 feet from the property line. As a result of the distance between potential blasting areas and the adjacent structures, it is expected that blasting energy would not result in any adverse

impacts to surrounding properties. In the event that off-site blasting results in any damage to neighboring properties, the applicant will compensate any affected property owners and ensure that damage properties are reconstructed. In addition, blasting contractors will be properly licensed as required by all applicable laws, and will carry adequate insurance to cover any off-site property damage.

As discussed below, additional precautions will be taken to prepare precondition surveys on all structures that may be found to occur within 200 feet of a location where blasting may occur.

Techniques to prevent blasting impacts are listed in Chapter 3.5, "Geology, Soils, and Topography."

Whenever blasting is necessary, charges would be limited. The most common complaints with blasting are ground vibrations and noise. (It should be noted that noise complaints are often due to the air horns which are used to signal a pre-blast warning and a post-blast all clear sign rather than the noise of the actual blast). However, careful blast design and careful monitoring of the blast effects can minimize potential complaints.

D. MITIGATION

It is not expected that construction of the proposed project would have a significant adverse impact on noise; therefore no mitigation measures are proposed.