Connecticut
Light & Power

The Northeast Utilities System

APPLICATION TO THE

CONNECTICUT SITING COUNCIL

FOR A

CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED

FOR THE

Stepstone Substation

Stepstone Hill Road
Guilford, Connecticut

December 2006

Submitted by:

The Connecticut Light & Power Company
107 Selden Street
Berlin, CT 06037

Volume 1 of 2

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CONNECTICUT SITING COUNCIL APPLICATION GUIDELINES CHECKLIST

ELECTRIC SUBSTATION FACILITY

September 19, 2000

This application guide is to assist applicants in filing for a Certificate of Environmental Compatibility and Public Need (Certificate) from the Connecticut Siting Council (Council) for the construction of an electric substation facility. Such facilities are defined in General Statutes § 16-50i (a) (4).

Applicants should consult General Statutes §§ 16-50g through 16-50aa and Sections 16-50j-1 through 16-50z-4 of the Regulations of Connecticut State Agencies to assure complete compliance with the requirements of those sections. Where appropriate, statutory and regulatory references are noted below.

Pre-Application Process (General Statutes § 16-50l (e))

Refer to Municipal Consultation Filing In separate Bulk attachment.

At least 60 days prior to the filing of any application with the Council, the applicant shall consult with the municipality in which the facility may be located and with any adjoining municipality having a boundary not more than 2500 feet from such facility concerning the proposed and alternative sites of the facility. Such consultation with the municipality shall include, but not be limited to good faith efforts to meet with the chief elected official of the municipality. At the time of the consultation, the applicant shall provide the chief elected official with any technical reports concerning the public need, the site selection process and the environmental effects of the proposed facility. The municipality may conduct public hearings and meetings as it deems necessary for it to advise the applicant of its recommendations concerning the proposed facility. Within 60 days of the initial consultation, the municipality shall issue its recommendations to the applicant. No later than 15 days after submitting the application to the Council, the applicant shall provide to the Council all materials provided to the municipality and a summary of the consultations with the municipality including all recommendations issued by the municipality.

I. Application to Municipal Agencies (General Statutes § 16-50x (d))

Municipal zoning and inland wetland agencies may regulate and restrict the location of an electric substation facility. Such action must be taken within 30 days of application filed with the Council. Orders made by the municipal zoning and inland wetland agencies may be appealed within thirty days by any party or municipality required to be served with a copy of the application.

Refer to Volume II, Appendix G.

II. Quantity, Form, and Filing Requirements (Regs., Conn. State Agencies § 16-50j-12)

A. Except as may be otherwise required, at the time applications are filed with the Council, there shall be furnished to the Council an original and 20 copies.

Refer to Volumes I and II of this CSC Filing.

B. All filings from the applicant, parties, or intervenors must consist of an original and 20 copies, labeled with the docket number, properly collated and paginated, and bound.

Refer to Volumes I and II of this CSC Filing.

C. Applications filed for the purpose of any proceeding before the Council shall be printed or typewritten on paper cut or folded to letter size, 8 1/2 by 11 inches. Width of margins shall be not less than one inch. The impression shall be on only one side of the papers, unless printed, and shall be double spaced, except that quotations in excess of five typewritten lines shall be single spaced and indented. Mimeographed, multigraphed, photoduplicated, or the like copies will be accepted as typewritten, provided all copies are clear and permanently legible. In accordance with the State Solid Waste Management Plan, all filings should be submitted on recyclable paper, primarily regular weight white office paper. Applicants should avoid using heavy stock paper, colored paper, and metal or plastic binders and separators.

Refer to Volumes I and II of this CSC Filing.

D. Every original shall be signed by the applicant or by one or more attorneys in their individual names on behalf of the applicant. All applications shall be filed at the office of the Council, 136 Main Street, Suite 401, New Britain, Connecticut 06051. Service of all documents and other papers filed as applications, briefs, and exhibits, but not limited to those categories, shall be by personal delivery or by first class mail to the Council and all parties and intervenors to the proceeding, unless service has been waived.

Refer to Volumes I and II of this CSC Filing.

E. Any exhibits, sworn written testimony, data, models, illustrations, and all other materials that the applicant deems necessary or desirable to support the granting of the application shall be attached to the application. In addition, annexed materials shall include such exhibits, sworn written testimony, and other data that any statute or regulations may require. The applicant may request that administrative notice be taken of and refer in the application to portions of other Council docket records and generic hearings or statements prepared by the Council as a result of generic hearings.

Refer to Volumes I and II of this CSC Filing.

F. Applicants may present material in a sequence and format most appropriate for the particular proposal. To allow timely Council review, include with the application a copy of this form with page references for each item required in Section VII below.

Refer to Volumes I and II of this CSC Filing.

III. Application Filing Fees (Regs., Conn. State Agencies § 16-50v-la)

The filing fee for an application is determined by the following schedule:

Estimated Construction Cost	Fee
Up to $5,000,000	0.05% or $1,000.00, whichever is greater;
Above $5,000,000	0.1% or $25,000.00, whichever is less.

All application fees shall be paid to the Council at the time an application is filed with the Council. Additional assessments may be made for expenses in excess of the filing fee. Fees in excess of the Council's actual costs will be refunded to the applicant.

Filing Fees accompany CSC Application

IV. Proof of Service (General Statutes § 16-50l (b))

Each application shall be accompanied by proof of service of such application on:

See Volume I, Section Q.

A. The chief elected official, the zoning commission, planning commission, the planning and zoning commissions, and the conservation and wetlands commissions of the site municipality and any adjoining municipality having a boundary not more than 2500 feet from the facility;

B. The regional planning agency that encompasses the site municipality;

C. The State Attorney General;

D. Each member of the Legislature in whose district the facility is proposed;

E. Any federal agency which has jurisdiction over the proposed facility; and

F. The state departments of environmental protection, public health, public utility control, economic and community development, and transportation; the council on environmental quality; and the office of policy and management.

V. Public Notice (General Statutes § 16-50l (b))

Notice of the application shall be published at least twice prior to the filing of the application in a newspaper having general circulation in the site municipality or municipalities. The notice shall state the name of the applicant, the date of filing, and a summary of the application. The notice must be published in not less than ten point type.

See Volume I, Section Q.

VI. Notice to Abutting Landowners(General Statutes § 16-50l (b))

Notice of the application shall be sent by certified or registered mail to all abutting landowners of the proposed and alternative sites of the facility. Notice shall be sent at the same time that notice of the application is given to the general public.

See Volume I, Section Q.

The application shall be accompanied by an affidavit of notice to all abutting landowners and an affidavit of publication each time notice of application is published. **See Volume I, Section Q.**

VII. Contents of Application (General Statutes § 16-50l (a) (1))

An application for a Certificate for the construction of an electric substation facility should include or be accompanied by the following:

A. A brief description and the location of the proposed facility, including an artist's rendering and/or narrative describing its appearance.

See Volume I, Section A.

B. A statement of the purpose for which the application is being made.

See Volume I, Section B.

C. A statement describing the statutory authority for such application.

See Volume I, Section C.

D. The exact legal name of each person seeking the authorization or relief and the address or principal place of business of each such person. If any applicant is a corporation, trust association, or other organized group, it shall also give the state under the laws of which it was created or organized.

See Volume I, Section D.

E. The name, title, address, and telephone number of the attorney or other person to whom correspondence or communications in regard to the application are to be addressed. Notice, orders, and other papers may be served upon the person so named, and such service shall be deemed to be service to the applicant.

See Volume I, Section E.

F. A description of the proposed facility including:

See Volume I, Section F.

1. Itemized estimated costs;
2. Comparative costs of alternatives considered;
3. Facility service life;
4. Bus and specifications;
5. Overhead take-off design, appearance, and heights, if any;
6. Length of interconnections to transmission and distribution;
7. Initial and design voltages and capacities;
8. Rights-of-way and accessway acquisition;
9. Transmission connections and distribution feeders; and
10. Service area.

G. A statement and full explanation of why the proposed facility is needed and how the facility would conform to a long-range plan for the expansion of the electric power grid serving the state and interconnected utility systems that would serve the public need for adequate, reliable, and economic service, including:

See Volume I, Section G.

1. A description and documentation of the existing system and its limitations;
2. Justification for the proposed in-service date;
3. The estimated length of time the existing system is judged to be adequate with and without the proposed facility;
4. Identification of system alternatives with the advantages and disadvantages of each; and
5. If applicable, identification of the facility in the forecast of loads and resources pursuant to General Statutes § 16-50r.

H. A proposed site map at a scale no smaller than one inch = 40 feet and aerial photos of suitable scale showing the site, access, and abutting properties including proximity of the following:

See Volume I, Section H and Volume II, Appendix A and Bulk Filing.

1. Settled areas;
2. Schools and daycare centers;
3. Hospitals;
4. Group homes;
5. Forests and parks
6. Recreational areas;
7. Seismic areas;

8. Scenic areas;
9. Historic areas;
10. Areas of geologic or archaeological interest;
11. Areas regulated under the Inland Wetlands and Watercourses Act;
12. Areas regulated under the Tidal Wetlands Act and Coastal Zone Management Act;
13. Public water supplies;
14. Hunting or wildlife management areas; and
15. Existing transmission lines within one mile of the site.

I. A justification for selection of the proposed site including a comparison with alternative sites which are environmentally, technically, and economically practicable. Include enough information for a complete comparison between the proposed site and any alternative site contemplated.

See Volume I, Section I.

J. Safety and reliability information, including:

See Volume I, Section J.

1. Provisions for emergency operations and shutdowns; and
2. Fire suppression technology.

K. A description of the effect that the proposed facility would have on the environment, ecology, and scenic, historic, and recreational values, including effects on:

See Volume I, Section K.

1. Public health and safety;
2. Local, state, and federal land use plans;
3. Existing and future development;
4. Roads;
5. Wetlands;
6. Wildlife and vegetation, including rare and endangered species, and species of special concern, with documentation by the Department of Environmental Protection Natural Diversity Data Base;
7. Water supply areas;
8. Archaeological and historic resources, with documentation by the State Historic Preservation Officer; and
9. Other environmental concerns identified by the applicant, the Council, or any public agency.

L. A statement explaining mitigation measures for the proposed facility including:

See Volume I, Section L.

1. Construction techniques designed specifically to minimize adverse effects on natural areas and sensitive areas;
2. Special routing or design features made specifically to avoid or minimize adverse effects on natural areas and sensitive areas;
3. Establishment of vegetation proposed near residential, recreational, and scenic

areas; and
4. Methods for preservation of vegetation for wildlife habitat and screening.

M. Justification that the location of the proposed facility would not pose an undue safety or health hazard to persons or property at the site of the proposed facility including:

See Volume I, Section M.

1. Measurements of existing electric and magnetic fields (EMF) at site boundaries, and at boundaries of adjacent schools, daycare facilities, playgrounds, and hospitals, with extrapolated calculations of exposure levels during expected normal and peak normal line loading;
2. Calculations of expected EMF levels at the above-listed locations that would occur during normal and peak normal operation of the facility; and
3. A statement describing consistency with the Council's *"Best Management Practices for Electric and Magnetic Fields,"* as amended.

N. A schedule of the proposed program for right-of-way or property acquisition, construction, rehabilitation, testing, and operation.

See Volume I, Section N.

O. Identification of each federal, state, regional, district, and municipal agency from which approvals have been obtained or will be sought, copies of approvals received, and a schedule for obtaining approvals not yet received.

See Volume I, Section O.

P. Bulk filing of municipal zoning, planning, planning and zoning, conservation, and inland wetland regulations and by-laws.

See Volume I, Section P.

Q. Such information any department or agency of the state exercising environmental controls may, by regulation, require.

See Volume I and II.

R. Such information the applicant may consider relevant.

See Volume I, Section R.

VIII. Procedures

A. The Council will review and may reject the application within 30 days if it fails to comply with specific data or exhibit requirements or if the applicant fails to promptly correct deficiencies. (Regs., Conn. State Agencies §§ 16-50l-4 through 16-50l-5)

B. The Council and any party or intervenor to the proceeding may file exhibits and interrogatories requesting supplemental or explanatory materials. All filings will be subject to cross-examination and the Council's discretion for admission into the record. (General Statutes § 16-50o)

C. A public hearing must be held in the county of the proposed site, usually in the site municipality, with one session held after 6:30 p.m. for the convenience of the public. The Council's record must remain open for 30 days after the close of the hearing. (General Statutes § 16-50m)

D. The Council must render a decision within 180 days of receipt of the application, or within 12 months of receipt of the application if the application was incorporated with an application for an electric transmission line, extendible by 180 days upon consent of applicant. (General Statutes § 16-50p)

A. SUMMARY DESCRIPTION AND LOCATION OF THE PROJECT

The Applicant, The Connecticut Light and Power Company ("CL&P"), is proposing to construct the Stepstone Substation (the "Substation") in the Town of Guilford, Connecticut for the purpose of increasing the capacity and the reliability of the electric power distribution system in Guilford and adjacent towns. The proposed Substation will improve the reliability of the electric power distribution system which serves the Town of Guilford, and will add distribution capacity by connecting a new 47-Megavolt-Ampere ("MVA") bulk power transformer to an existing 115-kilovolt ("kV") transmission line and to the local 23- and 13.8-kV distribution line system.

The existing distribution system lacks the capacity and reliability to meet future peak-load demands. Currently, CL&P's electric load in the Town of Guilford is served from a bulk power substation located in Branford or from a bulk power substation located in Madison. These two existing bulk power substations also serve electric load in the Towns of Branford, Madison, Clinton and Killingworth, and growing peak demands are straining the capacity of these two substations. Further, a significant portion of Guilford is vulnerable to extended outages should a severe storm damage distribution feeder lines that stretch east and west along the coast of Long Island Sound. The addition of a new inland bulk power substation in Guilford, centrally located between the two existing bulk sources with a 115-kV looped transmission supply, will create a more robust and reliable system.

The Substation will be strategically placed within the south-central portion of a secluded, 38-acre parcel owned by CL&P, located north of Stepstone Hill Road and east of Route 77. The "Property" is comprised of two lots identified by the Guilford Tax Assessor on Map 91, as Lots

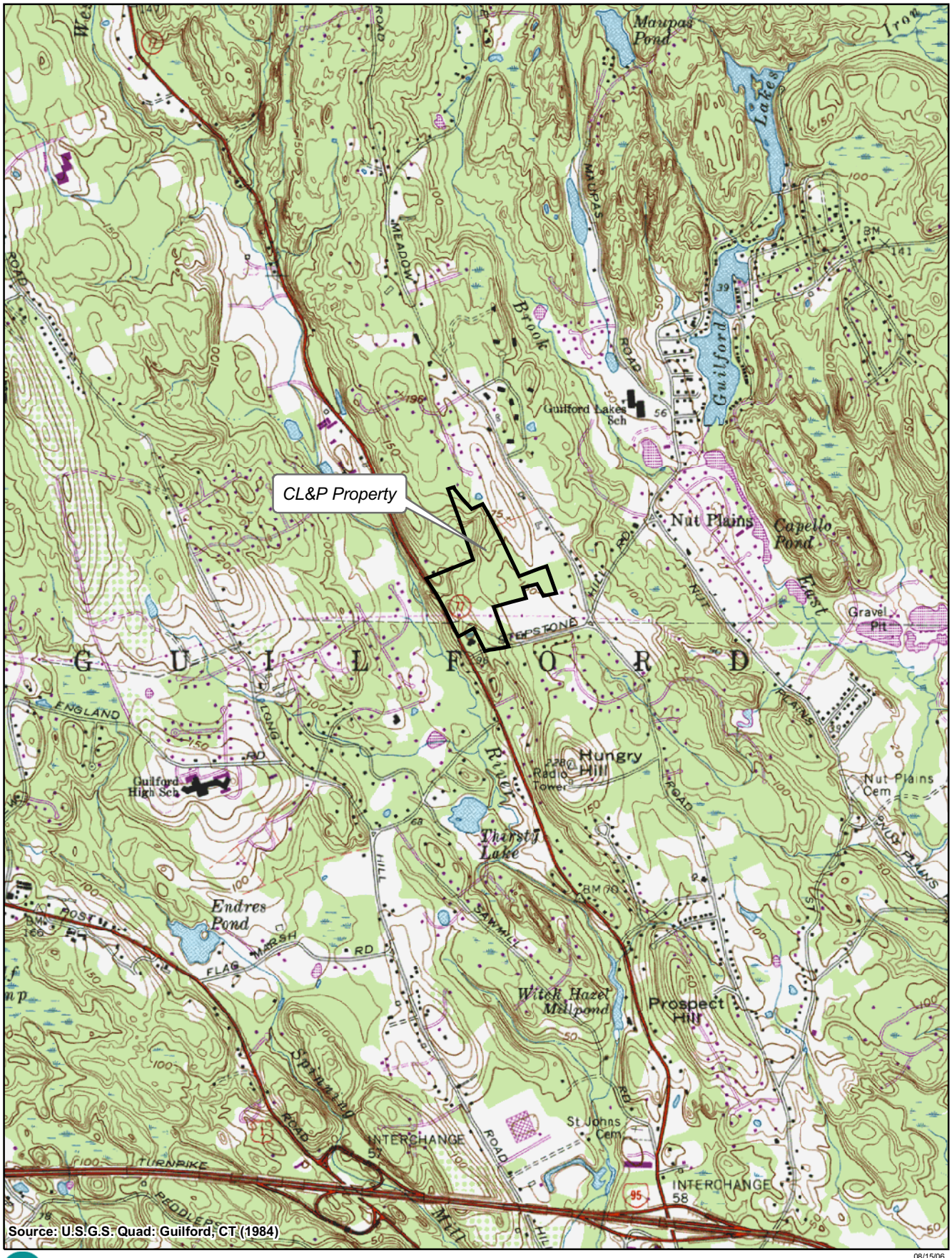
46 and 46A. The site location is depicted in Figure A1 (Site Location Map, USGS) and Figure A2 (Site Location Map, Aerial). The Property is undeveloped and forested with the exception of an existing 115-kV transmission line corridor, which bisects the southern portion of the Property, and an associated unpaved access route extending northward from Stepstone Hill Road to the transmission line corridor.

Once constructed, the Substation would connect into the existing 115-kV overhead transmission line that interconnects to the existing substations in Branford and Madison. Connecting to the existing 115-kV overhead transmission line strengthens the area's distribution system, improves reliability to withstand various system contingencies, provides capacity to serve additional future load and allows for future system reliability.

Prior to and during the municipal consultation process, CL&P consulted with the Chief Elected Official ("CEO"), town officials, and residential neighbors to present an overview of the Project, answer questions, and provide them with a point of contact should they need additional information. As part of the Location Approval process, a Public Hearing was conducted in Guilford in September 2006 by the Planning and Zoning Commission. Location approvals and town comments were obtained from the Guilford Inland Wetlands Commission and the Planning and Zoning Commission. CL&P has reviewed the Commission's conditions of approval and is committed to complying with these conditions.

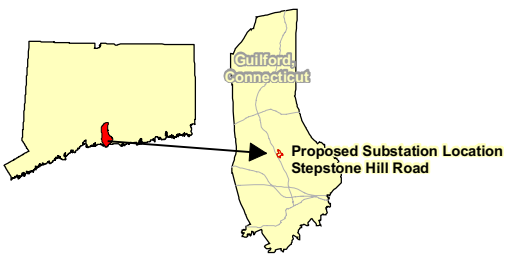
This Project was identified in the *Connecticut Siting Council Review of the Connecticut Electrical Utilities Ten-Year Forecast of Loads and Resources, 2004, 2005 and 2006*. The Project received approval for technical design from ISO-NE (New England's Independent System Operator) on November 8, 2005.

Figure A1: Site Location Map, USGS



08/15/06

VHB Vanasse Hangen Brustlin, Inc.
Transportation Land Development Environmental Services



N W E S

1,000 500 0 1,000 Feet

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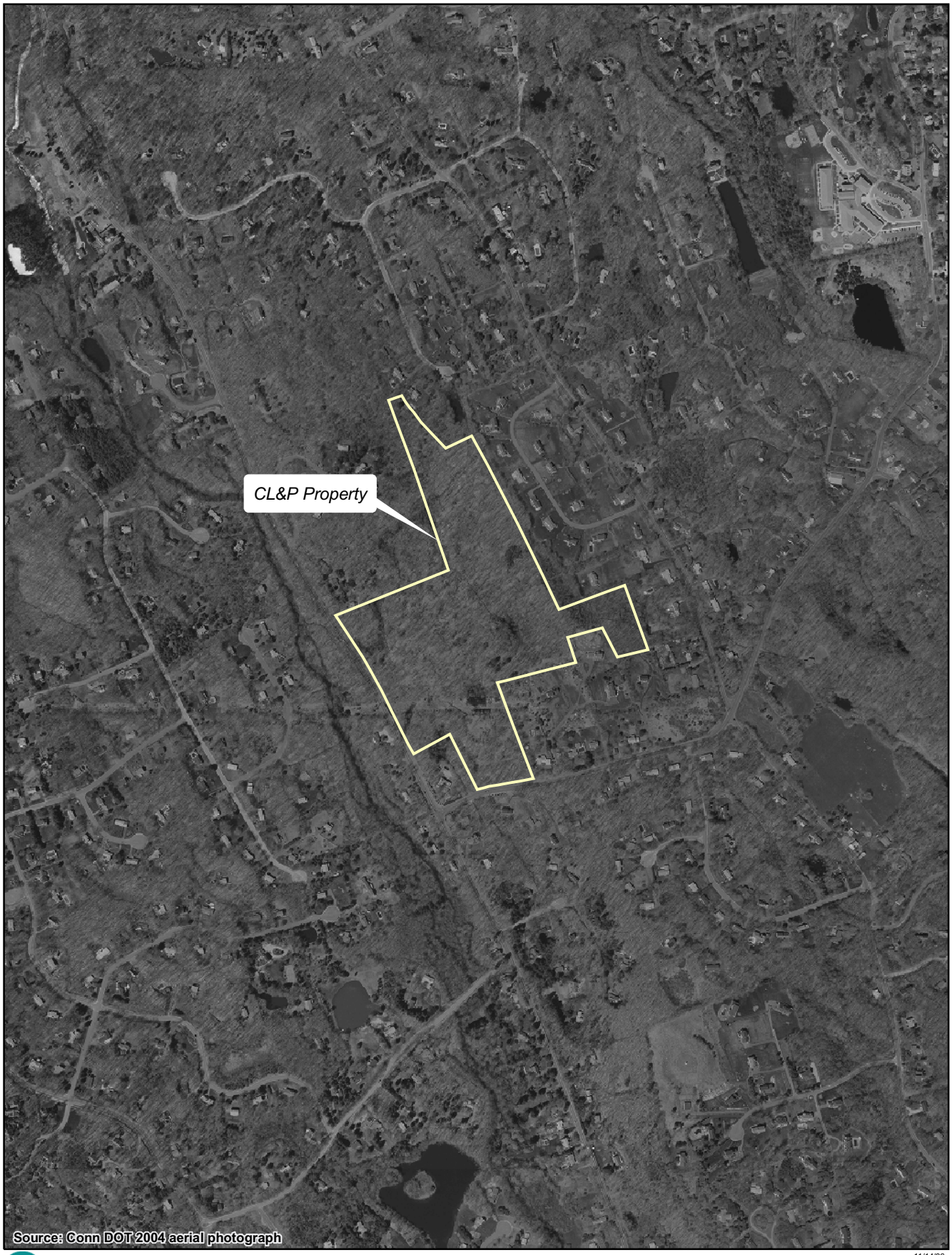
Figure A2: Site Location Map, Aerial



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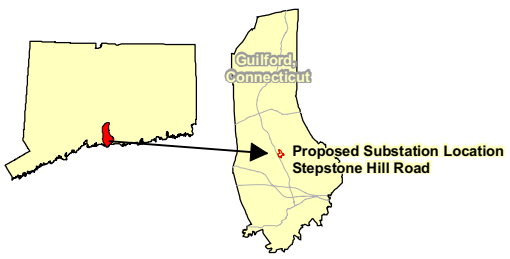
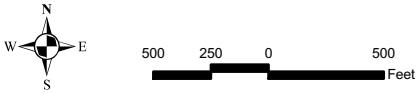
VHB Vanasse Hangen Brustlin, Inc.
Transportation Land Development Environmental Services





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CL&P has designed the Substation in a manner that minimizes the potential environmental and visual effects to the greatest extent practicable and has incorporated measures to ensure the protection of existing resources during the construction and operation of the Substation facilities.

As detailed in the remainder of this submission, the Stepstone Substation Project:

- will address a need for additional distribution system capacity and reliability in the Town of Guilford by establishing a new, strategically positioned bulk power source.
- will comply with regional planning and reliability standards and Northeast Utilities' transmission reliability standards;
- will occupy property owned by CL&P that was identified and set aside for this specific use in anticipation of area load growth and potential long-term limitations of the existing local distribution system;
- will be consistent with applicable public health and safety requirements, standards and codes; and standards and not pose a safety concern or create undue hazard to the general public;
- will be constructed in full compliance with the standards of the National Electrical Safety Code, the Connecticut Department of Public Utility Control, and good utility practice;
- will be consistent with local, State, and Federal land use plans;
- will be designed to minimize effects on existing wetlands and watercourses on the Property;
- will be designed to minimize effects on existing wildlife, vegetation, and rate, threatened and endangered species habitat;
- will not result in any adverse effects on public water supplies;
- will be strategically located and designed to minimize visual impacts to surrounding areas;
- will have no adverse effect of historic, cultural and/or archaeological resources;

- will be designed to minimize earthwork and soil disturbance during construction, including development of appropriate plans to stabilize and restore affected areas;
- is not located within a floodplain;
- will comply with applicable state lighting and noise requirements; and,
- will result in no significant permanent adverse effects on the environment.

B. PURPOSE OF THE APPLICATION

The purpose of CL&P's application (the "Application") to the Connecticut Siting Council ("CSC" or "Council") is to request a Certificate of Environmental Compatibility and Public Need ("Certificate") for the siting and construction of the Stepstone Substation Project (the "Project"). The purpose of the Project is to address a need for additional distribution system capacity and reliability in the Town of Guilford by establishing a new, strategically positioned bulk power source. The Project consists of the construction of the Substation, its driveway, and interconnection with existing 115-kV transmission facilities.

C. STATUTORY AUTHORITY FOR APPLICATION

CL&P is applying to the Council pursuant to *Section 16-50g et seq. of the General Statutes of Connecticut.*

This filing includes information concerning the Applicant (CL&P), existing conditions at the Property, and the proposed conditions for construction of the Substation, including:

- its location and design;
- the various alternatives considered to date and the process by which the Property was identified and selected;
- the need for its construction and operation;
- its potential effects on the environment; and
- mitigation measures proposed by CL&P.

D. LEGAL NAME AND ADDRESS OF APPLICANT

The Connecticut Light and Power Company (a specially chartered Connecticut corporation)
107 Selden Street
Berlin, CT 06037

Mailing Address:

CL&P
P.O. Box 270
Hartford, CT 06141-0270
Telephone: (860) 665-5000

Internet Address: Northeast Utilities Transmission website
www.transmission-nu.com

E. APPLICANT CONTACTS

Correspondence and other communications with regard to the Stepstone Substation should be addressed to, and notices, orders and other papers should be served upon the following:

Mr. Robert E. Carberry, Manager
Transmission Siting and Permitting
Northeast Utilities Service Company
P.O. Box 270
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Telephone: (860) 665-6774
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rgolden@carmodylaw.com
mdubuque@carmodylaw.com

F. DESCRIPTION OF FACILITY

The CL&P Property on which the Stepstone Substation would be located was acquired in 1973 when a new 115-kV transmission line was constructed. This Property was then identified and set aside by CL&P specifically as a future substation site in anticipation of area load growth and potential long-term limitations of the existing local distribution system. The Substation would be accessible from Stepstone Hill Road, just east of its intersection with Route 77. The Substation would be located north of the existing transmission line corridor, currently occupied by one 115-kV overhead transmission line. The Substation would occupy an area of 240 feet by 270 feet and be covered with a trap rock surface and secured by a seven-foot high chain link fence with one foot of barbed wire (three strands). A gravel driveway will be established generally along the route of the existing unimproved, dirt access. The Property will accommodate the construction and operation of the Substation without need to purchase any additional real estate.

Once constructed, the Substation would connect into the existing 115-kV overhead transmission line that interconnects to the Branford Substation on Route 1 in Branford and Green Hill Substation in Madison. The transmission line will be "looped through" the Substation and a new transmission circuit breaker will be installed to separate the existing transmission line into two circuits. The 115-kV interconnections between the Substation and the transmission line would be accomplished by installing two line terminal structures within the Substation, each capable of supporting a line disconnect switch. Connections of the transmission line to the Substation would be accomplished through the installation of two 85-foot high, steel monopoles. Existing horizontal structures #5901 and #5902 would be removed and replaced by two vertical single circuit steel poles on concrete foundations. From these two steel poles, the existing east

and west segments of the line would be brought into the Substation. The new #5902 pole would be located approximately 150 feet west of the existing #5902 structure and new pole #4988 (to replace #5901) would be located approximately 40 feet east of existing structure #5901. The existing conductor would dead-end on the line side of the new structures and new 1590 conductors would be installed into the Substation.

The Substation would be outfitted with two transformer disconnect switches and two circuit switchers. One disconnect switch and one circuit switcher will be in the supply path to the 47-MVA power transformer, used to step down the voltage from 115 kV to 23 kV. The second disconnect switch and circuit switcher can house a future power transformer, but would initially be used for a mobile transformer connection, when necessary, to perform maintenance or to replace a failed piece of equipment. The site is large enough to convert the mobile connection at a later date to accommodate a second 47-MVA transformer, if needed. A metal-clad switchgear enclosure, approximately 24-feet long, 14-feet wide and 14-feet high will be installed to provide the switching equipment for three distribution feeders. Two 23- to 13.8-kV autotransformers will be installed to provide two 13.8-kV distribution feeder circuits which can take over portions of circuits from Guilford Substation. Feeder cables will exit the Substation underground in conduits southward to Stepstone Hill Road, following the general route of the new access drive.

In addition to the switchgear enclosure, a 48-foot by 14-foot by 14-foot high protective relay and control equipment enclosure (the “control enclosure”) and a 24-foot by 14-foot by 14-foot high battery enclosure will be installed at the east end of the Substation. The battery enclosure will house the substation battery, charger and transmission equipment used to operate the Substation. The control enclosure will house protective relaying and control equipment.

Development of the Substation requires protective relay system changes at two other existing bulk substations (Branford and Green Hill).

Technical specifications and related information are presented in Volume II, Appendix A (*Site Plan Drawings*).

F.1 Estimated Cost of the Stepstone Substation

The estimated costs for the siting, design, and construction of the Substation and supporting infrastructure totals $8,466,000 ($4,466,000 allocated to transmission system costs and $4,000,000 to distribution).

CL&P received cost allocation approval from ISO-NE for the transmission costs of this Project on April 24, 2006.

F.2 Facility Service Life

The Substation would have a service life of approximately 40 years and would be capable of capacity increases during this time.

G. NEED FOR FACILITY

The purpose of the Project is to address the need for additional distribution-system capacity and reliability in Guilford by establishing a new bulk substation in the town. Existing substations serving Guilford are heavily loaded and lack the capacity to meet projected future peak-load demands. A central portion of Guilford is also vulnerable to long outages should a severe storm damage 23-kV distribution feeder lines that stretch east and west along the coast of Long Island Sound bringing power from bulk substations in Madison and Branford to a small distribution substation in Guilford. The addition of a new inland bulk power substation in Guilford, centrally located between the two existing bulk sources and with a 115-kV looped transmission supply, will increase capacity and create a stronger and more reliable distribution system.

Guilford and its four surrounding towns (Branford, Madison, Clinton, and Killingworth) have experienced significant growth over the past two decades. The migration of residents who commute to southwestern Connecticut has accelerated as those communities along route I-95 have become increasingly developed. This has meant a change in the demographics of the communities surrounding Guilford. Not only are more people moving to the area, they are building larger homes that require more electricity. As illustrated in Table G-1, the kilowatt-hour use in these five towns has increased by more than 67% from 1981 to 2004. The peak power demand at two bulk power substations and smaller downstream distribution substations serving these towns has also increased significantly with this increased energy usage.

TABLE G-1 KILOWATT-HOURS USE IN AREA TOWNS

	Branford	Clinton	Guilford	Killingworth	Madison	All Towns
1981	154,699,796	73,133,537	95,485,210	16,259,517	78,712,628	**418,290,688**
2004	246,410,187	126,908,500	160,422,740	34,653,974	133,925,276	**702,320,677**
% Change	59.28%	73.53%	68.01%	113.13%	70.14%	**67.90%**

Usage in Kilowatt hours (kWh) by Town 1981-2004

Peak demand is expected to grow at an annual compound rate of between 2% and 3%. Commercial development in Guilford and surrounding towns is also experiencing resurgence. This is at least partly attributable to the fact that retail stores and medical services currently operating in New Haven are becoming more difficult to access as a result of the rebuilding of the Q Bridge, which is expected to impact the I-95 corridor until at least 2014. Irrespective of this added growth, the substations serving the current distribution system are highly loaded and even the slightest increase in demand will exceed their capacity ratings.

A History of Guilford's Distribution System

Guilford Substation located on Meadow Street in Guilford was established as a 27.6- to 13.8-kV distribution substation in the late 1960s, the sole source of 13.8-kV power for an upgraded distribution system serving the Town of Guilford. At that time, a single 27.6- to 4.8-kV, 6.25-MVA power transformer was removed, and the 4.8-kV distribution system in Guilford was converted for 13.8-kV operation (two initial feeders). Following this change, the Guilford Substation contained a single 12.5-MVA power transformer that was supplied by a long 27.6-kV feeder line running close to Long Island Sound from the Branford Substation. Within a few years, rapid load growth in Guilford led to the addition of a second 12.5-MVA transformer at Guilford Substation and two additional 13.8-kV feeders. An additional 27.6-kV supply circuit

from Branford to Guilford Substation also picked up growing load at other small substations in Madison, including the small Race Hill 27.6- to 4.8-kV (now 8.32-kV) Substation in North Madison. In the 1970s, the peak-load growth in Guilford, Madison, and the surrounding towns next led CL&P to construct a temporary 27.6- to 23-kV substation in Branford, followed by a new 115-kV transmission line between the Branford Substation and Bokum Substation in Old Saybrook (*CSC Docket 1 - Power Facility Evaluation Council*, decision renedeerd January 31, 1973). In the late 1970s a new 115- to 13.8-kV bulk power substation, Green Hill, was built in Madison along this 115-kV line. The Green Hill Substation was established with two 47-MVA power transformers as a source for 23-kV feeders. Later the Branford Substation and its 27.6-kV feeders were converted to operate at 23 kV. Using feeder sections that once operated at 27.6 kV originating from the Branford Substation, Green Hill Substation took over the supply role to Race Hill Substation, East River Substation and Madison Substation, and in the mid-1990s, the supply responsibility for half of Guilford Substation, all of which were converted for 23-kV supply sources. In order to contain the 13.8-kV peak load on Guilford Substation within station ratings, areas of Guilford were also converted to 23-kV distribution service, with feeder supplies directly from the Branford and Green Hill Substations.

The Present Substation Capacity Situation

Because Guilford Substation has 23-kV feeder supplies from both the Branford and Green Hill Substations, and its load is normally split between each source, CL&P has been able to load each of the Branford and Green Hill Substations well above the typical capacity limits of two 47-MVA transformer substations. In turn, this had deferred the need for another bulk power substation in Guilford. The permissible load ratings on the Branford and Green Hill Substations have been 95 and 89 MVA respectively. Guilford Substation, with its two 12.5-MVA power

transformers, its 23-kV supply feeders, and a system of motor-operated disconnect switches, makes possible an automatic forced load transfer ("FLT") scheme. This FLT scheme can quickly transfer up to 14 MVA of load from one bulk substation (i.e., Branford or Green Hill Substation) to the other, following a major transformer outage at either substation, the contingency which drives the bulk substation permissible load ratings.

The Branford Substation currently has a permissible load rating of 95 MVA, based on an FLT of 14 MVA. Peak loads at that substation reached 87.8 MVA during the summer of 2006. Using the higher end of growth estimates (3%) for a peak-load growth rate, the Branford Substation would exceed its permissible load rating by 2009 (see Table G-2 below showing substation Capacity and Forecasts). There is a narrow and shrinking margin in the next few years if the loss of a Branford Substation transformer occurs (i.e., either a transformer failure or a forced loss due to priority maintenance). Additionally, the two 12.5-MVA transformers at the small Guilford Substation are approaching their permissible load ratings and, based on current projections, will exceed their ratings as early as 2008. Relieving this situation by converting and shifting more of the town's 13.8-kV load to a Branford 23-kV feeder will only exacerbate the Branford Substation capacity problem.

In 2007, a third 115- to 23-kV, 47-MVA transformer will be added to the Green Hill Substation to boost its capacity (CSC Petition No. 749, approved August 24, 2005). This capacity addition enables 23-kV feeder additions and load transfers so that some load that is presently served via the heavily loaded Race Hill 23- to 8.32-kV, 12.5-MVA Substation transformer can be directly supplied, with greater reliability, by 23-kV feeders from Green Hill Substation. However, the bulk of the additional capacity (about 40 MVA) gained by adding the third transformer at Green Hill Substation is required to supply the growing needs of the area

immediately surrounding Green Hill, namely Madison and Clinton. Using additional capacity at Green Hill, which is located on the far eastern side of Madison to meet load demands in Guilford, would require the construction of two to three new, lengthy 23-kV feeders. The additional substation capacity and feeder system reconfiguration that will be provided by the proposed Stepstone Substation will enable the Branford Substation to remain below its permissible load rating. The locations of these nearby substations are depicted on Figure G1, *Guilford Area Substation System.*

Table G-2 Available Capacity and Forecasted Load Growth (MVA)[1]

	Permissible Load Rating (MVA)	2006	2007	2008	2009	2010	2011	2012
Branford	**95**	87.8	90.4	93.1	95.9	98.8	101.8	104.8
Green Hill[2]	**130**	100.5	103.5	106.6	109.8	113.1	116.5	120.0
Total (MVA)	**225.0**	**188.3**	**193.9**	**199.8**	**205.8**	**211.9**	**218.3**	**224.8**

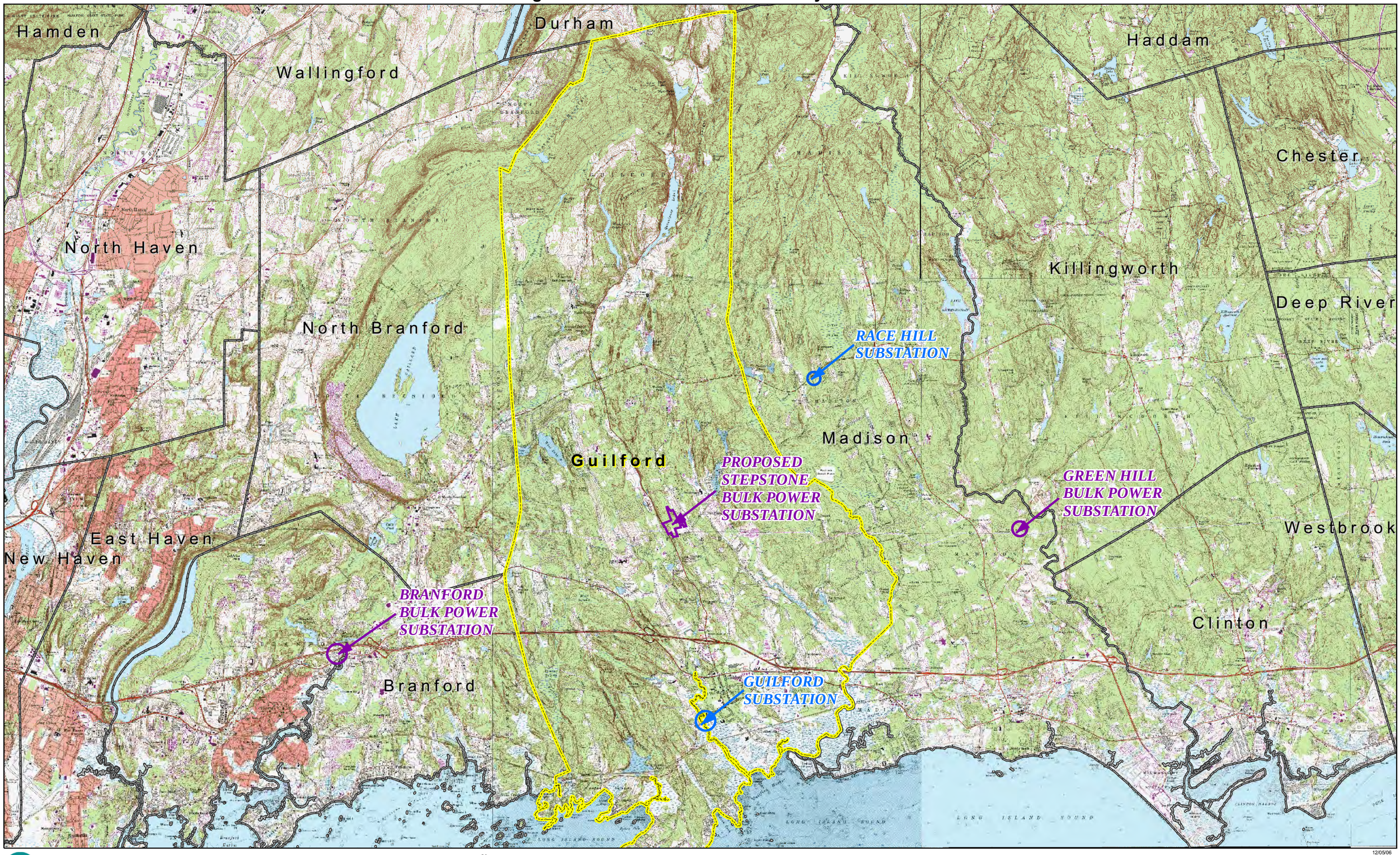
1 Forecasts based on a projected 3% annual load growth and no new substation.

2 The rating prior to the third transformer being placed into service is 89 MVA. The majority of the new capacity (41 MVA) from the addition of a third transformer is dedicated to serving the growing needs of Madison and Clinton. Also, as evidenced by the 2006 peak load data, a very rapid spurt of load growth occurred in 2006 at Green Hill Substation.

Distribution System Reliability in Guilford

Currently, the small Guilford Substation serves the town center area with 13.8-kV service. A portion of the 23-kV supply line from Green Hill Substation feeds Guilford Substation following the "swamp" route through tidal flow marsh land areas bordering Long Island Sound. This lengthy and older supply line, initially built in the 1930s, is susceptible to interruption from significant storm events and could be severely damaged by a strong hurricane. Severe damage to portions of the line occurred during hurricane Gloria in 1985. Similarly, the 23-kV supply feeders from Branford Substation to the Guilford Substation extend in the opposite direction along the coast, and share common structures. If these lines experience another

Figure G1: Guilford Area Substation Systems



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catastrophic incident similar to hurricane Gloria, a large area of Guilford supplied by the Guilford Substation could be without power for an extended period of time.

Since direct circuit routes from Green Hill to Guilford are all but exhausted, this would require the construction of multiple circuits on the same poles, an alternative that generally results in a less reliable and less efficient distribution system. Establishing an inland bulk substation in north-central Guilford to supply load in Guilford and provide a 23-kV source to the Guilford Substation, would provide not only much needed capacity, but also increased reliability. Establishing an additional bulk source north of the existing Guilford Substation will increase reliability by providing an additional, shorter feeder line for the Guilford Substation that is away from the coastline and less susceptible to major storm events.

Adding a new bulk power-supply substation source to the area will also improve reliability by enabling the deployment of more recloser-loop schemes on the distribution feeders. Reclosers are devices installed along a feeder which, working together, can separate a section of a feeder and temporarily reconnect it to another feeder. So-called recloser-loop schemes can be deployed to minimize the number of customers that lose power during an outage when power is available from more than one direction or source. CL&P currently utilizes recloser-loop schemes, where possible, to minimize outages mostly associated with longer repair time events. Currently, the potential for utilizing these schemes is very limited in the Guilford area. The addition of a new bulk Substation in Guilford will bring capacity and additional feeders, allowing for the creation of more recloser-loop schemes between feeders, and thus enabling enhanced customer reliability. Planning for such a contingency not only satisfies the Connecticut Department of Public Utility Control's goal of a more reliable distribution system, it

also represents necessary preparation for the possibility that the coastline of Connecticut could experience another major hurricane.

Systems Alternative

CL&P has considered alternative system redesign options to meet the challenges in Guilford for the past several years. Alternatives included adding a 47-MVA transformer to each of the existing Branford and Green Hill Substations or constructing the Stepstone Substation with two 47-MVA transformers, each with associated distribution feeder circuit additions and changes. However, Green Hill Substation experienced a 20% peak-load growth from 2004 to 2006 and exceeded its capacity rating sooner than anticipated, requiring the prompt installation of a third 47-MVA transformer at this Substation in 2006-2007. Upon initiating that installation, CL&P subsequently evaluated the alternative of installing a third transformer in Branford versus construction of Stepstone Substation with one or two 47-MVA power transformers. Increasing capacity at Branford by installing a new transformer would add less new capacity, and developing additional 23-kV feeders to reach into northern and central Guilford (distances exceeding five miles from the power source) would produce a Guilford distribution system that is not as reliable and flexible as the system which will result from the proposed Project. Shorter feeder lengths, a significant back-up source for Guilford's 13.8-kV load, and the potential for utilizing more recloser-loop schemes along the area's distribution system are significant reliability benefits offered by the proposed Project in comparison with the Branford Substation alternative.

Connecticut Energy Advisory Board

Conn. Gen. Stat. § 16a-7c(b) requires the Connecticut Energy Advisory Board ("CEAB") to issue a request for proposals to seek alternate solutions to the need that will be addressed by

the Project, soon after CL&P files its application with the Council. Under Conn. Gen. Stat. § 16l-50*l*(a)(2), the CEAB process is triggered by the filing of certain applications with the CSC, including the proposed Substation. The Project is consistent with CEAB's preferential criteria, developed for the purpose of evaluating responses to requests for proposals issued under the statute with a view toward balancing energy reliability, environmental and natural resource protection, cost effectiveness, and quality of life goals. To that end, this Project:

- Enhances distribution system reliability;
- Protects energy resources from physical risk through CL&P's substation security designs and practices;
- Provides long-term benefit (the Project will be designed to last for approximately 40 years) and avoids stop-gap measures (the need to serve all of Guilford's load with long distribution lines from substations in other towns will largely be eliminated);
- Capitalizes on existing infrastructure by locating immediately adjacent to an existing transmission line with adequate capacity (i.e., no transmission expansion is needed);
- Meets an identified energy need and is consistent with forecasted resource needs as identified by the Independent System Operator (ISO-NE) in its Regional System Plan and the CSC (in the Forecasted Loads and Resources).

  > The Independent System Operator New England ("ISO-NE") approved the plan for implementation of the Stepstone 35L Substation on November 8, 2005, stating, in relevant part, that implementation of the proposed Substation "will not have a significant adverse effect on the stability, reliability, or operating characteristics of Northeast Utilities System Companies' (NU) transmission facilities…" (see Volume II, Appendix H, *Other Relevant Information*).

- Provides local tax revenues; and,
- Supports environmental protection.

Distributed Generation and Demand Response

The addition of properly sized, properly located, available, and dispatchable distributed generation (interconnected to distribution feeders or customer-side), and/or demand response could mitigate the growing pressure on local electric distribution system capacity. Generally speaking, distributed generation ("DG") or demand response might assist in reducing some load

on the feeders presently serving Guilford, however the reasonable-cost benefits and the added capacity of the Project will likely far exceed the opportunities for these alternatives.

DG proposals would need to address the following: A large number of small generators would be needed to match the capacity offered by the Project, quite likely more than the existing local distribution system could reliably interconnect with. The generators would need to be installed on customer premises or be interconnected to the CL&P distribution system rather than to the transmission system. The design of the local distribution system would need to be carefully reviewed to ensure multiple power-supply sources are appropriately integrated with the distribution system. The locations of, operating practices for, and protective devices on distributed generators and on CL&P's distribution feeders would need to be reviewed: to protect customers, utility workers, and the distribution system from over-voltages, potential damage during line switching, and unexpected energizing of downed lines; and to protect the generators from automatic switching and reclosing on the distribution system.

As part of Public Act 05-01 efforts to support development of DG, CL&P has contacted a number of customers in the area to determine if they will consider installing DG or combined heat power ("CHP") projects. To date two parties are considering emergency diesel generators rated 170 kW and 1,350 kW respectively. These generators will not operate in parallel with the CL&P system. No other customers have expressed interest in installing DG or CHP in Guilford. CL&P has not performed any assessments of the technical potential for additional DSM programs specifically for these areas.

Regarding demand response, CL&P's longstanding Conservation and Load Management ("CL&M") programs have only slightly reduced the rate of growth for summer peak demands in Guilford, and CL&P forecasts that any significant future reductions, on the scale of the proposed

47-MVA Project, would not be cost effective. The Company offers an array of Connecticut Energy Efficiency Fund ("CEEF") programs to its residential, commercial and industrial customers statewide. Since 2005, CL&P estimates that through participation in these CEEF programs, customers in the towns of Guilford, Branford, Madison, Clinton and Killingworth have achieved peak demand savings of approximately 3.3 MW and will save approximately 111,202,820 kWh of energy over the life of the installed measures.

Again, there may be opportunities for small-scale distributed generation and demand response to contribute to the overall solution, but it is likely they will be quite limited in comparison to the proposed Project.

H. EXISTING CONDITIONS

An *Existing Conditions Map*, depicting current conditions on the Property, its access, abutting properties, and several key features discussed herein, is provided as Figure H1. Photographs of the site are presented in Volume II, Appendix B (*Site Photographs*). The purpose of this section is to describe conditions on the Property as they exist today. A detailed discussion of the Stepstone Substation's effects on the environment is provided in Section K of this document.

H.1. Existing Development

CL&P's site for the Stepstone Substation is located in a Residential R-5 zone of Guilford. The Property is primarily wooded and undeveloped. Overhead transmission lines traverse the southern portion of the Property and extend generally east to west off the Property in either direction. Two utility structures, supporting the overhead transmission line, are currently located on the Property. The Property is bounded by a total of thirty abutting parcels. All of the abutting properties are residentially developed with the exception of three undeveloped Town-owned parcels. Two of the undeveloped Town-owned parcels are situated east of the Property and the third abuts the northeastern corner of the Property.

Residences in the vicinity of the Property exist along Durham Road (Route 77), Stepstone Hill Road, Little Meadow Road, Meadow Ridge Lane, Talcott Road, Winthrop Road, and Bunker Hill Road. The nearest residence (#840 Durham Road) is located approximately 645 feet to the southeast of the approximate Substation location. Figure H2 (*Nearest Residences*) depicts the locations and distances of surrounding residences to the proposed Substation.

Figure H1: Existing Conditions Map

Charles Monte Jr
Walter J Sauer Jr & Jill T OCallaghan
Town of Guilford
Guy A & Lisa A Cattaruzza
James P & Christina R Leese
Frederick W & Andrea C Herget
Michael I & Janet R Deangelo
Timothy E & Jessica P Hansen
Nicole E Nicoletti
Marc W & Krysten L Guarino
Wetland 6
VP 6
Kimberly A Caldwell
Robert M & Deborah A Pantera
Sean W & Illana Lazarus
Keith B & Deborah G Bishop
Kyle R & Jane M Kramer
Frederjick P & Mary Lou Bonito
Wetland 5
VP 5
Dennis & Annette Amato
Molly F Free
VP 7
Wetland 7
Conn Light & Power
Wetland 4
VP 4
Lawrence & Dana Torre
Town of Guilford
Evelyn M Palermo
Robert A Solari
Yongmei Jin & Zhang Xuechun
Wetland 3
VP 3
Donald & Rosemary Jewett
Jeffrey & Patricia Brand
Town of Guilford
Ronald & Margaret Berube
Conn Light & Power
Lidio & Alicia Afonso
SNET
VP 1
Wetland 1
Wetland 2
VP 2
Mark A Millett
Warren & Helen Gohsler
Laurel K Griso & Dennis Sandacata
West River
Russi T & Ava R Suntoke
Christopher & Judith A Tsou
Kerry E Arsenault & Jeremy Turk
James D McCann & Maureen McCann-OReilly
Douglas F & Susan B Danaher
Harlan G Case
Alan K & Susan M Frishman
David W & Mary C Vitola
Route 77
Meadow Ridge Lane
Little Meadow Road
Stepstone Hill Road
4986
4987
5901
5902
5903
5904

Legend

- Existing Utility Structures
- Transmission Lines
- Intermittent Watercourse
- Contours (5-foot)
- Existing Path
- Approximate Parcel Boundaries
- Scenic Road (Rt 77)
- Aquifer Protection Wells
- Aquifer Protection Well Field
- Water Bodies
- Vernal Pool (VP) Habitat
- Palustrine Forested Wetland
- Deciduous Upland Forest
- Buildings

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200 100 0 200 Feet

Guilford, Connecticut
Proposed Substation Location
Stepstone Hill Road

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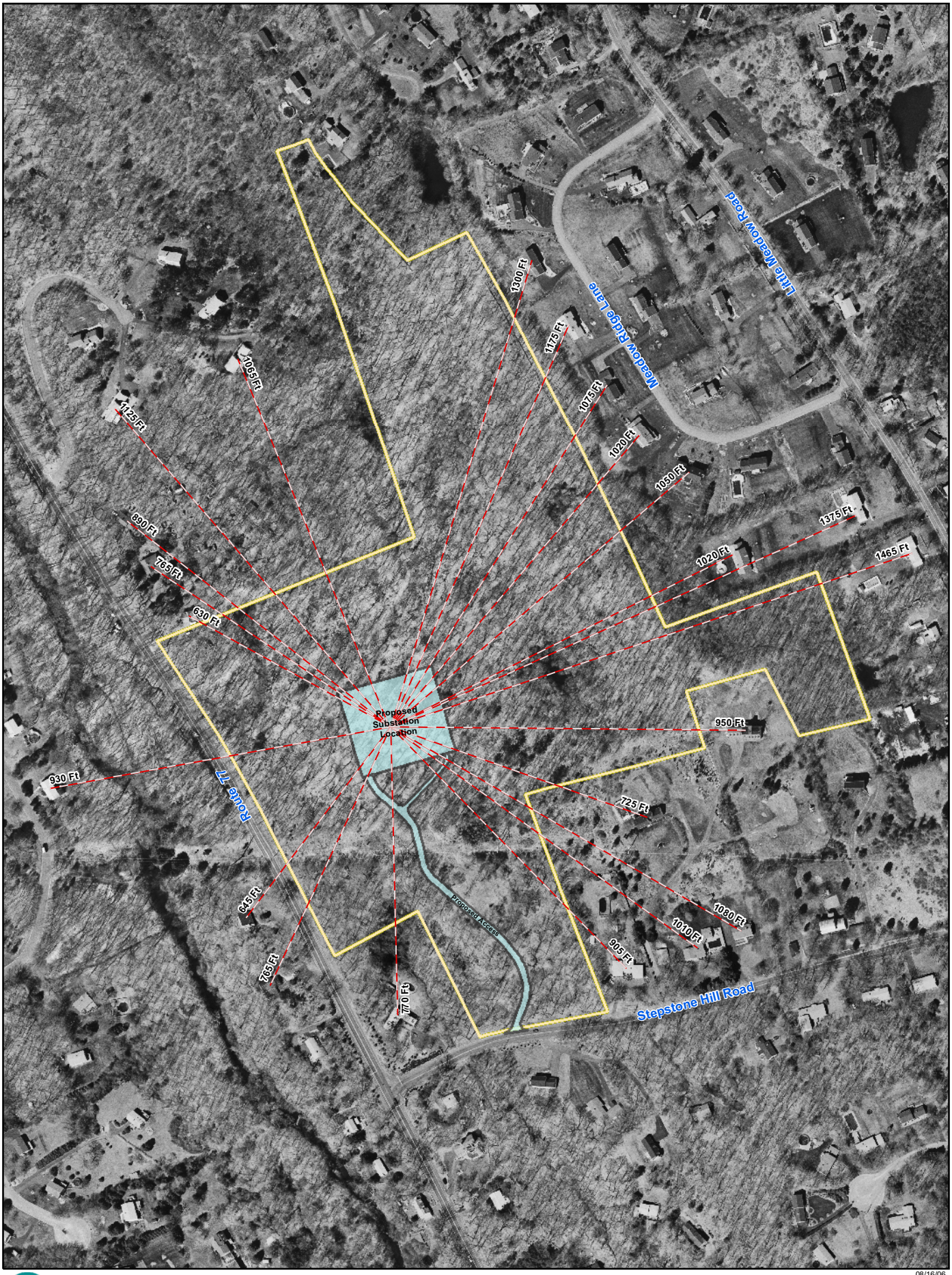
Figure H2: Nearest Residences



08/16/06

Vanasse Hangen Brustlin, Inc.
Transportation Land Development Environmental Services

N W E S

210 105 0 210 Feet

Legend

- Approximate Property Boundary
- Footprint of Proposed Substation
- Nearest Residences

Connecticut Light & Power
The Northeast Utilities System

H.2. Site Access

A dirt access drive is situated off of Stepstone Hill Road in the southern-most portion of the Property, allowing authorized vehicular access to the existing 115-kV transmission line corridor. The proposed access will follow this route. The western end of the corridor, as it exits the Property, intersects Route 77; due to the steep grade at this end of the corridor, no vehicular access is available from Route 77.

H.3. Wetlands and Watercourses

Seven wetlands located on the Property were delineated in the field by a professional soil scientist, flagged, and subsequently surveyed and mapped. The limits of the wetlands and their respective identifiers are illustrated in Figure H1 (*Existing Conditions Map*). Details of the investigation can be found in Volume II, Appendix C (*Environmental Assessment Report*).

Wetland 1 (flags #1 through #12) is a small isolated palustrine forested groundwater-controlled wetland located near the western Property boundary adjacent to Route 77. The northern portion of the wetland extends into the transmission line corridor. The wetland contains seasonal shallow inundation for a short period during the growing season.

Wetland 2 (flags #13 through #22) is a groundwater-controlled depressional wetland located in the southwest corner of the Property. The majority of this wetland is located off-site, on the adjacent residential property, and consists of a seasonally inundated pond and palustrine forested wetland that drains south under Stepstone Hill Road. The portion of the wetland on the Property is palustrine forested with areas of seasonal saturation and shallow seasonal inundation.

Wetland 3 (flags #118 through #137) consists of a small wetland located in the southeastern portion of the Property. The majority of the wetland is located within the

transmission line corridor with a small portion extending north into a wooded area. This wetland is groundwater-controlled and experiences seasonally shallow inundation.

Wetland 4 (flags #138 through #156) is a large seasonally inundated pond and surrounding palustrine forested wetland. The groundwater-controlled depressional wetland is isolated in a central portion of the Property.

Wetland 5 (flags #92 through #117) is located along the eastern Property boundary. The majority of this groundwater-controlled depressional wetland is located off-site, on adjacent residential parcels to the east of the Property. Portions of this wetland located on the Property consist of palustrine forest with areas of seasonally saturation and shallow ponding.

The northern-most wetland, Wetland 6 (flags #60 through #91), consists of a large wetland system that extends southwest through an adjacent residential property to Wetland 7 located in the northwest corner of the Property. The northern portion of Wetland 6 is characterized by an intermittent watercourse that discharges to a palustrine forested wetland containing areas of seasonal saturation and a shallow seasonally-inundated pond. The intermittent watercourse receives water from a wetland located on an adjacent municipally-owned property to the north.

Wetland 7 (flags #23 through #59) is a large palustrine forested wetland system adjacent to Route 77 in the northwest corner of the Property. The wetland system extends northeast through an adjacent residential property to Wetland 6, located in the northern end of the Property. The western portion of Wetland 7 is seasonally saturated and includes several braided intermittent watercourses and a shallow seasonally-inundated pool. This wetland system drains southwest under Route 77.

H.3.1. Vernal Pool Habitat

Each of the seven wetlands located on the property support vernal pool habitat. The methods employed to conclusively identify potential vernal pool habitat included a variety of recognized field exploration techniques. Potential vernal pools were conclusively identified based on both physical characteristics (i.e., occurs within a confined depression or basin that lacks a permanent outlet stream, standing water for approximately two months during the growing season, lacks any fish population, and dries out most years) and the occurrence of one or more obligate wildlife species (i.e., spotted, Jefferson, and marbled salamanders, wood frogs, and fairy shrimp). This methodology generally follows the guidelines noted in the University of Connecticut Cooperative Extension System, *A Guide to the Identification and Protection of Vernal Pool Wetlands of Connecticut.* The identification of vernal pool species utilized methods described in the *Guidelines for Certification of Vernal Pool Habitat* (Massachusetts Division of Fisheries and Wildlife, 1998) along with various amphibian and vernal pool species field guides.

Vernal pool inspections were conducted periodically during the months of May, June and July 2005 as well as during the months of March, April, May and June 2006. Potential vernal pools were inspected for any indirect (i.e., chorusing) or direct evidence of amphibian breeding (such as the presence of two or more egg masses or sightings of adults). In addition, cover searches were performed (i.e., downed tree limbs, logs, large rocks) in the immediate vicinity of the vernal pool, including the proposed development and access/utility easement areas, for adult salamanders and frogs.

An analysis of this data over these two seasons is generally consistent and reveals that although each of the seven wetland areas provides potential amphibian breeding habitat, only three of those aquatic habitats (Vernal Pools 2, 5 and 6) have been found to meet the definition

of *vernal pool* as defined in the UCONN Cooperative Extension Service System's *A Guide to the Identification and Protection of Vernal Pool Wetlands of Connecticut*. Please note that the most productive vernal pool habitat for Vernal Pools 2 and 5 are located on adjoining properties with only some of the more seasonal habitat extending onto the CL&P Property. The four remaining pools do not sustain sufficient inundation to allow for the full development of juvenile amphibians into adults and as a result are generally considered to provide less significant vernal pool habitat than those that do sustain proper inundation. The locations of these vernal pools are illustrated in Figure H1 (*Existing Conditions Map*). Details of the investigation can be found in Volume II, Appendix C (*Environmental Assessment Report*).

During the 2005 season three of the seven vernal pool habitats (Vernal Pools 1, 3 and 4) were observed to have dried out before obligate vernal pool species could develop to a point where they could survive outside of the pool. The four remaining pools (Vernal Pools 2, 5, 6 and 7) retained water for a duration long enough to produce viable obligate vernal pool species. Precipitation and hydraulic conditions appeared to be within relatively normal ranges during the spring 2005 season.

During the 2006 season inundation within four of the pools (Vernal Pools 1, 3, 4 and 7) did not occur until after the spring migration and breeding period due to a dry February and exceptionally dry March. Three of the pools (Vernal Pools 2, 5 and 6) held and maintained water at levels significant enough to produce viable obligate vernal pool species. Precipitation and hydraulic conditions were not considered to be within normal ranges during the spring 2006 season as only 0.26 inch of precipitation was reported in the area during the month of March (reported by the National Weather Service), when many pools typically fill with water.

H.4. Vegetation and Wildlife

The majority of the vegetation on the Property is common to post agricultural mid-successional growth with some areas controlled for maintenance of the existing electrical transmission lines. The Property contains three main habitat types: upland forest, wetland forest and maintained transmission line corridor. Various stages of succession growth can be observed within the upland forest as a result of selective timber harvesting activities. Many abandoned wood roads that traverse the Property are being reclaimed by the forest. Detailed descriptions of these vegetative habitats are provided in Volume II, Appendix C (*Environmental Assessment Report*).

Wildlife habitats associated with the Property were assessed by conducting field inventories to identify herpetofauna, avian, and mammal species present, taking into account the habitat conditions present within each resource area. Habitat variables considered in the wildlife evaluation included the size of the vegetative communities, the plant cover types present, the degree of habitat disturbance, interspersion of cover types, the abundance and diversity of fruit and seed-bearing plants, the size (average diameter) and abundance of tree snags and ground debris, and surrounding land uses. These vegetative communities were evaluated for their capacities to provide cover, forage, and breeding habitat. The results of the field inventories and assessment of the wildlife conditions indicate that most of the Property contributes moderate to high value wildlife habitat, particularly the wetland and immediate upland habitat of the more significant vernal pools 2, 5 and 6 located in the northern, eastern and southern extents of the Property respectively.

H.5. Rare, Threatened, and Endangered Species

The Property is within a listed area as shown on the Connecticut Department of Environmental Protection ("CTDEP") Natural Diversity Data Base ("NDDB") map. Information obtain from the CTDEP indicates that the Connecticut Species of Special Concern *Aristolochia serpentaria* has been identified and documented on the Property. *Aristolochia serpentaria* is an herbaceous plant commonly called Virginia Snakeroot. According to the Connecticut Botanical Society, Virginia Snakeroot typically occurs in dry rocky woods and flowers during the months of May through July. CTDEP NDDB information indicates that a limited population of this species was found in the transmission line corridor adjacent to Route 77 between 1988 and 2002 and that the population has been steadily declining through these years. A field investigation for Virginia Snakeroot was conducted by a qualified botanist on June 21, 2005 in historically documented locations and potential locations according to this species habitat preference. The field survey did not locate any *Aristolochia serpentaria* individuals. Although this suggests that the small population has been extirpated, the negative result is not conclusive, and the population (or single plant) may still persist.

Although not identified by the CTDEP, Featherfoil (*Hottonia inflata)*, another Connecticut Species of Special Concern, was observed on the Property during the Virginia Snakeroot field investigation. The population occurs in a shallow pool within Wetland 6 located in the northern portion of the Property. According to the Connecticut Botanical Society, Featherfoil is an aquatic plant typically occurring in shallow water in ponds and slow streams.

Evidence of Eastern Box Turtle (*Terrapene c. carolina*), a Connecticut Species of Special Concern, was observed on the Property. During various inspections of the Property, no live evidence of Eastern Box Turtle was observed, however a deceased specimen was recovered from

the forest immediately south of Wetland 7 near Route 77. Box turtles favor old field habitat and deciduous forest areas, including maintained power line corridors and logged woodland. No previous identification of this species on the Property has been documented nor listed in CTDEP NDDB.

H.6. Water Supply Areas

Groundwater below and near the Property is classified by the CTDEP as a GA groundwater area. The GA classification indicates groundwater within the area of existing private water supply wells or an area with the potential to provide water to public or private water supply wells. CTDEP presumes that groundwater in such an area is, at a minimum, suitable for drinking or other domestic uses without treatment.

The closest public water supply wells are part of the Pinewood Wellfield, located approximately 900 feet southwest of the proposed Substation. The western portion of the Property is situated within a state designated Final Aquifer Protection Zone. Connecticut's Aquifer Protection Program has been developed to protect the water quality of the state's highest yielding public water supply wells by establishing Aquifer Protection Areas ("APA") around those wells. The locations of these APA are determined through preliminary mapping (Level B) and later final mapping (Level A). The mapping is performed by the water companies who own the wells and is approved by the CTDEP. Land Use Regulations to be implemented in these areas have been adopted at the state level. However, the Land Use Regulations that would protect these areas cannot go into effect at the local level until the final mapping is completed and approved by CTDEP and the municipal program is implemented. In this case, final mapping has been completed and the municipal program has been developed. As a result, the land use activities within the Pinewood Wellfield APA are regulated by both the CTDEP and the Town of

Guilford to protect the quality of the groundwater. However, substations and other utility electrical equipment are not included in the definition of regulated facilities under CTDEP regulations (Regulations of Connecticut State Agencies ["RCSA"], §§22a-354i-1 to 22a-354i-10, effective 2/2/04). In addition, under § 273-92 Groundwater Protection District of the Town of Guilford's Zoning Regulations, substations and other utility electrical equipment are not identified as a prohibited land use or special permit land use within a Groundwater Protection District.

H.7. Scenic Areas

Several State and locally designated scenic roads are located within the immediate vicinity of the Property. Route 77, a two lane, State-numbered roadway, abuts the western portion of the Property and carries the scenic designation for approximately 11.5 miles through Guilford from the Durham town line southward to Water Street. North Madison Road, a locally designated scenic roadway located approximately 0.32 mile east of the Property, spans roughly 1.6 miles in a northeasterly direction from Nut Plain Road to Twin Bridge Road. Segments of the roadway feature views of Guilford Lakes. Located approximately 1.9 miles to the southwest of the Property, Moose Hill Road is the next nearest scenic roadway. This locally-designated scenic road generally follows a north-south alignment and provides one lane of travel in each direction.

The Town of Guilford has also identified a number of Natural Scenic Resources contained within the Town. These include designated scenic areas, scenic estuaries and other water resources, panoramic vistas, scenic geological features and several additional categories. The nearest such resource is the West River located approximately 800 feet west of the proposed Substation, across Route 77. The East River, another Natural Scenic Resource, is located

approximately 0.6 mile to the northeast. Timberlands, located roughly 1.4 miles to the northeast of the Property, consist of approximately 600-acres of wooded land with an established system of hiking trails.

H.8. Historic and Archaeological Resources

Analysis of the history of the Property was conducted by synthesizing background data related to prehistoric use of the area, historic occupation of the region, and the natural setting of the area encompassing the proposed Project items. Preliminary results did not reveal the existence of any historic or archaeological resources listed on or eligible to the National Register of Historic Places or Indian religious sites at the Property. A historic site identified as the Pitkin Elisha house is situated approximately 0.43 mile to the southwest of the Property and an archaeological site is situated approximately 0.65 mile to the northeast, along the East River. These nearby resources are depicted on the *Cultural Resources Screening Map*, provided in Volume II, Appendix D.

H.9. Natural Resources

Site bedrock and surficial geology was determined by reviewing the Environmental GIS Data for Connecticut 2003 Edition compiled by the CTDEP. Bedrock geology underlying the Property is identified as the Middletown Formation, which is described as dark to light-gray gneiss and granofels; hornblende gneiss and amphibolite. Soils in the vicinity of the Property are classified as till, which is described as predominantly nonsorted, nonstratified sediment deposited directly by glaciers. Till consists of boulders, gravel, sand, silt, and clay mixed in various proportions. This information was confirmed by geologic information in the Town of Guilford Natural Resource Inventory and Assessment, dated January 2005.

A soil survey conducted by Soil Science and Environmental Services Inc. confirmed the presence of glacial till on the Property.

H.10. Floodplain Areas

According to Flood Insurance Rate Map, Community-Panel Number 090077 0010 B, August 19, 1986, there are no flood hazard areas on the Property. The nearest floodplain is associated with the West River, located approximately 800 feet west of the proposed Substation. The 100-year base flood elevation in the general area is approximately 80 feet above mean sea level ("AMSL"). The lowest elevation on the Property exceeds 100 feet AMSL.

H.11. Recreational Areas

There are no recreational areas directly abutting or within 0.5 mile of the Property. Recreational areas located within the general vicinity include the Guilford Lakes Golf Course, a public golf course located approximately 0.6 mile to the northeast of the Property; Nut Plains Park, an approximate 25-acre parcel located roughly 0.9 mile north of the Property (which features a lacrosse field and several smaller multi-use fields); and Bittner Park, an approximate 57-acre parcel located roughly one mile to the northwest of the Property that includes a lighted softball field, three little league fields, a lighted soccer field, a roller sports complex, an ice rink, and fishing access as well as several established trails utilized for jogging, hiking, horseback riding and cross country skiing. Other recreational facilities located further from the Property include Timberlands (located 1.4 miles to the northeast), Hubbard Park (located approximately 1 mile south), Peddlers Park (1.75 miles southwest), and Mill Pond Park (located approximately 1.8 miles south of the Property).

H.12. Seismic Areas

The USGS-National Earthquake Reduction Program has developed a series of maps that depict the estimated probability that certain levels of ground shaking from an earthquake will occur within a given period over a period of time. USGS takes into account the seismic history of an area and the expected decrease in intensity with distance from the epicenter. Based on a review of USGS-National Earthquake Reduction Program maps and information obtained by the Weston Observatory (a geophysical research laboratory of the Department of Geology and Geophysics at Boston College), there are no seismic areas located at the Property or within its immediate area.

The nearest mapped fault zone, known as the Eastern Border Fault, is located approximately 3.0 miles to the northwest. New England's seismic monitoring network is maintained by the Weston Observatory. According to information provided on the Observatory's website, the nearest seismic network station is located in New Haven, Connecticut. Based on a review of published information, a measurement of 2.7 units of magnitude is the reported threshold for humans to perceive the effects of an earthquake. Published mapping of New England depicting the location of all 2.7 units of magnitude or greater earthquakes from 1989 to 1998 indicates that a few events of such were recorded in southern Connecticut during that time frame. According to a published list of earthquakes recorded by the New England Seismic Network from January 1990 to June 2005, two recorded events were found for New Haven County. One event, recorded on January 25, 1990, was located 15 kilometers north of New Haven (2.8 nuttli magnitude {MN}[1] units) and the other event recorded on February 3, 2001, was located northeast of Wallingford (1.8 MN units). The

[1] Mn – Nuttli's "Central U.S." magnitude. A magnitude measure developed for the central U.S. by Otto Nuttli to incorporate the nature of the local geology in amplifying or dampening seismic waves.

last 2.7 or greater earthquake in New England occurred in July 2003 and was centered in the ocean approximately 60 miles east of Beverly, MA. Reportedly, there is a 66 percent chance that the next earthquake will be in the immediate vicinity of one of the previous earthquakes. No specific seismic information regarding the Eastern Border Fault was found on the Weston Observatory's website.

H.13. Noise

Because the Property is undeveloped, existing noise levels are below those established for residential areas by the CTDEP's noise control regulations (RCSA Title 22a, §22a-69-1 to 22a-69-7.4) and the Town of Guilford's Noise Control Ordinance. Contributing factors for noise generation in the area are traffic noises generated from Route 77 and Stepstone Hill Road.

H.14. Lighting

Currently, there are no lighting facilities present on the Property.

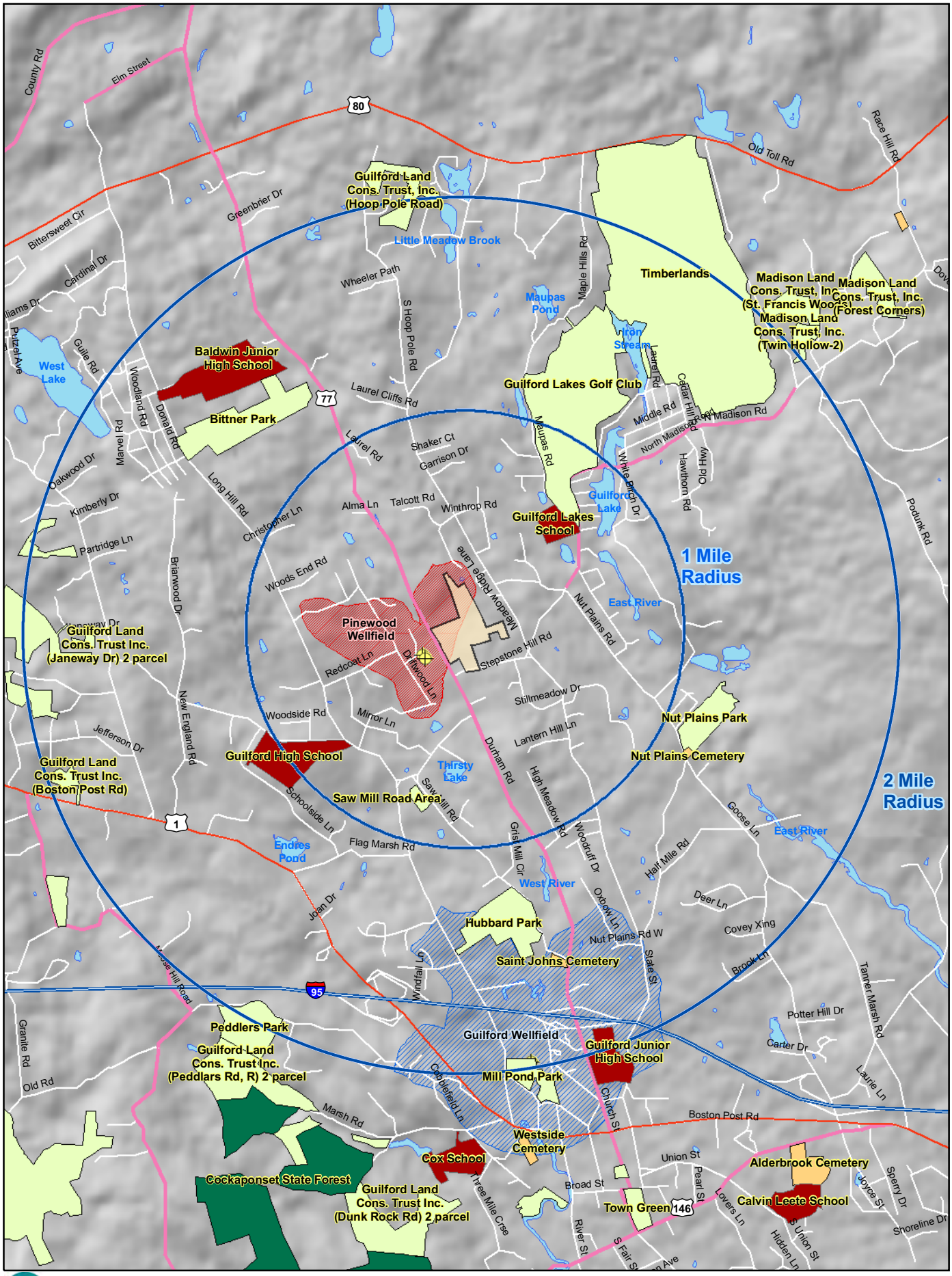
H.15. Other Surrounding Features

Figure H3 (*Surrounding Features*) depicts the nearest locations of non-residential development, including:

- Schools and daycare centers
    - Guilford Lakes School located 0.6 mile northeast
    - Guilford High School located 0.7 mile southwest
    - Baldwin High School located 1.5 mile northwest
    - Guilford Junior High School located 1.9 mile south
    - Cox School located 2.3 miles southwest
    - No daycare centers identified within two miles
- Playgrounds (only those associated with schools)
- Hospitals (none identified within two miles)
- Group homes (none identified within two miles)
- Licensed Youth Camps (none identified within two miles)
- Hunting or wildlife management areas (none within two miles)
- Settled and Residential areas - see Figure H2 (*Nearest Residences*)

There are no tidal wetlands or coastal zone management areas involved with this Project.

Figure H3: Surrounding Features



12/05/06

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N W E S

1,500 750 0 1,500 Feet

Legend

- CL&P Property
- State Forest/Park
- Scenic Road
- Cemetery
- Existing Preserved Open Space
- School
- Aquifer Protection Well
- Final Aquifer Protection Zone
- Preliminary Aquifer Protection Zone
- Water Bodies

Connecticut Light & Power
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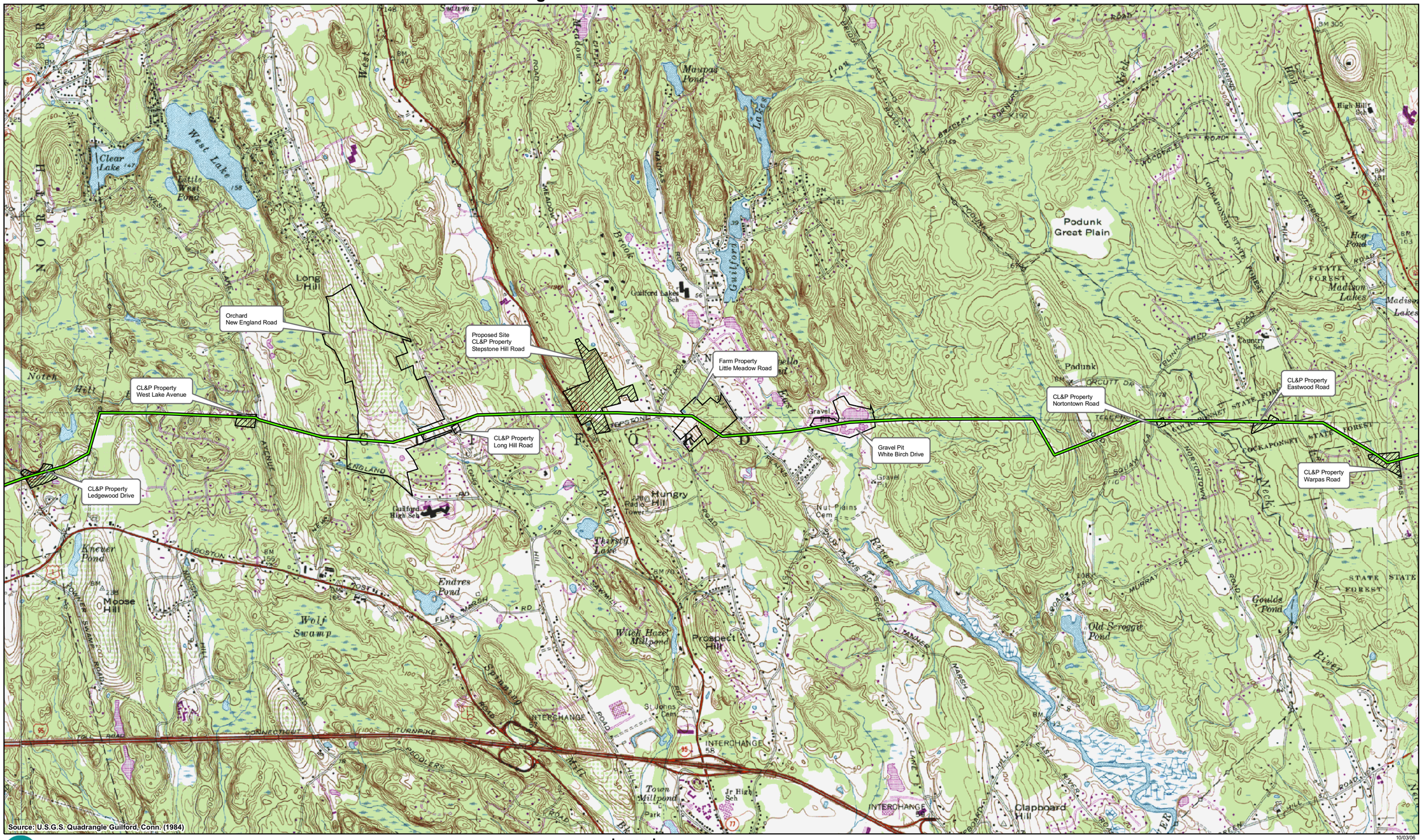
I. ALTERNATIVE SITES EVALUATED

CL&P has evaluated several alternate sites to determine the most suitable location for construction of its new bulk power Substation. The technical approach to conducting the site selection evaluation was to identify environmental, land use/planning, physiography, and engineering constraints that represented potential impediments to Project development. The following major siting criteria were considered:

- Central location with respect local distribution (customer) load area
- Proximity to the existing overhead 115-kV transmission line
- Proximity to neighbors and other surrounding features
- Natural resource and cultural resource constraints
- Zoning and present land use
- Access from a public road
- Consistency with Town and State Plans of Conservation and Development
- Earthwork requirements based on existing topography

Initially, a total of ten properties (including seven CL&P-owned parcels) were assessed; however, six sites were eliminated from consideration due to physical limitations and resultant significant adverse environmental effects. In addition to the Property on Stepstone Hill Road three other locations were identified for further consideration. All of the properties evaluated are situated along the existing 115-kV transmission line right-of-way ("ROW") and possess some frontage or existing access to a nearby public road. The alternative site locations are discussed below and depicted on Figure I1 (*Alternative Site Locations Evaluated*).

Figure I1: Alternative Site Locations Evaluated



Vanasse Hangen Brustlin, Inc.
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N W E S

2,000 1,000 0 2,000 Feet

Legend

- CL&P Owned Properties
- Non - CL&P Owned Properties
- Transmission Line

Connecticut Light & Power
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I.1. Site 1 Alternative – Stepstone Hill Road

CL&P's Stepstone Hill Road Property is well suited for the proposed Substation for several reasons, including:

- It is centrally located with respect to the Guilford customer load.
- An existing 115-kV transmission line traverses the southern portion of the Property.
- It has existing access from Stepstone Hill Road, which abuts the Property.
- Its large size (38 acres) allows the Substation to be located nearly 800 feet off Stepstone Hill Road and over 600 feet from the nearest residence. Interior Property views are well screened by existing woodlands.
- Development would be consistent with local zoning regulations (Substations are an allowed use in a Residential Zone by special permit).
- Minor earthwork is required to construct the Substation.

CL&P's Property off Stepstone Hill Road was identified and purchased as a viable future substation site in 1973 in anticipation of area load growth and transmission system needs. The Property is situated in the general geographic center of Guilford, the primary recipient of the Project. Further, the Property is also located equidistant between the Branford Substation (approximately 5.5 miles to the west) and Green Hill Substation (approximately 5.5 miles east in Madison). The Substation footprint would be located within 100± feet of the existing 115-kV overhead transmission line, facilitating a simple loop through design that requires only a short span of new interconnecting lines. The connections to these lines would be made without any changes to the line profile beyond the Property limits and without any modifications to the existing utility transmission corridor limits. Development on the 38-acre Property allows for concealment of the Substation and no disturbances to existing conditions near abutting properties, maintaining the natural vegetative screening. Direct access into the Property exists from Stepstone Hill Road. Development of the Substation's driveway would follow the general

route of the current access and require minimal grading and tree cutting. Some tree clearing would be necessary to accommodate the Substation footprint however substantial vegetative screening would remain between the facility and residential neighbors, thereby minimizing visibility. The Substation would be constructed without any effects to existing inland wetland resources. Although not required, activities at this location would be consistent with local zoning regulations. CL&P obtained location approval for siting the Stepstone Substation at the Property from the Guilford Inland Wetlands Commission (September 6, 2006) and Planning and Zoning Commission (September 20, 2006; modified October 18, 2006).

I.2. Site 2 Alternative - Farm property located east of Little Meadow Road in Guilford

- The site is in close proximity to the customer load.
- The existing ROW crosses the west-central portion of this property.
- Little Meadow Road abuts this property to the west.
- There is potential for substantial adverse environmental effects at this site.
- Moderate to heavy earthwork could be required.

Although the existing ROW crosses the central portion of this 27.41-acre parcel, constructing the Project would require extensive grading to accommodate the Substation. No direct vehicular access currently exists; a new road would be required to reach interior portions of this property. Inland wetlands are located in the southwestern and northern portions of this property, limiting development to the central, and highest, area on the site. Perhaps of most significance, construction of the Substation at this location would likely result in an adverse environmental effect because several recognized historic resources, eligible for listing on the National Register of Historic Places, are located within a few hundred feet; the nearest historic

structure is situated approximately 35 feet to the southeast. This location would be highly visible to these historic structures, as well as the existing residential neighbors and to those traveling along the local road. Removal of mature trees would be necessary for siting the Substation, which would increase visibility to these receptors. CL&P would also have to purchase this property to install the Substation.

I.3. Site 3 Alternative - CL&P-owned property located west of Warpas Road in Madison

- The existing utility corridor crosses the central portion of this property.
- Frontage along Warpas Road (abuts the eastern property line).
- There is potential for substantial adverse environmental effects at this site.
- Moderate to heavy earthwork would be required.

This 6.8-acre undeveloped parcel of land is located in Madison, approximately 1.75 miles west of Green Hill Substation. The parcel's location is approximately 3.75 miles east of the Stepstone Property and not ideally situated proximate to the Guilford load center. The land is currently owned by CL&P and consists mainly of mature upland forest. Construction at this location would allow the Substation to connect into the existing 115-kV overhead transmission lines, which transect the central portion of the property. However, extensive cutting of the mature forest would be necessary, as would cut and fill activities to adequately grade the site to accommodate the Substation. Access to the property would have to be gained from Warpas Road, a residential area with several homes close to the site. Site preparation work (vegetation removal and grading) would result in visual exposure directly to neighboring residences. In addition, grades for the access road could be excessive. There is an approximate 15% grade

from the center of the eastern portion of the property, off of Warpas Road, to the central portion of the property.

I. 4. Site 4 Alternative - Orchard property north of New England Road in Guilford

- The site is in close proximity to the customer load.
- The existing ROW crosses the southern portion of this property.
- New England Road abuts the southern property line.
- There is potential for substantial adverse environmental effects at this site.
- Moderate earthwork would be required.

This 174-acre property's agricultural history would suggest that site soils may have elevated levels of pesticides and related constituents, potentially jeopardizing re-use of the material and creating significant off-site treatment/disposal costs. Portions of the property that are feasible for development consideration are topographically higher than the surrounding area and lack sufficient vegetative buffer for screening. The Substation would be highly visible in all directions from several nearby residences and to those traveling the local road network. In addition, a land purchase would be required for CL&P to construct at this property.

I.5. Summary of Alternatives Analysis

A comparative analysis of the sites considered for the Project is provided in the table below.

TABLE I-1 STEPSTONE SUBSTATION SITE ALTERNATIVE ANALYSIS MATRIX

Review Criteria	Stepstone Hill Road **Preferred Site**	Farm Little Meadow Road **Alternative**	Warpas Road, Madison **Alternative**	Orchard New England Road **Alternative**
Proximity to Existing Transmission Line	√	√	√	√
Consistency with Zoning and Present Land Use	√	√	√	√
Minimal Earthwork Requirements Based on Existing Topography	√			
Availability of Space	√	√	√	√
Ease of Access	√			√
Central Location with Respect to Customer Load	√	√		√
No Wetland Disturbances	√		√	
No Cultural Resource Sensitivity	√			
Minimal Upland Habitat Disturbance & Tree Removal	√			
Minimal Visibility From Nearby Residences	√			
CL&P – Owned Property	√		√	

J. SAFETY AND RELIABILITY INFORMATION

The Project would be constructed in full compliance with the standards of the National Electrical Safety Code, the Connecticut Department of Public Utility Control, and good utility practice. Should equipment experience failure, protective relaying equipment would immediately remove the equipment from service, thereby protecting the public and the equipment within the Substation.

The Stepstone Substation, in conjunction with other area substations and distribution lines, has been designed to continue to serve the customer load even during a transmission line failure. This will be achieved by incorporating a "loop through" design configuration for the existing 115-kV overhead transmission line and redundant automatic protective relaying equipment.

Protective relaying equipment would be provided to automatically detect abnormal system conditions (e.g., a faulted overhead transmission circuit) and would send a protective trip signal to the circuit breaker to isolate the faulted section of the transmission system. The protective relaying schemes would include fully redundant primary and backup equipment so that a failure of one scheme does not require the portion of the system being monitored by the protective relaying equipment to be removed from service. The protective relaying and associated equipment, along with a Supervisory Control and Data Acquisition ("SCADA") system for remote control and equipment monitoring by the Connecticut Valley Electric Exchange ("CONVEX") System Operator, would be housed in a weatherproof, environmentally-controlled electrical enclosure.

CL&P incorporates IEEE/ANSI and NFPA standards for fire protection in its substation designs and operates these facilities to minimize the impact of fire, in the unlikely event it

occurs. CL&P also trains its employees and the local fire department on the safe methods to deal with a substation fire. The control enclosure would be locked and equipped with fire extinguishers installed along with smoke and heat detectors that would be monitored from a remote location. Fire/smoke detection would automatically activate an alarm at CONVEX and the system operators would then take appropriate action. Additional devices would constantly monitor the Substation to alert CL&P of any abnormal or emergency situations.

In response to concerns from members of the public about fire safety, CL&P's consultant contacted the Guilford Fire Marshal, Charlie Herrschaft, to discuss the Project. Chief Herrshaft stated that he had no concerns with respect to the Project and was comfortable with CL&P's plans and fire prevention safety measures. Chief Herrshaft indicated that he had previous experience working in cooperation with CL&P.

The perimeter of the Substation would be enclosed by a seven-foot high chain link fence topped with an additional foot of three strands of barbed wire to discourage unauthorized entry and/or vandalism. Gated entrances to the Substation would be locked. Lighting would be available within the Substation yard to facilitate work at night or during inclement weather.

CL&P would install a polyvinyl-lined oil sump to serve as a containment chamber around the 47-MVA power transformer. The two autotransformers will be located adjacent to one another and share a similarly-designed oil containment chamber. These sumps are designed to contain 110% of the volume of transformer oil. The transformers would contain non-polychlorinated biphenyl ("non-PCB") mineral oil. The sumps would be sized with sufficient capacity to contain a spill in the event of an inadvertent release of oil. A typical detail of the transformer foundation and secondary containment structure is presented in the Construction Details found in Volume II, Appendix A (*Site Plans*). CL&P plans to install an Imbiber Beads

Drain Protection System® similar to containment systems installed at other CL&P Substations, including the Shunock Substation in North Stonington and the Killingly Substation in Killingly.

K. EFFECTS ON THE ENVIRONMENT

The development of the Stepstone Substation in the south-central portion of the Property would not have any significant, long-term adverse effects on the existing environment and ecology, nor would it affect the scenic, historic and recreational values of the vicinity. A *Proposed Conditions Map* is included as Figure K1.

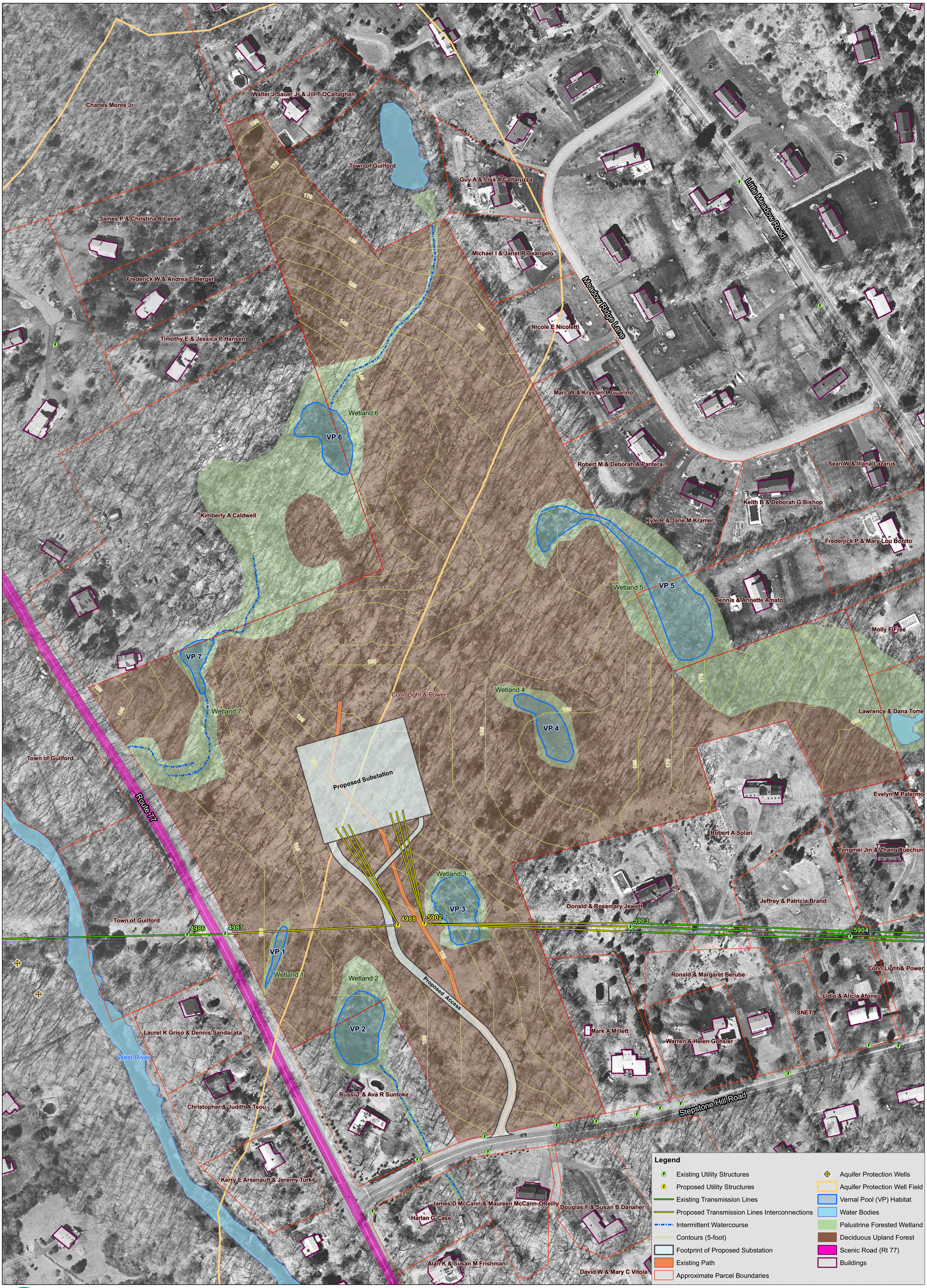
K.1. Public Health and Safety

The Stepstone Substation would be designed to applicable CL&P, industry, State, and local codes and standards and would not pose a safety concern or create undue hazard to the general public. The Substation would not consume any raw materials, would not produce any by-products and would be unmanned during normal operating conditions.

K.2. Local, State and Federal Land Use Plans

The proposed Project is consistent with local, State, and Federal land use plans. Local land use application processes do not specifically apply to this Project. However, the Project has been designed to meet the intent of local land use regulations. CL&P has met with Town officials and submitted a Location Approval Application to Guilford's Inland Wetlands Commission, which unanimously approved the activity during a "walk meeting" in August, 2006. A Location Approval Application and Special Permit Application were submitted to the Planning and Zoning Commission. A public hearing was held on September 12, 2006 at the Fire Department Headquarters Center in Guilford. The Planning and Zoning Commission unanimously approved the Project on September 20, 2006 (modified October 18, 2006).

Figure K1: Proposed Conditions Map



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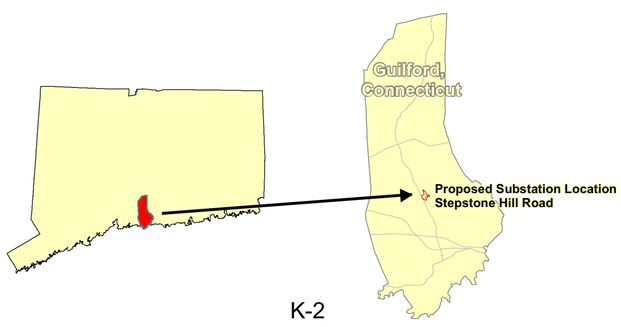

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K.3. Existing and Future Development

The Stepstone Substation would have the effect of supporting existing and future development in Guilford by providing improved electrical service and encouraging additional development through enhanced reliability and the capacity to serve additional future load.

K.4. Roads

An existing dirt entrance along Stepstone Hill Road would be upgraded and incorporated into a new, approximately 1070-foot long gravel driveway that would extend generally northward to the footprint of the Substation. The proposed new driveway would follow the existing dirt access for approximately 350 feet before veering slightly to the northwest through sparsely forested and cleared areas (including the transmission line corridor). This portion of the driveway will be 20 feet wide and extend a total of approximately 740 feet from Stepstone Hill Road to a point where it will split into two forks just north of the utility corridor. The west fork of the driveway will maintain a 20-foot width and continue northward approximately 130 feet into the Substation. The east fork will utilize an existing woods road and be reduced in width to 12 feet for a length of approximately 200 feet. As a result, the driveway improvements would not require substantial tree clearing. During construction, the driveway would be stabilized with stone, and anti-tracking mats installed at the intersection of Stepstone Hill Road, to prevent tracking of soil onto local streets. Upon completion of the Substation, the driveway would be finished with a gravel base and gated. After construction is completed, approximately three to four vehicular trips per month to the Property would be anticipated for maintenance and inspection activities.

K.5. Wetlands

Seven wetlands were identified on the Property. Development of the Stepstone Substation would not directly affect any wetlands and therefore would not have an adverse effect on the resources. The Town of Guilford Inland Wetlands Commission regulates a 100-foot upland review area for wetlands and watercourses. Limited site work associated with the proposed gravel driveway would occur within the 100-foot upland review area. Minor disturbances within these regulated areas are necessary to establish the new driveway and install a culvert to avoid future surface water ponding along the driveway and washout of the gravel. Areas disturbed for construction activities would be restored by dressing with topsoil and seeding with a New England conservation/wildlife mix, supplying a cover of grasses, forbs, wildflowers and legumes to provide both erosion control and enhanced wildlife habitat value.

K.5.1. Vernal Pool Habitat

Each of the seven wetlands identified on the Property exhibit vernal pool habitat. Since the proposed development will not directly impact the identified vernal pools and a sufficient buffer of undisturbed uplands to these special aquatic habitats will be maintained, the proposed facility will not adversely impact vernal pool habitat.

K.6. Wildlife and Vegetation

The Stepstone Substation site would occupy what is currently upland forest habitat. The driveway would generally follow the route of the existing dirt access road accessible from Stepstone Hill Road and extending north primarily through upland forest habitat, but crossing the maintained transmission line corridor. The Substation and driveway development areas are located within and in close proximity to existing and similar habitats that extend off the Property. Therefore, the Project is not anticipated to have an adverse effect on wildlife due to existing

development and the site's immediate proximity to similar habitats that would allow for natural relocation of potential wildlife from the construction zone.

K.6.1. Rare, Threatened, and Endangered Species

A small population of the Connecticut Species of Special Concern, Virginia snakeroot (*Aristolochia serpentaria*), had been previously documented on the Property, however, a recent field survey did not locate any individuals of this species. If any plants remain, none appear to be located within the proposed construction areas and, therefore, no adverse effects are anticipated. Similarly, Featherfoil (*Hottonia inflata),* another Connecticut Species of Special Concern that was observed on the Property during the field survey would not be adversely affected due to its location within a wetland located approximately 500 feet from the proposed development. A deceased Eastern Box Turtle specimen was identified on the property near Route 77 during the field study. The proposed development is not anticipated to adversely affect any potential Eastern Box Turtle population utilizing the Property as the Substation would occupy a relatively small portion of the Property and habitat types similar to that proposed for disturbance exist both on and off the Property.

The CTDEP Wildlife Division staff was provided a copy of the field survey data and report. The agency responded with a letter indicating that the proposed activities will not affect the locations of *Hottonia inflata* and *Aristolochia serpentaria*, State Special Concern species. The CTDEP recommended that, prior to construction, these two areas be flagged to prevent any inadvertent negative impacts (see Volume II, Appendix E, *Agency Correspondence*). CL&P will comply with this recommendation.

K.7. Water Supply Areas

The closest public water supply wells are part of the Pinewood Wellfield, located west of the Property across Route 77 and the West River. A portion of the Property is situated within a state-designated Final Aquifer Protection Zone, which has likely been established to protect those wells. Land use activities within the Pinewood Wellfield APA are regulated by both the CTDEP and the Town of Guilford to protect the quality of the groundwater. However, substations and other utility electrical equipment are not included in the definition of regulated facilities under CTDEP regulations (Regulations of Connecticut State Agencies ["RCSA"], §§22a-354i-1 to 22a-354i-10, effective 2/2/04). In addition, under § 273-92 Groundwater Protection District of the Town of Guilford's Zoning Regulations, substations and other utility electrical equipment are not identified as a prohibited land use or special permit land use within a Groundwater Protection District. Transformers at the Stepstone Substation would contain insulating oil; however, the equipment would have secondary containment and accidental spill prevention provisions in place. Based on these design considerations and the physical distance of the water supply wells to the Stepstone Substation, the Project would have no adverse environmental effect on the aquifer.

K.8. Historic and Archaeological Resources

Coordination with the State Historic Preservation Office ("SHPO") resulted in the issuance of a letter of "no effect" on historic, architectural or archaeological resources on or eligible for the National Register of Historic Places. A copy of the SHPO Determination Letter is included in Volume II, Appendix E (*Agency Correspondence*).

K.9. Noise

Under CTDEP regulations and the Town's Noise Control Ordinance, the Substation is constrained to a noise level at the Property boundary of up to 45 decibels on the A-Weighted scale ("dBA") during night operation and 55 dBA during the day. The projected noise levels generated by the Substation at the Property boundaries would be well below these levels and therefore will comply with applicable noise regulations. Details are provided in Volume II, Appendix F (*Noise Analysis Report*).

The construction and testing of the Substation facilities is expected to occur over a 12- to 18-month period. In general, construction hours would be from 7 am to 5 pm, Monday through Friday. Site preparation, including grading and installation of foundations, would take place during the initial 6 months of construction and involve the use of earth-moving equipment and construction vehicles.

The installation and testing of equipment would take approximately 5 months and would involve the use of cranes to unload and install structural elements and large equipment. The installation of the replacement pole and terminal structures, interconnection of the transmission spans to the Substation, and connections to the electric system may occur outside of normal work hours because these activities necessitate taking critical transmission and/or distribution equipment out of service. As a result, this work could be scheduled for off-peak electrical demand hours.

K.10. Floodplains

No construction activities would occur at elevations at or below the West River's 100-year base flood elevation of 80 feet AMSL. Elevations within the proposed construction zone range from approximately 120 to 155 feet AMSL.

K.11. Seismic Areas

This Substation will meet or exceed the State building code, which includes seismic loading, wind loading, and snow and ice loadings, among others.

K.12. Lighting

The Stepstone Substation would have low-level lighting for safety and security purposes. However, these lights would be recessed or activated manually to minimize visual effects at night. Lighting would not affect existing residences in the vicinity of the Property. Additional lighting capability would exist in the Substation to allow for work at night under abnormal or emergency conditions.

K.13. Natural Resources

No adverse effects are anticipated on natural resources occurring at and/or nearby the Property. Minor earthwork is required to accommodate the Substation at the Site. No importation or exportation of soil is anticipated for this Project.

K.14. Other Surrounding Features

No adverse effects are anticipated to other developments in the vicinity. Nearby State and locally designated scenic roads would not be affected visually due to the Substation's central location on the large Property, existing topography and dense forest cover.

L. MITIGATION MEASURES

Based on the existing conditions at the Property and the proposed design, the construction and operation of the Substation would not have any significant permanent adverse effects on the environment. CL&P has incorporated measures into all phases of Project development and implementation to promote protection of the environment in accordance with Federal, State and local requirements.

L.1 Pre-Construction Considerations

Before any construction activities occur, CL&P would prepare a Development and Management Plan ("D&M Plan"), which must be approved by the CSC. The D&M Plan would include CL&P's *ERTG-06 Construction and Maintenance Environmental Requirements for Connecticut,* dated May 1, 2006, which are designed to minimize or eliminate potential adverse environmental effects which may result from construction activities. The content of the plan would include specific procedures and information on erosion and sedimentation control, spill prevention and control, construction staffing and hours, traffic control, and provisions for restoration and landscaping after construction of the Substation. The D&M Plan would also provide contact information should questions or concerns arise during construction or operation of the facility.

Prior to commencement of construction, CL&P intends to install erosion controls at the limits of work in accordance with the approved D&M Plan and the *2002 Connecticut Guidelines for Soil Erosion and Sedimentation Control*. The erosion controls would be inspected and maintained throughout the course of the Project until final site stabilization has been achieved.

L.2 Construction-Related Activities

All construction activities would be conducted in accordance with the D&M Plan as approved by the CSC. Geotechnical borings are planned to determine the extent and method of rock removal, where necessary. Preliminary evaluations suggest that shallow depths to bedrock occur at various locations on the Property. If bedrock is encountered within construction areas, excavation, drilling or pneumatic hammer would be the preferred methods to remove the material. Although not anticipated, if extensive bedrock is encountered during construction, provisions for blasting would be considered by CL&P, in accordance with controlled blasting techniques.

CL&P has sited and designed the Substation to minimize the extent of grading and earth work required to construct the facility. Grading for the Substation yard would provide surface runoff. A minimum slope of 2% within the Substation's footprint would control storm water runoff and convey the runoff away from the pad site. Hay bales and/or geotextile silt fence ("GSF") would be installed and maintained to the limits of the grading contours to temporarily control sedimentation runoff until permanent and effective erosion controls are established after construction is completed. All disturbed areas and stockpiled materials would be provided with a GSF or equivalent erosion control measures.

The Substation yard would be graded away from its east side, ultimately discharging overland south of the pad site. The pad would be graded not to create any discharge points. By spreading runoff from the pad site, storm water will eventually flow to the south over undisturbed woodlands with heavy forest litter. Also, because the yard would be covered with a pervious surface of six inches of crushed trap rock, concentrated flows are not expected. All

disturbed areas would be covered with either topsoil (and seeded) or temporary erosion control matting, if warranted.

Construction activities associated with the proposed access would have no impact to the existing wetlands. A 20-foot wide access drive would be constructed with a gravel base. Construction of the access drive includes minor work within the 100-foot upland review area; however, no work within wetlands would occur. Temporary disturbances near the wetland are necessary to improve the existing access drive and would include minor grade adjustments and realignment. CL&P would establish and maintain effective erosion and sediment controls, in conformance with the D&M Plan and *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*, during construction to avoid the potential for impacts. A culvert would be installed under the gravel driveway to facilitate the movement of seasonal surface water flows under the drive, thereby avoiding potential surface water ponding along the driveway and washout of the gravel. Note that there is no defined channel in the vicinity of the current access drive and none would be created to direct surface water under the driveway.

During site preparation and installation of Substation components, it may be necessary to temporarily stockpile soils at the Property. Any stockpiles of soil would be located beyond 100 feet from the delineated wetland boundaries and covered for protection against runoff during storm events with appropriate erosion controls. If soils are to be stockpiled for a period of 21 days or more, CL&P may temporarily seed or mulch the piles to ensure stability depending on weather and season.

L.3 Post-Construction Features

Upon completion of construction activities, all disturbed/exposed areas would be stabilized and revegetated. These areas would be dressed with topsoil and seeded with a New

England conservation/wildlife mix, to establish a cover of grasses, forbs, wildflowers and legumes that would provide both soil stability and wildlife habitat value. Erosion controls would remain in place until final site stabilization is achieved.

After construction is complete, the Stepstone Substation would have no permanent adverse effects on the environment. The power transformers within the Substation would contain insulating oil. All transformers would have secondary containment consisting of an underlying and surrounding polyvinyl-lined sump, designed to hold 110% of the transformers' capacities.

The proposed Site location and configuration provides sufficient setback from the road to allow a natural tree buffer to be maintained. Existing wooded buffers on the eastern, western and northern portions of the Property would be retained for screening. The nearest residence to the Substation would be located approximately 645 feet to the west, across Route 77; this home and others along Route 77 would not have direct views of the Substation because of topography and a well-established vegetative buffer. Homes to the north, south and east are also well screened from the Substation location by existing vegetation and topography that are to remain unchanged. Although the Property provides vegetative buffers from neighbors, CL&P would develop and incorporate a landscape plan into its D&M Plan to further mitigate for any potential views of the Substation. Plantings will be strategically clustered around the Substation and along the driveway to provide an additional visual buffer as well as habitat for resident and migratory wildlife.

Effects on wildlife and wildlife habitat would be temporary disturbance during construction and would be mitigated though restoration of disturbed areas and supplemental plantings. The Property is currently used by wildlife species that are commonly found and are

adaptable to minor habitat modifications. Based on the species identified and habitat types found on the Property, the Property should maintain its species diversity and abundance after the Substation is completed and operational.

L.4 Construction Sequencing

The general construction sequence for the Substation would include:

- Installation of erosion and sedimentation control barriers
- Construction of the driveway
- Removal of trees and shrubs within the areas to be graded
- Site preparation (cut, fill, grading)
- Slope stabilization where necessary
- Installation of Substation foundations, components and hardware
- Spreading of trap rock
- Advancement of borings for new line structures foundations
- Construct and cure foundations
- Erect support structures, make interconnection and re-energize line
- Energize the Substation
- Completion of landscaping and site restoration
- Removal of erosion and sedimentation control barriers

The general construction sequence for installation of the transmission poles is as follows:

- Install erosion control system
- Construct temporary access
- Borings for foundations
- Design foundations
- Construct and cure foundations
- Erect steel poles and energize line
- Remove temporary fill (work area pad)
- Stabilize and rehabilitate disturbed areas
- Remove temporary erosion and sediment controls when site is stabilized

M. HEALTH AND SAFETY

M.1 Electric and Magnetic Fields

Electric fields ("EF") are produced within the surrounding area of a conducting object (e.g., a wire) when a voltage is applied to it. Electric fields are measured in units of kilovolts per meter ("kV/m"). The level of an electric field near to an energized power line depends on the applied voltage, the distance between the conductors, and the distance to the measurement location.

Magnetic fields ("MF") are produced within the surrounding area of a conductor or device which is carrying an electric current. Magnetic fields are measured in units of milliGauss ("mG"). The level of a magnetic field near to line conductors carrying current depends on the magnitude of the current, the distance between conductors, and the distance from the conductors to the measurement location.

Both electric and magnetic fields decrease rapidly as the distance from the source increases, and even more rapidly from electric equipment in comparison to line conductors. Electric fields are further weakened by obstructions such as trees and building walls, while magnetic fields pass through most obstructions. In the case of parallel lines of circuit conductors, the levels of EF and MF are also dependent on the phasing of the circuits.

The highest levels of electric and magnetic fields around the perimeter fence of a substation occur where transmission and distribution lines cross over or under the substation boundary. The levels of fields from substation equipment decrease rapidly with distance, reaching very low levels at relatively short distances beyond the fenced-in equipment. Substation-caused magnetic fields off the property of a substation will commonly be in the same range as the background magnetic field levels in homes, which commonly range up to 4 mG. The proposed Substation equipment

will be positioned more than 200 feet at its closest point to any property line, and at this distance, substation-caused magnetic fields will be well under 1 mG.

Pre-Project Electric and Magnetic Fields at the Boundaries of the Subject Property

At and beyond the boundaries of the Subject Property, the predominant existing source of power-frequency electric and magnetic fields ("EMF") is the 115-kV transmission line (circuit #1508). Local distribution power lines along Rt. 77/Durham Road are another field source close to the westerly property line. A local distribution power line on Stepstone Hill Road also parallels the southerly property line.

One existing line of transmission poles supports the 1508 circuit, which crosses over the Subject Property from west to east. The existing circuit span of conductors crossing the westerly property line is in transition from a vertical configuration to a horizontal configuration, whereas the existing circuit span crossing the easterly property line is in transition from a horizontal to a delta configuration of conductors.

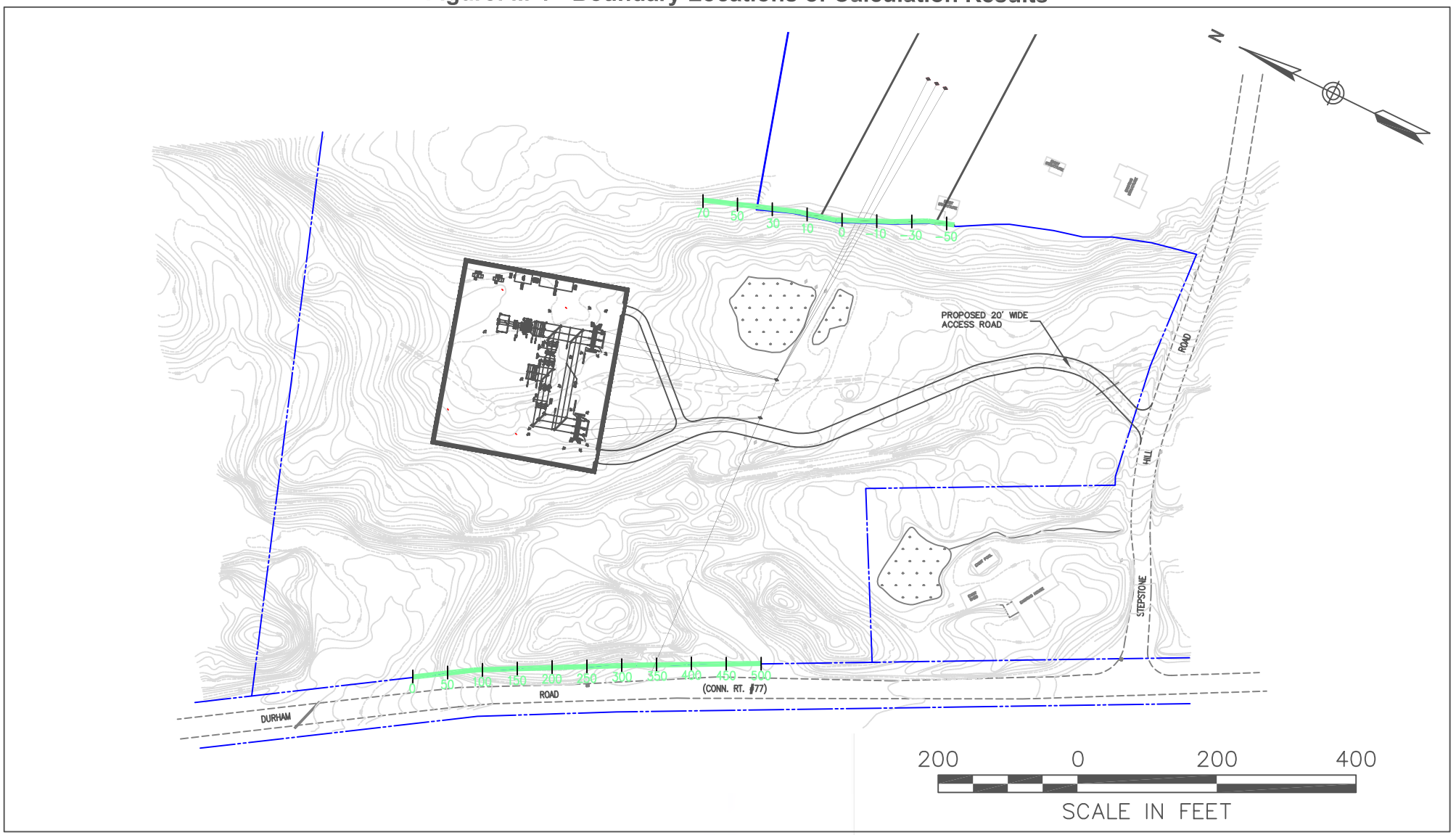
The highest levels of EMF along the property lines will be found on the westerly and easterly property lines directly beneath where this 115-kV transmission circuit crosses over these property lines. The conductors crossing the westerly boundary are higher above ground than they are where they cross the easterly boundary, so EMF levels beneath the conductors on the westerly boundary will be lower. Even so, field levels drop off rapidly with distance from a line source, so the levels of EMF from this transmission circuit at all points along a property boundary to the north and south of the transmission circuit will be much lower than the levels found beneath the circuit. Beyond distances of not more than 200 feet from the center of the circuit EMF levels are at very low background or negligible levels.

Calculations were made of pre-project electric and magnetic fields produced by the existing transmission circuit along the westerly property line with Rt. 77/Durham Road and along the section of the easterly property line which crosses beneath the transmission circuit. (Figure M1 depicts these locations and corresponding calculations). Per common practice, these calculations assumed balanced three-phase line currents in the transmission circuits, level terrain, and a bottom 115-kV line conductor height above grade which is typical for the location where the conductors cross over the property line. For electric fields, bare terrain is also assumed. Electric fields will be lower at ground level if the terrain holds vegetation or other objects which will partially shield electric fields from the line. The pre-project line-conductor spans crossing over each property line are in a transition from a horizontal configuration to vertical (west side) and horizontal configuration to delta (east side). For simplified modeling, the line-conductor configuration over the westerly line was modeled as vertical, and the line-conductor configuration over the easterly property line was modeled as horizontal.

All calculations of electric and magnetic fields were made assuming that the transmission circuits are the only sources of such fields on the Subject Property. Contributions to EF and MF from distribution circuits crossing or close to the property line were not included.

Projected peak line currents in the year 2013, determined by system power-flow model simulations, were used for these calculations. Other assumptions used in the system power-flow model were ISO-NE's forecast system summer peak load in 2013, no transmission circuit outages, a generation and transmission system which includes all new and modified elements which have already received Council and ISO-NE approvals and which have projected in-service dates before 2013, and a reasonably expected generation dispatch and Connecticut import level for a peak-load day with some large generators unavailable for service.

Figure: M-1 - Boundary Locations of Calculation Results



Vanasse Hangen Brustlin, Inc.

Legend:

50 100 150 **Distance in Feet (TYP)**

Property Boundary

M-4

Connecticut Light & Power

The Northeast Utilities System

Magnetic fields were calculated using these peak line currents, and also using 70% of these peak line currents as an estimated average circuit current during the peak day in 2013. These choices were made for compliance with Section IV of the Council's draft 2006 "Electric and Magnetic Field Best Management Practices for the Construction of Electric Transmission Facilities in Connecticut".

Post-Project Electric and Magnetic Fields on Boundaries of Subject Property

The fence of the proposed Substation is more than 200 feet at its closest point from any property line. At such a distance, the Substation equipment within the fenced area will not cause any noticeable change in either the electric or magnetic fields along the property lines. However, there will be changes to the existing electric and magnetic field levels at points on a property line of the Subject Property due to the following three factors: 1) physical changes will be made to the 1508 transmission line circuit to interconnect it with the Substation; 2) the Substation and associated distribution load shifts will cause changes to the currents flowing on the transmission circuit; and 3) new distribution circuit getaway cables from the Substation will cross under a property line.

New 115-kV line spans (i.e., "substation entry spans") will be constructed to loop the existing 1508 transmission circuit in and out of the Substation. This change will alter the configuration and spacing of the 115-kV line conductors in the vicinity of the easterly and westerly property lines where they meet the existing CL&P right-of-way. This will lead to changes in the electric and magnetic fields along the easterly and westerly property lines for a short distance on either side of the transmission line. This change will be in addition to changes in magnetic field levels caused by changes in currents on the transmission circuit.

The 1508 circuit experiences relatively light power transfers because of its location within the transmission network. The substation will lead to a general increase in currents on the line segment crossing over the westerly property line and a small decrease in currents on the line segment crossing over the easterly property line. CL&P's model projections of peak line currents in future years are below 400 amperes.

Calculations were made of post-project electric and magnetic fields produced by the existing transmission circuit along the westerly property line with Rt. 77/Durham Road and along the section of the easterly property line which crosses beneath the transmission circuit. Per common practice, these calculations assumed balanced three-phase line currents in the transmission circuits, level terrain, and a bottom 115-kV line conductor height above grade which is typical for the location where the conductors cross over the property line. For electric fields, bare terrain is also assumed. Electric fields will be lower at ground level if the terrain holds vegetation or other objects which will partially shield electric fields from the line. Post project, the line-conductor span crossing over the westerly property line will be in a vertical configuration, and the line-conductor span crossing over the easterly property line will be in a transition from a vertical configuration to delta. For simplified modeling, the line-conductor configuration over the easterly property line was modeled as delta.

These calculations of electric and magnetic fields were made assuming that these circuits are the only source of such fields on the Subject Property. Contributions to EF and MF from distribution circuits crossing or close to a property line are not included. Graphical representations of the results are found in Figures M2 through M7, overlaying the results for the pre-project line configuration for ease of comparison.

Figure M2: MAGNETIC FIELDS ALONG THE WEST PROPERTY LINE BORDERING RT 77/DURHAM ROAD - PEAK DAY AVERAGE LOAD CONDITIONS

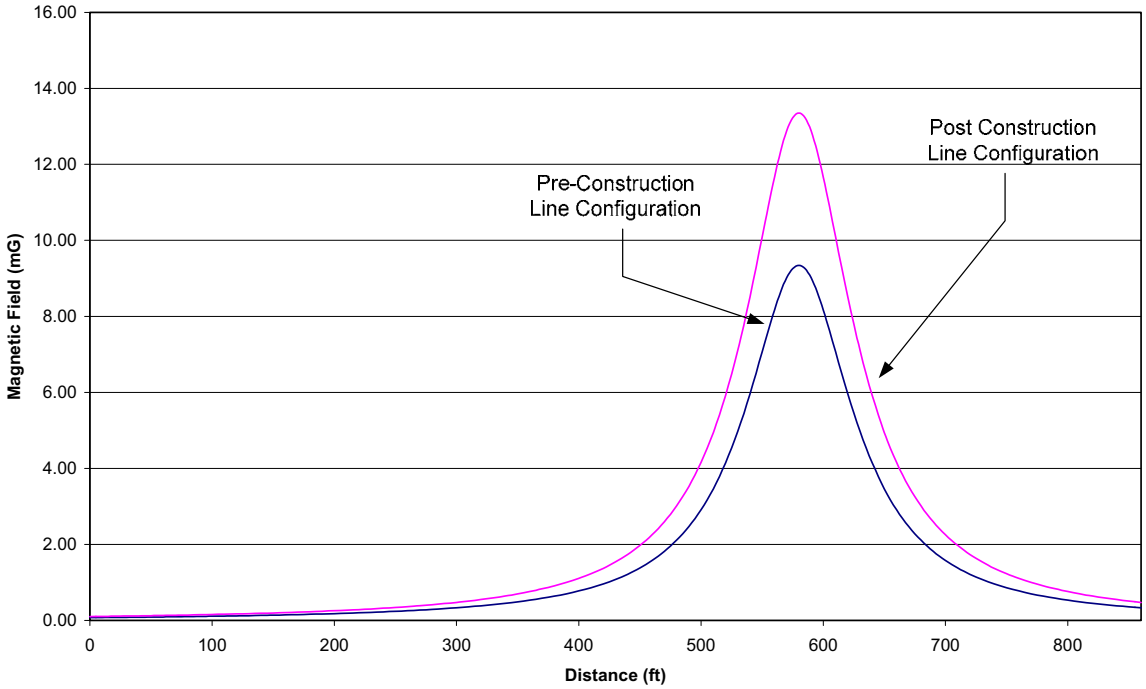


Figure M3: MAGNETIC FIELDS ALONG THE WEST PROPERTY LINE BORDERING RT 77/DURHAM ROAD - PEAK LOAD CONDITIONS

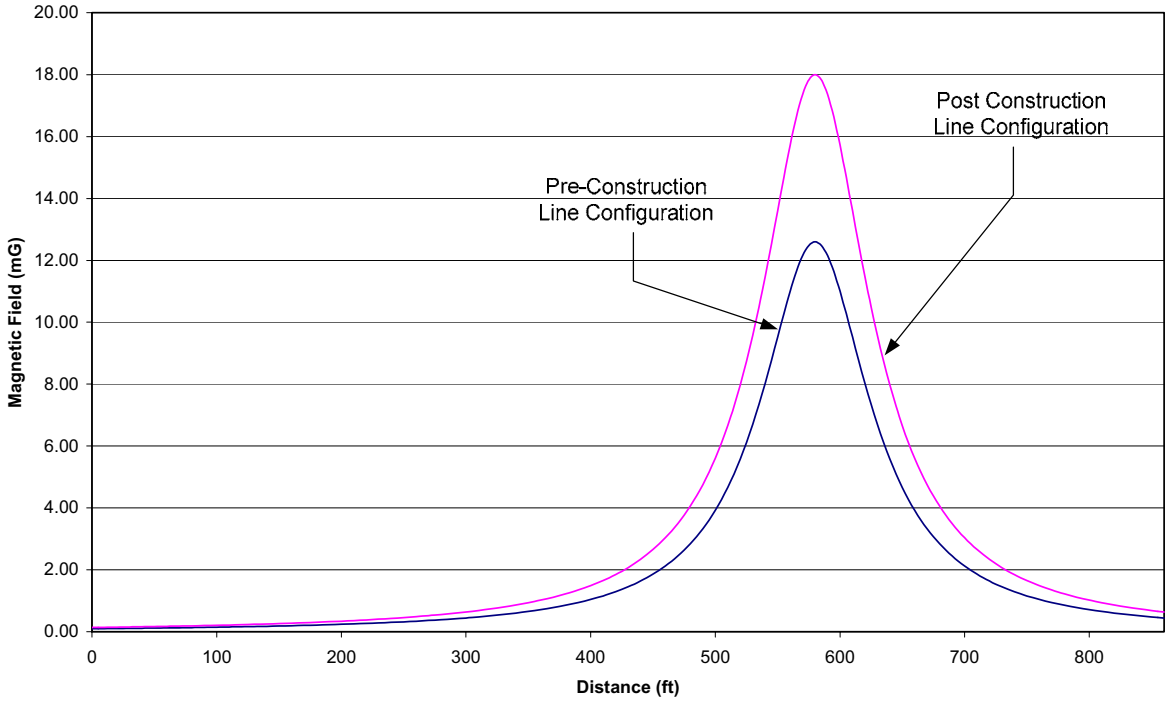


Figure M4: ELECTRIC FIELDS ALONG THE WEST PROPERTY LINE BORDERING RT 77/DURHAM ROAD

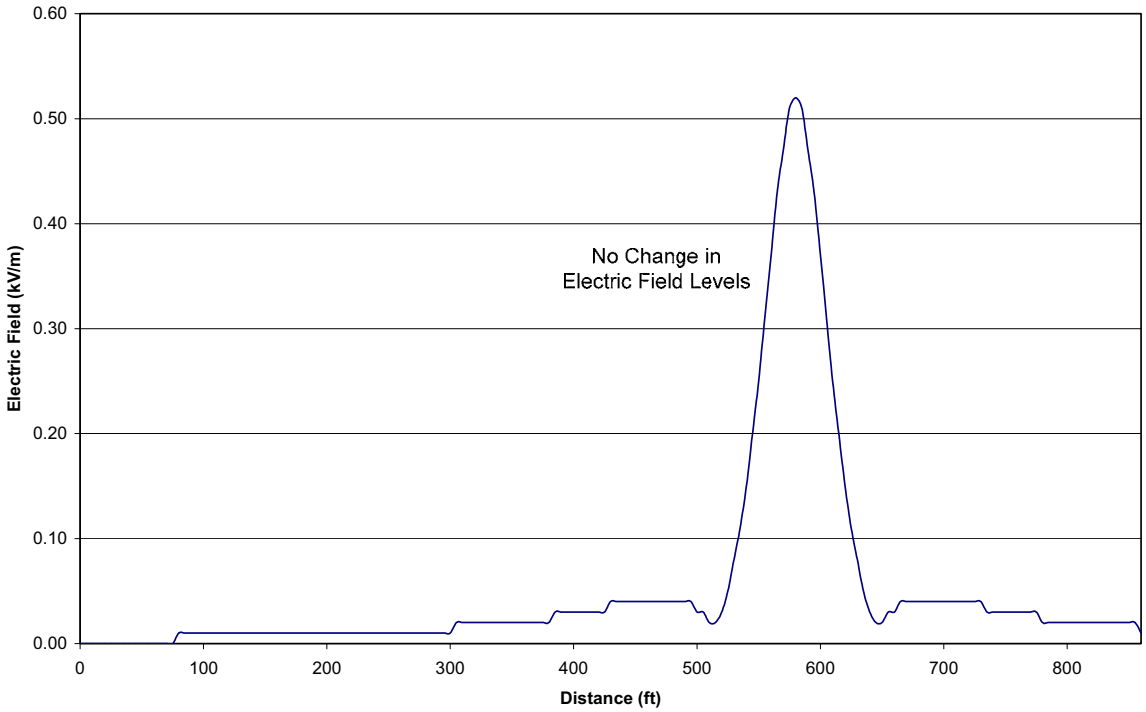


Figure M5: MAGNETIC FIELDS ALONG THE EAST PROPERTY LINE TRAVERSING THE EASTERN RIGHT-OF-WAY · PEAK DAY AVERAGE LOAD CONDITIONS

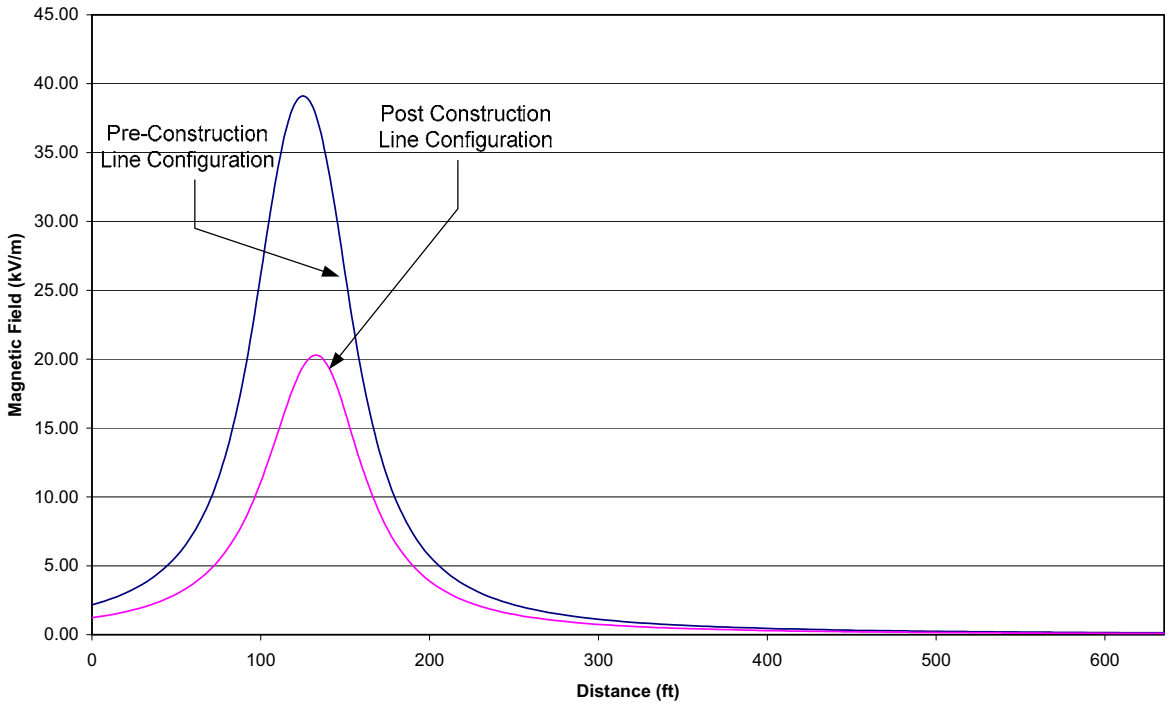


Figure M6: MAGNETIC FIELDS ALONG THE EAST PROPERTY LINE TRAVERSING THE EASTERN RIGHT-OF-WAY · PEAK LOAD CONDITIONS

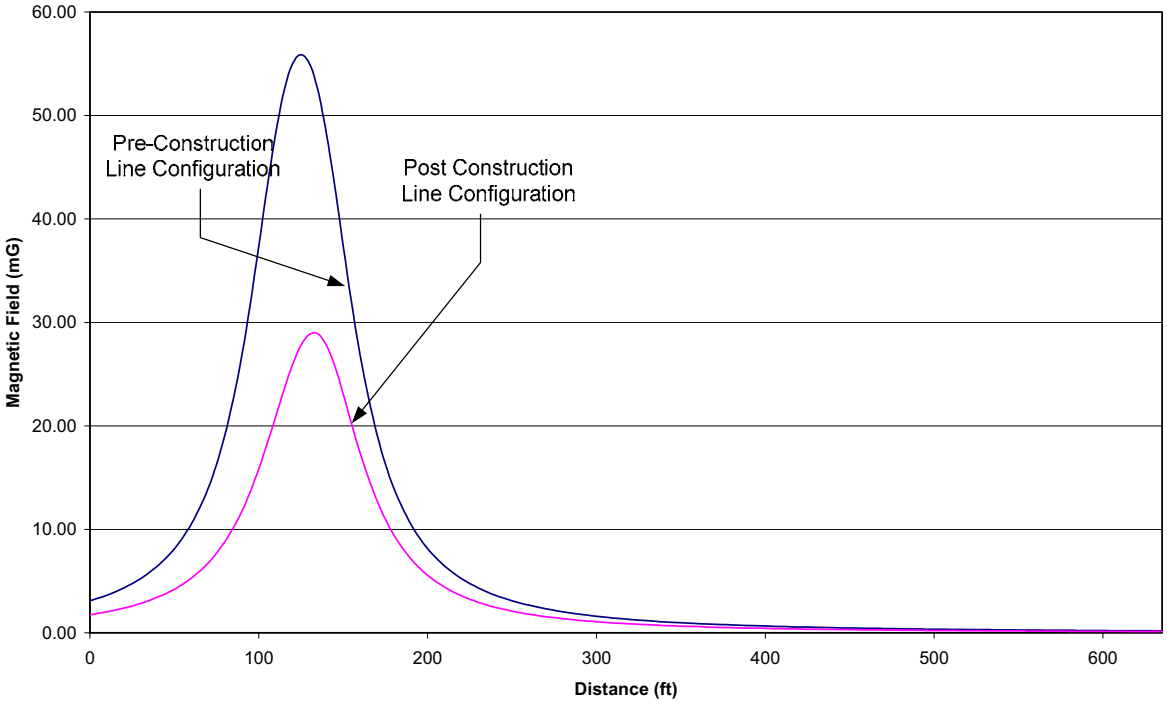
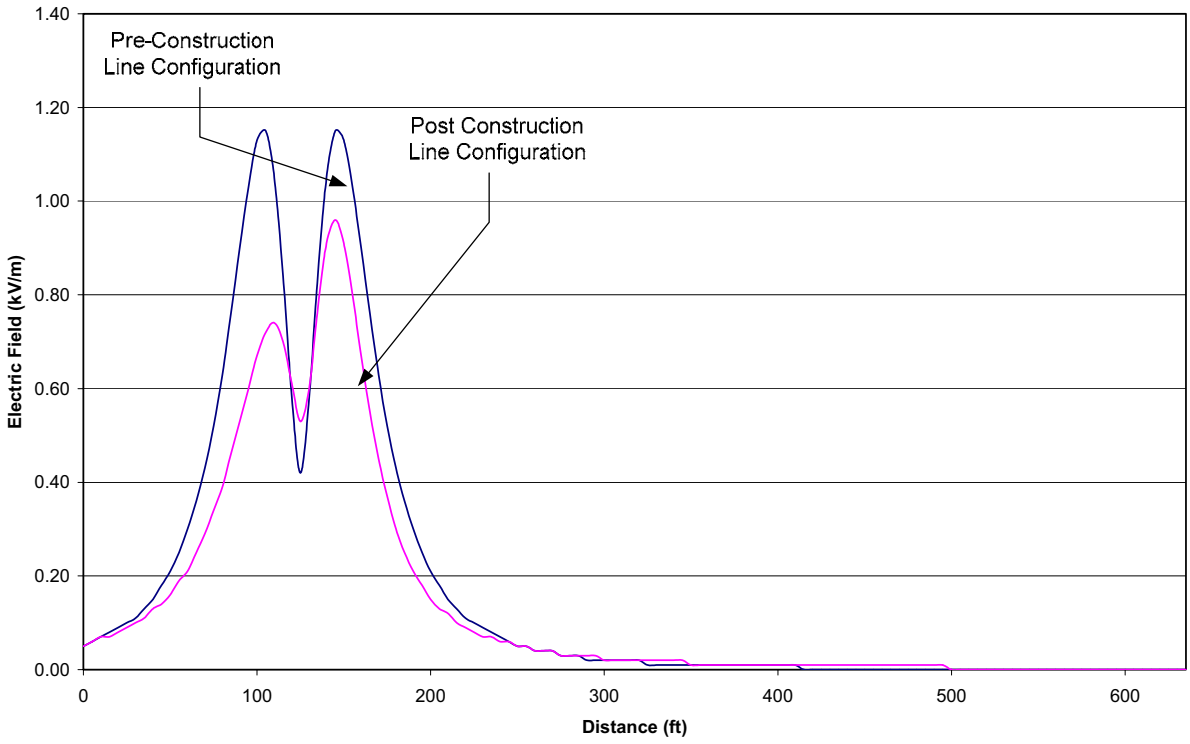


Figure M7: ELECTRIC FIELDS ALONG THE EAST PROPERTY LINE TRAVERSING THE EASTERN RIGHT-OF-WAY



Projected peak line currents in the year 2013, determined by system power-flow model simulations, were used for these calculations. Other assumptions used in the system power-flow model were ISO-NE's forecast system summer peak load in 2013, no transmission circuit outages, Stepstone Substation installed as proposed and with projected load transfers from Branford and Green Hill Substations.

The highest levels of EMF will continue to be found on the westerly and easterly property lines directly beneath where the 115-kV transmission circuit conductors cross over these property lines. The results depicted in Figures M2 through M7 demonstrate that EMF levels beneath and close to the 115-kV line along the westerly property line will increase under both of the load conditions, and EMF levels beneath and close to the 115-kV line along the easterly property line will decrease under both of the load conditions. Because of the conductor height differences, the EMF levels at points near to the line along the easterly boundary will remain higher than the levels at equivalent points along the westerly boundary.

The highest magnetic field level along the westerly property line, post-project, will be 18.0 mG under the modeled peak-load condition and 12.6 mG under the modeled peak-day average load condition. The highest electric field level in this same location will be 0.52 kV/m.

The highest magnetic field level along the easterly property line, post-project, will be 28.88 mG under the modeled peak-load condition and 20.21 mG under the modeled peak-day average load condition. The highest electric field will be 0.96 kV/m.

As depicted on Figures M2 through M7, the EMF levels will continue to drop off rapidly with distance from the transmission line source, so the levels of EMF at all points along a property boundary to the north and south of the transmission circuit will be much lower than the

levels found beneath the circuit. Beyond distances of not more than 200 feet from the center of the circuit EMF levels will remain at very low background or negligible levels.

Underground 13.8-kV and 23-kV distribution getaway cables will exit the Substation under the Substation access drive to the south towards Stepstone Hill Road. Two 13.8-kV distribution cables will rise and tie into the existing distribution circuit conductors on the road-side pole line along Stepstone Hill Road. A 23-kV distribution getaway cable will also rise on a pole of this line and tie into a new aerial cable. Current flows over these distribution cables and conductors will produce magnetic fields along the property line where they cross or parallel it, with measurable field levels perhaps extending to a distance of 50 feet to either side. Generally speaking, the highest electrical and magnetic field levels in the vicinity of these distribution lines will be lower than those associated with the 115-kV line.

Measurements of Electric and Magnetic Fields

Measurements of electric and magnetic fields were taken in 2006 along two borders of the Property. The measurement results are plotted on four attached graphs, two for magnetic fields and two for electric fields. Per an industry standard, these measurements were made at one meter above grade over a path on the Property that is approximately perpendicular to the existing transmission lines, a so-called lateral profile. One EMF profile was taken on March 17, 2006 along Route 77/Durham Road, the westerly border of the Property. This profile extends for a distance of 485 feet and crosses beneath the existing 115-kV transmission line. The other EMF profile was taken on September 21, 2006 along a stone wall which marks the relevant section of the easterly Property boundary, also crossing beneath the existing 115-kV transmission line and within this line's right-of-way. This profile extends for a distance of 125 feet. The locations of the centerline of the existing transmission line are marked on the graphs.

Figure M8: MEASURED MAGNETIC FIELDS ALONG THE WEST PROPERTY LINE, MARCH 17, 2006

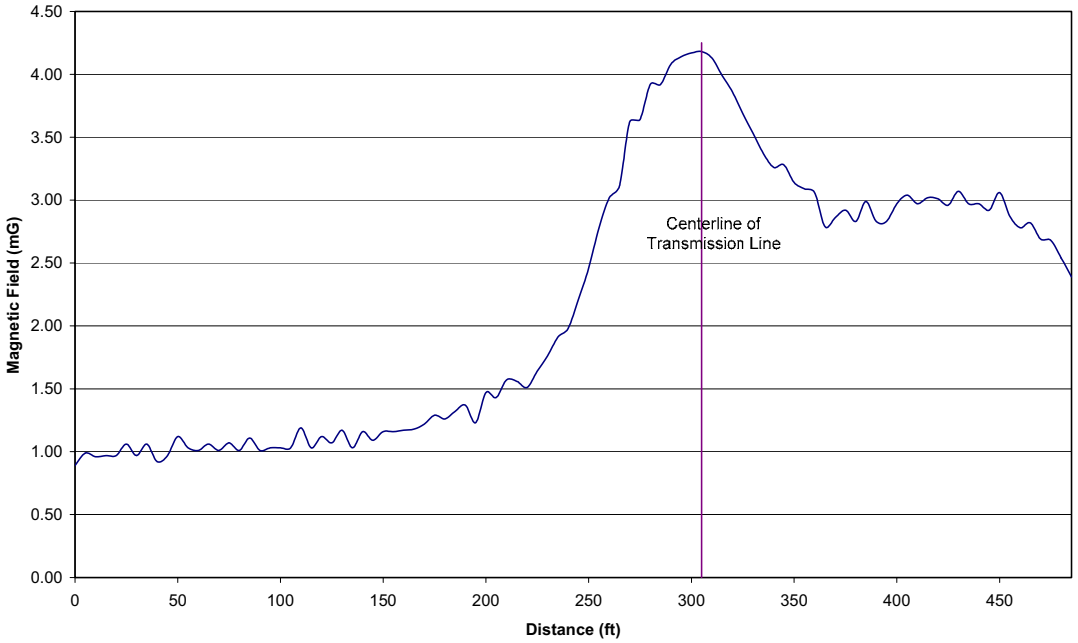


Figure M9: MEASURED ELECTRIC FIELDS ALONG THE WEST PROPERTY LINE, MARCH 17, 2006

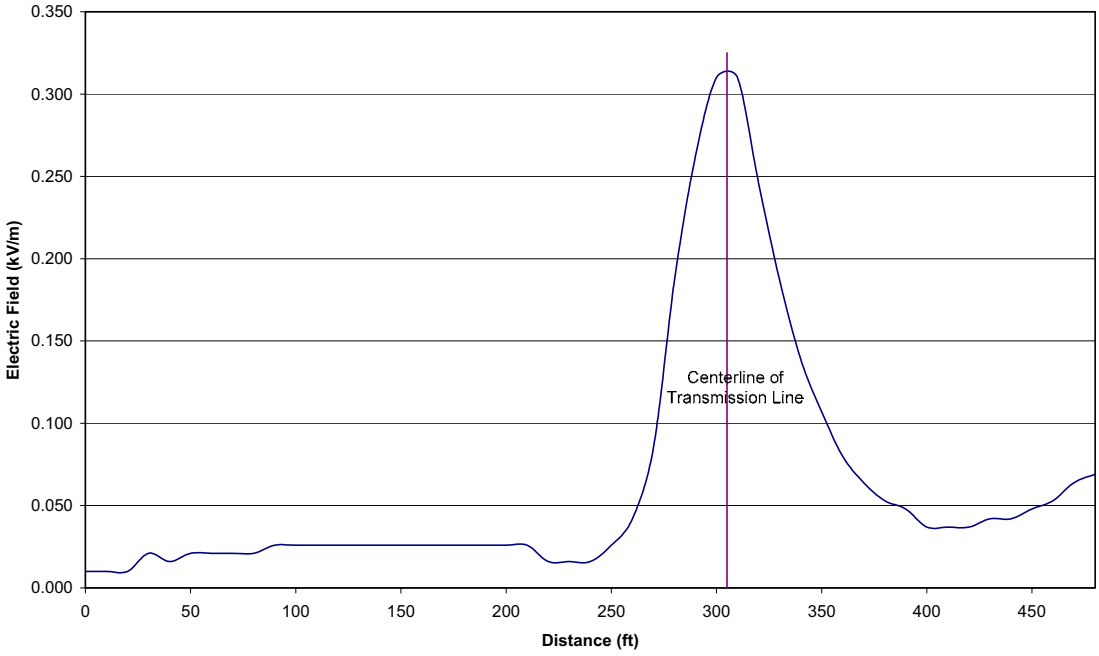


Figure M10: MEASURED MAGNETIC FIELDS ALONG THE EAST PROPERTY LINE, SEPTEMBER 21, 2006

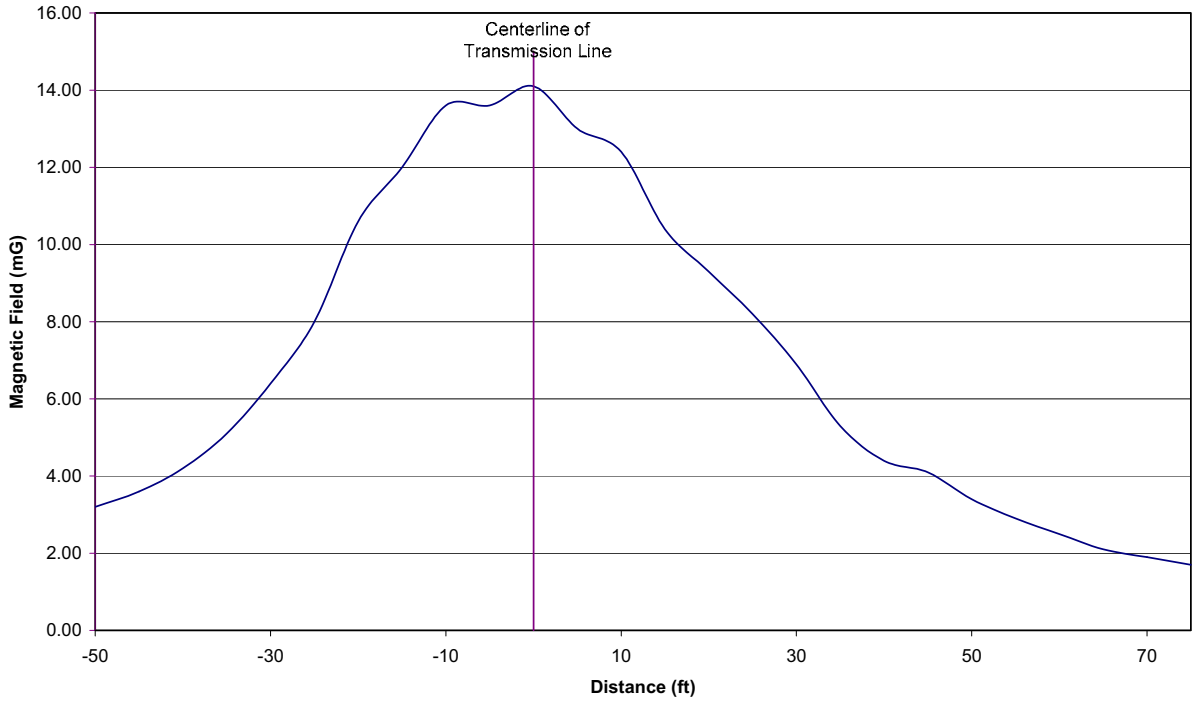
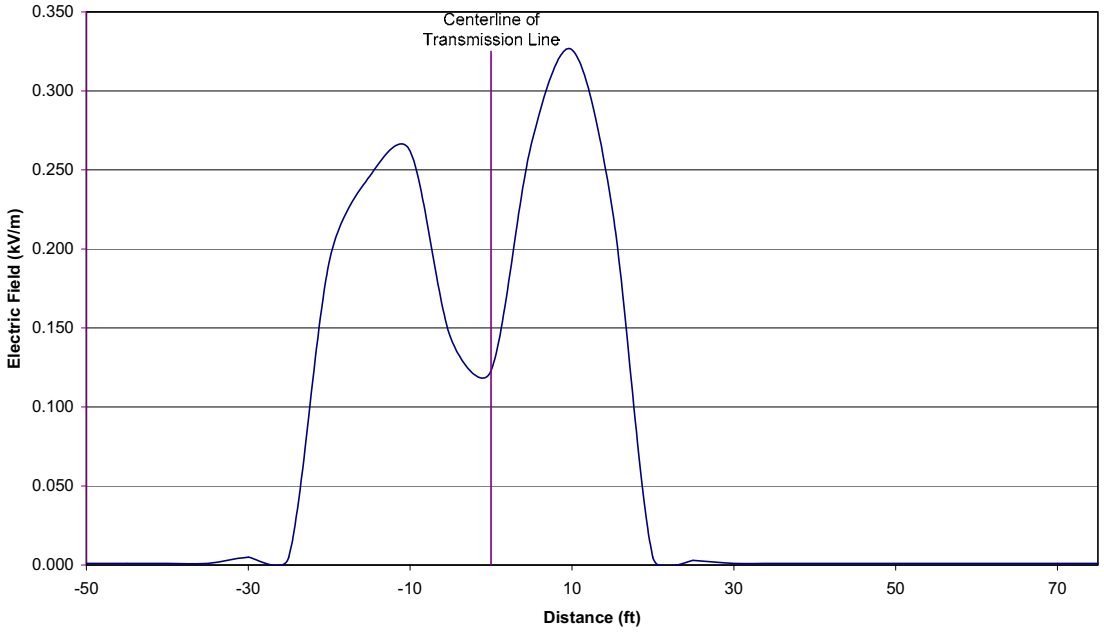


Figure M11: MEASURED ELECTRIC FIELDS ALONG THE EAST PROPERTY LINE, SEPTEMBER 21, 2006



The highest magnetic field level recorded on the Route 77/Durham Road profile was 4.18 mG, and the highest magnetic field level recorded along the easterly property boundary was 14.1 mG. The difference is due to the different conductor configuration and conductor heights above ground at these two locations, and to differences in the levels of transmission line current that was flowing on the two measurement days. The highest electric field recorded on the Route 77/Durham Road profile was 0.31 kV/m, and the highest electric field recorded along the easterly property boundary was 0.326 kV/m. These electric field results to some degree reflect shielding by nearby vegetation.

The magnetic field measurement results represent magnetic field levels recorded for a specific point in time, produced by the set of transmission line currents that existed at that point in time. During peak load periods of a year, the line currents would likely be higher than they were during the measurement periods on March 17, 2006 and September 21, 2006, and so magnetic field levels would also be somewhat higher. On the other hand, the electric field measurement results would be about the same no matter what the line currents are, assuming the same degree of shielding by nearby vegetation.

For the aforementioned reasons, these measurement results should be considered only as examples of the existing condition on the borders of Subject Property in the vicinity of the existing transmission line.

Summary

Consistent with the Connecticut Siting Council's *Electric and Magnetic Field Best Management Practices, February 11, 1993* and its Draft 2006 *Electric and Magnetic Field Best Management Practices for the Construction of Electric Transmission Facilities in Connecticut*, the design of the Substation will incorporate field management practices as follows:

- the Substation equipment has been located at a sufficient distance from property lines so that this equipment makes no noticeable contribution to EMF levels along these property lines
- the Substation has been located very close to an existing transmission line so that the length of Substation entry spans is very short
- vegetation will effectively screen electric fields
- new 13.8-kV distribution lines and a new 23-kV distribution line will exit the Substation underground to Stepstone Hill Road with close circuit spacings and conductor-phase spacings

There are no state or federal limits for electric or magnetic field levels at the property line of a substation. However, the Institute of Electrical and Electronic Engineers ("IEEE") and the International Commission on Non-ionizing Radiation Protection ("ICNIRP") have issued guideline limits for long-term public exposures to these fields. These limits are:

	EF (kV/m)	MF (mG) fv
IEEE	5.0	9,040
ICNIRP	4.2	833

The existing and proposed levels of electric and magnetic fields at and beyond the property lines of the proposed Substation are typical for all similar substations and will be well below these IEEE and ICNIRP limits. Based on these aforementioned guidelines and science peer group reviews of epidemiological and laboratory studies, these electric and magnetic field exposure levels will not pose an undue safety or health hazard to persons or property at or adjacent to the Substation property.

M.2 Site Security

A seven-foot high chain link fence topped by three strands of barbed wire would enclose the Substation yard to prevent unauthorized access. The Substation yard would also be gated and locked. All gates would be padlocked at the end of the workday during construction activities

and at all times once the Substation is in service. Appropriate signage would be posted at the Substation alerting the general public of high voltage facilities located within the Substation. Should equipment experience a failure, protective relaying would immediately remove the equipment from service, thereby protecting the public and the equipment within the Substation. Other devices installed within the Substation would constantly monitor the equipment to alert CL&P of any abnormal or emergency situations. The access road would be gated and locked at its entrance along Stepstone Hill Road.

M.3 Traffic Considerations and Hours of Operation

Construction traffic would not greatly affect local traffic because Route 77 provides the main north-south route used by motorists traveling through the area and site access would be gained from an existing, at-grade drive established along Stepstone Hill Road. Post-construction site conditions would not substantially affect existing traffic patterns. Once construction of the Substation is complete, the facility would be remotely operated, with personnel onsite only for periodic inspections, maintenance and emergency work.

N. PROJECT SCHEDULE

Once constructed, the Stepstone Substation would operate on a 24-hour basis and not normally require staffing. Facility equipment would be monitored remotely, which would minimize the number of maintenance trips to a few times per month.

Construction is expected to occur over a period of 12 to 18 months, with the Substation in service by June 2009.

O. GOVERNMENT APPROVALS OBTAINED

Table O-1 summarizes the applicable approvals required for this Project. Pursuant to CGS § 16-50*l*(e), the Municipal Consultation Filing ("MCF") was completed and delivered to the Town of Guilford CEO on October 5, 2006, beginning the 60 day consultation process. In response to the MCF, CL&P received a letter of support for the Project from Carl A. Balestracci, Jr., First Selectman for the Town of Guilford, dated October 27, 2006 (see Volume II, Appendix G, *Government Approvals Obtained*).

Prior to the MCF process, CL&P representatives and Town officials have had ongoing discussions about the need for a new substation to better serve the residents of Guilford and surrounding communities as well as to provide capacity for load growth within the Town.

Pursuant to CGS § 16-50x(d), CL&P consulted with the Guilford Inland Wetlands Commission ("IWC") and the Planning and Zoning Commission ("P&Z") as to the location of the Substation. The IWC approved the location for the Substation at its site walk meeting in August, 2006 with conditions, as documented in its letter dated September 6, 2006 (see Volume II, Appendix G, *Government Approvals Obtained*).

CL&P also filed an application with the P&Z on July 6, 2006. On September 12, 2006, the P&Z held a public hearing at which time CL&P presented a summary of the Project to the Commission. Abutting property owners were notified of the meeting via certified mail, return receipt requested. Several members of the public were present and asked questions and/or voiced opinions. The P&Z unanimously approved the location of the Substation subject to certain conditions as documented in its letter dated September 29, 2006 (see Volume II, Appendix G, *Government Approvals Obtained*). CL&P notified the P&Z of its concerns about some of the conditions. On October 18, 2006, after engaging in a dialogue with CL&P's counsel, the P&Z

modified its conditions, as documented in its letter dated October 26, 2006 (see Volume II, Appendix G, *Government Approvals Obtained*).

TABLE O-1
PERMITS APPLICABLE TO THE STEPSTONE SUBSTATION PROJECT

AGENCY	PERMIT	DATE SUBMITTED	DATE RECEIVED	LOCATION
Connecticut Siting Council	Certificate of Environmental Compatibility and Public Need under Connecticut General Statutes Section 16-50*l*(a)(1)	December 15, 2006		
Connecticut Natural Diversity Data Base	T&E clearance under state Endangered Species Act (Connecticut General Statutes Sec. 26-303 to Sec. 26-315)	Consultation initiated on June 6, 2005	November 21, 2006	CSC Application Appendix E, Agency Correspondence
Connecticut Historical Commission	Cultural Resource Consultation under Section 106 of the National Historic Preservation Act	Consultation initiated on June 17, 2005	June 23, 2005	CSC Application Appendix E, Agency Correspondence
Town of Guilford	Municipal Consultation Filing under Connecticut General Statutes Section 16-50*l*(e)	October 5, 2006		CSC Application Bulk Filing #1
Town of Guilford Inland Wetlands Commission	Local Approval Application under Connecticut General Statutes Section 16-50 x(d)	July 6, 2006	September 6, 2006	CSC Application Bulk Filing #1
Town of Guilford Planning and Zoning Commission	Local Approval Application under Connecticut General Statutes Section 16-50 x(d)	July 6, 2006	September 29, 2006 (Revised October 26, 2006)	CSC Application Bulk Filing #1

P. BULK FILING OF MUNICIPAL DOCUMENTS

A bulk filing of municipal regulations and documents that were submitted to the Town of Guilford is being provided solely to the Council under a separate attachment, as part of this Application, including the below referenced applications submitted by CL&P and applicable local regulations, respectively:

- Application to the Town of Guilford Inland Wetlands Commission pursuant to CGS § 1-50x(d) Location Review;
- Application to the Town of Guilford Planning and Zoning Commission pursuant to CGS § 1-50x(d) Location Review and Special Permit Application;
- Town of Guilford Inland Wetlands and Watercourses Regulations;
- Zoning Regulations of the Town of Guilford, Connecticut, and accompanying amendments;
- Guilford Plan of Conservation and Development; and
- Municipal Consultation Filing

Q. ADMINISTRATIVE NOTICE, PUBLIC AND ABUTTERS NOTICE, SERVICE AND OTHER FILING REQUIREMENTS

As requested by the CSC, CL&P is furnishing to the CSC one original and 20 copies of the Application, as well as an electronic version of the Application.

This Application is presented based on the CSC's September 19, 2000 *Application Guide for Electric Substation Facility* to assist applicants in filing for a Certificate from the CSC for the construction of an electric substation as defined in CGS § 16-50i (a) (4).

CL&P also consulted CGS §§ 16-50g through 16-50aa and Sections 16-50j-1 through 16-50z-4 of the Regulations of Connecticut State Agencies in preparing this Application.

Q.1. Administrative Notice

CL&P requests administrative notice of the following CSC docket records, generic hearings or statements prepared by the CSC as a result of generic hearings, and other pertinent documents. We would suggest the following documents be included.

- *Connecticut Siting Council Review of the Connecticut Electric Utilities Ten-Year Forecast of Loads and Resources, 2006*
- *Connecticut Guidelines for Soil Erosion and Sediment Control 2002*
- *Connecticut General Statutes Section 16-243* and *Sections 16-11-134,* and *135 of the Regulations of Connecticut State Agencies (*and by reference, *the National Electrical Safety Code ANSI C2, 2002 Edition)*
- *Current Status of Scientific Research, Consensus, and Regulation Regarding Potential Health Effects of Power-line Electric and Magnetic Fields (EMF), January 2006*
- *Connecticut Siting Council Electric and Magnetic Field Best Management Practices, February 11, 1993*
- *Interagency Task Force Studying Electric and Magnetic Fields, Connecticut 1998 Report on Task Force Activities to Evaluate Health Effects from Electric and Magnetic Fields, January 1998*

Q.2. Pre-Application Process (*CGS § 16-50l (e)*)

CL&P met with representatives of Guilford prior to distribution of the MCF. On October 5, 2006, the MCF was distributed to the CEO and the Town Librarian, thereby commencing the formal municipal consultation period. During this time, CL&P sought input from the public and local government representatives.

Q.3. Application Filing Fees (*Regs., Conn. State Agencies § 16-50v-la*)

The filing fee for this application is determined by the following schedule:

Estimated Construction Cost		Fee
Up to	$5,000,000	0.05% or $1,000.00, whichever is greater
Above	$5,000,000	0.1% or $25,000.00, whichever is less

Based on this schedule and the estimated construction cost for the Project presented in Section F, a check for the filing fee in the amount of $8,466 payable to the CSC accompanies this Application. CL&P understands that additional assessments may be made for expenses in excess of the filing fee, and that fees in excess of the CSC's actual costs will be refunded to CL&P.

Pursuant to CGS § 16-50*l*(a)(1), CL&P also encloses a separate check in the amount of $25,000 payable to the CSC for the municipal participation fee.

Q.4. Proof of Service (*CGS § 16-50l (b)*)

This Application was served on the following:

A. The chief elected official/chief executive officer, and where applicable, the zoning commission, planning commission, the planning and zoning commissions, and the conservation and wetlands commissions of the site municipality and any adjoining municipality having a boundary not more than 2,500 feet from the facility;

B. The regional planning agency;

C. The State Attorney General;

D. Each member of the Legislature in whose district the facility is proposed;

E. Any federal agency which has jurisdiction over the proposed facility;

F. The State Departments of Environmental Protection, Public Health, Public Utility Control, Economic and Community Development, and Transportation; the Council on Environmental Quality; and the Office of Policy and Management; and

G. The Connecticut Energy Advisory Board.

The names of governmental officials and agencies on which a copy of the Application is being served (the "Proof of Service") are provided in Exhibit 1 (*Affidavit and Service List*). An Affidavit regarding Proof of Service is also provided in this Exhibit.

Q.5. Public Notices (*CGS § 16-50l (b)*)

Notice of the Application (the "Notice") was published at least twice prior to the filing of the Application in a newspaper having general circulation in the site municipalities. The Notice included the name of the applicant, the date of filing and a summary of the Application. The Notice was published in not less than ten point type and run in the following newspaper:

- New Haven Register on 11/29/2006 and 12/01/2006

Copies of the notices are provided in Exhibit 1 (*Affidavit and Public Notices*).

Q.6. Notice to Owners of Property Abutting Substation Sites

Notice of the proposed Stepstone Substation Project was provided to abutters of the Property. Notification to the abutters was provided via certified mail, return receipt requested.

An Affidavit regarding the notice provided to owners of property abutting and nearby the proposed Substation is provided in Exhibit 1 (*Affidavit of Notice to Abutting Landowners*). A *List of Abutting and Nearby Property Owners of Land of CL&P* is also provided in Exhibit 1.

R. OTHER RELEVANT INFORMATION

As previously introduced, CL&P received ISO-NE approval per *Section I.3.9 of the ISO New England Inc. Transmission, Markets and Service Tariff for the Stepstone 35L Substation* (see letter dated November 8, 2005 in Volume II, Appendix H, *Other Relevant Information*). CL&P also received cost allocation approval from ISO-NE for the transmission costs of this Project, as documented in its letter, dated April 24, 2006 (included in Volume II, Appendix H, *Other Relevant Information).*

As required by CGS § 16-50*l*(e), CL&P filed the same information submitted to the Town of Guilford in the MCF with the Connecticut Energy Advisory Board ("CEAB") on October 5, 2006, the same day that it was provided to the Town. Such information was filed in accordance with instructions received from CEAB representatives. Copies of the receipts for the CEAB deliveries are provided in Volume II, Appendix H (*Other Relevant Information*).

In addition, CL&P copied the Council on the responses to a 16-question information request from CEAB on November 30, 2006 (see Volume II, Appendix H, *Other Relevant Information*).

GENERAL GLOSSARY OF TERMS

(Not all terms are used in this document)

115-kV: 115 kilovolts or 115,000 volts.

345-kV: 345 kilovolts or 345,000 volts.

AC: (alternating current) An electric current which reverses its direction of flow periodically. (In the United States this occurs 60 times a second-60 cycles or 60 Hertz.) This is the type of current supplied to homes and business.

A-frame Structure: A steel structure constructed of two A-shaped uprights with horizontal cross-members and bracings.

Autotransformer: A single winding step-down transformer (see Transformer).

Ampere (Amp): A unit measure for the flow (current) of electricity. A typical home service capability (i.e., size) is 100 amps; 200 amps are required for homes with electric heat.

Arrester: Protects lines, transformers and equipment from lightning and other voltage surges by carrying the charge to ground. Arresters serve the same purpose on a line as a safety valve on a steam boiler.

Bundle: (circuit) Two or more parallel 3-conductor circuits joined together to operate as one single circuit.

Bundle: (conductor) Two or more phase conductors or cables joined together to operate as a single phase.

Bus: A conductor capable of carrying large amounts of current in a substation.

Cable: A fully insulated conductor usually installed underground but in some circumstances can be installed overhead.

CTDEP: Connecticut Department of Environmental Protection.

CELT: NEPOOL, Annual Capacity, Energy, Load and Transmission report.

CGS: Connecticut General Statutes.

Circuit: A system of conductors (three conductors or three bundles of conductors) through which an electrical current is intended to flow and which may be supported above ground by transmission structures or placed underground.

Circuit Breaker: A switch that automatically disconnects power to the circuit in the event of a fault condition. Located in substations, this switch performs the same function as a circuit breaker in a home.

CHP: Combined heat power

CL&P: The Connecticut Light & Power Company.

CMEEC: Connecticut Municipal Electric Energy Cooperative, Inc.

Conductor: A metallic wire, busbar, rod, tube or cable which serves as a path for electric flow.

Conduit: Pipes, usually PVC plastic, typically encased in concrete, for underground power cables.

Conversion: Change made to an existing transmission line for use at a higher voltage, sometimes requiring the installation of more insulators. (Lines are sometimes pre-built for future operation at the higher voltage.)

CSC: Connecticut Siting Council; the Council.

CONVEX: Connecticut Valley Exchange.

dBA: Decibel, on the A-weighted scale.

DC: Direct current; electricity that flows continuously in one direction. A battery produces DC power.

Demand: The total amount of electricity required at any given time by an electric supplier's customers.

Distribution: Line, system; the facilities that transport electrical energy from the transmission system to the customer.

DG: Distributed generation

D&M Plan: Development & Management Plan.

DPUC: (Connecticut) Department of Public Utility Control.

Duct: Pipe or tubular runway for underground power cables (see also Conduit).

Duct Bank: A group of ducts or conduit usually encased in concrete in a trench.

Electric Field: Result of voltages applied to electrical conductors and equipment.

Electric Transmission: The facilities (69-kV+) that transport electrical energy from generating plants to distribution substations.

EMF: Electric and magnetic fields.

Fault: A failure or interruption in an electrical circuit (short circuit).

FEMA: Federal Emergency Management Agency.

Fiber Optic Shield Wire (FOSW): See **Lightning Shield Wire**

G: Gauss; 1G = 1000 mG (milligauss); the unit of measure for magnetic fields.

GIS: Gas insulated substation using sulfur hexaflouride (SF_6).

Glacial till: These deposits are predominantly nonsorted, nonstratified sediment and are deposited directly by glaciers. These deposits consist of boulders, gravel, sand silt, and clay mixed in various proportions.

Gneiss: Light and dark, medium- to coarse-grained metamorphic rock characterized by compositional banding of light and dark minerals, typically composed of quartz, feldspar and various amount of dark minerals.

Granofels: Light to dark, medium- to coarse-grained, massively to poorly layered metamorphic rock composed primarily of quartz and feldspar; lacking the compositional banding of gneiss.

Ground Wire: Cable/wire used to connect wires and metallic structure parts to the earth. Sometimes used to describe the lightning shield wire.

H-frame Structure: A wood or steel structure constructed of two upright poles with a horizontal cross-arm and bracings.

Hz: Hertz, a measure of frequency; one cycle/second.

ISO: Independent System Operator.

ISO-NE: ISO New England, Inc.; referred to as New England's Independent System Operator.

kcmil: 1000 circular mils, approximately 0.0008 sq. in.

kV: kilovolt, equals 1000 volts.

kV/m: Electric field measurement (kilovolts/meter).

Lattice-type Structure: Transmission or substation structure constructed of lightweight steel members.

Lightning Shield Wire: Electric cable intended to prevent lightning from striking transmission circuit conductors. May contain glass fibers for communication use, "Fiber Optic Shield Wire", or "FOSW".

Line: A series of overhead transmission structures which support one or more circuits; or in the case of underground construction, a single electric circuit.

Load: Amount of power delivered as required at any point or points in the system. Load is created by the power demands of customers' equipment (residential, commercial, and industrial).

LOLE: Loss of Load Expectation; a measure of bulk power system reliability.

Magnetic Field: Produced by the flow of electric current; strength measured as magnetic flux density in units called gauss (G) or milligauss (mG) – 1/1000Gauss.

Magnetic Flux Density: Strength of magnetic field

mG: milligauss (see Magnetic Field) – 1/1000Gauss.

MOD: Motor-Operated Disconnect switch.

MVA: Megavolt Ampere. Measure of electrical capacity equal to the product of the voltage times the current. Electrical equipment capacities are sometimes stated in MVA.

MW: Megawatt. Megawatt equals 1 million watts, measure of the work electricity can do.

NDDB: Natural Diversity Data Base (CTDEP).

NEPOOL: New England Power Pool.

NERC: North American Electric Reliability Council.

NESC: National Electrical Safety Code.

NPCC: Northeast Power Coordinating Council.

NU: Northeast Utilities.

OH (Overhead): Electrical facilities installed above the surface of the earth.

Palustrine: Marshy, wetland areas described as palustrine include marches, swamps and bogs.

Peaking Facility: A generating station that runs when demand on the grid exceeds base load generation capacity in the region.

Phases: Transmission (and some distribution) AC circuits are comprised of three phases that have a voltage differential between them.

PUESA: Public Utility Environmental Standards Act.

Reinforcement: Any of a number of approaches to improve the capacity of the transmission system, including rebuild, reconductor, conversion and bundling methods.

Rebuild: Replacement of an existing overhead transmission line with new structures and conductors generally along the same route as the replaced line.

Reconductor: Replacement of existing conductors with new conductors, but with little if any replacement or modification of existing structures.

Right of way: ROW; corridor.

Riprap: A permanent erosion-resistant ground cover of large, loose, angular stone with filter fabric or granular underlining used to protect soil from the erosion fences of concentrated runoff.

RTEP: Regional Transmission Expansion Plan prepared by ISO-NE.

SCADA: System Control and Data Acquisition system – A system installed at the substation which allows control and monitoring from a remote location.

Schist: Light, silvery to dark, coarse- to very coarse-grained, strongly to very strongly layered metamorphic rock whose layering is typically defined by parallel alignment of micas. Primarily composed of mica, quartz and feldspar; occasionally spotted with conspicuous garnets.

SF_6: Sulfur hexaflouride, an insulating gas used in GIS substations and circuit breakers.

Shield Wire: See Lightning Shield Wire.

SHPO: State Historic Preservation Office (State of Connecticut Commission on Culture and Tourism, Historic Preservation and Museum Division).

Statutory Facilities: Environmental, ecological, scenic, historic, recreational or other resources identified by the Connecticut Siting Council in its *Electric Substation Facility Application Guidelines, section VII, items H and K (CGS Section 16-50l (a) (1).*

Substation: A fenced-in yard containing switches, transformers, line terminal structures, and other equipment enclosures and structures. Adjustments of voltage, monitoring of circuits and other service functions take place in this installation.

Switching Station: A fenced-in yard containing switches, line terminal structures and other equipment, enclosures and structures. Switching of circuits and other service functions take place in this installation.

Steel Lattice Tower: See Lattice-Type Structure.

Steel Monopole Structure: Transmission structure consisting of a single tubular steel column with horizontal arms to support insulators and conductors.

Step-down Transformer: See Transformer.

Step-up Transformer: See Transformer.

Switchgear: General term covering electrical switching and interrupting devices. Device used to close or open, or both, one or more electric circuits.

Terminal Points: The substation or switching station at which a transmission line terminates.

Terminal Structure: Structure typically within a substation that ends a section of transmission line.

Terminator: A flared pot-shaped insulated fitting used to connect underground cables to overhead lines.

Transformer: A device used to transform voltage levels to facilitate the efficient transfer of power from the generating plant to the customer. A step-up transformer increases the voltage while a step-down transformer decreases it.

Transmission Line: Any line operating at 69,000 or more volts.

Upgrade: See Reinforcement.

USGS: United States Geological Survey (U.S. Department of the Interior).

V/m: volts per meter; kilovolt per meter; 1000 V/m = 1-kVm.

Voltage: A measure of the push or force which transmits electricity.

Voltage Collapse: A condition where voltage drops to unacceptable levels.

Watercourse: Rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, and all other bodies of water, natural or artificial, public or private.

Wetland: Land, including submerged land, which consists of any of the soil types designated as poorly drained, very poorly drained, alluvial or flood plain by the U.S. Department of Agriculture, Natural Resources Conservation Service. Connecticut jurisdictional wetlands are based solely on soil type; federal jurisdictional wetlands are classified based on a combination of soil type, wetland plants, and hydrologic regime.

Wire: See Conductor

Exhibit 1

Affidavit and
Service List

AFFIDAVIT OF SERVICE
UPON GOVERNMENTAL BODIES AND AGENCIES

State of Connecticut)
) ss: Middletown, Connecticut
)
County of Middlesex)

Pursuant to Section 16-50*l*(b) of the Connecticut General Statutes, I hereby certify that on December 15, 2006, I caused a copy of the Application of The Connecticut Light and Power Company to the Connecticut Siting Council for a Certificate of Environmental Compatibility and Public Need for the proposed Stepstone Substation (Guilford, Connecticut) to be served upon individuals and agencies set forth on the attached list by mail, express mail, or courier.

Michael Libertine
Agent for The Connecticut Light and Power Company

On this the fifteenth (15th) day of December, 2006, before me the undersigned officer, personally appeared Michael Libertine, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same for the purposes therein contained.

In Witness Whereof, I hereunto set my hand and official seal.

Notary Public Patricia A. Cozinski, 12-15-06

My Commission Expires: August 31, 2010

TO THE GOVERNMENTAL BODIES AND AGENCIES IN THE VICINITY OF A PROPOSED SUBSTATION IN THE VICINITY OF A PROPOSED SUBSTATION IN GUILFORD AS NAMED AND REFERRED TO IN § 16-50*l*(b) OF THESE GENERAL STATUTES:

Attached is an application the Connecticut Light and Power Company ("CL&P") has filed today, December 15, 2006 with the Connecticut Siting Council. The application requests the issuance of a Certificate of Environmental Compatibility and Public Need with respect to the construction of a new substation in the Town of Guilford and its connection to existing overhead transmission lines. The proposed substation will be located on a portion of CL&P's 38-acre property located north of Stepstone Hill Road and east of Route 77. If you wish additional copies of the application, a limited number will be available upon request to Ms. Helen Wong, Project Manager, at (860) 665-2464.

NORTHEAST UTILITIES SERVICE COMPANY

By _____
Michael Libertine, Agent for the Connecticut Light and Power Company
Director of Environmental Services, CT
Vanasse Hangen Brustlin, Inc.

FOR THE CONNECTICUT LIGHT AND POWER COMPANY

Encl: Service List

Stepstone Substation Application Service List

Local Authorities

Town of Guilford Chief Executive Officer
Carl Balestracci, Jr.
First Selectman
Guilford Town Hall
31 Park Street
Guilford, CT 06437

Planning & Zoning Commission

Shirley Girioni, Chairperson
Planning & Zoning Commission
Guilford Town Hall
31 Park Street
Guilford, CT 06437

Conservation Commission

Jennifer Allcock, Chairperson
Inland Wetland Commission
Guilford Town Hall
31 Park Street
Guilford, CT 06437

Inland Wetlands Commission

Doug Summerton, Chairman
Inland Wetlands Commission
Guilford Town Hall
31 Park Street
Guilford, CT 06437

Regional Planning Agency

Thomas Scarpati, Chairman
South Central Regional Council of Governments
127 Washington Ave, 4th Floor West
North Haven, CT 06473

Judy Gott
Executive Director
South Central Regional Council of Governments
127 Washington Ave, 4th Floor West
North Haven, CT 06473

State Elected Officials

Representative Patricia M. Widlitz
House District 98
Legislative Office Building, Room 4034
Hartford, CT 06106-1591

Representative Deborah Heinrich
House District 101
Legislative Office Building, Room 5005
Hartford, CT 06106-1591

State Senator Edward Myer
Legislative Office Building
Room 1000
Hartford, CT 06106-1591

State Agencies Service List

Attorney General

Attorney General Richard Blumenthal
Office of the Attorney General
55 Elm Street
Hartford, CT 06106

Department of Environmental Protection

Commissioner Gina McCarthy
The Department of Environmental Protection
79 Elm Street,
Hartford, CT 06106-5127

Department of Public Health

J. Robert Galvin, M.D., M.P.H., Commissioner
410 Capitol Avenue
Hartford, CT 06134-0308

Council on Environmental Quality

Thomas F. Harrison Chairman
Connecticut Council on Environmental Quality
79 Elm Street
Hartford, CT 06106

Karl J. Wagener
Executive Director
Connecticut Council on Environmental Quality
79 Elm Street
Hartford, CT 06106

Department of Agriculture

F. Philip Prelli, Commissioner
Department of Agriculture
65 Capitol Avenue
Hartford, CT 06106

Department of Public Utility Control

Donald W. Downes, Chairman
Department of Public Utility Control
Ten Franklin Square,
New Britain, CT 06051

Office of Policy and Management

Robert L. Genuario, Secretary
Office of Policy and Management
450 Capitol Avenue
Hartford, CT 06106-1308

Department of Economic and Community Development

James F. Abromaitis, Commissioner
Department of Economic & Community Development
505 Hudson Street
Hartford, CT 06106

Department of Transportation

Ralph J. Carpenter, Commissioner
Department of Transportation
2800 Berlin Turnpike
Newington, CT 06131-7546

Federal Agencies

Federal Energy Regulatory Commission

Magalie Roman Salas
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Army Corps of Engineers

US Army Corps of Engineers
Attention: Joseph Bocchino, Executive Assistant
New England District
696 Virginia Road
Concord, MA 01742-2751

Others (Courtesy Copies)

Connecticut Energy Advisory Board

Connecticut Energy Advisory Board
c/o Gretchen Deans
CERC
805 Brook Street
Building 4
Rocky Hill, CT 06067

State Archeologist

David A. Poirier, Staff Archeologist
Historic Preservation and Museum Division
59 South Prospect Street
Hartford, CT 06106

Exhibit 1

Affidavit and
Public Notices

AFFIDAVIT OF PUBLICATION

New Haven Register

STATE OF CONNECTICUT

County of New Haven

I, Judith Sasla ski of New Haven

Connecticut, being duly sworn, do depose and say that I am a Classified Rep.

of the New Haven Register, and that on the following date 11/29, 12/1, 2006 to wit:

there was published in the regular daily edition of the said newspaper an advertisement,

and that the newspaper extracts hereto annexed were clipped from each of the above-named issues of said newspaper.

Subscribed and sworn to this 7th day of December 20 06 before me.

Mary Federico

My Commission Expires 10/31/07

Notary Public

LEGAL NOTICE

Notice of Application by The Connecticut Light and Power Company to the Connecticut Siting Council for Certificate of Environmental Compatibility and Public Need for the Stepstone 35L Substation in Guilford, Connecticut.

Pursuant to the provisions of §§16-50l(b) of the General Statutes of Connecticut, §§16-50l-1-(e) of the Regulations of the Connecticut Siting Council and the Application Guides for Electric Substation Facilities of the Connecticut Siting Council (adopted September 19, 2000), notice is hereby given that The Connecticut Light and Power Company (CL&P) will, on or about December 5, 2006, submit an application to the Connecticut Siting Council seeking a Certificate of Environmental Compatibility and Public Need for a new substation in Guilford, Connecticut. The property where the substation is proposed, consists of two adjoining lots, totaling 38 acres, located north of Stepstone Hill Road and east of Route 77.

The purpose of the new Stepstone 35L Substation is to provide needed increased distribution system capacity and reliability for the town of Guilford and its surrounding service area.

If the project is approved by the Connecticut Siting Council, construction is projected to begin in October 2008 with an in-service date of May 2009.

Exhibit 1

Affidavit of Notice
to Abutting Landowners

AFFIDAVIT OF ABUTTERS LEGAL NOTICE

State of Connecticut)
) ss: Waterbury, Connecticut
)
County of New Haven)

Pursuant to Section 16-50*l*(b) of the Connecticut General Statutes, I hereby certify that on or about November 28, 2006 and December 1, 2006 I caused notice of the intent of The Connecticut Light and Power Company to file an Application with the Connecticut Siting Council for a Certificate of Environmental Compatibility and Public Need for the proposed Stepstone Substation Project (Guilford, Connecticut) to be sent by certified or registered mail to each person who is appearing of record as the owner of property which abuts and/or is nearby the proposed site at Stepstone Hill Road, Guilford on which the facility would be located. A summary of the Application and the date on or about which it would be filed was included in said notice.

NAME: ROBERT S. GOLDEN JR.
TITLE: ATTORNEY

On this the 4th day of December, 2006, before me, the undersigned officer, personally appeared ROBERT S. GOLDEN, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same for the purposes therein contained.

In Witness Whereof, I hereunto set my hand and official seal.

Marianne B. Dubuque
Notary Public
My Commission Expires: 9/30/2010

Exhibit 1

List of Abutting and
Nearby Property Owners
of Land of CL&P

MBL	ADDRESS	OWNER	PROPERTY PURCHASED DATE	LAND USE	HOUSE DATE
091-046 & 046A	Stepstone Hill Road	Conn Light & Power (subject property)	9/19/1973	Vacant Land	0
091-045	943 Durham Road	Kimberly A Caldwell	2/15/1984	Residential	1954
091-045-A5	985 Durham Road	Timothy E & Jessica P Hansen	12/30/2004	Residential	1988
091-045-A4	987 Durham Road	Frederick W & Andrea C Herget	11/8/1989	Residential	1987
091-045-A3	989 Durham Road	James P & Christina R Leese	3/1/1999	Residential	1987
091-044	1073 Durham Road	Charles Monte Jr	5/8/1955	Residential	1952
091-037-16	155 Bunker Hill Road	Walter J Sauer Jr & Jill T OCallaghan	4/11/2006	Residential	1971
091-037	Bunker Hill Road	Town of Guilford	1/12/2004	Vacant Land	0
091-036-07	123 Meadow Ridge Lane	Michael I & Janet R Deangelo	6/1/2000	Residential	1990
091-036-06	91 Meadow Ridge Lane	Nicole E Nicoletti	11/20/2000	Residential	1987
091-036-05	77 Meadow Ridge Lane	Marc W & Krysten L Guarino	5/19/2006	Residential	1990
091-036-04	53 Meadow Ridge Lane	Robert M & Deborah A Pantera	2/13/1991	Residential	1989
091-036-03	41 Meadow Ridge Lane	Kyle R & Jane M Kramer	6/2/2000	Residential	1989
091-035-A02	898 Little Meadow Road	Dennis & Annette Amato	5/1/1998	Residential	1998
091-034	888 Little Meadow Road	Molly F Free	7/16/2003	Residential	1971
091-033	866 Little Meadow Road	Lawrence & Dana Torre	1/3/2001	Residential	1954
091-032	838 Little Meadow Road	Evelyn M Palermo	6/22/1979	Residential	1952
091-030-C3	70 Stepstone Hill Road	Donald & Rosemary Jewett	9/8/2006	Residential	1986
085-023-A	68 Stepstone Hill Road	Mark A Millett	6/15/1993	Residential	1963
085-034-01A	33 Steptone Hill Road	James D McCann & Maureen McCann-OReilly	8/30/2000	Residential	1998
085-034-01	51 Stepstone Hill Road	Douglas F & Susan B Danaher	12/31/1997	Residential	1961
085-034-01B	59 Stepstone Hill Road	David W & Mary C Vitola	6/16/1998	Residential	1998
085-033	75 Stepstone Hill Road	Douglas E Tichy & Eileen M McNamara	5/31/2002	Residential	1955
085-034-02	11 Stepstone Hill Road	Harlan G Case	6/8/1988	Residential	1973
085-022	10 Stepstone Hill Road	Russi T & Ava R Suntoke	12/12/1997	Residential	1950
085-021-04	828 Durham Road	Christopher & Judith A Tsou	4/2/2001	Residential	1977
085-021-03	840 Durham Road	Laurel K Griso & Dennis Sandacata	10/22/1985	Residential	1979
091-052-B	Durham Road	Town of Guilford	6/4/1974	Vacant Land	0
091-052-A	Durham Road	Town of Guilford	1/10/1973	Vacant Land	0
091-030-04	130 Stepstone Hill Road	Yongmei Jin & Zhang Xuechun	12/5/2005	Residential	2001
091-030-C4	72 Stepstone Hil Road	Robert A Solari	4/16/2001	Residential	1986
091-030-C5	74 Stepstone Hill Road	Jeffrey & Patricia Brand	5/5/2000	Residential	2002
091-036-01	920 Little Meadow Road	Sean W & Illana Lazarus	8/27/2004	Residential	1988
091-036-02	25 Meadow Ridge Lane	Keith B & Deborah G Bishop	8/7/1995	Residential	1991
091-036-08	135 Meadow Ridge Lane	Guy A & Lisa A Cattaruzza	1/27/1994	Residential	1993
091-035-A	900 Little Meadow Road	Frederjick P & Mary Lou Bonito	8/28/1968	Residential	1968
085-021-05	806 Durham Road	Kerry E Arsenault & Jeremy Turk	9/14/2005	Residential	1977
085-034-03	765 Durham Road	Alan K & Susan M Frishman	6/10/2003	Residential	1982
091-030-02	Stepstone Hill Road	Conn Light & Power	1/28/1977	Vacant Land	0
091-030-01	Stepstone Hill Road	Conn Light & Power	1/28/1977	Vacant Land	0
085-24-1	88 Stepstone Hill Road	Warren & Helen Gohsler	7/21/1988	Residential	1985
091-30	126 Stepstone Hill Road	Lidio & Alicia Afonso	4/3/1998	Residential	1964
085-24-2	100 Stepstone Hill Road	Ronald & Margaret Berube	5/13/1998	Residential	1999
085-25	112 Stepstone Hill Road	SNET	3/15/1951	Other	1970

Note: 150-foot CL&P rights-of-way acquired on 1/28/77

*shaded cells are not direct abutters to the Site.