I. PROPOSED CITY OF ITHACA WATER TANK AT THE SITE OF THE PROPOSED UNIVERSITY AVENUE PARKING LOT

Summary

Addendum #3 of Cornell University’s West Campus Residential Initiative (WCRI) DEIS analyzes the impact of placing a City of Ithaca water tank along with Cornell’s proposed parking lot on the block bounded by University Avenue, Stewart Avenue and Cornell Avenue. The City of Ithaca Planning and Development Board required the analysis to be added to the WCRI DEIS because one of the tentative locations for the tank is at the north end of Cornell’s proposed University Avenue Parking Lot. The analysis determined that there are two sites within the University Avenue block that will work for the City’s water tank. The sites are a location near the corner of University Avenue and Lake Street (referred to as Site A.1 in the study), and a site in the central portion of the block at the north end of the abandoned tennis courts (referred to as Site B.1 in the study). (Two other sites, Site C and Site D were rejected.)

Construction of the proposed parking lot would not preclude or impede construction of a tank on either site now or in the future. In addition to studying these sites, the City and Cornell are exploring alternatives that could reduce the size of, or possibly eliminate the need for, the tank. That study is expected to continue for several months more. As elevation and geographical constraints point to the placement of the proposed tank to be located on the University Avenue block, the following analysis was completed. The purpose of this analysis is to create an understanding of the interrelated impacts of the water tank, the parking lot and the WCRI so that as review of the WCRI proceeds, there is a placeholder for the water tank. The area near the University Avenue/Lake Street intersection, if selected by the City for the water tank, would accommodate both the parking lot and the tank.

The potential combined impact of Cornell University’s proposed University Avenue parking lot and the City of Ithaca’s water tank project on the area’s existing historic resources will depend on which of the sites is selected for the tank. The analysis conducted for this study assumes both projects must be compatible with the review requirements of the City of Ithaca Landmarks Preservation Ordinance for a locally designated historic district. Following this assumption, Alternate sites C and D are unacceptable for the water tank because they compromise significant historic views, landscape features, and/or the setting of historic buildings. Alternate sites A.1 and B.1 appear to allow development of the parking lot and the tank without producing “a substantial adverse effect on the aesthetics, historical or architectural significance and value”1 of adjacent historic resources. Alternate site B.1 has significantly less impact than sites C.1 or D, although it would alter the setting of the Allan H. Treman house and would also affect a small area of the lawns surrounding Llenroc. The visual impact of constructing the tank at either site A.1 or B.1 can be effectively mitigated.

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1 “City of Ithaca Landmarks Preservation Ordinance,” Section 228-4. Powers and duties of Landmarks Preservation Commission. (E.) (a)
Project Need and Benefit

The City of Ithaca (City), Southern Cayuga Lake Intermunicipal Water Commission (SCLIWC) and Cornell University (Cornell) commissioned a comprehensive water system evaluation with the primary intent of answering the question, “How can cooperative improvements lead to each of the existing water systems serving an optimal geography, while preserving their respective revenue bases?” The results of this evaluation were published in a report dated July 1999. One of the recommended improvements included construction of a new distribution storage tank and pumping station in the north end of the City. The City has continued to advance and refine the planning of this tank since the release of that report. The City and Cornell are also exploring alternatives such as creating a connection between the City and Cornell water systems that could reduce the required size of the tank, or possibly eliminate the need for the tank. That study is expected to continue for several months more. As elevation and geographical constraints recommend the placement of the proposed tank to be located on the same site as that of the proposed Cornell University Avenue parking lot, the following analysis is presented. The purpose of this analysis is to create an understanding of the interrelated impacts of the water tank and the WCRI so that as review of the WCRI proceeds, there is a placeholder for the water tank.

The currently proposed tank and pumping station will address a number of needs and provide the following system enhancements.

- Computer modeling has shown that the tank will eliminate a 600,000-gallon fire flow and emergency storage deficiency in the north end of the City, in the event that the existing City clearwell storage tanks are out of service. The clearwell is an underground storage reservoir where treated water is held prior to its ultimate distribution to the City system.

- The tank will also provide approximately 400,000 gallons of distribution storage for balancing flows to the City’s Mitchell Street service zone, and potential future flows to the East Ithaca, Cornell and SCLIWC service areas, in accordance with the recommended plan to optimize regional service.

- The tank will stabilize water pressure on the north end of the City’s gravity pressure zone.

- The tank will improve fire flow capacity and water pressure in the north end of the City’s Mitchell Street service zone.

There are ongoing discussions between the City and Cornell regarding alternatives for the tank’s use or location. The aforementioned one million gallon (600,000 fire flow plus 400,000 daily use) is considered a maximum-case size for the tank. Consequently, that is the size used in the following analysis. One conclusion of the analysis is that such a tank could be accommodated in more than one location on the block bounded by University Avenue, Stewart Avenue and Cornell Avenue. The area near the University Avenue/Lake Street intersection, if selected by the City for the water tank, would accommodate both the parking lot and the tank.

Program and Operations

In order for the proposed water storage tank to achieve the desired benefits as outlined above, it needs to comply with a number of basic programming constraints. These constraints are based on constructing a tank that will operate effectively under the City’s current water system configuration.
and retain flexibility to fit into an integrated regional water transmission system. Using hydraulic modeling techniques the following programming and operational parameters have been established:

- The tank should have a usable volume for normal operations of 400,000 gallons plus a usable volume for fire protection of 600,000 gallons.

- The high water level should be established to match the high water level in the existing City’s clearwell to facilitate operation under current system configurations. This level will also allow a reasonable exchange of water if in the future the City relocates its primary distribution system entry point from the existing Water Street water treatment plant to the north end of the City. This level has been established from field measurements to be at elevation 609.50 feet. The tank overflow elevation has been established at an elevation of 611 feet to allow for minor variability in the tank level control systems.

- The normal low water level should be established at an elevation of no less than 597.5 feet to balance operation with the City’s clearwells and Elm Street tanks. Tank interior diameter should be no less than 75 feet and no more than 90 feet for the same reason.

- The low water level used to calculate usable volume for fire and emergency storage should be at least at elevation 575 feet in order to maintain a fire flow delivery pressure of at least 20 p.s.i. in the north end of the gravity zone.

- The tank should have a 16 inch diameter inlet pipe with space for future installation of an altitude valve. The tank should have a separate 16 inch diameter outlet pipe to facilitate exchange of water and maintain water quality in the distribution system. Interior baffling should be considered in the event that the inlet and outlet pipes are located adjacent to each other.

- Provisions should be made for the future installation of a pumping station to pump water from the tank into the City’s Mitchell Street service zone. This pumping station should have an initial capacity of 1.2 MGD. Site planning should include provisions for future expansion of the pumping station structure to allow for a capacity expansion of up to 3.3 MGD to allow for potential future service to the City’s East Ithaca service zone, Cornell and SCLIWC’s Sheldon Road service zone. Provisions for installation of an emergency power generator could also be made.

**Water Tank Design Criteria**

Design parameters have been developed for concrete tanks having either the minimum tank diameter or the maximum tank diameter. Options for self supporting dome roofs and flat slab roofs were also developed. The City is also considering options for alternate materials of construction such as painted or glass lined bolted steel tanks that would have similar design constraints except that finished grade at the tank wall would be maintained slightly below the finished floor elevation. The basis of design for the pumping station is the same for all tank configurations. The usable volume of the tank is proposed to be one million gallons. The controlling elevation of the tank is the top elevation. For a flat slab roof, the top elevation would be 614 feet, while a domed tank would be 620 feet. This top elevation may not vary since it establishes the needed pressure in relation to the overall system. Given the top elevation, and the 1 million gallon requirement, the tank could be sized as follows:
90 Feet Inside Diameter Tank Option

<table>
<thead>
<tr>
<th>Finished floor elevation</th>
<th>587.5 feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Finished grade elevation</td>
<td>591.5 feet</td>
</tr>
</tbody>
</table>

This tank would be 29.5 feet high with a domed roof, or 23.5 feet high with a flat slab roof.

If the tank were constructed at a lower finished floor elevation, a taller tank with a smaller diameter would be necessary to maintain the same overflow elevation and required capacity. For example, the tank could be sized as follows:

75 Feet Inside Diameter Tank Option

<table>
<thead>
<tr>
<th>Finished floor elevation</th>
<th>578 feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Finished grade elevation</td>
<td>582 feet</td>
</tr>
</tbody>
</table>

This tank would be 38 feet high with a domed roof, or 32 feet high with a flat slab roof.

The overall exposed height of the tank would depend on the final site grade elevation. In comparison to the larger diameter tank constructed on the same site, the lower portion of the 75 foot diameter tank would be buried so that the overall exposed height would be approximately the same as that of a 90 foot diameter tank.

For the purposes of this siting study, the 75 foot diameter tank was selected. As described above, a portion of the tank will be buried a minimum of four feet to ensure adequate frost protection. With the smaller diameter, the visual impact would be minimized and thus, the 75 feet diameter tank is preferred. Depending on site location, there would be additional cost for excavation for the smaller diameter tank.

The exterior of the tank, including the roof, is proposed to be clad in a trellis structure. Evergreen ivy will be planted continuously around the tank so that within several years, the tank will be completely covered in vegetation. Appendix B: Product Information on GreenScreen includes an example of one trellis system that could be used. A 12-foot wide maintenance access lane is required to be maintained continuously around the perimeter of the tank.

For security purposes, site lighting around the perimeter of the tank is optional. In the case of site option A, the lighting proposed for the parking lot will be sufficient and no additional lighting would be proposed.

The tank is proposed to include features to regulate the flow of water in and out of the structure. Normal inlet/outlet flow control will include provisions for future installation of an altitude valve to prevent overflow of the tank if the City develops a new source of supply entering the City’s distribution system from the north and a check valve to allow water to exit the tank. An overflow is also proposed to allow water to exit the tank in the event of mechanical failure of the altitude valve. This overflow would be piped to one of the proposed storm water detention basins adjacent to the parking area. The maximum overflow rate is projected to be less than 5 CFS—substantially less than anticipated storm water flows.

A pumping station is also planned with the following criteria:

<table>
<thead>
<tr>
<th>Maximum Floor elevation</th>
<th>2 feet below low water level of the tank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building width</td>
<td>12-15 feet</td>
</tr>
<tr>
<td>Building length</td>
<td>24-30 feet</td>
</tr>
<tr>
<td>Building height</td>
<td>9-12 feet</td>
</tr>
</tbody>
</table>
Description of Proposed Modifications to the University Avenue Parking Lot

The 195 car parking lot described in Cornell’s WCRI DEIS, dated May 2002, is illustrated in Figure 1.5.G: Proposed Plan for University Avenue Parking of the May DEIS. Modifications to mitigate historic and visual impact of that proposal are included with Addendum No.3. Figure 1: Modified University Avenue Parking Lot Plan illustrates the plan as it is proposed prior to siting the water tank. Figure 2: Sections Through the Modified University Avenue Parking Lot illustrates site sections through the north and south ends of the proposed lot. Modifications to the proposed parking lot as shown on Figure 1 include the following:

- In order to mitigate impacts to the historic carriage path, the parking lot is shifted 65 feet to the north and made more compact. The carriage path is left intact and realignment of the path is no longer proposed.

- The northern portion of the lot is shifted to the east in order to provide a more substantial buffer between the residences on University Avenue and the parking lot. In the best case, the west edge of the parking lot is moved 51 feet east, creating 51 feet of additional buffer, for a total of a 64 foot buffer. Extensive plantings in the buffer zone are proposed. (See Figure 2a: North Section)

- The overall elevation of the parking lot has been raised approximately five feet so that there is a greater grade separation and noise and visual buffer between the parking lot and the residences on University Avenue.

- The overall footprint of the parking lot is more compact and somewhat reduced in area. This results in less tree clearing, reduced run-off, and ultimately a smaller paved surface.

This proposed modified parking lot plan serves as the base parking lot proposal in the following analysis. Placement of a water tank on site A will result in a reduction in the size of this parking lot.

Water Tank Alternatives

1.0 Alternative to the Water Tank

1.1 Connection to Cornell University Water Lines

Cornell University’s “ground” water distribution system could potentially be used to supply the 600,000 gallons emergency or fire protection volumes on a mutual aid basis. The university’s water production plant has the surplus capacity to treat the desired additional volume and with completion of phase one of the WCRI the distribution piping will be in place to convey the water to the City’s system. A new pressure regulating station would be required to control the flow of water without adversely impacting either system. There are three primary technical issues to be solved to make this alternative viable.

First, the water storage analysis completed as part of the Comprehensive Water Supply Evaluation concluded that Cornell does not have a surplus of storage to commit to fire protection in the City. Consequently the flow would need to come from on-line production of water that is dependent on...
Insert Figure 1: Modified University Avenue Parking Lot Plan
Insert Figure 2: Modified University Avenue Parking Lot Plan
both the water production plant having the ability to treat and pump the water during the emergency event. Currently there are no provisions for emergency power at the water treatment plant or finished water pumps.

Second, this alternative would be reliant on mechanical equipment to regulate the flow of water out of the Cornell system and into the City’s system without adversely impacting either system. Historically, the equipment used, pressure regulating valves, is subject to occasional malfunction that could lead to unacceptably low pressure in Cornell’s system or water main breaks in the City’s system. The City has had experience with water main breaks after pressure-regulating valves have malfunctioned in the Mitchell Street area.

Finally, this alternative would need to provide the normal operating storage desired to support the population distribution in the City or the buffer storage desired for a regional integrated water system.

2.0 Alternative Locations for a Water Tank

O’Brien and Gere Engineers conducted a siting evaluation for the water tank as part of the Comprehensive Water System Evaluation. This siting evaluation reviewed potential sites at the desired ground elevation and geographic proximity to the identified pressure problems. The only undeveloped sites identified that possess the required elevation and could potentially accommodate the tank were the LakeView Cemetery and the University Avenue block. Figure 3: Possible Water Tank Locations illustrates these locations.

2.1 Alternative Location at LakeView Cemetery

LakeView Cemetery
Use of the Lake View Cemetery site would require relocation of numerous grave sites and taking of occupied private property to accommodate the tank and construction staging areas. The site is also more remote from the identified pressure deficiencies and would require substantially longer and larger diameter pipes to achieve the desired water pressure benefits. Figure 4: LakeView Cemetery Site is a photograph of the proposed water tank location within the cemetery. This site was determined to be unfeasible due to cost and siting constraints.

University Avenue Block Sites
Within the University Avenue block, four potential sites have been identified. These four potential locations are outlined below.

Site A: Corner of University Avenue and Lake Street (west of Von Cramm)
Site B: Vicinity of the Abandoned Tennis Courts
Site C: West of 115 Llenroc Court
Site D: West of 660 Stewart Avenue

Within the University Avenue block, there is potential to further refine the locations of each of the four sites. Figure 5: University Avenue Block - Potential Water Tank Locations, illustrates siting options that were considered for the alternatives A – D. Following is a brief summary of the analysis of the four options.

2.2 Alternative Site A: Corner of University Avenue and Lake Street

Site A.1: Alternative A.1 is the City of Ithaca’s original proposed location for the water tank.
Figure 3: City of Ithaca Water Tank
Possible Water Tank Locations
Figure 4:  
City of Ithaca Water Tank  
LakeView Cemetery Site
Insert Figure 5: University Avenue Block - Potential Water Tank Locations
Siting in this location allows substantial screening of the tank from University Avenue to the west and north, as well as from the historic Treman houses. The tank would be located within the footprint of the proposed parking lot and would displace a portion of the proposed parking spaces. This would reduce the size of the parking lot from the 196 proposed cars to approximately 150 cars.

A tank constructed at site A.1 would have the lowest construction cost of all of the alternatives (A – D). Factors contributing to the lower construction cost include:

- The bottom of the tank is located close to the existing grade level, therefore minimizing the amount of excavation required, including rock excavation.
- Site A.1 is located near an existing 16 inch water service line underneath University Avenue to the north, thereby minimizing the length of piping required to connect the tank to the service line.

Site A.2: Site A.2 is similar to A.1 but situated further east. The site is at a somewhat higher elevation and might allow more of the tank to be buried. (Note: a steel tank cannot be buried). Site A.2 is considered less desirable than Site A.1 for the following reasons:

- The access drive for the parking lot would need to be located further west, closer to the Lake Street intersection. This is undesirable from a traffic safety standpoint.
- The tank would be more visible from the north since clearing for the access drive would provide a direct view to the water tank.
- The tank would be in close proximity to Von Cramm House.
- Construction costs for site A.2 would be higher than for A1 since the site is at a higher elevation and more rock excavation would be necessary.

Site A.3: Site A.3 has the advantage of being less visible from University Avenue, but it is within the viewshed of the historic Treman houses. Site A.3 would also be more expensive to build than A.1 due to the increased distance from the water service line and the additional rock excavation needed to ensure the optimum design overflow elevation of the tank.

Site A.4: Site A.4 is considered unacceptable because it is directly in the view of the historic Treman houses.

Based on the analysis outlined above, site A.1 is considered the most optimal of the A alternatives. Following is a more detailed analysis of the A1 site.

2.2.2 Detailed Discussion of the Alternative A.1

2.2.3 Description of A.1 Site Plan

The water tank is proposed to be located at the north end of the modified parking lot. The pavement area of the parking lot is reduced and approximately 46 parking spaces are displaced to accommodate the water tank. A 12-foot access lane is shown surrounding the tank, and extensive evergreen tree plantings are proposed along the north, west, and south sides of the tank, and to the east.
between the Von Cramm House and the access drive. Access to the tank would be from the parking lot. The proposed siting is illustrated in Figure 6, Site A.1 — Conceptual Site Plan and Figure 7, Site A.1 – Site Section.

The concrete tank would be approximately 26 feet above grade on the west side and approximately 18 feet above grade on the east side with a flat slab roof. A tank with a domed roof would be six feet higher at the apex. For the purposes of this study a tank with a flat slab roof was assumed. The top of the tank would be approximately two feet below the first floor horizon elevation (street level) of Von Cramm House. Views from Von Cramm would be over the top of the tank within the envelope of the remaining 50-60 foot high woods. The existing large walnut trees located west of Von Cramm’s access drive would be among those preserved as well as the existing wooded area north and west of the tank. This would allow for substantial buffering of both the water tank and parking lot.

A less costly steel tank option is also available for the site. However, as opposed to a concrete structure, it is not desirable to partially bury a steel tank due to corrosion and maintenance concerns. As such, the entire perimeter of the tank would need to be exposed which would account for approximately 35 feet of overall exposed tank on the west side. The elevation of the top of the tank would be the same as the domed tank discussed above.

**2.2.4 Potential Significant Impacts of University Avenue/Lake Street Location**

*a. Vegetation*

The proposed pavement area of the parking lot is reduced to accommodate the size of the water tank. Therefore, the amount of vegetation removed is no different than that required for the proposed 196 car parking lot without the water tank.

*b. Future Land Use*

The A.1 site is located within that portion of the block owned by Cornell University and is zoned U1. (See Figure 1.3.D: Existing Zoning in the DEIS) The U1 zone supports a broad range of educational institutional uses. Any uses that pertain to a “post-secondary educational institution and its affiliated institutions, whose primary purpose is education, research, extension or living accommodation” are allowed. The U1 designation was established within the past five years, and so represents contemporary planning principles that were implemented through a public process.

The area surrounding the proposed parking lot/water tank site is academic, institutional, and residential in use and character. The block across University Avenue is residential. The Llenroc, Cayuga Lodge, and Treman properties, located on the south and east portions of the site, are all significant historic resources and will likely remain indefinitely. Consequently, the west and north portions of the block, which are undeveloped, are the only areas suitable for development.

This block, being the only large developable area in this part of campus, has great value to the university. The block forms the edge of the central campus to the west and is proximate to both student residences and academic areas on campus. Hence, likely future development by Cornell on this site would compliment uses on central campus, while respecting the surrounding land uses and historic context.

Cornell would like to preserve the north and west portions of the block for future development. A water tank in this location would limit development potential of the area.
Insert Figure 6: Site A.1 - Conceptual Site Plan
Insert Figure 7: Site A.1 - Site Section
c. Traffic and Parking

Construction of a water tank at site A would result in a smaller parking lot. Approximately 50 staff or west campus residents who currently park on west campus would be required to park elsewhere or find alternative forms of transportation. A smaller parking lot would cause some of these people to compete for scarce parking resources. Additional demand would be placed on surrounding neighborhood streets as some staff and residents might compete to find parking close to their place of work and home.

d. Construction Cost

Construction cost for a concrete water tank at the A.1 site is estimated at approximately $1.1 million for a domed tank, and $1.2 million for a tank with a flat slab roof. This includes excavation, tank installation, piping and valves. A steel supply tank would save $250,000 - $275,000. These costs do not include the pump house, visual mitigation such as the trellis, or cost to acquire land from Cornell.

e. Cultural Resources

1. Narrative Description of Historic Resources

This section analyzes the potential construction of a City of Ithaca water tank with Cornell University’s proposed parking lot within the block bounded by Stewart Avenue on the east, University Avenue on the north and west, and Cornell Avenue on the south and west. The block contains a variety of residential structures including five buildings with outstanding historical and architectural significance. Significant landscape features are associated with the two historic estates located within the block. Figure 8: Historic Resources in the University Avenue Block includes a map of the area identifying historic resources. The area addressed by this analysis has been suggested as a potential locally designated historic district. This analysis assumes the resources merit designation and must be protected by adequate mitigative measures to preserve their visual character, historic setting, and distinctive features, consistent with a local historic district.

Treman Estate

The Treman family compound includes approximately nine acres located at the north end of the block abutting University and Stewart Avenues. The property was developed at the beginning of the twentieth century to provide home sites for the three siblings of one of Ithaca’s most prominent families. Two of the three original houses remain: the Italian Renaissance style Elizabeth Treman Van Cleef house and the Tudor Revival style Robert H. Treman House. The site of the third house, which burned in 1946, is occupied by the Tudor Revival style Von Cramm, a ca. 1956 Cornell University student housing cooperative.

The two former Treman houses are outstanding examples of early twentieth-century domestic architecture. Both are the work of William H. Miller, Ithaca’s most renowned architect of the period. Although altered to accommodate institutional use, the houses retain a high level of integrity and an outstanding level of craftsmanship and detail. The houses have historic significance for their long association with the Tremans, one of Ithaca’s most prominent families during the nineteenth and early twentieth centuries. Robert H. Treman is a notable Ithaca figure for his role as a local business leader and for his gifts of land which established Tompkins County’s outstanding collection of state parks.
Insert Figure 8: Historic Resources in the University Avenue Block Area
The Treman property was developed according to a landscape design prepared by Boston landscape architect Warren Manning. The primary landscape elements of Manning’s plan, including grass terraces, a stone retaining wall, a winding carriage drive, and a central open lawn, survive. These features contribute to the historic character of the two remaining historic Treman houses. The grounds have suffered some loss of integrity due to the disappearance of gardens, the obstruction of the view of the valley from secondary tree growth, the general unchecked growth of brush and trees along all perimeters of the property, and the loss of the Charles E. Treman House. The neighboring Dutch Colonial Allan H. Treman House (115 Llenroc Court), built by Robert H. Treman for his son, contributes to the architectural and historic significance of the Treman complex.

Llenroc
South of the Treman site is Llenroc, a large stone Gothic Revival house set on a spacious open hillside site, overlooking Ithaca. Because of its size and prominent site, the house is an important visual landmark, visible from many points throughout the city of Ithaca. The property is listed on the National Register of Historic Places. Llenroc is historically significant as the last extant building in Tompkins County associated with the personal life of Ezra Cornell, inventor, industrialist, philanthropist and co-founder of Cornell University. Designed jointly by the Albany-based architecture firms of Nichols and Brown and Thomas Fuller, the house is significant as Ithaca’s finest Gothic Revival residence. Constructed with locally quarried Ithaca limestone and Onondaga limestone trim, the house is distinguished by outstanding stone carving and craftsmanship. The building retains a high level of architectural integrity in the primary interior rooms of the first floor.

The Cornell estate originally included nine acres and extended the entire width of the block. The eastern third of the property was subdivided early in the twentieth century into residential lots fronting on Stewart Avenue and Llenroc Court. Most of the lots fronting on Stewart Avenue were developed with large two-and-one-half-story houses used as boarding houses or rented to fraternal organizations. The houses represent a variety of early twentieth-century architectural styles although the facades of the three northern members of the group have been compromised by incompatible alterations. Three small-scale Craftsman style homes remain that were associated with the Llenroc Court subdivision. Of the three houses only two retain their historic exterior appearance. When the subdivision of land occurred, the former Cornell carriage house was set off on a lot fronting on both Stewart Avenue and Llenroc Court. The brick Queen Anne style carriage house, now known as Cayuga Lodge, was converted into a student housing cooperative for agriculture school students and has served continuously as student housing since that time.

The Cornell house and remaining property was sold to the Delta Phi fraternity in 1911 and has remained in use as a fraternity house since that time. Changes to the property undertaken during the fraternity’s ownership include construction of tennis courts donated by alumnus John McIllvaine in 1914 and the development of a parking area located east of the house.

In 1963, Cornell University acquired a triangular sloping portion of the property located between

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2 Delta Phi history provided by Peter Bondi, member of Delta Phi.
Cornell and University avenues. Eleven years later, the university purchased two-and-one-half acres along the north edge of the estate, including the tennis courts and open lawn.³ Today Delta Phi retains ownership of 2.34 acres of the original nine-acre estate.

Despite the reduction in the size of the property, Llenroc’s setting, primary site features, and expansive view remain intact. On the south, west, and north the house is surrounded by broad open lawns which slope to the west and provide sweeping views of the city and valley. An enormous white oak dominates the northwest corner of the lawn. South of the house, a u-shape drive links the main entrance of the house with Cornell Avenue. Adjacent to the east service wing of the house is a small non-contributing concrete block utility building and an informal gravel parking area. At the southwest corner of the historic estate (now owned by Cornell University) is the Baldwin Memorial stair which traverses the steep slope between Cornell Avenue and University Avenue. The stair, designed by landscape architect Bryant Fleming, was constructed in 1925 as a memorial to Morgan Stanley Baldwin who died in World War I. The stair is constructed of Llenroc stone and was intended to harmonize with the Cornell house.

Although portions of the Llenroc lawns are now owned by Cornell University, the transfer of ownership has not affected the visual qualities of the property.

**Alpha Tau Omega**

At the northeast corner of the block, adjacent to the intersection of University and Stewart Avenues is the ca. 1900 Italian Renaissance style Alpha Tau Omega fraternity house (625 University Avenue). The fraternity abuts the Treman estate on its south and west boundaries. The Alpha Tau Omega house is architecturally significant as one of the group of Italian Renaissance style fraternities constructed at Cornell University during the beginning of the twentieth century. The building is more eclectic than the other local examples of the style and has retained a high level of architectural integrity.

**North Side of University Avenue**

Two early twentieth-century houses are located across University Avenue, north of the University/Stewart/Cornell block. Both houses have suffered a significant loss of architectural integrity. The Kappa Sigma fraternity house, designed by William H. Miller, is one of the more sophisticated examples of Cornell University’s group of early twentieth-century fraternity houses designed in the Italian Renaissance style. The appearance of the house’s primary facade has been compromised by the incompatible enclosure of the first-floor porch. The house at 614 University Avenue is a late example of the Shingle Style. Converted into apartments, changes to the house’s fenestration and other features have compromised its historic appearance.

**West Side of University Avenue**

West of University Avenue, crowning a steep slope down to the flat valley floor below is an eclectic row of late nineteenth-century residences. Most of the houses have been subdivided into rental

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³ The National Register nomination form (“Delta Kappa Epsilon House” 26 February 1990. National Register of Historic Places Inventory Form (draft). Prepared for the New York State Department of Parks, Recreation, and Historic Preservation, Field Services Bureau. Section 8, Page 4) for Llenroc states, “The fraternity holds restrictive covenants over these properties (sold to Cornell University), giving it full use of them as well as control over their development.” This statement appears to be an error. A review of the files of the Cornell University Real Estate Department documenting the negotiations and transactions between the university and Delta Phi, as well as a search of records at the Tompkins County Clerk’s Office, indicates that no covenants affecting the above referenced properties were enacted.
apartments and have suffered a loss of integrity due to alterations. Included within this row of houses are three former carriage houses, now converted to residential use, located opposite the intersection of Cornell and University Avenues. These buildings possess both architectural and historic significance. The two ca. 1903 Shingle Style buildings located at 308 and 314 University Avenue were historically associated with the Treman estate. The ca. 1907 Craftsman style building located at 320 University Avenue served as the carriage house and squash court for Professor Wilder D. Bancroft who lived in a now-demolished “cottage” located at 20 East Avenue on the Cornell University campus. The house was converted into a single family residence in 1927 following the design of Baldridge Larkin. The house at 214 University Avenue is notable as an architecturally distinguished and well-preserved example of domestic Italianate architecture. Next door at 212 University Avenue is the ca. 1875 Elijah B. Cornell house, historically significant as the residence of Ezra Cornell’s brother, a stone mason and the construction foreman for Llenroc and several of the early buildings on the Cornell University Campus. The house combines elements of the Second Empire and Italianate styles of domestic architecture popular in the third quarter of the nineteenth century and retains a high level of architectural integrity.

At the northwest corner of the Stewart/Cornell Avenue intersection is a vacant lot. South of Cornell Avenue, City Cemetery abuts Stewart Avenue. The cemetery, developed as a Rural Movement cemetery in the 1840s, features a picturesque landscape incorporating mature trees, curvilinear drives, Romantic funereal architecture, a ravine, rock outcroppings, and undulating hillside terrain.

2. Analysis of Historic Impacts: Alternate Site A.1

In Alternate A.1 (see Figure 6: Site A.1 – Conceptual Site Plan and Figure 7: Site A.1 – Site Section), the tank and parking lot are located at the north end of the block near the intersection of University Avenue and Lake Street. The tank would be setback approximately ninety feet from the curb of the east/west leg of University Avenue and sixty feet from the north/south leg of the street, and the parking lot would be located south of the tank. The proposed site is currently wooded. Construction of the tank would require clearing of a 110-foot-diameter area within the woods but would permit retaining a continuous buffer of trees at the perimeter of the block. (See Figures 11-19 for visual simulations.)

Historic resource impacts of construction of the tank and parking lot at site A.1 are limited to the Treman Estate. Although located on the historic Treman property, development at this site poses only a minimal effect on the estate’s extant historic resources because:

- The proposed tank and parking lot site has been altered from its historic appearance by the emergence of secondary growth including brush and trees.

- The tank would be located 300 feet away from the Van Cleef House and nearly 400 feet away from the Robert H. Treman House.

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4 John Schroeder with research assistance provided by David McDonald. Unpublished and untitled typescript describing the suggested “University Hill Historic District.” Dated July 9, 2002.

5 Ibid.
• Nearly 140 feet of woods would remain to screen the tank clearing from the houses and the central west lawn of the estate.

• The use of the “GreenScreen” trellis planting system will camouflage the tank throughout the year from University Avenue as well as the west Treman lawn. (See Figure 10: Water Tank Covered with Ivy)

• The trellis planting system, and supplemental coniferous plantings would provide additional screening of the tank from the estate during the winter months.

• Most windows from the living spaces of the Von Cramm housing cooperative are located on the long northeast and southwest-facing facades, away from the location of the tank. Existing dense vegetation to remain will screen views of the parking lot from Von Cramm. Von Cramm is the nearest building to the proposed tank but does not possess distinctive architectural features and does not constitute a significant historic resource.

As described in a previous section, the parking lot has been shifted north to avoid impacting the carriage path. The parking lot has also been shifted east and raised further above the street level of University Avenue to increase buffering and separation from the street. The parking lot as proposed will be barely visible from surrounding streets.

From a strictly historic preservation point of view, development of the tank at Alternate site A.1 has the least impact of the four sites analyzed because it is located the furthest from and has the least visual impact on the area’s extant historic resources.

3. Archaeological Resources

A Phase I archaeological site examination was conducted for Alternative Site A by the Binghamton Public Archaeology Facility in July 2002. The examination consisted of a site files check (literature research), a site walkover, and subsurface testing (digging shovel test pits at specific intervals where appropriate). No prehistoric or historic sites were identified during the archaeological site examination. The Binghamton Public Archaeology Facility determined that construction of the proposed water tank on Alternative Site A would not impact any archaeological resources. The full archaeological report is included in Appendix Three.

f. Visual Resources

This section contains descriptions of existing and post-development views from selected viewpoints. Where available, photographs of existing conditions taken during December of 2001 were used since these provide a “worse case” winter view. Where winter views were not available, photographs were taken during August 2002. For this reason, some of the views are during the winter, and others during the summer when the trees are in full leaf.

Process For Constructing Visual Simulations: The process for constructing the visual simulations consists of first constructing a 3-D computer model of the existing and proposed site topography and proposed construction. Proposed locations and elevations of the parking lot, access drive, and water tank are all constructed, utilizing the survey of existing conditions as the base. This 3-D computer model is super-imposed on a photograph of the site. This results in a correctly dimensioned water tank within the proposed view. A photograph of an actual water tank in the Town of
Ithaca was then scaled to match the proposed view and superimposed on the photograph. Figure 9: Typical Water Tank shows the Town of Ithaca water tank that was superimposed on each of the views in this study. Once the water tank was placed in the view, the tank was then covered in ivy as is proposed. Figure 10: Water Tank Covered With Ivy illustrates the tank covered in ivy. Finally, proposed trees and shrubs are added. This process was used to construct each of the visual simulations in this study (unless otherwise noted). In many of the viewpoints, once the ivy, trees and shrubs are placed, the tank is nearly completely screened. To assist the reader in understanding the actual placement of the tank, each visual simulation is shown in three stages as follows:

1. Photograph of existing conditions
2. Photograph of post development condition with water tank and parking lot inserted – no proposed vegetation. (Note that the parking lot does not always occur within the view of the water tank.)
3. Photograph of post development condition with water tank and parking lot inserted with proposed vegetation

Figure 11: Visual Assessment – Viewer Locations shows the locations of twelve separate views that have been evaluated. Views 1 – 8 simulate the view with the water tank located at site A.1 along with the parking lot. Views 9 – 12 simulate the view with the water tank located at site B.1 along with the parking lot at the corner of University Avenue and Lake Street. For the purposes of this study, the height of the water tank is shown in the visual simulations at the height of a flat slab roof tank.

Visual Assessment for Site A.1

Figure 12: View 1: View From University Avenue/Lake Street Intersection Looking East.

Existing view
The existing view from the intersection of Lake Street and University Avenue shows sidewalk, lawn and young street trees in the foreground, with more mature trees and shrubby vegetation in the middle ground. Von Cramm House and the dark outline of 660 Stewart can be seen through the vegetation in the winter months.

Proposed view
In the proposed view, the new entrance drive to the surface parking lot is visible where it intersects with University Avenue. A buffer of existing vegetation will be preserved along the north and west sides of the tank (approximately 35-feet deep). New trees and shrubs will be densely planted between the sidewalk at the street edge and the existing vegetation to remain. The water tank will be covered in evergreen ivy and evergreen trees will surround the tank. The new plantings, combined with existing vegetation to remain will effectively screen the tank. The parking lot is not visible in this view.

Figure 13: View 2: View From 600 University Avenue Looking South (From North Side of University Avenue)

Existing view
The existing view from the north side of University Avenue looking south is directly across the
Insert Figures 9 & 10: Typical Water Tank and Water Tank Covered With Ivy
Figure 11:
City of Ithaca Water Tank

Visual Assessment - Viewer Locations

Key to Figure Numbers

1 - Figure 12: View from University Avenue Lake Street Intersection Looking East
2 - Figure 13: View from 600 University Avenue Looking South (From North Side of University Avenue)
3 - Figure 14: View from Von Cramm Looking West
4 - Figure 15: View from 660 Stewart Looking North
5 - Figure 16: View from Kahan Center Looking North
6 - Figure 17: View from Kahan Center Lawn Below Wall Looking North
7 - Figure 18: View from 412 University Avenue Looking Northeast
8 - Figure 19: View from 512 University Avenue Looking East
9 - Figure 22: View from Llenroc Court/Kahan Center Looking Southwest
10 - Figure 23: View from Cayuga Lodge Looking West
11 - Figure 24: View from Llenroc Looking Northeast
12 - Figure 25: View from Cornell Avenue Looking East
Insert Figure 12: View 1: View from University Avenue / Lake Street Intersection Looking East
Insert Figure 13:  View 2:  View From 600 University Avenue Looking South
street from the proposed entrance to the new parking lot. The view includes the pavement of University Avenue in the foreground, the sidewalk and lawn on the south side of the street, and the dense vegetation at this location. A utility pole is visible on the left hand side of the photo.

**Proposed view**
In the proposed view, the new entrance drive to the parking lot is visible, and the view is opened as a result of clearing required for construction of the parking lot and the water tank. Existing vegetation is preserved along the street edge to provide a buffer and is visible in the photo simulation. The east side of the ivy covered tank is visible in this view. The parking lot is not visible from this view because it is at a lower elevation than the street.

*Figure 14: View 3: View From Von Cramm Looking West*

**Existing view**
In the existing condition, the sidewalk is dominant in the foreground, a large black walnut tree dominates the middle ground on the right side of the photograph and the northwest façade of Von Cramm House is just visible on the left side of the photograph. The large black walnut tree has reseeded, and much of the vegetation seen behind the large tree is composed of young black walnuts that have regenerated.

**Proposed view**
The view has been opened up in the proposed condition and more sky and distant views are visible. Evergreen trees, proposed to be planted just down slope from the large black walnut tree, screen the proposed water tank.

*Figure 15: View 4: From 660 Stewart Looking North*

**Existing view and proposed view**
The building located at 660 Stewart is visible on the right edge of the photograph. The terraced lawn west of 660 Stewart can be seen, as well as the site wall on the left that was a part of the historic plan for the property. Volunteer vegetation to the north and west screens the view of Von Cramm House. The vegetation seen in this view will be preserved, so the tank will not be visible from 660 Stewart. Therefore, this view will not be altered.

*Figure 16: View 5: View From Kahin Center Looking North*

**Existing view and proposed view**
The photograph in View 5 shows the view at the ground level at the west corner of the Kahin Center. The terraced lawn and historic site wall are visible in the foreground. Extensive vegetation along the west façade of the Kahin Center, in addition to scattered trees in the lawn to the west, effectively screen views west from the Kahin Center. Views from windows inside the Kahin Center are even more heavily screened since at higher levels the canopies of the trees shown effectively block views to the west. Therefore, the existing view will not be altered as a result of construction, and the proposed parking lot and water tank will not be visible from the Kahin Center.
Insert Figure 14: View 3: View From Von Cramm Looking West
Insert Figure 15: View 4: View From 660 Stewart Looking North
Insert Figure 16: View 5: View from Kahin Center Looking North
Figure 17: View 6: View From Kahin Center Lawn Below Wall Looking North

Existing view
The view described above, View 5, demonstrates that the new construction will not be visible from the Kahin Center. View 6 is located north of and down slope of View 5. View 6 is looking north towards the site of the proposed tank. The open lawn with scattered trees west of the Treman houses is visible. To the north, maintenance of the historic lawn ceased many years ago, resulting in the dense secondary growth vegetation that screens the view of Von Cramm House in the photograph.

Proposed view
In the developed condition, the parking lot and water tank are largely screened by existing vegetation to remain. Supplemental plantings of evergreens will fully screen the tank. Existing vegetation south of Von Cramm House will be preserved and will continue to effectively screen the building from this location in the lawn. The natural grade of the site combined with the existing large trees in the lawn that will be preserved effectively screen most of the proposed parking lot from this location (see left side of middle photo in simulation series). New plantings located in front of the parking lot will completely screen the parking in the summer from this location. Filtered views of the parking lot will be visible in the winter.

Figure 18: View 7: View From 412 University Avenue Looking Northeast.

Existing view
This is a view from the sidewalk on the west side of University Avenue looking north. The view is located at the southern most limit of the proposed parking lot. The pavement and on-street parking on University Avenue dominate the view. Overhead wires and utility poles are also visible. On the east side of the street, beyond the on-street parking, the exposed bedrock bank is heavily overgrown with secondary growth vegetation. On top of the bank, more mature trees and heavy understory shrubby vegetation can be seen.

Proposed view
In the developed condition, the existing exposed bedrock bank provides a natural grade separation and visual barrier between the street and the parking lot. Existing vegetation along the street edge is maintained. Further east, more sky is visible where clearing has occurred for the parking lot. However, the parking lot is not visible, primarily due to the grade separation. Evergreen trees effectively screen the water tank to the north.

Figure 19: View 8: View From 512 University Avenue Looking East (From West Side of the Street).

Existing view
This view is taken from the west side of University Avenue, directly across the street from the location of the proposed water tank. The pavement of University Avenue dominates the foreground. The dense understory vegetation along the east side of University Avenue screens any views into the site.
Insert Figure 17: View 6: View from Kahin Center Lawn Below Wall Looking North
Insert Figure 18: View 7: View from 412 University Avenue Looking Northeast
Insert Figure 19: View 8: View from 512 University Avenue Looking East
Proposed view
In the developed condition, existing vegetation preserved along the street edge screens most of the view of the proposed water tank. The existing vegetation to be preserved is supplemented by evergreen trees. As a result, there is very little change in the view.

Mitigating Measures to Visual Impacts
Mitigating measures to reduce the visual impact of the water tank at the A.1 site include:

- Siting the tank to maximize the vegetation to be preserved around the north, south, and west sides of the tank.
- Utilizing a 75-foot diameter tank (instead of a 90-foot diameter tank) to minimize the portion of the tank visible above grade.
- Construction of a trellis structure surrounding the tank to be covered with ivy so that the tank blends in with surrounding vegetation.
- Planting evergreen trees to supplement existing vegetation to remain to screen views of the tank.

2.3 Alternative Site B: Vicinity of the Tennis Courts

Figure 5: University Avenue Block – Potential Water Tank Locations, illustrates two potential siting options that were considered for the tennis court vicinity location. Siting the water tank at the B site has no impact on future Cornell development in the northwest portion of the block or on the siting of the proposed parking lot.

Of all the options considered (A – D), the B sites probably can be most easily and most effectively screened. Locating the tank at any of the B sites preserves the future land use potential of the northwest section of the block, which is of great value to the university. Both of the B sites would result in higher construction costs than the A sites. This is due to the much longer distance required for connecting the tank to the water line under University Avenue to the north and the increased rock excavation necessary to partially bury the tank while maintaining the proper overflow elevation. A concrete tank is the preferred option for the B sites since the tank would need to be partially buried at these locations. Following is a brief summary of the analysis of the two B options.

Site B.1: The B.1 site is located at the north edge of the abandoned tennis courts. The tennis courts are in poor condition and have not been used in many years. As a result, secondary growth vegetation has sprouted up all around the courts. Locating a water tank on the north end of the courts would preserve the existing vegetation around the southern half of the courts, and retain a buffer between the tank and houses to the east and Llenroc to the south. (See the section below on Historic Resources for a detailed discussion of impacts to Llenroc and Cayuga Lodge). The grade rises steeply to the east in this location so the top of the tank would be approximately six feet above the horizon street level of Llenroc Court. Evergreen trees planted to supplement the existing vegetation would effectively screen any views of the tank from houses east of Llenroc Court. The house at 115 Llenroc Court would be most impacted by this proposal. Currently the house views a long sweeping lawn. Although the tank could be screened, there would now be evergreen trees in the view.

Site B.2: The B.2 site is at a slightly higher elevation so would result in more of the tank being
buried. Approximately 10 feet of the tank would rise above grade on the east, and 29 feet on the west. Existing vegetation, supplemented by evergreens would effectively screen views of the tank. The tank would be completely hidden from the house at 115 Llenroc Court, but would be closer to Llenroc.

The B.1 site was determined to be preferred over the B.2 site since it provides greater separation between the tank and Llenroc. Therefore, the B.1 site was explored in greater detail.

2.3.1 Detailed Discussion of Alternative B.1

2.3.2 Description of B.1 Site Plan

The proposed water tank is located at the north end of the abandoned tennis courts. A 12-foot access lane is shown surrounding the tank, and extensive evergreen tree plantings are proposed surrounding the tank. Access to the tank would be from Llenroc Court, through the property of 115 Llenroc Court, which is also owned by Cornell. Figure 20: Site B.1 – Conceptual Site Plan and Figure 21: Site B.1 – Site Section illustrate the proposed siting.

The tank would be approximately 31 feet above grade on the west side and approximately 14 feet above grade on the east side, with a flat slab roof. The top of the tank would be approximately six feet below the first floor horizon elevation of Cayuga Lodge, and Cayuga Lodge residents would view over the top of the tank. The tank would be approximately six feet above the street level of Llenroc Court. Evergreen trees would be planted between the tank and the street. For security purposes, fencing could be located along the west side of the street at Llenroc Court. Fencing would need to be visually compatible with other site elements in the area.

2.3.3 Potential Significant Impacts of Tennis Court Site

a. Vegetation

Volunteer vegetation along the east, south and west sides of the tennis courts would be preserved to serve as a buffer to Llenroc. Volunteer vegetation along the north side of the tennis courts would be removed to accommodate earthwork and construction of the water tank. Approximately .13 acres of vegetation would be removed. Vegetation to be cleared is predominately volunteer black walnut trees. These are weedy species that have taken over since the tennis courts were abandoned. The thirty-inch sycamore tree (verify size) located west of the tennis courts would not be impacted.

b. Future Land Use

The University would like to preserve the future development potential of the west and north portions of the block, which are largely undeveloped. A water tank in the B.1 location preserves the future development potential of these areas, which is of great value to the university.

c. Construction Cost

Construction cost for a water tank at the B.1 site is estimated to be approximately $400,000 higher than at the A.1 site. This is due to the requirement for much more extensive piping to connect the tank to the service line on University Avenue and added rock excavation and site development costs.
Insert Figure 20: Site B.1 - Conceptual Site Plan
Insert Figure 21: Site B.1-Site Section
d. Cultural Resources

1. Historic Impact Analysis of Site B.1

Alternate Site B.1 (see Figure 20: Site B.1 – Conceptual Site Plan and Figure 21: Site B.1 – Site Section) locates the water tank midway between the Allan H. Treman house and Llenroc with the center of the tank located near the northwest corner of the existing abandoned tennis courts. Although the tennis courts were originally set on open lawns surrounding the Delta Phi house (Llenroc), today, the former courts are surrounded by volunteer trees and brush. The tennis courts were built by the fraternity and do not have an historic association with Llenroc. (See Figures 11 and 22-25 for visual simulations)

In Alternate B.1, the exterior of the tank would be located 160 feet north of the rear wing of Llenroc; 100 feet northwest of Cayuga Lodge; seventy feet southwest of the Allan H. Treman House; and 160 feet south of the Robert H. Treman House. Although existing trees would provide seasonal screening of the tank from Llenroc and Cayuga Lodge, the new coniferous trees would screen the tank in the winter.

Construction of the tank at site B.1 would have the following impacts:

Allan H. Treman House - The primary impact of constructing the tank at site B.1 would be its encroachment on the west lawn of the Allan H. Treman house. The Treman house was oriented and designed to take advantage of the site’s panoramic view of Ithaca and the Cayuga Inlet valley located to the west and southwest. An enclosed side porch located at the west end of the house overlooks a terraced lawn. The lawn⁶ was originally bordered by low shrubs to preserve the view over the Llenroc estate to the valley and city below. As proposed the elevation of the top of the tank will be several feet above the first floor elevation of the Allan H. Treman house. As a result the tank will be within the view of the porch of the house to the southwest. The view of the tank will be largely screened from the house by the “GreenScreen” trellis planting system and new coniferous trees. The tank in location B.1 would also leave the majority of the Allan H. Treman house’s west lawn intact.

Llenroc - The tank does not impact any of the primary views from Llenroc. The combination of the “Greenscreen” trellis planting system applied to the tank’s exterior; the remaining existing deciduous trees located west, south, and east of the tennis courts; and new coniferous trees will screen the view of the tank’s exterior from the Llenroc house and lawns. The tank will not affect the existing visual relationship between Cayuga Lodge and the Llenroc house. A small area at the northeast corner of the open lawns surrounding Llenroc would be lost to create a planted screen consisting of coniferous trees. A planted screen in this area would not affect any significant views and would be located on land currently owned by Cornell University.

Cayuga Lodge - The tank will have 14 feet of its height exposed at the east facade facing Cayuga Lodge. Although the view of the tank’s exterior will be screened from Cayuga Lodge as described above, the tank will have some impact on the view from the house to the northwest. Use of the “Greenscreen” trellis planting system will conceal the top surface of the tank. Currently views in

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⁶ A ca. 1921 aerial photograph of the Treman property provides documentation of the historic configuration of landscaping at the Allan H. Treman house.
this direction consist of the trees bordering the former tennis courts and trees on the Treman property beyond. Although from upper-level windows in Cayuga Lodge, one will be able to look over the tank, as the coniferous screening plantings mature they will block views of the more distant trees on the Treman property. Seasonally, when the leaves have fallen, Cayuga Lodge has a panoramic view to the southwest of Llenroc, the Newfield Hills, the Cayuga Inlet Valley and Ithaca. Most of this view will remain unobstructed although trees used to screen the tank may encroach on the northern limit of the viewshed.

Robert H. Treman House - The view of the tank’s exterior will be screened from the Robert H. Treman House by the wooded area encompassing the small ravine, the “Greenscreen” trellis planting system, and additional new coniferous trees. The historic panoramic view from the primary first-floor rooms to the southwest is currently blocked by trees. Construction of the tank would not preclude thinning the existing trees to restore elements of this view in the future.

2. Archaeological Resources
A Phase I archaeological site examination was conducted for Alternative Site B by the Binghamton Public Archaeology Facility in July 2002. The examination consisted of a site files check (literature research), a site walkover, and subsurface testing (digging shovel test pits at specific intervals where appropriate). No prehistoric or historic sites were identified during the archaeological site examination. The Binghamton Public Archaeology Facility determined that construction of the proposed water tank on Alternative Site B would not impact any archaeological resources.

e. Visual Resources

The methodology for constructing the visual simulations was described previously in section 2.2.4.F. and is not repeated here. Figure 11: Visual Assessment – Viewer Locations shows the locations of twelve separate views that have been evaluated. Views 9 – 12 simulate the view with the water tank located at site B.1 along with the parking lot at the corner of University Avenue and Lake Street.

Figure 22: View 9: View From Llenroc Court/Kahin Center Looking Southwest

Existing view
This view is taken from the driveway on the east side of the Kahin Center looking southwest. The driveway and curbing are visible at the bottom of the photo. In the foreground, the white picket fence located in front of the house at 115 Llenroc Court can be seen, along with a utility pole, and the trunks of five large trees. Existing vegetation that has overgrown the tennis court site, as well as trees in the lawn west of Llenroc is visible in the distance.

Proposed view
In the proposed views, new evergreen tree plantings that screen the tank are visible in the middle ground. There are no other changes to the view.

Figure 23: View 10: View From Cayuga Lodge Looking West

Existing view
The photograph of the existing view is taken from a window in the main living room on the first floor of the Cayuga Lodge. The street (Llenroc Court) and a dumpster are visible in the foreground. Just west of Llenroc Court, approximately 10 feet below the street level, are the abandoned
Insert Figure 22: View 9: View From Llenroc Court / Kahin Center Looking Southwest
Insert Figure 23: View 10: View from Cayuga Lodge Looking West
tennis courts. The courts are completely enclosed by volunteer vegetation that now screens the courts from view.

**Proposed view**
In the developed condition, the water tank is located on the far north end of the courts. Existing vegetation between Llenroc Court to the west, and the tennis courts is preserved and continues to screen the view. Evergreen trees are proposed to be planted along the west edge of the street. These are visible in the view and effectively screen the water tank.

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**Figure 24: View 11: View From Llenroc Looking Northeast**

**Existing view**
The photograph is taken from the ground level at the northwest corner of Llenroc, looking northeast towards the proposed site B.1. The open lawn is visible in the foreground, and the white exfoliating bark of the sycamore tree is visible in the middle ground. The shrubby vegetation to the right of the sycamore tree is the vegetation that has overgrown the abandoned tennis courts. A glimpse of the house at 115 Llenroc Court and the red roof of the Kahin Center are barely visible through the winter vegetation.

**Proposed view**
In the proposed view, the open lawn is maintained in the foreground, and the sycamore tree is preserved. Evergreen trees are planted around the edges of the shrubby vegetation to provide an opaque winter screen. Additional evergreen trees are planted to the left in order to create a more natural landscape composition.

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**Figure 25: View 12: View From Cornell Avenue Looking East**

**Existing view**
The photograph is taken from Cornell Avenue looking east toward site B.1. The existing stone wall along the east side of Cornell Avenue and the west lawn of Llenroc are visible in the foreground. Scattered pine trees are visible in the lawn on the right, and an unmaintained, revegetating area is visible on the left. The water tank site is at the center of the photo, behind the visible vegetation.

**Proposed view**
The foreground and middle ground views are unchanged in the developed condition. Evergreen trees are now visible in the distance, and effectively block views of the water tank.

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**Mitigation Measures for Visual Impacts at the B.1 Site**

Mitigating measures to reduce the visual impact of the water tank at the B.1 site include:

- Siting the tank to maximize the vegetation to be preserved around the west, south, and east sides of the tank.
- Siting the tank at a higher elevation to minimize that portion of the tank that is visible above grade.
Insert Figure 24: View 11: View From Llenroc Looking Northeast
Insert Figure 25: View 12: View From Cornell Avenue Looking East
• Planting evergreen trees to supplement existing vegetation to remain to screen views of the tank.
• Utilizing a 75-foot diameter tank (instead of a 90-foot diameter tank) to minimize the portion of the tank visible above grade.
• Construction of a trellis structure surrounding the tank to be covered with ivy so that the tank blends in with surrounding vegetation.

2.4 Alternative Site C: West of 115 Llenroc Court

Figure 5: University Avenue Block – Potential Water Tank Locations, illustrates two siting options that were considered for the location west of 115 Llenroc court. Siting the water tank at the C site has no impact on the development potential of the northwest section of the block, and no impact on the proposed parking lot layout. However, as described under in the descriptions of the A and B sites, the parking lot is proposed to be shifted to the east and raised to a higher elevation to create a greater separation between University Avenue and the lot. As well, the length of the lot is shortened to mitigate impacts to the historic carriage path.

Locating the tank at either of the C sites preserves the future land use potential of the northwest section of the site. Both of the C sites would result in higher construction costs than the A sites. This is due to the much longer distance required for connecting the tank to the water line under University Avenue to the north and the consequential additional rock excavation. C.2 is considered unacceptable due to being in the viewshed of Llenroc and was not explored further. Site C.1 was explored in greater detail and is described below.

2.4.1 Detailed Discussion of the C.1 Alternative

2.4.2 Description of C.1 Site Plan

The proposed water tank is located west of the house at 115 Llenroc Court. A 12-foot access lane is shown surrounding the tank, and extensive evergreen tree plantings are proposed surrounding the tank. Access to the tank would be from the driveway connected to Stewart Avenue that provides access to the Kahin Center and 660 Stewart Avenue. Figure 26: Site C1 — Conceptual Site Plan and Figure 27: Site C1 – Site Section illustrate the proposed siting.

The C.1 site is further east than the other sites so the tank would be buried to a greater degree. The tank would be approximately 28 feet above grade on the west side and approximately 12 feet above grade on the east side with a flat slab roof. The top of the tank would be approximately two feet above the first floor elevation of the house at 115 Llenroc Court, and approximately eight inches below the first floor elevation of the Kahin Center. Evergreen trees would be planted around the tank.

2.4.3. Potential Significant Impacts of the Site West of 115 Llenroc Court

a. Vegetation

The proposed site is currently a lawn with scattered trees along the north edge of the site. Approximately 10 trees would be removed to accommodate the tank. These would be replaced by extensive new plantings.
Insert Figure 26: Site C.1 - Conceptual Site Plan
Insert Figure 27: Site C.1 - Site Section
b. Future Land Use

The university would like to preserve the future development potential of the west and north portions of the block. A water tank in the C.1 location preserves the future development potential of the north and west areas.

c. Construction Cost

Construction costs for a water tank at the C.1 site are estimated to be approximately .5 million dollars higher than the A.1 site. This is due to the requirement for much more extensive piping to connect the tank to the service line on University Avenue and added rock excavation and site development costs.

d. Cultural Resources

1. Historic Impact Analysis of Alternative C.1

Alternate C.1 locates the water tank midway between the Allan H. Treman house and the Robert H. Treman house, just south of the historic carriage drive. (See Figure 26: Site C.1 – Conceptual Site Plan and Figure 27: Site C.1 – Site Section) In Alternate C.1, the exterior of the tank would be located 50 feet south of the south corner of the Robert H. Treman House and 25 feet northwest of the porch of the Allan H. Treman House.

Construction of the tank at site C.1 would have the following impacts:

**Allan H. Treman House** – Although the trellis planting system would screen the tanks exterior, locating the tank at this site would drastically change the setting of the house. The tank and its landscape buffer would block much of the house’s current view to the west and would occupy most of the west lawn. The seasonal view (when the leaves have fallen) to the southwest of the Newfield Hills would remain unobstructed. The tank would also compromise the visual relationship between the Allan H. Treman House and the adjacent Robert H. Treman House. This relationship is significant because of the family ties of the historic occupants.

**Llenroc** - The tank does not impact any of the primary views from Llenroc. The combination of the “Greenscreen” trellis planting system applied to the tank’s exterior; the remaining existing deciduous trees located west, south, and east of the tennis courts; and new coniferous trees will screen the view of the tank’s exterior from the Llenroc house and lawns. The tank will not affect the existing visual relationship between Cayuga Lodge and the Llenroc house.

**Cayuga Lodge** - The tank at location C.1 does not impact any of the primary views from Cayuga Lodge. The combination of the “Greenscreen” trellis planting system applied to the tank’s exterior; the remaining existing deciduous trees located west, south, and east of the tennis courts; and new coniferous trees will screen the view of the tank’s exterior from Cayuga Lodge. The tank will not affect the existing visual relationship between Cayuga Lodge and the Llenroc house.

**Robert H. Treman House** - The view of the tank’s exterior will be screened from Robert H. Treman House by existing trees, the “Greenscreen” trellis planting system, and additional new coniferous trees. Construction of the tank at location C.1 would prevent future restoration of the historic panoramic view from the primary first-floor rooms to the southwest and would compromise the...
visual relationship with Robert’s son’s house located immediately to the south.

**Treman Estate Carriage Path** – The close proximity of the tank to the carriage path at this site would make it impossible to screen. The scale of the tank and the loss of existing vegetation would adversely affect the visual character of the path at its entrance adjacent to the Robert H. Treman house.

2. **Archaeological Resources**

A Phase I archaeological site examination was conducted for Alternative Site C by the Binghamton Public Archaeology Facility in July 2002. The examination consisted of a site files check (literature research), a site walkover, and subsurface testing (digging shovel test pits at specific intervals where appropriate). No prehistoric or historic sites were identified during the archaeological site examination. The Binghamton Public Archaeology Facility determined that construction of the proposed water tank on Alternative Site C would not impact any archaeological resources.

e. **Visual Resources**

In the existing condition, the house at 115 Llenroc Court has an open view to the west, and there are filtered views to the south from the driveway of the Kahin Center. Vegetation required to screen the tank in this location would block the existing views to the west of 115 Llenroc Court and to the south from the Kahin Center driveway. The Kahin Center and 115 Llenroc Court would be the only structures impacted by the tank in this location. The tank would not be visible from any other locations.

2.5 **Alternative Site D: West of 660 Stewart Avenue**

2.5.1. **Description of Alternative Site Plan**

*Figure 5: University Avenue Block – Potential Water Tank Locations*, illustrates Site D west of 660 Stewart Avenue. Preliminary studies had indicated a lower elevation for the top of the tank, suggesting that it might be possible to fully bury a tank in this location. Additional engineering and modeling done for this analysis now indicate that the lowest elevation possible is with a flat roof at elevation 614. Given that the building at 660 Stewart Avenue has a first floor elevation of approximately 612, it is not possible to bury a tank west of 660 Stewart Avenue. A tank located within the lawn of the primary viewshed of two of the historic Treman houses is considered unacceptable and was not considered further. *Figure 28: Site D – Conceptual Site Plan and Figure 29: Site D – Site Section* illustrate the proposed siting.

2.5.2. **Potential Significant Impacts of Fully Buried Tank West of 660 Stewart Avenue**

a. **Vegetation**

The proposed site is currently a sloping lawn with scattered trees. These trees would be removed and the lawn would be completely regarded to accommodate the tank. Approximately 15 large shade trees would be removed from the lawn.
Insert Figure 28: Site D - Conceptual Site Plan
Insert Figure 29: Site D.1 - Site Section
b. Future Land Use

A water tank in this location would compromise any future development on the site due to its central location.

c. Construction Cost

Construction costs for a water tank at the D site are estimated to be approximately .2 million dollars higher than the A.1 site. This is due to the requirement for much more extensive piping to connect the tank to the service line on University Avenue and added rock excavation and site development costs.

d. Cultural Resources

1. Historic Impact Analysis on Alternate Site D

Alternate D locates the water tank ninety feet west of the Van Cleef and 110 feet northwest of the Robert H. Treman House. (See Figure 28: Site D.1 – Conceptual Site Plan and Figure 29: Site D.1 – Site Section) Construction of the tank at site D would have the greatest impact on the Treman Estate including the following impacts:

Van Cleef House – Construction of the tank at site D would obstruct the westward view from the house and its terrace and would therefore compromise one of the primary site relationships of the Treman estate. The tank would occupy the center of the west Treman lawn. Historically the west lawn was the focal point of the three houses, the terrace and the property. Although planting and use of the trellis planting system could screen the exterior surfaces of the tank, the integrity and scale of the Treman property would be severely compromised.

Robert H. Treman House – The impact on the Robert H. Treman house would be similar to the effects on the Van Cleef house described above.

Treman Estate Carriage Path – An important element of the visual character of the carriage path is the view from the shaded path to the adjacent expansive open lawns. Although the view of the tank’s exterior surfaces could be screened, the view of the main west lawn from the path would be lost.

2. Archaeological Resources

A Phase I archaeological site examination was conducted for Alternative Site D by the Binghamton Public Archaeology Facility in July 2002. The examination consisted of a site files check (literature research), a site walkover, and subsurface testing (digging shovel test pits at specific intervals where appropriate). No prehistoric or historic sites were identified during the archaeological site examination. The Binghamton Public Archaeology Facility determined that construction of the proposed water tank on Alternative Site D would not impact any archaeological resources.

e. Visual Resources

In the existing condition, the Treman houses and Von Cramm are oriented to the open lawn. Installing a water tank in the center of the lawn would require evergreen buffer planting surrounding the tank. This would completely change the view of the lawn.
2.6 Construct a Smaller Tank

An alternative to construct a smaller tank and implement an emergency feed from Cornell’s ground system was evaluated. This alternative could provide the storage volume desired for future growth and minimizes the risks associated with dependency on pressure regulating stations. This option would however have similar visual impacts because the top of the tank would still need to be maintained at the same elevation and the tank diameter would need to remain between 75 and 90 feet. The cost of this option would also be similar because the site development costs would remain largely unchanged and the tank foundation and roof costs would be the same. The only significant cost saving would be a result of shorter tank walls.

2.7 Pump House

A pump house, measuring approximately 15 feet by 30 feet is proposed to be located along University Avenue near the intersection of University Avenue and Lake Street. The pump house would be entirely buried except for the west façade which would face University Avenue to the west. The west façade of the building could potentially be clad in local stone to blend in with the exposed bedrock bank in this location. Access doors would be located on the west façade to allow servicing directly from University Avenue. *Figure 30: Site Section at Pump House* illustrates the relationship between the pump house, University Avenue, and the site to the east. The water main under University Avenue to the north would be connected to the pump house, and water lines would extend from the pump house to the water tank.

3.0 Construction Impacts

3.1 Description of Construction Staging

The construction of the City’s Water Tank Project is anticipated to be completed in up to three phases. The first phase would be the construction of the water storage tank itself, which is expected to take three to four months to complete. The second phase would be construction of the pumping station and is expected to require two months of construction. The pumping station can be constructed concurrently with the tank or deferred until the future. The third phase would be the installation of higher capacity pumps and flow regulation equipment at the tank to accommodate integration of the Ithaca area water systems into a regional delivery system. No time frame has been established for this construction and it could occur in conjunction with the tank construction or at a later date.

The construction activities and impacts associated with the water storage tank and pumping station project would be very similar to that described for the University Avenue Parking lot in Section 3 of the WCRI DEIS dated May 2002. The construction equipment, means and methods would be similar except that a crane would be typically used to erect the tank structure itself. The project would begin with the installation of sediment and erosion control systems, followed by clearing of the area necessary for excavation and installation of an access road and construction staging. *Figure 31: Site A.1 Staging Area and Figure 32: Site B Staging Area* illustrate the estimated clearing limits for construction, construction access, and staging areas.

Excavation limits would be restricted to minimize clearing areas outside of the proposed parking lot. In the case of a concrete tank, the excavation would need to extend to an elevation approximately two feet below the finished floor elevation and to a width of approximately 12 feet outside.
Insert Figure 30: Site Section at Pump House
Insert Figure 31: Site A.1 - Staging Area
Insert Figure 32: Site B.1 - Staging Area
the perimeter of the tank. Excavation is anticipated to require controlled blasting of native rock as well as overburden.

Once the excavation is complete the foundation for the tank floor is prepared and the tank floor constructed on-site. Concrete wall panels and roof panels are also cast on-site in the case of a concrete tank. If a steel tank is constructed the wall and roof panels would be manufactured off-site and delivered ready for installation.

The walls and roof of the tank are then assembled to construct the tank. A large crane would be used for a concrete tank. Smaller cranes can be used for steel tanks.

After the tank is completed the excavation can be backfilled and the site finished and vegetation restored.

3.2 Construction Impacts to Stormwater

The construction impacts to stormwater and mitigation measures would be the same as described in Section 3.5 of the WCRI DEIS dated May 2002.

3.3 Construction Impacts to Air Quality

The construction impacts to Air Quality and mitigation measures would be the same as described in Section 3.6 of the WCRI DEIS dated May 2002.

3.4 Construction Impacts to Noise

The construction impacts to noise and mitigation measures would be the same as described in Section 3.7 of the WCRI DEIS dated May 2002.

3.5 Construction Impacts to Traffic and Parking

Construction worker and construction delivery vehicle traffic are expected to follow the same routes as those outlined in Section 3.8.2 of the WCRI DEIS dated May 2002. A total of approximately 12 on-site workers is estimated as being necessary for construction of the tank. This small number of workers is likely to be imperceptible. There may be a brief inconvenience to employees of the Kahin Center during the time the crane is moved on-site, if the B site were selected.

3.6 Construction Impacts to Pedestrians and Cyclists

Neither site proposed for the water tank, site A.1 or site B.1, will interrupt traffic patterns of pedestrians and cyclists and no impacts are anticipated.