PENDING PETITION MEMO

Date: ~~10/23/2006~~ 10/23/2006

TO : OE&E
OGC

FROM: CENTRAL OPERATIONS

UTILITY: NEW YORK STATE ELECTRIC & GAS CORPORATION

SUBJECT: 06-T-1298

Application of New York State Electric & Gas Corporation for a Certificate of Environmental Compatability and Public Need under Article VII of the PSL for the Construction and Operation of Approximately 30 Miles of New or Rebuilt 115 kV Electric Transmission Line and the Construction of a New 345 kV / 115 kV Substation Located in Tompkins and Cortland Counties. 10/23/2006.

MOTION FOR WAIVER OF REQUIRED INFORMATION FILED BY NEW YORK STATE ELECTRIC AND GAS CORPORATION.

LeBoeuf, Lamb, Greene & MacRae

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October 23, 2006

Hon. Jaclyn A. Brilling
Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, NY 12223-1350

Re: Application of New York State Electric Gas Corporation for a Certificate of Environmental Compatibility and Public Need under Article VII of the New York State Public Service Law for the Ithaca Transmission Project, Tompkins and Cortland Counties, NY

Dear Secretary Brilling:

On Saturday, October 21, 2006, New York State Electric & Gas Corporation's consultant, URS Corporation, forwarded to you for filing today ten copies of the above-referenced application. Our firm's representative is now delivering to you, in connection with that filing the following:

1. Ten copies of the testimony in support of the Application.
2. An affidavit confirming that copies of the Application have been served on all parties on the service list attached to the affidavit and that an affidavit of publication of the notice in accordance with the requirements of 16 NYCRR §85-2.10 is included with the application.
3. A signed copy of the Motion for Waivers that is included in the Application.

I would appreciate your filing these materials together with the copies of the Application that you will receive from URS Corporation.

If you have any questions about these matters, please call me.

Very truly yours,

John D. Draghi

MOTION FOR WAIVERS

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Application of the New York State Electric & Gas Corporation pursuant to Article VII of the Public Service Law for a Certificate of Environment Compatibility and Public Need authorizing the construction and operation of electric transmission facilities from the Applicant's Etna Substation in the Town of Dryden, County of Tompkins, New York to the Applicant's Lapeer Substation in the Town of Lapeer, County of Cortland, New York.

MOTION FOR WAIVER OF REQUIRED INFORMATION

New York State Electric & Gas Corporation ("Applicant") hereby moves pursuant to 16 NYCRR 85-2.4 that the requirements of 16 NYCRR 86.3(a)(1); 86.3(a)(1)(i); 86.3(a)(1)(iii); 83.3(a)(2); and 86.3(b)(2) be waived to the extent and for the reasons set forth below:

1) 16 NYCRR 86.3(a)(1) requires use of New York State Department of Transportation maps in 1:24,000 scale. The Applicant respectfully requests a waiver from use of NYSDOT mapping and that it be allowed to substitute the United States Geological Survey (USGS) Topographic Quadrangle maps in 1:24,000 scale, which represent an equivalent instrument appropriate for base map and presentation purposes.

2) 16 NYCRR 86.3(a)(1)(i) requires coverage of an area of at least five miles on either side of the proposed facility location. The Applicant respectfully requests a waiver from this requirement to reduce the coverage from five miles to approximately one and one half miles, thus magnifying the project area and providing a better depiction of the project facilities and right-of-way at the required 1:24,000 scale. Moreover, the proposed facility location is depicted on other map figures within Exhibit 2, which provide appropriate instruments for review.

3) 16 NYCRR 86.3(a)(1)(iii) requires 1:24,000 scale map showing any known archaeologic, geologic, historical or scenic area, park or untouched wilderness on or within three miles of the right-of-way. The Applicant respectfully requests a waiver to allow it to use 1:54,000 scale base maps,

which provide a better context of the region and thus a better depiction of the known resources within the three-mile area.

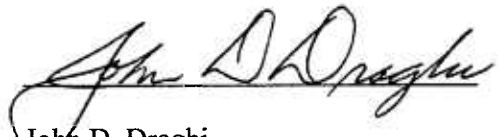
4) 16 NYCRR 86.3(a)(2) requires New York State Department of Transportation maps in 1:250,000 scale showing the relationship of the proposed facility to the Applicant's overall system. The Applicant respectfully requests a waiver from this requirement to allow it to use ESRI ArchGIS 9 Maps in 1:250,000 scale, which represent an equivalent instrument appropriate for base map and presentation purposes

5) 16 NYCRR 86.3(b)(2) requires aerial photographs of urban areas and urbanizing fringe areas to be taken within six months of the date of filing. The Applicant respectfully requests a waiver from this requirement to allow it to use the readily available New York State GIS Clearinghouse Orthoimagery taken for the project area in 2002 and 2003. The Tompkins County and Cortland County Planning Directors have said in telephone interviews that no substantial development has occurred in recent years in or adjacent to this predominantly rural and agricultural area and, therefore, the 2002/2003 aerial photographs provide a reasonably accurate depiction of the current situation within the project area. Moreover, the project area is not located within an urban area and/or urbanizing fringe area.

For the reasons stated above, the Applicant requests that the Commission grant its motions for waiver of rules 16 NYCRR 86.3(a)(1), 86.3(a)(1)(i), 86.3(a)(1)(iii), 86.3(a)(2), and 86.3(b)(2).

Respectfully submitted,

October 23, 2006



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125 West 55th Street
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06-T-1298

PENDING PETITION MEMO

Date: ~~10/23/2006~~ 3/23/07

TO : Office of Electricity and the Environment
Office of General Counsel
Office of Hearings and Alternative Dispute Resolution

FROM: CENTRAL OPERATIONS

UTILITY: NEW YORK STATE ELECTRIC & GAS CORPORATION

SUBJECT: 06-T-1298

Application of New York State Electric & Gas Corporation for a Certificate of Environmental Compatibility and Public Need under Article VII of the PSL for the Construction and Operation of Approximately 30 Miles of New or Rebuilt 115 kV Electric Transmission Line and the Construction of a New 345 kV / 115 kV Substation Located in Tompkins and Cortland Counties.

AMENDMENT TO THE ORIGINAL APPLICATION FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED, ISSUED ON OCTOBER 20, 2006, TO ALSO CORRECT AND MAKE CONSISTENT THE DESCRIPTIONS OF THE ADDITION WIDTH OF RIGHT-OF-WAY THAT WILL BE NEEDED.

LeBoeuf, Lamb, Greene & MacRae LLP

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BEIJING

March 22, 2007

Honorable Jaclyn A. Brilling
Secretary
State of New York
Public Service Commission
3 Empire State Plaza
Albany, New York 12223-1350

Re: CASE 06-T-1298 – Application of New York State Electric & Gas Corporation for a Certificate of Environmental Compatibility and Public Need under Article VII of the Public Service Law for the Construction and Operation of Approximately 30 Miles of New or Rebuilt 115 kV Electric Transmission Line and the Construction of a New 345 kV/115 kV Substation Located in Tompkins and Cortland Counties

Dear Secretary Brilling:

I am enclosing for filing with the Public Service Commission ten copies of amendments to the above-referenced application.

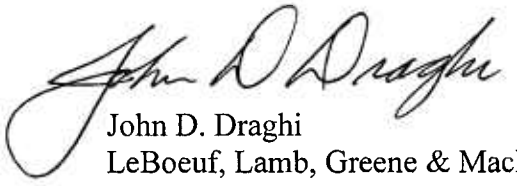
These amendments address changes to the proposed project required as a result of the System Reliability Impact Study ("SRIS") for the project. Ten copies of that study, in compact disk form, are also enclosed (The SRIS is being enclosed in compact disk form because it is more easily reviewable in that format, and a print-out of the study could take hundreds or thousands of pages). The enclosed amendments also correct and make consistent the descriptions of the additional width of right-of-way that will be needed.

Rather than require recipients of the enclosed amendments to insert many revised pages into existing copies of the application previously served, the applicant is providing complete copies of sections of the application that include the amendments. A cover page containing instructions on substitution of the amendment sections for the original application sections is included with the amendments.

Copies of the enclosed amendments are being served on all persons who received the original application and on parties on the Commission's Active Party List for this case. Copies of the complete application, as amended, are being served on municipal officials and legislators that serve the area where the State Street and Wright Avenue substation improvements, mentioned in the amendments to the application, are located. A service list is enclosed. The names of the persons who are receiving a complete copy of the application are marked with an asterisk.

We look forward to receipt of your advice that this application now accepted for filing in compliance with Public Service Law Section 122.

Very truly yours,



John D. Draghi
LeBoeuf, Lamb, Greene & MacRae LLP
Attorneys for New York State
Electric & Gas Corporation

cc: All parties on attached service list

ITHACA TRANSMISSION PROJECT
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*Senator Michael F. Nozzolio
State Senate, 54th District
119 Fall Street
Seneca Falls, NY 13148

*Assemblyman Gary Finch
New York State Assembly, 123rd District
69 South Street
Auburn, NY 13021

AMENDMENT INSTRUCTIONS

These amendment instructions were prepared to explain how the enclosed documents should be used to amend the original Application for a Certificate of Environmental Compatibility and Public Need, issued on October 20, 2006.

The following sections of the original Application should be replaced **in their entirety** (including all figures and appendices, if applicable) with the enclosed corresponding sections:

- Executive Summary
- Application
- Exhibit 2
- Exhibit 3
- Exhibit 4
- Exhibit 5
- Exhibit 7
- Exhibit 9
- Exhibit E-2

EXECUTIVE SUMMARY

Project Overview

Ordering Clause 9 of the New York Public Service Commission's Order Adopting Recommended Decision with Modifications in Case 05-E-1222 required New York State Electric & Gas Corporation (NYSEG) to submit all the governmental and regulatory filings for the Ithaca Transmission Project within 60 days of the Commission's Order issued on August 23, 2006. To comply with this ordering clause, NYSEG is submitting this Application for a Certificate of Environmental Compatibility and Public Need pursuant to Article VII of the New York State Public Service Law (PSL) for a new approximately 15-mile 115-kilovolt (kV) electric transmission line from the existing Etna Substation in the Town of Dryden in Tompkins County to a new substation in the Town of Lapeer in Cortland County. The Project would also include rebuilding of 14.8 miles of existing 115 kV Line 947, modifications to the Etna Substation to accommodate connection to the new 115 kV line, and construction of a new Lapeer Substation near the site of the existing Lapeer Switching Station. A new 115kV, 50 MVAR switched capacitor bank will be installed at the new Lapeer Substation. Sections of new right-of-way will need to be acquired along the existing corridors for both new line construction and for the rebuilding of Line 947. In addition, approximately 6.5 acres of land adjacent to the existing Lapeer Switching Station will be obtained for construction of the new Lapeer Substation. The above-described portion of the Project is located in the Town of Dryden in Tompkins County, and the Towns of Harford and Lapeer in Cortland County.

In order to provide adequate voltage support for the upgraded system, modifications will be required at the State Street and Wright Avenue Substations located in the City of Auburn in Cayuga County. New switched capacitor banks (115 kV, 50 MVAR) will be installed at the State Street and Wright Avenue Substations to improve system power factor. In addition, the existing buswork at the State Street Substation will need to be upgraded. The substation fence line will need to be expanded slightly at each substation to accommodate these modifications.

The electric transmission system that supplies Ithaca, New York and the surrounding area is currently dependent on nearby power generation resources to be available and operating to ensure reliable service for the area's load. Ordering Clause 9 of the Public Service Commission's August 23, 2006, Order in Case 05-E-1222 requires NYSEG to submit all the governmental and regulatory filings necessary to eliminate the load pocket conditions currently prevailing in Ithaca, New York.

This Application and accompanying Exhibits describe the proposed Project, the purpose and need for the Project, environmental impact studies conducted in support of the Project, Project costs, and Project routing alternatives. The preferred alternative is based on engineering efficiency, cost, and minimizing impact to the environment including State Forest land.

Copies of this Application are being sent to the following State agencies:

- New York State Department of Environmental Conservation.
- Department of Economic Development.
- Department of Agriculture and Markets.
- Department of State.
- Department of Transportation.
- Office of Parks, Recreation and Historic Preservation.

Copies are also being sent to State legislators whose districts are crossed by the Project; Supervisors of the Towns of Dryden, Harford and Lapeer; the Mayor of the City of Auburn; and the County Administrators of Tompkins, Cortland and Cayuga Counties. Local public libraries will be provided copies of the Application and all subsequent Project documentation will be made available for public review.

Environmental Studies

NYSEG conducted studies to determine the environmental conditions along the Project and to evaluate potential impacts of the Project on the environment. The results of these studies are summarized below.

Cultural Resources: The Phase IA assessment background research and reconnaissance survey of the Project corridor identified previously designated historic and archaeological resources as well as areas with high potential for containing cultural resources. Avoiding these areas and resources would minimize impacts on cultural resources in the Project area. More intensive surveys are recommended if finalized design plans indicate that construction activities will occur within high-potential areas or known locations of cultural resources.

Land Use: Based on an analysis of adopted plans and discussions with municipal planning representatives, it is NYSEG's opinion that, because of the stable nature of land use patterns in the Project area, improvements to Line 947; construction of the new 115 kV line and Lapeer Substation; and modifications to the Etna, State Street, and Wright Avenue Substations will not adversely affect future land use patterns.

Topography and Soils: The potential for erosion during construction in some areas of the Project could impact soils. In order to mitigate impacts to site soils, best management practices will be employed to control surface runoff and minimize erosion potential. Leaving as much ground cover and brush as intact as possible will also help mitigate potential erosion. As soil disturbance will be limited and surface runoff controlled and mitigated, NYSEG believes that construction impacts on soil will be minimal. All agricultural soils disturbed during construction will be restored and the only permanent impacts will be the new structures required for the new 115 kV line.

Terrestrial Ecology and Aquatic Resources: Impacts to terrestrial wildlife will result from Project construction, right-of-way expansion and maintenance operations. These impacts are generally temporary. The degree of impact will depend on the amount of clearing required and on the quality and variety of wildlife habitat adjacent to the right-of-way. The types of habitats that will be impacted -- primarily secondary forest,

successional old field plant communities, and agricultural land (primarily hayfield) -- are common in the Project area, as are the animals that inhabit them.

Although plant communities along the right-of-way will experience varying degrees of impact, it is NYSEG's opinion that the Project will not adversely affect wildlife populations in the Project area. No Federal or State rare, threatened or endangered species are known to exist along the Project. Certain State endangered, threatened and special concern bird species may occasionally pass through the Project area, especially during spring and fall migration. It is unlikely the Project would impact these species.

The Project will cross fourteen tributaries and subtributaries of Fall Creek and seven tributaries and subtributaries to Owego Creek. All of the streams will be spanned by the power lines. Necessary stream crossing permits will be obtained from the U.S. Army Corps of Engineers.

Approximately 3,150 feet of wetland will be crossed by the Project: 1,000 feet along Line 947, 950 feet along Line 945, and 1,200 feet along the combined Lines 945/947 corridors. Efforts will be made to minimize the number of structures placed in wetlands. Where unavoidable, the wetlands will be crossed by heavy equipment during the installation of the new 115kV line and during the rebuilding of Line 947. Wetland crossing permits will be obtained from the U.S. Army Corps of Engineers (Nationwide permits) prior to construction.

Visual Resources: The overall visual impact of the proposed Project will be low. Line 947 will be rebuilt in the existing right-of-way and the rebuilt structures and lines will be visually similar to the existing structures and lines. The new 115 kV line will be constructed along the existing right-of-way, and the existing rights-of-way have been visible to local residents for well over 50 years. Expansions of sections of right-of-way will be required to accommodate building of the new line and rebuilding of Line 947. Much of the right-of-way expansion will be located behind hilltops or in forested areas, which significantly restrict or limit visibility. Visibility of the right-of-way from roads will be tempered by distance and intervening topography and vegetation. Substation improvements will occur at or adjacent to existing facilities.

Conclusion

The proposed improvements will eliminate the load pocket conditions currently prevailing in Ithaca and reinforce the NYSEG Ithaca transmission system to adequately and reliably provide electricity to the public serviced by the system.

The Project will comply with all the substantive requirements of all applicable local laws, rules and regulations with the exception of specified local laws and regulations set forth in the Application for which waivers have been requested from the Public Service Commission.

Application Organization

The Application is provided in one volume and is organized as follows.

Application: The Application is comprised of six sections including a description of the Project, a statement of the location of the Project and right-of-ways, a summary and description of environmental impact studies, a statement explaining the need for the Project, and a description of Project alternatives. The application also includes a motion for waiver of required information.

Exhibit 1, General Information Regarding Application (16 NYCRR §86.2): This exhibit provides the name, address and telephone number of the applicant.

Exhibit 2, Location of Facilities (16 NYCRR §86.3): This exhibit provides detailed maps showing the routes or the Project transmission facilities and locations of the substation sites.

Exhibit 3, Alternatives (16 NYCRR §86.4): This exhibit provides a discussion of alternative transmission line technologies, routing alternatives, right-of-way alternatives, and electric alternatives.

Exhibit 4, Environmental Impact Studies (16 NYCRR §86.5): This exhibit provides detailed analysis of the potential effects of the Project on all environmental and cultural resources including topography, geology, soils, vegetation, wildlife resources, aquatic resources including streams, wetlands and hydrology, land uses, agricultural resources, scenic and visual resources, recreation resources, and archaeological and historic resources.

Exhibit 5, Design Drawings (16 NYCRR §86.6): This exhibit presents the design drawings and profiles of the Project's transmission and substation components.

Exhibit 6, Economic Effects of Proposed Facility (16 NYCRR §86.7): This exhibit provides an assessment of the potential economic effects of land use changes resulting from the construction and operation of the Project.

Exhibit 7, Local Ordinances (16 NYCRR §86.8): This exhibit provides an identification of applicable local ordinances, and justification for any requested waivers.

Exhibit 8, Other Pending Filings (16 NYCRR §86.9): This exhibit provides a statement that there are no other pending filings with governmental departments or agencies that concern the subject matter of the Project.

Exhibit 9, Cost of Proposed Facilities (16 NYCRR §86.10): This exhibit provides a statement regarding Project costs.

Exhibit E-1, Overview of Current and Proposed Facilities (16 NYCRR §88.1): This exhibit provides a detailed description of the existing and proposed facilities comprising the Project.

Exhibit E-2, Other Facilities (16 NYCRR §88.1): This exhibit provides a discussion of other facilities including those associated with the proposed substation improvements.

Exhibit E-3, Underground Construction (16 NYCRR §88.3): This exhibit provides a statement that the Project does not include construction of any underground facilities.

Exhibit E-4, Engineering Justification (16 NYCRR §88.4): This exhibit provides the engineering justification for the Project, and discusses the need and benefits of the Project.

Exhibit E-5, Effect on Communications (16 NYCRR §88.5): This exhibit provides a statement describing the anticipated affects the Project and related equipment will have on communication systems.

Exhibit E-6, Effect on Transportation (16 NYCRR §88.6): This exhibit provides a description of the existing transportation system in the Project area and the expected effect on that system.

APPLICATION

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Application of New York State Electric & Gas Corporation pursuant to Article VII of the Public Service Law for a Certificate of Environment Compatibility and Public Need authorizing the construction and operation of electric transmission facilities from the Applicant's Etna Substation in the Town of Dryden, County of Tompkins, New York to the Applicant's Lapeer Substation in the Town of Lapeer, County of Cortland, New York.

Pursuant to Article VII of the Public Service Law, New York State Electric & Gas Corporation (NYSEG), an electric and gas corporation organized and existing under the laws of the State of New York, hereby applies for a Certificate of Environmental Compatibility and Public Need for the construction and operation of the electric transmission and substation facilities described herein.

1.0 DESCRIPTION OF THE PROPOSED FACILITIES (the "Project")

NYSEG is proposing to reinforce its electric transmission system in the Ithaca Division. The proposed plan involves:

1. The Lapeer Substation, a new 345/115 kV substation in the vicinity of the NYSEG's existing Lapeer Switching Station, will be constructed with the high side connecting to the NYSEG/National Grid Oakdale-Lafayette 345 kV Line 36. The new substation will consist of two 345/115 kV, 200 MVA, LTC transformers, a 115 kV, 50 MVAR switched capacitor bank, a 345 kV ring bus, and a 115 kV ring bus.

2. The existing 14.8 mile, 115 kV Line 947 between Etna and Lapeer Substations will be rebuilt with 1277 ACAR conductor. The new construction will be H-frame, single circuit construction, the same as the current line. The structures will be designed and framed to accommodate the proposed larger and heavier conductors. The structures will have the same basic span spacing as the current line.

3. A new 115 kV line will be constructed between the Etna and Lapeer Substations with 1277 ACAR conductor (approximately 15 miles in length). The routing of the new 115 kV line is along the existing right-of-way from Etna to Lapeer, parallel to the existing 115 kV Line 945. The new 115 kV line will exit the south yard of the Etna Substation and will be attached to new H-frame, single circuit structures. The new 115 kV line will proceed eastward until the 34.5 kV Line 524 joins the right-of-way from the north. The existing H-frame structures supporting the Line 524 will be removed and a new single pole, double circuit structure will be placed along the centerline of the removed Line 524 structures. The new 115 kV line conductors will be attached to the north side of the new single pole structures. At the Cortland County Line, Line 524 leaves the existing Etna to Lapeer right-of-way and heads south. East of the Cortland County Line, the new 115 kV line will be supported by H-frame, single circuit structures. The new line will be routed south of the existing 115 kV Line 945. This design will continue eastward to the Lapeer Substation. The existing right-of–way will need to be expanded an additional 47.5 feet in this area.

4. NYSEG's Etna Substation will be modified to accommodate the connection of the new 115 kV line. All work on the Etna Substation will be done within existing fence line such that no substation expansion will be required.

5. Additional modifications will be required at the State Street and Wright Avenue Substations located in the City of Auburn in Cayuga County. New switched capacitor banks (115 kV, 50 MVAR) will be installed at the State Street and Wright Avenue Substations to improve system power factor. In addition, the existing 115 kV, 4/0 CU buswork at the State Street Substation will be replaced with 500 CU 19 or equivalent buswork. The substation fence line will need to be expanded slightly at each substation to accommodate these modifications.

Engineering details of the Project are contained in the attached Exhibits.

2.0 LOCATION OF THE PROPOSED FACILITIES

Figure A-1 illustrates the main Project area, located within Tompkins and Cortland Counties, which are generally located east of Ithaca, south of Syracuse and northwest of Binghamton, New York. The State Street and Wright Avenue Substations are located in the City of Auburn in Cayuga County. Figure A-2 illustrates the location of these substations and their proximity to the main Project area.

Figure A-3 illustrates the specific sections of the NYSEG infrastructure that will be included in this Project as either new facilities or rebuild of existing facilities. The majority of the work is located within the Town of Etna in Tompkins County and the Towns of Harford and Lapeer in Cortland County. The existing Line 947 transmission line illustrated in Figure A-3 will be rebuilt. A new 115 kV transmission line will be constructed along the existing Line 945 right-of-way (ROW). The distance along each of these corridors is approximately 15 miles. Figures A-3, A-4, and A-5 illustrate the Lapeer and Etna Substation locations.

3.0 SUMMARY AND DESCRIPTION OF STUDIES MADE OF THE ENVIRONMENTAL IMPACT OF THE PROPOSED PROJECT

NYSEG conducted studies to determine the potential impact of the proposed Project on environmental and cultural resources in the Project area. Since the work planned for the State Street and Wright Avenue Substations in the City of Auburn will require only minor expansion of the substation fence lines on existing NYSEG property, these studies focused on the corridor in the Town of Etna in Tompkins County and the Towns of Harford and Lapeer in Cortland County where the majority of the work will occur. A cultural resources study was completed to identify the cultural history of the Project area and to survey the Project corridors for archaeological artifacts. Environmental studies were conducted during site walkovers in late September 2006. The purpose of these studies was to identify land use, streams, water bodies, wetlands, plant communities, wildlife habitat, wildlife and any rare, threatened or endangered species along the Project corridors. The studies and sources of information associated with the studies are described below.

NYSEG engaged URS Corporation (URS) to conduct a Phase 1A Cultural Resource Assessment

for the Project. The study consisted of a cultural resource literature search and a reconnaissance survey covering a two-mile radius surrounding the Project corridors. Research was conducted at the New York State Historic Preservation Office. As part of the Phase 1A assessment, a URS archaeologist conducted a field archaeological assessment of the existing transmission line corridors between September 25 and 27, 2006. A brief inspection of the standing structures adjacent to and within the transmission corridors was preliminarily assessed for potential visual and direct effects from the Project. The Phase 1A report characterizes the Prehistoric and Historic context of the Project area. The findings and analysis of the study is presented in Section 4.8 of Exhibit 4. The complete Phase 1A report (*Phase 1A Cultural Resource Assessment for the Ithaca Reinforcement Project, NYSEG Article 7 Filing, Etna to Lapeer, New York*, October 2006) is placed in Appendix 4-A of Exhibit 4.

Information on topography in the Project area was based on USGS topographic maps and the soil surveys of Tompkins and Cortland Counties. A study of soils crossed by the Project was based on information obtained from the soils surveys. Geologic information was obtained from the USGS website, the New York State Geologic Map and the New York State Surficial Geologic Map. Climate information was obtained from the Cortland County Industrial Development Agency. The results of the physical resources analysis are presented in Section 4.6 of Exhibit 4.

A study of land use in the Project area was based on information obtained from several sources including site walkovers in September 2006; the Towns of Harford and Dryden land use codes and local laws; Agricultural District maps and USDA Soil Survey maps for Tompkins and Cortland Counties; the Town of Dryden 2005 Comprehensive Plan; the Tompkins County 2004 Comprehensive Plan; the Cortland County 2002 Consolidated Plan; interviews with Tompkins County and Cortland County Planning Directors; the Town of Harford Code Enforcement Officer; the Town of Dryden Code Enforcement Officer; the Town of Harford Planning Board Chairwoman; and the Towns of Harford and Dryden Town Clerks. A land use analysis is presented in Section 4.8 of Exhibit 4.

Information on water resources, vegetation, and wildlife resources was primarily obtained during a walkover of the Project corridors in late September 2006 by two URS senior biologists. During the walkover, stream crossing information was collected, wetlands potentially impacted

by the Project were characterized and delineated, plant communities and species composition were noted, and wildlife habitat and species observed were recorded. Other sources of information included the Codes, Rules and Regulations of the State of New York for stream classification and best usage, wildlife range extension maps and preferred habitats, USGS topographic maps, and recent aerial photography from 2002 and 2003. An analysis of potential Project impacts on water resources, vegetation and wildlife resources is presented in Section 4.7 in Exhibit 4.

4.0 NEED FOR THE PROPOSED FACILITIES

The electric transmission system that supplies Ithaca, New York and the surrounding area is currently dependent on nearby power generation resources to be available and operating to ensure reliable service for the area's load. Ordering Clause 9 from the Public Service Commission's Order Adopting Recommended Decision with Modifications in Case 05-E-1222 issued on August 23, 2006, requires NYSEG to submit all the governmental and regulatory filings necessary to eliminate the load pocket conditions currently prevailing in Ithaca, New York. In order to eliminate the transmission limitations in the Ithaca area and maintain adequate normal and contingency service throughout the Ithaca Division during extended outages (forced or planned) of the AES owned Cayuga Station generating units, NYSEG is proposing to reinforce the electric transmission system in its Ithaca Division.

The proposed transmission lines and substation will eliminate the Ithaca Load Pocket condition and will satisfy capacity and voltage requirements by creating a new transmission supply into the Ithaca Division. This additional 115 kV source into the Ithaca area will enable NYSEG to serve electricity from the new 345/115 kV Lapeer Substation to Etna Substation, thereby allowing NYSEG to provide adequate and reliable electric service to all customers in the Ithaca Division during either extended outages (planned or forced) of the Cayuga Station generating units, or in the event that one or both units at Cayuga Station are retired from service. New switched capacitor banks (115 kV, 50 MVAR) will be installed at the State Street and Wright Avenue Substations located in the City of Auburn to improve system power factor. A detailed description of the need for the proposed facilities is given in Exhibit E-4 of this Application.

5.0 PROJECT ALTERNATIVES

Four alternatives were considered for the Project: the no-action alternative; selecting the Line 945 corridor as the route for the new 115 kV line; selecting the Line 947 corridor as the route for the new 115 kV line; and selecting a combination of the existing Line 945 and Line 947 corridors as the route for the new 115 kV line.

The modification of the Etna, State Street, and Wright Avenue Substations and the construction of the new Lapeer Substation adjacent to the existing Lapeer Switching Station are necessary components for re-enforcing the Ithaca transmission system. No alternatives were considered for these locations because these sites have existing structures and impacts to new land would be minimized. Modifications to the Etna Substation will occur completely within the existing fence line. Modifications to the State Steet and Wright Avenue Substations will require minor expansion of the substation fence lines. The construction of the Lapeer Substation will require the acquisition of approximately 6.5 acres.

The no-action alternative is not a viable alternative because NYSEG has been ordered by the Public Service Commission to proceed promptly and continue to completion without delay or interruption the construction efforts needed to eliminate the Ithaca load pocket. The route selected for the new line is a combination of the Line 945 and Line 524 corridor between the Etna Substation and the Tompkins-Cortland County Line, and the Line 945 corridor between the County Line and the existing Lapeer Switching Station (Figure A-3).

In the combined Line 945 and Line 524 corridor, the new line would be double-circuited with the existing Line 524 on single-pole structures and no new right-of-way would need to be obtained for this portion of the route. In contrast, if the new line were located along the Line 947 corridor, additional right-of-way would need to be obtained, some of which would be in the Yellow Barn State Forest. For technical reasons, the existing Line 947 structures, which already carry a 115 kV line, cannot be used to carry an additional 115 kV line.

At the County Line, Line 524 turns south and can no longer be used to carry the new line. From the County Line east to the Lapeer Switching Station, the Line 945 corridor would be used for the new line. New H-frame structures would be built to accommodate the new line. Building

new structures would require obtaining an additional 47.5 feet of right-of-way along the south side of the existing Line 945 right-of-way in this area. The eastern section of the Line 945 corridor was selected for two reasons: less State Forest would be impacted, and the transition from the combined Line 945 and Line 947 corridor just east of the County Line to the Line 945 corridor would be easier and less costly because of structure and line configurations at the split.

STATEMENT OF OTHER RELEVANT INFORMATION

Exhibit 7 of the Application provides information on local ordinances and requests that the Commission grant waivers of specified provisions of those local ordinances that Applicant believes would be unduly restrictive if applied to the proposed facilities.

NEW YORK STATE ELECTRIC & GAS CORPORATION respectfully requests that the Public Service Commission issue an order:

1. Granting NYSEG a Certificate of Environmental Compatibility and Public Need for the construction and operation of the facilities described herein; and

2. Granting such other authorizations, consents, permissions and approvals as may be necessary for the construction, operation, and maintenance of the facilities herein proposed including the waivers of Commission regulations requested in the Motion for Waivers filed by NYSEG on October 23, 2006, with the initial Application herein, which Motion is unaffected by the amendments to the Application and was noticed by Administrative Law Judge Bouteiller on October 30, 2006,

Respectfully submitted,

NEW YORK STATE ELECTRIC & GAS CORPORATION

BY: Laura S. Conklin

NAME: Laura S. Conklin

ORIGINAL FILING DATE: October 20, 2006

AMENDMENT DATE: March 21, 2007

TITLE: Vice President, Technical Services

ADDRESS: 89 East Avenue, Rochester, New York

MOTION FOR WAIVERS

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Application of the New York State Electric & Gas Corporation pursuant to Article VII of the Public Service Law for a Certificate of Environment Compatibility and Public Need authorizing the construction and operation of electric transmission facilities from the Applicant's Etna Substation in the Town of Dryden, County of Tompkins, New York to the Applicant's Lapeer Substation in the Town of Lapeer, County of Cortland, New York.

MOTION FOR WAIVER OF REQUIRED INFORMATION

New York State Electric & Gas Corporation ("Applicant") hereby moves pursuant to 16 NYCRR 85-2.4 that the requirements of 16 NYCRR 86.3(a)(1); 86.3(a)(1)(i); 86.3(a)(1)(iii); 83.3(a)(2); and 86.3(b)(2) be waived to the extent and for the reasons set forth below:

1) 16 NYCRR 86.3(a)(1) requires use of New York State Department of Transportation maps in 1:24,000 scale. The Applicant respectfully requests a waiver from use of NYSDOT mapping and that it be allowed to substitute the United States Geological Survey (USGS) Topographic Quadrangle maps in 1:24,000 scale, which represent an equivalent instrument appropriate for base map and presentation purposes.

2) 16 NYCRR 86.3(a)(1)(i) requires coverage of an area of at least five miles on either side of the proposed facility location. The Applicant respectfully requests a waiver from this requirement to reduce the coverage from five miles to approximately one and one half miles, thus magnifying the project area and providing a better depiction of the project facilities and right-of-way at the required 1:24,000 scale. Moreover, the proposed facility location is depicted on other map figures within Exhibit 2, which provide appropriate instruments for review.

3) 16 NYCRR 86.3(a)(1)(iii) requires 1:24,000 scale map showing any known archaeologic, geologic, historical or scenic area, park or untouched wilderness on or within three miles of the right-of-way. The Applicant respectfully requests a waiver to allow it to use 1:54,000 scale base maps,

which provide a better context of the region and thus a better depiction of the known resources within the three-mile area.

4) 16 NYCRR 86.3(a)(2) requires New York State Department of Transportation maps in 1:250,000 scale showing the relationship of the proposed facility to the Applicant's overall system. The Applicant respectfully requests a waiver from this requirement to allow it to use ESRI ArchGIS 9 Maps in 1:250,000 scale, which represent an equivalent instrument appropriate for base map and presentation purposes

5) 16 NYCRR 86.3(b)(2) requires aerial photographs of urban areas and urbanizing fringe areas to be taken within six months of the date of filing. The Applicant respectfully requests a waiver from this requirement to allow it to use the readily available New York State GIS Clearinghouse Orthoimagery taken for the project area in 2002 and 2003. The Tompkins County and Cortland County Planning Directors have said in telephone interviews that no substantial development has occurred in recent years in or adjacent to this predominantly rural and agricultural area and, therefore, the 2002/2003 aerial photographs provide a reasonably accurate depiction of the current situation within the project area. Moreover, the project area is not located within an urban area and/or urbanizing fringe area.

For the reasons stated above, the Applicant requests that the Commission grant its motions for waiver of rules 16 NYCRR 86.3(a)(1), 86.3(a)(1)(i), 86.3(a)(1)(iii), 86.3(a)(2), and 86.3(b)(2).

Respectfully submitted,

John D. Draghi

John D. Draghi
LeBoeuf, Lamb, Greene & MacRae, LLP
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125 West 55th Street
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212-424-8217

EXHIBIT 2

LOCATION OF FACILITIES

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT 2

LOCATION OF FACILITIES

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2-6A- 2-6I Right-of-Way, Facility Locations, Clearing Areas and Access Roads

2-7 State Street and Wright Avenue Substations

EXHIBIT 2

LOCATION OF FACILITIES

This Exhibit addresses the requirements of 16 NYCRR §86.3

2.1 INTRODUCTION

This exhibit describes the location of the proposed transmission lines and substations, describes the removal of existing facilities, provides information about the capacity of the proposed transmission lines, and indicates which exhibits to the Application contain maps and photographs showing the project location.

2.2 LOCATION OF PROPOSED TRANSMISSION LINES AND SUBSTATIONS

The proposed 14.8-mile Etna to Lapeer 115kV Line 947 upgrade and the new 115kV transmission line will be located in portions of Tompkins and Cortland Counties. As shown on Figures 2-6A through 2-6I found at the end of this exhibit, the proposed new and upgraded transmission lines will begin at NYSEG's Etna Substation in the Town of Dryden, Tompkins County. The lines will exit from the south side of the substation and extend in an easterly direction for approximately 15 miles (Line 947 extends 14.8 miles and the new 115kV Line extends 15 miles) until they reach the site of the proposed new 345/115kV Lapeer Substation located south of the existing NYSEG Lapeer Switching Station in the Town of Lapeer, Cortland County. Table 2-1 lists the municipalities crossed by the proposed transmission lines and the distance of the lines within each. New switched capacitor banks (115 kV, 50 MVAR) will be installed at the State Street and Wright Avenue Substations located in the City of Auburn in Cayuga County to improve system power factor. Figure 2-7 illustrates the location of these substations and their proximity to the main Project area.

TABLE 2-1: Municipalities Crossed by Proposed Transmission Lines

County	Town	Line 947 (miles)	New 115kV Line (miles)
Tompkins	Dryden	7.7	7.9
Cortland	Harford	5.2	5.3
	Lapeer	1.9	1.8
TOTAL		14.8	15.0

2.3 REMOVAL OF EXISTING TRANSMISSION FACILITIES

All of the existing Etna to Lapeer 115kV Line 947 H-frame structures will be removed and replaced with new H-frame structures along the existing centerline. Approximately seven miles of the proposed new 115kV transmission line beginning at the Etna Substation will be double circuited with NYSEG's Etna-Harford 34.5 kV Line 524. Along this section, the existing Line 524 H-frame structures will be removed.

2.4 TRANSMISSION CAPACITY DATA

NYSEG will use 1277 kcmil 42/19 aluminum conductor alloy reinforced (ACAR) for both the new 115kV line and the upgraded 115kV transmission Line 947. The capacity of the conductor is given in megavolt-amperes (MVA) in Table 2-2:

TABLE 2-2: Circuit Transmission Capacity (1277 kcmil 42/19 ACAR)

Rating	Summer	Winter
Normal	281MVA	344MVA
Long-Term Emergency*	315MVA	370MVA
Short-Term Emergency**	358MVA	407MVA

*Assumes four-hour overload capability.
**Assumes 15-minute overload capability.

2.5 MAPS OF PROPOSED FACILITIES

The following map exhibits were prepared in accordance with 16 NYCRR § 86.3 entitled "Exhibit 2: location of facilities":

1. Figures 2-1A, 2-1B and 2-1C (1:24,000 USGS 7.5' Topographic Quadrangle Base Map) showing the right-of-way and areas where construction and reconstruction of the proposed facilities would necessitate permanent clearing of vegetation. This clearing area is located along the right-of-way expansion areas (represented by red dotted line);

2. Figures 2-2A and 2-2B (1:54,000 USGS 7.5' Topographic Quadrangle Base Map) showing known archeological sensitive areas and structures listed on the National Register of Historic Places within 3 miles of the right-of-way;

3. Figures 2-3A and 2-3B (1:54,000 USGS 7.5' Topographic Quadrangle Base Map) showing surface geology within 3 miles of the right-of-way;

4. Figures 2-4A and 2-4B (1:54,000 USGS 7.5' Topographic Quadrangle Base Map) showing parks, forests and wildlife management areas within 3 miles of the right-of-way;

5. Figures 2-5A and 2-5B (1:250,000 ESRI ArcGIS 9 Map) showing the location and length of the existing and proposed facilities and structures, points of connection (i.e., substations) and nearby, crossing or connecting rights-of way or facilities of other utilities; and

6. Figures 2-6A through 2-6I (2002 and 2003 New York State GIS Clearinghouse Orthoimagery) showing the right-of-way and facilities, areas where construction and reconstruction of the proposed facilities would necessitate permanent clearing of

vegetation, the location and identification of roads used/to be used to access the existing and proposed facilities, and the location of transmission lines on the right-of-way.

7. Figure 2-7 (1:250,000 ESRI ArcGIS 9 Map) illustrates the location of the State Street and Wright Avenue Substations in the City of Auburn in Cayuga County and their proximity to the main Project area.

EXHIBIT 3

ALTERNATIVES

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT 3

ALTERNATIVES

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FIGURES

EXHIBIT 3

ALTERNATIVES

This Exhibit addresses the requirements of 16 NYCRR §86.4

3.1 ALTERNATE ROUTES

Four alternatives were considered for the project: the no-action alternative; selecting the Line 945 corridor as the route for the new 115 kV line; selecting the Line 947 corridor as the route for the new 115 kV line; and selecting a combination of the existing Line 945 and Line 947 corridors as the route for the new 115 kV line. Please refer to Figures A-2 and 4-4A-K (aerial photography) for reference.

The modification of the Etna, State Street and Wright Avenue Substations and the construction of the new Lapeer Substation adjacent to the existing Lapeer Switching Station are necessary components for re-enforcing the Ithaca transmission system. No alternatives were considered for these locations because these sites have existing structures and impacts to new land would be minimized. Modifications to the Etna Substation will occur completely within the existing fence line. Modifications to the State Street and Wright Avenue Substations will require minor expansion of the substation fence lines. The construction of the Lapeer Substation will require the acquisition of approximately 6.5 acres.

The no-action alternative is not a viable alternative because NYSEG has been ordered by the Public Service Commission to upgrade the capacity of the Ithaca transmission system and increase system reliability.

The route selected for the new line is a combination of the Line 945 and Line 524 corridor between the Etna Substation and the Tompkins-Cortland County Line, and the Line 945 corridor between the County Line and the existing Lapeer Switching Station (Figure A-3). In the combined Line 945 and Line 524 corridor, the new line would be double-circuited with the existing Line 524 on single-pole structures and no new right-of-way would need to be obtained. for this portion of the route. In contrast, if the new line was located along the Line 947 corridor, additional right-of-way would need to be obtained, some of which would be in the Yellow Barn State Forest. For technical reasons, the existing Line 947 structures, which already carry a 115 kV line, can not be used to carry an additional 115 kV line.

At the county line, Line 524 turns south and can no longer be used to carry the new line. From the county line east to the Lapeer Switching Station, the Line 945 corridor would be used for the new line. New H-frame structures would be built to accommodate the new line. Building new structures would require obtaining an additional 47.5 feet of right-of-way along the south side of the existing Line 945 right-of-way. The eastern section of the Line 945 corridor was selected for two reasons: less State Forest would be impacted, and the transition from the combined Line 945 and Line 947 corridor just east of the county line to the Line 945 corridor would be easier and less costly because of structure and line configurations at the split.

3.2 RIGHT-OF-WAY EXPANSIONS

Additional right-of-way will need to be obtained for building the new 115 kV line and for rebuilding existing Line 947 (please refer to Figures 5-1, 5-2 and 5-3 in Exhibit 5 and 4-4A-K in Exhibit 4). For the new line, 37.5 feet of right-of-way will be needed on the north side of the combined Line 945 and Line 947 right-of-way between the NYSEG district office property and the intersection of the Line 524 corridor approximately 1,000 feet to the east. An additional 47.5 feet of right-of-way will be needed on the south side of the Line 945 right-of-way between the split of Line 524 to the south and the Lapeer Switching Station.

Rebuilding Line 947 will require obtaining an additional 25-feet of right-of-way where the existing right-of-way is 100 feet wide. In these sections, 12.5 feet of right-of-way will be acquired on each side of the existing 100-foot right-of-way. In a few locations, an additional 12.5 feet of right-of-way will be acquired on only one side of the existing right of way. The locations along Line 947 where new right-of-way will be acquired are shown on Figures 5-1, 5-2 and 5-3 in Exhibit 5.

3.3 ELECTRIC ALTERNATIVES TO THE PROPOSED PLAN

In evaluating means of reinforcing this area to eliminate the Ithaca Load Pocket condition, other 345/115 sources and 115 kV lines were examined. Each of the alternatives was evaluated in terms of cost and ability to provide adequate supply for both the near and long-range future.

As illustrated in Figures E-4-4 and E-4-5 in Exhibit E-4, when both units at Cayuga Station are out of service, the existing 115 and 34.5 kV systems in the Ithaca Division are incapable of providing an adequate supply under normal conditions for load levels at or above 136.0 MW and under contingency conditions for load levels at or above 72.0 MW. Figure 3-1 shows the normal system conditions that existed at the 2005/06 winter peak load level of 173.0 MW if a new 345/115 kV substation was constructed between NYSEG's Oakdale and Watercure Substations with the high side connecting to NYSEG's 345 kV Line 31 and two new 25 mile, 115 kV lines were constructed from the new substation to Etna Substation with 1277 ACAR conductor. While the normal system voltage and thermal capacity are acceptable at this load level, Figure 3-2 shows that this alternative is only capable of adequately supplying the Ithaca Division up to a load level of 198.0 MW. Secondly, Figure 3-3 shows that during contingency conditions at the 2005/06 winter peak load level of 173 MW, the previously mentioned reinforcement is incapable of maintaining acceptable thermal conditions in the Ithaca Division for loss of the State Street – Clinton Corn 115 kV Line 971. Finally, Figure 3-4 illustrates that this alternative is only capable of maintaining acceptable thermal conditions in the Ithaca Division for load levels up to 140.0 MW. Since this alternative does not perform as well as the proposed plan from a normal or contingency standpoint and costs $17.5 million dollars more ($80 million vs. $62.5 million) than the recommended plan, this reinforcement was rejected. The $17.5 million cost difference does not include any system impact improvements that may be required.

Figure 3-5 shows a second 345/115 kV alternative. This alternative involves the construction of a new 345/115 kV substation in the vicinity of National Grid's Cortland Substation with the high side connecting to the 345 kV Line 36 between NYSEG's Oakdale Substation and National Grid's Lafayette Substation and the construction of two new 15 mile, 115 kV lines from the new substation to Etna Substation. As illustrated in Figures 3-5, 3-6, 3-7, and 3-8, from a normal and

contingency standpoint, this alternative performs just as well as the proposed plan does. However, since this alternative costs $1.5 million dollars more ($64 million vs. $62.5 million) than the recommended plan, this reinforcement was rejected. The $1.5 million cost difference does not include any system impact improvements that may be required.

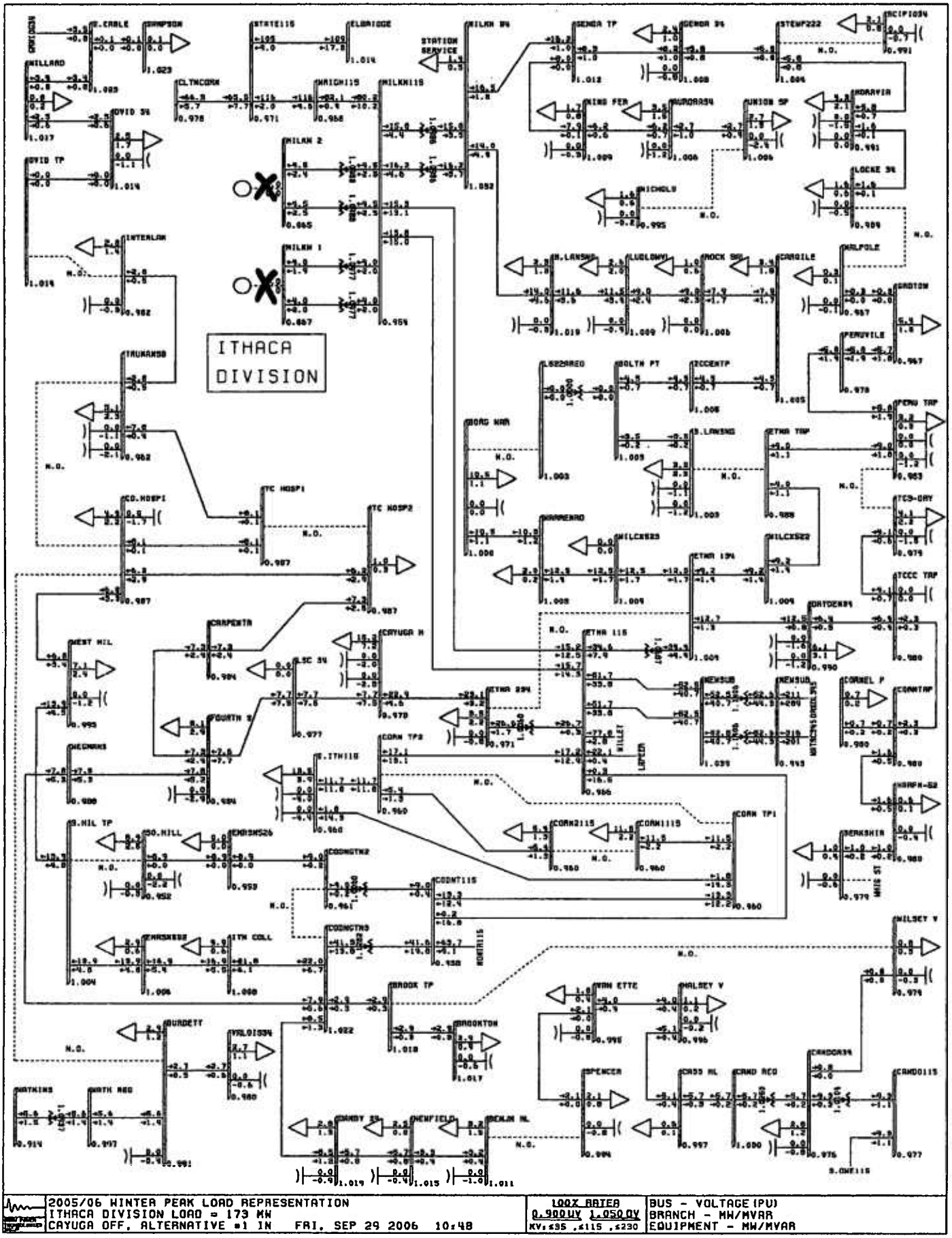
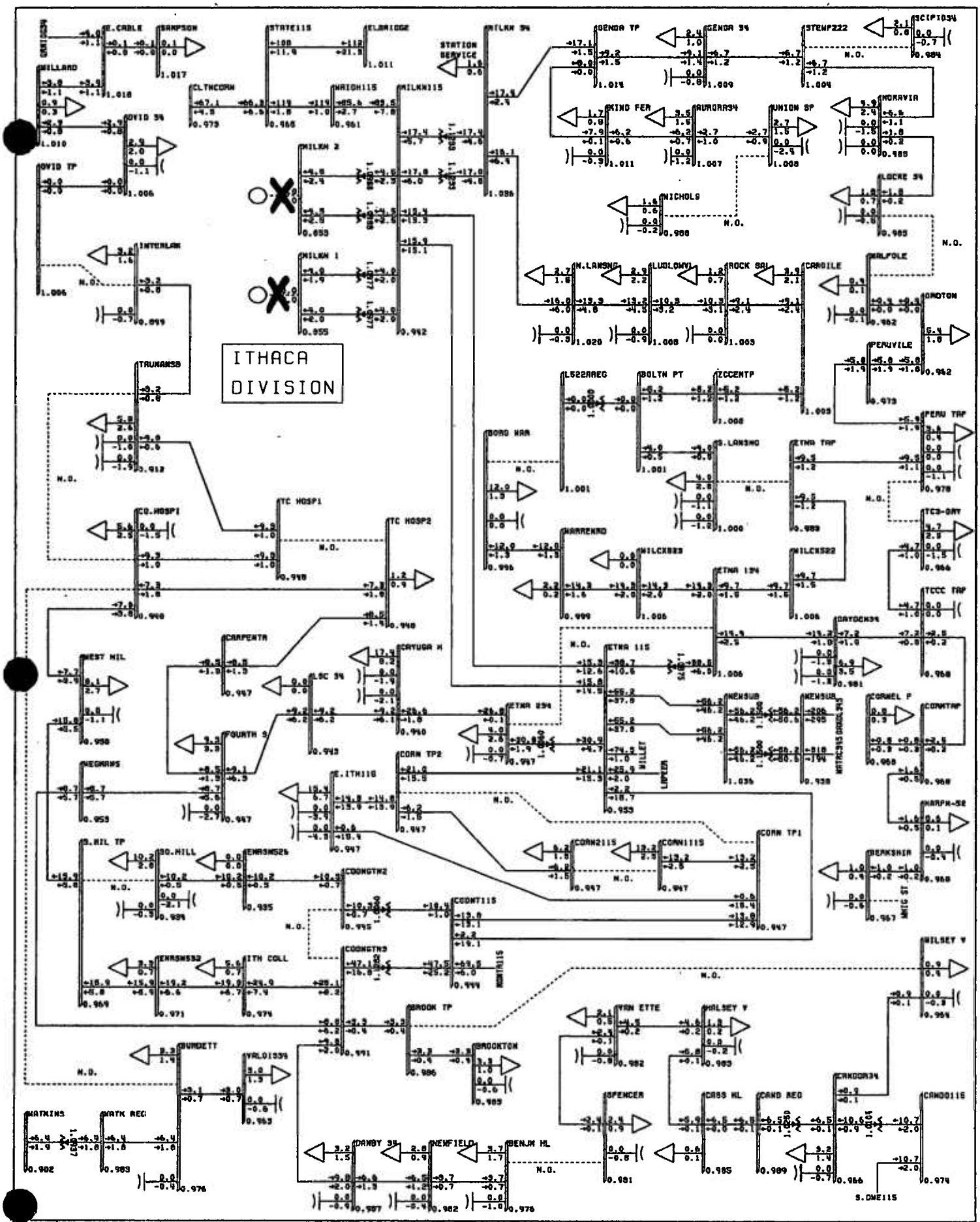

ITHACA
DIVISION
2005/06 WINTER PEAK LOAD REPRESENTATION
ITHACA DIVISION LOAD = 173 MW
CAYUGA OFF, ALTERNATIVE #1 IN FRI, SEP 29 2006 10:48
LOGX RATIO
0.900 LV 1.050 QV
KV: ≤35 , ≤115 , ≤230
BUS - VOLTAGE (PU)
BRANCH - MW/MVAR
EQUIPMENT - MW/MVAR

FIGURE 3-1


ITHACA
DIVISION
WINTER PEAK LOAD REPRESENTATION
ITHACA DIVISION LOAD = 198 MW
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100% RATED
0.900 UV 1.050 OV
KV: ≤35 .≤115 .≤230
BUS - VOLTAGE (PU)
BRANCH - MW/MVAR
EQUIPMENT - MW/MVAR

FIGURE 3-2

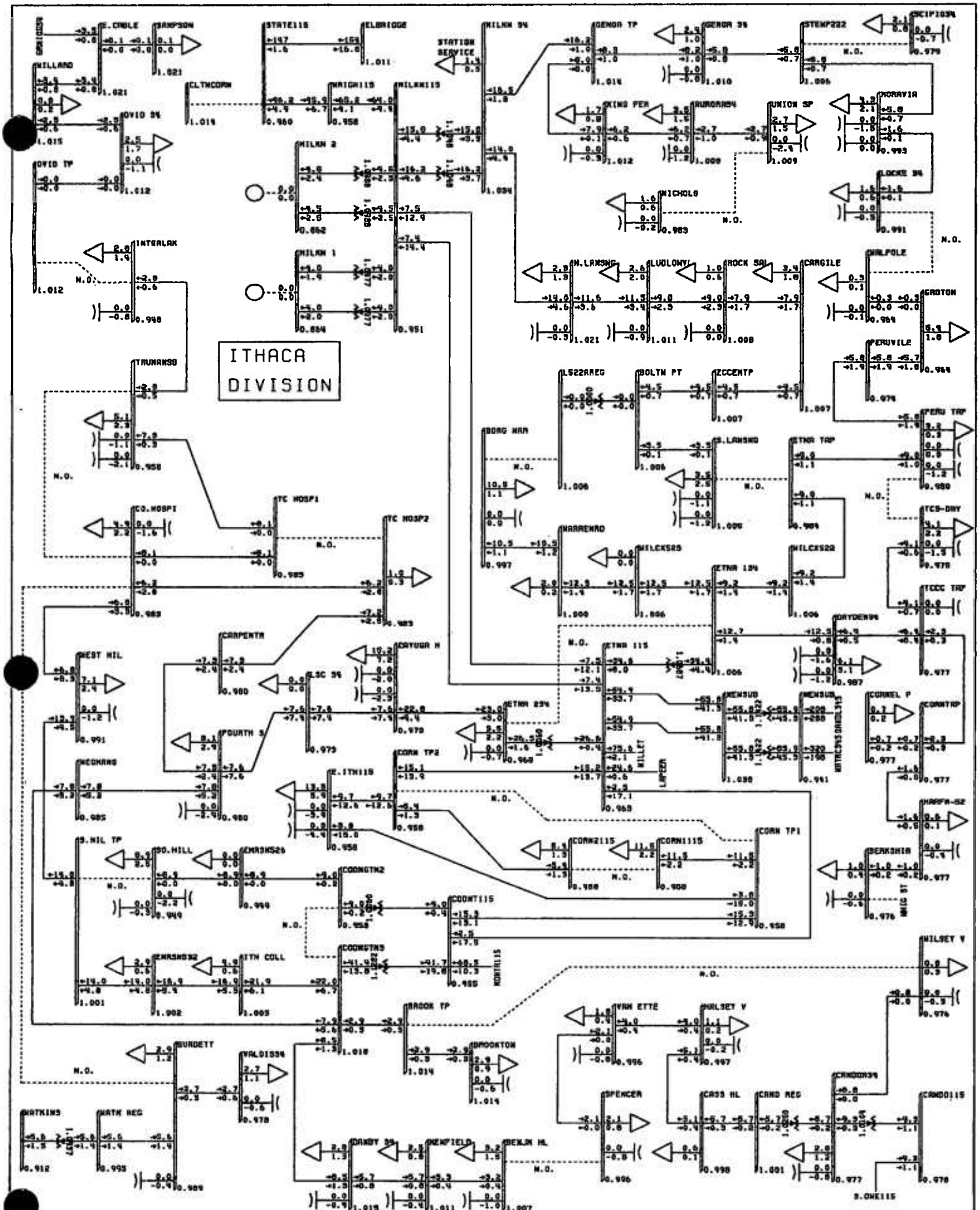
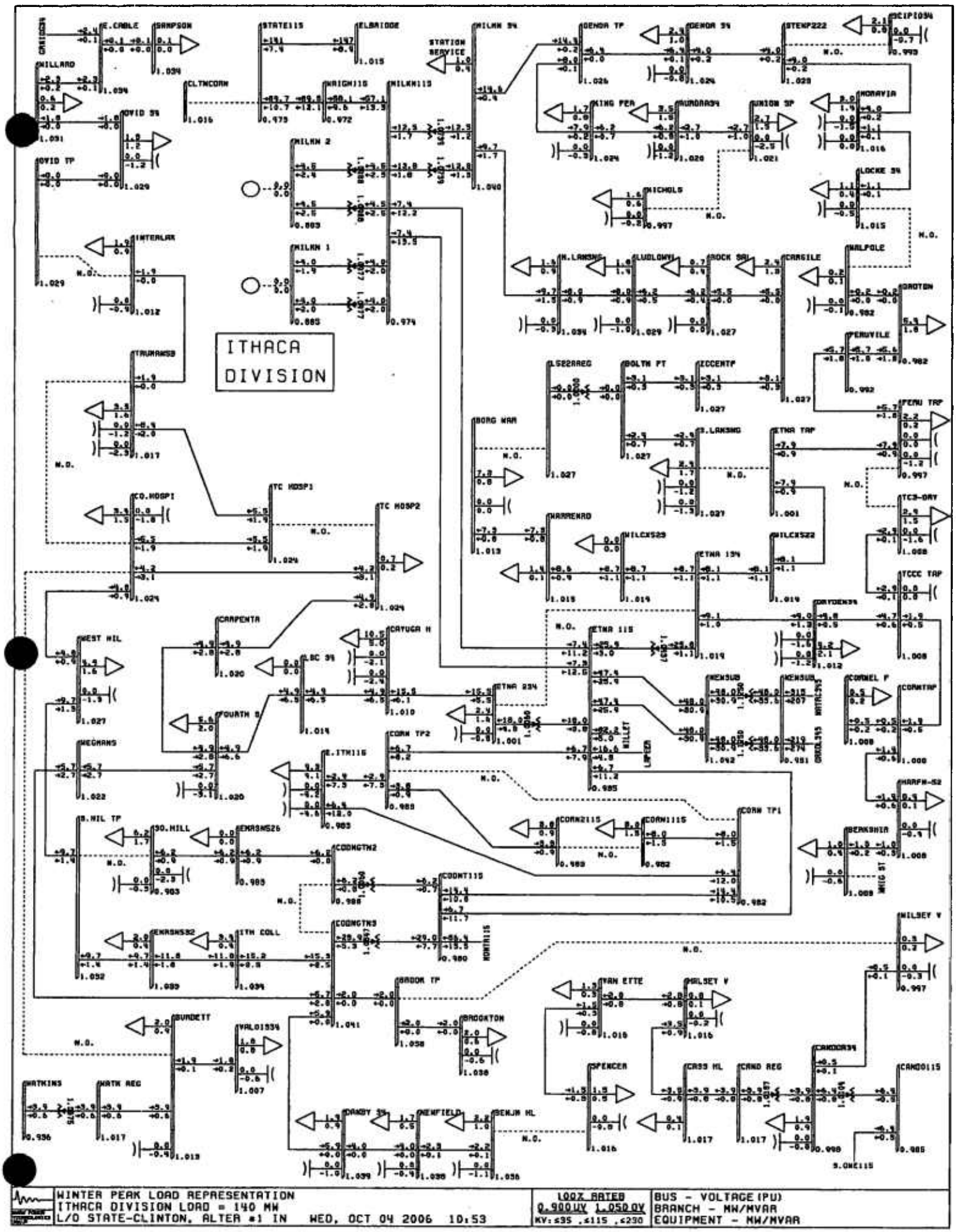

ITHACA
DIVISION
STATION SERVICE
N.O.
WINTER PEAK LOAD REPRESENTATION
ITHACA DIVISION LOAD = 173 MW
L/O STATE-CLINTON, ALTER #1 IN FRI, SEP 29 2006 13:05
100% RATED
0.900 UV 1.050 OV
KV: ≤ 95 , ≤ 115 , ≤ 230
BUS - VOLTAGE (PU)
BRANCH - MW/MVAR
EQUIPMENT - MW/MVAR

FIGURE 3-3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DIVISION
WINTER PEAK LOAD REPRESENTATION
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100% RATES
0.900 UV 1.050 OV
KV: ≤35 .≤115 .≤230
BUS - VOLTAGE (PU)
BRANCH - MW/MVAR
EQUIPMENT - MW/MVAR

FIGURE 3-4

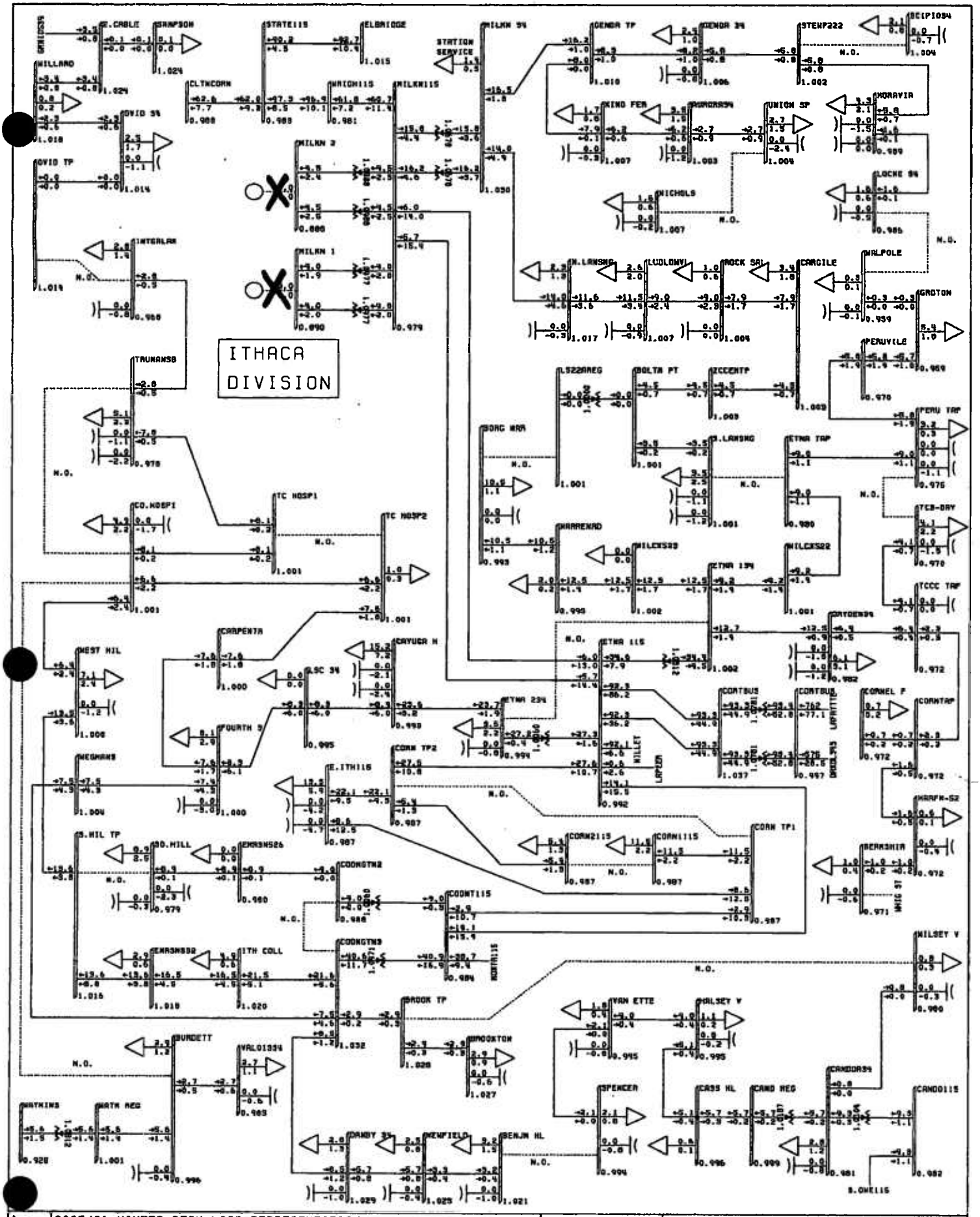
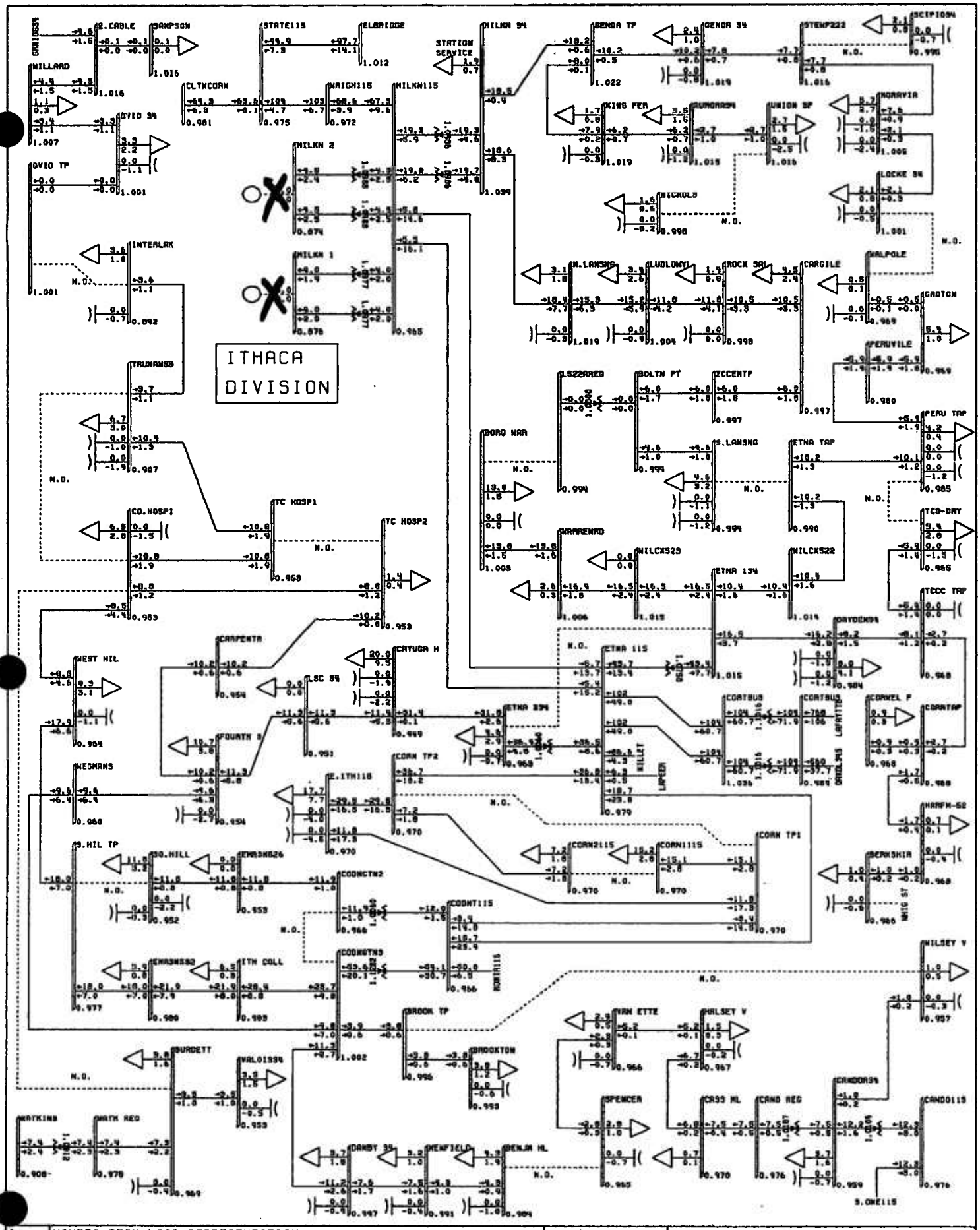

ITHACA
DIVISION
STATION SERVICE
N.O.
2005/06 WINTER PEAK LOAD REPRESENTATION
ITHACA DIVISION LOAD = 173 MW
CAYUGA OFF, ALTERNATIVE #2 IN MON, OCT 02 2006 6:02
100% RATED
0.900 UV 1.050 OV
KV: ≤95 , ≤115 , ≤230
BUS - VOLTAGE (PU)
BRANCH - MW/MVAR
EQUIPMENT - MW/MVAR

FIGURE 3-5


ITHACA
DIVISION
N.O.
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CAYUGA OFF, ALTERNATIVE #2 IN MON, OCT 02 2006 6:06
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KV: ≥95 ,≤115 ,≤230
BUS - VOLTAGE (PU)
BRANCH - MW/MVAR
EQUIPMENT - MW/MVAR

FIGURE 3-6

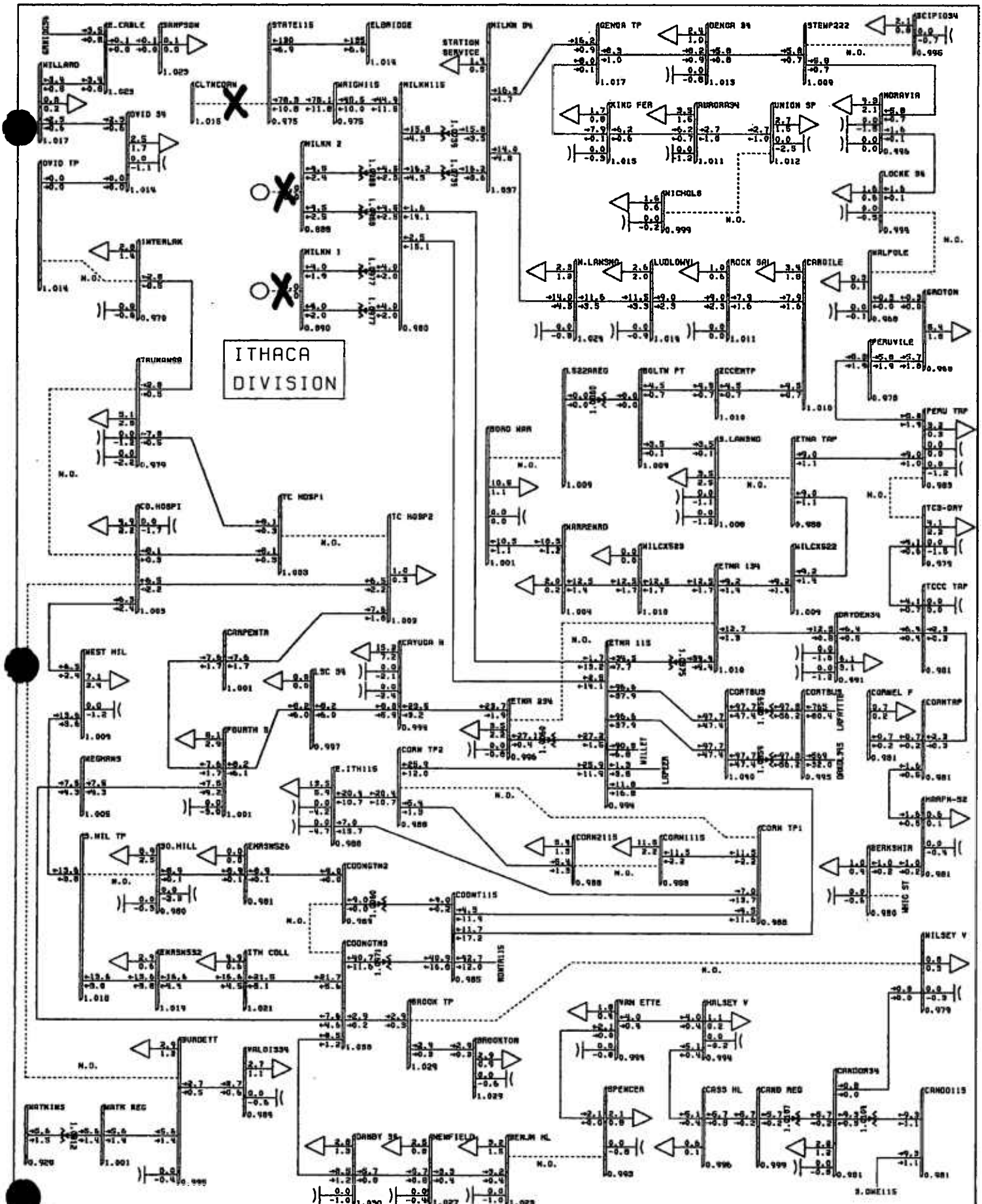
ITHACA
DIVISION
STATION SERVICE
N.O.
2005/06 WINTER PEAK LOAD REPRESENTATION
ITHACA DIVISION LOAD = 173 MW
L/O STATE-CLINTON, ALT #2 IN MON, OCT 02 2006 6:09
100% RATES
0.900 UV 1.050 OV
KV: ≤35 .≤115 .≤230
BUS - VOLTAGE (PU)
BRANCH - MW/MVAR
EQUIPMENT - MW/MVAR

FIGURE 3-7

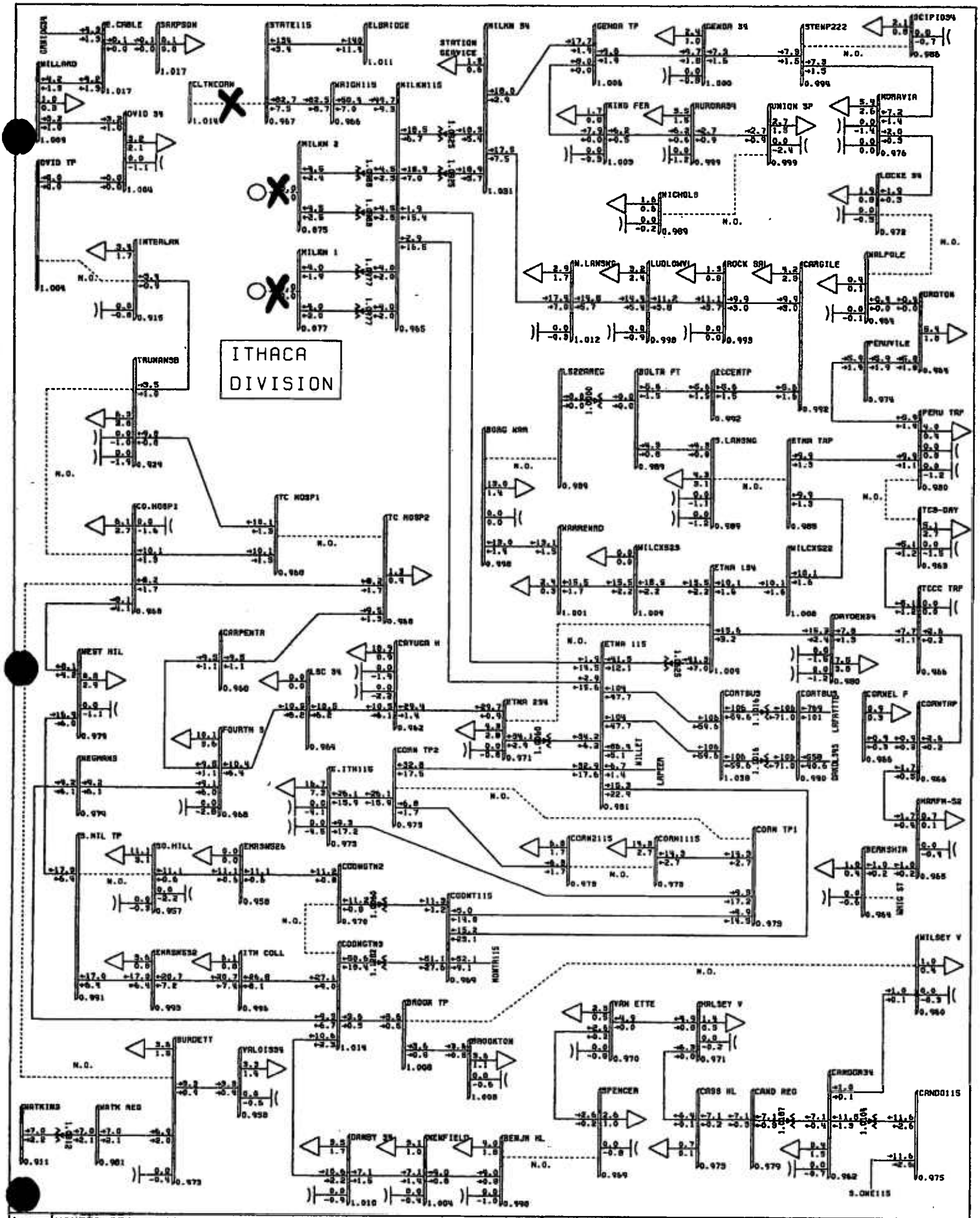
ITHACA
DIVISION
WINTER PEAK LOAD REPRESENTATION
ITHACA DIVISION LOAD = 215 MW
L/O STATE-CLINTON, ALT #2 IN MON, OCT 02 2006 6:16
100% RATES
0.900 UV 1.050 OV
KV: ≤95 , ≤115 , ≤230
BUS - VOLTAGE (PU)
BRANCH - MW/MVAR
EQUIPMENT - MW/MVAR

FIGURE 3-8

EXHIBIT 4

ENVIRONMENTAL IMPACT

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT 4

ENVIRONMENTAL IMPACT

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EXHIBIT 4

ENVIRONMENTAL IMPACT

This Exhibit addresses the requirements of 16 NYCRR §86.5

4.1 INTRODUCTION

An environmental assessment of the proposed Ithaca Transmission Project (the Project) is presented in this exhibit. The Project includes the construction of a new 115 kV transmission line along the Line 945 right-of-way and the combined Lines 945/524 rights-of-way, the rebuilding of Line 947, modifying the Etna, State Street and Wright Avenue Substations, and building a new Lapeer Substation adjacent to the existing Lapeer Switching Station. New right-of-way will need to be obtained for portions of the new line and the rebuilt line. The rationale used to select the route for the new 115kV line and measures to minimize construction impacts are described herein.

Exhibit 4 describes the environmental setting along the primary Project area in Tompkins and Cortland Counties and the anticipated impacts from the clearing of vegetation and construction of the proposed facilities. Modifications to the State Street and Wright Avenue Substations located in the City of Auburn in Cayuga County will require relatively small expansions of the fenced areas to accommodate additional electrical equipment. These facility expansions will result in very minor or no adverse impacts to the local environment and community.

4.2 METHODOLOGIES

Transmission Line Route and Substation Site Selection Methodology

The Project includes the building of a new 115 kV transmission line and the rebuilding of Line 947. The existing Line 945 and combined Lines 945/524 corridor was selected as the route for the new 115kV transmission line. Using existing corridors for the new line reduces the impact of building the new line. Double-circuiting the new 115 kV line with the 34.5 kV Line 524 would reduce the need for obtaining new right-of-way. Sections of new right-of-way ranging from 12.5 to 47.5 feet wide will need to be acquired along certain sections of the existing Line 945, Line 947 and combined Lines 945/947 rights-of-way as discussed below.

In order to assess construction impacts, information was obtained concerning planning, zoning, land use, soils, agriculture, recreational areas, parks, State Forest land, visually sensitive areas, historic and archaeological sites, water resources, wildlife, and vegetation. This information was collected from existing resources and from field walkovers in September 2006. NYSEG enlisted the services of a URS archaeological consultant to conduct an archaeological literature search and field survey to determine the extent of documented cultural resources along the Project.

The Lapeer Substation will be constructed on approximately 6.5 acres of a Christmas tree farm property located adjacent to and south-southwest of the existing Lapeer Switching Station. Approximately five acres of this land is within the Christmas tree stand. The remaining 1.5 acres are upland secondary forest. This site was chosen for the new substation because it is proximate to Line 36 and because it is adjacent to the existing Lapeer Switching Station. The location of the new substation is shown on Figure 4-4K.

Environmental Impact Assessment Methodology

The physical, biological, land use, and visual impacts that would result from Project construction were assessed during site walkovers in late September 2006 and from readily available information. As most of the Project would be constructed in existing right-of-way, the primary

considerations were engineering feasibility, cost and minimizing impacts to State Forest. Where significant impacts were likely, methods for lessening the impacts were considered. Such measures were evaluated based on their engineering feasibility and cost. Sections 4.6 through 4.9 describe baseline conditions and anticipated Project impacts.

4.3 PROJECT ROUTE DESCRIPTION

The proposed new 115 kV transmission line route is shown on Figures 4-1, 4-2A-C and 4-4A-K. The new line will be constructed along the existing Line 945 and combined Lines 945/524 corridor. The existing transmission system between the Etna Substation and the Lapeer Switching Station includes approximately 14.8 miles of two 115kV lines, Line 945 and Line 947. A 34.5 kV line, Line 524, joins the combined Lines 945/947 right-of-way approximately 1,200 feet east of the NYSEG district office complex across State Route 13 from the Etna Substation. Line 524 shares right-of-way with Line 945 to the (Tompkins/Cortland) county line. At the county line, Line 524 leaves the combined Lines 945/947 right-of-way and turns to the south. Lines 945 and 947 share a common right-of-way for about 1.6 miles between Kimberly Drive to the west and just east of the county line to the east. Proceeding easterly, the lines are split for approximately 6.5 miles before converging again into a common right-of-way before entering the Lapeer Switching Station. Other than at the Etna Substation as identified above, these lines do not share a common structure with any other transmission or distribution facility. Line 947 will be rebuilt in existing right-of-way between the Etna Substation and the Lapeer Switching Station. Approximately 24,000 feet (4.5 miles) of additional 25-foot wide right-of-way will need to be obtained along Line 947 where existing right-of-way is limited to 100 feet. In addition, approximately 1,200 feet of additional 12.5 foot wide right-of-way will need to be obtained along Line 947. The Project layout, which includes routing, structure types, lines, existing and new right-of-way, is shown on figures in Exhibit 5.

The Etna Substation will be modified within the limits of the existing substation. The fenced areas at the State Street and Wright Avenue substations will be expanded slightly to accommodate the new equipment. It is anticipated that the additional fenced areas for the State Street and Wright Avenue substations will measure approximately 40 by 80 feet and 60 by 120 feet, respectively. The new Lapeer Substation will be constructed on approximately 6.5 acres of land adjacent to the existing Lapeer Switching Station. This land is currently part of a large Christmas tree farm; 1.5 acres in the eastern portion of the farm is upland secondary forest.

4.4 SUMMARY OF FINDINGS

The majority of the Project will be constructed in existing NYSEG right-of-way. The existing Line 945 corridor was selected for construction of the new 115 kV line. Some additional 47.5-foot wide right-of-way will need to be obtained for construction of the new 115 kV line. The Line 945 corridor was selected in order to minimize the amount of additional right-of-way needed, to minimize impacts to State Forest land, and to address engineering and construction considerations. Based on findings presented in Sections 4.6 through 4.10 of this Exhibit, it is NYSEG's belief that the present Project design will result in the least environmental impacts and is preferable to other routing or siting alternatives.

The rebuilding of Line 947 will occur within existing NYSEG right-of-way. Approximately 4.5 miles of additional 25-foot right-of-way (12.5 feet on each side of existing right-of-way) will need to be obtained where existing right-of-way is only 100 feet. In addition, approximately 1,200 feet of additional 12.5 foot wide right-of-way will need to be obtained along one side of Line 947.

In areas where steep slopes or poorly drained soils are present, appropriate measures will be taken to minimize disturbance to soils. To protect all soils crossed, NYSEG will take measures to control erosion during construction and will promptly restore ground cover when construction is complete. Most areas with steep slope or wetlands will be spanned.

Clearing of the Line 947 right-of-way would potentially impact approximately 3.9 miles (11.5 acres) of forestland including 1.3 miles (3.8 acres) of State Forest. Approximately 0.4 mile (1.1 acres) of farmland would be included in the acquired right-of-way.

Installation of the new line will require obtaining additional 37.5-foot right-of way along approximately 1,200 feet (1.0 acre) on the north side of the combined Lines 945/947 right-of-way immediately east of the NYSEG district office on State Route 13. This area is presently a small upland woodlot. Additional 47.5-foot wide right-of-way will also be required on the south side of the eastern portion of the Line 945 right-of-way between the Lines 945/947 split just east

of the county line and the Lapeer Switching Station (approximately 7.3 miles). Clearing of the new right-of-way would potentially impact approximately 3.4 miles (19.6 acres) of forestland including approximately 3,800 feet (4.1 acres) of State Forest land. The total amount of forestland potentially impacted by right-of-way clearing for the new line would be approximately 3.6 miles or 20.7 acres.

No known locations of Federal or State endangered, threatened, or rare plants are located along the Project corridors or at the proposed Lapeer Substation site.

The new line will cross 21 streams, 15 of which are State-protected streams regulated by the NYSDEC. Fourteen tributaries and subtributaries of Fall Creek cross the right-of-way between the Etna Substation and Daisy Hollow Road in the Town of Harford. These streams are located in the Finger Lakes drainage basin. The last seven of these streams to the east are tributaries of Virgil Creek which flows into Fall Creek. Seven tributaries and subtributaries to Owego Creek cross the right-of-way in the eastern part of the Project area. These streams are located in the Susquehanna River drainage basin. Where equipment must be driven across a stream, appropriate crossing techniques and erosion control measures will be used to minimize impacts. All stream-crossing (and wetland crossing) permit conditions issued by the U.S. Army Corps of Engineers will be followed during Project construction, including possible seasonal work restrictions.

Approximately 3,150 feet of wetland will be crossed by the Project: 1,000 feet along Line 947, 950 feet along Line 945, and 1,200 feet along the Lines 945 and 947 combined right-of-way. Efforts will be made to avoid installing new structures in wetlands. Construction equipment will cross portions of wetland during the installation of the new 115kV line and the rebuilding of Line 947. During right-of-way clearing along Line 945, an approximately 100-foot wide section of wetland will be impacted in forestland east of Babcock Hollow Road (Figure 4-3I). Wetland and stream crossing permits obtained from the U.S. Army Corps of Engineers (Nationwide permits) will be adhered to.

Some wildlife habitat will be removed during right-of-way clearing and some small mammals, reptiles and amphibians may be killed during the process. Most wildlife in the Project area will only be temporarily displaced during Project construction. Some bird nesting and feeding habitat will be

permanently lost. The habitat lost is not unique to the Project area and represents only a very small portion of such habitat in the Project area. No State or Federally endangered, threatened or special concerned wildlife species will likely be impacted by the Project.

The Project is located along existing power-line corridors and will not impact any designated scenic area or overlook, or Federally-designated or State-designated historic sites. In September 2006, an archaeologist conducted a literature search and a field survey along the Project and no historic cultural resources were identified. If an archaeological site is encountered during Project construction, NYSEG will immediately consult with the State Historic Preservation Office and institute measures to protect the site.

The new line would not cross any orchards or vineyards, but does cross active agricultural land. Based on 2002 aerial photography (Figures 4-4A-K), approximately 7.3 miles of the new line would cross active agricultural lands. Line 947 crosses approximately 2.2 miles of active agricultural land. Approximately 2,000 feet of new right-of-way will be required in agricultural land. NYSEG believes that permanent impacts to agricultural lands will be limited to the new 115kV line structure locations. During construction, temporary disturbance to agricultural lands will be minimized through the use of protective measures. Agricultural land disturbed during construction will be restored.

The Project generally avoids populated areas but crosses a residential development in the Town of Dryden near State Route 38 (Dryden-Harford Road). No right-of-way expansion will occur in residential areas. All work will take place in existing right-of-way. Construction of the facilities may cause temporary disturbance to some residents but no permanent impact on land use patterns will occur.

The overall visual impact of the Project will be low. Where construction occurs in existing right-of-way, the visual impact will remain the same as pre-construction. Much of the right-of-way that will be cleared is located in forested areas where visibility is limited to road crossings. Passers-by will likely not notice any difference from the existing right-of-way. Visibility of the line from roads will be tempered by distance and intervening topography and vegetation. The visual impact of the proposed line to residents along the prime route will generally be low since right-of-way expansion will not occur in these areas.

The upgrade work at Etna Substation would occur within the boundaries of the existing substation and no new land would need to be obtained. The fenced areas at the State Street and Wright Avenue substations will be expanded slightly to accommodate the new equipment, but no additional land is required. The conversion of the Lapeer Switching Station to a new substation will require acquisition of approximately 6.5 acres of land adjacent to the Switching Station. This land is located on an active Christmas tree farm. Approximately 1.5 acres of the eastern portion of the farm is upland secondary forest. No streams or wetlands are located on the proposed site.

Single-pole and H-frame structures will be used to support the new transmission line. In locations where right-of-way width is limited, single-pole construction is being proposed. In locations where the route crosses areas of hilly terrain, streams, wetlands or few agricultural fields, H-frame construction is being proposed. H-frame construction provides greater spanning capability and provides more flexibility in the placement of structures. Impacts associated with construction on steep slopes may be lessened by the ability to span the slopes or reduce the number of structures in these locations. Greater spanning capability would minimize the impact to agricultural fields.

Modifications to the State Street and Wright Avenue substations in Auburn, New York will not result in adverse visual impacts or changes to the current land use since the new equipment will be installed with only minor adjustments to the existing fence line.

4.5 OPERATIONS ON THE RIGHT-OF-WAY

INTRODUCTION

In order to assess the impact that construction of the proposed Project will have on the environment, it is necessary to understand the operations that will take place during construction. These operations will include selective clearing and disposal of cut vegetation during right-of-way widening, implementation of environmental protection measures, construction of a new transmission line, the rebuilding of a new replacement transmission line, the building of a new substation, the upgrading of three existing substations, and restoration activities. A general summary of each of these activities is provided below.

INSTALLATION OF ACCESS ROADS

In order to facilitate the movement of heavy equipment, access roads may be necessary to access certain sections of right-of-way. Whenever possible, public roads will be used to access the right-of-way. In some locations, NYSEG may seek permission to use logging or farm roads that are off the right-of-way in order to make construction easier or to minimize environmental impact. If access affects an intact fence used as a livestock enclosure or property line delineator, the fence's integrity will be maintained.

Where access roads cross streams, wetlands, unique natural areas, or highways, clear-cutting will be kept to the minimum required for single-lane vehicular passage.

If grading is required for the installation of an access road, excavated material will be used as fill in areas adjacent to the road. Excavated material remaining on the right-of-way will be placed, graded, and seeded in a manner that will minimize disturbance to compatible plant material and natural drainage-ways and minimize siltation of any stream, wetland, lake, or pond.

RIGHT-OF-WAY CLEARING

Selective Clearing

To minimize environmental effects resulting from the removal of trees and brush, NYSEG practices selective clearing to retain compatible vegetation on transmission line right-of-ways. Vegetation that will not interfere with construction or that, at maturity, will not present a hazard to electrical facilities or maintenance activities will be left on the right-of-way. A system of clearing zones will be established to specify the maximum allowable height of mature vegetation in each area of the right-of-way. Efforts will be made to prevent damage to vegetation that is to be saved. The clearing operation will be planned so that there is a minimum of equipment movement in areas where desirable species are present. Any vegetation, such as various species of cherry, that may become toxic and present a hazard to livestock as a result of clearing in a pasture will be cut and immediately removed from the pasture.

All selectively cut vegetation will be cut as close to the ground as practical. Stumps of deciduous trees may be treated with herbicides. The removal of stumps and roots below the ground surface may be done in the immediate location of structure foundations, wire set-up areas, drainage control areas, and access roads.

Slash Disposal

The cut vegetation resulting from right-of-way clearing will be disposed of using several methods. The following log and brush disposal alternatives will be considered on a site-by-site basis and the most compatible combination will be used:

Logs

Collect and Burn
Disposal Off Site
Lop and Scatter
Separate and Pile Merchantable Wood
Windrow

Brush

Chip
Collect and Burn
Disposal Off Site
Lop and Scatter
Windrow

All of these methods can be compatible with selective clearing procedures. The particular method used will depend upon conditions at a specific location. A brief description of each method is provided in the following paragraphs.

Chipping of brush involves using a wood-chipping machine to reduce brush and limbs up to six inches in diameter to small pieces. The chips will be spread over the right-of-way so that, after settling, their depth will not exceed four inches. Care will be taken so that chipped material will not enter streams or wetland areas unless authorized by U.S. Army Corps of Engineer permit conditions.

Collecting and burning will be used where marketing of cut vegetation is not feasible, or where other disposal methods are not appropriate. Vegetation will be collected, piled, and burned at specified locations, which will be selected to avoid possible damage to abutting properties, existing electrical facilities, or vegetation that is to be preserved. Burning will not occur in residential areas or at sites where natural runoff may cause stream pollution. After burning, the burn site will be scarified and seeded.

Disposal off site will be accomplished in one of two ways. One method will involve removing cut vegetation from one segment of the right-of-way and moving it to an adjacent segment for disposal. An example of this type of disposal would be cutting scattered trees from an agricultural field and hauling or skidding them to an adjacent wood lot for disposal on the right-of-way.

The second type of off-site disposal will involve removing cut vegetation from the right-of-way and disposing of it at an area off the right-of-way, such as a landfill area. This second method is usually not an environmentally sound alternative. Extensive handling and hauling of cut vegetation is required, resulting in destruction of ground cover and other compatible vegetation. In addition,

once vegetation is removed from the right-of-way, it must still be appropriately disposed of in another place. It is often preferable to dispose of cut vegetation at or near the site of cutting. However, black cherry and similar species that become toxic when cut and present a hazard to livestock will be immediately removed from pastures.

The lop and scatter method for logs and brush will involve cutting vegetation and scattering it on the right-of-way. This method is often the preferred disposal method in wet areas or on steep slopes. Access roads and structure locations will be kept free of slash, and trees will be felled so that they will not interfere with access roads. Prior to cutting, vegetation may be treated with herbicides. Limbs and tops will be removed from the main trunk and lopped so that they will be in close contact with the ground to facilitate rapid decomposition. If necessary, felled trees will be moved with appropriate vehicles to specific locations and will be placed in a random manner that will cause minimal damage to compatible vegetation selected to remain on the right-of-way. Efforts will be made to fell trees so they will not overlap other felled trees so that, when limbed, the stems will be in contact with the soil. The lop and scatter method is the most economical disposal method for initial clearing, but logs and brush scattered on a right-of-way can make future maintenance of the facilities extremely difficult and costly.

Separation and piling of merchantable wood will be done at the property owner's request or where NYSEG deems appropriate. NYSEG believes that the full resource potential of timber cut from the right-of-way should be utilized through sale or use by the property owner or sale by NYSEG.

If NYSEG sells timber, the wood will be cut into appropriate lengths and hauled from the site by vehicles that will travel only on access roads. In moving cut material to access roads for loading, care will be taken to prevent damage to compatible trees, shrubs, understory vegetation and natural ground covers.

The windrow method is the disposal method NYSEG uses most often. Logs and brush will be piled in windrows when accumulations of vegetation cleared by the lop and scatter method would be of a depth that would hinder construction or future maintenance operations. The windrow method will also be used when soil and topographic conditions allow efficient mechanical collections of cleared vegetation using conventional clearing equipment without creating

excessive soil disturbance.

Brush and log piles will be located in areas where there is little compatible vegetation and where there is no possibility that logs will roll onto adjoining property. Windrows will also be located to minimize fire hazard.

When brush (material up to four inches in diameter) is piled, it will be compacted and the maximum height will not exceed three feet after settling. Such material will not be moved with bladed equipment, which could cause unnecessary disturbance.

If woody material over four inches in diameter is to be piled in windrows, it will be cut and dragged or hauled to pile locations. Pushing logs along the ground would cause unnecessary disturbance and will not be permitted. The size of windrows will be determined by construction activities, the abutting property uses, and pertinent management plans. The height of such windrows will not exceed four feet.

HERBICIDE TREATMENT

In order to prevent resurgent vegetation from affecting the transmission line's reliability or blocking access roads to be used for maintenance, woody plant species on the right-of-way (except conifers, species designated to remain on the right-of-way, and areas specified at the time of clearing) will be treated with herbicides. Herbicides will also be used for vegetation control in long-term right-of-way maintenance operations. Only herbicides approved for use by the United States Environmental Protection Agency and by the NYSDEC will be used. The application of herbicides will be done under the supervision of a certified pesticide applicator registered with the NYSDEC for the current application year. NYSEG will strictly observe herbicide preparation and application restrictions to prevent damage to vegetation designated to remain and to prevent pollution of water resources.

ENVIRONMENTAL PROTECTION MEASURES

NYSEG will carefully supervise clearing and construction activities to ensure that environmental protection objectives and stream and wetland crossing permit conditions are met. In order to ensure the least damage to soils on the right-of-way that are subject to prolonged wetness, clearing and construction operations will be seasonally scheduled wherever practical, and the appropriate equipment will be used. Grading operations will be performed in a manner that will protect the right-of-way from unnecessary damage.

If it is not possible to maintain adequate buffers of existing vegetation in areas of particular sensitivity, NYSEG will plant appropriate new vegetation. The size and type of vegetation to be planted will be selected for compatibility with existing surrounding vegetation.

CONSTRUCTION OPERATIONS

Removal of Existing Structures and Facilities

Removed equipment and materials associated with the rebuilding of Line 947, the portion of Line 524 that is double-circuited with the new 115kv line, and the substation construction and upgrades will be properly disposed of or recycled. Metal that NYSEG does not reuse will be taken to a NYSEG service center for storage prior to being sold or recycled. Glass and porcelain insulators and sections of wood poles and cross arms that are unsuitable for further use will be disposed of. These wastes, which are not classified as hazardous wastes, will be transported from the job site and disposed of in compliance with 6 NYCRR Parts 360 and 364. Handling of this equipment, preparation for disposal, and disposal operations will be done in compliance with applicable Federal and State regulations.

Scars from removal of facilities will, if necessary, be graded as soon as possible after removal, and all scars will be seeded or planted as necessary. Facilities will be removed in a manner that prevents pollution of waterways or damage to adjoining properties.

Transmission Line Construction

Transmission line structures will be transported to each site unassembled. Excavations for wood structures will be about three feet in diameter and eight to twelve feet deep for each pole. For steel-pole structure foundations, excavations will be approximately four to six feet in diameter and will generally be twelve to twenty-five feet deep. Excavation for structures will generally be accomplished with mechanized auger-type diggers. In areas containing rock, it may be necessary to excavate portions of these holes and the holes needed for guy anchor rods by blasting. All appropriate safeguards will be in place in the event blasting is required, and appropriate permits will be secured from relevant agencies.

The attachment of cross-arms to H-frame structures and davit arms to single-pole structures may take place on the ground or after the poles are erected. Structure erection will generally be done using a crane. After structures are erected, pulling lines will be placed in stringing blocks. Static wires and conductors will then be pulled in, sagged, and clamped. Where possible, the number of wire-pulling areas will be kept to a minimum and will be located to avoid environmentally sensitive sites. Prior to the stringing operation, guard structures will be placed along highway and railroad crossings and along crossings of existing utility lines to prevent interference with public safety, traffic, or operation of other utility lines.

Storage yards used for holding material and equipment, and the location of sanitary facilities will be confined to areas at least 100 feet from streams, ponds, wetlands, wells, springs, and residential buildings. Washing of any tools or equipment in such areas will not be permitted. All fuels, oils, chemicals, or other potentially harmful substances will be kept in appropriate, tightly capped containers and will be handled, stored, and transported in a manner that will minimize the likelihood of contamination of ecologically sensitive sites within or adjacent to the right-of-way.

Material staging areas and fabrication areas may be used for temporary storage of materials and equipment on the right-of-way. The potential for contamination of ecologically sensitive sites will be minimized by proper handling of potentially harmful substances.

Clean-up

Clean-up will be an ongoing part of the various clearing and construction operations associated with the proposed installation. Crews leaving a work area will remove trash and debris associated with operations. At the conclusion of all installation operations, the right-of-way will be inspected to ensure that all trash, debris, equipment, and other extraneous materials resulting from construction operations have been removed.

Restoration

Upon completion of construction, all disturbed areas will be restored to natural grades and conditions. Disturbed landscaping, lawns, pavement, curbs, and sidewalks will also be restored.

All appropriate areas will be seeded with a temporary seed mixture within eight days of disturbance, as seasonally practical, provided no additional disturbance will take place within 30 days. Following clearing and construction, all ruts resulting from the construction operation will be graded. Where the topsoil was stockpiled prior to grading, it will be evenly distributed over the site to obtain smooth, natural grades. Temporary access road surfaces, structure sites, parking areas, storage yards, cut and fill slopes, and ditches will be seeded to establish perennial ground cover.

Any temporary erosion control structures that are no longer required will be removed. If permanent erosion control structures are necessary, the temporary structures will be made permanent, or new structures will be installed. Drainage of the site will be restored if it has been temporarily altered and if the restoration is compatible with any permanent erosion control structures that have been installed.

Within agricultural areas, drainage tiles and ditches that are damaged as a result of construction of the proposed facilities will be repaired and restored. Where soil of tillable fields has been compacted by construction equipment movement, the area will be scarified, harrowed and, if appropriate, seeded.

Maintenance

After the proposed line is energized, NYSEG crews will inspect the line periodically to detect any condition on the right-of-way that might interfere with the reliable operation of the new facilities. If conditions found by the patrols indicate that removal of additional vegetation is necessary, clearing will be done according to the Long-Range Right-of-Way Management Plan for the NYSEG Transmission System.

The right-of-way will also be checked for erosion from natural runoff that may have been caused by construction activities or operations. Re-grading, seeding, and planting will be conducted as required.

NYSEG has a wood-pole maintenance program to extend the useful life of wood poles that might include treatment or re-treatment of wood preservatives. Only preservatives approved by the United States Environmental Protection Agency and the NYSDEC will be used. All label restrictions will be followed, and treatments will be applied under the supervision of a certified pesticide applicator registered for the year of application with the NYSDEC.

4.6 PHYSICAL RESOURCES ANALYSIS

A. GEOLOGIC BACKGROUND

The Project area is underlain by shales, limestones, and siltstones that were deposited during the Devonian Period approximately 345 to 395 million years ago. These sedimentary deposits accumulated to form the Appalachian Uplands located adjacent to the Project area. A series of ice sheets covered the area during the Pleistocene Epoch, which began approximately 1.6 million years ago and ended about 10,000 years ago. The expansion and contraction of the glaciers associated with the ice sheets resulted in the deposition of large amounts of sediment and the large-scale gouging of valleys. The Project area generally transitions from glacial till near the hamlet of Etna to kame deposits, kame moraines, and bedrock stiple overprint through the Town of Dryden (Figures 2-3A and 2-3B). The route through Cortland County typically remains bedrock stiple overprint.

B. TOPOGRAPHY

The Project lies between the Allegheny Plateau and the Lake Ontario Plain. The western portion of the Project drains into Cayuga Lake and the eastern portion ultimately drains into the Susquehanna River. As indicated in Figures 4-2A to 4-2C, the Project traverses hills and valleys and approximately 800 feet of elevation change, ranging from approximately 1,050 feet at the Etna substation on the west to a maximum elevation of approximately 1,850 feet along the length of the Project. Table 4.6-1 provides the slope interval and distance traversed by Lines 945 and 947 rights-of-way.

Construction of a new transmission line along the Line 945 right-of-way and rebuilding Line 947 will have no impact on topography.

Table 4.6-1 Site Slopes

Slope Interval	New 115kV Line Distance (feet/miles)	Line 947 Distance (mile/feet)
0-3%	4,400ft / 0.8 miles	3,725 ft / 0.7 miles
3-8%	18,550 ft / 3.5 miles	21,050 ft / 4.0 miles
8-15%	29,400 ft / 5.6 miles	32,450 ft / 6.1 miles
15-25%	18,550 ft / 3.5 miles	11,550 ft / 2.2 miles
Greater than 25%	8,450 ft / 1.6 miles	8,300 ft / 1.6 miles
Total	**79,325 ft / 15.0 miles**	**77,075 ft / 14.6 miles**

C. CLIMATE

The climate in the Project area features warm summers and long, cold winters. The Appalachian Highlands are typically several degrees cooler than the Ontario Plains and frosts arrive approximately one week earlier than the New York State average. Nighttime temperatures frequently fall significantly faster during the late summer and early fall months than in areas at a lower elevation, although the temperature range is somewhat moderate. The average daily high in the region is 54 degrees while the average daily low is 38 degrees. Snowfall is usually heavier in Cortland County than in Tompkins County largely because of weather influenced by Lake Ontario.

Construction of a new transmission line and reconstruction of an existing transmission line will have no impact on the climate of the Project area.

D. SOILS

The Project is characterized by a diverse and complex arrangement of soil types. Figures 4-3A to 4-3K show the soils within the Project area based on United States Department of Agriculture (USDA) Natural Resources Conservation Service soil surveys for Tompkins and Cortland Counties. As indicated in Table 4.6-2, the Project crosses 55 soil types between the Etna Substation and the Lapeer Switching Station. These soil types are listed in terms of farmland of

statewide importance, prime farmland soils, drainage, and distance along the Project route. Four of these soil types account for over 71 percent of the total distance covered by the Project: Lordstown (21.7 percent), Bath (17.2 percent), Volusia (16.8 percent), and Mardin (15.8 percent).

Table 4.6-2 Soil Type, Drainage, and Agricultural Importance

Soil Classification		Farmland of Statewide Importance	Prime Farmland Soils *	Drainage	Distance (feet)	
Abbr.	Soil Name				Expansion Line 945	Reinforced Line 947
AaA	Alden and Birdsall silt loams, 0-3% slopes			VPD	300	100
Ab	Alluvial land			PD	300	200
ArB	Arkport fine sandy loam, 2-6% slopes	X		WD	200	200
ArC	Arkport fine sandy loam, 6-12% slopes		X	WD	1,325	1,175
BaB	Bath channery silt loam, 3-8% slopes	X		WD		375
BaC	Bath channery silt loam, 5-15% slopes		X	WD		900
BaD	Bath channery silt loam, 15-25% slopes			WD	1,950	475
BbD	Bath-Chenango gravelly loams, 15-25% slopes			WD	350	450
BbE	Bath-Chenango gravelly loams, 25-40% slopes			WD	125	
BcE	Bath and Mardin soils, 25-40% slopes			WD	300	250
BgC	Bath and Valois gravelly silt loams, 5-15% slopes		X	WD	5,650	2,100
BgD	Bath and Valois gravelly silt loams, 15-25% slopes			WD	5,550	2,675
BoE	Bath and Valois soils, 25-35% slopes			WD	1,375	2,525
BtF	Bath, Valois, and Lansing soils, 35-60% slopes			WD	1,275	500
CdC	Chenango gravelly loam, 5-15% slopes		X	SED	100	100
CnB	Chenango gravelly loam, 0-8% slopes			WD	1,350	1,150

CeA	Chippewa channery silt loam, 0-3% slopes		X	PD	250	
CeB	Chippewa channery silt loam, 3-8%		X	PD		300
DgB	Darien gravelly silt loam, 2-8% slopes	X **		SPD	3,325	3,325
EbB	Erie channery silt loam, 2-8% slopes		X	SPD	2,675	1,550
EbC	Erie channery silt loam, 8-15% slopes		X	SPD	1,450	2,400
EbC3	Erie channery silt loam, 8-15% slopes eroded			SPD	1,400	
Hc	Halsey mucky silt loam			VPD	875	800
HdC	Howard gravelly loam, 5-15% slopes		X	WD	850	750
HdD	Howard gravelly loam, 15-25% slopes			WD	600	350
HrC	Howard-Valois gravelly loams, 5-15% slopes			WD	350	
HrD	Howard-Valois gravelly loams, 15-25% slopes			WD	900	675
IcA	Ilion silty clay loam, 0-2% slopes		X	PD	975	975
LaB	Langford channery silt loam, 2-8% slopes		X	WD	3,075	650
LaC	Langford channery silt loam, 8-15% slopes		X	WD	700	600
LdB	Lordstown channery silt loam, 2-8% slopes	X		WD	2,000	3,000
LeB	Lordstown channery silt loam, 2-8% slopes		X	WD		600
LfC	Lordstown channery silt loam, 8-15% slopes		X	WD	3,800	4,000
LfD	Lordstown channery silt loam, 15-25% slopes			WD	4,475	3,925
LgE	Lordstown soils, 25-55% slope			WD	4,000	3,850
LnC	Lordstown channery silt loam, 5-15% slopes			WD	650	2,200
LnD	Lordstown channery silt loam, 15-25% slopes			WD	400	1,075
LnE	Lordstown channery silt loam, 25-35% slopes			WD	1,050	1,175

MaB	Mardin channery silt loam, 2-8% slopes		X	MWD	2,050	4,825
MaC	Mardin channery silt loam, 8-15% slopes		X	MWD	4,775	7,950
MaC3	Mardin channery silt loam, 8-15% slopes eroded			MWD		1,750
MaD	Mardin channery silt loam, 15-25% slopes			MWD	1,500	525
MfD	Mardin and Langford soils, 15-25% slopes			MWD	750	600
Mo	Middlebury and Tioga silt loams	X		MWD		125
Mp	Muck and Peat			VPD		200
NaB	Niagara silt loam, 2-6% slopes	X **		SPD	225	225
PhB	Phelps gravelly silt loam, 3-8% slopes	X		MWD	900	900
TaB	Tioga channery silt loam, 2-8% slopes	X		WD		150
TbA	Tioga gravelly loam, 0-2% slopes	X		WD	1,200	925
VaE	Valois and Howard gravelly loams, 25-40% slopes			WD	325	
VbB	Volusia channery silt loam, 2-8% slopes		X	SPD	2,750	3,800
VbC	Volusia channery silt loam, 8-15% slopes		X	SPD	8,350	8,525
VbD	Volusia channery silt loam, 15-25% slopes			SPD	1,900	800
VrD	Volusia and Erie soils, 15-25% slopes			SPD	150	
Ws	Wayland and Sloan silt loams			VPD	500	400

* USDA Natural Resources Conservation Service
** Prime farmland if drained
SED: Somewhat excessively drained
WD: Well drained
MWD: Moderately well drained
SPD: Somewhat poorly drained
PD: Poorly drained
VPD: Very poorly drained

Lordstown soils are moderately deep, well-drained soils formed in till derived from siltstone and sandstone with slopes ranging from zero to 90 percent. Depth to bedrock ranges from 20 to 40 inches. These soils are very strongly acid throughout the range from the surface down to the substratum. Elevation ranges from 800 to 1,800 feet above sea level. Large areas on the steep and very steep slopes include forests consisting of American beech, oaks, hemlock, white pine,

maples and other associated species. Some cleared areas are used for pasture or hay, but most cleared areas have been abandoned and are slowly reverting back to forest.

The Bath soils formed in glacial till and are very deep and well drained. Slopes range from 0 to 60 percent. The solum thickness ranges from 40 to 80 inches and the depth to bedrock ranges from 40 inches to 20 feet or more. These soils range from strongly acid to moderately alkaline depending on the depth, and the elevation ranges from approximately 800 to 1,800 feet above sea level. Many areas with these soils have been cleared and are used for general farm crops. Wooded areas contain mixed northern hardwoods.

The Volusia soils consist of very deep, somewhat poorly drained soils formed in loamy till. Slopes range from 0 to 25 percent with the solum thickness ranging from 40 to 72 inches and the depth to bedrock greater than 60 inches. These soils range from strongly acidic to slightly alkaline depending on proximity to bedrock. Cleared areas of this soil type are used for pasture or crops for silage, although much of the previously cleared area is reverting back to forest. Wooded areas typically contain sugar maple, red maple, American beech, hemlock and associated species. Volusia soils occur mostly at elevations between 1,200 to 1,800 feet above sea level.

Mardin soils consist of very deep, moderately well drained soils formed in loamy till. Slopes range from 0 to 50 percent with a solum thickness ranging from 38 to 72 inches and a depth to bedrock ranging from 20 inches to 20 feet or more. These soils range from strongly acidic to slightly alkaline depending on proximity to bedrock. Most areas of these soils have been cleared for silage crops and pasture. Significant acreage is idle or is reverting to brush and forest. Forested areas contain sugar and red maple, beech, white ash, black cherry, hemlock and occasionally red oak and white pine. Mardin soils are usually found between 800 to 1,800 feet above sea level in this region.

The Project will not alter the basic characteristics of the soils traversed. Some disturbance, however, will be associated with clearing and construction activities. The areas of greatest disturbance will be along heavy equipment routes, around road access points, fabrication areas

for the posts, areas where grading may be required for heavy vehicles to negotiate a slope, and at post locations where auguring will be done to set the posts firmly into the ground.

The potential for erosion in areas of disturbance may pose a significant impact on soils. In order to mitigate such potential impacts, best management practices will be employed to control surface runoff and to minimize erosion potential. Leaving the ground cover and brush as intact as possible, thereby preventing erosion, will also help mitigate potential erosion.

As soil disturbance will be limited and surface runoff controlled and mitigated, the proposed construction will have a minimal permanent impact on soils. All agricultural soils disturbed during construction will be restored and the only permanent impacts will be at new structure locations for the new 115 kV line.

4.7 BIOLOGICAL RESOURCES ANALYSIS

A. VEGETATION

The vegetative cover in the Project area is primarily a mix of forest, active and abandoned agricultural fields and landscaped residential areas (Figure 4-4). Prior to development, the Project area was heavily forested, dominated by extensive stands of mature beech, maples, birches, oaks, hickories, American chestnut, white pine and hemlock. Today, agricultural activity in stream valleys, intermediate slopes and hill tops have resulted in a patchwork of open and forested land. Where agriculture has been abandoned, the open areas are in various stages of succession, ranging from early old field plant communities, to areas of scattered shrubs and saplings to thick stands of young trees. Remaining large areas of mature forest are primarily confined to areas unsuitable for agriculture because of steep slopes, wetlands, or unproductive soils. Forests in the Project area are primarily second and third growth. The dominant tree species in wooded areas bisected by the existing transmission line corridors are red oak, American beech, white ash, yellow birch, eastern hemlock, white pine, red maple and sugar maple. Associated species include American elm, green ash, basswood, tulip tree and black cherry. There are several conifer plantations located along the Project dominated by white pine, Scotch pine, red pine, larch, Norway spruce or white spruce. Common understory species along the Project include eastern hop hornbeam, American hornbeam, witchhazel, serviceberry, dogwoods and viburnums. Herbaceous species associated with the northern hardwood forest include several fern species, jack-in-the-pulpit, wild leek, trout lily, Solomon's-seal, Indian cucumber root, trilliums, baneberry, columbine, anemone, hepatica, mayapple, bloodroot, dutchman's breeches, violets, white snakeroot, white wood aster, broad-leaved goldenrod, Indian pipe, and beechdrops.

A variety of perennial grasses, asters, goldenrods, thistles, mulleins, bedstraws, cinquefoils, clovers, wild strawberry, common ragweed, teasel, milkweed, dogbane, raspberry species, pearly everlasting and queen ann's lace are common herbaceous species along the maintained right-of-way and in the open fields along the Project. Young shrub species include gray-stem dogwood, tatarian honeysuckle, northern arrowwood, staghorn sumac and multifloral rose.

The limits of wetland plant communities delineated along the right-of-way are presented in Figures 4-4A through 4-4K (discussed further in Section B below). These communities include palustrine forested, scrub-shrub, emergent marsh and wet meadow wetlands. A relatively narrow mixed scrub-shrub and wet meadow wetland plant community is found along several of the streams that cross the right-of-way. The forested wetland plant community identified adjacent to the right-of-way includes red maple, yellow birch, American elm, eastern hemlock and white pine in the tree layer and spice bush, sensitive, royal and ostrich ferns, and spotted jewelweed in the understory and herbaceous layers. Scrub-shrub wetland plant communities along the right-of-way include willow species, silky and red-osier dogwoods, nannyberry, spirea, alder and red maple saplings. Wet meadow wetlands and the herbaceous layer of scrub-shrub wetland plant communities include reed canary grass, cattail, wool grass, green bulrush, several sedge (*Carex*) species, blue vervain, purple willow-herb, boneset, joe-pye weed, redtop, rice cut-grass, soft rush, path rush, rough-stem and grass-leaved goldenrods, spotted jewelweed, crooked-stem, New England and small white asters, sensitive fern, peppermint. Several wet meadow plant communities are located in the right-of-way on relatively level areas on hillsides.

State Forest Land

Acquisition of additional right-of-way for rebuilding Line 947 will potentially impact approximately 3.9 miles (11.5 acres) of secondary forest including 1.3 miles (3.8 acres) of the Yellow Barn and Kennedy State Forests (Figures 4-4A-K). For construction of the new 115 kV line, an additional 47.5-foot right-of-way will be required along the southern side of the Line 945 right-of-way between where Lines 945/947 split near Carpenter Hill Road (just east of the county line) to where the two lines converge near the Lapeer Switching Station. Clearing of the new right-of-way will potentially impact approximately 3.4 miles (19.6 acres) of secondary forest including 3,800 feet (4.1 acres) of the Kennedy State Forest.

Impacts to agricultural land along the proposed Project are discussed in Section 4.8 of this Exhibit.

B. AQUATIC RESOURCES

Streams, Lakes and Ponds

The Project area is located in two drainage basins: the Finger Lakes drainage basin in the western portion of the Project and the Susquehanna River drainage basin in the eastern portion of the Project. As indicated in Figures 4-4A-K, fourteen tributaries and subtributaries of Fall Creek cross the Project corridors between the Etna Substation and Daisy Hollow Road in the Town of Harford. These streams are located in the Finger Lakes drainage basin. The last seven of these streams to the east are tributaries of Virgil Creek, which flows into Fall Creek. Fall Creek discharges westerly into Cayuga Lake which discharges to the Seneca River, which flows into the Oswego River and ultimately Lake Ontario. The first seven tributaries to the west have a New York State classification of Class A and Standards A for drinking water. Virgil Creek is classified as a Class C, Standards C (T) trout stream (Figure 4-4D) and is therefore a State-protected stream. All streams with classifications higher than Standards C are protected streams in the State. Class C (T) trout streams have seasonal work restrictions in the streams. The tributaries to Virgil Creek have a classification of Class C, Standards C, and are therefore not State-protected streams.

Seven tributaries and subtributaries to Owego Creek cross the Project corridors in the eastern part of the Project area. These streams are located in the Susquehanna River drainage basin. The Owego Creek discharges into the Susquehanna River south of the Project area in the Village of Owego. All of these tributaries and subtributaries are classified as Class C, Standards C (T) streams and are protected. Big Brook, a Class C, Standards C (T) tributary to the Tioughnioga River, crosses the Line 947/36 right-of-way north of the Lapeer substation. This stream will not be crossed or impacted by the Project.

In the Town of Dryden, the combined Lines 945/947 corridor is located approximately 1,500 feet north of Dryden Lake, a Class C, Standards C water body. Dryden Lake has a residential community and golf course built around the lake. The Project would not impact Dryden Lake.

All of the streams that cross the right-of-way are spanned by the power lines. The majority of the streams are less than 10 feet in width with minimal water flow as they cross the right-of-way. The most significant streams are located along Daisy Hollow Road, Babcock Hollow Road and Quail Hollow Road. These streams are located in wider valleys proximate to roads. These streams likely support fish communities that could include shiners, creek chub, black-nose dace, stonerollers, sculpins, suckers, darters and possibly brown or brook trout. The potential for impacts to streams will occur during right-of-way widening and construction equipment crossings.

The sensitivity of a stream to transmission line construction depends on a variety of characteristics such as water quality, size, flow, orientation, ground water recharge, slope of adjacent shoreline, bank vegetation, soils, streambed composition, and adjacent land use. The construction of a transmission line can adversely affect a stream when it is necessary to remove tall-growing vegetation adjacent to the stream or to construct an access road across the stream. The removal of tall-growing vegetation that shades a stream during right-of-way clearing will increase sun exposure in the cleared area of the stream. The potential for significant thermal impact to aquatic life, however, is generally limited. The removal of riparian vegetation can also increase turbidity and sedimentation in a stream, due to the silt-laden runoff entering the stream and the erosion of the stream bank. The construction of an access road across a stream can also increase turbidity and sedimentation and may possibly destroy suitable habitat for a variety of aquatic fauna.

Not all streams will experience an adverse impact from transmission line construction. Stream crossing impacts can be minimized or prevented by the use of special clearing practices, carefully designed stream crossings, and erosion control measures.

NYSEG's standard practices include treating all streams with care during clearing, construction, and maintenance operations in order to minimize impacts to water quality and the aquatic life community.

Wetlands

NYSDEC wetlands, United States Fish and Wildlife Service National Wetlands Inventory (NWI) wetlands and recent field-identified wetlands mapped along the Project are presented in Figures 4-4A to 4-4K. Two Project consultant professional wetland scientists walked the Project corridors in late September 2006 and identified ten wetland areas along the Line 945 and Line 947 corridors. Approximately 3,150 feet of wetland will be crossed by the Project: 1,000 feet along Line 947, 950 feet along Line 945, and 1,200 feet along the combined Lines 945/947 corridors. Three significant wetland areas are located near the area where Lines 945/947 converge near State Route 38 (Dryden-Harford Road). These wetlands are mapped NWI wetlands. One of these wetlands, located along the combined Line 945/947 right-of-way, is also mapped as a NYSDEC freshwater wetland. The field-identified boundaries of these wetlands corresponded well with the mapped NWI and NYSDEC boundaries. Approximately 250 feet of wet meadow/scrub-shrub wetland area was delineated just east of Babcock Hollow Road. The remaining six wetland areas are relatively small wetlands associated with streams, low-lying areas and/or hillside seeps. Efforts will be made to minimize the number of structures placed in wetlands. Where unavoidable, the wetlands will be crossed by heavy equipment during the installation of the new 115kV line and during the rebuilding of Line 947. During right-of-way clearing along Line 945, an approximately 100-foot wide section of wetland will be impacted in forestland east of Babcock Hollow Road (Figure 4-4I). Wetland and stream crossing permits will be obtained from the U.S. Army Corps of Engineers (Nationwide permits) prior to construction. An environmental inspector will ensure that all permit conditions will be adhered to during Project construction. All construction contractors will be given a copy of these permit conditions.

Hydrology

Hydrologic impacts due to transmission line and substation construction are generally limited to minor changes in surface hydrology. At some structure locations, it may be necessary to pump groundwater from excavations, but pumping is usually an isolated and short-term operation. No changes in groundwater conditions are expected to result from construction of the proposed facilities.

Minor changes in surface hydrology may occur at some locations where runoff patterns are altered as a result of grading or filling during access road construction. Such grading may cause an interruption in natural surface flow, which could reduce surface water in some areas and may temporarily affect the growth of nearby vegetation. NYSEG intends to limit access road grading and to implement erosion control measures in an effort to maintain natural drainage patterns and minimize hydrologic impacts.

It may be necessary in some places to discharge water that has collected as a result of grading. In areas where water is discharged, surface moisture will temporarily increase, but such discharges are not expected to have a permanent impact on surrounding vegetation. Precautions will be taken to ensure that erosion and unnatural siltation will not occur at discharge locations. Natural drainage patterns will be reestablished wherever practical during restoration.

If it is necessary to construct an access road through a wetland, the placement of fill may interrupt or interfere with surface drainage. This disturbance may result in changes in local water levels and may affect growth characteristics of nearby vegetation. NYSEG intends to limit such filling and to use culverts and other water control devices to minimize hydrologic impacts.

The proposed Project's impact on surface hydrology will depend largely on the amount of vegetation that is removed. The greatest impact will occur in areas where clearing of the forest canopy is required. Removal of the forest canopy will reduce the amount of precipitation that is intercepted and held by vegetation, thereby increasing the amount of precipitation that reaches the ground.

Removal of the forest canopy and disturbance of the duff layer - the layer that normally absorbs and holds surface water - will increase the rate and amount of surface runoff and will decrease the rates of infiltration and percolation on the right-of-way. Removal of the forest canopy will also decrease the amount of soil moisture that is lost to the atmosphere through transpiration. Increased solar radiation and air turbulence at the ground level, however, will increase the amount of soil moisture that is lost to the atmosphere through evaporation (Herrington and Heisler, 1973). The overall effect of removing forest canopy is a decrease in soil moisture.

Water control devices will be used as necessary along the prime route, thereby minimizing hydrologic impacts. Over time, hydrologic impacts due to construction will be lessened as low-growing plant communities develop on the right-of-way. Although minor changes in surface hydrology will occur in the immediate vicinity of the right-of-way, the proposed facilities will not affect hydrologic characteristics of the region.

C. WILDLIFE RESOURCES

Based on habitats identified in the Project area (see Figures 4-4A to 4-4K for an aerial view of Project area cover types), mammal species present would likely include many of the mammals known to thrive in woodland, field, agricultural land and riparian habitats proximate to areas of human habitation. Range maps indicate that these species would include white-tailed deer, raccoon, opossum, woodchuck, muskrat, red squirrel, gray squirrel, flying squirrel, bobcat, red fox and gray fox, coyote, striped skunk, eastern cottontail, chipmunk, several mice species including white-footed, deer, meadow jumping, woodland jumping and house, Norway rat, meadow vole, mink, porcupine and several bat, shrew and weasel species. Black bear may occasionally enter the Project area, especially in State Forest land. Fisher has been recorded recently in Steuben County but not in the Project area. Mammal species observed during the field surveys conducted in late September 2006 include white-tailed deer, woodchuck, gray squirrel and chipmunk.

Based on observed habitats and range maps, reptile and amphibian species potentially present in the Project area include garter snake, smooth snake, water snake, milk snake, brown snake, ring-necked snake, black rat snake, midland painted turtle, snapping turtle, American toad and several frog and salamander species (Conant 1975). The Project area is within the range of timber rattlesnake, but a lack of suitable habitat limits the potential for this species to exist in the Project area.

Plant communities in the Project area provide suitable resident and transient feeding, resting and nesting habitat for a number of bird species including wild turkey, turkey vulture, mourning dove, American robin, starling, rock pigeon, white-breasted nuthatch, black-capped chickadee, tufted titmouse, blue jay, American crow, northern cardinal, catbird, ruby-throated hummingbird, eastern phoebe, eastern wood pewee, eastern kingbird, cedar waxwing, several warbler, vireo

and flycatcher species, Baltimore and orchard orioles, brown thrasher, northern mockingbird, black-billed and yellow-billed cuckoos, bobolink, indigo bunting, yellow-bellied sapsucker, downy, hairy, pileated and red-bellied woodpeckers, northern flicker, dark-eyed junco, brown creeper, house, marsh and Carolina wrens, cowbird, redwing blackbird, common grackle, rusty blackbird, eastern towhee, barn, rough-winged and tree swallows, purple martin, chimney swift, goldfinch, house finch, bluebird, screech, barred, short-eared, long-eared and great horned owls, kestrel, northern harrier, sharp-shinned, Cooper's and red-tailed hawks, killdeer, ring-billed gull and house, song, field, swamp, savannah, vesper and chipping sparrows. Water birds associated with the limited riparian habitat in the Project area would potentially include spotted sandpiper, great blue heron, green heron, black-crowned night heron, several duck species, Canada goose and kingfisher.

A number of migratory birds would potentially pass through the Project area during spring and fall migrations, including warbler, vireo, tanager, thrush, flycatcher, blackbird, sparrow, raptor and water bird species. Over-wintering, non-resident birds in the Project area could include American tree sparrow, white-throated sparrow, common red poll, pine siskin, ruby and golden-crowned kinglets, evening and pine grosbeaks, red-breasted nuthatch, horned lark, Lapland longspur, American pipit, winter wren, bohemian waxwing, hermit thrush, snow bunting, short eared, long eared, snowy and saw-whet owls, rough-legged hawk and northern shrike.

Endangered, Threatened and Special Concern Species

A number of State-listed birds may migrate over the Finger Lakes region during the spring and fall migrations. These species include endangered golden eagle, peregrine falcon and short-eared owl; threatened pied-billed grebe, bald eagle, northern harrier, upland sandpiper, sedge wren and Henslow's sparrow; and species of special concern include common loon, osprey, Cooper's hawk, sharp-shinned hawk, northern goshawk, red-shouldered hawk, common nighthawk, horned lark, Bicknell's thrush, golden-winged warbler, cerulean warbler, yellow-breasted chat, vesper sparrow and grasshopper sparrow. Because the Project will be located in an existing overhead power-line corridor, it is NYSEG's opinion that the proposed Project will not have an adverse impact on these species.

The Federally endangered Indiana bat may also occur in the Project area during the summer breeding season. An Indiana bat hibernaculum (over-wintering cave or mine) is located near Syracuse, New York in Onondaga County. Indiana bats form summer maternity colonies under the loosened bark of dead trees or the bark of mature oaks and shagbark hickories. They typically select groups of trees with a sunny, south-facing exposure in order to maintain high temperatures within the roost. The September 2006 Project walkover by two Project consultant biologists indicated a very limited number of potential roosting trees with southern exposure along the right-of-way. The majority of the forest along the right-of-way is second and third growth. Because of the lack of suitable roosting habitat along the right-of-way, it is NYSEG's opinion that the Project will not adversely impact the Indiana bat.

Impacts to terrestrial wildlife will result from Project construction, right-of-way expansion and maintenance operations. Terrestrial wildlife is typically subjected to disturbance during construction operations when their normal behavior patterns are disrupted. The sensitivity of a particular wildlife species to transmission line construction is partially contingent on the animal's home range and its mobility. Those species with a larger home range will experience minimal impact from construction operations because they are capable of moving to other portions of their home range when disturbed. Small mammals with small home ranges may experience greater impact during transmission line construction. Due to their limited mobility, the entire home range of certain small mammals could be destroyed or severely altered during right-of-way expansion. Some small mammals that inhabit the forest floor and the uppermost soil layer may experience mortality and nest and litter destruction from the use of heavy construction equipment. This mortality will not significantly affect regional small mammal populations. Small mammals such as rodents and insectivores generally have large populations and high reproductive rates. When construction operations are completed, these species will quickly repopulate the right-of-way.

The Project's greatest impact on wildlife populations will result from clearing of the right-of-way, which will change the form and composition of the plant community on the right-of-way. The amount of impact will depend on the amount of clearing required and on the quality and variety of wildlife habitat adjacent to the right-of-way.

Although wildlife communities on the right-of-way will experience varying degrees of impact, as discussed in this section, it is NYSEG's opinion that the Project will not adversely affect wildlife populations in the Project area.

4.8 LAND USE ANALYSIS

A. INTRODUCTION

The overall Project area can be characterized as predominantly rural, with undeveloped forestlands and agricultural land uses typifying the Project area. Some limited residential land use exists in the area along Dryden-Harford Road (State Route 38) immediately south of the Village of Dryden. However, the Project coincides with the existing Line 945 and Line 947 corridors, which are established land uses compatible with the surrounding undeveloped forestland and agricultural, and limited residential land use patterns. Modifications planned for existing substations will not impact the current land use since the facilities will continue to be used for power transmission.

Because the transmission corridors currently exist for both Line 945 and Line 947, no change in the overall land use patterns will result from the Project. Alternative routes would increase the area dedicated to utility corridors resulting in changes in land use that would otherwise be avoidable. The Project routes avoid areas of commercial, industrial, or other developed land uses. A portion of the Project (approximately two miles in distance) south of the Village of Dryden is located in a low-density residential area. Impacts to these land uses are expected to be minimal. According to planning officials in Tompkins and Cortland Counties, no recent land use changes have occurred and none are expected in the proposed Project area.

B. SCENIC AREAS

In 2006, the Tompkins County Planning Department conducted a comprehensive Scenic Resources Inventory as recommended by the Comprehensive Plan, which indicated that no designated scenic overlooks are located within the Project corridor along the Project routes. However, of the 110 candidate views identified as valued for their scenic quality, two views were in proximity to the Project corridor. The first view, identified as View 49, is from West Lake Road 0.2 miles from its intersection with Lake Road looking east over Dryden Lake. From this view the existing transmission corridor (overlap of Line 945 and Line 947) is visible along the base of the hill and crossing over the top of the hill. Given the overall setting and proposed minor changes to

the existing transmission corridor, it is not anticipated that the Project will result in an intrusive visual impact. The second view, identified as View 50, is from Route 392, approximately 0.3 mile from its intersection with Bradshaw Road looking south-southwest over an agricultural setting towards wooded hillsides on the horizon. From this view the existing transmission corridor is not visible. Given the heavy forest cover and limited, extended or panoramic views outward from the existing cuts along the Project corridor, it is not anticipated that the Project will result in an intrusive visual impact.

C. RECREATIONAL SITES

Based on a site visit in September 2006 and a review of USGS topographic maps and aerial photography, the main recreational feature located along the Project is State Forest land. Right-of-way clearing for the Project will impact approximately two miles (7.2 acres) of the Yellow Barn State Forest in Tompkins County and the Kennedy State Forest in Cortland County. The Finger Lakes Trail passes through a section of the Kennedy State Forest. Other recreational uses include a privately owned horseback riding stable, hunting clubs and a golf course. Hikers, exercisers and nature enthusiasts use portions of the existing right-of-ways and some All Terrain Vehicle (ATV) paths are evident in the right-of-ways. Because the Project is located in the existing transmission corridor, the Project is not expected to result in long-term adverse impacts to recreational facilities in the Project area. Temporary impacts during construction may result in interruption of use where the new 115 kV line crosses the Fingers Lakes Trail in the Kennedy State Forest and a walking trail east of Route 38.

D. ARCHAEOLOGICAL AND HISTORIC SITES

Cultural Resources Research and Data

NYSEG engaged URS Corporation (URS) to conduct a Phase IA Cultural Resource Assessment, which consisted of a cultural resource literature search and a reconnaissance survey covering a two-mile radius surrounding the Project corridors. Research was conducted at the New York State Historic Preservation Office. While some early survey activities in Tompkins County, and particularly in the Town of Dryden, were undertaken in the 1970s, no comprehensive historic

resource surveys have occurred in the Project area. However, the absence of previously identified or recorded historic resources does not correlate with the presence of potentially significant resources. In addition, previous archaeological surveys have focused on the Tompkins County section of the Project area where commercial, industrial, residential development has been concentrated historically. As part of the Phase 1A assessment, a URS archaeologist conducted an archaeological assessment of the existing transmission line corridor on September 25, 26, and 27, 2006. A brief inspection of the standing structures adjacent to and within the transmission corridor was preliminarily assessed for potential visual and direct effects from the Project. This section assesses potential impacts and effects to cultural resources as a result of Project. The results of these investigations are presented in the *Phase 1A Cultural Resource Assessment for the Ithaca Reinforcement Project, NYSEG Article 7 Filing, Etna to Lapeer, New York*, October 2006 (Phase 1A). The complete Phase 1A report is found in Appendix 4-A of this Exhibit. The Phase 1A report characterizes the Prehistoric and Historic context of the area within which the Project is located.

Background research for the Phase 1A assessment was conducted at the New York State Historic Preservation Office to identify known prehistoric and historic archaeological resources within a two-mile radius of the Project area. Previous research conducted in the vicinity of the Project area noted a dearth of reported archaeological sites, owing in part to the fact that few archaeological investigations have been conducted (Weiskotten and Ravage 1997). A countywide historic resource survey has not been undertaken in Tompkins County since 1977 (Tompkins County Department of Planning, 1977).

Seven reported prehistoric archaeological sites were identified within the two-mile survey buffer adjacent to Project area and are listed in Table 4.8-1. The sites include three occupation sites, two lithic scatters, and two sites classified as stray finds. Two of the occupation sites are located adjacent to perennial sources of water—one on Dryden Lake and the other adjacent to a large-order stream. The third occupation is classified as small scale or seasonal and is located on an upland flat, adjacent to two intermittent streams. The lithic scatters and stray finds were identified along Virgil Creek. Additional unreported sites include a large hearth scatter along Virgil Creek, and reference to a vocational relic hunting along Fall Creek outside of the town of Etna. Historic sites identified through archaeological surveys are listed in Table 4.8-2 and

National Register listed properties within the two-mile Project area are listed in Table 4.8-3 and are included in Figure 1 of the Phase IA Assessment found in Appendix 4-A.

Table 4.8-1 Prehistoric Archaeological Resources Located within the 2-Mile Study Area

OPRHP #	NYSM #	Site Name	Description	Culture Period	Setting	Reference
A02305.000001		Virgil Stray	Debitage - single flake	Unidentified Prehistoric	Upland flat, toe of knoll	Dean 1991
A10942.000169	7464	Dryden 2	Lithic Scatter	Unidentified Prehistoric	Upland flat	Hartgen 2003
A10903.000178	7465	Dryden 3	Dense Lithic Scatter	Unidentified Prehistoric	Unavailable	
A10903.000173		Dryden Lake Site	Multi-component occupation	Archaic to Late Woodland	Area adjacent northern end of Dryden Lake	Weiskotten and Ravage 1997
A10903.000243	10494	Plus Site	Seasonal/small scale Occupation	Late Woodland Iroquoian	Broad upland flat open ag. field	Weiskotten and Ravage 1997
A1093.000172		Brown Farm Site	Prehistoric Occupation	Middle Archaic to Late Archaic	Unavailable	Ebright and McDonald 1978
02305.000001		Endler Stray	Groundstone tool surface find	Unidentified Prehistoric	Bench adjacent upland drainage	Dean 1991

Table 4.8-2 Historic Archaeological Sites

OPRHP #	NYSM #	Site Name	Description	Location	Reference
A10903.000246	10495	Rowland Site	Historic	Rte. 13, west of Dryden	Pratt and Pratt 2002
A10903.000244	10496	Mosso Blacksmith Shop Site	Historic 19th century	Village of Dryden	Hartgen 2003
A10903.000234	10497	Mosso House Site	Historic Early 20th century	Village of Dryden	Hartgen 2003
A10942.000065	SUBi 1082	Dryden Woolen Mill	Historic 20th century Structural and industrial remains	Virgil Creek, Dryden	Weiskotten & Ravage 1997 Hartgen 2003
A10942.000166	SUBi 1105	W.W. King Planing Mill	Historic, ca.1904 Structural remains, architectural and household artifacts	Virgil Creek, Dryden	Hartgen 2003 Mair & Cassell 1984 Weiskotten & Ravage 1997

Table 4.8-3 National Register Listed Properties

OPRHP #	Site Name	Location	Construction Date	Date Listed
90NR02268	Luther Clark House	39 West Main Street, Dryden	ca. 1820-1830	1984
90NR02269	Jennings-Marvin House	9 Library Street, Dryden	1897	1984
90NR02270	Lacy-Van Vleet House	45 West Main Street, Dryden	1845	1984
90NR02271	Methodist Episcopal Church	2 North Street, Dryden	1874	1984
90NR02272	Rockwell House	52 West Main Street, Dryden	ca. 1860-1866	1984
90NR02273	Southworth House, The Homestead	14 North Street, Dryden	1836	1984
90NR02275	Dryden Historic District	Dryden	Multiple	1984
91NR03368	Southworth Library	24 West Main Street, Dryden	1894	1984

Cultural Resources Impact Assessment

A number of potential effects to cultural resources were assessed, including direct and indirect impacts from construction activities, impacts to historic and cultural properties, as well as issues concerning impacts to the viewscape.

Archaeological Resources:

Archaeological sites are adversely affected by activities that disturb the ground. The Project will include activities with potential adverse effects, such as removal of existing transmission structures, construction of new transmission structures, operating heavy machinery, and expansion of the right-of-ways. Impacts to potential archaeological deposits may occur within construction footprints, staging areas, access roads, and in the clearing of vegetation along the right-of-way.

Based on the data collected at the New York State Historic Preservation Office and standard settlement and land-use models, the probability of locating archaeological resources within the Project area is, in part, dictated by the types of settings that will be disturbed during construction. Characteristics of settings favorable to prehistoric habitation generally include relatively level terrain, well-drained soil, and proximity to a source of water. A table presenting the predictive model for locating prehistoric sites is presented in the Phase IA Assessment in Appendix 4-A. The application of the predictive model results in the following assessment of various sections of the Project routes.

Most of the section of the Project route from Route 13 to Route 38 is characterized as moderate to steeply sloping terrain. Several small-order streams drain the uplands, and a number of upland seeps or springheads were also encountered. Most of this section fits criteria for low potential for archaeological resources, with the exception of the stream crossings and level ground in the vicinity of springheads, which have moderate potential to contain archaeological deposits.

The section of Project route where Line 945 and Line 947 converge, located between Route 38 and Carpenter Hill Road, is considered to have high probability for encountering archaeological resources. This area is characterized by relatively level terrain with large wetlands, a lake, and

several streams. Prehistoric resources have been identified in this area. These sites include two stray finds and a Woodland period occupation, the Dryden Lake Site.

From the mountaintop at Carpenter Hill Road moving east to the substation at Lapeer, the terrain consists of steep uplands dissected by perennial stream valleys. The steeply sloped uplands possess low potential for containing resources, but there are areas of moderate and high potential. The bench formations and upland saddles—level areas between two knoll tops—have low to moderate potential depending on their proximity to a water supply. The meandering floodplains in the stream valleys have moderate to high potential for encountering archaeological resources.

Historic Resources:

In addition to the potential impacts to archaeological resources, reconstruction of existing Line 947 and construction the new 115 kV line will introduce elements into the existing viewshed. Any aboveground resources listed on or eligible for the National Register of Historic Places need to assessed for visual effects caused by the new lines and towers. No adverse impacts to the viewsheds of the Etna, State Street, and Wright Avenue Substations are anticipated from the equipment modifications since the work will require no change or only minor expansions to the existing fence line.

Locating potential impacts to historic cultural resources follows a slightly different model based on proximity to transportation routes and population centers. A table presenting the predictive model for locating historic sites is presented in the Phase 1A report in Appendix 4-A. In the low potential areas, terrain and proximity to water may factor into the location of occupations and other types of sites, but in more densely settled areas, terrain modification and development of utilities might be utilized to expand settlement into marginal areas.

Most of the historic development encountered within the Project area occurs along established roadways. One potential historic archaeological site was encountered along Babcock Hollow Road at the crossing of Line 947. The site consists of a farmstead with extant outbuildings. Only three small outbuildings remain to mark the site. The primary structure has been demolished.

The Project has the potential to have an effect on aboveground historic resources. Installation of new lines and structures, as well as additional right-of-way clearing has the potential to impact the viewshed of National Register eligible and listed properties. As noted earlier, the bulk of the Project area has not been surveyed for historic aboveground resources. The preliminary site visit revealed a range of structures from new construction to nineteenth-century farmsteads in close proximity to the existing right-of-way. The Village of Dryden includes a concentration of buildings that are listed on the National Register of Historic Places (see Figure 1 in Appendix 4-A).

Phase 1A Conclusion

The Phase 1A assessment concludes the background research and reconnaissance survey of the Project corridor revealed previously identified historic and archaeological resources, as well as areas with high potential for containing cultural resources. Avoiding these areas and resources may help minimize effects upon cultural resources in the corridor. More intensive surveys are recommended if finalized design plans indicate that construction activities will occur within high-potential areas or known locations of cultural resources.

E. EXISTING LAND USE AND LAND COVER

The Project area is characterized as primarily a rural landscape of hills and glacial valleys covered with forest, agricultural fields, and scattered rural residences. Limited newer residential pockets are located closer to the Village of Dryden. The Tompkins County Cooperative Extension characterizes agricultural and uses in the vicinity of the Project corridor as primarily consisting of dairies and livestock, pasture lands or hay, and limited areas having other crops.

The Tompkins County Comprehensive Plan identifies the existing development pattern in the Project area as Rural/Scattered, Rural/Concentrated and areas of Existing Protected Open Space. Similarly, the Project area on Cortland County can be characterized as a rural undeveloped landscape.

The data source used for identification of the various land uses within the Project area in Tompkins County was the Land Use/Land Cover (LULC) database, updated in 2000 and available for the Tompkins County ITS GIS Division. To supplement the LULC data, the proposed Project routes were compared to the current aerial photographs (2002 for Tompkins County and 2003 for Cortland County). In addition, the land use along the Project was observed during field visits in September 2006. At the time of this filing, geographic information systems (GIS) based land use data was not available for Cortland County. For Cortland County, digital orthophotography and field observations were utilized to characterize the land use pattern.

Table 4.8-4 lists the types of land use categories crossed by the proposed routes in Tompkins County and their distance. It is important to note that because the LULC system is based on tax map parcels and Project facilities follow easements, not individual tax map parcels, the existing transmission corridors are not categorized as utility uses. However, there will be only limited actual conversion of land and changes in land use resulting from the Project. This is a result of efforts made during Project routing to utilize the existing transmission corridors.

Table 4.8-4 Land Uses Crossed by Line 945 and Line 947

LINE 945 – Tompkins County				
Land Use	**Land Cover**	**Symbol**	**Miles**	**Percent of Distance**
Tompkins County				
Agriculture	Cropland	Ac	1.33	16.2
Agriculture	Inactive Agriculture	Ai	0.47	5.7
Agriculture	Pasture	Ap	0.38	4.6
Residential	Low Density (<1 du/ac)	Rl	0.20	2.4
Residential	Med. Density (< 5du/ac)	Rm	0.05	0.6
Commercial	Offices	Co	0.09	1.1
Industrial	Power Plan/Substation	Iu	0.15	1.8
Recreation	Recreation corridors	Oe	0.01	0.1
Vacant	Disturbed Land	D1	0.03	0.4
Vacant	Brush	Fb	4.83	58.7
Vacant	Forested	Fd	0.24	2.9
Vacant	Open Grassy Areas	Fg	0.08	1.0
Vacant	Forested (Mixed)	Fm	0.14	1.7
Vacant	Forest Plantation	Fp	0.03	0.4
Vacant	Shrub Wetlands	Wb	0.20	2.4
Tompkins County TOTALS			8.23 acres	100.0

LINE 947 – Tompkins County				
Land Use	**Land Cover**	**Symbol**	**Miles**	**Percent of Distance**
Tompkins County				
Agriculture	Cropland	Ac	1.26	15.1
Agriculture	Inactive Agriculture	Ai	0.41	4.9
Agriculture	Pasture	Ap	0.23	2.8
Residential	Low Density (<1 du/ac)	Rl	0.08	1.0
Residential	Med. Density (< 5du/ac)	Rm	0.12	1.4
Commercial	Offices	Co	0.09	1.1
Industrial	Power Plan/Substation	Iu	0.15	1.9
Recreation	Recreation corridors	Oe	0.01	0.1
Vacant	Disturbed Land	Dl	-	-
Vacant	Brush	Fb	4.88	58.6
Vacant	Forested	Fd	0.43	5.2
Vacant	Open Grassy Areas	Fg	0.19	2.3
Vacant	Forested (Mixed)	Fm	0.21	2.5
Vacant	Forest Plantation	Fp	0.01	0.1
Vacant	Shrub Wetlands	Wb	0.21	2.5
Vacant	Wooded Wetland	Ww	0.03	0.4
Vacant	Water body	Wn	0.01	0.1
Tompkins County TOTALS			8.32	100.0

As shown on Table 4.8-4, approximately 69.60% of the combined Project routes in Tompkins County cross areas that fall into a vacant or undeveloped land use category which include: Disturbed Land, Brush, Forested, Open Grassy Areas, Forested (Mixed), Shrub Wetlands, Wooded Wetland, and Water Body. Approximately 24.7% of the proposed routes cross areas categorized as agricultural lands, which include the following LULC land use categories: Cropland, Inactive Agriculture and Pasture. Electric transmission structures are generally compatible with

agriculture although the existence of such structures in cultivated fields may result in less maneuverability for large farm equipment. Because the proposed Project routes will utilize the existing transmission corridors, the Project will not have a significant effect on agricultural operations. A discussion of the agricultural land uses crossed by the transmission line and the impacts likely to result from construction of the line follows this section. Of the 4.08 miles of agriculturally classified lands the existing transmission corridors cross approximately 0.88 miles of lands classified as Inactive Agriculture. As with the other agricultural land use, because the proposed Project routes utilize the existing transmission corridors, there will be little net impact to inactive Agricultural lands. The remaining land use categories in Table 4.8-4, Residential, Commercial, Industry, and Recreation, comprise about 5.7% of the distance crossed by the Project. No significant changes are anticipated in these land use/land cover categories.

The above land use categories occur along the section of the Project east of the NYSEG Etna Substation where existing Line 947 will be reconstructed within the existing transmission corridor (with an additional 12.5 or 25 foot wide right-of-way required in places). The new 115 kV line will utilize the existing Lines 945/524 corridor and Line 945 corridor (with a 47.5 foot right-of-way addition in places).

Similar to Tompkins County, the land use pattern in the vicinity of the Project located in Cortland County is also predominantly rural and undeveloped. The land cover is typified by forest lands and agricultural lands. The existing Line 945 right-of-way will be widened by 47.5 feet in Cortland County. The existing Line 947 right-of-way will be widened by 25 feet along certain sections with existing 100-foot right-of-way. In limited locations the existing Line 947 right-of-way will be widened by 12.5 feet. The right-of-way expansion will convert some secondary forest to cleared land. Areas of active agriculture where new right-of-way will be obtained will continue as agricultural land. Approximately 6.5 acres of a Christmas tree farm will be converted for construction of the new Lapeer Substation. Approximately 1.5 acres of this land is upland secondary forest. No change to the current land use is anticipated at the Etna, State Street, and Wright Avenue Substations from the equipment modifications since the site will continue to be used for power transmission. In addition, the work will require no change or only minor expansions to the existing fence line.

The continued use of the existing rights-of-way in rural and agricultural areas minimizes the amount of land subject to conversion. Therefore, it is not anticipated that combined, the reconstruction of Line 947 and addition of the new 115 kV line will result in a significant change in the overall land use pattern in the Project area.

F. AGRICULTURAL ANALYSIS

This analysis was based on a review of land use and land cover mapping. For this assessment, active agriculture was considered to be land designated by the County LULC database as Cropland and Pasture. The length of the existing transmission corridor that crosses through lands designated as Cropland or Pasture comprises approximately 19% of the proposed Project routes. Inactive Agriculture comprises about 5.3% of the distance crossed by the proposed routes. These inactive agricultural lands were not included in the agricultural analysis because of their long-term agricultural inactivity. Utilization of the existing transmission corridors along the Project route will not preclude the use of inactive agricultural lands for agricultural purposes in the future.

The Project crosses two Agricultural Districts, which are depicted in Figure 4-5. Table 4.8-5 provides the Agricultural Districts and the distance that each is crossed by the Project. All agricultural lands, both within and outside of Agricultural Districts, were given equal consideration when assessing agricultural land use impacts.

Table 4.8-5 Agricultural Districts Crossed by the Project Routes

County	Agricultural District	Distance	Percent of Total Project
Tompkins	No. 1	7.11 miles	24.2%
Cortland	No. 1	2.89 miles	9.8%

Table 4.6-2 provides the distances that prime agricultural soils are crossed by the Project routes. Table 4.6-2 includes categories for Prime Farmland Soils and Farmland of Statewide Importance. The existing transmission corridors cross approximately 15.1 miles of Prime Farmland Soils and 3.2 miles of Farmland of Statewide Importance. Replacement of new tower structures on Line 947 and construction of tower structures for the new 115 kV line in the Line 945 corridor will

occur along approximately 18.4 miles of Prime Farmland Soils and Farmland of Statewide Importance.

The impact of the proposed facilities on agricultural lands is associated with structure placement and construction and maintenance practices. Transmission structures located in cultivated fields typically result in a small area of land that is permanently removed from agricultural production. These structures may also present an obstacle to equipment operation, reducing efficiency in tilling, planting, cultivating, and harvesting. Where engineering criteria permit, NYSEG will attempt to locate new structures in hedgerows, along edges of fields, or in pastures during final line design to minimize impacts. Where active cropland cannot be avoided, NYSEG will attempt to locate new structures so that farm equipment can maneuver between structures and the edges of fields. During line construction, crops between structure locations will not be cut unless absolutely necessary. The proposed transmission line is expected to cause minimal conflict with agricultural equipment operated under or adjacent to the line.

Although permanent access roads will not be maintained across cultivated land, access to structure locations during clearing and construction may require use of such lands. The amount of land temporarily removed from agricultural production will be the minimal amount necessary to complete the Project. To reduce potential disturbance to cultivated lands, construction traffic will be limited to a single travel lane or access road. It is NYSEG's policy to use existing farm lanes or roads for access to structure locations whenever possible. Where access roads must cross livestock enclosures, NYSEG will maintain the integrity of intact fences used to restrain livestock. NYSEG's fence repairs and gate installations will be equal in quality to original installations. Wire fences that run parallel to the proposed line are grounded by posts or through contact with weeds or grass and generally will not need additional grounding. However, NYSEG will provide additional grounding if needed. If electric fences are affected by the proposed facility, NYSEG will install the necessary filters.

Fabrication areas for structure installation may temporarily displace production in cultivated fields. This displacement, however, should not result in crop loss for more than one or two growing seasons. Subsoil from structure installation excavations could also affect future crop yields. To

minimize this potential impact, excavated subsoil material will be confined to the structure base area.

During discussions with property owners and the USDA Natural Resources Conservation Service, efforts will be made to identify the locations of drainage tiles and drainage ditches so that field improvements might be protected or avoided during construction or maintenance activities. If, however, drainage tiles and ditches are damaged during construction of the line, they will be repaired. If tillable fields are disturbed by construction equipment they will be scarified, harrowed, and, if appropriate, seeded when construction in the area is complete. Farmers will be consulted concerning selected areas for seeding and seed mixtures. NYSEG recognizes that soil compaction on agricultural lands results in reduced soil productivity that can result in crop yield loss. It is NYSEG's belief that the benefits of deep tillage, harrowing, winter cover crop, and natural freeze-thaw cycles will negate crop yield loss due to soil compaction in one or two years. After construction, NYSEG will attempt to minimize long-term impacts to agricultural lands. When clearing must take place in a pasture, cut vegetation that is known to be toxic to livestock will be removed from the pasture and disposed of where it cannot harm farm animals.

Work crews will be required to clean up debris and trash as they move from one work area to another. Existing structures that will be removed in conjunction with the Project will be removed as outlined in Section 4.5. In cultivated fields, any existing guy anchors and pole butts will be removed to a minimum depth of 24 inches below the ground line.

NYSEG recognizes agriculture as an important land use on its rights-of-way and that electric line construction impacts to agricultural activities can be significant. However, NYSEG believes that the proposed Project's overall impacts to agricultural land will be minimal. In those areas where damage or permanent loss cannot be avoided, compensation will be made for losses.

G. FUTURE LAND USE

To assess the proposed facilities' potential impact on future land use in the Project area, NYSEG contacted representatives of the applicable municipal governments and county planning offices.

Available planning documents were reviewed to determine if any expected or planned land use changes would be impacted by the proposed facilities and future land uses where discussed with municipal planning representatives. In general, towns in the Project area are expected to remain rural with forest and agriculture dominating the landscape. The Project area's historical and inherent agricultural nature was described in the following documents: Tompkins County Comprehensive Plan – Planning for the Future, 2004; Cortland County Consolidated Plan, 2002; and Town of Dryden Comprehensive Plan, 2005.

The Tompkins County Comprehensive Plan identifies a future Plan Scenario. Under the future Plan Scenario the Project corridor crosses a land use pattern consisting of Rural/Scattered, Rural/Concentrated and Existing Protected Open Space categories. Under this scenario, development will grow at a slower rate than the other rural areas. The Tompkins County Comprehensive Plan also identifies selected regions as Natural Features Focus Areas where the County will concentrate efforts to preserve open space and natural resources. The Project crosses two Natural Features Focus Areas: State Forest lands and Fall Creek. The Project crosses of the northern most extent of the 40,000-acre crescent shaped area known as The Forest Lands. The Forest Lands contain state forests, creeks, wetlands, biological corridors, Unique Natural Areas (UNA) and trails. The Project also crosses the 9,000-acre area known as Fall Creek. The Fall Creek Area consists of an IBA wetlands, a biological corridor, UNAs and trails. By designing the reconstruction of Line 947 and new 115 kV line along Line 945 within their existing transmission corridors, the Project is consistent with the goals of the plan. The Tompkins County Comprehensive Plan also identifies Agricultural Resources Focus Areas where grow will occur at a slower rate that the other rural areas. Combined, the two focus areas are termed Rural Resources, which represent a proposed land use category.

The Cortland County Consolidated Plan is focused on housing and does not address land use issues relevant to this assessment. The most recent county land use plan was prepared in 1978 and was not available for review. However, in a telephone interview, the County Planning Director indicated that the general land use pattern remains rural with little development in the areas around the Project. In addition, indicated that based on past development patterns and due to the volume of publicly owned lands, significant land use changes or extensive growth are not anticipated in the

vicinity of the Project routes. The 1978 Land Use Plan indicates a continued rural land use pattern in the Project area.

A review of the Town of Dryden Comprehensive Plan reveals that growth is expected to occur in the Town west of the Village of Dryden rather than to the south, in the vicinity of the Project. The Town of Harford and the Town of Lapeer do not have master plans.

In general, the applicable plans call for preserving areas for agricultural use and limiting development to clustered development or nodal locations in and around the Villages and hamlets.

Based on an analysis of adopted plans and discussions with municipal planning representatives, it is NYSEG's opinion that, because of the relatively stable nature of land use patterns in the Project area, improvements to Line 947 and construction of the new 115 kV will not adversely affect future land use patterns. Similarly, the new equipment required for the Etna, State Street and Wright Avenue Substations will not affect future land use.

H. POPULATION ESTIMATES

Population estimates for the towns along the Project routes were assessed to identify potential future land use conflicts as population increases and development occurs. Population estimates for the year 2005 and housing data for the towns crossed by the proposed route are presented in Table 4.8-6 and Table 4.8-7, respectively.

Table 4.8-6 Population Data and Estimates

Municipality	Actual Population*		Estimated Population**	1990 - 2005	
	1990	2000	2005	+/- Change	% Change
Tompkins County					
Dryden	13,135	**13,532**	13,924	789 +	6.0 %
Cortland County					
Harford	886	**920**	915	29 +	3.3 %
Lapeer	613	**686**	683	79 +	11.4 %

* Reference: U.S. Census of Population 1990, 2000; U.S. Bureau of Census

** Reference: NYS Data Center, Cornell Institute for Social & Economic Research, 2006

Population data are based upon 1990 and 2000 census data. Because population estimates are not available for towns from the US Census Bureau, estimates from the NYS Data Center at the Cornell Institute for Social & Economic Research were utilized. Population estimates indicate that none of the three towns crossed by the Project routes experienced significant growth from 1990 to 2005. During this period, the Town of Lapeer is estimated to have had approximately eleven percent growth. However, the estimated population change from 2000 to 2005 was a loss of 3 persons. Similarly, the Town of Harford was estimated to have lost 5 persons. The estimates indicate a stable population.

Changes in housing units for the towns along the Project routes were also assessed to identify potential future land use conflicts. As shown in Table 4.8-7, the number of housing units also increased town wide in each of the three municipalities crossed by the Project.

Table 4.8-7 Housing Units

Municipality	Total Housing Units*		1990 - 2000	
	1990	2000	+/- Change	% Change
Tompkins County				
Dryden	**5,362**	**5,781**	**419+**	**7.8%**
Cortland County				
Harford	**328**	**363**	**35+**	**10.7%**
Lapeer	**232**	**269**	**37+**	**15.9%**

* Reference: U.S. Census of Population 1990, 2000; U.S. Bureau of Census

The Project routes traverse sparsely developed areas of two counties. Population in these areas is scattered and at low densities except within villages and hamlets, which are not crossed by the Project corridor. Short segments of the Project corridors (new 115 kV line, Line 947 upgrade, as well as the overlapping segment) are located approximately ¾ mile south of the Village of Dryden boundary. In this area, the line crosses through and in the vicinity of existing residential subdivision developments, which are more that ten years old and nearly built out. In this area the Project will remain within the existing rights-of–way and is not anticipated to conflict with the existing residential land uses. Limited impacts may result from the addition of new structures and 12.5 or 25 feet of right-of-way in this area.

Based on available census data, population and housing unit growth in the towns crossed by the proposed routes is not expected to increase significantly from current levels. Therefore, it is not anticipated that growth and development will occur at levels that cause significant future land use conflicts with the proposed Project. The use of existing right-of-ways also will avoid future land use conflicts. Similarly, modifications to equipment within the Etna, State Street and Wright Avenue Substations will not cause future land use conflicts since the modifications will be contained within the existing fenced area (Etna) or will require only minor expansions of the existing fence line (State Street and Wright Avenue).

4.9 VISUAL IMPACT ANALYSIS

This section addresses the potential visual impact of the proposed Project. This visual impact analysis is based on NYSEG's assessments of the surrounding area's landscape, the exposure of the proposed facility to the public, and the Project's potential visibility. Please refer to Figures 4-4A through 4-4K for an aerial view of the Project planned for Tompkins and Cortland counties. The equipment modifications to the State Street and Wright Avenue Substations in the City of Auburn will not have a significant adverse visual impact since they will only require a minor expansion of the existing fenced areas.

The overall Project area is predominantly rural and is characterized by successional old field, shrubland and forest, mature forest and conifer plantations, and agricultural land. The Project would be constructed along existing overhead electric transmission line corridors. The route for the new 115 kV line along the Line 945 right-of-way east of the county line (Line 524 split) would require widening of existing right-of-way by 47.5 feet. An additional 1,200 feet of right-of-way will be widened in the combined Lines 945/947 right-of-way between the NYSEG district office on Route 13 and the Line 523 join approximately 1,200 feet to the east (Figure 4-4A). In order to rebuild Line 947, sections with 100-foot wide right-of-way will need to be widened to 125 feet and some sections of existing 125-foot right-of-way will need to be widened to 137.5 feet. The widening of right-of-way would primarily impact secondary forest and farmland. The clearing of forestland will have long-lasting impacts while impacts to farm land will be generally temporary. The remaining impact would be on abandoned farmland undergoing plant community succession, the process where abandoned or cleared land is slowly reverting to forest.

These impacts will likely have minimal exposure to the public. State Route 38 (Dryden-Harford Road) is the only major road intersecting the Project corridors. The widening of Line 947 by 12.5 feet on each side of the right-of-way would be a minor visual impact in a pre-existing right-of-way. Minor roads intersecting the Project corridors include, from west to east: Mineah Road, Ringwood Road, Yellow Barn Road, Tehan Road, Irish Settlement Road, Kimberly Drive, Lake Road, Southworth Road, Daisy Hollow Road, Adams Road, Hilsinger Road, Babcock Hollow

Road, Quail Hollow Road and Clarks Corners Road. Except at close range, the widening of right-of-way through forest and successional plant communities would barely be perceptible. The existing power line corridors and associated right-of-way have been a part of the visual landscape for over 50 years. While driving down these local roads, the views of the right-of-way are often obstructed by low and residential vegetation and actually visible for only a glimpse.

The rebuilding of Line 947 will take place within the existing 150-foot existing transmission line right-of-way, with limited exceptions: (1.) where the 100-foot right-of-way will need to be enlarged to 125-feet wide and (2.) where the 125–foot right-of-way will need to be enlarged to 137.5-feet wide in order to safely accommodate the line. The new construction will be H-frame, single circuit construction, as is the existing line. The structures will be designed and framed to accommodate the proposed larger and heavier conductors. The structures will have the same basic span spacing as the existing line. The difference between the existing line and the replacement line will be insignificant to passersby on local roads. The only significant visual impacts will occur during construction, and these impacts will be temporary.

The new Lapeer Substation will be constructed on approximately 6.5 acres of an existing Christmas tree farm located immediately adjacent to the Lapeer Switching Station. Although some visual impacts will occur at this site, they will be tempered because of the existing Switching Yard.

As indicated in Section 4.8 of this exhibit, no designated scenic overlooks are located along the Project corridor in Tompkins County. Although no such data was readily available for Cortland County, the September 2006 site walkover did not identify any potential designated scenic areas along the Cortland County portion of the Project corridor.

The overall visual impact of the proposed will be low. The majority of the Project will take place in existing right-of-way and the rebuilt and new structures and lines will be similar to the existing structures and lines. The new 115 kV line will be constructed along the existing Line 945 right-of-way. Much of the right-of-way expansion will be located behind hilltops or in forested areas, which significantly restrict or limit visibility. Visibility of the right-of-way from roads will be tempered by distance and intervening topography and vegetation. The existing

right-of-way has been visible to local residents for over 50 years. Substation improvements will occur at existing facilities.

4.10 SUBSTATION FACILITIES

At the eastern end of the Project, a new 345/115 kV substation will be constructed adjacent to the existing NYSEG-owned Lapeer Switching Station with the high side connecting to NYSEG/National Grid Oakdale-Lafayette 345 kV Line 36. The new substation will consist of two 345/115 kV, 200 MVA, LTC transformers, a 345 kV ring bus and a 115 kV ring bus. Approximately 6.5 acres of land immediately south-southwest of the existing Switching Station will be acquired for the new substation. The land is currently used as a Christmas tree farm.

At the western end of the Project, the existing NYSEG Etna Substation will be modified to adequately accept the new 115 kV line from the proposed Lapeer Substation. These modifications will be completed within the existing facility. In addition, modifications to equipment at the State Street and Wright Avenue Substations in the City of Auburn will be required to improve system power factor. These modifications will require the State Street Substation be expanded 40 by 80 feet and the Wright Avenue Substation be expanded 60 by 120 feet to accommodate additional electrical equipment.

POTENTIAL IMPACTS

There are a number of potential effects to cultural resources to be assessed, including direct and indirect impacts from construction activities, impacts to historic and cultural properties, as well as issues concerning impacts to the viewscape.

Archaeological sites are adversely affected by activities that disturb the ground. The proposed improvements to the NYSEG transmission lines will include activities with potential adverse effects, such as demolition and construction of transmission towers, operating heavy machinery, and expansion of the Project ROW. Impacts to potential archaeological deposits may occur within tower construction footprints, staging areas, access roads, and in the clearing of vegetation along the Project ROW.

In addition to the potential impacts to archaeological resources, reconstruction of existing transmission lines and construction of new lines will introduce elements into the existing viewshed. Any aboveground resources listed on or eligible for the National Register of Historic Places need to assessed for visual effects caused by the new lines and towers.

Based on the data collected at the New York State Historic Preservation Office and standard settlement and land-use models, the probability of locating archaeological resources within the Project area is, in part, dictated by the types of settings that will be disturbed during construction (Table 4). Characteristics of settings favorable to prehistoric habitation generally include relatively level terrain, well-drained soil, and proximity to a source of water.

Table 4 Predictive Model for Locating Prehistoric Sites within the Proposed ROW

Probability	Setting	Types of Sites
High	Well-drained areas adjacent accessible sources of water.	Occupation Sites
Moderate	Uplands in proximity to water source / lithic outcrops	Seasonal occupation and resource procurement camps
Low	Upland benches or saddles away from water source / sloping or broken terrain	Small scale ephemeral camps and procurement sites

The section of the ROW from Route 13 to Route 38 is characterized as moderate to steeply sloping terrain. Several small-order streams drain the uplands, and a number of upland seeps or springheads were also encountered. Most of this section fits criteria for low potential for archaeological resources, with the exception of the stream crossings and level ground in the vicinity of springheads, which have moderate potential to contain archaeological deposits.

The section of ROW where the lines converge, located between Route 38 and Carpenter Hill Road, is considered to have high probability for encountering archaeological resources. This area is characterized by relatively level terrain with large wetlands, a lake, and several streams. Prehistoric resources have been identified in this area. These sites include two stray finds and a Woodland period occupation, the Dryden Lake Site.

From the mountaintop at Carpenter Hill Road moving east to the substation at Lapeer, the terrain consists of steep uplands dissected by perennial stream valleys. The steeply sloped uplands

possess low potential for containing resources, but there are areas of moderate and high potential. The bench formations and upland saddles—level areas between two knoll tops—have low to moderate potential depending on their proximity to a water supply. The meandering floodplains in the stream valleys have moderate to high potential for encountering archaeological resources.

Historic cultural resources follow a slightly different model based on proximity to transportation routes and population centers (Table 5). In the low potential areas, terrain and proximity to water may factor into the location of occupations and other types of sites, but in more densely settled areas, terrain modification and development of utilities might be utilized to expand settlement into marginal areas.

Table 5 Predictive Model for Locating Historic Sites within the Proposed ROW

Potential	Setting	Types of sites
High	Towns and urban centers at junctions of major transportation routes and waterways	Commercial, industrial, and residential sites
Moderate	Crossroads with nascent town development	Agricultural hamlets predominantly residential
Low	Secondary roads sparsely settled stream valleys	Farmsteads and associated outbuildings

Most of the historic development encountered within the Project area occurs along established roadways. One potential historic archaeological site was encountered along Babcock Hollow Road at the crossing of the 947 line. The site consists of a farmstead with extant outbuildings. Only three small outbuildings remain to mark the site. The primary structure has been demolished.

The Project has the potential to have an effect on aboveground historic resources. Installation of new lines and towers, as well as the extension of existing towers, has the potential to impact the viewshed of National Register eligible and listed properties. As noted earlier, the bulk of the Project area has not been surveyed for historic aboveground resources. The preliminary site visit revealed a range of structures from new construction to nineteenth-century farmsteads in close proximity to the existing ROW. Visual effects upon individual historic resources cannot be determined until the exact location and design of the construction is known. However, it can be noted that the village of Dryden includes a concentration of buildings that are listed on the National Register of Historic Places and should be avoided (see Figure 1).

CONCLUSION

Background research and a reconnaissance survey of the Project corridor revealed previously identified historic and archaeological resources, as well as areas with high potential for containing cultural resources. Avoiding these areas and resources may help minimize effects upon cultural resources in the corridor. More intensive surveys are recommended if finalized design plans indicate that construction activates will occur within high-potential areas or known locations of cultural resources.

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EXHIBIT 5

DESIGN DRAWINGS

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT 5

DESIGN DRAWINGS (16 NYCRR §86.6)

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EXHIBIT 7

LOCAL ORDINANCES

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT 7

LOCAL ORDINANCES

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EXHIBIT 7

LOCAL ORDINANCES

This exhibit addresses the requirements of 16 NYCRR §86.8.

7.0 LOCAL ORDINANCES

The proposed project includes the expansion of NYSEG's Lapeer Substation to include two 345 kV to 115 kV transformers and connection to an existing 345 kV line, the reconstruction of an existing 115 kV transmission line, and the construction of a new 115 kV transmission line. This project will pass through the Towns of Lapeer, Harford and Dryden in the State of New York. Included in this project will be the upgrade and enhancement of two substations located in the City of Auburn, New York.

The Town of Lapeer has no local zoning ordinances or zoning regulations. However the Towns of Dryden and Harford and the City of Auburn do have zoning ordinances and regulations applicable to the proposed project.

7.1 TOWN OF DRYDEN ZONING ORDINANCE AND LOCAL LAWS

The following sections of the Town of Dryden zoning ordinance were reviewed for applicability:

Article V: General Provisions

Section 500 (5): Public utilities facilities (including electric, gas, telephone, and TV cable) and necessary appurtenances thereto, shall be allowed uses in all zones. Public utility substations shall be allowed uses in the M-A Zone and shall be allowed uses by special permit in all other zones.

Article VII: District Regulations R-B (Low Density Residential) Zones

The Low Density Residential Zone allows public utility structures in this district with a special permit. As such, the transmission lines may be prohibited from being constructed. Since this prohibition would be unreasonably restrictive, a waiver is requested.

Article VII-A: District Regulations R-B-1 (Low Density Agricultural-Residential) Zones

The Low Density Agricultural Residential Zone allows public utility structures in this district with a special use. As such, the transmission lines may be prohibited from being constructed. Since this prohibition would be unreasonably restrictive, a waiver is requested.

Article VIII: District Regulations R-C (Moderate Density Agricultural-Residential) Zones

The Moderate Density Agricultural Residential Zone allows public utility structures as being permitted in this district with a special permit. As such, the transmission lines may be prohibited from being constructed. Since this prohibition would be unreasonably restrictive, a waiver is requested.

Article XII: District Regulations M-A (Manufacturing and Assembly) Zones

The project crosses this zone, which allows for public utilities facilities to be located here.

Article XIII: Special Permits

The project is allowed in all zones outside of the Manufacturing and Assembly Zone with a special permit. As such, the transmission lines may be prohibited from being constructed. Since this prohibition would be unreasonably restrictive, a waiver is requested.

The Town of Dryden Traffic Ordinance (1988) was also reviewed for applicability:

Section 4 Traffic Ordinance:

The Town of Dryden may exclude any vehicle with a gross weight of more than four tons from the Town Highways outside of the Villages of Dryden and Freeville. The operator of such vehicles may apply for a permit exempting such a vehicle from these restrictions. The decision on any exemption permit is discretionary and if permits are denied, the construction of transmission lines could be made much more difficult without the use of large construction vehicles. Since this prohibition would be unreasonably restrictive, a waiver is requested.

The Town of Dryden Local Laws were also reviewed for applicability. The following local laws may be applicable to the project:

Article XVIII of the Local Laws of the Town of Dryden Building Permit:

The Town of Dryden requires building permits for construction of new structures and requires that all work be performed in accordance with Article XVIII. Article XVIII does not require a building permit for structural repairs that do not affect structural elements. The requirement of a building permit for construction in accordance with Article XVIII could cause unnecessary delays in the completion of the project. Since this provision would be unreasonably restrictive, a

waiver is requested.

Article XVIII: Certificate of Completion

The Town of Dryden requires that a Certificate of Completion be obtained for any structure that requires a building permit. The rule does not allow any "use" of the structure until such a certificate is obtained. The requirement of a Certificate of Completion could cause unnecessary delays in the completion of the project. Since this provision would be unreasonably restrictive, a waiver is requested.

Article XVIII: Inspections

The Town of Dryden may require the Applicant to hire, at its own expense, a third-party inspector acceptable to the Town of Dryden. It is likely that the Public Service Commission will have its own inspection process and duplicating this process could result in opposing conclusions from inspectors and lead to delays and costs. Since this provision would be unreasonably restrictive, a waiver is requested.

7.2 TOWN OF HARFORD LAND USE ORDINANCE

The following sections of the Town of Harford land use ordinance were reviewed for applicability:

Section 8: Agricultural District

The Agricultural District provision does not specifically list public utility structures as being permitted in this district. As such, the transmission lines may be prohibited from being constructed. Since this prohibition would be unreasonably restrictive, a waiver is requested.

Section 9: Residential District (R-1)

The zoning laws of the Town of Harford require that site plans be reviewed for proposed structures in residential districts. A review that results in an approval with modifications or disapproval would be unreasonably restrictive and, therefore, a waiver is requested.

Section 10: Residential District (R-2)

Similar to Section 9, the zoning laws of the Town of Harford require that site plans be reviewed for proposed structures in residential districts. A review that results in an approval with modifications or disapproval would be unreasonably restrictive and, therefore, a waiver is requested.

Section 11: Neighborhood Business District

The zoning laws of the Town of Harford prohibit transmission structures in neighborhood business districts. While it is unlikely that the project would traverse such zoning districts, this potential prohibition would be unreasonably restrictive if it does apply and therefore a waiver is requested.

Section 12: Planned Development Districts

The zoning laws of the Town of Harford do not allow unapproved construction in Planned Development Districts. While it is unlikely that the project would traverse such districts, this potential prohibition would be unreasonably restrictive if it does apply and therefore a waiver is requested.

Section 15: Additional Regulations

The Town of Harford has a regulation regarding the installation of electric distribution facilities. However, this does not impact the project as the project consists of the transmission of electricity, not the distribution of electricity.

Section 16: Application, Plans, and Approval for Site Plan Review

The Town of Harford requires a site plan review initiated by a submittal to the Town Code Enforcement Officer and followed by the Town Planning Board review. The Town Planning Board would have the power to approve, approve with modifications, or disapprove the presented site plan. Since NYSEG's proposed transmission construction could be prohibited via site plan review, this potential prohibition would be unreasonably restrictive and a waiver is requested.

7.3 CITY OF AUBURN ZONING ORDINANCE

The following sections of the City of Auburn Zoning Ordinance were reviewed for applicability:

Article I: General Provisions: §305-3(D) Applicability; scope

Exceptions. Routine maintenance of existing structures and the following essential utility uses are exempt from the provisions of this chapter: poles, wires, cables, conduits, vaults, laterals, pipes, mains, valves or any other similar equipment, **but not including substations located on or above the surface of the ground,** for the distribution to consumers of telephone, cable television or other communications, **electricity**, gas or water or for the collection of sewage or surface water (emphasis added).

Article II: §305-13(C) Site Plan Review

The City of Auburn, through its Planning Board, requires site plan review for expansion to existing structures by more than 25% of current square footage. Thus, if the proposed expansion of the two substations exceeds this threshold, site plan review would be required, and the Planning Board would have the power to approve or disapprove the presented site plan. Since NYSEG's proposed substation expansion and upgrades could be disapproved via site plan review, this potential disapproval would be unreasonably restrictive and a waiver is requested.

Article VII: § 305-54 General Industrial District (I)

The two substations are located in the General Industrial District. There are no apparent restrictions regarding expansion of substations within this zone and, therefore, no zoning-related requirements are anticipated.

Other than for the local legal provisions from which NYSEG has requested waivers, as set forth

above, the facility as proposed conforms to all local legal provisions. NYSEG requests that the Commission refuse to apply the ordinances from which waivers have been requested, because, as applied to the facility, such local legal provisions are unreasonably restrictive in view of existing technology, factors of costs or economics and the needs of consumers. NYSEG's requests for waivers are the minimum requests necessary to allow the facility to be constructed at a reasonable cost and with the minimum environmental impact, considering the limits of technology. The Dryden ordinance that could prevent NYSEG from using a vehicle with a gross weight over four tons could require the development of special equipment for construction in Dryden, which would be unreasonably costly. The facility, to the maximum extent possible, utilizes existing transmission corridors and existing substation sites, and those ordinances that would directly bar the facility from being constructed or allow a municipality to decide to bar construction could be applied to require that new corridors be opened for the facility or that substations be constructed on new sites, which would unreasonably increase the impact of the facility. Enforcement of those ordinances that would require a municipal permit for the facility would be contrary to Public Service Law Section 130, which bars any municipality from requiring approval or consent for the construction of a facility certified under Article VII of the Public Service Law.

EXHIBIT 9

COST OF PROPOSED FACILITIES

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT 9

COST OF PROPOSED FACILITIES

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EXHIBIT 9

COST OF PROPOSED FACILITIES

This Exhibit addresses the requirements of 16 NYCRR §86.10.

9.1 BASIS OF COST ESTIMATES

The basis of cost estimates set forth in this exhibit is as follows:

- Land acquisition, clearing, restoration, and construction labor costs are based on experience with similar projects and knowledge of the project area.
- Material costs are based on catalog prices, manufacturers' quotations, and actual purchase prices of specific items used for previous projects.
- Costs have been escalated by anticipated inflation rates.
- Costs for general engineering and supervision, construction accounting overheads, planning overheads, tools and work equipment, indirect payroll, stores expenses, and allowance for funds used during construction (AFDC) are based on the current NYSEG rates for capitalizing overheads on construction work orders. The costs for technical services, certification, and contingencies are based on NYSEG's experience with other projects.
- All costs are based on a 2011 in-service date.
- Preliminary bids have not been solicited for this project.
- The existing grounding systems for the Etna, State Street, and Wright Avenue Substations are assumed to meet current IEEE grounding standards.

9.2 PROJECT COSTS

RIGHT-OF-WAY

Payments to Property Owners (includes Substation Site)	$262,000
Clearing and Chemical Treatment	$318,000
Access Road Construction	$134,000
Restoration	$425,000
Total Right-of-Way Costs	**$1,139,000**

MATERIAL

TRANSMISSION:

Wood Structures	$3,198,000
Conductor, Overhead Ground Wire, & Hardware	$1,890,000
Sales Tax	$408,000
Stores	$255,000
Total Transmission Material	**$5,751,000**

SUBSTATIONS:

Etna	$563,000
Lapeer	$10,594,000
State Street	$598,000
Wright Avenue	$567,000
Sales Tax	$986,000
Stores	$617,000
Total Substation Material	**$13,925,000**

TOTAL MATERIAL COSTS		**$19,676,000**

LABOR, TRANSPORTATION & EQUIPMENT & INDIRECT PAYROLL (INSTALLATION)

TRANSMISSION:

Wood Structures	$2,067,000
Conductor, Overhead Ground Wire & Hardware	$2,897,000
Total Transmission Labor	**$4,964,000**

SUBSTATION:

Etna	$642,000
Lapeer	$5,409,000
State Street	$175,000
Wright Avenue	$168,000
Total Substation Labor	**$6,394,000**

TOTAL LABOR (INSTALLATION) COSTS	**$11,358,000**	
OVERHEADS & CONTINGENCIES INCLUDING FIELD SUPERVISION		**$14,477,000**
LABOR		**$502,000**
SURVEY COSTS		**$125,000**
DIRECT ENGINEERING AND LEGAL FEES		**$6,433,000**
ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION		**$8,792,000**
TOTAL PROJECT COST	**$62,500,000**	

EXHIBIT E-2

OTHER FACILITIES

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT E-2

OTHER FACILITIES

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EXHIBIT E-2

OTHER FACILITIES

This exhibit has been prepared to address 16 NYCRR §88.2.

E-2.1 OTHER FACILITIES

This exhibit describes the proposed modifications to the Etna, State Street, and Wright Avenue 115 kV – 34.5 kV Substations, dismantling of the Lapeer Switching Station, and construction of a new 345 - 115 kV substation near the existing Lapeer Switching Station. Currently, existing Line 945 enters the existing Lapeer Switching Station. After the proposed modifications, Line 945 will bypass the new Lapeer Substation and will continue to serve the Willet and East Norwich Substations. The rebuilt Line 947 and the new 115 kV line from the Etna Substation will terminate at the new Lapeer Substation. Line 947 will exit the new Lapeer Substation on the existing right-of-way to the Tuller Hill Substation.

At the Etna Substation, the existing Line 947 terminal will be modified and a new terminal will be added for the new 115kV line. In addition, new equipment and/or modifications to existing equipment will be required at the State Street and Wright Avenue Substations located in the City of Auburn. New switched capacitor banks (115 kV, 50 MVAR) will be installed at the State Street and Wright Avenue Substations to improve system power factor. The existing buswork on the 972 line terminal at the State Street Substation will also need to be upgraded. The modifications at the Etna Substation will be within the existing substation fence line. The modifications at the State Street and Wright Avenue Substations will require minor expansions of the substation fence line, but will remain with the existing property lines.

E-2.2 ETNA SUBSTATION

As a part of the Ithaca Transmission Project, NYSEG plans to modify the existing Etna Substation. The existing Line 947 terminal will be modified to handle the increased capacity of the rebuilt 947 Line. Modifications will consist of upgraded replacements for existing disconnect switches and associated components. A new 115 kV line terminal will be added to the existing substation. The new terminal will include a breaker, disconnect switches, arresters, potential transformers (PTs), a wave trap, and related miscellaneous equipment and components. This new terminal will connect to the existing 115 kV station bus. The proposed modifications will be contained within the fenced area of the substation.

The existing control house will be modified to support the rebuilt Line 947 and the new 115 kV line. The existing electro-mechanical protective relay breaker/line panel for Line 947 will be replaced with two new panels, one for primary protection and one for secondary protection of Line 947. Two new breaker/line panels will be installed in the existing control house for the new line.

The existing remote terminal unit (RTU) will be modified to add status and control functions for the new line. A new communications rack will be installed in the existing control house for station-to-station communications. Proposed plans for this substation are illustrated on Figures E-2-1, E-2-2, and E-2-3.

E-2.3 EXISTING LAPEER SWITCHING STATION

NYSEG plans to dismantle the existing NYSEG Lapeer Switching Station following construction of the new Lapeer Substation.

E-2.4 NEW LAPEER SUBSTATION

NYSEG proposes to construct a new 345 kV to 115 kV substation in the Town of Lapeer, Cortland County. The new facility, named Lapeer Substation, will be constructed, owned, operated, and maintained by NYSEG. The substation is proposed to be located south of the existing NYSEG Lapeer Switching Station, and west of the Lafayette – Oakdale 345 kV transmission line. The existing Lafayette – Oakdale Line 36 345 kV line; the Etna – Lapeer, Line 947 115 kV line; the Tuller Hill - Lapeer Line No. 947 115 kV line; and the new Etna – Lapeer 115 kV line will be connected to the new Lapeer Substation. Following certification of the project, NYSEG will submit, for Public Service Commission approval, a change to its Environmental Management and Construction Plan (PSC Case 26482) for the construction of transmission facilities to connect the Lafayette – Oakdale Line 36 345 kV transmission line to the substation.

It will be necessary to acquire, clear cut and grade about six and a half acres for the new substation. The substation will consist of a fenced area of about six acres that will be covered with crushed stone. Inside the fence will be electrical transformers, breakers, switches, capacitor, and protection equipment mounted on concrete foundations, a control house containing protective relaying, DC systems, remote monitoring and communications systems, and 345 kV and 115 kV terminal structures. The tallest terminal structures in the substation will reach about 103 feet.

Each 345 kV terminal will be equipped with line disconnect switches and will feed a four breaker, 345kV ring bus configuration. The other 345 kV ring bus will be designed to feed two 120/160/200(224) MVA, 345 kV-115 kV LTC transformers. The transformer low sides will feed a six-breaker 115kV ring bus. The new 115kV line, the rebuilt Line 947 from Etna, the existing Line 947 from Tuller Hill and the 115kV 50 MVar capacitor bank will be connected to this 115kV bus. The transformer, each breaker, and each terminal will have appropriate disconnect switches. A gravel access road will also be installed from Clarks Corners Road into the substation. The access road will be about 0.3-mile long and have a road surface width of about 16 feet. Plans for this substation are illustrated on Figures E-2-4 thru E-2-8. The locations

of the substation site and access road are shown on Figure E-2-5.

E-2.5 EXISTING STATE STREET SUBSTATION

As a part of the Ithaca Transmission Project, NYSEG plans to modify the existing NYSEG State Street Substation located in the City of Auburn in Cayuga County. A new 115 kV bay will be added, which will include installation of breakers, disconnect switches, arresters, PTs, and related miscellaneous equipment and components. The new 115 kV bay will connect to the new 50 MVA, 115 kV capacitor bank. To accommodate this work, the existing fence will be expanded approximately 40' x 80' within NYSEG's property

Proposed plans for this substation are illustrated on Figures E-2-9, E-2-10 and E-2-11.

E-2.6 EXISTING WRIGHT AVENUE SUBSTATION

As a part of the Ithaca Transmission Project, NYSEG plans to modify the existing NYSEG Wright Avenue Substation located in the City of Auburn in Cayuga County. A new 115 kV bay will be added, which will include installation of breakers, disconnect switches, arresters, PTs, and related miscellaneous equipment and components. The new 115 kV bay will connect to the new 50 MVA, 115 kV capacitor bank. To accommodate this work, the existing fence will be expanded approximately 60' x 120' within NYSEG's property.

Proposed plans for this substation are illustrated on Figures E-2-12, E-2-13 and E-2-14.

APPLICATION TO

THE STATE OF NEW YORK PUBLIC SERVICE COMMISSION

FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

ITHACA TRANSMISSION PROJECT

Prepared for:

NEW YORK ELECTRIC & GAS CORPORATION

Prepared by:

URS Corporation
77 Goodell Street
Buffalo, NY 14203

OCTOBER 2006

G4209A

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

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EXECUTIVE SUMMARY

Project Overview

Ordering Clause 9 of the New York Public Service Commission's Order Adopting Recommended Decision with Modifications in Case 05-E-1222 requires New York State Electric & Gas Corporation (NYSEG) to submit all the governmental and regulatory filings for the Ithaca Transmission Project within 60 days of the Commission's Order issued on August 23, 2006. To comply with this ordering clause, NYSEG is submitting this Application for a Certificate of Environmental Compatibility and Public Need pursuant to Article VII of the New York State Public Service Law (PSL) for a new approximately 15-mile 115-kilovolt (kV) electric transmission line from the existing Etna Substation in the Town of Dryden in Tompkins County to a new substation in the Town of Lapeer in Cortland County. The Project would also include rebuilding of 14.8 miles of existing 115 kV Line 947, modifications to the Etna Substation to accommodate connection to the new 115 kV line, and construction of a new Lapeer Substation near the site of the existing Lapeer Switching Station. Sections of new right-of-way will need to be acquired along the existing corridors for both new line construction and for the rebuilding of Line 947. In addition, approximately seven acres of land adjacent to the existing Lapeer Switching Station will be obtained for construction of the new Lapeer Substation. The Project is located in the Town of Dryden in Tompkins County, and the Towns of Harford and Lapeer in Cortland County.

The electric transmission system that supplies Ithaca, New York and the surrounding area is currently dependent on nearby power generation resources to be available and operating to ensure reliable service for the area's load. Ordering Clause 9 of the Public Service Commission's August 23, 2006, Order in Case 05-E-1222 requires NYSEG to submit all the governmental and regulatory filings necessary to eliminate the load pocket conditions currently prevailing in Ithaca, New York.

This Application and accompanying Exhibits describe the proposed Project, the purpose and need for the Project, environmental impact studies conducted in support of the

Project, Project costs, and Project routing alternatives. The preferred alternative is based on engineering efficiency, cost, and minimizing impact to the environment including State Forest land.

Copies of this Application are being sent to the following State agencies:

- New York State Department of Environmental Conservation.
- Department of Economic Development.
- Department of Agriculture and Markets.
- Department of State.
- Department of Transportation.
- Office of Parks, Recreation and Historic Preservation.

Copies are also being sent to State legislators whose districts are crossed by the Project; Supervisors of the Towns of Dryden, Harford and Lapeer; and the County Administrators of Tompkins and Cortland Counties. Local public libraries will be provided copies of the Application and all subsequent Project documentation will be made available for public review.

Environmental Studies

NYSEG conducted a number of studies to determine environmental conditions along the Project and to evaluate potential impacts of the Project on the environment. The results of these studies are summarized below.

Cultural Resources: The Phase IA assessment background research and reconnaissance survey of the Project corridor identified previously designated historic and archaeological resources as well as areas with high potential for containing cultural resources. Avoiding these areas and resources would minimize impacts on cultural resources in the Project area.

More intensive surveys are recommended if finalized design plans indicate that construction activities will occur within high-potential areas or known locations of cultural resources.

Land Use: Based on an analysis of adopted plans and discussions with municipal planning representatives, it is NYSEG's opinion that, because of the stable nature of land use patterns in the Project area, improvements to Line 947 and construction of the new 115 kV line and Lapeer Substation will not adversely affect future land use patterns.

Topography and Soils: The potential for erosion during construction in some areas of the Project could impact soils. In order to mitigate impacts to site soils, best management practices will be employed to control surface runoff and minimize erosion potential. Leaving as much ground cover and brush as intact as possible will also help mitigate potential erosion. As soil disturbance will be limited and surface runoff controlled and mitigated, NYSEG believes that permanent construction impacts on soil will be minimal. All agricultural soils disturbed during construction will be restored and the only permanent impacts will be the new structures required for the new 115 kV line.

Terrestrial Ecology and Aquatic Resources: Impacts to terrestrial wildlife will result from Project construction, right-of-way expansion and maintenance operations. These impacts are generally temporary. The degree of impact will depend on the amount of clearing required and on the quality and variety of wildlife habitat adjacent to the right-of-way. The types of habitats that will be impacted -- primarily secondary forest, successional old field plant communities, and agricultural land (primarily hayfield) -- are common in the Project area, as are the animals that inhabit them.

Although plant communities along the right-of-way will experience varying degrees of impact, it is NYSEG's opinion that the Project will not adversely affect wildlife populations in the Project area. No Federal or State rare, threatened or endangered species are known to exist along the Project. Certain State endangered, threatened and special concern bird species may occasionally pass through the Project area, especially during spring and fall migration. It is unlikely the Project would impact these species.

The Project will cross fourteen tributaries and subtributaries of Fall Creek and seven tributaries and subtributaries to Owego Creek. All of the streams will be spanned by the power lines. Necessary stream crossing permits will be obtained from the U.S. Army Corps of Engineers.

Approximately 3,150 feet of wetland will be crossed by the Project: 1,000 feet along Line 947, 950 feet along Line 945, and 1,200 feet along the combined Lines 945/947 corridors. Efforts will be made to minimize the number of structures placed in wetlands. Where unavoidable, the wetlands will be crossed by heavy equipment during the installation of the new 115kV line and during the rebuilding of Line 947. Wetland crossing permits will be obtained from the U.S. Army Corps of Engineers (Nationwide permits) prior to construction.

Visual Resources: The overall visual impact of the proposed Project will be low. Line 947 will be rebuilt in the existing right-of-way and the rebuilt structures and lines will be visually similar to the existing structures and lines. The new 115 kV line will be constructed along the existing right-of-way, and the existing rights-of-way have been visible to local residents for well over 50 years. Expansions of sections of right-of-way will be required to accommodate building of the new line and rebuilding of Line 947. Much of the right-of-way expansion will be located behind hilltops or in forested areas, which significantly restrict or limit visibility. Visibility of the right-of-way from roads will be tempered by distance and intervening topography and vegetation. Substation improvements will occur at or adjacent to existing facilities.

Conclusion

The proposed improvements will eliminate the load pocket conditions currently prevailing in Ithaca and reinforce the NYSEG Ithaca transmission system to adequately and reliably provide electricity to the public serviced by the system.

The Project will comply with all the substantive requirements of all applicable local laws, rules and regulations with the exception of specified local laws and regulations set forth

in the Application for which waivers have been requested from the Public Service Commission.

Application Organization

The Application is provided in one volume and is organized as follows.

Application: The Application is comprised of six sections including a description of the Project, a statement of the location of the Project and right-of-ways, a summary and description of environmental impact studies, a statement explaining the need for the Project, and a description of Project alternatives. The application also includes a motion for waiver of required information.

Exhibit 1, General Information Regarding Application (16 NYCRR §86.2): This exhibit provides the name, address and telephone number of the applicant.

Exhibit 2, Location of Facilities (16 NYCRR §86.3): This exhibit provides detailed maps showing the routes or the Project transmission facilities and locations of the substation sites.

Exhibit 3, Alternatives (16 NYCRR §86.4): This exhibit provides a discussion of alternative transmission line technologies, routing alternatives, right-of-way alternatives, and electric alternatives.

Exhibit 4, Environmental Impact Studies (16 NYCRR §86.5): This exhibit provides detailed analysis of the potential effects of the Project on all environmental and cultural resources including topography, geology, soils, vegetation, wildlife resources, aquatic resources including streams, wetlands and hydrology, land uses, agricultural resources, scenic and visual resources, recreation resources, and archaeological and historic resources.

Exhibit 5, Design Drawings (16 NYCRR §86.6): This exhibit presents the design drawings and profiles of the Project's transmission and substation components.

Exhibit 6, Economic Effects of Proposed Facility (16 NYCRR §86.7): This exhibit provides an assessment of the potential economic effects of land use changes resulting from the construction and operation of the Project.

Exhibit 7, Local Ordinances (16 NYCRR §86.8): This exhibit provides an identification of applicable local ordinances, and justification for any requested waivers.

Exhibit 8, Other Pending Filings (16 NYCRR §86.9): This exhibit provides a statement that there are no other pending filings with governmental departments or agencies that concern the subject matter of the Project.

Exhibit 9, Cost of Proposed Facilities (16 NYCRR §86.10): This exhibit provides a statement regarding Project costs.

Exhibit E-1, Overview of Current and Proposed Facilities (16 NYCRR §88.1): This exhibit provides a detailed description of the existing and proposed facilities comprising the Project.

Exhibit E-2, Other Facilities (16 NYCRR §88.1): This exhibit provides a discussion of other facilities including those associated with the proposed substation improvements.

Exhibit E-3, Underground Construction (16 NYCRR §88.3): This exhibit provides a statement that the Project does not include construction of any underground facilities.

Exhibit E-4, Engineering Justification (16 NYCRR §88.4): This exhibit provides the engineering justification for the Project, and discusses the need and benefits of the Project.

Exhibit E-5, Effect on Communications (16 NYCRR §88.5): This exhibit provides a statement describing the anticipated affects the Project and related equipment will have on communication systems.

Exhibit E-6, Effect on Transportation (16 NYCRR §88.6): This exhibit provides a description of the existing transportation system in the Project area and the expected effect on that system.

APPLICATION

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Application of New York State Electric &Gas Corporation pursuant to Article VII of the Public Service Law for a Certificate of Environment Compatibility and Public Need authorizing the construction and operation of electric transmission facilities from the Applicant's Etna Substation in the Town of Dryden, County of Tompkins, New York to the Applicant's Lapeer Substation in the Town of Lapeer, County of Cortland, New York.

Pursuant to Article VII of the Public Service Law, New York State Electric & Gas Corporation (NYSEG), an electric and gas corporation organized and existing under the laws of the State of New York, hereby applies for a Certificate of Environmental Compatibility and Public Need for the construction and operation of the electric transmission and substation facilities described herein.

1.0 DESCRIPTION OF THE PROPOSED FACILITIES (the "Project")

NYSEG is proposing to reinforce its electric transmission system in the Ithaca Division. The proposed plan involves:

1. The Lapeer Substation, a new 345/115 kV substation in the vicinity of the NYSEG's existing Lapeer Switching Station, will be constructed with the high side connecting to the NYSEG/National Grid Oakdale-Lafayette 345 kV Line 36. The new substation will consist of two 345/115 kV, 200 MVA, LTC transformers, a 345 kV ring bus and a 115 kV ring bus.

2. The existing 14.8 mile, 115 kV Line 947 between Etna and Lapeer Substations will be rebuilt with 1277 ACAR conductor. The new construction will be H-frame, single circuit construction, the same as the current line. The structures will be designed and framed to accommodate the proposed larger and heavier conductors. The structures will have the same basic span spacing as the current line.

3. A new 115 kV line will be constructed between the Etna and Lapeer Substations with 1277 ACAR conductor (approximately 15 miles in length). The routing of the new 115 kV line is along the existing right-of-way from Etna to Lapeer, parallel to the existing 115 kV Line 945. The new 115 kV line will exit the south yard of the Etna Substation and will be attached to new H-frame, single circuit structures. The new 115 kV line will proceed eastward for approximately 1,500 feet along the existing right-of-way until the 34.5 kV Line 524 joins the right-of-way from the north. The existing H-frame structures supporting the Line 524 will be removed and a new single pole, double circuit structure will be placed along the centerline of the removed Line 524 structures. The existing Line 524 conductors will be attached to the south side of the new single pole structures. At the Cortland County Line, Line 524 leaves the existing Etna to Lapeer right-of-way and heads south. East of the Cortland County Line, the new 115 kV line will be supported by H-frame, single circuit structures. The new line will be routed south of the existing 115 kV Line 945 along the south side of the existing right-of-way. This design will continue eastward to the Lapeer Substation. Expansion of portions of the existing right-of–way will be necessary. It is estimated that an additional 37.5 feet of the right-of-way will be required in this area.

4. NYSEG's Etna Substation will be modified to accommodate the connection of the new 115 kV line. All work on the Etna Substation will be done within existing fence line such that no substation expansion will be required.

Engineering details of the Project are contained in the attached Exhibits.

2.0 LOCATION OF THE PROPOSED FACILITIES

Figure 2-1 illustrates the Project area within Tompkins and Cortland Counties, which are generally located east of Ithaca, south of Syracuse and northwest of Binghamton, New York.

Figure 2-2 illustrates the specific sections of the NYSEG infrastructure that will be included in this Project as either new facilities or rehabilitation of existing facilities. The majority of the work is located between the Town of Etna in Tompkins County and the Town of Lapeer in Cortland County. The existing Line 947 transmission line illustrated in Figure 2-2 will be

rehabilitated. A new 115 kV transmission line will be constructed along the existing Line 945 right-of-way (ROW). The distance along each of these corridors is approximately 15 miles. Figures 2-2, 2-3, and 2-4 illustrate the Lapeer and Etna Substation locations.

3.0 SUMMARY AND DESCRIPTION OF STUDIES MADE OF THE ENVIRONMENTAL IMPACT OF THE PROPOSED PROJECT

NYSEG conducted a number of studies to determine the potential impact of the proposed Project on environmental and cultural resources in the Project area. A cultural resources study was completed to identify the cultural history of the Project area and to survey the Project corridors for archaeological artifacts. Environmental studies were conducted during site walkovers in late September 2006. The purpose of these studies was to identify land use, streams, water bodies, wetlands, plant communities, wildlife habitat, wildlife and any rare, threatened or endangered species along the Project corridors. The studies and sources of information associated with the studies are described below.

NYSEG engaged URS Corporation (URS) to conduct a Phase IA Cultural Resource Assessment for the Project. The study consisted of a cultural resource literature search and a reconnaissance survey covering a two-mile radius surrounding the Project corridors. Research was conducted at the New York State Historic Preservation Office. As part of the Phase IA assessment, a URS archaeologist conducted a field archaeological assessment of the existing transmission line corridors between September 25 and 27, 2006. A brief inspection of the standing structures adjacent to and within the transmission corridors was preliminarily assessed for potential visual and direct effects from the Project. The Phase IA report characterizes the Prehistoric and Historic context of the Project area. The findings and analysis of the study is presented in Section 4.8 of Exhibit 4. The complete Phase IA report (*Phase IA Cultural Resource Assessment for the Ithaca Reinforcement Project, NYSEG Article 7 Filing, Etna to Lapeer, New York*, October 2006) is placed in Appendix 4-A of Exhibit 4.

Information on topography in the Project area was based on USGS topographic maps and the soil surveys of Tompkins and Cortland Counties. A study of soils crossed by the Project was based on information obtained from the soils surveys. Geologic information was obtained from the USGS website, the New York State Geologic Map and the New York State Surficial Geologic

Map. Climate information was obtained from the Cortland County Industrial Development Agency. The results of the physical resources analysis is presented in Section 4.6 of Exhibit 4.

A study of land use in the Project area was based on information obtained from several sources including site walkovers in September 2006; the Towns of Harford and Dryden land use codes and local laws; Agricultural District maps and USDA Soil Survey maps for Tompkins and Cortland Counties; the Town of Dryden 2005 Comprehensive Plan; the Tompkins County 2004 Comprehensive Plan; the Cortland County 2002 Consolidated Plan; interviews with Tompkins County and Cortland County Planning Directors; the Town of Harford Code Enforcement Officer; the Town of Dryden Code Enforcement Officer; the Town of Harford Planning Board Chairwoman; and the Towns of Harford and Dryden Town Clerks. A land use analysis is presented in Section 4.8 of Exhibit 4.

Information on water resources, vegetation, and wildlife resources was primarily obtained during a walkover of the Project corridors in late September 2006 by two URS senior biologists. During the walkover, stream crossing information was collected, wetlands potentially impacted by the Project were characterized and delineated, plant communities and species composition were noted, and wildlife habitat and species observed were recorded. Other sources of information included the Codes, Rules and Regulations of the State of New York for stream classification and best usage, wildlife range extension maps and preferred habitats, USGS topographic maps, and recent aerial photography from 2002 and 2003. An analysis of potential Project impacts on water resources, vegetation and wildlife resources is presented in Section 4.7 in Exhibit 4.

4.0 NEED FOR THE PROPOSED FACILITIES

The electric transmission system that supplies Ithaca, New York and the surrounding area is currently dependent on nearby power generation resources to be available and operating to ensure reliable service for the area's load. Ordering Clause 9 from the Public Service Commission's Order Adopting Recommended Decision with Modifications in Case 05-E-1222 issued on August 23, 2006, requires NYSEG to submit all the governmental and regulatory filings necessary to eliminate the load pocket conditions currently prevailing in Ithaca, New York. In order to eliminate the transmission limitations in the Ithaca area and maintain adequate

normal and contingency service throughout the Ithaca Division during extended outages (forced or planned) of the AES owned Cayuga Station generating units, NYSEG is proposing to reinforce the electric transmission system in its Ithaca Division. The proposed transmission lines and substation will eliminate the Ithaca Load Pocket condition and will satisfy capacity and voltage requirements by creating a new transmission supply into the Ithaca Division. This additional 115 kV source into the Ithaca area will enable NYSEG to serve electricity from the new 345/115 kV Lapeer Substation to Etna Substation, thereby allowing NYSEG to provide adequate and reliable electric service to all customers in the Ithaca Division during either extended outages (planned or forced) of the Cayuga Station generating units, or in the event that one or both units at Cayuga Station are retired from service. A detailed description of the need for the proposed facilities is given in Exhibit E-4 of this Application.

5.0 PROJECT ALTERNATIVES

Four alternatives were considered for the Project: the no-action alternative; selecting the Line 945 corridor as the route for the new 115 kV line; selecting the Line 947 corridor as the route for the new 115 kV line; and selecting a combination of the existing Line 945 and Line 947 corridors as the route for the new 115 kV line.

The modification of the Etna Substation and the building of the new Lapeer Substation adjacent to the existing Lapeer Switching Station are necessary components for re-enforcing the Ithaca transmission system. No alternatives were considered for these locations because these sites have existing structures and impacts to new land would be minimized. Modifications to the Etna Substation would be performed completely within the existing facility. The majority of the new land to be acquired for constructing the Lapeer Substation is a Christmas tree farm.

The no-action alternative is not a viable alternative because NYSEG has been ordered by the Public Service Commission to proceed promptly and continue to completion without delay or interruption the construction efforts needed to eliminate the Ithaca load pocket. The route selected for the new line is the combined Line 945 and Line 524 corridor between the Etna Substation and the Tompkins-Cortland County Line, and the Line 945 corridor between the County Line and the existing Lapeer Switching Station (Figure 2-2). In the combined Line 945 and Line 524 corridor, the new line would be double-circuited on the existing Line 524 single-

pole structures. Line 524 is a 34.5 kV line. Both Line 945 and Line 947 are 115 kV lines.

The use of the existing Line 524 structures to carry the new line is one of the main reasons this route was selected for the new line. No new right-of-way would need to be obtained. Using the Line 947 corridor would require obtaining additional right-of-way. Obtaining new right-of-way along the western section of the Line 947 corridor would impact approximately 6,300 feet of the Yellow Barn State Forest. For technical reasons, the existing Line 947 structures, which already carry a 115 kV line, cannot be used to carry an additional 115 kV line.

At the County Line, Line 524 turns south and can no longer be used to carry the new line. From the County Line east to the Lapeer Switching Station, the Line 945 corridor would be used for the new line. New H-frame structures would be built to accommodate the new line. Building new structures would require obtaining an additional 37.5 feet of right-of-way along the south side of the existing Line 945 right-of-way in this area. The eastern section of the Line 945 corridor was selected for two reasons: less State Forest would be impacted, and the transition from the combined Line 945 and Line 947 corridor just east of the County Line to the Line 945 corridor would be easier and less costly because of structure and line configurations at the split.

STATEMENT OF OTHER RELEVANT INFORMATION

Exhibit 7 of the Application provides information on local ordinances and requests that the Commission grant waivers of specified provisions of those local ordinances that Applicant believes would be unduly restrictive if applied to the proposed facilities.

NEW YORK STATE ELECTRIC & GAS CORPORATION respectfully requests that the Public Service Commission issue an order:

1. Granting NYSEG a Certificate of Environmental Compatibility and Public Need for the construction and operation of the facilities described herein; and

2. Granting such other authorizations, consents, permissions and approvals as may be necessary for the construction, operation, and maintenance of the facilities herein proposed with the exception outlined in the enclosed Motion for Waivers.

Respectfully submitted,

NEW YORK STATE ELECTRIC & GAS CORPORATION

BY: Laura S. Conklin

NAME: Laura S. Conklin

DATE: October 23, 2006

TITLE: Vice President, Technical Services

ADDRESS: 89 East Avenue, Rochester, New York 14649

MOTION FOR WAIVERS

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Application of the New York State Electric & Gas Corporation pursuant to Article VII of the Public Service Law for a Certificate of Environment Compatibility and Public Need authorizing the construction and operation of electric transmission facilities from the Applicant's Etna Substation in the Town of Dryden, County of Tompkins, New York to the Applicant's Lapeer Substation in the Town of Lapeer, County of Cortland, New York.

MOTION FOR WAIVER OF REQUIRED INFORMATION

New York State Electric & Gas Corporation ("Applicant") hereby moves pursuant to 16 NYCRR 85-2.4 that the requirements of 16 NYCRR 86.3(a)(1); 86.3(a)(1)(i); 86.3(a)(1)(iii); 83.3(a)(2); and 86.3(b)(2) be waived to the extent and for the reasons set forth below:

1) 16 NYCRR 86.3(a)(1) requires use of New York State Department of Transportation maps in 1:24,000 scale. The Applicant respectfully requests a waiver from use of NYSDOT mapping and that it be allowed to substitute the United States Geological Survey (USGS) Topographic Quadrangle maps in 1:24,000 scale, which represent an equivalent instrument appropriate for base map and presentation purposes.

2) 16 NYCRR 86.3(a)(1)(i) requires coverage of an area of at least five miles on either side of the proposed facility location. The Applicant respectfully requests a waiver from this requirement to reduce the coverage from five miles to approximately one and one half miles, thus magnifying the project area and providing a better depiction of the project facilities and right-of-way at the required 1:24,000 scale. Moreover, the proposed facility location is depicted on other map figures within Exhibit 2, which provide appropriate instruments for review.

3) 16 NYCRR 86.3(a)(1)(iii) requires 1:24,000 scale map showing any known archaeologic, geologic, historical or scenic area, park or untouched wilderness on or within three miles of the right-of-way. The Applicant respectfully requests a waiver to allow it to use 1:54,000 scale base maps,

which provide a better context of the region and thus a better depiction of the known resources within the three-mile area.

4) 16 NYCRR 86.3(a)(2) requires New York State Department of Transportation maps in 1:250,000 scale showing the relationship of the proposed facility to the Applicant's overall system. The Applicant respectfully requests a waiver from this requirement to allow it to use ESRI ArchGIS 9 Maps in 1:250,000 scale, which represent an equivalent instrument appropriate for base map and presentation purposes

5) 16 NYCRR 86.3(b)(2) requires aerial photographs of urban areas and urbanizing fringe areas to be taken within six months of the date of filing. The Applicant respectfully requests a waiver from this requirement to allow it to use the readily available New York State GIS Clearinghouse Orthoimagery taken for the project area in 2002 and 2003. The Tompkins County and Cortland County Planning Directors have said in telephone interviews that no substantial development has occurred in recent years in or adjacent to this predominantly rural and agricultural area and, therefore, the 2002/2003 aerial photographs provide a reasonably accurate depiction of the current situation within the project area. Moreover, the project area is not located within an urban area and/or urbanizing fringe area.

For the reasons stated above, the Applicant requests that the Commission grant its motions for waiver of rules 16 NYCRR 86.3(a)(1), 86.3(a)(1)(i), 86.3(a)(1)(iii), 86.3(a)(2), and 86.3(b)(2).

Respectfully submitted,

John D. Draghi

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Exhibit 1

EXHIBIT 1

GENERAL INFORMATION REGARDING APPLICATION

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT 1

GENERAL INFORMATION REGARDING APPLICATION

This Exhibit addresses the requirements of 16 NYCRR §86.2

The name of the Applicant is:

New York State Electric & Gas Corporation

The Applicant's address and telephone number is:

18 Link Drive
Binghamton, New York 13904
Tel: 607.762.7638

The principal officer of the Applicant is:

Laura S. Conklin, P.E.
Vice President, Technical Services
NYSEG
89 East Avenue
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Tel: 585.771.4756

Documents and correspondence are to be served upon:

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And

William S. George P.E.
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18 Link Drive
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Tel: 607.762.7638

Exhibit 2

EXHIBIT 2

LOCATION OF FACILITIES

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT 2

LOCATION OF FACILITIES

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2-6A- 2-6I Right-of-Way, Facility Locations, Clearing Areas and Access Roads

EXHIBIT 2

LOCATION OF FACILITIES

This Exhibit addresses the requirements of 16 NYCRR §86.3

2.1 INTRODUCTION

This exhibit describes the location of the proposed transmission lines and substations, describes the removal of existing facilities, provides information about the capacity of the proposed transmission lines, and indicates which exhibits to the Application contain maps and photographs showing the project location.

2.2 LOCATION OF PROPOSED TRANSMISSION LINE AND SUBSTATION

The proposed 14.8-mile Etna to Lapeer 115kV Line 947 upgrade and the new 115kV transmission line will be located in portions of Tompkins and Cortland Counties. As shown on Figures 2-6A through 2-6I found at the end of this exhibit, the proposed new and upgraded transmission lines will begin at NYSEG's Etna Substation in the Town of Dryden, Tompkins County. The lines will exit from the south side of the substation, cross State Route 13, and extend from the NYSEG District Office in an easterly direction for approximately 15 miles (Line 947 extends 14.8 miles and the new 115kV Line extends 15 miles) until they reach the site of the proposed 345/115kV substation located south of the existing NYSEG Lapeer Switching Station in the Town of Lapeer, Cortland County. Table 2-1 lists the municipalities crossed by the proposed transmission lines and the distance of the lines within each.

TABLE 2-1: Municipalities Crossed by Proposed Transmission Lines

County	Town	Line 947 (miles)	New 115kV Line (miles)
Tompkins	Dryden	7.7	7.9
Cortland	Harford	5.2	5.3
	Lapeer	1.9	1.8
TOTAL		14.8	15.0

2.3 REMOVAL OF EXISTING TRANSMISSION FACILITIES

All of the existing Etna to Lapeer 115kV Line 947 H-frame structures will be removed and replaced with new H-frame structures along the existing centerline. Approximately seven miles of the proposed new 115kV transmission line beginning at the Etna Substation will be double circuited with NYSEG's Etna-Harford 34.5 kV Line 524. In this section, the existing Line 524 H-frame structures will be removed

2.4 TRANSMISSION CAPACITY DATA

NYSEG will use 1277 kcmil 42/19 aluminum conductor alloy reinforced (ACAR) for both the new 115kV line and the upgraded 115kV transmission Line 947. The capacity of the conductor is given in megavolt-amperes (MVA) in Table 2-2:

TABLE 2-2: Circuit Transmission Capacity (1277 kcmil 42/19 ACAR)

Rating	Summer	Winter
Normal	281MVA	344MVA
Long-Term Emergency*	315MVA	370MVA
Short-Term Emergency**	358MVA	407MVA

*Assumes four-hour overload capability.
**Assumes 15-minute overload capability.

2.5 MAPS OF PROPOSED FACILITIES

The following map exhibits were prepared in accordance with 16 NYCRR § 86.3 entitled "Exhibit 2: location of facilities":

1. Figures 2-1A, 2-1B and 2-1C (1:24,000 USGS 7.5' Topographic Quadrangle Base Map) showing the right-of-way and areas where construction and reconstruction of the proposed facilities would necessitate permanent clearing of vegetation. This clearing area is located along the right-of-way expansion areas (represented by red dotted line);

2. Figures 2-2A and 2-2B (1:54,000 USGS 7.5' Topographic Quadrangle Base Map) showing known archeological sensitive areas and structures listed on the National Register of Historic Places within 3 miles of the right-of-way;

3. Figures 2-3A and 2-3B (1:54,000 USGS 7.5' Topographic Quadrangle Base Map) showing surface geology within 3 miles of the right-of-way;

4. Figures 2-4A and 2-4B (1:54,000 USGS 7.5' Topographic Quadrangle Base Map) showing parks, forests and wildlife management areas within 3 miles of the right-of-way;

5. Figures 2-5A and 2-5B (1:250,000 ESRI ArcGIS 9 Map) showing the location and length of the existing and proposed facilities and structures, points of connection (i.e., substations) and nearby, crossing or connecting rights-of way or facilities of other utilities; and

6. Figures 2-6A through 2-6I (2002 and 2003 New York State GIS Clearinghouse Orthoimagery) showing the right-of-way and facilities, areas where construction and reconstruction of the proposed facilities would necessitate permanent clearing of

vegetation, the location and identification of roads used/to be used to access the existing and proposed facilities, and the location of transmission lines on the right-of-way.

Exhibit 3

EXHIBIT 3

ALTERNATIVES

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT 3

ALTERNATIVES

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FIGURES

EXHIBIT 3

OTHER FACILITIES

This Exhibit addresses the requirements of 16 NYCRR §86.4.

3.1 ALTERNATE ROUTES

Four alternatives were considered for the project: the no-action alternative; selecting the Line 945 corridor as the route for the new 115 kV line; selecting the Line 947 corridor as the route for the new 115 kV line; and selecting a combination of the existing Line 945 and Line 947 corridors as the route for the new 115 kV line. Please refer to Figures 2-2 and 4-4A-K (aerial photography) for reference.

The modification of the Etna Substation and the building of the new Lapeer Substation adjacent to the existing Lapeer Switching Station are necessary components for re-enforcing the Ithaca transmission system. No alternatives were considered for these locations because these sites have existing structures and impacts to new land would be minimized. Modifications to the Etna Substation would be performed completely within the existing facility. The majority of the new land to be acquired for constructing the Lapeer Substation is a Christmas tree farm immediately adjacent to the existing Switching Station.

The no-action alternative was not considered because NYSEG has been requested by the Public Service Commission to upgrade the capacity of the Ithaca transmission system and increase system reliability in order to meet public need.

The route selected for the new line is the combined Line 945 and Line 524 corridor between the join of the Line 524 corridor with the combined Line 945 and Line 947 corridor approximately 1,000 feet east of the NYSEG district office on State Route 13, and the Tompkins-Cortland county line, and the Line 945 corridor between the county line and the existing Lapeer Switching Station (Figure 2-2). In the combined Line 945 and Line 524 corridor, the new line would be double-circuited on the existing Line 524 single-pole structures. Line 524 is a 34.5 kV line. Both Line 945 and Line 947 are 115 kV lines.

The use of the existing Line 524 structures to carry the new line is one of the main reasons this route was selected for the new line. No new right-of-way would need to be obtained. Using the Line 947 corridor would require obtaining additional right-of-way. Obtaining new right-of-way along the western section of the Line 947 corridor would impact approximately 6,300 feet of the Yellow Barn State Forest. For technical reasons, the existing Line 947 structures, which already carry a 115 kV line, can not be used to carry an additional 115 kV line.

At the county line, Line 524 turns south and can no longer be used to carry the new line. From the county line east to the Lapeer Switching Station, the Line 945 corridor would be used for the new line. New H-pole structures would be built to accommodate the new line. Building new structures would require obtaining an additional 62.5 feet of right-of-way along the south side of the existing Line 945 right-of-way.

The eastern section of the Line 945 corridor was selected for two reasons: less State Forest would be impacted, and the transition from the combined Line 945 and Line 947 corridor just east of the county line to the Line 945 corridor would be easier and less costly because of structure and line configurations at the split.

3.2 RIGHT-OF-WAY EXPANSIONS

Additional right-of-way will need to be obtained for building the new 115 kV line and for rebuilding existing Line 947 (please refer to Figures 4-2A-C and 4-4A-K in Exhibit 4). For the new line, 62.5 feet of right-of-way will be needed on the north side of the combined Line 945 and Line 947 right-of-way between the NYSEG district office property and the join of the Line 524 corridor approximately 1,000 feet to the east. An additional 62.5 feet of right-of-way will be needed on the south side of the Line 945 right-of-way between the split of Line 524 to the south and the Lapeer Switching Station.

Rebuilding Line 947 will require obtaining an additional 25-feet of right-of-way where the existing right-of-way is 100 feet. In these sections, indicated on Figures 4-2A-C and 4-4A-K in Exhibit 4, 12.5 feet of right-of-way will be acquired on each side of the existing 100-foot right-of-way. The remainder of the Line 947 right-of-way is 150 feet.

3.3 ELECTRIC ALTERNATIVES TO THE PROPOSED PLAN

In evaluating means of reinforcing this area to eliminate the Ithaca Load Pocket condition, other 345/115 sources and 115 kV lines were examined. Each of the alternatives was evaluated in terms of cost and ability to provide adequate supply for both the near and long-range future.

As illustrated in Figures E-4-4 and E-4-5, when both units at Cayuga Station are out of service, the existing 115 and 34.5 kV systems in the Ithaca Division are incapable of providing an adequate supply under normal conditions for load levels at or above 136.0 MW and under contingency conditions for load levels at or above 72.0 MW. Figure 3-1 shows the normal system conditions that existed at the 2005/06 winter peak load level of 173.0 MW if a new 345/115 kV substation was constructed between NYSEG's Oakdale and Watercure Substations with the high side connecting to NYSEG's 345 kV Line 31 and two new 25 mile, 115 kV lines were constructed from the new substation to Etna Substation with 1277 ACAR conductor. While the normal system voltage and thermal capacity are acceptable at this load level, Figure 3-2 shows that this alternative is only capable of adequately supplying the Ithaca Division up to a load level of 198.0 MW. Secondly, Figure 3-3 shows that during contingency conditions at the 2005/06 winter peak load level of 173 MW, the previously mentioned reinforcement is incapable of maintaining acceptable thermal conditions in the Ithaca Division for loss of the State Street – Clinton Corn 115 kV Line 971. Finally, Figure 3-4 illustrates that this alternative is only capable of maintaining acceptable thermal conditions in the Ithaca Division for load levels up to 140.0 MW. Since this alternative does not perform as well as the proposed plan from a normal or contingency standpoint and costs $17.44 million dollars more ($66.61 million vs. $49.17 million) than the recommended plan, this reinforcement was rejected.

Figure 3-5 shows a second 345/115 kV alternative. This alternative involves the construction of a new 345/115 kV substation in the vicinity of National Grid's Cortland Substation with the high side connecting to the 345 kV Line 36 between NYSEG's Oakdale Substation and National Grid's Lafayette Substation and the construction of two new 15 mile, 115 kV lines from the new substation to Etna Substation. As illustrated in Figures 3-5, 3-6, 3-7, and 3-8, from a normal and contingency standpoint, this alternative performs just as well as the proposed plan does.

However, since this alternative costs $1.39 million dollars more ($50.56 million vs. $49.17 million) than the recommended plan, this reinforcement was rejected.

Exhibit 4

EXHIBIT 4

ENVIRONMENTAL IMPACT

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT 4

ENVIRONMENTAL IMPACT

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FIGURES

APPENDICES

EXHIBIT 4

ENVIRONMENTAL IMPACT

This Exhibit addresses the requirements of 16 NYCRR §86.5

4.1 INTRODUCTION

An environmental assessment of the proposed Ithaca Transmission Project (the Project) is presented in this exhibit. The Project includes the construction of a new 115 kV transmission line along the Line 945 right-of-way and the combined Lines 945/524 right-of-way, the rebuilding of Line 947, modifying the Etna Substation and building a new Lapeer Substation adjacent to the existing Lapeer Switching Station. New right-of-way will need to be obtained for portions of the new line and the rebuilt line. The rationale used to select the route for the new 115kV line is described. Exhibit 4 describes the environmental setting along the Project and the anticipated impacts from the clearing of vegetation and construction of the proposed facilities. Measures to minimize construction impacts are described.

4.2 METHODOLOGIES

Transmission Line Route and Substation Site Selection Methodology

The Project includes the building of a new 115 kV transmission line and the rebuilding of Line 947. The existing Line 945 and combined Lines 945/524 corridor was selected as the route for the new 115kV transmission line. Using existing corridors for the new line reduces the impact of building the new line. Double-circuiting the new 115 kV line with the 34.5 kV Line 524 would reduce the need for obtaining new right-of-way. Sections of new 25 feet or 37.5 feet right-of-way will need to be acquired along certain sections of the existing Line 945, Line 947 and combined Lines 945/947 rights-of-way as discussed below.

In order to assess construction impacts, information was obtained concerning planning, zoning, land use, soils, agriculture, recreational areas, parks, State Forest land, visually sensitive areas, historic and archaeological sites, water resources, wildlife, and vegetation. This information was collected from existing resources and from field walkovers in September 2006. NYSEG enlisted the services of a URS archaeological consultant to conduct an archaeological literature search and field survey to determine the extent of documented cultural resources along the Project.

The Lapeer Substation will be constructed on approximately six acres of land adjacent to and south-southwest of the existing Lapeer Switching Station. Approximately five acres of this land is currently a Christmas tree farm. The remaining one acre is upland secondary forest. This site was chosen for the new substation because it is proximate to Line 36 and because it is adjacent to the existing Lapeer Switching Station. The location of the new substation is shown on Figure 4-4K.

Environmental Impact Assessment Methodology

The physical, biological, land use, and visual impacts that would result from Project construction were assessed during site walkovers in late September 2006 and from readily available information. As most of the Project would be constructed in existing right-of-way, the primary

considerations were engineering feasibility, cost and minimizing impacts to State Forest. Where significant impacts were likely, methods for lessening the impacts were considered. Such measures were evaluated based on their engineering feasibility and cost. Sections 4.6 through 4.9 describe baseline conditions and anticipated Project impacts.

4.3 PROJECT ROUTE DESCRIPTION

The proposed new 115 kV transmission line route is shown on Figures 4-1, 4-2A-C and 4-4A-K. The new line will be constructed along the existing Line 945 and combined Lines 945/524 corridor. The existing transmission system between the Etna Substation and the Lapeer Switching Station includes approximately 14.8 miles of two 115kV lines, Line 945 and Line 947. A 34.5 kV line, Line 524, joins the combined Lines 945/947 right-of-way approximately 1,200 feet east of the NYSEG district office complex across State Route 13 from the Etna Substation. Line 524 shares right-of-way with Line 945 to the (Tompkins/Cortland) county line. At the county line, Line 524 leaves the combined Lines 945/947 right-of-way and turns to the south. Lines 945 and 947 share a common right-of-way for about two miles between Kimberly Drive to the west and just east of the county line to the east. Proceeding easterly, the lines are split for approximately 5.75 miles before converging again into a common right-of-way before entering the Lapeer Switching Station. Other than at the Etna Substation as identified above, these lines do not share a common structure with any other transmission or distribution facility. Line 947 will be rebuilt in existing right-of-way between the Etna Substation and the Lapeer Switching Station. Approximately 23,000 feet (4.4 miles) of additional 25-foot right-of-way will need to be obtained along Line 947 where existing right-of-way is limited to 100 feet. The Project layout, which includes routing, structure types, lines, existing and new right-of-way, is shown on figures in Exhibit 5.

The Etna Substation will be modified within the limits of the existing substation. The new Lapeer Substation will be constructed on approximately six acres of land adjacent to the existing Lapeer Switching Station. This land is currently part of a large Christmas tree farm; one acre in the eastern portion of the farm is upland secondary forest.

4.4 SUMMARY OF FINDINGS

The majority of the Project will be constructed in existing NYSEG right-of-way. The existing Line 945 corridor was selected for construction of the new 115 kV line. Some additional 37.5-foot right-of-way will need to be obtained for construction of the new 115 kV line. The Line 945 corridor was selected in order to minimize the amount of additional right-of-way needed, to minimize impacts to State Forest land, and to address engineering and construction considerations. Based on findings presented in Sections 4.6 through 4.10 of this Exhibit, it is NYSEG's belief that the present Project design will result in the least environmental impacts and is preferable to other routing or siting alternatives.

The rebuilding of Line 947 will generally occur within existing NYSEG right-of-way. Approximately 4.4 miles of additional 25-foot right-of-way (12.5 feet on each side of existing right-of-way) will need to be obtained where existing right-of-way is only 100 feet. The remainder of the right-of-way is 150 feet wide.

In areas where steep slopes or poorly drained soils are present, appropriate measures will be taken to minimize disturbance to soils. To protect all soils crossed, NYSEG will take measures to control erosion during construction and will promptly restore ground cover when construction is complete. Most areas with steep slope or wetlands will be spanned.

Installation of the new line will require obtaining additional 37.5-foot right-of way in two locations. Approximately 1,200 feet (1.0 acre) of new 37.5 feet right-of-way will be needed on the north side of the combined Lines 945/947 right-of-way immediately east of the NYSEG district office on State Route 13. This area is presently a small upland woodlot. Additional right-of-way will be required on the south side of the eastern portion of the Line 945 right-of-way between the Lines 945/947 split just east of the county line and the Lapeer Switching Station. Clearing of the new right-of-way would potentially impact approximately 3.4 miles (15.5 acres) of forestland including approximately 3,800 feet (3.3) acres of State Forest land. The total amount of forestland potentially impacted by right-of-way clearing for the new line would be approximately 3.6 miles or 16.4 acres.

Approximately 4.4 miles of additional 25-foot right-of-way will be required for rebuilding Line 947. Clearing of the right-of-way would potentially impact approximately 3.9 miles (11.9 acres) of forestland including 1.3 miles (3.8 acres) of State Forest. Approximately 0.4 mile (1.1 acres) of farmland would be included in the acquired right-of-way.

No known locations of Federal or State endangered, threatened, or rare plants are located along the Project corridors or at the proposed Lapeer Substation site.

The new line will cross 21 streams, 15 of which are State-protected streams regulated by the NYSDEC. Fourteen tributaries and subtributaries of Fall Creek cross the right-of-way between the Etna Substation and Daisy Hollow Road in the Town of Harford. These streams are located in the Finger Lakes drainage basin. The last seven of these streams to the east are tributaries of Virgil Creek which flows into Fall Creek. Seven tributaries and subtributaries to Owego Creek cross the right-of-way in the eastern part of the Project area. These streams are located in the Susquehanna River drainage basin. Where equipment must be driven across a stream, appropriate crossing techniques and erosion control measures will be used to minimize impacts. All stream-crossing (and wetland crossing) permit conditions issued by the U.S. Army Corps of Engineers will be followed during Project construction, including possible seasonal work restrictions.

Approximately 3,150 feet of wetland will be crossed by the Project: 1,000 feet along Line 947, 950 feet along Line 945, and 1,200 feet along the Lines 945 and 947 combined right-of-way. Efforts will be made to avoid installing new structures in wetlands. Construction equipment will cross portions of wetland during the installation of the new 115kV line and the rebuilding of Line 947. During right-of-way clearing along Line 945, an approximately 100-foot wide section of wetland will be impacted in forestland east of Babcock Hollow Road (Figure 4-3I). Wetland and stream crossing permits obtained from the U.S. Army Corps of Engineers (Nationwide permits) will be adhered to.

Some wildlife habitat will be removed during right-of-way clearing and some small mammals, reptiles and amphibians may be killed during the process. Most wildlife in the Project area will only be temporarily displaced during Project construction. Some bird nesting and feeding habitat will be permanently lost. The habitat lost is not unique to the Project area and represents only a very small

portion of such habitat in the Project area. No State or Federally endangered, threatened or special concerned wildlife species will likely be impacted by the Project.

The Project is located along existing power-line corridors and will not impact any designated scenic area or overlook, or Federally-designated or State-designated historic sites. In September 2006, an archaeologist conducted a literature search and a field survey along the Project and no historic cultural resources were identified. If an archaeological site is encountered during Project construction, NYSEG will immediately consult with the State Historic Preservation Office and institute measures to protect the site.

The new line would not cross any orchards or vineyards, but does cross active agricultural land. Based on 2002 aerial photography (Figures 4-4A-K), approximately 7.3 miles of the new line would cross active agricultural lands. Line 947 crosses approximately 2.2 miles of active agricultural land. Approximately 2,000 feet of new right-of-way will be required in agricultural land. NYSEG believes that permanent impacts to agricultural lands will be limited to the new 115kV line structure locations. During construction, temporary disturbance to agricultural lands will be minimized through the use of protective measures. Agricultural land disturbed during construction will be restored.

The Project generally avoids populated areas but crosses a residential development in the Town of Dryden near State Route 38 (Dryden-Harford Road). No right-of-way expansion will occur in residential areas. All work will take place in existing right-of-way. Construction of the facilities may cause temporary disturbance to some residents but no permanent impact on land use patterns will occur.

The overall visual impact of the Project will be low. Where construction occurs in existing right-of-way, the visual impact will remain the same as pre-construction. Much of the 25-foot or 37.5 foot right-of-way that will be cleared is located in forested areas where visibility is limited to road crossings. Passers-by will likely not notice any difference from the existing right-of-way. Visibility of the line from roads will be tempered by distance and intervening topography and vegetation. The visual impact of the proposed line to residents along the prime route will generally be low since right-of-way expansion will not occur in these areas.

The upgrade work at Etna Substation would occur within the boundaries of the existing substation and no new land would need to be obtained. The conversion of the Lapeer Switching Station to a new substation will require acquiring approximately six acres of land adjacent to the Switching Station. This land is located on an active Christmas tree farm. Approximately one acre of the eastern portion of the farm is upland secondary forest. No streams or wetlands are located on the proposed site.

Single-pole and H-frame structures will used to support the new transmission line. In locations where right-of-way width is limited, single-pole construction is being proposed. In locations where the route crosses areas of hilly terrain, streams, wetlands or few agricultural fields, H-frame construction is being proposed. H-frame construction provides greater spanning capability and provides more flexibility in the placement of structures. Impacts associated with construction on steep slopes may be lessened by the ability to span the slopes or reduce the number of structures in these locations. Greater spanning capability would minimize the impact to agricultural fields.

4.5 OPERATIONS ON THE RIGHT-OF-WAY

INTRODUCTION

In order to assess the impact that construction of the proposed Project will have on the environment, it is necessary to understand the operations that will take place during construction. These operations will include selective clearing and disposal of cut vegetation during right-of-way widening, implementation of environmental protection measures, construction of a new transmission line, the rebuilding of a new replacement transmission line, the building of a new substation, the upgrading of an existing substation, and restoration activities. A general summary of each of these activities is provided below.

INSTALLATION OF ACCESS ROADS

In order to facilitate the movement of heavy equipment, access roads may be necessary to access certain sections of right-of-way. Whenever possible, public roads will be used to access the right-of-way. In some locations, NYSEG may seek permission to use logging or farm roads that are off the right-of-way in order to make construction easier or to minimize environmental impact. If access affects an intact fence used as a livestock enclosure or property line delineator, the fence's integrity will be maintained.

Where access roads cross streams, wetlands, unique natural areas, or highways, clear-cutting will be kept to the minimum required for single-lane vehicular passage.

If grading is required for the installation of an access road, excavated material will be used as fill in areas adjacent to the road. Excavated material remaining on the right-of-way will be placed, graded, and seeded in a manner that will minimize disturbance to compatible plant material and natural drainage-ways and minimize siltation of any stream, wetland, lake, or pond.

RIGHT-OF-WAY CLEARING

Selective Clearing

To minimize environmental effects resulting from the removal of trees and brush, NYSEG practices selective clearing to retain compatible vegetation on transmission line right-of-ways. Vegetation that will not interfere with construction or that, at maturity, will not present a hazard to electrical facilities or maintenance activities will be left on the right-of-way. A system of clearing zones will be established to specify the maximum allowable height of mature vegetation in each area of the right-of-way. Efforts will be made to prevent damage to vegetation that is to be saved. The clearing operation will be planned so that there is a minimum of equipment movement in areas where desirable species are present. Any vegetation, such as various species of cherry, that may become toxic and present a hazard to livestock as a result of clearing in a pasture will be cut and immediately removed from the pasture.

All selectively cut vegetation will be cut as close to the ground as practical. Stumps of deciduous trees may be treated with herbicides. The removal of stumps and roots below the ground surface may be done in the immediate location of structure foundations, wire set-up areas, drainage control areas, and access roads.

Slash Disposal

The cut vegetation resulting from right-of-way clearing will be disposed of using several methods. The following log and brush disposal alternatives will be considered on a site-by-site basis and the most compatible combination will be used:

Logs

Collect and Burn
Disposal Off Site
Lop and Scatter
Separate and Pile Merchantable Wood
Windrow

Brush

Chip
Collect and Burn
Disposal Off Site
Lop and Scatter
Windrow

All of these methods can be compatible with selective clearing procedures. The particular method used will depend upon conditions at a specific location. A brief description of each method is provided in the following paragraphs.

Chipping of brush involves using a wood-chipping machine to reduce brush and limbs up to six inches in diameter to small pieces. The chips will be spread over the right-of-way so that, after settling, their depth will not exceed four inches. Care will be taken so that chipped material will not enter streams or wetland areas unless authorized by U.S. Army Corps of Engineer permit conditions.

Collecting and burning will be used where marketing of cut vegetation is not feasible, or where other disposal methods are not appropriate. Vegetation will be collected, piled, and burned at specified locations, which will be selected to avoid possible damage to abutting properties, existing electrical facilities, or vegetation that is to be preserved. Burning will not occur in residential areas or at sites where natural runoff may cause stream pollution. After burning, the burn site will be scarified and seeded.

Disposal off site will be accomplished in one of two ways. One method will involve removing cut vegetation from one segment of the right-of-way and moving it to an adjacent segment for disposal. An example of this type of disposal would be cutting scattered trees from an agricultural field and hauling or skidding them to an adjacent wood lot for disposal on the right-of-way.

The second type of off-site disposal will involve removing cut vegetation from the right-of-way and disposing of it at an area off the right-of-way, such as a landfill area. This second method is usually not an environmentally sound alternative. Extensive handling and hauling of cut vegetation is required, resulting in destruction of ground cover and other compatible vegetation. In addition,

once vegetation is removed from the right-of-way, it must still be appropriately disposed of in another place. It is often preferable to dispose of cut vegetation at or near the site of cutting. However, black cherry and similar species that become toxic when cut and present a hazard to livestock will be immediately removed from pastures.

The lop and scatter method for logs and brush will involve cutting vegetation and scattering it on the right-of-way. This method is often the preferred disposal method in wet areas or on steep slopes. Access roads and structure locations will be kept free of slash, and trees will be felled so that they will not interfere with access roads. Prior to cutting, vegetation may be treated with herbicides. Limbs and tops will be removed from the main trunk and lopped so that they will be in close contact with the ground to facilitate rapid decomposition. If necessary, felled trees will be moved with appropriate vehicles to specific locations and will be placed in a random manner that will cause minimal damage to compatible vegetation selected to remain on the right-of-way. Efforts will be made to fell trees so they will not overlap other felled trees so that, when limbed, the stems will be in contact with the soil. The lop and scatter method is the most economical disposal method for initial clearing, but logs and brush scattered on a right-of-way can make futuremaintenance of the facilities extremely difficult and costly.

Separation and piling of merchantable wood will be done at the property owner's request or where NYSEG deems appropriate. NYSEG believes that the full resource potential of timber cut from the right-of-way should be utilized through sale or use by the property owner or sale by NYSEG.

If NYSEG sells timber, the wood will be cut into appropriate lengths and hauled from the site by vehicles that will travel only on access roads. In moving cut material to access roads for loading, care will be taken to prevent damage to compatible trees, shrubs, understory vegetation and natural ground covers.

The windrow method is the disposal method NYSEG uses most often. Logs and brush will be piled in windrows when accumulations of vegetation cleared by the lop and scatter method would be of a depth that would hinder construction or future maintenance operations. The windrow method will also be used when soil and topographic conditions allow efficient mechanical collections of cleared vegetation using conventional clearing equipment without creating

excessive soil disturbance.

Brush and log piles will be located in areas where there is little compatible vegetation and where there is no possibility that logs will roll onto adjoining property. Windrows will also be located to minimize fire hazard.

When brush (material up to four inches in diameter) is piled, it will be compacted and the maximum height will not exceed three feet after settling. Such material will not be moved with bladed equipment, which could cause unnecessary disturbance.

If woody material over four inches in diameter is to be piled in windrows, it will be cut and dragged or hauled to pile locations. Pushing logs along the ground would cause unnecessary disturbance and will not be permitted. The size of windrows will be determined by construction activities, the abutting property uses, and pertinent management plans. The height of such windrows will not exceed four feet.

HERBICIDE TREATMENT

In order to prevent resurgent vegetation from affecting the transmission line's reliability or blocking access roads to be used for maintenance, woody plant species on the right-of-way (except conifers, species designated to remain on the right-of-way, and areas specified at the time of clearing) will be treated with herbicides. Herbicides will also be used for vegetation control in long-term right-of-way maintenance operations. Only herbicides approved for use by the United States Environmental Protection Agency and by the NYSDEC will be used. The application of herbicides will be done under the supervision of a certified pesticide applicator registered with the NYSDEC for the current application year. NYSEG will strictly observe herbicide preparation and application restrictions to prevent damage to vegetation designated to remain and to prevent pollution of water resources.

ENVIRONMENTAL PROTECTION MEASURES

NYSEG will carefully supervise clearing and construction activities to ensure that environmental protection objectives and stream and wetland crossing permit conditions are met. In order to ensure the least damage to soils on the right-of-way that are subject to prolonged wetness, clearing and construction operations will be seasonally scheduled wherever practical, and the appropriate equipment will be used. Grading operations will be performed in a manner that will protect the right-of-way from unnecessary damage.

If it is not possible to maintain adequate buffers of existing vegetation in areas of particular sensitivity, NYSEG will plant appropriate new vegetation. The size and type of vegetation to be planted will be selected for compatibility with existing surrounding vegetation.

CONSTRUCTION OPERATIONS

Removal of Existing Structures and Facilities

Removed equipment and materials associated with the rebuilding of Line 947 and the substation construction and upgrades will be properly disposed of or recycled. Metal that NYSEG does not reuse will be taken to a NYSEG service center for storage prior to being sold or recycled. Glass and porcelain insulators and sections of wood poles and cross arms that are unsuitable for further use will be disposed of. These wastes, which are not classified as hazardous wastes, will be transported from the job site and disposed of in compliance with 6 NYCRR Parts 360 and 364. Handling of this equipment, preparation for disposal, and disposal operations will be done in compliance with applicable Federal and State regulations.

Scars from removal of facilities will, if necessary, be graded as soon as possible after removal, and all scars will be seeded or planted as necessary. Facilities will be removed in a manner that prevents pollution of waterways or damage to adjoining properties.

Transmission Line Construction

Transmission line structures will be transported to each site unassembled. Excavations for wood structures will be about three feet in diameter and eight to twelve feet deep for each pole. For steel-pole structure foundations, excavations will be approximately four to six feet in diameter and will generally be twelve to twenty-five feet deep. Excavation for structures will generally be accomplished with mechanized auger-type diggers. In areas containing rock, it may be necessary to excavate portions of these holes and the holes needed for guy anchor rods by blasting. All appropriate safeguards will be in place in the event blasting is required, and appropriate permits will be secured from relevant agencies.

The attachment of cross-arms to H-frame structures and davit arms to single-pole structures may take place on the ground or after the poles are erected. Structure erection will generally be done by using a crane. After structures are erected, pulling lines will be placed in stringing blocks. Static wires and conductors will then be pulled in, sagged, and clamped. Where possible, the number of wire-pulling areas will be kept to a minimum and will be located to avoid environmentally sensitive sites. Prior to the stringing operation, guard structures will be placed along highway and railroad crossings and along crossings of existing utility lines to prevent interference with public safety, traffic, or operation of other utility lines.

Storage yards used for holding material and equipment and the location of sanitary facilities will be confined to areas at least 100 feet from streams, ponds, wetlands, wells, springs, and residential buildings. Washing of any tools or equipment in such areas will not be permitted. All fuels, oils, chemicals, or other potentially harmful substances will be kept in appropriate, tightly capped containers and will be handled, stored, and transported in a manner that will minimize the likelihood of contamination of ecologically sensitive sites within or adjacent to the right-of-way.

Material staging areas and fabrication areas may be used for temporary storage of materials and equipment on the right-of-way. The potential for contamination of ecologically sensitive sites will be minimized by proper handling of potentially harmful substances.

Clean-up

Clean-up will be an ongoing part of the various clearing and construction operations associated with the proposed installation. Crews leaving a work area will remove trash and debris associated with operations. At the conclusion of all installation operations, the right-of-way will be inspected to ensure that all trash, debris, equipment, and other extraneous materials resulting from construction operations have been removed.

Restoration

Upon completion of construction, all disturbed areas will be restored to natural grades and conditions. Disturbed landscaping, lawns, pavement, curbs, and sidewalks will also be restored.

All appropriate areas will be seeded with a temporary seed mixture within eight days of disturbance, as seasonally practical, provided no additional disturbance will take place within 30 days. Following clearing and construction, all ruts resulting from the construction operation will be graded. Where the topsoil was stockpiled prior to grading, it will be evenly distributed over the site to obtain smooth, natural grades. Temporary access road surfaces, structure sites, parking areas, storage yards, cut and fill slopes, and ditches will be seeded to establish perennial ground cover.

Any temporary erosion control structures that are no longer required will be removed. If permanent erosion control structures are necessary, the temporary structures will be made permanent, or new structures will be installed. Drainage of the site will be restored if it has been temporarily altered and if the restoration is compatible with any permanent erosion control structures that have been installed.

Within agricultural areas, drainage tiles and ditches that are damaged as a result of construction of the proposed facilities will be repaired and restored. Where soil of tillable fields has been compacted by construction equipment movement, the area will be scarified, harrowed and, if appropriate, seeded.

Maintenance

After the proposed line is energized, NYSEG crews will inspect the line periodically to detect any condition on the right-of-way that might interfere with thereliable operationof the new facilities. If conditions found by the patrols indicate that removal of additional vegetation is necessary, clearing will be done according to the Long-Range Right-of-Way Management Plan for the NYSEG Transmission System.

The right-of-way will also be checked for erosion from natural runoff that may have been caused by construction activities or operations. Re-grading, seeding, and planting will be conducted as required.

NYSEG has a wood-pole maintenance program to extend the useful life of wood poles that might include treatment or re-treatment of wood preservatives. Only preservatives approved by the United States Environmental Protection Agency and the NYSDEC will be used. All label restrictions will be followed, and treatments will be applied under the supervision of a certified pesticide applicator registered for the year of application with the NYSDEC.

4.6 PHYSICAL RESOURCES ANALYSIS

A. GEOLOGIC BACKGROUND

The Project area is underlain by shales, limestones, and siltstones that were deposited during the Devonian Period approximately 345 to 395 million years ago. These sedimentary deposits accumulated to form the Appalachian Uplands located adjacent to the Project area. A series of ice sheets covered the area during the Pleistocene Epoch, which began approximately 1.6 million years ago and ended about 10,000 years ago. The expansion and contraction of the glaciers associated with the ice sheets resulted in the deposition of large amounts of sediment and the large-scale gouging of valleys. The Project area generally transitions from glacial till near the hamlet of Etna to kame deposits, kame moraines, and bedrock stiple overprint through the Town of Dryden (Figures 2-3a and 2-3b). The route through Cortland County typically remains bedrock stiple overprint.

B. TOPOGRAPHY

The Project lies between the Allegheny Plateau and the Lake Ontario Plain. The western portion of the Project drains into Cayuga Lake and the eastern portion ultimately drains into the Susquehanna River. As indicated in Figures 4-2A to 4-2C, the Project traverses hills and valleys and approximately 800 feet of elevation change, ranging from approximately 1,050 feet at the Etna substation on the west to a maximum elevation of approximately 1,850 feet along the length of the Project. Table 4.6-1 provides the slope interval and distance traversed by Lines 945 and 947 rights-of-way.

Construction of a new transmission line along the Line 945 right-of-way and rebuilding Line 947 will have no impact on topography.

Table 4.6-1 Site Slopes

Slope Interval	New 115kV Line Distance (feet/miles)	Line 947 Distance (mile/feet)
0-3%	4,400ft / 0.8 miles	3,725 ft / 0.7 miles
3-8%	18,550 ft / 3.5 miles	21,050 ft / 4.0 miles
8-15%	29,400 ft / 5.6 miles	32,450 ft / 6.1 miles
15-25%	18,550 ft / 3.5 miles	11,550 ft / 2.2 miles
Greater than 25%	8,450 ft / 1.6 miles	8,300 ft / 1.6 miles
Total	**79,325 ft / 15.0 miles**	**77,075 ft / 14.6 miles**

C. CLIMATE

The climate in the Project area features warm summers and long, cold winters. The Appalachian Highlands are typically several degrees cooler than the Ontario Plains and frosts arrive approximately one week earlier than the New York State average. Nighttime temperatures frequently fall significantly faster during the late summer and early fall months than in areas at a lower elevation, although the temperature range is somewhat moderate. The average daily high in the region is 54 degrees while the average daily low is 38 degrees. Snowfall is usually heavier in Cortland County than in Tompkins County largely because of weather influenced by Lake Ontario.

Construction of a new transmission line and reconstruction of an existing transmission line will have no impact on the climate of the Project area.

D. SOILS

The Project is characterized by a diverse and complex arrangement of soil types. Figures 4-3A to 4-3K show the soils within the Project area based on United States Department of Agriculture (USDA) Natural Resources Conservation Service soil surveys for Tompkins and Cortland Counties. As indicated in Table 4.6-2, the Project crosses 55 soil types between the Etna Substation and the Lapeer Switching Station. These soil types are listed in terms of farmland of

statewide importance, prime farmland soils, drainage, and distance along the Project route. Four of these soil types account for over 71 percent of the total distance covered by the Project: Lordstown (21.7 percent), Bath (17.2 percent), Volusia (16.8 percent), and Mardin (15.8 percent).

Table 4.6-2 Soil Type, Drainage, and Agricultural Importance

Soil Classification		Farmland of Statewide Importance	Prime Farmland Soils *	Drainage	Distance (feet)	
Abbr.	Soil Name				Expansion Line 945	Reinforced Line 947
AaA	Alden and Birdsall silt loams, 0-3% slopes			VPD	300	100
Ab	Alluvial land			PD	300	200
ArB	Arkport fine sandy loam, 2-6% slopes	X		WD	200	200
ArC	Arkport fine sandy loam, 6-12% slopes		X	WD	1,325	1,175
BaB	Bath channery silt loam, 3-8% slopes	X		WD		375
BaC	Bath channery silt loam, 5-15% slopes		X	WD		900
BaD	Bath channery silt loam, 15-25% slopes			WD	1,950	475
BbD	Bath-Chenango gravelly loams, 15-25% slopes			WD	350	450
BbE	Bath-Chenango gravelly loams, 25-40% slopes			WD	125	
BcE	Bath and Mardin soils, 25-40% slopes			WD	300	250
BgC	Bath and Valois gravelly silt loams, 5-15% slopes		X	WD	5,650	2,100
BgD	Bath and Valois gravelly silt loams, 15-25% slopes			WD	5,550	2,675
BoE	Bath and Valois soils, 25-35% slopes			WD	1,375	2,525
BtF	Bath, Valois, and Lansing soils, 35-60% slopes			WD	1,275	500
CdC	Chenango gravelly loam, 5-15% slopes		X	SED	100	100
CnB	Chenango gravelly loam, 0-8% slopes			WD	1,350	1,150
CeA	Chippewa channery silt loam, 0-3% slopes		X	PD	250	
CeB	Chippewa channery		X	PD		300

	silt loam, 3-8%					
DgB	Darien gravelly silt loam, 2-8% slopes	X **		SPD	3,325	3,325
EbB	Erie channery silt loam, 2-8% slopes		X	SPD	2,675	1,550
EbC	Erie channery silt loam, 8-15% slopes		X	SPD	1,450	2,400
EbC3	Erie channery silt loam, 8-15% slopes eroded			SPD	1,400	
Hc	Halsey mucky silt loam			VPD	875	800
HdC	Howard gravelly loam, 5-15% slopes		X	WD	850	750
HdD	Howard gravelly loam, 15-25% slopes			WD	600	350
HrC	Howard-Valois gravelly loams, 5-15% slopes			WD	350	
HrD	Howard-Valois gravelly loams, 15-25% slopes			WD	900	675
IcA	Ilion silty clay loam, 0-2% slopes		X	PD	975	975
LaB	Langford channery silt loam, 2-8% slopes		X	WD	3,075	650
LaC	Langford channery silt loam, 8-15% slopes		X	WD	700	600
LdB	Lordstown channery silt loam, 2-8% slopes	X		WD	2,000	3,000
LeB	Lordstown channery silt loam, 2-8% slopes		X	WD		600
LfC	Lordstown channery silt loam, 8-15% slopes		X	WD	3,800	4,000
LfD	Lordstown channery silt loam, 15-25% slopes			WD	4,475	3,925
LgE	Lordstown soils, 25-55% slope			WD	4,000	3,850
LnC	Lordstown channery silt loam, 5-15% slopes			WD	650	2,200
LnD	Lordstown channery silt loam, 15-25% slopes			WD	400	1,075
LnE	Lordstown channery silt loam, 25-35% slopes			WD	1,050	1,175
MaB	Mardin channery silt loam, 2-8% slopes		X	MWD	2,050	4,825
MaC	Mardin channery silt loam, 8-15% slopes		X	MWD	4,775	7,950

MaC3	Mardin channery silt loam, 8-15% slopes eroded			MWD		1,750
MaD	Mardin channery silt loam, 15-25% slopes			MWD	1,500	525
MfD	Mardin and Langford soils, 15-25% slopes			MWD	750	600
Mo	Middlebury and Tioga silt loams	X		MWD		125
Mp	Muck and Peat			VPD		200
NaB	Niagara silt loam, 2-6% slopes	X **		SPD	225	225
PhB	Phelps gravelly silt loam, 3-8% slopes	X		MWD	900	900
TaB	Tioga channery silt loam, 2-8% slopes	X		WD		150
TbA	Tioga gravelly loam, 0-2% slopes	X		WD	1,200	925
VaE	Valois and Howard gravelly loams, 25-40% slopes			WD	325	
VbB	Volusia channery silt loam, 2-8% slopes		X	SPD	2,750	3,800
VbC	Volusia channery silt loam, 8-15% slopes		X	SPD	8,350	8,525
VbD	Volusia channery silt loam, 15-25% slopes			SPD	1,900	800
VrD	Volusia and Erie soils, 15-25% slopes			SPD	150	
Ws	Wayland and Sloan silt loams			VPD	500	400

* USDA Natural Resources Conservation Service
** Prime farmland if drained
SED: Somewhat excessively drained
WD: Well drained
MWD: Moderately well drained
SPD: Somewhat poorly drained
PD: Poorly drained
VPD: Very poorly drained

Lordstown soils are moderately deep, well-drained soils formed in till derived from siltstone and sandstone with slopes ranging from zero to 90 percent. Depth to bedrock ranges from 20 to 40 inches. These soils are very strongly acid throughout the range from the surface down to the substratum. Elevation ranges from 800 to 1,800 feet above sea level. Large areas on the steep and very steep slopes include forests consisting of American beech, oaks, hemlock, white pine, maples and other associated species. Some cleared areas are used for pasture or hay, but most cleared areas have been abandoned and are slowly reverting back to forest.

The Bath soils formed in glacial till and are very deep and well drained. Slopes range from 0 to 60 percent. The solum thickness ranges from 40 to 80 inches and the depth to bedrock ranges from 40 inches to 20 feet or more. These soils range from strongly acid to moderately alkaline depending on the depth, and the elevation ranges from approximately 800 to 1,800 feet above sea level. Many areas with these soils have been cleared and are used for general farm crops. Wooded areas contain mixed northern hardwoods.

The Volusia soils consist of very deep, somewhat poorly drained soils formed in loamy till. Slopes range from 0 to 25 percent with the solum thickness ranging from 40 to 72 inches and the depth to bedrock greater than 60 inches. These soils range from strongly acidic to slightly alkaline depending on proximity to bedrock. Cleared areas of this soil type are used for pasture or crops for silage, although much of the previously cleared area is reverting back to forest. Wooded areas typically contain sugar maple, red maple, American beech, hemlock and associated species. Volusia soils occur mostly at elevations between 1,200 to 1,800 feet above sea level.

Mardin soils consist of very deep, moderately well drained soils formed in loamy till. Slopes range from 0 to 50 percent with a solum thickness ranging from 38 to 72 inches and a depth to bedrock ranging from 20 inches to 20 feet or more. These soils range from strongly acidic to slightly alkaline depending on proximity to bedrock. Most areas of these soils have been cleared for silage crops and pasture. Significant acreage is idle or is reverting to brush and forest. Forested areas contain sugar and red maple, beech, white ash, black cherry, hemlock and occasionally red oak and white pine. Mardin soils are usually found between 800 to 1,800 feet above sea level in this region.

The Project will not alter the basic characteristics of the soils traversed. Some disturbance, however, will be associated with clearing and construction activities. The areas of greatest disturbance will be along heavy equipment routes, around road access points, fabrication areas for the posts, areas where grading may be required for heavy vehicles to negotiate a slope, and at post locations where auguring will be done to set the posts firmly into the ground.

The potential for erosion in areas of disturbance may pose a significant impact on soils. In order

to mitigate such potential impacts, best management practices will be employed to control surface runoff and to minimize erosion potential. Leaving the ground cover and brush as intact as possible, thereby preventing erosion, will also help mitigate potential erosion.

As soil disturbance will be limited and surface runoff controlled and mitigated, the proposed construction will have a minimal permanent impact on soils. All agricultural soils disturbed during construction will be restored and the only permanent impacts will be at new structure locations for the new 115 kV line.

4.7 BIOLOGICAL RESOURCES ANALYSIS

A. VEGETATION

The vegetative cover in the Project area is primarily a mix of forest, active and abandoned agricultural fields and landscaped residential areas (Figure 4-4). Pre-settlement, the Project area was heavily forested, dominated by extensive stands of mature beech, maples, birches, oaks, hickories, American chestnut, white pine and hemlock. Today, agricultural activity in stream valleys, intermediate slopes and hill tops have resulted in a patchwork of open and forested land. Where agriculture has been abandoned, the open areas are in various stages of succession, ranging from early old field plant communities, to areas of scattered shrubs and saplings to thick stands of young trees. Remaining large areas of mature forest are primarily confined to areas unsuitable for agriculture because of steep slopes, wetlands, or unproductive soils. Forests in the Project area are primarily second and third growth. The dominant tree species in wooded areas bisected by the existing transmission line corridors are red oak, American beech, white ash, yellow birch, eastern hemlock, white pine, red maple and sugar maple. Associated species include American elm, green ash, basswood, tulip tree and black cherry. There are several conifer plantations located along the Project dominated by white pine, Scotch pine, red pine, larch, Norway spruce or white spruce. Common understory species along the Project include eastern hop hornbeam, American hornbeam, witchhazel, serviceberry, dogwoods and viburnums. Herbaceous species associated with the northern hardwood forest include several fern species, jack-in-the-pulpit, wild leek, trout lily, Solomon's-seal, Indian cucumber root, trilliums, baneberry, columbine, anemone, hepatica, mayapple, bloodroot, dutchman's breeches, violets, white snakeroot, white wood aster, broad-leaved goldenrod, Indian pipe, and beechdrops.

A variety of perennial grasses, asters, goldenrods, thistles, mulleins, bedstraws, cinquefoils, clovers, wild strawberry, common ragweed, teasel, milkweed, dogbane, raspberry species, pearly everlasting and queen ann's lace are common herbaceous species along the maintained right-of-way and in the open fields along the Project. Young shrub species include gray-stem dogwood, tatarian honeysuckle, northern arrowwood, staghorn sumac and multifloral rose.

The limits of wetland plant communities delineated along the right-of-way are presented in Figure 4-4 (discussed further in Section B below). These communities include palustrine forested, scrub-shrub, emergent marsh and wet meadow wetlands. A relatively narrow mixed scrub-shrub and wet meadow wetland plant community is found along several of the streams that cross the right-of-way. The forested wetland plant community identified adjacent to the right-of-way includes red maple, yellow birch, American elm, eastern hemlock and white pine in the tree layer and spice bush, sensitive, royal and ostrich ferns, and spotted jewelweed in the understory and herbaceous layers. Scrub-shrub wetland plant communities along the right-of-way include willow species, silky and red-osier dogwoods, nannyberry, spirea, alder and red maple saplings. Wet meadow wetlands and the herbaceous layer of scrub-shrub wetland plant communities include reed canary grass, cattail, wool grass, green bulrush, several sedge (*Carex*) species, blue vervain, purple willow-herb, boneset, joe-pye weed, redtop, rice cut-grass, soft rush, path rush, rough-stem and grass-leaved goldenrods, spotted jewelweed, crooked-stem, New England and small white asters, sensitive fern, peppermint. Several wet meadow plant communities are located in the right-of-way on relatively level areas on hillsides.

State Forest Land

Acquisition of additional right-of-way for rebuilding Line 947 will potentially impact approximately 3.9 miles (11.9 acres) of secondary forest including 1.3 miles (3.9 acres) of the Yellow Barn and Kennedy State Forests (Figures 4-4A-K). For construction of the new 115 kV line, additional 37.5-foot right-of-way will be required along the southern side of the Line 945 right-of-way between where Lines 945/947 split near Carpenter Hill Road (just east of the county line) to where the two lines converge near the Lapeer Switching Station. Clearing of the new right-of-way will potentially impact approximately 3.6 miles (16.4 acres) of secondary forest including 3,800 feet (3.3 acres) of the Kennedy State Forest.

Impacts to agricultural land along the proposed Project are discussed in Section 4.8 of this Exhibit.

B. AQUATIC RESOURCES

Streams, Lakes and Ponds

The Project area is located in two drainage basins: the Finger Lakes drainage basin in the western portion of the Project and the Susquehanna River drainage basin in the eastern portion of the Project. As indicated in Figures 4-4A-K, fourteen tributaries and subtributaries of Fall Creek cross the Project corridors between the Etna Substation and Daisy Hollow Road in the Town of Harford. These streams are located in the Finger Lakes drainage basin. The last seven of these streams to the east are tributaries of Virgil Creek, which flows into Fall Creek. Fall Creek discharges westerly into Cayuga Lake which discharges to the Seneca River, which flows into the Oswego River and ultimately Lake Ontario. The first seven tributaries to the west have a New York State classification of Class A and Standards A for drinking water. Virgil Creek is classified as a Class C, Standards C (T) trout stream (Figure 4-4) and is therefore a State-protected stream. All streams with classifications higher than Standards C are protected streams in the State. Class C (T) trout streams have seasonal work restrictions in the streams. The tributaries to Virgil Creek have a classification of Class C, Standards C, and are therefore not State-protected streams.

Seven tributaries and subtributaries to Owego Creek cross the Project corridors in the eastern part of the Project area. These streams are located in the Susquehanna River drainage basin. The Owego Creek discharges into the Susquehanna River south of the Project area in the Village of Owego. All of these tributaries and subtributaries are classified as Class C, Standards C (T) streams and are protected. Big Brook, a Class C, Standards C (T) tributary to the Tioughnioga River, crosses the Line 947/36 right-of-way north of the Lapeer substation. This stream will not be crossed or impacted by the Project.

In the Town of Dryden, the combined Lines 945/947 corridor is located approximately 1,500 feet north of Dryden Lake, a Class C, Standards C water body. Dryden Lake has a residential community and golf course built around the lake. The Project would not impact Dryden Lake.

All of the streams that cross the right-of-way are spanned by the power lines. The majority of the streams are less than 10 feet in width with minimal water flow as they cross the right-of-way. The most significant streams are located along Daisy Hollow Road, Babcock Hollow Road and Quail Hollow Road. These streams are located in wider valleys proximate to roads. These streams likely support fish communities that could include shiners, creek chub, black-nose dace, stonerollers, sculpins, suckers, darters and possibly brown or brook trout. The potential for impacts to streams will occur during right-of-way widening and construction equipment crossings.

The sensitivity of a stream to transmission line construction depends on a variety of characteristics such as water quality, size, flow, orientation, ground water recharge, slope of adjacent shoreline, bank vegetation, soils, streambed composition, and adjacent land use. The construction of a transmission line can adversely affect a stream when it is necessary to remove tall-growing vegetation adjacent to the stream or to construct an access road across the stream. The removal of tall-growing vegetation that shades a stream during right-of-way clearing will increase sun exposure in the cleared area of the stream. The potential for significant thermal impact to aquatic life, however, is generally limited. The removal of riparian vegetation can also increase turbidity and sedimentation in a stream, due to the silt-laden runoff entering the stream and the erosion of the stream bank. The construction of an access road across a stream can also increase turbidity and sedimentation and may possibly destroy suitable habitat for a variety of aquatic fauna.

Not all streams will experience an adverse impact from transmission line construction. Stream crossing impacts can be minimized or prevented by the use of special clearing practices, carefully designed stream crossings, and erosion control measures.

NYSEG's standard practices include treating all streams with care during clearing, construction, and maintenance operations in order to minimize impacts to water quality and the aquatic life community.

Wetlands

NYSDEC, United States Fish and Wildlife Service National Wetlands Inventory (NWI) wetlands and recent field-identified wetlands mapped along the Project are presented in Figures 4-4A to 4-4K. Two Project consultant professional wetland scientists walked the Project corridors in late September 2006 and identified ten wetland areas along the Line 945 and Line 947 corridors. Approximately 3,150 feet of wetland will be crossed by the Project: 1,000 feet along Line 947, 950 feet along Line 945, and 1,200 feet along the combined Lines 945/947 corridors. Three significant wetland areas are located near the area where Lines 945/947 converge near State Route 38 (Dryden-Harford Road). These wetlands are mapped NWI wetlands. One of these wetlands, located along the combined Line 945/947 right-of-way, is also mapped as a NYSDEC freshwater wetland. The field-identified boundaries of these wetlands corresponded well with the mapped NWI and NYSDEC boundaries. Approximately 250 feet of wet meadow/scrub-shrub wetland area was delineated just east of Babcock Hollow Road. The remaining six wetland areas are relatively small wetlands associated with streams, low-lying areas and/or hillside seeps. Efforts will be made to minimize the number of structures placed in wetlands. Where unavoidable, the wetlands will be crossed by heavy equipment during the installation of the new 115kV line and during the rebuilding of Line 947. During right-of-way clearing along Line 945, an approximately 100-foot wide section of wetland will be impacted in forestland east of Babcock Hollow Road (Figure 4-4I). Wetland and stream crossing permits will be obtained from the U.S. Army Corps of Engineers (Nationwide permits) prior to construction. An environmental inspector will ensure that all permit conditions will be adhered to during Project construction. All construction contractors will be given a copy of these permit conditions.

Hydrology

Hydrologic impacts due to transmission line and substation construction are generally limited to minor changes in surface hydrology. At some structure locations, it may be necessary to pump groundwater from excavations, but pumping is usually an isolated and short-term operation. No changes in groundwater conditions are expected to result from construction of the proposed facilities.

Minor changes in surface hydrology may occur at some locations where runoff patterns are altered as a result of grading or filling during access road construction. Such grading may cause an interruption in natural surface flow, which could reduce surface water in some areas and may temporarily affect the growth of nearby vegetation. NYSEG intends to limit access road grading and to implement erosion control measures in an effort to maintain natural drainage patterns and minimize hydrologic impacts.

It may be necessary in some places to discharge water that has collected as a result of grading. In areas where water is discharged, surface moisture will temporarily increase, but such discharges are not expected to have a permanent impact on surrounding vegetation. Precautions will be taken to ensure that erosion and unnatural siltation will not occur at discharge locations. Natural drainage patterns will be reestablished wherever practical during restoration.

If it is necessary to construct an access road through a wetland, the placement of fill may interrupt or interfere with surface drainage. This disturbance may result in changes in local water levels and may affect growth characteristics of nearby vegetation. NYSEG intends to limit such filling and to use culverts and other water control devices to minimize hydrologic impacts.

The proposed Project's impact on surface hydrology will depend largely on the amount of vegetation that is removed. The greatest impact will occur in areas where clearing of the forest canopy is required. Removal of the forest canopy will reduce the amount of precipitation that is intercepted and held by vegetation, thereby increasing the amount of precipitation that reaches the ground.

Removal of the forest canopy and disturbance of the duff layer - the layer that normally absorbs and holds surface water - will increase the rate and amount of surface runoff and will decrease the rates of infiltration and percolation on the right-of-way. Removal of the forest canopy will also decrease the amount of soil moisture that is lost to the atmosphere through transpiration. Increased solar radiation and air turbulence at the ground level, however, will increase the amount of soil moisture that is lost to the atmosphere through evaporation (Herrington and Heisler, 1973). The overall effect of removing forest canopy is a decrease in soil moisture.

Water control devices will be used as necessary along the prime route, thereby minimizing hydrologic impacts. Over time, hydrologic impacts due to construction will be lessened as low-growing plant communities develop on the right-of-way. Although minor changes in surface hydrology will occur in the immediate vicinity of the right-of-way, the proposed facilities will not affect hydrologic characteristics of the region.

C. WILDLIFE RESOURCES

Based on habitats identified in the Project area (see Figures 4-4A to 4-4K for an aerial view of Project area cover types), mammal species present would likely include many of the mammals known to thrive in woodland, field, agricultural land and riparian habitats proximate to areas of human habitation. Range maps indicate that these species would include white-tailed deer, raccoon, opossum, woodchuck, muskrat, red squirrel, gray squirrel, flying squirrel, bobcat, red fox and gray fox, coyote, striped skunk, eastern cottontail, chipmunk, several mice species including white-footed, deer, meadow jumping, woodland jumping and house, Norway rat, meadow vole, mink, porcupine and several bat, shrew and weasel species. Black bear may occasionally enter the Project area, especially in State Forest land. Fisher has been recorded recently in Steuben County but not in the Project area. Mammal species observed during the field surveys conducted in late September 2006 include white-tailed deer, woodchuck, gray squirrel and chipmunk.

Based on observed habitats and range maps, reptile and amphibian species potentially present in the Project area include garter snake, smooth snake, water snake, milk snake, brown snake, ring-necked snake, black rat snake, midland painted turtle, snapping turtle, American toad and several frog and salamander species (Conant 1975). The Project area is within the range of timber rattlesnake, but a lack of suitable habitat limits the potential for this species to exist in the Project area.

Plant communities in the Project area provide suitable resident and transient feeding, resting and nesting habitat for a number of bird species including wild turkey, turkey vulture, mourning dove, American robin, starling, rock pigeon, white-breasted nuthatch, black-capped chickadee, tufted titmouse, blue jay, American crow, northern cardinal, catbird, ruby-throated hummingbird, eastern phoebe, eastern wood pewee, eastern kingbird, cedar waxwing, several warbler, vireo

and flycatcher species, Baltimore and orchard orioles, brown thrasher, northern mockingbird, black-billed and yellow-billed cuckoos, bobolink, indigo bunting, yellow-bellied sapsucker, downy, hairy, pileated and red-bellied woodpeckers, northern flicker, dark-eyed junco, brown creeper, house, marsh and Carolina wrens, cowbird, redwing blackbird, common grackle, rusty blackbird, eastern towhee, barn, rough-winged and tree swallows, purple martin, chimney swift, goldfinch, house finch, bluebird, screech, barred, short-eared, long-eared and great horned owls, kestrel, northern harrier, sharp-shinned, Cooper's and red-tailed hawks, killdeer, ring-billed gull and house, song, field, swamp, savannah, vesper and chipping sparrows. Water birds associated with the limited riparian habitat in the Project area would potentially include spotted sandpiper, great blue heron, green heron, black-crowned night heron, several duck species, Canada goose and kingfisher.

A number of migratory birds would potentially pass through the Project area during spring and fall migrations, including warbler, vireo, tanager, thrush, flycatcher, blackbird, sparrow, raptor and water bird species. Over-wintering, non-resident birds in the Project area could include American tree sparrow, white-throated sparrow, common red poll, pine siskin, ruby and golden-crowned kinglets, evening and pine grosbeaks, red-breasted nuthatch, horned lark, Lapland longspur, American pipit, winter wren, bohemian waxwing, hermit thrush, snow bunting, short eared, long eared, snowy and saw-whet owls, rough-legged hawk and northern shrike.

Endangered, Threatened and Special Concern Species

A number of State-listed birds may migrate over the Finger Lakes region during the spring and fall migrations. These species include endangered golden eagle, peregrine falcon and short-eared owl; threatened pied-billed grebe, bald eagle, northern harrier, upland sandpiper, sedge wren and Henslow's sparrow; and species of special concern common loon, osprey, Cooper's hawk, sharp-shinned hawk, northern goshawk, red-shouldered hawk, common nighthawk, horned lark, Bicknell's thrush, golden-winged warbler, cerulean warbler, yellow-breasted chat, vesper sparrow and grasshopper sparrow. Because the Project will be located in an existing overhead power-line corridor, it is NYSEG's opinion that the proposed Project will not have an adverse impact on these species.

The Federally endangered Indiana bat may also occur in the Project area during the summer breeding season. An Indiana bat hibernaculum (over-wintering cave or mine) is located near Syracuse, New York in Onondaga County. Indiana bats form summer maternity colonies under the loosened bark of dead trees or the bark of mature oaks and shagbark hickories. They typically select groups of trees with a sunny, south-facing exposure in order to maintain high temperatures within the roost. The September 2006 Project walkover by two Project consultant biologists indicated a very limited number of potential roosting trees with southern exposure along the right-of-way. The majority of the forest along the right-of-way is second and third growth. Because of the lack of suitable roosting habitat along the right-of-way, it is NYSEG's opinion that the Project will not adversely impact the Indiana bat.

Impacts to terrestrial wildlife will result from Project construction, right-of-way expansion and maintenance operations. Terrestrial wildlife is typically subjected to disturbance during construction operations when their normal behavior patterns are disrupted. The sensitivity of a particular wildlife species to transmission line construction is partially contingent on the animal's home range and its mobility. Those species with a larger home range will experience minimal impact from construction operations because they are capable of moving to other portions of their home range when disturbed. Small mammals with small home ranges may experience greater impact during transmission line construction. Due to their limited mobility, the entire home range of certain small mammals could be destroyed or severely altered during right-of-way expansion. Some small mammals that inhabit the forest floor and the uppermost soil layer may experience mortality and nest and litter destruction from the use of heavy construction equipment. This mortality will not significantly affect regional small mammal populations. Small mammals such as rodents and insectivores generally have large populations and high reproductive rates. When construction operations are completed, these species will quickly repopulate the right-of-way.

The Project's greatest impact on wildlife populations will result from clearing of the right-of-way, which will change the form and composition of the plant community on the right-of-way. The amount of impact will depend on the amount of clearing required and on the quality and variety of wildlife habitat adjacent to the right-of-way.

Although wildlife communities on the right-of-way will experience varying degrees of impact, as discussed in this section, it is NYSEG's opinion that the Project will not adversely affect wildlife populations in the Project area.

4.8 LAND USE ANALYSIS

A. INTRODUCTION

The overall Project area can be characterized as predominantly rural, with undeveloped forestlands and agricultural land uses typifying the Project area. Some limited residential land use exists in the area along Dryden-Harford Road (State Route 38) immediately south of the Village of Dryden. However, the Project coincides with the existing Line 945 and Line 947 corridors, which are established land uses compatible with the surrounding undeveloped forestland and agricultural, and limited residential land use patterns.

Because the transmission corridors currently exist for both Line 945 and Line 947, no change in the overall land use patterns will result from the Project. Alternative routes would increase the area dedicated to utility corridors resulting in changes in land use that would otherwise be avoidable. The Project routes avoid areas of commercial, industrial, or other developed land uses. A portion of the Project (approximately two miles in distance) south of the Village of Dryden is located in a low-density residential area. Impacts to these land uses are expected to be minimal. According to planning officials in Tompkins and Cortland Counties, no recent land use changes have occurred and none are expected in the proposed Project area.

B. SCENIC AREAS

In 2006, the Tompkins County Planning Department conducted a comprehensive Scenic Resources Inventory as recommended by the Comprehensive Plan, which indicated that no designated scenic overlooks are located within the Project corridor along the Project routes. However, of the 110 candidate views identified as valued for their scenic quality, two views were in proximity to the Project corridor. The first view, identified as View 49, is from West Lake Road 0.2 miles from its intersection with Lake Road looking east over Dryden Lake. From this view the existing transmission corridor (overlap of Line 945 and Line 947) is visible along the base of the hill and crossing over the top of the hill. Given the overall setting and proposed minor changes to the existing transmission corridor, it is not anticipated that the Project will result in an intrusive

visual impact. The second view, identified as View 50, is from Route 392, approximately 0.3 mile from its intersection with Bradshaw Road looking south-southwest over an agricultural setting towards wooded hillsides on the horizon. From this view the existing transmission corridor is not visible. Given the heavy forest cover and limited, extended or panoramic views outward from the existing cuts along the Project corridor, it is not anticipated that the Project will result in an intrusive visual impact.

C. RECREATIONAL SITES

Based on a site visit in September 2006 and a review of USGS topographic maps and aerial photography, the main recreational feature located along the Project is State Forest land. Right-of-way clearing for the Project will impact approximately two miles (7.2 acres) of the Yellow Barn State Forest in Tompkins County and the Kennedy State Forest in Cortland County. The Finger Lakes Trail passes through a section of the Kennedy State Forest. Other recreational uses include a privately owned horseback riding stable, hunting clubs and a golf course. Hikers, exercisers and nature enthusiasts use portions of the existing right-of-ways and some All Terrain Vehicle (ATV) paths are evident in the right-of-ways. Because the Project is located in the existing transmission corridor, the Project is not expected to result in long-term adverse impact other recreational facilities in the Project area. Temporary impacts during construction may result in interruption of use where the new 115 kV line crosses the Fingers Lakes Trail in the Kennedy State Forest and a walking trail east of Rt. 38.

D. ARCHAEOLOGICAL AND HISTORIC SITES

Cultural Resources Research and Data

NYSEG engaged URS Corporation (URS) to conduct a Phase IA Cultural Resource Assessment, which consisted of a cultural resource literature search and a reconnaissance survey covering a two-mile radius surrounding the Project corridors. Research was conducted at the New York State Historic Preservation Office. While some early survey activities in Tompkins County, and particularly in the Town of Dryden, were undertaken in the 1970s, no comprehensive historic resource surveys have occurred in the Project area. However, the absence of previously

identified or recorded historic resources does not correlate with the presence of potentially significant resources. In addition, previous archaeological surveys have focused on the Tompkins County section of the Project area where commercial, industrial, residential development has been concentrated historically. As part of the Phase IA assessment, a URS archaeologist conducted an archaeological assessment of the existing transmission line corridor during September 25–27, 2006. A brief inspection of the standing structures adjacent to and within the transmission corridor was preliminarily assessed for potential visual and direct effects from the Project. This section assesses potential impacts and effects to cultural resources as a result of Project. The results of these investigations are presented in the *Phase IA Cultural Resource Assessment for the Ithaca Reinforcement Project, NYSEG Article 7 Filing, Etna to Lapeer, New York*, October 2006 (Phase IA). The complete Phase IA report is found in Appendix 4-A of this Exhibit. The Phase IA report characterizes the Prehistoric and Historic context of the area within which the Project is located.

Background research for the Phase IA assessment was conducted at the New York State Historic Preservation Office to identify known prehistoric and historic archaeological resources within a two-mile radius of the Project area. Previous research conducted in the vicinity of the Project area noted a dearth of reported archaeological sites, owing in part to the fact that few archaeological investigations have been conducted (Weiskotten and Ravage 1997). A countywide historic resource survey has not been undertaken in Tompkins County since 1977 (Tompkins County Department of Planning, 1977).

Seven reported prehistoric archaeological sites were identified within the two-mile survey buffer adjacent to Project area and are listed in Table 4.8-1. The sites include three occupation sites, two lithic scatters, and two sites classified as stray finds. Two of the occupation sites are located adjacent to perennial sources of water—one on Dryden Lake and the other adjacent a large-order stream. The third occupation is classified as small scale or seasonal and is located on an upland flat, adjacent to two intermittent streams. The lithic scatters and stray finds were identified along Virgil Creek. Additional unreported sites include a large hearth scatter along Virgil Creek, and reference to avocational relic hunting along Fall Creek outside of the town of Etna. Historic sites identified through archaeological surveys are listed in Table 4.8-2 and National Register listed properties within the two-mile Project area are listed in Table 4.8-3 and are included in Figure 1

of the Phase IA Assessment found in Appendix 4-A.

Table 4.8-1 Prehistoric Archaeological Resources Located within the 2-Mile Study Area

OPRHP #	NYSM #	Site Name	Description	Culture Period	Setting	Reference
A02305.000001		Virgil Stray	Debitage - single flake	Unidentified Prehistoric	Upland flat, toe of knoll	Dean 1991
A10942.000169	7464	Dryden 2	Lithic Scatter	Unidentified Prehistoric	Upland flat	Hartgen 2003
A10903.000178	7465	Dryden 3	Dense Lithic Scatter	Unidentified Prehistoric	Unavailable	
A10903.000173		Dryden Lake Site	Multi-component occupation	Archaic to Late Woodland	Area adjacent northern end of Dryden Lake	Weiskotten and Ravage 1997
A10903.000243	10494	Plus Site	Seasonal/small scale Occupation	Late Woodland Iroquoian	Broad upland flat open ag. field	Weiskotten and Ravage 1997
A1093.000172		Brown Farm Site	Prehistoric Occupation	Middle Archaic to Late Archaic	Unavailable	Ebright and McDonald 1978
02305.000001		Endler Stray	Groundstone tool surface find	Unidentified Prehistoric	Bench adjacent upland drainage	Dean 1991

Table 4.8-2 Historic Archaeological Sites

OPRHP #	NYSM #	Site Name	Description	Location	Reference
A10903.000246	10495	Rowland Site	Historic	Rte. 13, west of Dryden	Pratt and Pratt 2002
A10903.000244	10496	Mosso Blacksmith Shop Site	Historic 19th century	Village of Dryden	Hartgen 2003
A10903.000234	10497	Mosso House Site	Historic Early 20th century	Village of Dryden	Hartgen 2003
A10942.000065	SUBi 1082	Dryden Woolen Mill	Historic 20th century Structural and industrial remains	Virgil Creek, Dryden	Weiskotten & Ravage 1997 Hartgen 2003
A10942.000166	SUBi 1105	W.W. King Planing Mill	Historic, ca.1904 Structural remains, architectural and household artifacts	Virgil Creek, Dryden	Hartgen 2003 Mair & Cassell 1984 Weiskotten & Ravage 1997

Table 4.8-3 National Register Listed Properties

OPRHP #	Site Name	Location	Construction Date	Date Listed
90NR02268	Luther Clark House	39 West Main Street, Dryden	ca. 1820-1830	1984
90NR02269	Jennings-Marvin House	9 Library Street, Dryden	1897	1984
90NR02270	Lacy-Van Vleet House	45 West Main Street, Dryden	1845	1984
90NR02271	Methodist Episcopal Church	2 North Street, Dryden	1874	1984
90NR02272	Rockwell House	52 West Main Street, Dryden	ca. 1860-1866	1984
90NR02273	Southworth House, The Homestead	14 North Street, Dryden	1836	1984
90NR02275	Dryden Historic District	Dryden	Multiple	1984
91NR03368	Southworth Library	24 West Main Street, Dryden	1894	1984

Cultural Resources Impact Assessment

A number of potential effects to cultural resources were assessed, including direct and indirect impacts from construction activities, impacts to historic and cultural properties, as well as issues concerning impacts to the viewscape.

Archaeological Resources:

Archaeological sites are adversely affected by activities that disturb the ground. The Project will include activities with potential adverse effects, such as removal of existing transmission structures, construction of new transmission structures, operating heavy machinery, and expansion of the right-of-ways. Impacts to potential archaeological deposits may occur within construction footprints, staging areas, access roads, and in the clearing of vegetation along the right-of-way.

Based on the data collected at the New York State Historic Preservation Office and standard settlement and land-use models, the probability of locating archaeological resources within the Project area is, in part, dictated by the types of settings that will be disturbed during construction. Characteristics of settings favorable to prehistoric habitation generally include relatively level terrain,

well-drained soil, and proximity to a source of water. A table presenting the predictive model for locating prehistoric sites is presented in the Phase IA Assessment in Appendix 4-A. The application of the predictive model results in the following assessment of various sections of the Project routes.

Most of the section of the Project route from Route 13 to Route 38 is characterized as moderate to steeply sloping terrain. Several small-order streams drain the uplands, and a number of upland seeps or springheads were also encountered. Most of this section fits criteria for low potential for archaeological resources, with the exception of the stream crossings and level ground in the vicinity of springheads, which have moderate potential to contain archaeological deposits.

The section of Project route where Line 945 and Line 947 converge, located between Route 38 and Carpenter Hill Road, is considered to have high probability for encountering archaeological resources. This area is characterized by relatively level terrain with large wetlands, a lake, and several streams. Prehistoric resources have been identified in this area. These sites include two stray finds and a Woodland period occupation, the Dryden Lake Site.

From the mountaintop at Carpenter Hill Road moving east to the substation at Lapeer, the terrain consists of steep uplands dissected by perennial stream valleys. The steeply sloped uplands possess low potential for containing resources, but there are areas of moderate and high potential. The bench formations and upland saddles—level areas between two knoll tops—have low to moderate potential depending on their proximity to a water supply. The meandering floodplains in the stream valleys have moderate to high potential for encountering archaeological resources.

Historic Resources:

In addition to the potential impacts to archaeological resources, reconstruction of existing Line 947 and construction the new 115 kV line will introduce elements into the existing viewshed. Any aboveground resources listed on or eligible for the National Register of Historic Places need to assessed for visual effects caused by the new lines and towers.

Locating potential impacts to historic cultural resources follows a slightly different model based on

proximity to transportation routes and population centers. A table presenting the predictive model for locating historic sites is presented in the Phase IA report in Appendix 4-A. In the low potential areas, terrain and proximity to water may factor into the location of occupations and other types of sites, but in more densely settled areas, terrain modification and development of utilities might be utilized to expand settlement into marginal areas.

Most of the historic development encountered within the Project area occurs along established roadways. One potential historic archaeological site was encountered along Babcock Hollow Road at the crossing of Line 947. The site consists of a farmstead with extant outbuildings. Only three small outbuildings remain to mark the site. The primary structure has been demolished.

The Project has the potential to have an effect on aboveground historic resources. Installation of new lines and structures, as well as additional right-of-way clearing has the potential to impact the viewshed of National Register eligible and listed properties. As noted earlier, the bulk of the Project area has not been surveyed for historic aboveground resources. The preliminary site visit revealed a range of structures from new construction to nineteenth-century farmsteads in close proximity to the existing right-of-way. The Village of Dryden includes a concentration of buildings that are listed on the National Register of Historic Places (see Figure 1 in Appendix 4-A).

Phase IA Conclusion

The Phase IA assessment concludes the background research and reconnaissance survey of the Project corridor revealed previously identified historic and archaeological resources, as well as areas with high potential for containing cultural resources. Avoiding these areas and resources may help minimize effects upon cultural resources in the corridor. More intensive surveys are recommended if finalized design plans indicate that construction activities will occur within high-potential areas or known locations of cultural resources.

E. EXISTING LAND USE AND LAND COVER

The Project area is characterized as primarily a rural landscape of hills and glacial valleys covered

with forest, agricultural fields, and scattered rural residences. Limited newer residential pockets are located closer to the Village of Dryden. The Tompkins County Cooperative Extension characterizes agricultural and uses in the vicinity of the Project corridor as primarily consisting of dairies and livestock, pasture lands or hay, and limited areas having other crops.

The Tompkins County Comprehensive Plan identifies the existing development pattern in the Project area as Rural/Scattered, Rural/Concentrated and areas of Existing Protected Open Space. Similarly, the Project area on Cortland County can be characterized as a rural undeveloped landscape.

The data source used for identification of the various land uses within the Project area in Tompkins County was the Land Use/Land Cover (LULC) data base, updated in 2000 and available for the Tompkins County ITS GIS Division. To supplement the LULC data, the proposed Project routes were compared to the current aerial photographs (2002 for Tompkins County and 2003 for Cortland County). In addition, the land use along the Project were observed during field visits in September 2006. At the time of this filing, geographic information systems (GIS) based land use data was not available for Cortland County. For Cortland County, digital orthophotography and field observations were utilized to characterize the land use pattern.

Table 4.8-4 lists the types of land use categories crossed by the proposed routes in Tompkins County and their distance. It is important to note that because the LULC system is based on tax map parcels and Project facilities follow easements, not individual tax map parcels, the existing transmission corridors are not categorized as utility uses. However, there will be only limited actual conversion of land and changes in land use resulting from the Project. This is a result of efforts made during Project routing to utilize the existing transmission corridors.

Table 4.8-4 Land Uses Crossed by Line 945 and Line 947

LINE 945 – Tompkins County				
Land Use	**Land Cover**	**Symbol**	**Miles**	**Percent of Distance**
Tompkins County				
Agriculture	Cropland	Ac	1.33	16.2
Agriculture	Inactive Agriculture	Ai	0.47	5.7
Agriculture	Pasture	Ap	0.38	4.6
Residential	Low Density (<1 du/ac)	Rl	0.20	2.4
Residential	Med. Density (< 5du/ac)	Rm	0.05	0.6
Commercial	Offices	Co	0.09	1.1
Industrial	Power Plan/Substation	Iu	0.15	1.8
Recreation	Recreation corridors	Oe	0.01	0.1
Vacant	Disturbed Land	D1	0.03	0.4
Vacant	Brush	Fb	4.83	58.7
Vacant	Forested	Fd	0.24	2.9
Vacant	Open Grassy Areas	Fg	0.08	1.0
Vacant	Forested (Mixed)	Fm	0.14	1.7
Vacant	Forest Plantation	Fp	0.03	0.4
Vacant	Shrub Wetlands	Wb	0.20	2.4
Tompkins County TOTALS			8.23 acres	100.0

LINE 947 – Tompkins County				
Land Use	**Land Cover**	**Symbol**	**Miles**	**Percent of Distance**
Tompkins County				
Agriculture	Cropland	Ac	1.26	15.1
Agriculture	Inactive Agriculture	Ai	0.41	4.9
Agriculture	Pasture	Ap	0.23	2.8
Residential	Low Density (<1 du/ac)	Rl	0.08	1.0
Residential	Med. Density (< 5du/ac)	Rm	0.12	1.4
Commercial	Offices	Co	0.09	1.1
Industrial	Power Plan/Substation	Iu	0.15	1.9
Recreation	Recreation corridors	Oe	0.01	0.1
Vacant	Disturbed Land	D1	-	-
Vacant	Brush	Fb	4.88	58.6
Vacant	Forested	Fd	0.43	5.2
Vacant	Open Grassy Areas	Fg	0.19	2.3
Vacant	Forested (Mixed)	Fm	0.21	2.5
Vacant	Forest Plantation	Fp	0.01	0.1
Vacant	Shrub Wetlands	Wb	0.21	2.5
Vacant	Wooded Wetland	Ww	0.03	0.4
Vacant	Water body	Wn	0.01	0.1
Tompkins County TOTALS			8.32	100.0

As shown on Table 4.8-4, approximately 69.60% of the combined Project routes in Tompkins County cross areas that fall into a vacant or undeveloped land use category which include: Disturbed Land, Brush, Forested, Open Grassy Areas, Forested (Mixed), Shrub Wetlands, Wooded Wetland, and Water Body. Approximately 24.7% of the proposed routes cross areas categorized as agricultural lands, which include the following LULC land use categories: Cropland, Inactive Agriculture and Pasture. Electric transmission structures are generally compatible with

agriculture although the existence of such structures in cultivated fields may result in less maneuverability for large farm equipment. Because the proposed Project routes will utilize the existing transmission corridors, the Project will not have a significant effect on agricultural operations. A discussion of the agricultural land uses crossed by the transmission line and the impacts likely to result from construction of the line follows this section. Of the 4.08 miles of agriculturally classified lands the existing transmission corridors cross approximately 0.88 miles of lands classified as Inactive Agriculture. As with the other agricultural land use, because the proposed Project routes utilize the existing transmission corridors, there will be little net impact to inactive Agricultural lands. The remaining land use categories in Table 4.8-4, Residential, Commercial, Industry, and Recreation, comprise about 5.7% of the distance crossed by the Project. No significant changes are anticipated in these land use/land cover categories.

The above land use categories occur along the section of the Project east of the NYSEG Etna Substation where existing Line 947 will be reconstructed within the existing transmission corridor (with a 25 foot right-of-way addition in places). The new 115 kV line will utilize the existing Lines 945/524 corridor and Line 945 corridor (with a 37.5 foot right-of-way addition in places).

Similar to Tompkins County, the land use pattern in the vicinity of the Project located in Cortland County is also predominantly rural and undeveloped. The land cover is typified by forest lands and agricultural lands. The existing Line 945 right-of-way will be widened by 37.5 feet in Cortland County. The existing Line 947 right-of-way will be widened by 25 feet along certain sections with existing 100-foot right-of-way. The right-of-way expansion will convert some secondary forest to cleared land. Areas of active agriculture where new right-of-way will be obtained will continue as agricultural land. Approximately six acres of a Christmas tree farm will be converted for construction of the new Lapeer Substation. Approximately one acre of this land is upland secondary forest.

The continued use of the existing rights-of-way in rural and agricultural areas minimizes the amount of land subject to conversion. Therefore, it is not anticipated that combined, the reconstruction of Line 947 and addition of the new 115 kV line will result in a significant change in the overall land use pattern in the Project area.

F. AGRICULTURAL ANALYSIS

This analysis was based on a review of the land use and land cover mapping. For this assessment, active agriculture was considered to be land designated by the County LULC database as Cropland and Pasture. The length of the existing transmission corridor that crosses through lands designated as Cropland or Pasture comprises approximately 19% of the proposed Project routes. Inactive Agriculture comprises about 5.3% of the distance crossed by the proposed routes. These inactive agricultural lands were not included in the agricultural analysis because of their long-term agricultural inactivity. Utilization of the existing transmission corridors along the Project route will not preclude the use of inactive agricultural lands for agricultural purposes in the future.

The Project crosses two Agricultural Districts, which are depicted in Figure 4-5. Table 4.8-5 provides the Agricultural Districts and the distance that each is crossed by the Project. All agricultural lands, both within and outside of Agricultural Districts, were given equal consideration when assessing agricultural land use impacts.

Table 4.8-5 Agricultural Districts Crossed by the Project Routes

County	Agricultural District	Distance	Percent of Total Project
Tompkins	No. 1	7.11 miles	24.2%
Cortland	No. 1	2.89 miles	9.8%

Table 4.6-2 provides the distances that prime agricultural soils are crossed by the Project routes. Table 4.6-2 includes categories for Prime Farmland Soils and Farmland of Statewide Importance. The existing transmission corridors cross approximately 15.1 miles of Prime Farmland Soils and 3.2 miles of Farmland of Statewide Importance. Replacement of new tower structures on Line 947 and construction of tower structures for the new 115 kV line in the Line 945 corridor will occur along approximately 18.4 miles of Prime Farmland Soils and Farmland of Statewide Importance.

The impact of the proposed facilities on agricultural lands is associated with structure placement and construction and maintenance practices. Transmission structures located in cultivated fields

typically result in a small area of land that is permanently removed from agricultural production. These structures may also present an obstacle to equipment operation, reducing efficiency in tilling, planting, cultivating, and harvesting. Where engineering criteria permit, NYSEG will attempt to locate new structures in hedgerows, along edges of fields, or in pastures during final line design to minimize impacts. Where active cropland cannot be avoided, NYSEG will attempt to locate new structures so that farm equipment can maneuver between structures and the edges of fields. During line construction, crops between structure locations will not be cut unless absolutely necessary. The proposed transmission line is expected to cause minimal conflict with agricultural equipment operated under or adjacent to the line.

Although permanent access roads will not be maintained across cultivated land, access to structure locations during clearing and construction may require use of such lands. The amount of land temporarily removed from agricultural production will be the minimal amount necessary to complete the Project . To reduce potential disturbance to cultivated lands, construction traffic will be limited to a single travel lane or access road. It is NYSEG's policy to use existing farm lanes or roads for access to structure locations whenever possible. Where access roads must cross livestock enclosures, NYSEG will maintain the integrity of intact fences used to restrain livestock. NYSEG's fence repairs and gate installations will be equal in quality to original installations. Wire fences that run parallel to the proposed line are grounded by posts or through contact with weeds or grass and generally will not need additional grounding. However, NYSEG will provide additional grounding if needed. If electric fences are affected by the proposed facility, NYSEG will install the necessary filters.

Fabrication areas for structure installation may temporarily displace production in cultivated fields. This displacement, however, should not result in crop loss for more than one or two growing seasons. Subsoil from structure installation excavations could also affect future crop yields. To minimize this potential impact, excavated subsoil material will be confined to the structure base area.

During discussions with property owners and the USDA Natural Resources Conservation Service, efforts will be made to identify the locations of drainage tiles and drainage ditches so that field improvements might be protected or avoided during construction or maintenance activities. If,

however, drainage tiles and ditches are damaged during construction of the line, they will be repaired. If tillable fields are disturbed by construction equipment they will be scarified, harrowed, and, if appropriate, seeded when construction in the area is complete. Farmers will be consulted concerning selected areas for seeding and seed mixtures. NYSEG recognizes that soil compaction on agricultural lands results in reduced soil productivity that can result in crop yield loss. It is NYSEG's belief that the benefits of deep tillage, harrowing, winter cover crop, and natural freeze-thaw cycles will negate crop yield loss due to soil compaction in one or two years. After construction, NYSEG will attempt to minimize long-term impacts to agricultural lands. When clearing must take place in a pasture, cut vegetation that is known to be toxic to livestock will be removed from the pasture and disposed of where it cannot harm farm animals.

Work crews will be required to clean up debris and trash as they move from one work area to another. Existing structures that will be removed in conjunction with the Project will be removed as outlined in Section 4.5(E). In cultivated fields, any existing guy anchors and pole butts will be removed to a minimum depth of 24 inches below the ground line.

NYSEG recognizes agriculture as an important land use on its rights-of-way and that electric line construction impacts to agricultural activities can be significant. However, NYSEG believes that the proposed Project's overall impacts to agricultural land will be minimal. In those areas where damage or permanent loss cannot be avoided, compensation will be made for losses.

G. FUTURE LAND USE

To assess the proposed facilities' potential impact on future land use in the Project area, NYSEG contacted representatives of the applicable municipal governments and county planning offices. Available planning documents were reviewed to determine if any expected or planned land use changes would be impacted by the proposed facilities and future land uses where discussed with municipal planning representatives. In general, towns in the Project area are expected to remain rural with forest and agriculture dominating the landscape. The Project area's historical and inherent agricultural nature was described in the following documents: Tompkins County Comprehensive Plan – Planning for the Future, 2004; Cortland County Consolidated Plan, 2002; and Town of Dryden Comprehensive Plan, 2005.

The Tompkins County Comprehensive Plan identifies a future Plan Scenario. Under the future Plan Scenario the Project corridor crosses a land use pattern consisting of Rural/Scattered, Rural/Concentrated and Existing Protected Open Space categories. Under this scenario, development will grow at a slower rate than the other rural areas. The Tompkins County Comprehensive Plan also identifies selected regions as Natural Features Focus Areas where the County will concentrate efforts to preserve open space and natural resources. The Project crosses two Natural Features Focus Areas: State Forest lands and Fall Creek. The Project crosses of the northern most extent of the 40,000-acre crescent shaped area known as The Forest Lands. The Forest Lands contain state forests, creeks, wetlands, biological corridors, Unique Natural Areas (UNA) and trails. The Project also crosses the 9,000-acre area known as Fall Creek. The Fall Creek Area consists of an IBA wetlands, a biological corridor, UNAs and trails. By designing the reconstruction of Line 947 and new 115 kV line along Line 945 within their existing transmission corridors, the Project is consistent with the goals of the plan. The Tompkins County Comprehensive Plan also identifies Agricultural Resources Focus Areas where grow will occur at a slower rate that the other rural areas. Combined, the two focus areas are termed Rural Resources, which represent a proposed land use category.

The Cortland County Consolidated Plan is focused on housing and does not address land use issues relevant to this assessment. The most recent county land use plan was prepared in 1978 and was not available for review. However, in a telephone interview, the County Planning Director indicated that the general land use pattern remains rural with little development in the areas around the Project. In addition, indicated that based on past development patterns and due to the volume of publicly owned lands, significant land use changes or extensive growth are not anticipated in the vicinity of the Project routes. The 1978 Land Use Plan indicates a continued rural land use pattern in the Project area.

A review of the Town of Dryden Comprehensive Plan reveals that growth is expected to occur in the Town west of the Village of Dryden rather than to the south, in the vicinity of the Project. The Town of Harford and the Town of Lapeer do not have master plans.

In general, the applicable plans call for preserving areas for agricultural use and limiting development to clustered development or nodal locations in and around the Villages and hamlets.

Based on an analysis of adopted plans and discussions with municipal planning representatives, it is NYSEG's opinion that, because of the relatively stable nature of land use patterns in the Project area, improvements to Line 947 and construction of the new 115 kV will not adversely affect future land use patterns.

H. POPULATION ESTIMATES

Population estimates for the towns along the Project routes were assessed to identify potential future land use conflicts as population increases and development occurs. Population estimates for the year 2005 and housing data for the towns crossed by the proposed route are presented in Table 4.8-6 and Table 4.8-7, respectively.

Table 4.8-6 Population Data and Estimates

Municipality	Actual Population *		Estimated Population**	1990 - 2005	
	1990	2000	2005	+/- Change	% Change
Tompkins County					
Dryden	13,135	**13,532**	13,924	789 +	6.0 %
Cortland County					
Harford	886	**920**	915	29 +	3.3 %
Lapeer	613	**686**	683	79 +	11.4 %

* Reference: U.S. Census of Population 1990, 2000; U.S. Bureau of Census

** Reference: NYS Data Center, Cornell Institute for Social & Economic Research, 2006

Population data are based upon 1990 and 2000 census data. Because population estimates are not available for towns from the US Census Bureau, estimates from the NYS Data Center at the Cornell Institute for Social & Economic Research were utilized. Population estimates indicate that none of the three towns crossed by the Project routes experienced significant growth from 1990 to 2005. During this period, the Town of Lapeer is estimated to have had approximately eleven percent growth. However, the estimated population change from 2000 to 2005 was a loss of 3

persons. Similarly, the Town of Harford was estimated to have lost 5 persons. The estimates indicate a stable population.

Changes in housing units for the towns along the Project routes were also assessed to identify potential future land use conflicts. As shown in Table 4.8-7, the number of housing units also increased town wide in each of the three municipalities crossed by the Project.

Table 4.8-7 Housing Units

Municipality	Total Housing Units*		1990 – 2000	
	1990	2000	+/- Change	% Change
Tompkins County				
Dryden	**5,362**	**5,781**	**419+**	**7.8%**
Cortland County				
Harford	**328**	**363**	**35+**	**10.7%**
Lapeer	**232**	**269**	**37+**	**15.9%**

* Reference: U.S. Census of Population 1990, 2000; U.S. Bureau of Census

The Project routes traverse sparsely developed areas of two counties. Population in these areas is scattered and at low densities except within villages and hamlets, which are not crossed by the Project corridor. Short segments of the Project corridors (new 115 kV line, Line 947 upgrade, as well as the overlapping segment) are located approximately ¾ mile south of the Village of Dryden boundary. In this area the line crosses through and in the vicinity of existing residential subdivision developments, which are more that ten years old and nearly built out. In this area the Project will remain within the existing rights-of–way and is not anticipated to conflict with the existing residential land uses. Limited impacts may result from the addition of new structures and 25 feet of right-of-way in this area.

Based on available census data, population and housing unit growth in the towns crossed by the proposed routes is not expected to increase significantly from current levels. Therefore, it is not anticipated that growth and development will occur at levels that cause significant future land use conflicts with the proposed Project. The use of existing right-of-ways also will avoid future land

use conflicts.

4.9 VISUAL IMPACT ANALYSIS

This section addresses the potential visual impact of the proposed Project. This visual impact analysis is based on NYSEG's assessments of the surrounding area's landscape, the exposure of the proposed facility to the public, and the Project's potential visibility. Please refer to Figures 4-4A through 4-4K for an aerial view of the Project.

The overall Project area is predominantly rural and is characterized by successional old field, shrubland and forest, mature forest and conifer plantations, and agricultural land. The Project would be constructed along existing overhead electric transmission line corridors. The route for the new 115 kV line along the Line 945 right-of-way east of the county line (Line 524 split) would require widening of existing right-of-way by 37.5 feet. An additional 1,200 feet of right-of-way will be widened in the combined Lines 945/947 right-of-way between the NYSEG district office on Route 13 and the Line 523 join approximately 1,200 feet to the east (Figure 4-4A). In order to rebuild Line 947, some sections of existing 100-foot right-of-way will need to be widened to 125 feet. The widening of right-of-way would primarily impact secondary forest and farm land. The clearing of forest land will have long-lasting impacts while impacts to farm land will be generally temporary. The remaining impact would be on abandoned farmland undergoing plant community succession, the process where abandoned or cleared land is slowly reverting to forest.

These impacts will likely have minimal exposure to the public. State Route 38 (Dryden-Harford Road) is the only major road intersecting the Project corridors. The widening of Line 947 by 12.5 feet on each side of the right-of-way would be a minor visual impact in a pre-existing right-of-way. Minor roads intersecting the Project corridors include, from west to east: Mineah Road, Ringwood Road, Yellow Barn Road, Tehan Road, Irish Settlement Road, Kimberly Drive, Lake Road, Southworth Road, Daisy Hollow Road, Adams Road, Hilsinger Road, Babcock Hollow Road, Quail Hollow Road and Clarks Corners Road. Except at close range, the widening of right-of-way through forest and successional plant communities would barely be perceptible. The existing power line corridors and associated right-of-way have been a part of the visual landscape for over 50 years. While driving down these local roads, the views of the right-of-way

are often obstructed by low and residential vegetation and actually visible for only a glimpse.

The rebuilding of Line 947 will take place entirely within the existing 150-foot existing transmission line right-of-way, with limited exceptions where the 100-foot right-of-way will need to be enlarged to 125-feet wide in order to safely accommodate the line. The new construction will be H-frame, single circuit construction, as is the existing line. The structures will be designed and framed to accommodate the proposed larger and heavier conductors. The structures will have the same basic span spacing as the existing line. The difference between the existing line and the replacement line will be insignificant to passersby on local roads. The only significant visual impacts will occur during construction, and these impacts will be temporary.

The Etna Substation modifications will occur at the existing substation. The new Lapeer Substation will be constructed on approximately six acres of an existing Christmas tree farm located immediately adjacent to the Lapeer Switching Station. Although some visual impacts will occur at this site, they will be tempered because of the existing Switching Yard.

As indicated in Section 4.8 of this exhibit, no designated scenic overlooks are located along the Project corridor in Tompkins County. Although no such data was readily available for Cortland County, the September 2006 site walkover did not identify any potential designated scenic areas along the Cortland County portion of the Project corridor.

The overall visual impact of the proposed will be low. The majority of the Project will take place in existing right-of-way and the rebuilt and new structures and lines will be similar to the existing structures and lines. The new 115 kV line will be constructed along the existing Line 945 right-of-way. Much of the right-of-way expansion will be located behind hilltops or in forested areas, which significantly restrict or limit visibility. Visibility of the right-of-way from roads will be tempered by distance and intervening topography and vegetation. The existing right-of-way has been visible to local residents for over 50 years. Substation improvements will occur at existing facilities.

4.10 SUBSTATION FACILITIES

At the eastern end of the Project, a new 345/115 kV substation will be constructed adjacent to the existing NYSEG-owned Lapeer Switching Station with the high side connecting to NYSEG/National Grid Oakdale-Lafayette 345 kV Line 36. The new substation will consist of two 345/115 kV, 200 MVA, LTC transformers, a 345 kV ring bus and a 115 kV ring bus. Approximately 6 acres of land immediately south-southwest of the existing Switching Station will be acquired for the new substation. The land is currently used as a Christmas tree farm.

At the western end of the Project, the existing NYSEG Etna Substation will be modified to adequately accept the new 115 kV line from the proposed Lapeer Substation. All modifications will take place within the existing facility.

APPENDIX 4-A

Cultural Resources Assessment

Phase IA Cultural Resource Assessment for the Ithaca Reinforcement Project, NYSEG Article 7 Filing, Etna to Lapeer, New York

Prepared for:

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October 2006

PHASE IA CULTURAL RESOURCE ASSESSMENT FOR THE ITHACA REINFORCEMENT PROJECT, NYSEG ARTICLE 7 FILING, ETNA TO LAPEER, NEW YORK

As part of the environmental studies conducted for New York State Electric and Gas Corporation (NYSEG), in advance of proposed improvements to the transmission system along 15 miles of right of way (ROW) from Etna to Lapeer, URS Corporation (URS) conducted a cultural resource literature search and a reconnaissance survey covering a two-mile radius surrounding the transmission corridor. A URS historian conducted research at the New York State Historic Preservation Office. While some early survey activities in Tompkins County—particularly the town of Dryden—were undertaken in the 1970s, no comprehensive historic resource surveys have occurred in the Project area. However, the absence of previously identified or recorded historic resources does not correlate with the presence of potentially significant resources. In addition, previous archaeological surveys have focused on the Tompkins County section of the Project area where commercial, industrial, residential development has been concentrated historically.

A URS archaeologist conducted an archaeological assessment of the existing transmission line corridor from September 25–27, 2006. Additionally, a brief inspection of the standing structures adjacent to and within the transmission corridor was preliminarily assessed for potential visual and direct effects from the proposed reinforcement Project. This document will assess potential impacts and effects to cultural resources as a result of proposed construction activities. It will offer recommendations for further cultural resource studies, dependent upon the final location of new and replacement NYSEG transmission lines.

LOCATION AND PROJECT DESCRIPTION

Proposed improvements will involve reinforcement of approximately 15 miles of an existing 115 kV transmission line and construction of a new 115 kV transmission line. The Project ROW spans approximately 15 miles from the substation in Etna to a new substation located to the west of the town of Lapeer. Reinforcement of the existing 947 line involves reconstructing the existing transmission towers to meet current standards. The new transmission line will follow the existing 945/524 lines from Etna to Dryden; from Dryden, the proposed new line will steer south and parallel the existing 945 line along its southern edge.

PREHISTORIC CONTEXT

Paleoindian Period (Circa 10,000 to 7000 B.C.)

The Paleoindian period marks the arrival of the earliest inhabitants in the northeastern United States. The people living during this time period were nomadic hunters and gatherers. They followed the migrations of herding animals as they ranged across the landscape. In this fashion,

they traveled across the continent and down into the northern reaches of Latin America. Paleoindians arrived in the northeast circa 10,000 B.C. and lived on terrain shaped by receding glaciers. The Dutchess Quarry Cave Site in eastern New York produced carbon dates of 10,580 B.C. (+/- 370 years). Due to their mobility, the occupation sites they left behind tend to be small in scale and ephemeral. As such, little is known about their culture. Diagnostic lancelet Projectile points with fluted channels are characteristic of this time period and are found across North America. Two such Projectile points were found on the Cornell University campus in Ithaca, New York.

Archaic Period (Circa 7000 to 1000 B.C.)

The Archaic period is a relatively long span of time during which bands of hunting and gathering peoples adapted to life in the Eastern Woodlands. This period is generally subdivided into Early Middle and Late Archaic subperiods marked by technological and social changes, culminating in a florescence of regionally significant cultures with far-reaching influence. Cultural material recovered from Archaic sites reflects technological diversification, likely linked to more generalized subsistence strategies. People started to exploit a variety of plant and animal food resources, including nuts and seeds, fish and shellfish, migratory fowl, as well as available mammals. During the Late Archaic, an increasing riverine focus is noted, and in tidal areas there is evidence of heavy reliance on marine resources. Due to a high degree of mobility, social units tended to be small. Occupation sites range in size, though they tend towards seasonal occupation. Larger sites may reflect redundant use over time. Seasonal migrations of populations within non-specific geographic ranges may have supported the development of regional differences between cultures. To a degree, this regionalization may be reflected in the variety of different styles of Projectile points and complexes of material culture distributed geographically. This period also saw increasing social complexity, including the elaboration of mortuary ceremonialism.

Woodland Period (Circa 1000 B.C. to A.D. 1600)

The Woodland period marks a time of increasing social diversification and complexity. Social and technological advances include the development of ceramic technology, use of the bow for hunting, and horticultural food production. Settlement tended to be more permanent than during the previous period and populations increased. A degree of mobility persisted until the adoption of maize-centric agriculture (circa A.D. 1300). Increased sedentism, village life, and increased population gave rise to new levels of sociopolitical organization, which in turn gave rise to the Iroquois tribal system present at the time of historic contact in the early seventeenth century. Woodland period sites include seasonal to permanent occupation sites, as well as small-scale resource procurement and hunting encampments. Large occupation sites may reflect a longer period of in situ development than seen in previous periods. Considerations for settlement during this period may have included the accessibility of arable land.

HISTORIC CONTEXT

The Project corridor traverses the town of Dryden in Tompkins County and the towns of Harford and Lapeer in Cortland County. The first Euroamerican settlers migrated into this area of Cortland and Tompkins Counties after the close of the Revolutionary War. Dryden, Harford, and Lapeer Townships were included in a large government tract—known as the Military Tract—partitioned and awarded to veterans of the Revolutionary War. Pioneer families migrated to this part of the Finger Lakes region by one of two routes. The first followed the Susquehanna River system from the market outlets of Philadelphia and Baltimore, and then followed a new trail to Ithaca. In 1789, three families were the first to make a two-month journey into the wilderness that brought them to the head of Cayuga Lake, thus founding Ithaca (Tompkins County Department of Planning 1977:33). The second route into the Project area began in the Hudson River Valley and led settlers through the Mohawk River Valley and along Fall Creek.

Tompkins County was heavily forested with rolling hills and numerous streams suitable for running small water-powered industries. Dryden was generally level and easily adapted to farming. Dryden's first settler arrived in 1797 and built a house on Bridle Lane, a path built by the state in 1795 that was later incorporated into sections of New York State Route 13. The lack of cleared cart roads made access to water routes one of the most important factors in the area's early settlement pattern. The villages of Dryden, Etna, Varna, and Ellis developed where the state road crossed waterways (Dieckmann 1998:92). Within a decade of settlement, turnpikes began to crisscross the Project area. Atlases published in the 1860s and 1870s indicate that the present road system was already in place (Everts, Ersign and Stewart 1876; Smith 1885:60; Stone and Stewart 1866).

By 1800, Dryden had its first sawmill on Virgil Creek, north of Willow Glen. Other small industries linked to agriculture and lumbering were quickly established (Goodrich 1898:16–17, 37, 231). In the first four decades after settlement, the local economy was sustained by lumbering and wood-related industries. At its peak, around 1835, over 50 sawmills were active in the township. Villages grew into commercial centers with several mills or manufacturing enterprises that included gristmills and distilleries. As timber resources became exhausted, the local economy shifted toward agriculture. Etna supposedly borrowed its name from the volcano in Sicily due to the flames and smoke emanating from the many distilleries in the hamlet. The surrounding area remained open agricultural land (Tompkins County Planning Department 1977:34).

The village of Dryden experienced its greatest era of prosperity during the 1820s through the 1880s. It became the town's first incorporated village in 1857. By the 1870s, Dryden was crossed by three railroads: the Southern Central; the Ithaca-Cortland; and the New York & Oswego Midland (Tompkins County Planning Department 1977:63). Rail service provided better and speedier access to large urban markets. A shift was made to dairy production to take advantage of this new transportation system. Dryden Lake had an extensive ice harvesting business from the 1890s to 1932. A rail line extended from the lake to the Borden Milk Plant built in the village of Dryden in 1905. The milk plant shipped out milk to the New York market until 1960 (Dieckmann 1998:104). By 1950, however, half of the residents of Dryden Township's rural districts were no longer making their living from agriculture.

Ithaca became Tompkins County's commercial, industrial, and transportation center and steadily

increased in population. Dryden with its productive soils and lumber industry had the largest population outside of Ithaca. Cornell University was established in Ithaca in 1868 and became the county's economic stabilizer (Tompkins County Planning Department 1977:38). The advent of automobile transportation and the resulting efforts to improve roads in the first decades of the twentieth century allowed people to commute to work in Ithaca and touched off suburbanization in the area surrounding Ithaca. Cornell's expansion after the Second World War attracted new residents to the area and spurred the further suburbanization of the surrounding countryside. State Route 13 was widened and became a commercial and residential corridor through Dryden.

As in the case of Tompkins County, the first Euroamericans to settle in Cortland County arrived in the 1790s. Early settlers had to clear woodland to begin farming. Lumbering and related wood-product industries remained the area's economic mainstay until the late 1860s, when timber resources were exhausted. Lapeer's first settler was Primus Grant, a native of Guinea in West Africa, in 1799. The first saw and gristmills were not established in Lapeer until the 1820s. The commercial hub of the town was located at Lapeer Corners and Hunt's Corners, and was the scene of several small industries. One of Harford's earliest settlers arrived during the war of 1812. Commercial and industrial centers were located at Harford Village and Harford Mills. Lapeer and Harford had rough and broken terrain and remained agricultural areas focused on dairy products. Neither town ever developed major commercial or industrial centers and remained part of the town of Virgil until 1845.

CULTURAL RESOURCES

Background research was conducted at the New York State Historic Preservation Office to identify known prehistoric and historic archaeological resources within a two-mile radius of the Project area. Previous research conducted in the vicinity of the Project area noted a dearth of reported archaeological sites, owing in part to the fact that few archaeological investigations have been conducted (Weiskotten and Ravage 1997). A countywide historic resource survey has not been undertaken in Tompkins County since 1977 (Tompkins County Department of Planning, 1977).

Seven reported prehistoric archaeological sites were identified within this two-mile survey buffer around the Project area and are listed in Table 1. The sites include three occupation sites, two lithic scatters, and two sites classified as stray finds. Two of the occupation sites are located adjacent to perennial sources of water—one on Dryden Lake and the other adjacent a large-order stream. The third occupation is classified as small scale or seasonal and is located on an upland flat, adjacent to two intermittent streams. The lithic scatters and stray finds were identified along Virgil Creek. Additional unreported sites include a large hearth scatter along Virgil Creek, and reference to avocational relic hunting along Fall Creek outside of the town of Etna. Historic sites identified through archaeological surveys are listed in Table 2. National Register listed properties within the two-mile Project area are listed in Table 3. Both are included on Figure 1.

Table 1 Prehistoric Archaeological Resources Located within the 2-Mile Study Area

OPRHP #	NYSM #	Site Name	Description	Culture Period	Setting	Reference
A02305.000001		Virgil Stray	Debitage - single flake	Unidentified Prehistoric	Upland flat, toe of knoll	Dean 1991
A10942.000169	7464	Dryden 2	Lithic Scatter	Unidentified Prehistoric	Upland flat	Hartgen 2003
A10903.000178	7465	Dryden 3	Dense Lithic Scatter	Unidentified Prehistoric	Unavailable	
A10903.000173		Dryden Lake Site	Multi-component occupation	Archaic to Late Woodland	Area adjacent northern end of Dryden Lake	Weiskotten and Ravage 1997
A10903.000243	10494	Plus Site	Seasonal/small scale Occupation	Late Woodland Iroquoian	Broad upland flat open ag. field	Weiskotten and Ravage 1997
A1093.000172		Brown Farm Site	Prehistoric Occupation	Middle Archaic to Late Archaic	Unavailable	Ebright and McDonald 1978
02305.000001		Endler Stray	Groundstone tool surface find	Unidentified Prehistoric	Bench adjacent upland drainage	Dean 1991

Table 2 Historic Archaeological Sites

OPRHP #	NYSM #	Site Name	Description	Location	Reference
A10903.000246	10495	Rowland Site	Historic	Rte. 13, west of Dryden	Pratt and Pratt 2002
A10903.000244	10496	Mosso Blacksmith Shop Site	Historic 19th century	Village of Dryden	Hartgen 2003
A10903.000234	10497	Mosso House Site	Historic Early 20th century	Village of Dryden	Hartgen 2003
A10942.000065	SUBi 1082	Dryden Woolen Mill	Historic 20th century Structural and industrial remains	Virgil Creek, Dryden	Weiskotten & Ravage 1997 Hartgen 2003
A10942.000166	SUBi 1105	W.W. King Planing Mill	Historic, ca.1904 Structural remains, architectural and household artifacts	Virgil Creek, Dryden	Hartgen 2003 Mair & Cassell 1984 Weiskotten & Ravage 1997

Table 3 National Register Listed Properties

OPRHP #	Site Name	Location	Construction Date	Date Listed
90NR02268	Luther Clark House	39 West Main Street, Dryden	ca. 1820-1830	1984
90NR02269	Jennings-Marvin House	9 Library Street, Dryden	1897	1984
90NR02270	Lacy-Van Vleet House	45 West Main Street, Dryden	1845	1984
90NR02271	Methodist Episcopal Church	2 North Street, Dryden	1874	1984
90NR02272	Rockwell House	52 West Main Street, Dryden	ca. 1860-1866	1984
90NR02273	Southworth House, The Homestead	14 North Street, Dryden	1836	1984
90NR02275	Dryden Historic District	Dryden	Multiple	1984
91NR03368	Southworth Library	24 West Main Street, Dryden	1894	1984

POTENTIAL IMPACTS

There are a number of potential effects to cultural resources to be assessed, including direct and indirect impacts from construction activities, impacts to historic and cultural properties, as well as issues concerning impacts to the viewscape.

Archaeological sites are adversely affected by activities that disturb the ground. The proposed improvements to the NYSEG transmission lines will include activities with potential adverse effects, such as demolition and construction of transmission towers, operating heavy machinery, and expansion of the Project ROW. Impacts to potential archaeological deposits may occur within tower construction footprints, staging areas, access roads, and in the clearing of vegetation along the Project ROW.

In addition to the potential impacts to archaeological resources, reconstruction of existing transmission lines and construction of new lines will introduce elements into the existing viewshed. Any aboveground resources listed on or eligible for the National Register of Historic Places need to assessed for visual effects caused by the new lines and towers.

Based on the data collected at the New York State Historic Preservation Office and standard settlement and land-use models, the probability of locating archaeological resources within the Project area is, in part, dictated by the types of settings that will be disturbed during construction (Table 4). Characteristics of settings favorable to prehistoric habitation generally include relatively level terrain, well-drained soil, and proximity to a source of water.

Table 4 Predictive Model for Locating Prehistoric Sites within the Proposed ROW

Probability	Setting	Types of Sites
High	Well-drained areas adjacent accessible sources of water.	Occupation Sites
Moderate	Uplands in proximity to water source / lithic outcrops	Seasonal occupation and resource procurement camps
Low	Upland benches or saddles away from water source / sloping or broken terrain	Small scale ephemeral camps and procurement sites

The section of the ROW from Route 13 to Route 38 is characterized as moderate to steeply sloping terrain. Several small-order streams drain the uplands, and a number of upland seeps or springheads were also encountered. Most of this section fits criteria for low potential for archaeological resources, with the exception of the stream crossings and level ground in the vicinity of springheads, which have moderate potential to contain archaeological deposits.

The section of ROW where the lines converge, located between Route 38 and Carpenter Hill Road, is considered to have high probability for encountering archaeological resources. This area is characterized by relatively level terrain with large wetlands, a lake, and several streams. Prehistoric resources have been identified in this area. These sites include two stray finds and a Woodland period occupation, the Dryden Lake Site.

From the mountaintop at Carpenter Hill Road moving east to the substation at Lapeer, the terrain consists of steep uplands dissected by perennial stream valleys. The steeply sloped uplands

possess low potential for containing resources, but there are areas of moderate and high potential. The bench formations and upland saddles—level areas between two knoll tops—have low to moderate potential depending on their proximity to a water supply. The meandering floodplains in the stream valleys have moderate to high potential for encountering archaeological resources.

Historic cultural resources follow a slightly different model based on proximity to transportation routes and population centers (Table 5). In the low potential areas, terrain and proximity to water may factor into the location of occupations and other types of sites, but in more densely settled areas, terrain modification and development of utilities might be utilized to expand settlement into marginal areas.

Table 5 Predictive Model for Locating Historic Sites within the Proposed ROW

Potential	Setting	Types of sites
High	Towns and urban centers at junctions of major transportation routes and waterways	Commercial, industrial, and residential sites
Moderate	Crossroads with nascent town development	Agricultural hamlets predominantly residential
Low	Secondary roads sparsely settled stream valleys	Farmsteads and associated outbuildings

Most of the historic development encountered within the Project area occurs along established roadways. One potential historic archaeological site was encountered along Babcock Hollow Road at the crossing of the 947 line. The site consists of a farmstead with extant outbuildings. Only three small outbuildings remain to mark the site. The primary structure has been demolished.

The Project has the potential to have an effect on aboveground historic resources. Installation of new lines and towers, as well as the extension of existing towers, has the potential to impact the viewshed of National Register eligible and listed properties. As noted earlier, the bulk of the Project area has not been surveyed for historic aboveground resources. The preliminary site visit revealed a range of structures from new construction to nineteenth-century farmsteads in close proximity to the existing ROW. Visual effects upon individual historic resources cannot be determined until the exact location and design of the construction is known. However, it can be noted that the village of Dryden includes a concentration of buildings that are listed on the National Register of Historic Places and should be avoided (see Figure 1).

CONCLUSION

Background research and a reconnaissance survey of the Project corridor revealed previously identified historic and archaeological resources, as well as areas with high potential for containing cultural resources. Avoiding these areas and resources may help minimize effects upon cultural resources in the corridor. More intensive surveys are recommended if finalized design plans indicate that construction activates will occur within high-potential areas or known locations of cultural resources.

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EXHIBIT 5

DESIGN DRAWINGS

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT 5

DESIGN DRAWINGS (16 NYCRR §86.6)

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Exhibit 6

EXHIBIT 6

ECONOMIC EFFECTS OF PROPOSED FACILITY

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT 6

ECONOMIC EFFECTS OF PROPOSED FACILITY

This Exhibit addresses the requirements of 16 NYCRR §86.7

6.1 ECONOMIC EFFECTS FROM CONSTRUCTION

Because of the temporary duration of construction and reconstruction, the project will not impact the local economy sufficiently to induce any significant changes in the local residential, commercial, or industrial land use patterns in the adjacent areas. In addition, the project will not displace any existing land uses, or disrupt any retail or industrial establishments. The majority of the project will use the existing right-of-way with only a portions Line 947 expanding 12.5 feet on either side, and portions of the new 115 kV line expanding 62.5 feet. These acquisitions will not have negative land use or economic effects on neighboring properties.

In agricultural areas, there may be some temporary interference with raising crops and livestock during construction periods along a limited length of the project route. In order to reduce the possibility of such interference, NYSEG will maintain the integrity of all agricultural fences encountered along the rights-of-way for Lines 945 and 947. Where cropland must be crossed during construction, NYSEG will take efforts to minimize the effects of disturbance. In the event that damages occur as a result of construction or maintenance activities, NYSEG will provide adequate compensation. Other economic effects in agricultural areas may result from the acquisition of approximately 5 acres of an approximately 16.4 acre stand of Christmas trees (located on a 49 acre farm parcel) for the construction of the new Lapeer Substation.

The operations of the proposed facilities will not affect residential, commercial, or industrial land use patterns.

Exhibit 7

EXHIBIT 7

LOCAL ORDINANCES

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT 7

LOCAL ORDINANCES

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EXHIBIT 7

LOCAL ORDINANCES

This exhibit addresses the requirements of 16 NYCRR §86.8.

7.0 LOCAL ORDINANCES

The proposed project includes the expansion of NYSEG's Lapeer Substation to include two 345 kV to 115 kV transformers and connection to an existing 345 kV line, the reconstruction of an existing 115 kV transmission line, and the construction of a new 115 kV transmission line. This project will pass through the Towns of Lapeer, Harford and Dryden in the State of New York.

The Town of Lapeer has no local zoning ordinances or zoning regulations. However the Towns of Dryden and Harford do have zoning ordinances and regulations applicable to the proposed project.

7.1 TOWN OF DRYDEN ZONING ORDINANCE AND LOCAL LAWS

The following sections of the Town of Dryden zoning ordinance were reviewed for applicability:

Article V: General Provisions

Section 500 (5): Public utilities facilities (including electric, gas, telephone, and TV cable) and necessary appurtenances thereto, shall be allowed uses in all zones. Public utility substations shall be allowed uses in the M-A Zone and shall be allowed uses by special permit in all other zones.

Article VII: District Regulations R-B (Low Density Residential) Zones

The Low Density Residential Zone allows public utility structures in this district with a special permit. As such, the transmission lines may be prohibited from being constructed. Since this prohibition would be unreasonably restrictive, a waiver is requested.

Article VII-A: District Regulations R-B-1 (Low Density Agricultural-Residential) Zones

The Low Density Agricultural Residential Zone allows public utility structures in this district with a special use. As such, the transmission lines may be prohibited from being constructed. Since this prohibition would be unreasonably restrictive, a waiver is requested.

Article VIII: District Regulations R-C (Moderate Density Agricultural-Residential) Zones

The Moderate Density Agricultural Residential Zone allows public utility structures as being permitted in this district with a special permit. As such, the transmission lines may be prohibited from being constructed. Since this prohibition would be unreasonably restrictive, a waiver is requested.

Article XII: District Regulations M-A (Manufacturing and Assembly) Zones

The project crosses this zone, which allows for public utilities facilities to be located here.

Article XIII: Special Permits

The project is allowed in all zones outside of the Manufacturing and Assembly Zone with a special permit. As such, the transmission lines may be prohibited from being constructed. Since this prohibition would be unreasonably restrictive, a waiver is requested.

The Town of Dryden Traffic Ordinance (1988) was also reviewed for applicability:

Section 4 Traffic Ordinance:

The Town of Dryden may exclude any vehicle with a gross weight of more than four tons from the Town Highways outside of the Villages of Dryden and Freeville. The operator of such vehicles may apply for a permit exempting such a vehicle from these restrictions. The decision on any exemption permit is discretionary and if permits are denied, the construction of transmission lines could be made much more difficult without the use of large construction vehicles. Since this prohibition would be unreasonably restrictive, a waiver is requested.

The Town of Dryden Local Laws were also reviewed for applicability. The following local laws may be applicable to the project:

Article XVIII of the Local Laws of the Town of Dryden Building Permit:

The Town of Dryden requires building permits for construction of new structures and requires that all work be performed in accordance with Article XVIII. Article XVIII does not require a building permit for structural repairs that do not affect structural elements. The requirement of a building permit for construction in accordance with Article XVIII could cause unnecessary delays in the completion of the project. Since this provision would be unreasonably restrictive, a

waiver is requested.

Article XVIII: Certificate of Completion

The Town of Dryden requires that a Certificate of Completion be obtained for any structure that requires a building permit. The rule does not allow any "use" of the structure until such a certificate is obtained. The requirement of a Certificate of Completion could cause unnecessary delays in the completion of the project. Since this provision would be unreasonably restrictive, a waiver is requested.

Article XVIII: Inspections

The Town of Dryden may require the Applicant to hire, at its own expense, a third-party inspector acceptable to the Town of Dryden. It is likely that the Public Service Commission will have its own inspection process and duplicating this process could result in opposing conclusions from inspectors and lead to delays and costs. Since this provision would be unreasonably restrictive, a waiver is requested.

7.2 TOWN OF HARFORD LAND USE ORDINANCE

The following sections of the Town of Harford land use ordinance were reviewed for applicability:

Section 8: Agricultural District

The Agricultural District provision does not specifically list public utility structures as being permitted in this district. As such, the transmission lines may be prohibited from being constructed. Since this prohibition would be unreasonably restrictive, a waiver is requested.

Section 9: Residential District (R-1)

The zoning laws of the Town of Harford require that site plans be reviewed for proposed structures in residential districts. A review that results in an approval with modifications or disapproval would be unreasonably restrictive and, therefore, a waiver is requested.

Section 10: Residential District (R-2)

Similar to Section 9, the zoning laws of the Town of Harford require that site plans be reviewed for proposed structures in residential districts. A review that results in an approval with modifications or disapproval would be unreasonably restrictive and, therefore, a waiver is requested.

Section 11: Neighborhood Business District

The zoning laws of the Town of Harford prohibit transmission structures in neighborhood business districts. While it is unlikely that the project would traverse such zoning districts, this potential prohibition would be unreasonably restrictive if it does apply and therefore a waiver is requested.

Section 12: Planned Development Districts

The zoning laws of the Town of Harford do not allow unapproved construction in Planned Development Districts. While it is unlikely that the project would traverse such districts, this potential prohibition would be unreasonably restrictive if it does apply and therefore a waiver is requested.

Section 15: Additional Regulations

The Town of Harford has a regulation regarding the installation of electric distribution facilities. However, this does not impact the project as the project consists of the transmission of electricity, not the distribution of electricity.

Section 16: Application, Plans, and Approval for Site Plan Review

The Town of Harford requires a site plan review initiated by a submittal to the Town Code Enforcement Officer and followed by the Town Planning Board review. The Town Planning Board would have the power to approve, approve with modifications, or disapprove the presented site plan. Since NYSEG's proposed transmission construction could be prohibited via site plan review, this potential prohibition would be unreasonably restrictive and a waiver is requested.

Exhibit 8

EXHIBIT 8

OTHER PENDING FILINGS

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT 8

OTHER PENDING FILINGS

This Exhibit addresses the requirements of 16 NYCRR §86.9.

The Applicant has no pending filings and does not know of others with pending filings (State or Federal), which may concern the Commission regarding this subject matter.

Exhibit 9

EXHIBIT 9

COST OF PROPOSED FACILITIES

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT 9

COST OF PROPOSED FACILITIES

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EXHIBIT 9

COST OF PROPOSED FACILITIES

This Exhibit addresses the requirements of 16 NYCRR §86.10.

9.1 BASIS OF COST ESTIMATES

The basis of cost estimates set forth in this exhibit is as follows:

- Land acquisition, clearing, restoration, and construction labor costs are based on experience with similar projects and knowledge of the project area.
- Material costs are based on catalog prices, manufacturers' quotations, and actual purchase prices of specific items used for previous projects.
- Costs have been escalated by anticipated inflation rates.
- Costs for general engineering and supervision, construction accounting overheads, planning overheads, tools and work equipment, indirect payroll, stores expenses, and AFDC are based on the current NYSEG rates for capitalizing overheads on construction work orders. The costs for technical services, certification, and contingencies are based on NYSEG's experience with other projects.
- All costs are based on a 2010 in-service date.
- Preliminary bids have not been solicited for this project.
- The existing grounding system for the Etna Substation is assumed to be meet current IEEE grounding standards.

9.2 PROJECT COSTS

RIGHT-OF-WAY

Payments to Property Owners (includes Substation Site)	$262,000
Clearing and Chemical Treatment	$318,000
Access Road Construction	$134,000
Restoration	$425,000
Total Right-of-Way Costs	**$1,139,000**

MATERIAL

TRANSMISSION:

Wood Structures	$3,198,000
Conductor, Overhead Ground Wire, & Hardware	$1,890,000
Sales Tax	$408,000
Stores	$255,000
Total Transmission Material	**$5,751,000**

SUBSTATIONS:

Etna	$563,000
Lapeer	$9,518,000
Sales Tax	$807,000
Stores	$505,000
Total Substation Material	**$11,393,000**

TOTAL MATERIAL COSTS **$17,144,000**

LABOR, TRANSPORTATION & EQUIPMENT & INDIRECT PAYROLL (INSTALLATION)

TRANSMISSION:

Wood Structures	$2,067,000
Conductor, Overhead Ground Wire & Hardware	$2,897,000
Total Transmission Labor	**$4,964,000**

SUBSTATION:

Etna	$642,000
Lapeer	$5,082,000
Total Substation Labor	**$5,724,000**

TOTAL LABOR (INSTALLATION) COSTS	**$10,688,000**	
OVERHEADS & CONTINGENCIES INCLUDING FIELD SUPERVISION		**$13,036,000**
LABOR		**$502,000**
SURVEY COSTS		**$125,000**
DIRECT ENGINEERING AND LEGAL FEES		**$5,794,000**
ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION (AFDC)		**$7,934,000**
TOTAL PROJECT COST		**$56,362,000**

EXHIBIT E-1

DESCRIPTION OF THE PROPOSED TRANSMISSION LINES

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT E-1

DESCRIPTION OF THE PROPOSED TRANSMISSION LINES

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EXHIBIT E-1

DESCRIPTION OF THE PROPOSED TRANSMISSION LINES

E-1.1 OVERVIEW OF CURRENT AND PROPOSED FACILITIES

This exhibit has been prepared to address Part 88.1 of the Rules of Procedure.

Basic Overview of Current Transmission Scheme

The existing transmission system between the Etna Substation and the Lapeer Switching Station, west to east, consists of 14.8 miles of two 115 kV lines, Lines 945 and 947. An additional 34.5 kV line, Line 524, follows the same path from the Etna substation for 7.0 miles west to east then exits the path to the south.

The lines travel the majority of the route, between the Etna substation and the Lapeer Switching Station, in two separate corridors. These two corridors come together for approximately two miles in the middle of the 14.8-mile route.

At the Lapeer Switching Station, a 345kV line, Line 36, travels north and south between National Grid's Lafayette Substation to NYSEG's Oakdale Substation, in close proximity to the facility, but does not electrically connect to the existing Lapeer Switching Station.

Basic Overview of Proposed Transmission Scheme

The proposed Project involves the following enhancements and modifications to the system described above.

1. Replace the Lapeer Switching Station with a new 345/115 kV substation.

2. Tie the 345kV Line 36 into the new Lapeer Substation.

3. Remove the 115kV Line 945 tie from the Lapeer Switching Station, and bypass the new substation (i.e., run the line directly from Etna to Willet).

4. Increase the capacity of 115 kV Line 947 from the Etna Substation and tie it to the new Lapeer Substation.

5. Add an additional 115kV line between the Etna and Lapeer Substations.

E-1.2 DESCRIPTION OF CURRENT AND PROPOSED FACILITIES

E-1.2.1 Current Routing of Transmission Lines

The existing 115 kV Lines 945 and 947 exit the south yard of the Etna Substation and attach to a common steel tower. They then proceed on separate wood H-pole structures and travel east, with Line 945 on the north side. The existing 34.5kV transmission Line 524 exits the north yard of the Etna Substation and travels east for approximately 2,500 feet, then turns south for approximately 2,500 feet. At this point, the line turns east and joins, on the north side, the two 115kV lines, 945 (middle) and 947 (south).

The three lines share this common corridor and right-of-way for about 3,000 feet before separating. Line 947 then takes the south corridor easterly route. Line 524 crosses Line 945 to the south and both of these lines then travel the north corridor eastern route, with Line 524 on the south side of Line 947.

This configuration traverses approximately six miles east of the Etna Substation at which point all three lines come together again, with Line 947 crossing the other two lines. The lines travel together for approximately one mile, at which point Line 524 exits the corridor and travels south.

Lines 945 and 947 continue east for approximately one mile and separate, with Line 945 taking a south corridor of right-of-way and 947 taking a north corridor of right-of-way. The two lines rejoin at the Lapeer Switching Station. Other than at the Etna Substation as identified above, these lines do not share a common structure with any other transmission or distribution facility.

E-1.2.2 Existing 115kV Transmission - Line 947 – Proposed Modifications

Line 947 is to be rebuilt in place with the following proposed modifications and enhancements.

Type of Construction

The new construction will be H-frame, single circuit construction, as is the current line. The new structures will be designed and framed to accommodate the proposed larger and heavier conductor. The new structures are proposed to be designed to maintain spacing similar to the current line.

Note that the existing steel tower supporting the line on the initial span from the Etna Substation will remain functional with slight non-structural modifications for accommodation of the new, larger conductors.

Design Voltage

The new line will be designed for a nominal 115kV transmission operation.

Conductors

New conductors will be installed on Line 947 per the following:

	Current	**Proposed**
Size:	336.4 kcmil, 30/7 stranding	1277.0 kcmil, 42/19 stranding
Type, material:	Aluminum conductor, steel reinforced	Aluminum conductor, aluminum alloy reinforced
Number:	3	3
Overall diameter:	0.741 inches	1.302 inches
Rated strength:	17,300 pounds	28,400 pounds
Tension:	12,000 pounds	12,000 pounds

Routing Modifications and Right-of-Way Considerations

The rebuilt Line 947 will utilize the same corridor and right-of-way as the existing line. Approximately 4.4 miles of additional 25-foot right-of-way (12.5 feet on each side of existing right-of-way) will need to be obtained where existing right-of-way is only 100 feet. The remainder of the right-of-way is 150 feet wide.

E-1.2.3 Existing 34.5kV - Line 524 – Proposed Modifications & Additional (New) 115kV Line on Common Structure

The proposed routing of the new 115 kV line will be along the existing right-of-way from Etna to Lapeer, parallel to the existing 115 kV Line 945. The new 115 kV line will exit the south yard of the Etna Substation and will be attached to new H-frame, single-circuit structures. The new 115 kV line will proceed eastward for approximately 1,500 feet along the existing right-of-way until Line 524 joins the right-of-way from the north. The existing H-frame structures supporting Line 524 will be removed and a new single pole, double-circuit structure will be placed along the centerline of the removed Line 524 structures. The existing Line 524 conductors will be attached to the south side of the new single-pole structures. At the Cortland County line, Line 524 leaves the existing Etna to Lapeer right-of-way and heads south. East of the Cortland County line, the new 115 kV line will be supported by H-frame, single-circuit structures. The new line will be routed south of the existing 115 kV Line 945 along the south side of the existing right-of-way. This design will continue eastward to the proposed site of the new Lapeer Substation.

Design Voltage

The new line will also be designed for nominal operation at 115kV.

Conductors

The new line will utilize larger conductors per the following:

	Proposed
Size:	1277.0 kcmil, 42/19 stranding
Type, material:	Aluminum conductor, aluminum alloy reinforced
Number:	3
Overall diameter:	1.302 inches
Rated strength:	28,400 pounds
Tension:	12,000 pounds

Routing Modifications and Right-of-Way Considerations

The new line will utilize the same corridor and right-of-way as the 115 kV Line 945. Installation of the new 115 kV line will require obtaining additional 37.5-foot right-of way in two locations. Approximately 1,200 feet of new right-of-way will be needed on the north side of the combined Lines 945/947 right-of-way immediately east of the NYSEG district office on State Route 13. The existing right-of-way width will be increased from the Etna Substation eastward to the point where Line 524 enters the Etna to Lapeer right-of-way. The existing right-of-way will remain the same up to the point that Line 524 leaves the right-of-way and heads south near the Cortland County line. From the Cortland County line eastward the existing right-of-way for Line 945 will be expanded southward to accommodate the new H-frame structures for the new 115 kV line.

A proposed alternate routine is for the new 115 kV to follow the same corridor and right-of-way as the 115 kV Line 945 until just west of the point where Line 524 leaves the Etna to Lapeer right-of-way. At this point, the new 115 kV line would follow the existing right-of-way of the existing Line 947. This proposed alternate route would cost approximately the same as the primary route and would require approximately the same amount of additional right-of-way as is needed for the primary route. The alternate route, however, would require more right-of-way in State Forest than the primary route.

EXHIBIT E-2

OTHER FACILITIES

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT E-2

OTHER FACILITIES

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DRAWINGS

EXHIBIT E-2

OTHER FACILITIES

This exhibit has been prepared to address 16 NYCRR §88.2.

E-2.1 OTHER FACILITIES

This exhibit describes the proposed modifications to the Etna 115 kV – 34.5 kV Substation, dismantling of the Lapeer Switching Station, and construction of a new 345 - 115kV substation near the existing Lapeer Switching Station. The existing Line 945 enters the existing Lapeer Switching Station; after the proposed modifications, Line 945 will bypass the new Lapeer Substation and will continue to serve the Willet and East Norwich Substations. The rebuilt Line 947 and the new 115kV line from the Etna Substation will terminate at the new Lapeer Substation. Line 947 will exit the new Lapeer Substation on the existing right-of-way to the Tuller Hill Substation.

E-2.2 ETNA SUBSTATION

As a part of the Ithaca Transmission Project, NYSEG plans to modify the existing Etna Substation. The existing Line 947 terminal will be modified to handle the increased capacity of the rebuilt 947 Line. Modifications will consist of upgraded replacements for existing disconnect switches and associated components. A new 115 kV line terminal will be added to the existing substation. The new terminal will include a breaker, disconnect switches, arresters, potential transformers (PTs), a wave trap, and related miscellaneous equipment and components. This new terminal will connect to the existing 115 kV station bus. The proposed modifications will be contained within the fenced area of the substation.

The existing control house will be modified to support the rebuilt Line 947 and the new 115 kV line. The existing electro-mechanical protective relay breaker/line panel for Line 947 will be replaced with two new panels, one for primary protection and one for secondary protection of Line 947. Two new breaker/line panels will be installed in the existing control house for the new line.

The existing remote terminal unit (RTU) will be modified to add status and control functions for the new line. A new communications rack will be installed in the existing control house for station-to-station communications. Proposed plans for this substation are illustrated on Figures E-2-1, E-2-2, and E-2-3.

E-2.3 EXISTING LAPEER SWITCHING STATION

NYSEG plans to dismantle the existing NYSEG Lapeer Switching Station following construction of the new Lapeer Substation.

E-2.4 NEW LAPEER SUBSTATION

NYSEG proposes to construct a new 345kV to 115kV substation in the Town of Lapeer, Cortland County. The new facility, named Lapeer Substation, will be constructed, owned, operated, and maintained by NYSEG. The substation is proposed to be located south of the existing NYSEG Lapeer Switching Station, and west of the Lafayette – Oakdale 345kV transmission line. The existing Lafayette – Oakdale Line 36 345 kV line; the Etna – Lapeer, Line 947 115 kV line; the Tuller Hill - Lapeer Line No. 947 115kV line; and the new Etna – Lapeer 115 kV line will be connected to the new Lapeer Substation. Following certification of the project, NYSEG will submit, for Public Service Commission approval, a change to its environmental management and construction plan (PSC Case 26482) for the construction of transmission facilities to connect the Lafayette – Oakdale Line 36 345kV transmission line to the substation.

It will be necessary to acquire, clear cut and grade about six and a half acres for the new substation. The substation will consist of a fenced area of about six acres that will be covered with crushed stone. Inside the fence will be electrical transformers, breakers, switches, and protection equipment mounted on concrete foundations, a control house containing protective relaying, DC systems, remote monitoring and communications systems, and 345kV and 115kV terminal structures. The tallest terminal structures in the substation will reach about 103 feet.

Each 345 kV terminal will be equipped with line disconnect switches and will feed a four breaker, 345kV ring bus configuration. The other t 345 kV ring bus will be designed to feed two 200/250/300 MVA, 362 kV, GrdY/208-121GRDY/69/115/362kV LTC transformers. The transformer low sides will feed a five-breaker 115kV ring bus. The new 115kV line, the rebuilt Line 947 from Etna, and the existing Line 947 from Tuller Hill will all connect to this 115kV ring bus. The transformer, each breaker, and each terminal will have appropriate disconnect switches. . A gravel access road will also be installed from Clarks Corners Road into the substation. The access road will be about 0.3-mile long and have a road surface width of about 16 feet. Plans for this substation are illustrated on Figures E-2-4, E-2-6 and E-2-7. The locations of the substation site and access road are shown on Figure E-2-5.

EXHIBIT E-3

UNDERGROUND CONSTRUCTION

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT E-3

UNDERGROUND CONSTRUCTION

This Exhibit addresses the requirements of 16 NYCRR §88.3.

NYSEG is not proposing to construct any part of the Ithaca Transmission Project underground.

EXHIBIT E-4

ENGINEERING JUSTIFICATION

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT E-4

ENGINEERING JUSTIFICATION

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EXHIBIT E-4

ENGINEERING JUSTIFICATION

E-4.1 SUMMARY OF THE PROPOSED PLAN AND ITS BENEFITS

This Exhibit addresses the requirements of 16 NYCRR §88.4.

The electric transmission system that supplies Ithaca, New York and the surrounding area is currently dependent on nearby power generation resources to be available and operating to ensure reliable service for the area's load. Ordering Clause 9 of the Public Service Commission's August 23, 2006, Order in Case 05-E-1222 requires NYSEG to submit all the governmental and regulatory filings necessary to eliminate the load pocket conditions currently prevailing in Ithaca, New York. In order to eliminate the transmission limitations in the Ithaca area and maintain adequate normal and contingency service throughout the Ithaca Division during extended outages (planned or forced) of the AES owned Cayuga Station generating units, NYSEG is proposing to reinforce its electric transmission system in the Ithaca Division. The proposed plan will involve construction of a new 345/115 kV substation in the vicinity of NYSEG's Lapeer Switching Station, where the proposed substation will connect to the NYSEG/National Grid Oakdale-Lafayette 345 kV transmission Line 36. The new substation will consist of two 345/115 kV, 200 MVA, LTC transformers, a 345 kV ring bus and a 115 kV ring bus. The proposed plan also includes construction of a new 15-mile, 115 kV transmission line between NYSEG's Etna Substation and the new substation, and the rebuild of the existing 14.8-mile, 115 kV Line 947 between Etna Substation and the Lapeer Switching Station.

E-4.2 SYSTEM DESCRIPTION

NYSEG's transmission supply to the Ithaca Division consists of 115/34.5 kV sources at Candor, Coddington Road, Etna, and Milliken Substations and a 115/12.5 kV source at East Ithaca Substation (see Figure E-4-1). These substations are supplied by eight major 115 kV transmission lines: Milliken-Wright Avenue Line 973; Etna-Willet Line 945; Etna-Lapeer Line 947; Coddington-Montour Falls Line 982; Etna-Coddington Line 998; Etna-East Ithaca-Coddington Line 981 and Lines 974 and 975 from Milliken to Etna. Candor Substation is served via the radial 115 kV transmission Line 915 that originates at South Owego Substation. Figure E-4-2 depicts an electrical one-line diagram of the Ithaca Division.

The Milliken-Wright Avenue 115 kV line consists of 27.6 miles of 795 KCM ACSR conductor. The Etna-Willet 115 kV line consists of 14.9 miles of 1033.5 KCM ACSR conductor and 10.3 miles of 336.4 KCM ACSR conductor. The Etna-Lapeer 115 kV line is made up of 14.8 miles of 336.4 KCM ACSR conductor. The Coddington Road-Montour Falls 115 kV line is 20.7 miles long and is constructed with 336.4 KCM ACSR conductor. The Etna-Coddington Road 115 kV line consists of 7.7 miles of 1033.5 KCM ACSR conductor and 0.4 mile of 1280 ACAR conductor. The Etna-East Ithaca-Coddington Road 115 kV line is made up of 5.8 miles of 336.4 KCM ACSR conductor, 4.7 miles of 1033.5 KCM ACSR conductor, and 0.2 mile of 795 KCM ACSR conductor. One of the Milliken-Etna 115 kV lines consists of 16.3 miles of 795 KCM ACSR conductor and the second one is made up of 16.5 miles of 1033.5 KCM ACSR conductor and 0.4 mile of 1280 ACAR conductor. The Candor-South Owego 115 kV line consists of 14.3 miles of 1033.5 KCM AAC conductor. Except for substation exits all the 115kv lines mentioned above do not share a common structure with any other transmission or distribution facility.

Candor Substation normally supplies five distribution substations through its 12/16/20 MVA, 115/34.5 kV, LTC transformer and 19.9 miles of 34.5 kV subtransmission lines. Approximately 4,500 customers are normally served by Candor Substation.

Coddington Road Substation normally supplies 10 distribution substations through its two

30/40/50 MVA, 115/34.5 kV transformers (one of which is an LTC), and 44.0 miles of 34.5 kV subtransmission lines. Approximately 13,300 customers are normally served by Coddington Road Substation.

Etna Substation normally supplies 13distribution substations through its two 30/40/50 MVA, 115/34.5 kV transformers (one of which is an LTC), and 55.9 miles of 34.5 kV subtransmission lines. Approximately 14,500 customers are normally served by Etna Substation

Milliken Substation normally supplies 12 distribution substations through its two 30/40/50 MVA, 115/34.5 kV LTC transformers and 48.3 miles of 34.5 kV subtransmission lines. Approximately 9,500 customers are normally served by Milliken Substation.

East Ithaca Substation is a 115/12.5 kV distribution substation and normally serves approximately 6,400 customers.

AES Corporation owns and operates the Cayuga Station, which is comprised of two individual generating units. Unit #1 was placed in service in 1956 and has a maximum generating capacity of 152 MW. Unit #2, with a maximum generating capacity of 153 MW, went in service in 1959. In 1991, NYSEG applied to the US Department of Energy for partial funding of the Milliken Clean Coal Technology Demonstration Project from the Clean Coal Technology IV program. Construction began in April 1993. All upgrades and modifications to the electrostatic precipitators, heat pipe heaters, and combustion modifications for Units #1 and #2 were placed in operation in December 1994. The Unit #2 scrubber module became operational in January 1995. The Unit #1 scrubber module began scrubbing in June of 1995. In May 1999, NYSEG sold Cayuga Station to AES Corporation.

The 2005/06 winter peak load for the Ithaca Division, which is served through the facilities above, was 173.0 MW. Based on historical regression line analysis, the load forecast for the

Ithaca Division is projected to grow at a rate of 0.20% per year for the next ten years (see Figure E-4-3).

E-4.3 NEED FOR THE PROPOSED PROJECT

In order to alleviate the transmission limitations that require the Cayuga Station resources to be available and thereby eliminate the Ithaca Load Pocket condition, the Ithaca Transmission Project is proposed. At present, during forced or planned outages of both generating units at Cayuga Station, the transmission system in NYSEG's Ithaca Division is inadequate with respect to both voltage and thermal capacity. Transmission voltage is inadequate when it results in substation voltage that causes inadequate distribution line voltage, which could damage customers' equipment or appliances. Such damage can occur if the transmission voltage at a distribution substation falls below 90% of nominal voltage. A transmission facility's thermal capacity is inadequate when due to high loads, thermal capacity ratings are exceeded. When thermal capacity ratings are exceeded, a line becomes overloaded, which can lead to equipment failure and loss of service to customers.

On all electric systems, facilities are interrupted by equipment failure, storms, etc., or by planned or unscheduled maintenance or repair. Today, under system normal conditions, whenever the load in the Ithaca Division equals or exceeds 136 MW, an outage of both generating units at Cayuga Station cannot be tolerated because the voltage on a certain portion of the 34.5 kV system would be submarginal (i.e., the voltage would be unacceptably low) and the voltage on a specific portion of the 115 kV system would be marginal (i.e., the voltage would be at or near 90% of nominal) (see the loadflow transcription in Figure E-4-4). Analysis of historical Ithaca Division load data revealed that the potential for this voltage condition existed for nearly 1,400 hours during 2005.

Also, whenever the load in the Ithaca Division is at or above 72 MW, with both generating units at Cayuga Station out of service, loss of the State Street-Clinton Corn 115 kV Line 971 would cause the State Street-Elbridge 115 kV Line 972 to exceed its winter LTE rating of 149 MVA (see Figure E-4-5). Analysis of 2005 historical load data for the Ithaca division showed that the potential for this thermal limitation existed for approximately 8,400 hours during the year.

If an outage of both generating units at Cayuga Station occurred during a period of moderate to heavy load, there is no action that could be taken to improve the transmission voltages to sufficient levels or correct the thermal overload problems. Some substations would be interrupted for the extended period of time required to repair and re-energize at least one of the generating units.

E-4.4 PROPOSED PLAN AND ITS BENEFITS

In order to eliminate the Ithaca Load Pocket condition and to provide adequate thermal capacity and acceptable voltage throughout the entire Ithaca Division during outages of the generating units at Cayuga Station, NYSEG proposes to:

1) Construct a new 345/115 kV substation in the vicinity of the existing NYSEG owned Lapeer Switching Station with the high side connecting to the NYSEG/National Grid Oakdale-Lafayette 345 kV Line 36. The new substation will consist of two 345/115 kV, 200 MVA, LTC transformers, a 345 kV ring bus and a 115 kV ring bus.

2) Rebuild the existing 14.8 mile, 115 kV Line 947 between Etna and Lapeer Substations with 1277 ACAR conductor.

3) Construct a new 15-mile, 115 kV line from Etna Substation to the new substation with 1277 ACAR conductor.

4) Modify NYSEG's Etna Substation to accommodate the connection of the new 115 kV line.

This plan will eliminate the Ithaca Load Pocket condition and will satisfy capacity and voltage requirements by creating a new transmission supply into the Ithaca Division. This reinforcement will provide an additional 115 kV source into the area from the new Lapeer Substation. This will enable NYSEG to serve electricity from the new 345/115 kV Lapeer Substation to Etna Substation, thereby allowing NYSEG to provide adequate and reliable electric service to all customers in the Ithaca Division during either extended outages (planned or forced) of the Cayuga Station generating units or in the event that one or both units at Cayuga Station are retired from service.

It should be noted that the installation of one transformer at the new Lapeer Substation along with the rebuild of the existing Etna – Lapeer 115 kV Line 947 provides the operating flexibility and system support needed during system normal conditions to ensure that adequate and reliable electric service will be maintained to all customers in the Ithaca Division during extended outages (planned or forced) of the Cayuga Station generating units. In addition, the installation of the second transformer at the new Lapeer Substation and the construction of the new 115 kV line from Etna Substation to the new Lapeer Substation ensures that adequate and reliable electric service can be maintained to all customers in the Ithaca Division during any single forced or planned outage on the transmission system in the event that both generating units at Cayuga Station are going to be retired from service, and thereby eliminates the previously identified Ithaca Load Pocket condition.

As Figure E-4-6 illustrates, during an outage of both generating units at Cayuga Station, adequate voltages and thermal conditions can be maintained throughout the Ithaca Division during peak load all-lines-in conditions when the recommended reinforcement is in service. Based on the current Ithaca Division load growth rate of 0.20% per year, the recommended reinforcement will allow for acceptable voltage levels and thermal conditions for at least the next 30 years, or up to an Ithaca Division winter peak load level of 228.0 MW. At a winter peak load level of 228.0 MW, an outage of both generating units at Cayuga Station would result in submarginal voltage (89.9% of nominal 34.5 kV) at Interlaken Substation (see Figure E-4-7).

Figure E-4-8 illustrates that during transmission contingency conditions (loss of the State Street-Clinton Corn 115 kV Line 971) and with both generating units at Cayuga Station out of service, adequate voltages and thermal conditions can be maintained throughout the Ithaca Division during current peak load conditions when the recommended reinforcement is in service. Based on the current Ithaca Division load growth rate of 0.20% per year, the recommended reinforcement will allow for acceptable voltage levels and thermal conditions for what is currently projected to be at least the next 25 years, or up to an Ithaca Division winter peak load level of load of 215.0 MW. At a winter peak load level of 215.0 MW, with both generating units at Cayuga Station out of service, loss of the State Street-Clinton Corn 115 kV Line 971 would result in the State Street-Elbridge 115 kV Line 972 exceeding its winter LTE rating of 149 MVA

(see Figure E-4-9).

The cost of the proposed plan, as detailed in Exhibit 9, is estimated to be approximately $56.4 million. Construction of the project is scheduled to begin in 2009, and the project is scheduled to be placed in service in 2010. With the operation of the proposed facilities, NYSEG will eliminate the Ithaca Load Pocket condition and will therefore be able to adequately, reliably, and economically provide electricity to the transmission system in its Ithaca Division during times when the generating units at Cayuga Station are out of service.

E-4.5 IMPACT OF A DELAY IN THE CONSTRUCTION SCHEDULE

As discussed in this exhibit, in order to alleviate the transmission limitations that require the Cayuga Station resources to be available and thereby eliminate the Ithaca Load Pocket condition, the Ithaca Transmission Project needs to be in service. At present, the 115 and 34.5 kV transmission systems in the Ithaca Division cannot provide an adequate supply during forced or planned outages of both generating units at Cayuga Station. Thus, a delay in the construction of the Ithaca Transmission Project would postpone the elimination of the Ithaca Load Pocket condition.

EXHIBIT E-5

EFFECT ON COMMUNICATIONS

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT E-5

EFFECT ON COMMUNICATION

This Exhibit addresses the requirements of 16 NYCRR §88.5.

The transmission improvements are expected to have no adverse effects on television, radio or other communications systems during construction or operation. NYSEG will comply with applicable sections of the National Electrical Safety Code (NESC) related to appropriate spacing between power and communication cables. As part of the final design, third parties that have underground communication cables within or adjacent to the right-of-way will be consulted to ensure that the precise location of the communication facilities is shown on the construction drawings and that appropriate clearances are provided. The transmitted signals from fiber optic cables are not distorted by any form of outside electronic, magnetic, or radio frequency interference. Therefore, no impacts to the operations of the fiber optic cable are anticipated with the operations of the proposed power transmission system.

Radio and television signal interference caused by a transmission line is a complex function of conductor size, surface conditions, spacing, operating voltage and meteorological conditions. Weather effects, such as variations in humidity, air density, wind, and rain, also affect radio noise levels. For example, there may be more radio noise during a rain event than during sunny days. The changes to the existing facilities will increase the current along the transmission right-of-ways, add a second 115 kV circuit, and increase circuit compaction. All three of these changes can increase radio and television interference. The two primary mechanisms for generating interference are switching surges and corona. Corona is primarily dependant on the weather and occurs locally. Switching surges happen infrequently, last for very short periods of time, and occur along the entire line. Along the Etna-Lapeer corridor, the total expected duration of switching surges is less than 30 seconds per year per line.

For Line 947, where the existing transmission line is being upgraded, the corona occurrence is expected to remain the same with minimal increase in the magnitude of switching surges, but not

the number of occurrences.

For the new 115 kV line, which is being routed with the existing 115 kV line 945 and the existing 34.5 kV line 524, the duration of the corona is expected to be the same because the weather will affect all three lines concurrently. The intensity of the effect of the corona will be increased by about 50%. The number of switching surges is expected to increase due to the new 115 kV line. The expected increase in duration of the switching surges is less than 30 seconds.

The proposed facilities are expected to result in a minimal increase of radio and television signal interference. Nevertheless, NYSEG will be sensitive to complaints of suspected radio and TV interference and will investigate and resolve interference from the proposed improvements.

EXHIBIT E-6

EFFECT ON TRANSPORTATION

ITHACA TRANSMISSION PROJECT

NEW YORK STATE ELECTRIC & GAS CORPORATION

EXHIBIT E-6

EFFECT ON TRANSPORTATION

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EXHIBIT E-6

EFFECT ON TRANSPORTATION

E-6.1 EFFECT ON TRANSPORTATION

This Exhibit addresses the requirements of 16 NYCRR §88.6.

The principal transportation system in the area of the proposed Ithaca Transmission Project is a roadway system that includes county and local roads, New York State Routes 13, 38, 79, 200, 221, and 336, as well as Interstate 81 located approximately 4 miles east of the Lapeer Substation. There are three airports located in the general vicinity of the project. Cortland County-Chase Field and Grund Field are two airports located approximately 8 miles to the north and 10 miles to the west of the project, respectively. The Tompkins County airport is located approximately 2 miles west of the Etna Substation. The location of airport, rail, and road transportation facilities within 5 miles of the proposed transmission lines are shown in Figure E-6-1.

The proposed project is not expected to adversely effect present or future transportation systems in the vicinity. Work will be concentrated where existing transmission lines and related facilities already exist, and NYSEG will cooperate with the appropriate highway authorities when constructing line segments that cross roadways.