

## B. SOILS AND TOPOGRAPHY

### B.1 Existing Soil and Topography Conditions

#### Soils

The field mapping sheets prepared by the United States Department of Agriculture Soil Conservation Service<sup>9</sup> were used to identify the soil types that are found on the Hilltop Manor property (*Figure B.1-1 Soils Analysis Map*). Information on the origin and characteristics of these soil types was derived from the *Dutchess County Soil Survey*.<sup>10</sup>

Table B.1-2 summarizes the characteristics of the soils on the project site. Although the data contained in the *Dutchess County Soil Survey* is the most accurate available source of information with regard to soil types and soil boundaries, the map units on the detailed soil maps represent an area on the landscape made up mostly of the soil or soils for that the unit is named.<sup>11</sup>

In addition, the smallest mapping unit is three acres and any given soil series as mapped may contain small inclusions of other soil types.

Exposed bedrock outcrops are evident on the property and vary in depth throughout the site from surface rock to greater than 6 feet in depth. As proposed, construction will predominantly, occur on the Farmington - Galway complex soils at the 0 to 10 percent slope. According to the Dutchess County Soil Conservation Service *Soil Survey Users Guide*, the constraints associated with construction within these soils are primarily related to steep slopes and bedrock. On this property soil deep tests revealed that the soil averages greater than 6 feet over bedrock (Table B.1-1). The locations of the test pits are shown on the road profile section (*Figure IIIC.1-1*).

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<sup>9</sup> United States Department of Agriculture Soil Conservation Service, Hopewell Junction Quadrangle

<sup>10</sup> Dutchess County Soil Survey, Dutchess County Soil and Water Conservation District, September 1991.

<sup>11</sup> Ibid.

Table B.1-1 Deep Test Soil Data \*

Station	TP#	Rock	Results
0+50	A	3.0'	4" Topsoil
1+00	B	3.0'	3" Topsoil
1+50	C	2.0'	6" Topsoil
2+00	D	1.5'	4" Topsoil
2+50	E	2.0'	5" Topsoil
3+00	F	3.0'	5" Topsoil
3+50	G	2.0'	4" Topsoil
4+00	H	1.5'	2" Topsoil
4+50	I	1.0'	6" Topsoil
5+00	J	2.0'	4" Topsoil
5+50	K	3.0'	6" Topsoil
6+00	L	2.5'	6" Topsoil
6+50	M	3.0'	2" Topsoil
7+00	N	1.5'	4" Topsoil
7+50	O	1.0'	3" Topsoil
8+00	P	1.0'	1" Topsoil
8+50	Q	1.0'	3" Topsoil
9+00	R	1.5'	5" Topsoil
9+50	S	1.5'	2" Topsoil
10+00	T	2.0'	6" Topsoil
10+50	U	1.5'	4" Topsoil

\* M. Gillespie and Associates performed deep soil test pits during 2003 to determine the depth to bedrock.

Table B.1-2 Hilltop Manor Property Soils Description \*

Soil Type	Soil Characteristics
Farmington - Galway complex, undulating, very rocky (FcB)	<p>This is a shallow moderately well drained loamy soil formed in till underlain by folded limestone bedrock. It is found on 1-6% slopes.</p> <p>The erosion potential is generally low. The construction limitations for roads, dwellings with basements, and shallow excavations are severe due to depth to rock on slopes of less than 15% and severe slope and depth to rock on areas greater than 15%.</p>
Farmington - Galway complex, rolling, very rocky (FcC)	<p>This is a rolling, excessively well drained very rocky soil formed in till underlain by folded limestone bedrock. Permeability is moderate. It is found on 5-16% slopes.</p> <p>The erosion potential is generally low. The construction limitations for roads, dwellings with basements, and shallow excavations are severe due to depth to rock on slopes of less than 15% and severe slope and depth to rock on areas greater than 15%.</p>
Farmington - Galway complex, hilly, very rocky (FcD)	<p>This is a hilly, rocky loamy soil formed in till underlain by folded limestone bedrock. Permeability is moderate. This soil averages 10"-20" over bedrock and the depth to the seasonal high water table is 1.5 to 3.0 feet from March to April. It is found on 15-30% slopes.</p> <p>The erosion potential is moderate. The construction limitations for roads, dwellings with basements, and shallow excavations are severe due to depth to rock on slopes of less than 15% and severe slope and depth to rock on areas greater than 15%.</p>
Farmington – Rock outcrop complex, steep (FeE)	<p>This is a steep excessively drained soil formed in till with common rock outcrops. Permeability is moderate It is found on 25-45% slopes.</p>

\* Dutchess County *Soil Survey Users Guide*, Dutchess County Soil and Water Conservation District, Dutchess County New York, September 1991.

According to the Dutchess County Soil Conservation Service *Soil Survey Users Guide*, the constraints associated with construction within the soils on the property are primarily related to steep slopes and bedrock.

Topography and Slopes

An Existing Condition map which shows areas of 33% slopes and delineates those areas which need to be regulated is included as Figure B.1-2. Areas defined as steep slopes have been cross hatched. The cross hatched locations meet the area and dimensional requirements identified under section 154-3. Seven (7) areas have been identified totaling 4.44 acres; refer to map B.1-2 enclosed. Topography of adjacent lands ranges from level on the east side of Creek Bend Road to rolling west of the property to very steep in some areas of the property. Rock outcrops are evident throughout the site.

**B.2 Potential Soil and Topography Impacts**

Site Grading

Development of the site will result in the removal of natural vegetative cover material and the disturbance of overburden. Construction of the project will result in the disturbance of approximately 28.75 acres or 70 percent of the property. Impervious area will amount to 4.44 acres as a result of the proposed development. Without proper design and mitigation, these factors have the potential to alter the natural sediment and stormwater storage capabilities of the site.

Site grading and rock removal can potentially cause slopes to become temporarily or permanently unstable if not performed properly. An analysis was performed to estimate disturbances within the steeper slope categories. A Disturbed Slopes map which shows those regulated areas intended to be disturbed as part of the project are located is included as Figure B.2-1. Proposed disturbance in the areas classified as steep slopes (cross hatched) have been identified on map B.2-1. A total of 1.56 ac of disturbance is present in areas classified as steep slopes. The location of disturbance has been identified in each of the seven locations, with corresponding area totals.

The proposed grading of the site is shown on Figures B.2-2 and B.2-3 *Schematic Utilities and Grading Plan*. The preparation of the 21 building lots, utilities, and roadways will require disturbance of 28.75 acres (70% of the project area) and the addition of 4.44 acres of impervious area. Excavation will be necessary to obtain suitable grades for the residential units and roadway and the installation of utility lines. Depending on the location of final grades, roads, and utility lines, excavation and removal of bedrock may be required. The predominant development will occur on slopes that range from 0 - 10%.

Phasing Plan/Quantitative Cut and Fill Analysis

The project as proposed will require filling the southern section of the property to minimize the truck traffic on Creek Bend Road and Carol Drive. Total material to be removed from the site is 1,730 cubic yards. Material estimate analysis:

Road installation:	Cut-60,544 cyds Fill-12,745 cyds
Southern Fill Section:	Cut-1,438 cyds Fill-64083 cyds
Pond Grading:	Cut-6,500 cyds Fill- 5,000 cyds



Excess Material                      3,346 cyds \* - (Worst Case)

Based upon a 20yd dump truck capacity a total of 167 trips are required for excavation of site infrastructure improvements. (\*The applicant anticipates using excess material around home sites for grading and shaping purposes.)

Increased Impervious Surface

The project site is currently undeveloped. The proposed development will result in an increase of 4.44 acres of impervious area associated with roadways, driveways, and rooftops.

Siltation

There is potential for impact from siltation and erosion of slopes on the site during grading activities and the increase in impervious surfaces from construction activities.

**B.3 Soil and Topography Mitigation Measures**

Construction of the housing units will be market driven and will be completed in separate phases as described.

Phase I - Phase I will occur in the first 12 months of construction and as shown in Figure 11A.1-2, involves establishing the initial access to the site, and the construction of the stormwater detention facilities. In order to initiate this phase, the project sponsor will first be required to locate, by means of a field-conducted survey, the proposed limits of disturbance associated with the project construction. The necessary sediment and erosion controls for this phase will be required to be installed prior to the start of construction. This will involve the installation of silt fence primarily in the down-slope areas of the stormwater ponds and along the proposed haul road to the point where access will be gained to construct the fill section associated with lots #3 through #7 located near the eastern boundary line of the property. A stabilized construction entrance will be installed at the proposed entrance of the site to avoid unnecessary tracking of dirt/mud onto Creek Bend Road.

Once these measures are satisfactorily in place, construction of the entrance road will then be allowed to commence. In order to comply with the Town Code in regards to the removal of material the project sponsor will relocate a majority of the material to the Northwestern side of the road under construction located east of road stations 13+00 and 22+00. This area has been chosen to adjust the final grade upward to direct post development runoff to the stormwater management practice located in the center of the parcel. Temporary soil stockpiles have been shown for material relocation purposes, as such time that sufficient material has been deposited the material shall be spread via bulldozer to establish the intended final grade. The majority of excess fill material generated during the construction of the first phase will be relocated here. Other portions of it will be used in the rough grading of the remainder of the proposed road and grading of lots in the proceeding phases.

The construction of the road will also involve the installation of the stormwater structures and piping along the road along within the given phase and other utilities being provided to the property are to be brought into the subdivision during this period as well provided that they are available. Once the trenches for utilities and stormwater provisions have been backfilled, the foundation course of the roadway may be put in place. Sediment barriers shall be placed around the installed catch basins to prevent unnecessary siltation from accumulating within the basin. Rough grading of the foundation course should be maintained until a binder course is provided (seasons allowing)

The project sponsor should follow the maintenance and inspection schedule outlined within the SWPPP during this phase and all other phases of construction. All exposed areas will be seeded and stabilized within seven days of being disturbed. The next phase of the project will be allowed to commence once eighty-five percent coverage of the exposed areas has been achieved.

## Phase II

Given the duration of Phase I, this phase of construction, could be scheduled within 4-8 months of the start of Phase I. As with any Phase of construction within this project, the limits of disturbance for that phase shall be located prior to clearing of the areas and sediment and erosion controls be installed prior to disturbing the areas.

In this phase the subdivision road construction will continue from approximated station 0+00 to the point of intersection with the entry road at approximately station 8+40. The total linear footage of road at this point should total 840 feet. As is Phase I, an amount of overburden material will be temporarily stockpiled for the rough grading of the eastern fill area.

The developer would continue to remove material associated with station 0+00 through 8+40 to allow for the establishment of final road and sholder grades. Once the final road grade is established, the process of installing the drainage structures and piping as well as extending utilities to station 7+25 +/- can be initiated. Temporary soil stockpiles have been shown for material relocation purposes, at such time that sufficient material has been deposited the material shall be spread via bulldozer to establish the inteded final grade. Exposed areas would be seeded and stabilized within 7 days of being disturbed. A foundation course would be laid for the roadway once the utility trenches have been backfilled.

Phase III will involve continuation of the road development, drainage infrastructure and sediment basin construction between road stations 8+40 through 16+75 and 29+50 through 33+83. The estblishment of final grades and the installation of drainage infrastructure will require rock removal. Temporary soil stockpiles (similar to Phase II) have been shown for material relocation purposes, as such time that sufficient material has been deposited the material shall be sprad via bulldozer to establish the inteded final grade. Work will be initiated by ensuring the limits of disturbance have been identified and the proper sediment and erosion controls are in place. House and septic locations will be verified by a field survey location of each structure and sewage disposal area construction of the homes will proceed following a normal residential home construction schedule.

Phase IV, V, and VI can be grouped together as they involve continuation of the road construction and rock removal activities. Work will be initiated by ensuring the limits of disturbance have been indentified and the proper sediment and erosion controls are in place. No more than 5 acres of disturbance shall be exposed at any given time. Erosion control measures shall be put in place prior to commencing the subsequent phase.

Phase VII through Phase X - Based upon the phasing developed as a result of working with Morris Associates to bring the SWPPP to a sufficient level of completeness, The Phasing of individual home construction is based on a rolling open disturbance limit of 4.95 acre maximum at one time. A graphical method of representing this on the plan set was shown on Figure IIIA.1-6 (enclosed) assuming 5-6 homes under construction at one time. The residential construction phases are listed below:

Phase VII – Lots 1, 2, 3, 4, 5, 6,

Phase VIII – Lots 7, 8, 9, 10, 11

Phase IX – Lots 12, 13, 14, 15, 16

Phase X – Lots 17, 18, and 19, 20, 21

Phases XI and XII involve the completion of the proposed Stormwater ponds and the Landscaping as shown in Figure IIIA.1-7. The southerly Stormwater Pond shall include two forbays and an outlet structure which will channel the stormwater into the culvert proposed to cross Creek Bend Road and discharge onto the drainage easement over the Dutcher parcel described earlier. The northern Stormwater Pond shall have a single forebay and discharge into drainage pipes which connect and ultimately discharge to the Dutcher Drainage easement area enroute to Fishkill Creek. The Stormwater pond will be planted with naturalized vegetation specifically selected to tolerate wet conditions and which will serve as an initial filter for sediment.

### Erosion Controls

During construction, erosion will be controlled through the implementation of various erosion control methods consistent with the Soil and Water Conservation Service recommendations and Phase 2 standards including:

- Limit land disturbance to 5 acres at a time until soil stabilization has been completed on each 5-acre increment.
- After proper grading and preparation of the lots for residential dwelling units, the slopes for each driveway will not exceed 15% and the slopes for the internal roads will not exceed 10% with side slopes not exceeding 2:1. Efforts will be made to achieve 3:1 side slopes wherever possible;
- The contractor shall on a weekly basis and following each rainfall event shall inspect all erosion control measures employed during the construction process.
- Erosion control shall be repaired and maintained as necessary by the contractor;
- Work shall proceed quickly during road subgrade construction and the side slopes seeded with a quick germinating rye (10 to 15 pounds per 1000 square feet).
- Temporary drainage swales will be provided with a minimum grade of one percent to direct runoff away from excavated areas. Swales will be installed with staked and secured straw bale berms to prevent downstream siltation.
- Straw bales will be placed in a row with ends tightly abutting the adjacent bales. Each bale will be embedded in the soil a minimum of 4 inches. Bales will be securely anchored in place by stakes or re-bars driven through the bales. The first stake in each bale should be angled toward the previously laid bale to force the bales together. Inspection should be frequent and repair or replacement should be made promptly as needed. The bales should be removed when they have served their usefulness so as not to block or impede storm flow or drainage;
- Increased potential for erosion and dust creation will occur if the construction process exposes significant soil areas for any length of time.
- The contractor shall provide supplemental surface treatments (such as straw bale lines, temporary swales and/or rip-rap intercept pools, and dust control measures) as necessary;

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- Erosive material temporarily stockpiled on the site during the construction process shall be located in an area away from storm drainage and shall be properly protected from erosion by a surrounding silt fence barrier;
- The storm drainage system will be installed and rendered functional as soon as possible with silt traps provided around each inlet;
- Grading will be finalized, topsoiled, and seeded as quickly as possible;
- Stockpiled topsoil will be temporarily seeded and the piles enclosed with silt fencing;
- All grass seed will contain at least 25 percent rapid germinating perennial rye grass;
- Erosion controls shall be removed at the end of the site construction process and will be done so only when upgradient surfaces are properly stabilized and all stormwater management systems are in place and operable;
- At the completion of the project, the temporary siltation basins will be cleaned and restored with fill, topsoil, and vegetation that are most appropriate to the individual areas;
- Prior to construction, a stabilized construction entrance will be installed, to reduce the tracking of sediment onto the public roadway;
- Construction operations will be scheduled in order to minimize the amount of disturbed areas at any one time during the course of work. Existing vegetation will be preserved where possible; and temporary soil stabilization practices, such as mulching, seeding, and spraying (water), will be utilized to control dust;
- Prior to the initiation of construction activities, riprap outlet sediment traps will be constructed. The outlets for the traps will be lined with riprap, which will discharge onto a stable area. The riprap outlet sediment traps will be designed in accordance with the New York State Guidelines for Urban Erosion and Sediment Control.
- Either at the beginning or at the end of each working day, all damages to erosion control areas caused by soil erosion and the site contractor shall repair construction equipment.

After construction and until the site is fully stabilized, the erosion control measures will be maintained consistent with the recommendations in the *New York Guidelines for Urban Erosion and Sediment Control*,<sup>12</sup> including:

- The stormwater collection system will be inspected quarterly to ensure proper operation;
- All catch basin sumps should be cleaned weekly;
- All rip-rap at outfalls should be either cleaned or replaced when they become overburdened with silt or sediment;
- All drainage areas damaged by erosion should be repaired;
- All drainage swales should be kept free of debris and the vegetation should be maintained to allow unobstructed flow of stormwater;
- Any slopes or embanks that have damaged vegetation should be re-seeded as necessary;
- All grass swale areas should be mowed so that they facilitate unobstructed flow of stormwater.

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<sup>12</sup> Ibid.

Blasting

If blasting is found necessary, all blasting operations will adhere to New York State ordinances governing the use of explosives. The State regulations are contained in 12 NYCRR 39 and include such requirements as licensing of operators, magazine (explosive storage) certification, and rules for conducting operations in a safe manner.

Proper program guidelines will be established between the State, the Town, and the blasting contractor prior to undertaking this activity. In addition to obtaining applicable blasting certifications and complying with all blast safety requirements a blast-monitoring program will be implemented.

The elements of such a program include, but are not limited to the following:

- Evaluation of the location of property lines and the structural nature of nearby buildings for determination of the maximum blast velocity for charges to be used;
- Use of a seismograph to monitor each blast attempt and evaluate the blast velocity of the charges used;
- Use of blast matting to minimize lifting of rock and debris during blasting and;
- Notification of surrounding residents and landowners.

All pertinent safety regulations and standards shall be applied as required for safety, security and other related details for any blasting deemed necessary. Applicable safety regulations are:

- 29 CFR 1910 OSHA Standards;
- U.S. Army Corps of Engineers Safety Manual EM 385-1-1;
- Code of Federal Regulations A.T.F. Title 27;
- Institute of Makers of Explosives Safety Library Publications No. 22;
- 12 NYCRR 39.

Storage of all explosive materials shall be located off site and only as much as needed each day shall be delivered to the site.

Delivery and transportation of explosives from the offsite powder magazines to the blast area will be by vehicles specifically designed for this use by the criteria outlined in the safety requirements. Only authorized persons will transport and handle the explosives as designated by the authority of those licensed for this purpose. At all times federal, state, and local ordinances will be followed concerning the transportation and storage of explosives.

- Prior to blasting, necessary precautions for the protection of persons, adjoining property, and completed work shall be established, including:
- Appropriate signs shall be erected in the area of blasting activities;
- All adjoining property owners shall be mailed notification of the anticipated blasting schedule;
- Notification of blasting at the site shall be published in local newspapers prior to the blasting schedule;

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- A storm alert monitoring device shall be used by the blasting Contractor to detect any electrical build-up in the atmosphere at the blast area while using electrical caps;
- Special care shall be taken with detonating cords and connectors to protect from the impact of falling rocks or other impeding objects;
- Vehicles equipped with radio transmitters and portable 2-way radios will not be permitted within 252 feet of blasting operations;
- A Pre-Blast Survey and, where necessary, a Post-Blast survey will be completed;
- The property developer will replace or repair all damaged property on the adjoining parcels resulting from blasting activities that has caused the damage.

### Stormwater Pollution Prevention Plan

A Stormwater Pollution Prevention Plan (SWPPP) has been prepared for the property in accordance with the Phase 2 Stormwater Guidelines (see Appendix 4 – Stormwater Management Report). Under the NYS DEC transition policy dated December 1, 2011 the Hilltop Manor project qualifies to move forward using the 2008 Stormwater Management Manual. These guidelines and a confirmation from NYS DEC are included in Appendix 1. The SWPPP identifies and details the measures proposed to reduce the impacts of soil erosion as a result of the proposed project. A number of erosion and sediment control measures have been incorporated into the design of the project to minimize soil erosion and to control sediment transport off-site during construction. The SWPPP and Erosion Control Plan include limitations on the duration of soil exposure, criteria and specifications for placement and installation of the erosion control measures, a maintenance schedule, and specifications for the implementation of erosion and sediment control practices and procedures. The erosion control measures incorporated into the plan will contain and trap the sediment as close to its place of origin, preventing it from reaching off-site watercourses or lands. This goal is consistent with the guidelines set forth by the NYSDEC.<sup>13</sup>

Erosion control measures have designed to minimize soil loss. Sediment control measures have been devised to retain eroded soil and prevent it from reaching water bodies, wetlands or adjoining properties. The goal of the SPPP is to minimize the impact of the quality of run-off exiting the site into watercourses, wetlands and off-site properties during construction and after development is complete. This objective will be met by several methods. Stormwater Quality Management Basins (SQMB) will function as sediment basins during construction and remain to treat the “first flush” pollutants after development is complete. Temporary and permanent erosion control measures, including structural and non-structural methods, will be installed prior to and during construction to minimize erosion and control sediment transport.

A wetland permit will be needed from the Town for stream buffer disturbance on the Dutcher Parcel as a result of Stormwater drainage over the easement.

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<sup>13</sup> "Reducing the Impact of Stormwater Runoff from New Development" manual, New York State Guidelines for Urban Erosion and Sediment Control (April, 1997) New York State General Permit for Stormwater Discharges, GP-93-06 (General Permit) Appendices D, E, and F (Stormwater Pollution Prevention Plan) Reducing the Impacts of Stormwater Run-off from New Development, NYSDEC (April, 1992) New York State Stormwater Design Manual (2002).

Forebays and Stormwater Quality Basins (SQMB)

Forebays and SQMB's will be used to intercept sediment-laden run-off and reduce the amount of sediment leaving the site during construction. SQMB's will be employed to control pollutants generated from impervious areas after development is complete. The SQMB's will be cleaned of sediment after construction to restore the volume required to perform as designed after construction. The SQMB's will be designed to capture the "first flush" runoff volume from the site's impervious areas. The basins will provide proper pollutant treatment in accordance with the NYSDEC "Guidelines for Reducing the Impacts of Stormwater Runoff".

Existing steep slopes that are disturbed during construction and steep slopes created by earthwork operations will be stabilized quickly to minimize excessive soil erosion and slope instability. Methods may include the temporary or permanent installation of vegetation, riprap armoring or matting.

Temporary Construction Access

One temporary access point to Creek Bend Road will be used for the project. Temporary construction signage will be provided to alert motorists of potential construction traffic and the location of the construction access. Temporary stop signs will be installed at the access point to the road from the project and the construction access point will be clearly marked and identifiable. The construction access will be stabilized in accordance with NYSDEC requirements and will provide anti-tracking measures to minimize soil loss from the site.

Debris Disposal

Construction and demolition debris that is not appropriate for use as fill on the site will be removed and disposed of off-site at a licensed facility.

Topsoil

Topsoil stripped during clearing and grading activities will be stockpiled on-site for restoration and landscaping of the project.

Disturbance of Non-Construction Areas

Disturbance of areas of the property that are not proposed for the construction of buildings, roadways, utilities, landscaping and other developments will be minimized to preserve areas intended for visual and noise buffers and to reduce the potential of erosion.

Steep Slopes

Existing steep slopes that are disturbed during construction and steep slopes created by earthwork operations will be stabilized quickly to minimize excessive soil erosion and slope instability. Methods will include the temporary or permanent installation of vegetation, riprap armoring or matting. Stormwater runoff from upgrade areas will be directed away from the steep sloped areas during disturbance



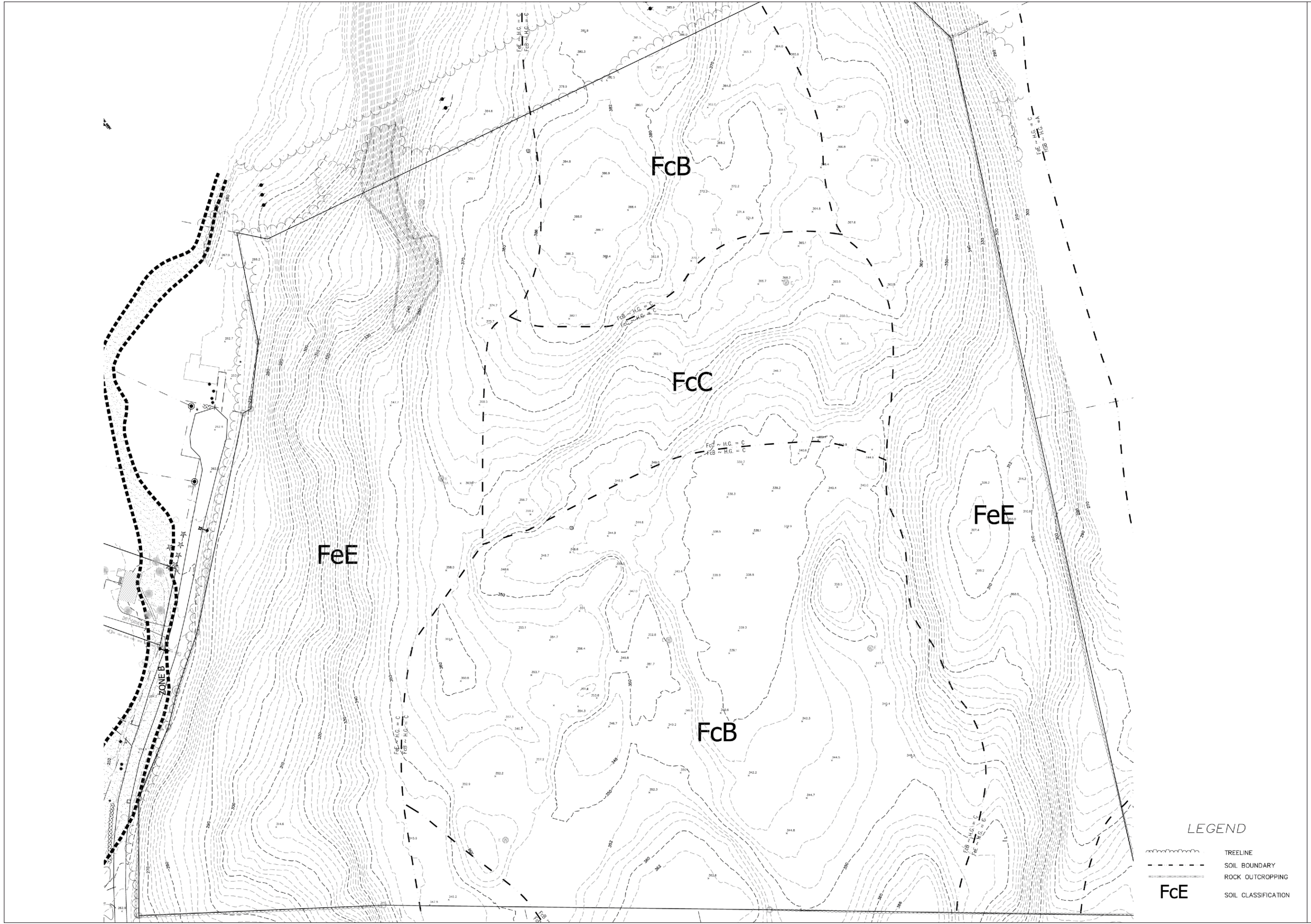
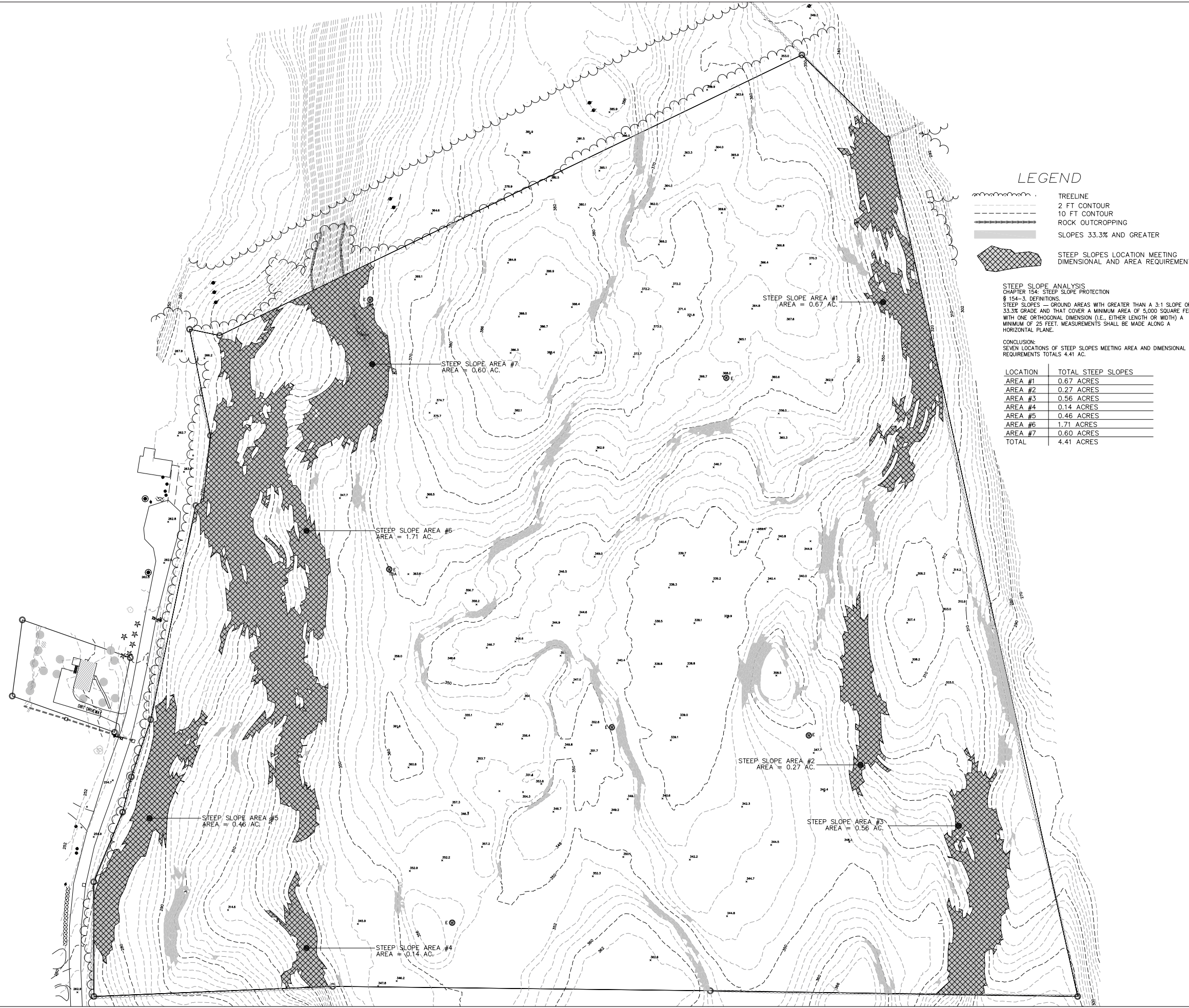


Figure IV.B.1-1: Soil Analysis Map  
 Hilltop Manor Residential Subdivision  
 Town of East Fishkill, Dutchess County, New York  
 Source: M. Gillespie & Associates Consulting Engineers, PLLC.  
 NTS





**LEGEND**

- TREE LINE
- 2 FT CONTOUR
- 10 FT CONTOUR
- ROCK OUTCROPPING
- SLOPES 33.3% AND GREATER
- STEEP SLOPES LOCATION MEETING DIMENSIONAL AND AREA REQUIREMENT

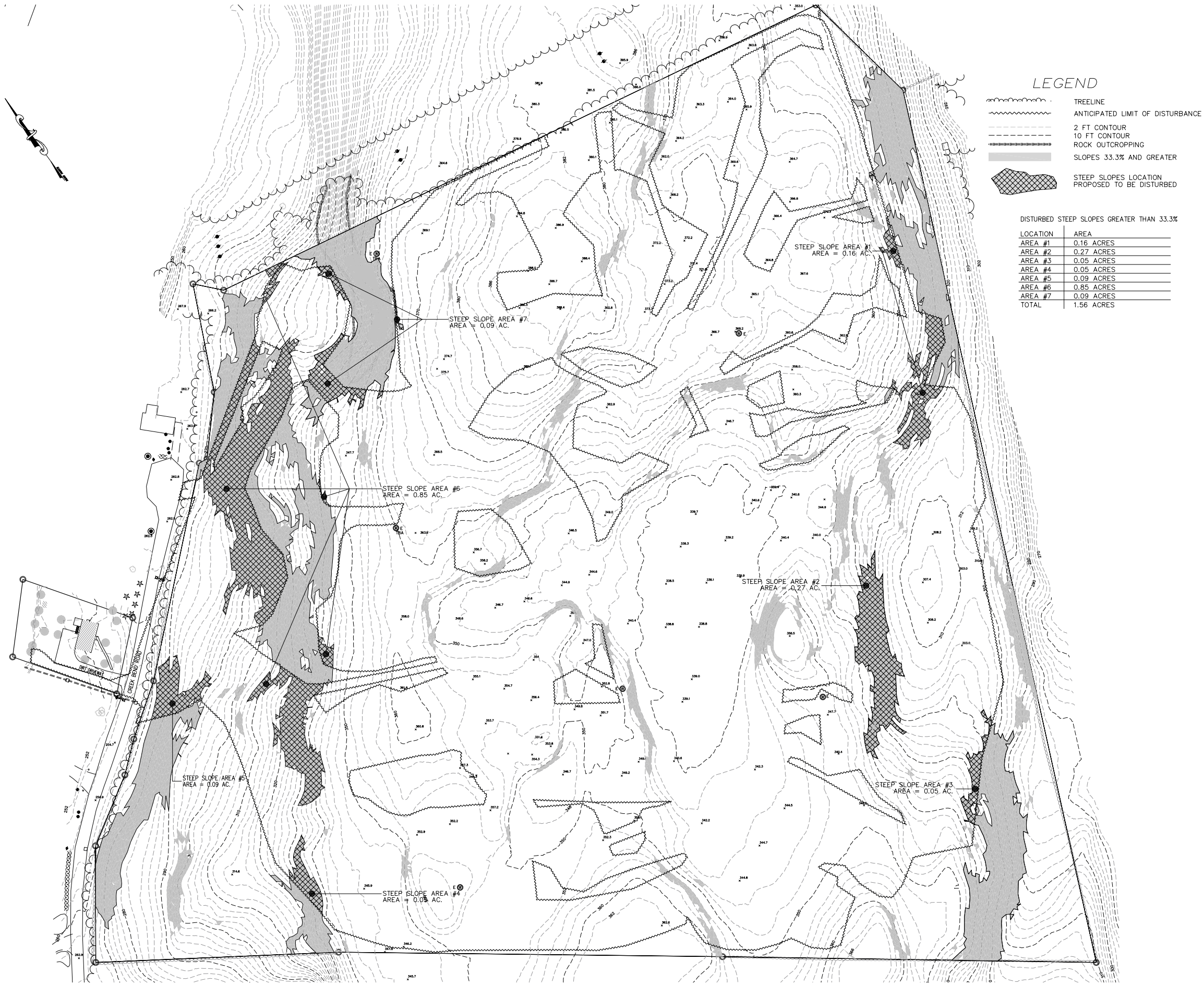
STEEP SLOPE ANALYSIS  
 CHAPTER 154: STEEP SLOPE PROTECTION  
 § 154-3. DEFINITIONS:  
 STEEP SLOPES — GROUND AREAS WITH GREATER THAN A 3:1 SLOPE OR 33.3% GRADE AND THAT COVER A MINIMUM AREA OF 5,000 SQUARE FEET WITH ONE ORTHOGONAL DIMENSION (I.E., EITHER LENGTH OR WIDTH) A MINIMUM OF 25 FEET. MEASUREMENTS SHALL BE MADE ALONG A HORIZONTAL PLANE.

CONCLUSION:  
 SEVEN LOCATIONS OF STEEP SLOPES MEETING AREA AND DIMENSIONAL REQUIREMENTS TOTALS 4.41 AC.

LOCATION	TOTAL STEEP SLOPES
AREA #1	0.67 ACRES
AREA #2	0.27 ACRES
AREA #3	0.56 ACRES
AREA #4	0.14 ACRES
AREA #5	0.46 ACRES
AREA #6	1.71 ACRES
AREA #7	0.60 ACRES
TOTAL	4.41 ACRES

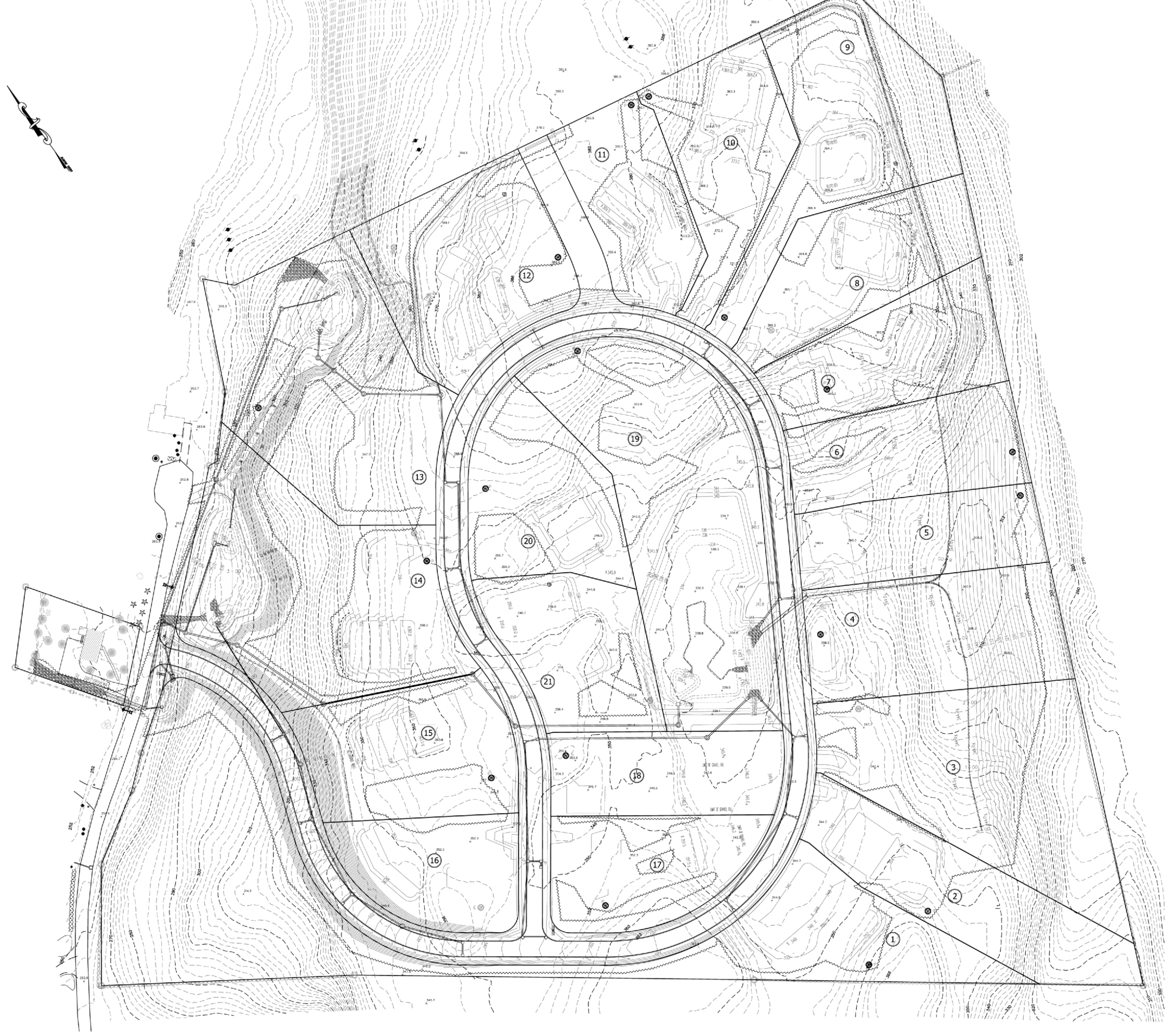
**Figure V.B.1-2: Existing Conditions Slopes Analysis Map**  
 Hilltop Manor Residential Subdivision  
 Town of East Fishkill, Dutchess County, New York  
 Source: M. Gillespie & Associates Consulting Engineers, PLLC.  
 Last Revised 02/19/13  
 Scale: NTS





**Figure IV.B.2-1: Disturbed Slopes >33.3%**  
 Hilltop Manor Residential Subdivision  
 Town of East Fishkill, Dutchess County, New York  
 Source: M. Gillespie & Associates Consulting Engineers, PLLC.  
 Last Revised 02/19/13  
 NTS





LEGEND

Figure IV.B.2-2: Schematic Utilities and Grading Plan  
 Hilltop Manor Residential Subdivision  
 Town of East Fishkill, Dutchess County, New York  
 Source: M. Gillespie & Associates Consulting Engineers, PLLC.  
 NTS





**Figure IV.B.2-3: Schematic Utilities and Grading Plan**  
 Hilltop Manor Residential Subdivision  
 Town of East Fishkill, Dutchess County, New York  
 Source: M. Gillespie & Associates Consulting Engineers, PLLC.  
 NTS